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Metaphysical Explanation and the Cosmological Argument

1. Introduction

Cosmological arguments seek to infer the existence of God from some feature of the cosmos. The Leibnizian argument from contingency is one of the most prominent versions. Though the argument from contingency comes in a variety of formulations and targets a variety of phenomena, my focus is on a deductive version that targets contingent facts as the phenomena in need of explanation, exemplified by the following typical structure.¹

1. There is an explanation for why there are any contingent facts at all.
2. No contingent fact can explain why there are any contingent facts at all.
3. Therefore, there must be non-contingent (i.e., necessary) facts that explain why there are any contingent facts at all.

Typically, the cosmological argument is divided into two stages. The first stage seeks to establish the existence of some necessary fact(s), the idea being that only necessary facts will be explanatorily adequate to explain the existence of contingent facts. The second stage seeks to establish that the necessary fact(s) in question pertains to a divine being. By examining the cosmological argument outlined above, the focus of this paper is squarely on stage one. Premise 1 of the argument is a version of the Principle of Sufficient Reason (PSR) and is the engine that drives the argument. It is not surprising, then, that much of the discussion of this argument tends to focus on premise 1 at the expense of premise 2. Since my focus will be on premise 2, I grant the theist premise 1.

Following Ricki Bliss' terminology, I will refer to premise 2 as 'the Externality Assumption'.² It says that only a fact that is non-contingent or external to the collection of contingent facts can explain why there are any contingent facts at all.³ Consider an infinite series of contingent facts, f_1, f_2, \dots such that f_n is explained by f_{n+1} . While each fact has an explanation, the theist argues that the whole in some sense fails to receive an explanation. In lieu of some

¹ I've adapted this from Joshua Rasmussen (2010: 806-807). See Reichenbach (2022), section 4.1, for a similar but more detailed version.

² Bliss 2019, p. 360.

³ As a more general principle, Pruss and Rasmussen (2018: 45) say, "no facts about the existence or activities of contingent instances of F can, by themselves, explain why *there exist* those things that are F ".

facts external to the collection, infinite regresses of the sort under consideration allegedly exhibit a kind of explanatory failure.⁴ David Hume and Paul Edwards famously denied the Externality Assumption.⁵ Since each fact in the infinite series is explained by its antecedents, Hume and Edwards say they are all thereby explained. No appeal to non-contingent facts is required. This has come to be called the Hume-Edwards Principle (HEP).⁶

In this paper, I articulate and defend Hume and Edwards' response to premise 2 in a new light by examining the cosmological argument from contingency within a framework of metaphysical explanation or ground. In previous work (Oberle 2023), I introduced a ground-theoretic version of the Hume-Edwards Principle (G-HEP) that says, roughly, if each member of a plurality has a ground, then the plurality has a ground as well. I applied G-HEP to a prominent argument for metaphysical foundationalism that parallels the Leibnizian cosmological argument, which says no dependent fact can explain why any dependent facts exist at all. In this paper, I present an adapted version of G-HEP and apply it to the case of contingent facts within the context of the cosmological argument from contingency.

Here's the plan for the paper. In the next section, I introduce the notion of metaphysical explanation. In section 3, I provide two lines of justification for examining the cosmological argument within a framework of metaphysical explanation. In section 4, I clarify the explanatory target of the cosmological argument and introduce my version of G-HEP. The bulk of my defence of G-HEP takes place in section 5 where I address the prominent objection that G-HEP is circular. I argue that this objection requires a controversial assumption regarding the nature of ground that is difficult for the theist to justify. In section 6, I briefly consider one interpretation of Leibniz's suggestion that non-well-founded explanations are incomplete. In section 7, I respond to recent objections to HEP by Pruss and Rasmussen (2018).

2. Metaphysical Explanation

Metaphysical explanations pertain to what makes something's being the case in a non-causal sense and concern the constitutive generation of a dependent outcome.⁷ For example, to causally explain the occurrence of a football match, we will describe the events preceding the match that led to its occurrence. To metaphysically explain it, we will describe the underlying 'goings-on' that make it the case that a match is occurring. We might say the occurrence of a football match is metaphysically explained by, and dependent upon, the various actions of its participants. I restrict my focus here to a conception of metaphysical explanation understood in

⁴ It's important to note that different versions of the Leibnizian argument may be indexed to different kinds of explanation (though I am arguing here that the version under consideration is best interpreted in terms of metaphysical explanation or ground). So, one may hold that the Externality Assumption is true for only some kinds of explanation. In what follows, I argue that given plausible principles of ground, the Externality Assumption doesn't hold.

