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Grounding and the Existence of God

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Abstract: In this article, I seek to assess the extent to which Theism, the claim that there is a God, can provide a true fundamental explanation for the instantiation of the grounding relation that connects the various entities within the layered structure of reality. More precisely, I seek to utilise the explanatory framework of Richard Swinburne within a specific metaphysical context, a ground-theoretic context, which will enable me to develop a true fundamental explanation for the existence of grounding. And thus, given the truth of this type of explanation, we will have a further reason to believe in the existence of God.

Keywords: God, grounding, fundamentality, tropes, abduction

1 Introduction

According to Correia and Schnieder (2012, 1), some of philosophy's most important questions concern matters of *ontological priority*, which is a concept that a number of philosophers take to be a natural and intuitive notion that has a storied history dating back to the writings of Plato—specifically, the Euthyphro dilemma where he asks: 'Is what is holy, holy because the gods approve it, or do they approve it because it is holy?' (*Euthyphro*, 178; 10a). In contemporary thought, a plausible list of ontological priority claims that cut across the different areas of philosophy is as follows:

(1) (Ontological Priority)
- (i) (Mental): Mental facts obtain *because of* neurophysiological facts.
- (ii) (Chemistry): H_2O molecules are *grounded by* H, H and O atoms.
- (iii) (Ethics): Normative facts are *based on* natural facts.
- (iv) (Language): Meaning is *due to* non-semantic facts.
- (v) (Set-Theory): Singleton-Socrates exists *in virtue of* Socrates.
- (vi) (Aesthetics): What *makes* something beautiful are certain facts about the perception of its beholders.

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What is of concern in these claims for philosophers is not so much the truth-value of the claims, but rather what is shared between the examples—which is that of them jointly expressing some form of ontological priority that is related to 'determination', 'dependence' and/or 'explanation.' More specifically, there is a common structure in the paradigm examples above, in that each of them contains a connective that divides the sentences into an *antecedent* (i.e. what comes before the connective) and a *consequent* (i.e. what comes after the connective). In each of the examples above, the consequent provides some form of explanation for *why* the antecedent obtains—the antecedent clauses seem to be *explained* by the consequent clauses, which are both connected by expressions that enable the consequent clauses to provide a *reason for*, or an *account of*, the antecedent, based on the dependence or determination of the entities that are expressed by the consequents. In recent times—specifically in the field of contemporary metaphysics—a number of philosophers have focused on identifying the *nature* of this expression—with a large number of individuals coming to understand it in terms of a distinct metaphysical notion called *grounding*. In fact, this seems to be an understatement as the notion of grounding has indeed taken hold of contemporary metaphysical thought, with Clark and Liggins (2012, 812) stating that this notion has now been 'established as a major concern of metaphysics'.

More specifically, one area of concern that grounding has indeed featured widely is in the burgeoning sub-field of 'fundamentality' through it underwriting the thesis of *metaphysical foundationalism*—the view that conceives of reality as a layered structure of various levels of fundamentality—with grounding fulfilling the role of connecting the various entities within this hierarchical structure.[1] Grounding is thus taken within this framework to be an expression that provides a means for the nature and/or existence of an entity to be accounted for by reference to the nature and/or existence of another (ontologically prior) entity in whom the former is dependent upon or determined by. Given this important use of the notion of grounding (among other things), time and effort have been spent on further explicating the nature of this dependence and determination. Yet, an

1 From the outset, the notion of grounding will be assumed to be a relation that connects entities from different ontological categories—rather than that of a sentential operator that has facts within its purview, for a highly influential construal of the latter view, see (Fine 2012). Furthermore, the thesis of metaphysical foundationalism is to be contrasted with the thesis of *metaphysical infinitism*—the view that there are, or might be, infinitely descending chains of grounding—for a defense of metaphysical foundationalism, see (Bliss 2019) and for a further explanation and defense of metaphysical infinitism, see (Morganti 2014). However, the thesis of metaphysical foundationalism is sometimes mistakenly confused with the more controversial notion of the well-foundedness of grounding. For an explanation of the latter and the importance of distinguishing both notions, see Dixon (2016) and (Rabin and Rabern (2016).

important question that has only recently been focused on is that of the following: *in-virtue of what does the relation of grounding exist, obtain or is instantiated on particular occasions*?[2] Does the existence of grounding within our layered structure of reality have a further, more fundamental explanation, or not? In other words, does grounding itself need to be grounded? And if so, what entity(ies) can fulfil this role? In this article, I seek to assess the extent to which Theism—the claim that there is a God—can indeed provide a true fundamental explanation for the instantiation of the grounding relation within the layered structure of reality. More precisely, I assume the cogency of Richard Swinburne's explanatory framework and seek to utilise it within a specific metaphysical context, a ground-theoretic context, which will enable me to develop a true fundamental explanation for the instantiation of the relation of grounding on particular occasions within the layered structure of reality. And thus, given the truth of this type of explanation, we will have in front of us another *abductive* argument for the existence of God—specifically, an argument for God's existence based on the fact of him being the best (fundamental) explanation for the instantiation of the relation of grounding on any particular occasion that is picked out.[3] Hence, at the end of our exploratory journey, we will thus have one additional reason to believe in the existence of God.

Plan: in section two ('Explanatory Framework'), I detail the nature of Swinburne's explanatory framework and resituate it within a metaphysical context. In section three ('Explanatory Target'), I explain the specific explanatory target that is under focus—the instantiation of the relation of grounding—and the thesis of Primitivism, which argues for the position that our explanatory target does not have, or need, an explanation for its occurrence. In section four ('Explanatory Analysis'), I assess Theism, Primitivism and two other candidate

2 This issue is termed in the literature 'iterated grounding'. Certain individuals have forwarded interesting and important proposals that seek to address this issue, one of these proposals—that of Bennett's (2011, 2017)—will be further explicated below (with further alternative proposals being noted there as well).

3 An abductive argument is a type of argument for the truth of a conclusion that employs 'abductive reasoning'. Abductive reasoning is a form of reasoning that typically starts with a set of data and proceeds from this set to the 'best' explanation for it, in accord with certain explanatory criteria. Thus, the type of argument that will be formulated in this article is of this kind—though it will be stated at an informal level. For a further explanation of the nature of abductive reasoning, and a comparison of this type of reasoning with that of deductive and inductive reasoning, see Douven (2021). Furthermore, the argument that features in this article is to be read as an extension of a similar argument for the existence of God based on the existence of the non-fundamental entities that fill up the layered structure of reality, which featured in Sijuwade (2021c).

fundamental explanations of our explanatory target: Priority Monism and Priority Pluralism, in light of their fulfilment of the inductive criteria detailed in section one, with the final conclusion being that Theism is the only explanation that fulfils these criteria—it is the simplest explanation, fitting with our background knowledge, that leads us to expect the data, when otherwise it would not be expected. Theism is thus the best candidate to be a fundamental explanation of the instantiation of the relation of grounding within the layered structure of reality. Finally, there will be a concluding section ('Conclusion') that will summarise the position that has been argued for in this article.

2 Explanatory Framework

2.1 The Nature of Explanation

The provision of an explanation, as noted by Swinburne (2004, 23), is an ambiguous exercise—it may refer, on the one hand, to someone having provided a true explanation of a phenomenon, or, on the other hand, it may mean that the person has merely provided a possible explanation of it. Nonetheless, when one is indeed seeking an explanation of the occurrence of a given phenomenon, they are certainly interested in arriving at a true, rather than simply a possible explanation of it. Thus, understanding the nature of a true explanation, rather than solely that of a possible explanation, will be our main focus. A true explanation, within a general causal context, is provided for the occurrence of some phenomenon (i.e. an event) when one states a set of factors that include within it a 'cause' (i.e. an object and the set of conditions in which it was operative) and the 'reason' that the cause was operative in the manner that it was.[4] More fully, we can construe the nature of a true (general) explanation as follows:

(2) (General Explanation) An explanation is a true explanation of the occurrence of a given phenomenon when it invokes a *what* (i.e. a cause) that truly brought about the phenomenon and a *why* (i.e. a reason) that explains its efficaciousness.

Once these factors are in place—the *what* and *why*—we have a true explanation for the occurrence of a particular event. More specifically, a true general explanation provides the correct answer to questions concerning what caused a particular event to occur and why that event occurred in the manner that it did. In

4 The word 'general' is only used here and below to distinguish this type of explanation from that of a metaphysical explanation.

addition to this, a general explanation is also focused on providing a *diachronic* explanation for the occurrence of a particular event by the invoking of a cause and a reason that was operative over a certain period of time. Moreover, within this particular explanatory framework, there are *two kinds* of explanation: *inanimate* explanation and *personal* explanation. An inanimate explanation is an explanation that invokes, first, an initial state of affairs—which will include an operating cause—and second, some laws of nature—which are universal generalisations of the form 'all A's are so-and-so' or 'all A's do so-and-so'—in order to explain the occurrence of a particular event (Swinburne 2004, 26). More specifically, an inanimate explanation is distinctive in its inclusion of *inanimate causation*—and thus the *what* is the initial conditions that include the cause, and the *why* is the law of nature that was operative at the specific time in which the particular event occurred. Thus, for example, the occurrence of an explosion is explained by the ignition of a particular volume of gunpowder under certain conditions—which is the what—in combination with a generalisation that under such conditions ignited gunpowder explodes—which is the why (Swinburne 2004, 26). Personal explanation, on the other hand, involves persons, their beliefs and purposes. More precisely, a personal explanation is distinctive in its inclusion of *intentional causation*—and so the *what* is the person, and the *why* are the beliefs, powers and purposes of that person. So, for example, the occurrence of a hand wave is explained by a person—which is the what—in combination with their power to wave their hand, their belief that waving their hand will catch the attention of someone, and their purpose of catching the attention of a certain individual—each of which constitute the why.

Taken together, we thus have two kinds of explanation for the occurrence of a particular event—inanimate and personal explanation—which can then be understood to come in at least three different *forms*: *partial* explanation, *full* explanation and *complete* explanation. First, a partial explanation is a form of explanation that includes factors—a cause and a reason—that only *contributed* to the bringing about the occurrence of the phenomena under question—the factors made it physically probable that they would occur, yet these particular factors did not necessitate the occurrence of the phenomena. For example, for an inanimate explanation, an individual contracting Huntington Disease is partially explained by their parent having had the disease. And, for a personal explanation, an individual having died from lung cancer is partially explained by them having smoked throughout their life. Within both kinds of explanation, the occurrence of the latter events only makes it probable but does not necessitate the occurrence of the former events. Second, a full explanation is a form of explanation that includes a set of factors—a cause and a reason—that were together *sufficient* for the occurrence of the phenomena—these set of factors are a 'full cause' of the

phenomena and thus deductively entail, and really explain, its occurrence. For example, for an inanimate explanation, the occurrence of a high tide is fully explained by the sun, moon, earth, water, etc., being in certain positions and by the operation of Newton's laws (Swinburne 2004, 78). And, for a personal explanation, a fridge door being left open is fully explained by an individual having opened it in order to get some food. Within both kinds of explanation, the occurrence of the former events is deductively entailed, and really explained by the occurrence of the latter events. Third, a complete explanation is a special form of full explanation that goes beyond this form by including within it a set of factors—a cause and a reason—of which there is *no explanation* (either full or partial) of their existence or operation in terms of contemporaneous factors that exist and are operative at the time of their existence or operation.[5] In other words, the *what* and *why*—that is, the cause and the operative reason—do not have any further explanation for their existence or operation on the basis of contemporaneous factors—they serve as the terminus in explanation for a given phenomenon at a specific time. For example, for an inanimate explanation, the occurrence of a high tide is completely explained by the specific region of the universe being relatively empty of matter and the operation of Albert Einstein's laws of General Relativity (Swinburne 2004, 78). And, for a personal explanation, an individual having formed the intention to get some food from the fridge is completely explained by their further intention to eat regular meals in order to survive. Within both kinds of explanation, the occurrence of the former event (or state) is deductively entailed, and really explained, by the occurrence of the latter event (or state), and of which there is no further explanation in the form of contemporaneous factors for the occurrence of the latter events (or states)—these factors are the terminus in explanation for that specific phenomenon at a given time.

Now, this explanatory framework—that includes the different kinds and forms of a true explanation—can now also be extended into the metaphysical realm. However, in doing this, we also realise that with a true, general explanation, the provision of a *metaphysical explanation* is an ambiguous exercise as well. Yet, despite this ambiguity, minimal understanding of a *true* metaphysical explanation, as noted by individuals such as Maurin (2019, 1574), is that of it invoking entities and a principle—namely, an explanatory backing connection such as the relation of grounding—which accounts for the nature and/or existence

5 At a more specific level, this form explanation is a synchronic—rather than diachronic—form of explanation (Swinburne 2004, n3). brings this out. However, as the causes invoked by this form of explanation are *not* simultaneous with their effects, I will continue to class this form as a diachronic form of explanation.

of one entity with reference to another entity, that the former non-causally and synchronically depends upon. More precisely, we can construe the nature of a true metaphysical explanation as follows:

(3) (Metaphysical Explanation) An explanation is a true metaphysical explanation of the nature and/or existence of a given entity when it invokes a *what* (i.e. a ground) that the entity non-causally and synchronically depends upon and a *why* (i.e. a principle) that explains the reason for the dependence of the former entity on the latter entity.

Once *these* factors are in place—the *what* and *why*—we have a true metaphysical explanation for the nature and/or existence of a given entity at a specific time. More specifically, a true metaphysical explanation provides the correct answer to questions of what determines or makes one entity exist and be what it is. Moreover, a metaphysical explanation, unlike a general explanation, is focused on providing a *synchronic* explanation for the constitutive generation of a dependent outcome at a specific point in time. And this is done by invoking an entity and a principle or, more specifically, following Jonathan Schaffer (2017, 305), a 'law of metaphysics'—which is simply that of a counterfactual-supporting general principle stating *what grounds what*.[6] Now, as with a general explanation, there are at least two possible kinds of metaphysical explanation: *inanimate* metaphysical explanation and *personal* metaphysical explanation. An inanimate metaphysical explanation is one that invokes an entity and a law of metaphysics in order to explain the nature and/or existence of another entity—the *what* is the former entity and the *why* is the holding of the law between it and the latter entity. Whilst, a personal metaphysical explanation is one that invokes an entity, the beliefs, powers and purposes of that entity *and* a law of metaphysics in order to explain the nature and/or existence of another entity—the *what* is the former entity and the *why* are the beliefs, powers and purposes of that entity *and* the holding of the law between it and the latter entity. In the metaphysical domain, and unlike in the general explanatory domain detailed above, inanimate and personal metaphysical explanations converge—that is, laws of metaphysics are present in both—where the only difference between these two different kinds of explanation is that a personal metaphysical explanation, and not an inanimate metaphysical explanation, includes the beliefs, powers and purposes of an entity as an explanatory factor for the constitutive generation of a dependent outcome.

6 Schaffer (2017, 302) does not identify the laws of metaphysics solely with that of the relation of grounding, primarily due to the fact that he was seeking to propose a minimal understanding of these laws that could be widely accepted. Nevertheless, Schaffer (2017, 302) does indeed personally conceive of these laws through the lens of grounding, and thus we will follow suit with this specific conception of them as well.

As with the general explanatory case, a metaphysical explanation of both kinds can come in three different forms. It can, first, be a partial metaphysical explanation, which is a form of metaphysical explanation that includes factors—an entity and a law of metaphysics—that another entity is only *partially* (non-causally and synchronically) dependent upon. For example, for an inanimate metaphysical explanation, the existence of an H_2O molecule is partially explained by the existence of an *h* atom. And, for a personal metaphysical explanation, the existence of a musical harmony at a certain time is partially explained by the existence of one individual who is singing a note at that specific time. Within both kinds of explanation, the existence of the latter entities does not necessitate the existence of the former entities. Second, a full metaphysical explanation is a form of a metaphysical explanation that includes factors—an entity and a law of metaphysics—that another entity is *fully* (non-causally and synchronically) dependent upon—the entity (or entities) that constitutes a part of the explanatory set of factors is (or are) a 'full ground' of the other entity and thus deductively entail, and really explain, its existence. For example, for an inanimate metaphysical explanation, the existence of an H_2O molecule is fully metaphysically explained by the existence and arrangement of two *h* atoms and an *O* atom. And, for a personal metaphysical explanation, the existence of a musical harmony at a certain time is fully metaphysical explained by the existence of two individuals who are singing a note at that specific time. Within both kinds of explanation, the existence (and arrangement) of the latter entities deductively entails, and really explains, the existence of the former entities. Third, a complete metaphysical explanation is a special form of metaphysical explanation that includes factors—an entity and a law of metaphysics—that another entity is fully (non-causally and synchronically) dependent upon, and which their existence is *not* (non-causally and synchronically) *dependent* upon another contemporaneously existing entity. In other words, the *what* and *why*—that is, the existence of the latter entity (and/or law)—is the *fundamental* reason for the former entity existing. So, given the importance of the notion of fundamentality for this form of explanation, we can now re-term a complete metaphysical explanation as a *fundamental* explanation. Thus, for example, and to pre-empt the main discussion of this article, for an inanimate fundamental explanation, it *could* be the case that the instantiation of the relation of grounding is fundamentally explained by the existence of the Cosmos (or a collection of mereological atoms). Or, for a personal fundamental explanation, it *could* be the case that the relation of grounding is fundamentally explained by the existence of God. Within both kinds of explanation, the existence of the latter entities deductively entails, and really explains, the instantiation (or existence) of the former entity, and of which there is no further explanation, in the form of contemporaneous, or, *more fundamental* factors,

for the former entity being instantiated on that particular occasion. Taking all of this into account, these are the different kinds and forms of explanation that are available within a non-metaphysical and metaphysical context. The important question to be faced now then is: what are the justificatory grounds for one believing that they have acquired a true, complete explanation for the occurrence of a given phenomenon or a fundamental explanation for the existence and/or instantiation of a given entity?

2.2 Justification of Explanation

The justificatory grounds on which an explanation is judged to be a correct terminus in explanation—that is, how probable it is that this explanation is a complete or fundamental explanation of a particular event or entity—centres on the extent to which it fulfils the following inductive criteria:[7]

(4) (Inductive Criteria)
  (i) The Criterion of Predictive Power
  (ii) The Criterion of Background Knowledge
  (iii) The Criterion of Scope
  (iv) The Criterion of Simplicity

For (i): the Criterion of Predictive Power, this criterion assesses whether the postulated explanation predicts the occurrence of the event, or the existence of the entity, when otherwise this event or entity would not be expected to have occurred or to have existed. Importantly, however, as Swinburne (2004, 70) notes, the ability for an explanation (of a general and metaphysical kind) to predict the data does not imply that this explanation has to do this in a *literal* sense (i.e. that the event or entities that constitute the data will be observed to have occurred or to exist in the future). Rather, an explanation is only required to provide a *sufficient explanation* for the data, whether or not this data was obtained in the past. For (ii): the Criterion of Background Knowledge, this criterion assesses whether the postulated explanation meshes with other explanations that are rendered probable by this inductive criteria. That is, an explanation fits with background knowledge if the causes or entities invoked by the explanation are similar to those causes or entities that are taken to exist within other neighbouring fields.[8]

7 Knowledge concerning the truth of this inductive criteria, according to Swinburne (2001, 122), is obtainable *a priori*. Furthermore, these criteria are taken to be at the heart of scientific and historical practice—that is, scientists and historians, according to Swinburne (2001, 74), regularly employ these inductive criteria in their investigations.

8 Swinburne (2004, 60; 2010, 26) sees the Criterion of Background Knowledge as being limited in its usage, in that it is only applicable to explanations that have a narrow scope as, according to Swinburne, the amount of evidence that resides within the background knowledge, with which

For (iii): the Criterion of Scope, this criterion assesses how much the postulated explanation seeks to explain. Generally, an explanation that seeks to explain more data is less probably true than one that is more restricted in its explanatory range. However, as Swinburne (2004, 56) sees it, this criterion is not to be given very much weight, since the specific restrictions of the scope of an explanation are often arbitrary and complicated, and thus explanations that have a narrower scope are—although more probably true—typically less simple than explanations of a much wider scope. Thus, given the importance of the Criterion of Simplicity, which is to be seen now, the Criterion of Scope is generally less important for determining the probable truth of an explanation. For (iv): the Criterion of Simplicity, this criterion assesses whether the postulated hypothesis is *quantitatively* and *qualitatively* simple. The quantitative and qualitative simplicity of an explanation is that of it postulating the fewest entities,[9] fewest properties of entities, fewest kinds of entities, fewest kinds of properties, properties that are more readily observable, the fewest separate laws with the fewest terms relating the fewest variables, and the simplest formulation of each law being mathematically simple (Swinburne 2004, 53). In following Schaffer (2015, 647),[10] however, one will need to modify this criterion within a metaphysical context by focusing the quantitative and qualitative simplicity of an explanation on that of *fundamental* entities, principles or laws, rather than all types of entities, principles or laws. A probably true fundamental explanation is thus one that is quantitatively and qualitatively simple. The quantitative and qualitative simplicity of a fundamental explanation is thus that of it postulating the fewest fundamental entities, fewest properties of fundamental entities, fewest kinds of fundamental entities, fewest

a given explanation will need to fit will decrease the range of its scope. Thus, in Swinburne's thought, there will not be any background knowledge that an explanation of enormous scope will need to fit with. In response to this, Philipse (2012, 210–212) has argued that Swinburne's reasoning in support of one eliminating the Criterion of Background Knowledge is fallacious—it is subject to the 'fallacy of division'—and thus must be abandoned. Adjudicating this debate will take us too far afield, and thus going forward, we will simply continue to maintain this specific inductive criterion for our analysis of the candidate fundamental explanations.

9 Importantly for our later assessment of the candidate fundamental explanations, an entity is taken here to simply be a 'possibly existing thing', and thus this criterion (and the modification of it below) would apply to objects *and* relations.

10 Schaffer (2015), in a similar manner to Swinburne, also sees the importance of the Criterion of Simplicity (or 'Occam's Razor') for metaphysical theorising. However, Schaffer believes that one must also include a specific restriction to the range of the Razor, which is that of it only being applicable to fundamental entities relations and/or properties—Schaffer terms this additional restriction the 'Laser'. Interestingly, however, Schaffer's Laser does not distinguish between quantitative and qualitative simplicity. Nevertheless, there is nothing inherent within the Laser that should stop one from making this distinction.

kinds of fundamental properties, fundamental properties that are more readily observable, the fewest separate metaphysical laws with the fewest terms relating the fewest variables and the simplest formulation of each metaphysical law being mathematically simple. Nevertheless, for both explanations—general and metaphysical—if an explanation posits the existence of some new particular object or properties, it is required by the Criterion of Simplicity that it should postulate as few as possible, and it should postulate no more than those that are needed to explain the observational data.

These are the inductive criteria that provide justificatory grounds for holding to the probable truth of a particular explanation. Within both kinds of explanation, we seek the simplest explanation, fitting with our background knowledge, which leads us to expect the phenomena or entities that do in fact occur or exist, when otherwise this would not be expected. And the fulfilment of these criteria is the grounds for one determining the stopping point for a purported complete or fundamental explanation. Focusing our attention from here on fundamental explanations, a full metaphysical explanation of the existence of a collection of entities is a fundamental explanation, if we believe that the existence (or instantiation) of the entities under question could only be explained further by postulating further full grounds acting contemporaneously with the entities, which *do not* have any more simplicity, greater fit with background knowledge and predictive power than the full grounds (and laws) featured in the former explanation—these full grounds would serve as the terminus of explanation. One would thus be justified in taking a certain candidate explanation to be a fundamental explanation if one had reason to believe that any particular gain in the fulfilment of one of the inductive factors (i.e. simplicity, fit with background knowledge or predictive power) would be outweighed by a corresponding loss of another. Thus, for example, any attempt to provide an alternative explanation of the existence of a given entity would result in one postulating a more complex explanation—and thus, it fails to fulfil Criterion (iv)—with only a potentially marginal gain in predictive power (or fit with background knowledge). One is thus to move *beyond* the data, and the currently existing explanations of it, only if there is a possibility of a greater fulfilment of the inductive criteria, and that will be so if there is a potential explanation that is simpler and/or explains the data better, whilst still fitting with background knowledge. Thus, in regards to Theism, and whether it can serve as a fundamental explanation of a certain set of metaphysical data, one will need to establish whether Theism, relative to the data, sufficiently meets the inductive criteria. And if it does, given the nature that God is taken to have, he must serve as a fundamental explanation of this data. In short, once we establish that Theism is probably true—that is, it is the simplest explanation, fitting with our background knowledge, that led us to expect the data, when otherwise it would not be

expected—then one has reached a terminus in explanation. So, the question that is now presented to us is: what is the nature of the particular phenomenon that we are seeking a fundamental explanation of? In other words, what is our explanatory target? And how do Theism and any other potential explanation seek to explain it?

3 Explanatory Target

3.1 The Nature of Grounding

It is an evident fact of reality that a variety of different things exist, ordered from the very large things (e.g. planets, stars and galaxies) passing through the more medium-sized things (e.g. flamingos, humans and buildings) to the very small things (e.g. quarks, protons and neutrons). Some of these types of things are taken to be dependent entities that are, in some sense, less important than some other things within this structure. Flamingos, for example, appear to depend upon the existence of planets and stars—and all would agree, though flamingos are important as a species—without our planet and star existing in the here and now, flamingos will also not exist in the here and now, and not vice versa. Nonetheless, it is quite clear to most metaphysicians that the variety of content that makes up our reality is arranged into layers, or a hierarchy of levels: galaxies reside at the 'top-level' and thus are at a higher level than flamingos, that reside at the 'middle-level', which are themselves, in turn, at a higher level than quarks, that reside at the 'bottom-level' of this structure. Reality is thus multi-layered with an increasing level of importance as you descend down its levels, or, as we will see below, as you ascend higher up its levels. So, given this layered view of reality, an important question that needs to be answered is: what makes a certain phenomenon higher (or lower) and thus less important (or more important) than another? A plausible answer to this question is that of each of the phenomena being connected and ordered by a relation of dependence and determination, which provides a basis for this hierarchical structure. Thus, focusing now on the scientific classificatory scheme: some phenomenon of economics: goods and services, is dependent upon, and determined by, some phenomenon of psychology: the mind, which is dependent upon, and determined by, some phenomenon of biology: the brain, which is dependent upon, and determined by, some phenomenon of chemistry: matter or chemical states, which is dependent upon, and determined by, some phenomenon of physics: quarks. This structure can be illustrated through Figure 1 as follows (with 'Determined' standing for 'determined by' and 'Dependent' standing for 'dependent on'):

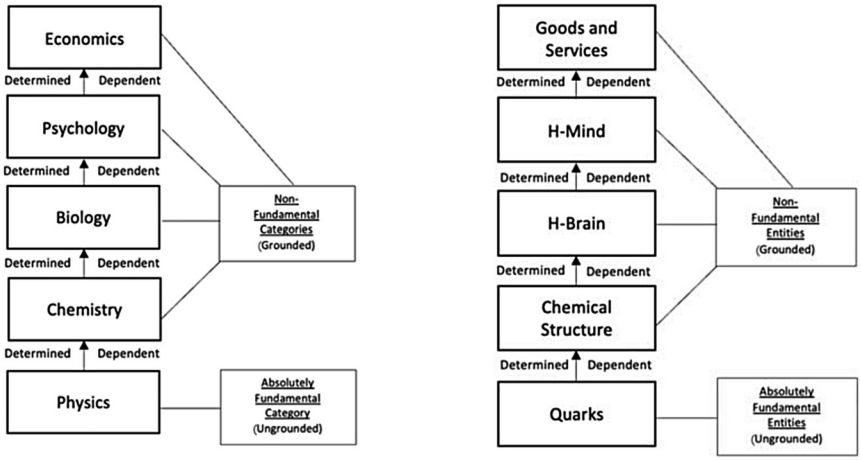

Figure 1: Layered structure of reality (i).

Given this hierarchical scheme, some metaphysicians take the categories residing within the lower levels of this structure (e.g. physics) to be *more fundamental* than those residing within the higher levels (e.g. biology and economics), with an explanation for the existence (and/or instantiation) of the entities within the higher levels ultimately *terminating* in the existence of an *absolutely fundamental* entity (or entities) within the lower levels. Following Bennett (2011, 27) and Schaffer (2009a), we can take the term 'fundamental' that is at the heart of this structure to be synonymous with the term 'ungrounded'—such that if *x* grounds *y*, then *x* is *more fundamental than y* (though not vice versa), and if *x* is ungrounded, then *x is absolutely fundamental*—which is thus that of this type of entity being one that has nothing in virtue of which it exists, obtains, or occurs.[11] Now, with this distinction in hand, we can see that the key aspect of this structure is that of the relation that connects and orders these entities—namely, the relation of grounding. Thus, we can take the following phenomenon as our explanatory target:[12]

11 For a more detailed unpacking of the notions of absolute fundamentality and relative fundamentality (i.e. the relation of 'more fundamental than'), see Bennett (2017, 102–136; 137–186).

12 Though this might simply be a trivial semantic issue—instead of a substantial metaphysical one—following the lead of Bennett (2017) in using the notion of instantiation rather than that of existence, this explanatory target can also be affirmed by nominalists who deny the existence of properties and relations. For a further explanation of this, see Bennett (2017, 187–189).

(5) (Explanatory Target) There is a relation of grounding that is instantiated on particular occasions within the layered structure of reality.

This explanatory target captures certain phenomena that play a key role in the layered structure of reality; however, these specific phenomena are *not* the particular objects that occupy the levels of the layered structure of reality, but the particular grounding relation that connects and orders these objects. As previously stated, grounding is regularly characterised as a primitive expression of dependence, determination or explanation. This expression has been championed by 'grounders' (i.e. grounding theorists) such as Fine (2012), Schaffer (2009a and 2016), and Rosen (2010), amongst others,[13] and can be precisely construed as follows:[14]

(6) (Grounding)
  (i) Directed and Necessitating: A primitive directed-dependency relation that necessarily links the more fundamental entities to the less fundamental entities.
  (ii) Explanatory and Generative: Ultimately backs synchronic metaphysical explanations for the nature and/or existence of the less fundamental entities with reference to the more fundamental entities that generate them.
  (iii) Causal: Identified as a species of causation—metaphysical causation—that is mediated by (law-like) principles of grounding and aptly modelled by Structural Equation Models.

As previously noted, what is of concern in the priority claims that are featured in (1) above, is not so much that of weighing the truth value of these claims, but rather that of one understanding the nature of the relation of priority and fundamentality that is expressed by them. Hence, in explicating the particular character of the relation of grounding, grounders usually focus on detailing the specific formal principles, modal pattern, explanatory and generative roles, and the analogous relationship to other relations which grounding has, which all help to further demystify it. So, in following this demystification procedure, we can see that the consensus for grounders is that grounding, in its standard 'full' variety:[15]

(7) (Full Ground) A given x is the ground of y if x on its own is sufficient to ground y.
is, firstly, governed by the following three formal principles:[16]

13 For a historical explanation of these individuals' roles in developing the notion of ground, see Raven (2020).

14 The following construal of grounding, as will be further detailed below, is that of Schaffer's, rather than that of the other grounding theorists.

15 For a further detailing of this variety of ground, and the other varieties of ground such as the partial, immediate, mediate, weak and strict varieties, see Fine (2012, 51–53).

16 However, all of these formal principles are indeed controversial. Thus, firstly, for issues with asymmetry, see (Rodriguez-Pereyra 2015). Secondly, for issues with irreflexivity, see Jenkins (2011). Thirdly, for issues with transitivity, see Schaffer (2012).

(8) (Irreflexivity) No *x* is grounded in itself.
(9) (Asymmetry) If *x* grounds *y*, then *y* does not ground *x*.
(10) (Transitivity) If *x* grounds *y*, and *y* grounds *z*, then *x* grounds *z*.

And, secondly, grounding is also generally taken to be governed by the following principles that express a modal pattern:[17]

(11) (Non-monotonicity) If *x* grounds *y*, it does not follow that *y* is grounded by *x* and any other fact (or entity) *r*.
(12) (Hyperintensionality) If *x* grounds *y*, it does not follow that *x* grounds any fact (or entity) that is intensionally equivalent to *y*.
(13) (Necessitarianism) If *x* grounds *y*, then *x* necessitates *y*.

Thus, given the formal principles, grounding induces a strict partial order over the entities that are in its domain (Trogdon 2013).[18] That is, grounding gives rise to a hierarchy of grounds, in which the grounds of a fact (or entity), as Johannes Korbmacher notes, "rank 'strictly below' the fact (or entity) itself" (Korbmacher 2018, 161, parenthesis added). And, given the principles that express a modal pattern, grounding entails a necessary dependence of the grounded on the grounds, in that the existence of the latter entails the existence of the former. In short, grounders guarantee what they ground (Trogdon 2013). However, they perform this necessitating action in a 'fine-grained', rather than a 'coarse-grained' manner, in that they do not necessarily ground other superfluous entities as well. Thus, grounding, in its most basic construal, is an expression that conveys some form of *directedness* and *necessitation*. However, to aid us in our precisification task, it will be helpful to now narrow our focus to unpacking a specific ground-theoretic framework that has played an influential role within the contemporary literature, that of Jonathan Schaffer's grounding theory. Within this theory proposed by Schaffer, grounding is best modelled as a *primitive 'directed-dependency' relation* associated with the notion of ontological priority. This directed-dependency relation takes in terms from any arbitrary ontological category and links a *more fundamental input* to a *less fundamental output* (Schaffer 2016). Hence, according to Schaffer (2009a), there is an ontological ordering within reality, in that some entities are derivative of other, more fundamental entities. The fundamental entities of reality ontologically undergird the derivative entities, and grounding is the relation that connects the undergirding entity to entities that are at a higher level in the structure of

17 Firstly, for an explanation of the non-monotonicity of ground, see Audi (2012). Secondly, for an explanation of the hyperintensionality of ground, see Jenkins (2011). Thirdly, for an extended explanation of necessitarianism, see Trogdon (2013). And for issues with it, see Leuenberger (2013). For a defense of it, see Cameron (2008).

18 For arguments against ground being a 'strict' order, see (Rodriguez-Pereyra 2015). For a defense of ground as a 'strict' order, see Raven (2015).

reality. Thus, within this perspective, there is a hierarchical view of reality that is ordered by priority in nature. Once one distinguishes more from less fundamental entities, it is natural to posit a relation linking certain more fundamental entities to certain less fundamental entities which derive their existence from them (Schaffer 2016, 145). Grounding is thus the name of this direct 'linkage' which is governed by the above formal and modal principles, connects the more to the less fundamental entities and thereby imposes a *hierarchical structure* over what there is (Schaffer 2009a). Now, closely related to ground's ability to structure reality are two further roles that it serves: its explanatory and generative roles, which are captured by the following principles:

(14) (Separatism) If *x* grounds *y*, *x* backs an explanation for *y*.

(15) (Super-Internality) If *x* grounds *y*, then *y* exists and has its intrinsic nature *in-virtue of x* and *Rxy* obtains *in-virtue of x*.

First, for the explanatory principle of 'separatism',[19] explanation tracks grounding, and grounding, in some sense, backs explanation. Grounding entails the explicability of the grounded on the basis of its grounds and thus serves the role of providing a *synchronic metaphysical explanation* for the nature and/or existence of a *less fundamental* entity on the basis of the nature and/or existence of another, *more fundamental* entity (Schaffer 2016). Thus, the *grounds provide an explanation for the grounded*—grounding is thus a relation that is intimately tied to *explanation*. Secondly, for the generative principle of 'super-internality', grounding is super-internal in the sense that the existence and intrinsic nature of one of the *relatum* ensure, firstly, that the grounding relation obtains and, secondly, that the other *relatum* (or *relata*) exists with the intrinsic nature that it has (Schaffer 2016).[20] Thus, as there is a *generation of the grounded from the grounds*, once there is a fixing of the intrinsic nature of the grounds, there is also a fixing of the intrinsic nature of what is grounded *and* the instantiation of the relation of grounding that connects the grounded to their grounds. This emphasises the fact that the existence of the grounds is sufficient to account for the grounded—grounding is thus a relation that is *generative* by nature.

19 Another view within the literature is that of 'unionism' which identifies ground with explanation. For a statement of this view, see Raven (2015, 326) and Maurin (2019, 1578).

20 That grounding is super-internal was first posited by Bennett (2011, 32–33)—more on this important principle below. Furthermore, grounding's super-internality is not to be confused with the internality of other relations. As the former type of internality, and not the latter, requires that only one of the *relatum* exists in order for the relation to hold between the *relata* (nonetheless, as grounding is super-internal, it is also internal in this sense as well).

Consequently, given the fulfilment of these explanatory and generative roles, grounding thus provides the direction and linkage needed for metaphysical explanation and generation in a manner that is *similar* to the way in which causation provides the direction and linkage needed for causal explanation and generation. More specifically, we can say that as the relation of causation links the world across time (i.e. causes are diachronically linked to their 'generated' effects),[21] the relation of grounding links the world across levels (i.e. grounds are synchronically linked to the 'generated' (grounded) effects) (Schaffer 2016). Thus, as a directed-dependency relation, grounding has many important features in common with causation, which leads one to infer that the best explanation of this striking similarity is that of grounding being a type of causation: *metaphysical causation* (i.e. grounding is *identical* to metaphysical causation). That is, following Wilson (2018),[22] we can take the grounding relation to be a special case of the causal relation where, as Wilson (2018, 724) notes, 'whenever A grounds B, A is a (metaphysical) cause of B and B is a (metaphysical) effect of A'. Metaphysical causation and *nomological* causation, are thus different species of the same genus: causation, such that, for the former, once one (again) distinguishes the more from the less fundamental, it is quite natural to posit an explanatorily-backing, generative relation of metaphysical causation, which leads us to the following final principle:

(16) (Causation) If *x* grounds *y*, then *x* causes *y* such that *y* is a generated 'effect' of *x*, as mediated by the principles of grounding and aptly modelled by Structural Equation Modelling.

The *systematic analogy* between grounding (i.e. metaphysical causation) and causation (i.e. nomological causation) centres on the manner in which the *causal sufficiency relation* is mediated within a causal and grounding context. More precisely, if laws of nature mediate a given instance of the causal sufficiency relation, then it is a case of nomological causation—for example, the throwing of a stone is a sufficient *nomological* cause of the breaking of a window, as this

21 This view of causation assumes an intimate link between causation and laws of nature. For an alternative view that posits the possibility of scientific explanation/causation being expressed without laws of nature, see Swinburne (2004, 34).

22 In following Wilson in taking grounding to be identical to causation (i.e. it is metaphysical causation), we part ways with Schaffer (2016), who takes grounding to be analogous to, but distinct from, causation. However, for the argument of this paper, nothing hinges on which side of this intra-grounding debate that one takes—as the argument can be re-stated, without substantial change, if grounding is taken to be analogous to causation rather than it being a type of causation. Nevertheless, for the reasons why Schaffer does not make this identification between grounding and causation, see Schaffer (2016, 94–96). And for a summary of reasons why someone should make this identification, see Wilson (2018, 748).

causal relation is mediated by laws of nature. Whereas if the (law-like) *principles of grounding* fulfil the role of mediating a given instance of the causal sufficiency relation, then it is a case of metaphysical causation—for example, the existence of Socrates is a sufficient *metaphysical* cause of the existence of Singleton-Socrates, as this causal relation is mediated by the (law-like) principles of grounding.[23] Grounding (i.e. metaphysical causation) and nomological causation are thus simply *different ways* for the causal relation to be mediated and thus obtain (Wilson 2018).

Now, this species similarity between grounding and causation can be further elucidated through the use of the prominent formal framework of Structural Equation Models, which were developed within a causal context by individuals such as Judea Pearl (2009) and James Woodward (2003).[24] The primary advantage of Structural Equation Models, according to Schaffer (2016, 60), is that of them providing the most precise method for detailing directed-dependency relationships between entities. Hence, in a directed-dependency relationship, we have the *sources* (i.e. causes, grounds) *via* a *link* (i.e. causal law, grounding principle) generating a *result* (i.e. effect, derivative) which can be aptly modelled by the input-function-output structure of Structural Equation Modelling (Schaffer 2021, 176). Thus, taking (Set-Theory) as a grounding test case, in the first stage, a Structural Equation Model starts with a representation of the system under study, which is then divided into sets of independent and dependent variables. The independent and dependent variables (in this case, Socrates and Singleton) are then mapped to a specific range of allotted values as such:

Variables: <Independents = {(Socrates)}, Dependents = {(Singleton)}, Range = {(Singleton) → {0,1}, (Socrates) → {0,1}}.

In the second stage, one then implements the functions given the 'dynamics' of the system, where, according to (Schaffer 2021, 177), there is a linking of the dependent variables by the function that maps the values of the input variables to their output value (where '<=' is to be read as 'is the output of' (i.e. 'Singleton is the output of the set-formation function on Socrates'):

Functions: {(Singleton) <= set-formation(Socrates)}.

23 Wilson (2018, 1–2) is more instructive than Schaffer (2016) in highlighting the importance of the different ways that the directed-dependency relation is mediated. Furthermore, Schaffer (2016, 57) uses the terms 'laws of metaphysics' rather than 'principles of grounding' (or 'grounding principles') which feature in a later article (Schaffer 2021). As previously mentioned, we can thus take both of these terms to be synonymous and continue using the latter.

24 Though more limited than Structural Equation Models, directed graphs are also helpful in modelling directed-dependency relations. For an explanation of this, see Schaffer (2016, 63).

Finally, in the last stage, one simply needs to evaluate the 'fundamentality conditions',[25] by assigning values to the independent variables according to what actually happened in reality:

Assignment: {(Socrates) = 1}.

By {(Socrates) = 1} being the case in reality, one can derive the result of {(Singleton) = 1} for the respective model. Utilising a Structural Equation Model in this way enables one to ascertain a viable synchronic metaphysical explanation for *why* Singleton Socrates exists, from the existence of Socrates, *via* the dependence function that captures the grounding principles (or, more specifically, the set-formation principle).[26] That is, given that Socrates exists (Socrates = 1) and the principles of grounding (set-formation) are at work, it is no coincidence that the Singleton-Socrates exists as well (Singleton = 1). Singleton-Socrates is the output of this principle on the input of Singleton ((Singleton) <= set-formation(Socrates)), leading to an explanation for Singleton Socrates' existence (Schaffer 2021). Thus, a Structural Equation Model expresses how grounding, as a metaphysical causation relation, provides the directed connection needed for explanation and induces a hierarchical structural relationship that stems from a *more fundamental source* (e.g. Socrates's existence) *via* a *link* (e.g. the set-formation principle) to a generated, *less fundamental result* (Singleton-Socrates' existence). Therefore, in a grounding relationship, the more fundamental input generates and provides an explanation for the less fundamental output *analogous*ly to how a (nomological) cause generates an effect and provides an explanation for its occurrence—grounding is thus a *metaphysical causation relation*.[27]

Taking all of these things into account, grounding is, therefore, to be conceived of as a directed, necessitating, generative and explanatory metaphysical causation relation. However, it is important to note now that an assumption has been made concerning the unitary nature of grounding—that is, grounding has been assumed here to be a notion that captures a single, generic relation. Whereas in recent thought, there has been divided opinion concerning whether grounding is indeed a single, generic relation or if it is a variety of different relations—in other

25 In a causal model, these conditions would be the initial conditions, rather than the fundamentality conditions that are featured in a grounding model.

26 The set-formation principle would be a specific application of the grounding principles within a set-theoretic context.

27 For brevity's sake, I will now no longer refer to grounding as metaphysical causation and simply assume that grounding within this framework is to be identified as a (metaphysical) causal relation.

words, there is a division to be drawn between *grounding monism* and *grounding pluralism*. Grounding monism is the position that there is a single species of grounding relation—such that talk about what grounds what will refer to a single, unified relation (Richardson 2020).[28] Thus, for the grounding monist, grounding is unified in that there is a generic grounding relation, rather than there being multiple, equally fundamental varieties of grounding relations. In contrast to this position, grounding pluralism is the position that there are more than one species of grounding relation—such that talk about what grounds what will refer to different grounding relations in different contexts.[29] Grounding monism is pretty much a unified position; however, grounding pluralism can be further divided into two distinct positions: *moderate* grounding pluralism and *extreme* grounding pluralism.[30] Moderate grounding pluralism, as expressed by Fine (2012, 38–40), is the position that there are three different notions of ground—normative grounding, natural grounding, and metaphysical grounding—each of which captures a different type of relation that is found within distinct contexts of analysis. Whereas, extreme grounding pluralism, as expressed by Wilson (2014), is the position that there are a large variety of different kinds of grounding relations—many small 'g' grounding relations (such as token identity, functional realisation, the determinable/determinate relation, the proper subset relation and the set membership relation etc.)—that do not form a unified kind under a general category of grounding. Different types of arguments have been given for one adopting a grounding monist or pluralist position.[31] However, for the task at hand, we can simply conceive of grounding as a notion that is identified as a single, generic relation *or* as a variety of different types of relations (e.g. three or more different types of relations). Nevertheless, for ease of reference, we will continue to refer to grounding as a single relation—without, however, this meaning that grounding monism is being privileged here over that of grounding pluralism—with the distinction between these positions being again re-stated at a later point.

Now, on the basis of this construal of the notion of grounding, we can now slot this concept into the layered conception of reality detailed above, which will result in the following structure found in Figure 2 (with 'Grounds' standing for 'grounded by' and 'MFT' standing for 'more fundamental than'):

28 For a further explanation of grounding monism, see Schaffer (2009), Rosen (2010), Audi (2012), Leuenberger (2013), Raven (2013), and Skiles (2015).

29 For a further explanation of grounding pluralism, see Fine (2012), Koslicki (2015), Wilson (2014), Cameron (2015), Bennett (2017), and Griffith (2018).

30 These labels come from Richardson (2020).

31 For arguments in favour of grounding monism, see Berker (2018). And for arguments in favour of grounding pluralism, see Richardson (2020).

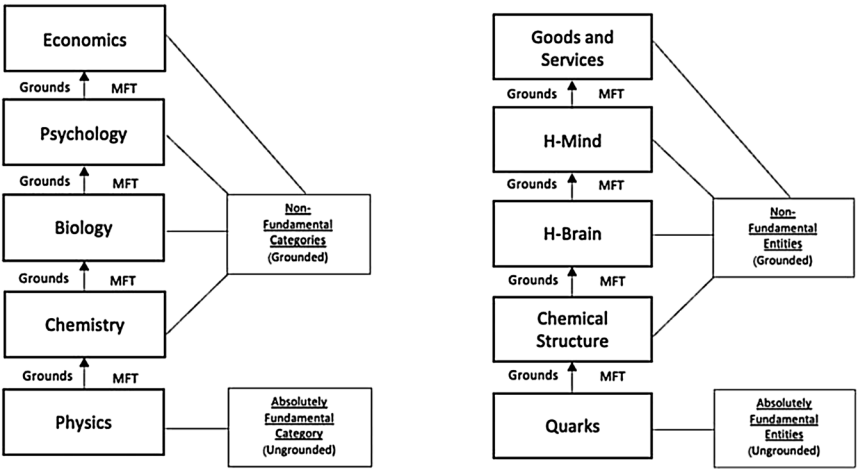

Figure 2: Layered structure of reality (ii).

Reality is hierarchically arranged with chains of entities being ordered by the relations of grounding, with the entities in the lower levels of this hierarchical structure being taken to be the input of these grounding relations and the entities that are at the higher levels of this structure being taken to be the output of these relations. Grounding thus plays a fundamental role in structuring reality. However, two important questions for our specific task that can now be asked are: first, why should we believe that any relation of grounding exists at all? And, second, are these relations themselves fundamental or do they require a further explanation for instantiation on a particular occasion?[32] For the former question, in following Schaffer (2017, 307–309), we can clearly affirm the existence of these grounding relations within the layered structure of reality, due to the fact that, as there *are* metaphysical explanations—the nature of which was detailed above—then there must be relations of grounding that underwrite these type of explanations. That is, assuming the existence of metaphysical explanations—which is indeed a plausible assumption—one can affirm this position based on the fact of the analogous nature between grounding and causation—where grounding, as noted previously, is taken to be a species of causation: metaphysical causation. Thus,

32 The central issue tackled by this paper is thus not that of there existing any grounding relations, rather than none at all, within the layered structure of reality—which is expressed by the first question—but rather that of these relations being instantiated on any particular occasion that is picked out—which is expressed by the second question.

as causal explanations require laws of nature and/or relations of nomological causation, then so do metaphysical explanations require analogous principles and/or relations as well (Schaffer 2017, 305). That is, as Kment (2014, 5) notes,

> there is a far-reaching structural analogy between causation and grounding. Just as earlier states of the universe typically give rise to later ones by causing them, metaphysically more fundamental facts give rise to less fundamental ones by grounding them. Certain general metaphysical principles, which I will call 'laws of metaphysics,' play essentially the same role in grounding as natural laws do in causation

Thus, by one considering the structure of causal explanation, one sees that there is a particular requirement of this type of explanation for there to be certain laws of nature that connect causes to effects. Thus, given the analogous nature between grounding and causation, one can gain insight into the structure of one of these relations on the basis of the other—as was previously shown through the formulation of a grounding-based Structural Equation Model. Hence, as Schaffer notes, 'insofar as causal explanation requires laws of nature (and overall involves a <Sources, Links, Result> dependence structure), metaphysical explanation has a structurally parallel requirement'. So, one can affirm the fact of there being counterfactually-supporting general principles—relations of grounding—that fulfil the role of backing metaphysical explanation. In short, there are indeed grounding relations that exist within the layered structure of reality.[33]

3.2 The Primitiveness Thesis

One can now re-ask our second important question of if these relations of grounding *themselves* require a further explanation for their instantiation on a particular occasion? That is, does the grounding require a fundamental explanation for its instantiation on a particular occasion, or is it, in fact, a relation that is instantiated without explanation—namely, it is a fundamental relation, with the instantiation of each token relation being a brute fact? A quick and easy answer would be that each of grounding relations obtains on a particular occasion *in virtue* of a further relation of grounding and a more fundamental ground—that is, they are instantiated in virtue of the lower-level entities and the relation of grounding that connects them to these entities. Now, this is indeed a sufficient explanation, as the existence of the lower-level entities, and the holding of a further relation

33 For further arguments for the reality of 'laws of metaphysics' (i.e. the relation(s) of grounding), which focuses on the fact of explanation requiring counterfactually-supporting general principles—laws of metaphysics—in order for it to play an important role with respect to unification, manipulation, and understanding, see Schaffer (2017, 305–307).

of grounding, necessitates the instantiation of the higher-level relation on that particular occasion. That is, with each level that we descend down the layered structure of reality (as is depicted in Figure 2), plausibly, we have a *full* metaphysical explanation that is provided by a more fundamental entity and relation at a lower level. However, one can indeed ask the question of if it is possible to have a *fundamental explanation* for the instantiation of this relation? Is each of the grounding relations that are a part of the layered structure of reality instantiated on particular occasions in virtue of another entity (and law of metaphysics) whose existence and operation is *not* (non-causally and synchronically) dependent upon another contemporaneously existing entity (and law)? Well, according to certain philosophers, a quick and easy answer to this question is no, as one is, in fact, forced to take the relations themselves to be fundamental, and thus there is no fundamental explanation for their instantiation on a particular occasion. Now, the reason for this is that *if* one was indeed to take *all* the relations of grounding within the layered structure of reality to be instantiated on a particular occasion in virtue of some other more fundamental entity, then we would be presented with an apparently *problematic regress* that needs to be accounted for. Following Schaffer (2017, 316), we can explain this regress as follows: let's say that a given relation of grounding obtains on a particular occasion. Either there will be an explanation for the instantiation of this relation or not. If we take the latter—that is, that there is no explanation for the instantiation of this relation—then there will be an inexplicable fact about the instantiation of the relation of grounding under question. However, given the plausible assumption that the existence and/or instantiation of a grounded entity is explicable on the basis of their grounds, and the relation of grounding that is operative, then it will follow that the instantiation of the grounding relation would indeed be ungrounded, and thus the relation itself would be fundamental. If we take the former—that is that there is an explanation for the relation of grounding under question—then this explanation must involve both a 'source(s)' of that relation—namely, the grounds of that relation—as well as a 'link(s)'—namely, a further relation that connects the source(s) to the relation under analysis. Yet, if this relation is the same type of relation as that of grounding, then you will face the issue of self-explanation, which is problematic as this type of explanation would not be explaining the instantiation of the relation under question but simply presupposing it. However, if one were to say that the relation of grounding is *not* the same type of relation as the one that is under analysis—namely, a grounding relation—but rather is an unidentified dependence relation, then this further relation would itself either be fundamental or would also be one that exists in virtue of something else—source(s) and relation—which themselves would either be fundamental or would also exist or be instantiated in virtue of something else, and so on and so

forth. However, assuming that there cannot be limitlessly descending chains of deeper sources and relations, it is plausible that one must eventually arrive at a fundamental source and/or relation. Hence, as Schaffer (2017, 316) notes, 'in no case is it possible to explain the existence of the law L [relation], without bringing in laws to explain L's existence. Assuming that explanations cannot circle and must terminate, at some point one must hit fundamental laws that serve as root explanatory principles'.

Now, for clarity and succinctness—and to further emphasise the nature of the problematic regress that is present here—we can re-state the issue at hand here through 'factive language',[34] which is synonymous to our 'relational language' and can act as a convenient shorthand for it as follows: suppose that A grounds B and thus there is a fact that A grounds B, then *if* that fact must be grounded—and thus is not fundamental—then there is something in virtue of which A grounds B—let's term this C. C grounds the fact that A grounds B. However, the fact that C grounds the fact that A grounds B is another grounding fact that itself needs to be grounded—let's call its ground D. D grounds the fact that C grounds the fact that A grounds B. Yet the fact that D grounds the fact that C grounds the fact that A grounds B also requires a ground, and so we are off to the races, which can be illustrated through Figure 3. as follows (with the arrows representing a grounding relation and the ellipses representing a regress):[35]

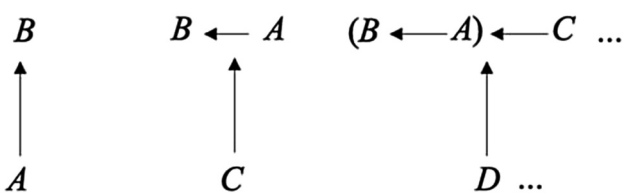

Figure 3: Relational regress (i).

In all, in the language of relations and facts, what we can clearly see here is that one thus cannot attempt to explain the relation of grounding in any 'deeper' terms—it is a 'stopping point' in explanation. That is, there is no getting underneath the relation of grounding, such that, once one posits the instantiation of the relation of grounding, there is no need for one to posit the existence

34 This synonymity is seen clearly here where, for example, the question 'are the grounding facts themselves grounded?' is equivalent, as Bennett (2017, 189) notes, to the more awkward question 'are particular obtainings of grounding relations themselves grounded?', which is itself equivalent to 'is there anything in virtue of which this grounding relation obtains on this occasion?'.

35 The following illustration, and that of Figure 7, are based on that of Sider's (2014).

of anything deeper to explain their instantiation. In other words, the relation of grounding lacks an explanation for its instantiation in the layered structure of reality and thus exists as a *fundamental* entity whose instantiation is a *primitive* or *brute* fact. We can call this thesis proposed by Schaffer (2017) the 'Primitiveness Thesis' (hereafter, Primitiveness), and state it succinctly as follows:[36]

(17) (Primitiveness) There is nothing in virtue of which the grounding elation is instantiated on particular occasions.

According to Primitiveness, the entities that feature in our explanatory target *lack* an explanation of their existence—that is, in other words, they are themselves absolutely fundamental, and thus facts about their existence are primitive and/or brute facts. Theism will thus be assessed for its veracity in light of this alternative option of there not being an explanation of our explanatory target *and* some 'anti-primitive' candidate fundamental explanations—where an explanation is anti-primitive in this context if it takes there to be a further, deeper explanation for the instantiation of the relation of grounding—that is, our explanatory target has a fundamental explanation by the relation of grounding being instantiated in virtue of something else.[37]

Now, as noted above, there are at least two possible kinds of fundamental explanation: inanimate fundamental explanation and personal fundamental explanation. The thesis of Primitiveness and the candidate explanations that fall into either of these kinds will need to be assessed by the inductive criteria that were introduced in the previous section. Importantly, however, when one is considering explanations (or explanatory stopping points) of the existence of *all* of the relations of grounding, each of these theses will be of enormous scope.[38] Therefore, unless we are to dismiss these and all other potential fundamental explanations, Criterion (iii) will need to be left out of our assessment. Thus, any thesis or candidate fundamental explanation under question will need to be assessed by Criterion (i), (ii) and (iv), which boils down to an explanatory stopping point or a candidate for a fundamental explanation, in this specific context, being most likely the correct/true one, if it is the simplest explanation, fitting

36 Though Schaffer (2017) forwards this thesis, in earlier writings—as will be shown below—Schaffer defends an anti-primitive option that is found within the field of fundamental mereology.

37 In this specific context, the terms 'primitiveness' and 'anti-primitive' stem from Bennett (2017, 188–189).

38 I add the clause '(or explanatory stopping points)' to allow Primitiveness, which is not an explanation, to be included within our framework.

with our background knowledge, which predicts the instantiation of the relation of grounding on particular occasions, when we would not otherwise expect to find them. Given this framework and the exposition of our explanatory target, it will be important to now turn our attention to unpacking the inanimate and personal explanatory candidates for a fundamental explanation, and then, off of this, we can provide an assessment of the veracity of Primitiveness and these explanatory candidates, according to our inductive criteria.

4 Explanatory Analysis

4.1 The Nature of the Candidates

In contemporary metaphysics, three 'anti-primitive' candidates for a fundamental explanation for our explanatory target present themselves: *Theism*, *Priority Monism* and *Priority Pluralism*. For the latter two: Priority Monism and Priority Pluralism—each of which is a candidate inanimate fundamental explanation—we have two physics-based explanations that support the commonly held view that whatever is at the fundamental layer of reality, and thus is the terminus in explanation for everything above (or below it), is of a physical nature—in short, everything bottoms out at the feet of a physical entity (or entities). Whereas, for the former: Theism—which is a candidate personal fundamental explanation—we have a theologically-based explanation that supports a view that the fundamental layer of reality, and terminus in explanation for everything above (or below it), is of a non-physical nature—in short, everything bottoms out at the feet of a non-physical fundamental entity. So, these are the three candidate explanations for the instantiation of the relation of grounding on particular occasions within the layered structure of reality. And thus, it is these candidate fundamental explanations (and the thesis of Primitiveness) that will need to be assessed for their veracity according to our inductive criteria. However, prior to performing this assessment, it will be helpful to now briefly detail the nature of the entities that are posited by these explanations. We can turn our attention first to that of Theism, and then after this, we can focus on the other two alternative candidates.

The theistic explanation centres around the simple claim that 'there is a God'. This claim is a personal metaphysical explanation—it seeks to provide an explanation that invokes the powers, beliefs and intentions of a personal agent—and it is a claim that is at the heart of the major theistic world religions such as Judaism, Christianity, Islam and Sikhism. Now, there are various ways to

construe this particular claim; however, the specific way that it will be construed here is as follows:[39]

(18) (Theism) There is a God, identified as a metaphysically simple, omnipotence-trope.

This specific rendering of Theism centres around the notion of a 'powerful trope'—a *powerful abstract particular nature* of a *modifier* or *modular* kind—which has been introduced and defended by various 'trope theorists' such as Williams (1953), Campbell (1990), Maurin (2002), Fisher (2018, 2020) and Molnar (2003), among others. In breaking this concept down in a stepwise manner, we can understand that: first, a trope is *abstract*, not in the sense that it lacks spatio-temporality, but in the sense that it is 'less than its content' and does not 'exhaust its plime'—in short, multiple tropes can be co-located together to form a compresent bundle. For example, a shape-trope that a table possesses is abstract because it does not exhaust its content, as other tropes, such as a colour-trope and a mass-trope, are also collocated with the shape-trope by occupying the same content (i.e. the table). However, in contrast, the table would be *concrete* by itself *exhausting its content* and thus not allowing another table (or object) to also occupy this content (Williams 1953). Second, a trope is particular in the sense that it can have a distinct duplicate—in other words, Leibniz's Law (i.e. the identity of indiscernibles) fails to hold for it.[40] That is, for properties as universals, the Law holds, in that exactly similar entities (i.e. universals) are identical (i.e. if universal x and universal y are indiscernible, then $x = y$). Whereas for particulars (e.g. tropes), the principle does not hold, as exactly similar entities can be distinct (i.e. if trope x and trope y are indiscernible, then $x \neq y$). For example, a shape-trope is particular because it is possible that there is a duplicate of this shape, that is, an entity that is exactly similar, but also distinct from this shape. In short, a trope is particular if it can

39 In Swinburne's (2004, 93–96) conception of Theism, God is, amongst other things, an essentially, everlastingly omnipotent, bodiless spirit. This conception of God has been challenged by individuals such as Philipse (2012, 205), who argues that the notion of a bodiless spirit fails to fit with our background knowledge concerning the type of entities that are taken to exist in neighbouring fields. Given this issue, Criterion (ii) is not met by Swinburne's conception of Theism. However, as explained previously, Swinburne (2004, 66) does not see Criterion (ii) as being overly important for explanations of a wide explanatory scope, and thus does not see this to be a problem. Nonetheless, the present construal of God does not succumb to this issue, given the widely held assumption amongst philosophers concerning the existence of tropes, and thus Criterion (ii) can be met by Theism so construed. This widely held assumption will be further explained below.

40 Leibniz's Law, which is often conceptualised as the principle of the indiscernibility of identicals, is conceived of here as its converse—the principle of the identity of indiscernibles, which can be stated formally as such: $\forall\varphi(\varphi(x) \leftrightarrow \varphi(y) \rightarrow x = y)$.

have a duplicate. Third, a trope is its *intrinsic (qualitative) nature*, in that it does not have, or possess, a nature of its own; rather, it is combinatorially intrinsic in the sense that the nature of a trope is invariant under the scenarios in which the given trope is alone or accompanied (Alvarado 2019, 554). However, the modal invariance of a trope, unlike other entities, is not grounded upon the possession of an intrinsic nature, but that of it *being* its intrinsic nature—it is numerically identical to it. There is nothing more to a trope than its nature, and thus, as noted by Maurin (2018, §2.2), tropes, at a general level, "have no constituents, in the sense that they are not 'made up' or 'built' from entities belonging to some other category". Tropes are thus primitively qualitative and irreducible entities—they lack proper parts,[41] and thus are metaphysically simple entities.[42] Fourth, a trope can come in two forms: as a modifier or as a module trope. The central difference between a modifier trope and a module trope is that of the former being a singly (or minimally) *characterising property*, whilst the latter is a singly (or minimally) *charactered* property in a 'stretched' (or analogical) sense— it is a 'propertied thing or object', where an object is a countable, property-bearing particular that has determinate existence and identity conditions and is not borne or possessed by anything else.[43] In other words, a modifier trope is a *property* that does not *exemplify* this character, but simply bestows it upon (i.e. 'makes') something else to be charactered in that specific way. Thus, for example, a particular object is spherical in virtue of its modifier trope, which 'spherises' that object by simply making *it* spherical without it sharing in that character as well. The character grounding provided by a modifier trope is thus *de novo* (or *sui generis*) (Garcia 2015a). Whilst, a module trope is an object that *exemplifies* the character that it grounds (i.e. is self-exemplifying). Thus, for example, a particular (thickly-charactered) object is spherical and red in virtue of its module tropes, which are themselves spherical and red (i.e. exemplify sphericity and redness), and together (compresently) are *parts* (or constituents) of that object. A module tropes' character grounding, rather than being *de novo*, can thus be taken to be some type of parthood (or constitution) relation (Garcia 2016). Furthermore, an additional distinction between modifier and module tropes is the role played by these types of tropes in causation. At a more specific level, it is solely module tropes, rather than modifier tropes, that can play any direct role in causation. As, for example, a modifier hotness trope cannot fulfil the role of being the direct cause of a burn mark that an individual has, as it is not itself hot; something else must thus be the direct cause of the burn mark (Garcia 2015a, 643). Modifier tropes, in a similar

41 More on the nature of a proper part below.
42 More on the nature of metaphysical simplicity below.
43 I leave the account of analogy here undefined.

manner to universals, are thus *causally inert*. However, the modular view does not have this issue, given that module tropes are self-exemplifying entities, resulting, in our example above, in a modular hotness trope being able to be the direct cause of the burn mark. Therefore, it is module tropes, and not modifier tropes, that are uniquely suited to be the basic terms of causation (Garcia 2015b). Lastly, a trope, following Molnar (2003), is powerful in at least five ways: it is, first, *directed*—in that a powerful trope is directed towards some characteristic and distinctive manifestation.[44] Second, it is *independent*—in that, a powerful trope is ontologically independent of its manifestations; that is, it can exist when it is not being manifested. Third, it is *actual*—in that a powerful trope is an occurrent feature of the object that possesses it. Fourth, it is *intrinsic*—in that, a powerful trope is intrinsic to its bearer.[45] Fifth, it is *objective*—in that the existence of a powerful trope is not dependent on the existence of any conscious, observing minds. A trope, of a modifier or modular kind, is thus powerful in that it fulfils the roles of *directedness*, *independence*, *actuality*, *intrinsicality* and *objectivity*.

Taking this concept of a powerful module trope into account, and applying it within a theistic context, we can posit that God is, first, abstract in the sense of him having the trait of being 'less than the including whole'—God does not exhaust his 'content' or 'plime' (or is less than his 'content' or 'plime')—where, in assuming Christian Theism, we take this content or plime to be the Trinity as a whole and its location—as its content or plime also includes the possibility of other tropes being collocated with him (i.e. the Son and the Spirit), which results in him not exhausting either of these things—in short, wherever God is located there are other tropes that are located there with him. Second, God is *particular* by him failing to abide by Leibniz's Law—as, in assuming Christian Theism again—there is the possibility of the existence of entities—duplicates, identified as the Son and the Spirit—that are exactly similar in their intrinsic properties (i.e. their nature) to him, yet are numerically distinct from him. Third, God is identical to his qualitative nature—he *is* the specific character that he has, which is that of him *being omnipotent*. God's nature is thus intrinsic to him, not in the sense of him possessing a further intrinsic 'property', but simply that of him being numerically identical to this nature. Fourth, God is a *module trope*, rather than a modifier trope, which is that of him being a maximally-thinly charactered object—a property in an analogous sense (i.e. a property∗)—that is self-exemplifying and, in assuming Christian Theism again, serves the role of

44 An assumption is made here concerning a powerful trope being multi-track, rather than single-track.

45 We can assume the notion of intrinsicality noted above.

bestowing this characteristic upon the Trinity which he constitutes. Moreover, since God is a trope of a modular kind, he plays a direct role in causation and is thus a basic term of a causal relation. Lastly, as a module trope, God is powerful in five ways: he is, first, *directed*—in that God (or his action) is directed towards some characteristic and distinctive manifestations, such as that of creating or sustaining the universe. Second, he is *independent*—in that God is ontologically independent of his manifestations; that is, he exists when his power is not manifested.[46] Third, he is *actual*—in that God is an occurrent feature of the object that possesses him: the Trinity. Fourth, he is *intrinsic*—God is intrinsic to his bearer, which is, again, the Trinity. [47] Fifth, he is *objective*—in that the existence of God is not dependent upon the existence of any conscious, observing minds. God, as a module trope, is thus powerful in that he fulfils the roles of *directedness*, *independence*, *actuality*, *intrinsicality* and *objectivity*. However, he does this without any of the limitations that certain other powerful module tropes may have. In short, God is an unlimited powerful trope—an omnipotence-trope, which can be illustrated through Figure 4 as follows:

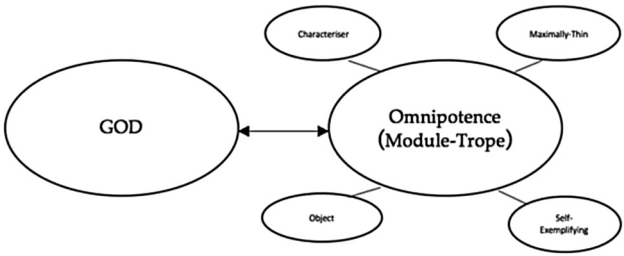

Figure 4: God and module trope identity.

46 Though in the grounding of the non-fundamental entities that fill up the layered structure of reality, God's power will not move from inactivity to activity but, instead, would always be manifested, given that this grounding act will be a necessary action that stems from God's perfect goodness. More on this below.

47 As Christian Theism is being assumed here, God is taken to be a 'part' of the Trinity and thus is borne *by*, and works *through*, the Trinity (i.e. in cooperation with the Son and the Spirit). This conception of the Trinity assumes the notion of the 'monarchy of the Father'—the teaching that God is numerically identical to the Father alone—which is contrary to the common position that holds to God being numerically identical to the Trinity. The difference between these positions is more than a linguistic issue as proponents of the monarchy of the Father will take the existence of the Father to be the basis for Christian Theism being monotheistic—as there is 'one Father' there is 'one God'—whereas proponents of the common position would take the existence of the Trinity to be the basis for Christian Theism being monotheistic—the 'unified collective' (i.e. the Trinity) is the 'one God'. For a further philosophical explication of the notion of the monarchy of the Father and its application to the Trinity, see Sijuwade (2021b).

As an omnipotence-trope, God is a personal entity—a *personal* module trope—due to the fact that for him to exercise his omnipotence, he must be an entity that has a rich form of consciousness that enables him to perform a range of actions that are solely limited by logic. Thus, to ward off a potential objection that can be raised here, conceiving of God as a trope does not rob him of this personhood, given that he is a trope of a modular nature (i.e. a property*). Furthermore, given his omnipotence, God would be an entity that is unlimited in knowledge, presence, freedom and goodness. That is, it follows from his omnipotence that God would, firstly, be *omniscient*—he would know of all true propositions (concerning the past and present), that they are true—as, if he is to be able to exercise his omnipotence, he would need to know the nature of the alternative actions that are dependent upon what occurred in the past and what is presently occurring. Secondly, being omnipotent and also omniscient, God would be *omnipresent*—he would be cognizant of, and causally active at, every point of space—and thus would be present to all existing things through his knowledge concerning them and his power to act upon them. Thirdly, being an omnipotence-trope, he would also be *perfectly free*—he would be free from any non-rational influence determining the choices that he makes—as if he is to be able to exercise his power in any logically possible way, then his power must operate without any causal limitation or hindrance. Fourthly, being omniscient and perfectly free, God would also be *perfectly good*—he will always perform the best action (or kind of action) if there is one, many good actions and no bad actions. That is, given God's omniscience, he would know the nature of each available action that he can choose from and thus would possess knowledge of whether each action is good or bad, or is better than some incompatible action. Moreover, in recognising an action as good, God would have some motivation to perform that action, and in recognising an action as being better than another action, God would have an even greater motivation to perform it (Swinburne 2016). Hence, given his perfect freedom, if God is situated in a scenario in which there is a best possible action (or best kind of action) for him to perform, then God will always perform that action (or kind of action), and if there is no best action (or kind of action), then God will perform a good action and no bad actions.[48]

These are the attributes—omniscience, omnipresence, perfect freedom and perfect goodness—that are derivable from the supposition that God is an omnipotence-trope. However, in construing God as a module-trope, we can also take him to be *metaphysically simple*, given the non-composite and irreducibility of a trope. And so, in conceptualising God in this particular way, we can see that

48 Whereas in recognising an action as bad, God would have no motivation to perform it.

the derivable attributes of God—unlike Swinburne, who takes these attributes to be related to God (and each other) by an 'entailment relation'—are in fact related to God (and each other) by a relation of 'numerical identity'.[49] More specifically, according to the notion of metaphysical simplicity, God is non-composite and irreducible in the sense of him lacking *proper parts*—where a proper part is a portion of an entity that is numerically distinct from it. Thus, by taking God to be metaphysically simple, there is no portion of God that is numerically distinct from him. God is a being who intrinsically within himself does not have any division or ontological composition—be it spatial, temporal or metaphysical composition—God must be such that he does not have any sort of complexity involving composition. So, the denial of metaphysical complexity in God is thus also a denial of him possessing *any* properties as well. More specifically, God does not exemplify any numerically distinct properties (i.e. proper metaphysical parts). Since if God were to exemplify these properties, he would be dependent upon them in order to be what he is. Yet, as God cannot be dependent in specific this way—given that he is omnipotent—he thus must not be the bearer of any properties. Rather, any intrinsic property 'attributable' to God must be *numerically identical* to him. For example, if the intrinsic property of goodness is attributed to God, then one is not properly attributing to him an ontologically distinct property that he exemplifies. Rather, God is instead taken to be identical with his goodness (and all the other properties that are attributed to him as well). Moreover, given that God is identical to each of his attributes, one must also infer that his attributes are identical to each other due to the transitivity of identity. Thus, God's identity with his goodness *and* his power entails the fact of his goodness being identical *to* his power (and, again, for all of the other properties that are attributed to him). Therefore, on the basis of God's metaphysical simplicity, there is, firstly, no numerical distinction between God and his attributes and, secondly, there is no numerical distinction between

49 As God has 'attributes' (or 'characteristics'), but these attributes (or 'characteristics') are not to be conceived of as 'properties', one can ask what the nature of these entities is? One way is to conceive of these attributes as 'aspects'—qualitative differing, yet numerically identical particular ways that an entity is. Construing these entities in this way enables the primary objections against the cogency of the notion of metaphysical simplicity to be put to rest—as God is taken to bear (qualitatively differing) 'divine aspects', rather than 'divine properties', which enables God's power, knowledge, goodness, etc., to be numerically identical to him and each other—as aspects are numerically identical to their bearers and one another—whilst still maintaining a qualitative distinction between them—as aspects qualitatively differ from their bearers and one another. God thus has multiple, qualitatively differing aspects that are 'improper parts' of him (i.e., numerically identical to God) rather than 'proper parts' of him (i.e., numerically distinct from God). For reasons of space, this account will not be further detailed. However, for a further explanation of this account, see Sijuwade (2021a).

each of God's attributes as well, as can be seen through Figure 5. As follows (where the double-headed arrows represent a numerical identity relation):

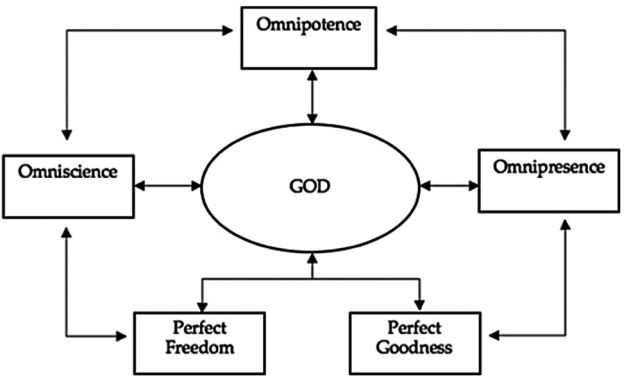

Figure 5: God and attributes identity.

Theism thus postulates the existence of one, metaphysically simple (and personal) module trope: God, who has the single character of omnipotence and is numerically identical to each of the attributes of divinity that are rightly predicated of him. So construed, God is a *fundamental entity*, by his metaphysical simplicity and omnipotence rendering him as an explanatory stopping point—his non-compositeness and irreducibility would thus not require him to be an output of a grounding relation, and by him possessing the ability to perform any logically possible action, anything that exists will be by him willing, or permitting, it to exist. Therefore, *if* God exists, he is rightly understood as a metaphysically simple, omnipotence trope that exists fundamentally. We can now turn our attention to fleshing out the nature of the alternative, anti-primitive candidate fundamental explanations of Priority Monism and Priority Pluralism.

In the field of fundamental mereology, Schaffer (2009a, 2009b, 2010, 2013, 2018) has proposed a distinction between the notions of *Priority Monism* and *Priority Pluralism*. At a basic level, the priority monist holds to the whole being prior to its parts and thus takes there to be only one fundamental entity in the layered structure of reality. In contrast, the priority pluralist holds to the parts being prior to the whole and thus takes there to be more than one fundamental entity in the layered structure of reality. More precisely, according to Schaffer (2010, 33–37), there are two structures within reality: a *mereological structure of whole and part* and a *metaphysical structure of prior and posterior*. The latter type of structure: metaphysical structure, which we have been operating within, captures the fact of one entity being built by another entity, and ultimately reveals what is (or are) the fundamental entity (or entities) that serves as the builder(s) of all other reality—in short, all chains of building ultimately terminate in this entity (or

entities). The debate between priority monists and pluralists, in Schaffer's (2010) thought, is thus concerning the *right correlation* between this mereological order of whole and part and the metaphysical order of priority and posteriority. More specifically, it concerns the identification of what is fundamental among existing concrete entities. As priority monists and pluralists both hold to there being a maximally actual concrete object—the material Cosmos—of which all other actual concrete, material objects (e.g. planets, pebbles and particles etc.) are proper parts. The assumption is thus made on both sides that there is a Cosmos, that it has proper parts *and* that it is not identical to any plurality of its proper parts (i.e. composition is *not* identity). Thus, the central distinction between these two positions centres on how to *carve up the Cosmos* (Schaffer 2010, 42). Focusing first on Priority Monism, adherents of this view see the correct way to carve up the Cosmos as that of leaving the *whole uncut*. Thus, on this view, there is solely one fundamental actual concrete object: the Cosmos itself. Importantly, however, and in distinction from *existence monism*—the view that solely the Cosmos exists and nothing else—there are many other concrete, material objects; yet, these objects exist only in a *derivative* manner as proper parts of the one fundamental entity that is the Cosmos. Thus, in providing a precisification of this view, we can state the monistic position succinctly as follows:

(19) (Priority Monism) The whole, identified as the Cosmos, is the single, fundamental concrete object that is ontological prior to all other actual concrete material objects, which are its proper parts.

Now, it is not built into the notion of Priority Monism that the single fundamental entity: the Cosmos, has any particular nature. Rather, the notion so characterised is strictly a numerical thesis concerning the *number* of fundamental entities—which, for Priority Monism, is that of there being *one*. However, a specific way of further detailing the nature of this fundamental entity has been provided by Schaffer (2013).[50] In this particular construal of Priority Monism, the nature of the Cosmos—the fusion of all actual concrete, material objects—is, according to Schaffer (2009b, 132–133), to be identified as the *general-relativistic spacetime manifold*. And material objects—the proper parts of the Cosmos—are to be identified as regions of spacetime. Thus, the spacetime manifold that is the Cosmos is a single substance that instantiates properties *directly*—that is, without any mediation of material objects. Rather, the properties are 'pinned down' onto the spatiotemporal substance. The Cosmos thus possesses proper parts—identified as spacetime regions instantiating properties—that it is more fundamental than,

50 Thus, at a more specific level, the candidate explanation that will be assessed below is the more robust version provided by Schaffer—rather than a more bare-bones version of Priority Monism.

which renders these proper parts as derivative and non-fundamental entities that depend upon the Cosmos for their existence.

Turning our attention to Priority Pluralism, adherents of this view see the correct way to carve up the Cosmos as that of cutting it up into *smaller pieces*. Specifically, this position of Priority Pluralism is a conjunction of the numerical thesis concerning how many fundamental entities there are—there being at least two fundamental entities—and the partialistic thesis that the Cosmos is non-fundamental (Schaffer 2010, 43). Thus, in providing a precisification of this view, we can state the pluralistic position succinctly as follows:

(20) (Priority Pluralism) There exist many fundamental entities, which are the ontologically prior proper parts of the Cosmos and all other actual concrete objects.

Now, again, it is not built into the notion of Priority Pluralism that the numerous fundamental entities that are taken to exist have any particular nature. Rather, the notion so characterised, as with Priority Monism, is strictly a numerical thesis concerning the *number* of fundamental entities—which, for Priority Pluralism, is that of there being *many*. However, a specific way of further detailing the nature of these fundamental entities has been provided by Simons (2020).[51] This particular construal of Priority Pluralism is that of *Atomism*—the view in which the fundamental concrete objects are mereological atoms. Priority Pluralism, construed in this atomistic way, posits that all derivative entities—including the Cosmos—are grounded in the collection of mereological atoms—which, following Simons (2020), can be conceptualised as indivisible (point-particle like) module tropes.[52] The fundamental layer of reality is thus an indivisible (because un-extended) collection of (point-particle like) module tropes that support the existence of all other non-fundamental entities. The Cosmos is itself a non-fundamental entity and thus can be cut into mereologically minimal slices.

Priority Monism and Priority Pluralism, so construed, are thus exhaustive and exclusive positions due to the holding of what Schaffer (2018, §3.1) terms the *tiling* constraint. The tiling constraint is the conjunction of the following two

51 Thus, again, at a more specific level, the candidate explanation that will be assessed below is the more robust version provided by Simons—rather than a more bare-bones version of Priority Pluralism.

52 Simons (2020) does not explicitly term his account a 'priority pluralist' account, nor does he term the tropes that feature in his account 'module tropes'. However, his atomistic account is clearly one that affirms the central tenets of Priority Pluralism and, given the distinction that was made earlier between modifier and module tropes, the concept of a trope that features in Simons' account is certainly that of the latter, rather than that of the former.

conditions (where we can take the predicate 'F' to denote the property of being a fundamental concrete object, and the letter 'u' to refer to the Cosmos):

(21) (Tiling)

(i) (Covering) Sum: $x(Fx) = u$

(ii) (No Overlap) $(\forall x)(\forall y)\ ((\mathrm{F}x\ \&\ \mathrm{F}y\ \&\ x \neq y) \supset \sim(\exists z)\ (\mathrm{P}zx\ \&\ \mathrm{P}zy))$.

The first condition of the tiling constraint: (Covering), expresses the requirement within fundamental mereology that the sum of all fundamental entities is the Cosmos as a whole—there is no portion of the Cosmos which is thus left uncovered. The second condition of the tiling constraint: (No Overlap), expresses the requirement that the fundamental entities are not to have any common parts—thus, these entities are mereologically disjoint. The picture that is given by these two conditions is that of the fundamental entities *tiling* the cosmos in the sense that they partition or cover every portion of reality without them overlapping (Schaffer 2018, §3.1).

So, for Priority Monism, there is one, and only one, fundamental entity: the whole Cosmos, which is prior to its proper parts—namely, all other existing concrete entities. Whereas, for Priority Pluralism, there are many fundamental entities, each of which is a proper part of the Cosmos, identified as mereological atoms—namely, a collection of un-extended (point particle-like) module tropes. We can illustrate the position expressed by Priority Monism and Priority Pluralism through Figure 6 as such:

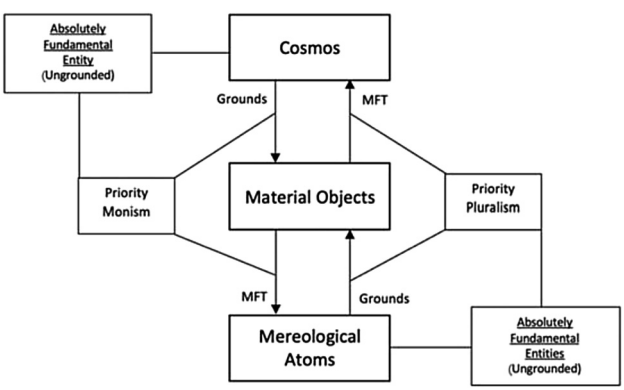

Figure 6: Priority monism and pluralism structure.

Thus, to reiterate a key point, the primary disagreement between Priority Monism and Priority Pluralism does not concern the existence of the Cosmos, material objects or mereological atoms—these are all shared assumptions. Rather, given the tiling constraint, and the fact that Priority Monism is equivalent to Fu—the Cosmos being a fundamental entity—and Priority Pluralism being equivalent to $\sim Fu$—the Cosmos not being a fundamental entity—these two positions are

simply an exhaustive and exclusive way to carve up reality—stick with monism, and you keep fundamental reality intact and whole, or go with pluralism, and you cut fundamental reality down to its smallest pieces. Thus, the Cosmos, or the collection of mereological atoms, if they exist in the manner so construed, exist as fundamental entities through the tiling constraint enabling them to cover all of reality—without anything else being above or beneath them. Taking all of these things into account, these are the three candidate fundamental explanations of our explanatory target. Now, to determine which of these options is to be deemed as *the* fundamental explanation and terminus in explanation for the instantiation of the relation of grounding on particular occasions within the layered structure of reality, we must assess and compare the manner in which these explanations fulfil our inductive criteria. This assessment will now be done by focusing first, again, on Theism and then turning our attention to Primitiveness, Priority Monism and Pluralism.

4.2 Assessment of Primitiveness and the Candidates

Theism has predictive power, in respect to our explanatory target, to the extent to which we can attribute to God an intention to instantiate the relation of grounding on particular occasions within the layered structure of reality. This intention can be *indirectly* shown to be had by God as follows: plausibly, it is the *best kind of action* for God to bring about the existence of the non-fundamental entities that are part of the layered structure of reality, given the unique goodness of this action. Specifically, the performance of this action is a unique good due to the holding of the *Diffusiveness Principle*, which can be stated as follows:

(22) (Diffusiveness) Goodness is necessarily diffusive of itself.

At a general level, according to the Diffusiveness Principle,[53] goodness requires something other than itself as a manifestation of itself. Hence, a good being will inevitably bring about other good things. Thus, as it is better to exist than not to exist—existence is a good thing—God, as Kretzmann (1991, 223) writes, 'necessarily (though with the freedom associated with counterfactual choice) wills

53 Though the Diffusiveness Principle is not currently a guiding principle within contemporary metaphysics, it has a storied history, as shown by Kretzmann (1991) that stems from the work of Plato, through Augustine and Aquinas and culminating in the work of Bonaventure—and so it should not be dismissed without argument. Furthermore, unlike some other principles which will be called into question below—such as that of the principle of unrestricted composition—this principle does not clash with our intuitions and does not entail some further problematic metaphysical theses. Hence, one should adopt this principle unless there is a good reason not to—note, the lack of interest in the principle is not a successful rebutting or undercutting defeater of it!

the being of something other than himself'. In other words, as perfect goodness is an essential 'attribute' of God *and* self-diffusiveness is essential to goodness itself, the existence of other entities outside of God will be an inevitable consequence of God's nature. In other words, the existence of other, non-fundamental (i.e. dependent or grounded) entities will be the necessary result of God's intention to produce good things.[54] Restating this within our metaphysical context, God—who is perfectly good—must diffuse his goodness by 'grounding' (i.e. metaphysically causing) the existence of these entities *via* the relation of grounding—God's action of 'grounding' the existence of non-fundamental entities is a product of his nature that stems from him necessarily, yet wilfully, spreading his goodness in this creative act.[55] Now, given that God will necessarily ground the existence of the other, non-fundamental entities that are part of the layered structure of reality, we also have the grounding coming along for the ride as well. More specifically, as noted previously, grounding is a *super-internal* relation.[56] A super-internal relation is one such that the intrinsic nature of one of the relata guarantees not only that the other relatum(a) exists—with the intrinsic nature that it does—but also that the relation that connects these entities would obtain as well—thus we have an

54 One could say that God's goodness would require him to diachronically cause—through the relation of nomological causation—the existence of these entities at a certain point in time, and then his goodness would also require him to *synchronically cause*—through the relation of metaphysical causation (i.e. grounding)—the existence of these entities throughout each moment of time. Thus, the 'causation' of these entities would have two stages: a diachronic stage and a synchronic stage, that would involve two different types of relations—a nomological causation relation and a metaphysical causation (i.e. grounding) relation, which fits well with the traditional position that God brought all of created reality into existence and also sustains all of created reality in existence at each moment of time.

55 That is, this diffusive act is not an 'impersonal emanation' of God but a personal act that include, firstly, his powers—that enable him to ground the existence of all other non-fundamental entities, secondly, his beliefs—that grounding the existence of other fundamental entities will diffuse his goodness—and, thirdly, his purposes—to diffuse his goodness by grounding the existence of all other, non-fundamental entities.

56 The following solution provided for the relational regress issue is that of Bennett's (2011, 32–35; 2017, 192–198). For other types of responses to this issue, see deRosset (2013) and Litland (2017), for a linking of grounding to explanatory arguments, and Fine (2012) and Rosen (2010), for essentialist solutions to the issue. Now, Bennett does not identify which specific fundamental entity would need to fulfil the role of stopping the regress by being the source of the instantiation of the relation of grounding. Thus, the theistic context in which this solution is explicated is original to this article. That is, God is taken here to be *this* fundamental entity; importantly, however, this does not mean that, *on the basis of super-internality of grounding alone*, other types of entities (such as the Cosmos or the collection of mereological atoms) cannot potentially fulfil this role as well—though these entities will be shown below to fail to fulfil this role once other issues are taken into account.

(indirect) entailment of the relation of grounding here. However, one can now ask the important question now of if we accept this result would not we have to face the problematic relational regress that was noted previously? Now, recall that the problem raised by Primitiveness is that of there being a potentially infinite regress of relations if one were to posit the fact of a relation of grounding obtaining in virtue of something else—namely, it not being fundamental. That is, if the grounding relation is instantiated in virtue of something else, such as God, then, according to the proponent of Primitiveness, there apparently must be a distinct dependence relation—not that of a relation of grounding in order to ward off the self-explanatory issue—to do the work, which then, in turn, would also need to obtain in virtue of something else, and so on and so forth. However, as Bennett (2011) has noted in a related context—despite the *prima facie* plausibility of the issue raised here—the super-internality of grounding does, in fact, deal with this problematic relational regress. This is simply because of the fact that super-internal relations–such as grounding—are such that, given the existence of the ground, *there does not need to be anything else that exists for it to ground the things that it does*. That is, as Bennett (2011, 35) notes, 'no genuinely new relation needs to be postulated'. Thus, the relation of grounding that links the grounding relation to its base is not an extra entity *over and above* its base any more than the relation of grounding is. In other words, if we have the grounding base, we have what exists in virtue of it—even when that is the relation of grounding itself. In short, there is no need to postulate the existence of any extra relations for God to serve as the ground of the non-fundamental entities and the fundamental explanation of the instantiation of the relation of grounding on particular occasions within the layered structure of reality. Thus, in returning to our previous illustration noted above (i.e. Figure 3), we can depict this regress now through Figure 7 as follows (with the again the arrows representing a grounding relation, the ellipses representing a regress and G now representing God):

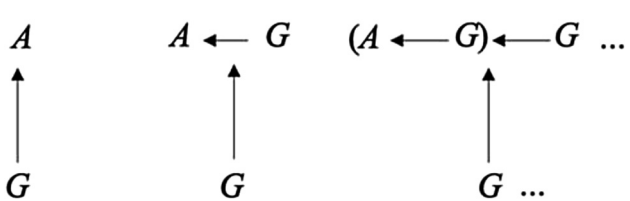

Figure 7: Relational regress (ii).

Using our factive language again, for clarity and succinctness, we see that the fact that G grounds A is grounded in the *intrinsic nature* of G and thus, given this, we thus do still have a regress present; however, this regress has now become *unproblematic*. As it is in virtue of the intrinsic nature of the facts

about God—the more fundamental facts—that (a) the grounded facts—the less fundamental facts—obtain and, more importantly, that (b) the grounding relation between facts about God and the grounded facts obtains. That is, by the super-internality of grounding, the fact that the grounded facts are grounded in facts about God is itself grounded in facts about God, and so on and so forth. In short, the grounds: God, grounds grounding. Hence, we thus have an *unproblematic regress* on the basis of the formal features of grounding (i.e. its super-internality). Thus, again in the language of relations and facts, we can, therefore, reach the position that, as God's (perfectly good) intentions are always realised, *if* there is a God, we can expect—with a level of certainty—that there will also be an instantiated relation of grounding that connects him to the non-fundamental entities that he necessarily grounds.[57] Theism thus fulfils Criterion (i) to a very high level.

Corresponding to this, we can also see the central claim provided by Theism—that there is a God, a metaphysically simple, omnipotence-trope—fits very well with our background knowledge as it posits the existence of certain a type of entity—a trope—that is at the foundation of contemporary metaphysics—or, at least, as with grounding, is a 'major concern of metaphysics'. Specifically, tropes are a standard feature of most current day ontologies—where influential metaphysicians such as Williams (1953, 1986), Campbell (1990), Schaffer (2001), Simons (1994), Maurin (2002, 2018), Ehring (2011), McDaniel (2001), and Loux (2015), all have utilised the concept of a trope within their ontological system. Moreover, tropes do not only feature in the ontological systems of various metaphysicians, but are also plausible options for dealing with various issues within contemporary philosophy. That is, tropes, amongst other things, find their use in the metaphysics of properties by providing a means for one to affirm a form of realism (Keinänen, Hakkarainen, and Keskinen 2016), or, in the metaphysics of persistence and identity by providing a basis for the notions of endurance and perdurance (Benovsky 2013), or, in the philosophy of physics by providing a philosophical basis for quantum theory and the Standard Model of elementary particles (Morganti 2009). Plausibly, the belief in the existence of tropes is widespread in contemporary metaphysics, and thus the postulation of the existence of God, identified as a (module) trope, meshes well with other theories from

57 An objection that can be raised here is how God's perfect freedom can be preserved given the Diffusiveness Principle. Well, in answer to this, following Kretzmann (1991, 223), we can say that God's freedom of choice is solely confined to his selection of what possibilities to actualise—God is necessitated as regards to *whether* to ground anything, yet he is perfectly free in regards to *what* he is to ground.

the neighbouring fields within contemporary metaphysics.[58] Theism thus fulfils Criterion (ii) to a significant level.

Furthermore, Theism is also a very simple explanation, or, in fact, the simplest possible personal fundamental explanation, as it explains the various phenomena of reality in terms of the powerful action of one fundamental personal entity: God—rather than many personal entities—and thus it is an explanation that is *quantitatively* simple—it is simpler than any other polytheistic based personal explanation. However, Theism is not only quantitively simple, but it is also *qualitatively* simple, in the sense that it postulates the existence of the simplest kind of personal entity. That is, as God is metaphysically simple, and thus lacks proper parts, God has the fewest number and kind of fundamental properties possible: *zero*. As, instead of possessing properties, each attribution made of God is numerically identical to him—God's attributes are God himself. There is thus no further explanation that is needed to be provided for why God has the properties that he does—as he does not have any properties. Furthermore, as Theism identifies God as a trope (of a modular kind), it posits the existence of an entity of the fewest number of fundamental kinds: *one*. Assuming the correctness of 'Classical Trope Theory', tropes allow one to affirm the existence of *one* ontological kind or category: the kind or category 'trope', with the other kinds or categories of 'substance' and 'universals' being denied.[59] Thus, by Theism positing the existence of God,

58 One could raise the objection here that the notion of a 'personal' trope is not widespread in contemporary metaphysics, and thus Theism does not mesh well with our background knowledge. In response to this issue, one can emphasise the importance of the type/token distinction for the Criterion of Background Knowledge. That is, for the postulation of the existence of an entity to be such as to fit within our background knowledge, this entity simply needs to be of a class (i.e. a type) of entities that are taken to exist within other fields; rather than it being a particular instance of this class (i.e. a token) that is regularly seen to be duplicated (as if this were, in fact, the case, then one would not be able to make discoveries of new instances of a given class, which one clearly can). Thus, even though God is a personal module trope—that is, he is able to be 'picked out' from the class of tropes by being personal (amongst other things)—as tropes are a class of entities that are widely taken to exist in other fields within contemporary metaphysics (outside of the field of analytic philosophy of religion and analytic theology), the postulation of the existence of God is a postulation of a *type* of entity that does, in fact, fit within our background knowledge—even if he is a unique instance of this kind. Whereas, for example, if one were to assume Swinburne's (2016, 103–126) construal of God as an omnipresent spirit, God would indeed be a type of entity that does not fit within our background knowledge, as spirits are *not* widely taken to exist in other fields within contemporary metaphysics (outside of the field of analytic philosophy of religion and analytic theology).

59 This is due to the fact of a trope being able to play the role of a substance—through forming a compresent bundle with other tropes—and universal—through the process of abstraction enabling one to fictionally treat a class of trope as universal-like entities.

one only has to be committed to the existence of one fundamental ontological kind or category, and thus this type of fundamental explanation allows one to continue to have a very parsimonious ontology. Theism is thus quantitatively and qualitatively the simplest personal and—as will be shown below—possible explanation, due to the fact that it postulates the fewest number and kind of fundamental entities: one, with the fewest number and kind of fundamental properties: zero. Theism thus fulfils Criterion (iv) as well.

Therefore, within our context of analysis, Theism provides the simplest kind of personal fundamental explanation that fits with our background knowledge and leads us to expect (with a level of certainty) the instantiation of the relation of grounding on particular occasions within the layered structure of reality. Theism thus fulfils all of the relevant components of our inductive criteria. The question that now presents itself is: does the thesis of Primitiveness and the other possible anti-primitive alternative fundamental explanations of Priority Monism and Priority Pluralism do so as well?

First, for Primitiveness, there is a postulation made concerning the fundamentality of the relation of grounding—namely, the relation is itself fundamental—due to the fact this relation is instantiated without any further explanation for its instantiation. One can ask, however, if we are indeed led to expect this data—that is, should we expect to find the relation of grounding, without, however, this relation being instantiated in virtue of any deeper, more fundamental entity (or relation)? I believe not. As, given Sider's (2011, 106–107) *purity principle*,[60] which can be stated succinctly as follows:

(23) (Purity) Fundamental truths only contain fundamental notions.

According to this principle, as Sider (2011, 107) notes, there is a requirement that 'facts about the *relationship* between the fundamental and the non-fundamental [must] themselves [be] non-fundamental'. That is, as the grounding connects non-fundamental entities to fundamental entities (or other non-fundamental entities), this relation takes on the quality of being non-fundamental, such that, as Bennett (2017, 189) writes, it becomes 'tainted by the non-fundamental thing on one side'. Hence, it follows from the purity principle that no relation of grounding can be fundamental—the connection between the fundamental and the non-fundamental *cannot* itself be fundamental. In other words, given the purity principle, we are not to expect any of the grounding relations that connect entities within the layered structure of reality to be instantiated on a particular occasion,

60 Builes (2018, 5) sees the plausibility of this principle to be grounded upon the fact that it is highly intuitive, which is brought out by the following statement of the principle by Sider (2011, 106) 'when God was creating the world, she was not required to think in terms of non-fundamental notions like city, smile, or candy'.

if there is no further, more fundamental entity that they are instantiated in virtue of. The predictive power of Primitiveness is thus very low.

Second, for Priority Monism, there is a postulation made concerning the existence of a fundamental entity: the Cosmos. This entity is identified as the spacetime manifold, with all other existing material objects being identified as spacetime regions that are dependent, proper parts of the Cosmos. Whereas, for Priority Pluralism, there is a postulation made concerning the existence of a collection of mereological atoms, identified as (point-particle like) module tropes, that make up, as proper parts, the larger existing concrete objects, and thus ultimately the Cosmos. So, or Priority Monism, there is thus the postulation of the existence of one fundamental entity, and for Priority Pluralism, there is the postulation of many fundamental entities. In regards to the predictive power of both explanations, however, it is clear that each of these explanations would possess a low predictive power in relation to our explanatory target, primarily due to the fact that we have no reason to expect there to be *any* grounding relations within the layered structure of reality, on the basis of the entities that are postulated by these two explanations. That is, on the one hand, even though individuals such as Schaffer (2010) take it to be the case that grounding plays an important role in the theses of Priority Monism and Priority Pluralism, what is, in fact, firstly, inbuilt into Priority Monism is of that the Cosmos being the sole fundamental entity that also has other existing concrete objects as non-fundamental *proper parts* of it. And, secondly, what is, in fact, also inbuilt into Priority Pluralism is that of the existing concrete objects being non-fundamental entities that are *composed* by the collection of fundamental mereological atoms—that is, the non-fundamental entities are decomposable into *these* very atoms. Thus, *contra* Schaffer, what is in fact entailed by both explanations is that of the instantiation of a relation of *composition*—rather than that of a relation of grounding—which then connects the fundamental entities (i.e. the Cosmos or the mereological atoms) to the non-fundamental entities (i.e. the concrete objects) within the layered structure of reality. Now, as composition is *not* identical to grounding—as both relations have different formal properties, specifically, that of composition being a *reflexive* relation and grounding being an *irreflexive* relation—one needs an additional reason to take there to also be a relation of grounding that exists over and above that of the relation of composition.[61] Therefore, in the absence of this reason, what we

61 Wilson (2014) does take composition to be a small 'g' grounding relation. However, she does this in rejection of the traditional understanding of grounding, and thus if one wants to affirm the reality of the relation of grounding, then one is not advised to adopt the approach proposed by her here.

do not have is any reason to expect the instantiation of the relation of grounding within the layered structure of reality—on the basis of the existence of the Cosmos or the many fundamental mereological atoms. Thus, as with Primitiveness, the predictive power of Priority Monism and Priority Pluralism are low as well. That is, Primitiveness, Priority Monism and Priority Pluralism thus fail to fulfil Criterion (i).

For the fit with background knowledge, we can also see that each of these theses fail to fulfil this task as well. As, firstly, for Primitiveness, as noted previously, grounding is a relation that is a species of causation (i.e. metaphysical causation) and thus, the type of relation that it is—namely, a causal relation—is one that is readily accepted within the wider field of metaphysics. However, despite the correspondence with our background knowledge, we appear to face an issue with this thesis' fit with a plausible principle that is situated within our background knowledge—namely, a *principle of modal recombination*, which can be stated precisely as follows:

(24) (Recombination) All logically possible combinations of these fundamental elements are metaphysically possible.

That is, it is reasonably the case that the fundamental elements that are part of the layered structure of reality are open to free modal recombination; as Schaffer (2010, 40) writes, the 'fundamental actual concrete objects should be freely recombinable, serving as independent units of being . . . Thus each should be, in Hume's words, 'entirely loose and separate'. As a fundamental entity does not depend upon anything else, it should thus not be modally constrained in any way. Hence, as Bennett (2011, 27; 2017, 191) argues, *if* grounding is indeed conceived of as a fundamental relation—such that it is not instantiated in virtue of anything else—then there will be a world *w* that is just like the actual world in terms of the distribution of all the rest of the fundamental entities, expect that nothing grounds anything else in *w*. Thus, any actually grounded entity in *w* must thus either fail to exist or be fundamental in *w*, both of which seem to be implausible. Therefore, as Bennett (2011, 27) writes, 'grounding is not amenable to free recombination, and thus is not fundamental'. Primitiveness thus seems to transgress a principle of modal recombination that can plausibly be taken to be part of our background knowledge—and thus, this thesis fails to correspond to it.

Secondly, for Priority Monism and Priority Pluralism, we have a similar conclusion being reached, where, for the former, there is a certain fit with our background knowledge through the notion of *substantivalism* (i.e. the thesis that the Cosmos is a spacetime substance that is non-derivative (i.e. fundamental)) being taken by various philosophers to be a potentially correct understanding of

the nature of the Cosmos.[62] And, for the latter, there is also a certain fit with our background knowledge through the concept of a trope, as noted previously, being a widely used notion within the various fields of contemporary metaphysics. However, where we see there to be a clash with our background knowledge for both of these theses is as follows: for Priority Monism, as noted by Le Bihan (2018), there seems to be a tension between it and the wider field of contemporary theoretical physics—and the field of the philosophy of physics, which it is grounded upon. Specifically, certain promising research programs in quantum gravity, such as loop quantum gravity and string theory, are taken by certain physicists to deny the fundamentality of spacetime (Le Bihan 2018). However, as the version of Priority Monism (with its assumption of the notion of substantivalism) that is under analysis identifies fundamental spacetime with the fundamental structure of the layered structure of reality—namely, the Cosmos—the denial of the fundamentality of spacetime in these views *might* undermine the notion of Priority Monism. That is, as Le Bihan (2018, 9) notes, for these reasons, 'priority monism, with its commitment to a fundamental spacetime, is at risk of being empirically refuted by the forthcoming physics'. Thus, to ward off this issue, one must drop this core assumption of the fundamental structure of reality being spatio-temporal—which has been suggested by Le Bihan (2018)—however, if this path is taken, then one will also lose one of the central ways of demonstrating the correspondence of Priority Monism with our background knowledge—primarily, that of the wide acceptance of the notion of substantivalism—which would thus result in one being faced with the same issue of Priority Monism failing to fit with our background knowledge. Thus, as it stands, on the basis of Priority Monism failing to correspond with (and actually be taken to transgress) the more well-established theses within the wider field of contemporary physics, it does not fit well with our background knowledge.

For Priority Pluralism, we do not have a transgression *per se* but the requirement for one to be committed to a highly controversial principle: the *principle of unrestricted composition*, which can be stated succinctly as follows:

(25) (Unrestricted) Every plurality of objects composes something.

One must affirm this principle—or something like it—in order for the thesis of Priority Pluralism to even get off the ground, as one can indeed ask the question

62 More specifically, the particular conception of substantivalism that is at the centre of the version of Priority Monism here is that of super-substantivalism—the view that the Cosmos is a spacetime substance that is the *only* fundamental entity. Nevertheless, the notion of substantivalism is at the core of this specific position, which is simply an additional numerical thesis. For a further explanation of substantivalism and the various conceptions of it on offer, see Huggett and Hoefer (2015).

that, given the fact that a certain collection of mereological atoms exists, why does it follow with certainty from the mere existence of these atoms that they compose anything? It follows with certainty if one is committed to the principle of unrestricted composition, but then one can ask the further question of why one should be committed to such a principle being included within our background knowledge, especially given the fact that this principle is itself highly controversial? As Cotnoir and Varzi (2021, 195) note, that individuals have regularly objected to this principle based on the fact that it would 'force us to accept the existence of all sorts of unheard-of entities that common sense does not recognize, such as a fusion of all cats, or the sum of a person's foot and a carburetor'.[63] Furthermore, in addition to the counter-intuitiveness of this principle, individuals have also held to it being one that carries with it significantly high costs, as Markosian (2008, 360, square parenthesis added) writes:

> Choosing among alternative philosophical theories always involves a cost-benefit analysis ... but to many of us, such costs as accepting brute compositional facts or admitting genuine vagueness into the world are relatively minor when compared to the triple whammy associated with [unrestricted composition]. For the proponent of [unrestricted composition] must first accept all of the many counterintuitive objects that the view entails; then he is forced to endorse the [Four-Dimensional] view of persistence; and, finally, he must also accept [unrestricted composition with unrestricted diachronic identity], with its radical and bizarre conception of persisting objects. In light of all of this, the choice for many of us will be clear: one way or another, composition must be restricted.

Thus, given the problematic affirmation of the principle of unrestricted composition that Priority Pluralism requires one to make, one can indeed hesitate, as with that of Priority Monism, to take this to be a thesis that does, in fact, fit with our background knowledge. Therefore, given these issues, Criterion (ii) is thus also not sufficiently met by Primitiveness and the two anti-primitive explanations of Priority Monism and Priority Pluralism. Thus, the question now is: can Primitiveness, Priority Monism and Priority Pluralism meet the final Criterion—the Criterion of Simplicity—instead? The answer to this is quite clearly again in the negative. As, first, Primitiveness fails to be quantitatively simple and/or qualitatively simple. That is, if one conceives of Primitiveness through the lens of grounding monism—which posits the fact of there being a single, generic relation of grounding—then this thesis is indeed qualitatively simple, as it postulates the existence of the fewest kinds of fundamental entities—one, generic kind of

63 On the basis of the work of Lewis (1991), who argued for the 'ontological innocence' of classical extensional mereology, Cotnoir and Varzi (2021, 194–197) go on to show how one is required to affirm the further controversial thesis of Composition as Identity in order to deal with this problem.

fundamental relation. However, it fails to be quantitively simple as it does not posit the existence of the fewest number of fundamental entities—as it would require a wide number of tokens of the grounding relation to be instantiated in order for the various non-fundamental entities to be connected to one another within the layered structure of reality.[64] Yet, on the other hand, if one were to conceive of Primitiveness through the lens of grounding pluralism—which posits the fact of there being a variety of relations of grounding—then this thesis would face an even more challenging issue of it failing to be both quantitively *and* qualitatively simple, as it does not postulate the existence of the fewest number of fundamental entities—rather, as with grounding monism, it would posit a large number of tokens of the grounding relation that are instantiated on a particular occasion within the layered structure of reality. Moreover, it would also not posit the fewest kinds of fundamental entities, as it postulates the instantiation of a wide variety of different kinds of grounding relations for different contexts—with moderate grounding pluralism positing the existence (and/or instantiation) of at least three grounding relations, and extreme grounding pluralism positing the existence (and/or instantiation) of at least five grounding relations. Primitivism, under both conceptions, is thus a thesis that is quantitative and/or qualitatively complex. Second, and in turning our attention to anti-primitivist options on the table: Priority Monism and Priority Pluralism, Priority Monism is a thesis that is quantitatively simple, but *fails* to be qualitatively simple, and Priority Pluralism is a thesis that is qualitatively simple, but *fails* to be quantitatively simple. That is, on the one hand, Priority Monism postulates the existence of one fundamental concrete object: the Cosmos, and thus postulates the existence of the fewest number of fundamental entities—*one*. Yet, it does not postulate the fewest *kinds* of entities or the fewest *number* or *kinds* of fundamental properties. That is, for the former, it fails to do this by assuming a *two-category* ontology—substance and attribute/tropes—where the Cosmos is the one fundamental *substance* that instantiates various universals, or is constituted by various tropes. Therefore, if one is thus to affirm the veracity of Priority Monism, then one must also affirm the veracity of this type of ontology, and therefore be saddled with the issues that are present within this type of ontology (such as Bradley's Regress).[65] Moreover, for the latter, as the Cosmos is the spacetime manifold that has material objects as proper parts of it in the form of spacetime regions, the properties of these material

64 As seen in Figure 2, there are at least four tokens needed.

65 This conclusion, however, is only reached by the version of Priority Monism that has been assumed throughout this article. I thus leave it as an open issue for further research whether other conceptions of Priority Monism (such as Priority Monism combined with nominalism) must also reach this conclusion.

objects are 'pinned' onto the Cosmos itself. The Cosmos thus instantiates a nearly infinite number of properties. The Cosmos, as construed in this way, would thus be *many propertied*, which renders Priority Monism as qualitatively complex rather than simple. On the other hand, we have Priority Pluralism which postulates the existence of many fundamental objects—many mereological atoms, that, as module tropes would be metaphysically simple—and thus, it posits the existence of the fewest number and kind of fundamental properties—zero properties. Yet, as there needs to be a near-infinite number of existing mereological atoms for the composition of the variety of actual material objects that are part of the layered structure of reality. There are thus *many* mereological atoms, which renders Priority Pluralism as quantitatively complex rather than simple. Primitivism and the two anti-Primitivist explanations on offer thus each fail to fulfil Criterion (iv), and, therefore, taken this together now with the previous criteria, each of these theses—Primitivism, Priority Monism and Priority Pluralism—are ones that, firstly, fail to predict the data at hand, secondly, fail to fit with our background knowledge, and thirdly, are each taken to be complex theses. It will be important now to compare the results reached here with that of the thesis of Theism.

In regards to the occurrence of our explanatory target—the instantiation of the relation of grounding on particular occasions—we have one primitive thesis: Primitivism, and three candidate fundamental explanations: Theism, Priority Monism and Priority Pluralism. With the anti-primitive explanation of Theism, we have a candidate fundamental explanation that fits with our background knowledge and yields (or predict) the data to an extremely high level. However, what we find with the thesis of Primitivism and the two other anti-primitive explanations: Priority Monism and Priority Pluralism, is that of there being a postulation made concerning the nature of certain fundamental entities—the relation of grounding, the Cosmos or the collection of mereological atoms—that do *not* fit with our background knowledge and yield (or predict) the data to any significant level—that is, these theses have elements that do not fit with our wider knowledge of the world and, more importantly, our explanatory target is not to be expected, given the truth of these theses. Furthermore, with the entities expressed by Primitivism, Priority Monism and Priority Pluralism, we also have a set of theses that are each less simple than the postulation made by Theism. That is, Theism, as noted above, postulates the existence of one fundamental entity: God. This single fundamental entity is a metaphysically simple omnipotence trope (who is identical to each of the attributes ascribed to him) and thus instantiates *zero* properties. Theism—unlike Primitivism (as conceived through grounding monism and pluralism) and Priority Pluralism—postulates the fewest number of fundamental entities—one module trope, rather than many token relations or module tropes—and—unlike Primitivism (as conceived through grounding pluralism) and

Priority Monism—it postulates the fewest kind of fundamental entities—one kind: trope, rather than many kinds, or (at least) two kinds: substance and attributes. Furthermore, it postulates the fewest number and kind of fundamental properties—zero properties, rather than many. Thus, in comparison to Primitiveness, Priority Monism and Priority Pluralism, Theism is a simpler explanation of our explanatory target. In other words, Theism fulfils our inductive criteria to a greater extent than the primitive option and the other alternative inanimate fundamental explanations that are available. And thus, given this, we have a good reason to take these latter anti-primitive explanations to solely be *full* metaphysical explanations of our explanatory target (i.e. metaphysical explanations that fully explain the data, yet have a further synchronic explanation for them), rather than fundamental explanations (i.e. metaphysical explanations that fully explain the data and do not have a further synchronic explanation for them) that can each serve as a terminus in explanation for the instantiation of the relation of grounding. More specifically, as noted previously, if one can formulate an explanation that allows us to have a metaphysical explanation with a greater fulfilment of our inductive criteria than the existing options, without also there being a corresponding loss in the fulfilment of any other of the components of the criteria, such as fit with background knowledge, predictive power or simplicity, then we have good reason to adopt *that* explanation as being the fundamental explanation for our explanatory target. Theism, in comparison to Primitiveness, Priority Monism and Priority Pluralism, is the simplest explanation, fitting with our background knowledge, that leads us to expect the instantiation of the relation of grounding on particular occasions within the layered structure of reality, when otherwise we would not expect for this to occur.

God thus acts as the fundamental source of the relation of grounding—his existence is sufficient for instantiation of this relation that connects the various entities within the layered structure of reality (and back a metaphysical explanation for them existing as they do). In other words, the existence of God thus provides a sufficient fundamental explanation for reality having the structure that it does. And, importantly, we do not need to search for a further explanation *beyond* God, as being a *metaphysically simple entity that exists fundamentally*, his existence is inexplicable, and his grounding agency necessitates the instantiation of this relation, without there being any type of problematic regress. In short, the structure of reality has God, and God alone as its architect. And thus, given this, we have a successful *abductive* argument for the existence of God, by the postulation of his existence providing us with the best, or more specifically, the *only* true fundamental explanation for the instantiation of the relation of grounding within the layered structure of reality. We thus have one more good reason to believe in the existence of God.

5 Conclusions

In conclusion, in section one, an explanatory framework was established, which provided us with the needed tools: an inductive criteria, to assess the potential worth of a given metaphysical explanation. In section two, our explanatory target was detailed: that of the instantiation of the relation of grounding on particular occasions. And the nature of this explanatory target was further elucidated within a certain metaphysical picture concerning the layered structure of reality. In section three, a primitive thesis—termed Primitiveness—and some candidates for a fundamental explanation of our explanatory target were detailed and assessed for their fulfilment of our inductive criteria. These candidates were: Theism, Priority Monism and Priority Pluralism. In this assessment, Theism was shown to be an explanation that fulfils the inductive criteria to a greater level than Primitiveness and the alternative explanations of Priority Monism and Priority Pluralism. Thus, Theism provides the simplest explanation, fitting with our background knowledge, that leads us to expect instantiation of the relation of grounding on particular occasions within the layered structure of reality, when otherwise we would not be expected for this to occur. Theism is the sole true fundamental explanation of our explanatory target. And, therefore, given the instantiation of the relation of grounding on particular occasions, we thus have another good (abductive) reason to believe that God exists as well.

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