⁵ Edwards says, "If we have explained the individual members there is nothing additional left to be explained" (2000, p. 207: 113-114). See Hume (1980: Part 9, page. 56).

⁶ One who accepts the Externality Assumption might think that each fact in an infinite series is explained, as Hume and Edwards would have it, while also holding that the general fact *that there are any contingent facts* is not thereby explained. In section 4 below, I'll caution against construing the argument's explanatory target as an existential fact of the form *there are contingent facts*.

⁷ Schaffer (2017, p. 305).

terms of the notion of ground.⁸ On this approach, we can plausibly say the fact that a football match is occurring is grounded in, or obtains in virtue of, facts about the actions of its participants. Unless otherwise noted, I use ‘explanation’ and ‘ground’ interchangeably throughout this paper.

My preference is to treat ground as a relational predicate that applies to facts. On this approach, grounding claims take the following form.

The fact that S is grounded in the facts, Γ .

Though not required, I adopt the relational approach to streamline discussion.⁹ As a relation between facts, I have in mind a conception of facts as representational entities, such as propositions.¹⁰ Thus, it is the truth of a contingent fact that is grounded in more basic facts.

As a form of metaphysical explanation, ground can be full or partial. We can say that Δ partially grounds A if it contributes to explaining or helps to explain A , and Δ fully grounds A if Δ provides us with a satisfactory or full explanation of A (Trogon and Witmer 2021: 252). By a satisfactory or full explanation, I mean that Δ leaves nothing to be explained about A . Thus, a standard definition of partial grounding can be offered in terms of full grounding, while full grounding itself is left undefined in a formal sense, though not uncharacterized.

x is partially grounded by y =*df* there are Γ such that y is among Γ and x is fully grounded by Γ (Dixon 2020: 245).¹¹

When I use ‘ground’ throughout this paper without qualification, I mean full ground. Ground is also standardly assumed to have various formal properties that are relevant to our discussion of the cosmological argument. Explanation in general is typically assumed to form a partial order: it is anti-symmetric and irreflexive (asymmetric) and transitive. Though somewhat controversial, I assume that (partial) ground has these formal properties as well.

Ground is also useful for defining a notion of fundamentality. Those facts that are ungrounded are fundamental.¹² Metaphysical foundationalists endorse this conception of fundamentality insofar as they think that ground is well-founded. A natural conception of well-foundedness is in terms of a chain of ground terminating in some fundamental facts in a finite number of steps or links. However, it is widely recognized that foundationalism is compatible with infinite chains of ground, where any two elements in a chain of ground can contain infinitely many elements between them.¹³ Thus, I follow Scott Dixon (2016: 446) in defining well-foundedness as follows.¹⁴

⁸ There are other conceptions of metaphysical explanation. For example, Cameron 2022 argues that metaphysical explanation should be divorced from determination relations like grounding altogether.

⁹ See Dasgupta (2014) for a discussion of the relational and operator approaches to ground.

¹⁰ See Rosen (2010).

¹¹ See also Audi (2012, p. 698), Rosen (2010, p. 115), and Fine (2012, p. 50). See Trogon and Witmer (2021) for disagreement regarding this definition of partial ground.

¹² Schaffer (2009, p. 373).

¹³ For example, see Rabin and Rabern (2016, p. 369).

¹⁴ Rabin and Rabern (2016) independently arrive at an equivalent understanding of well-foundedness.

FS Every non-fundamental fact x is fully grounded by some fundamental facts Γ .

Though beyond our purview here, FS allows for several grounding structures that are intuitively well-founded but nevertheless contain infinite chains of ground.

Theism is straightforwardly a form of metaphysical foundationalism. Consider the doctrine of divine aseity. *Aseity* derives from the Latin *a se*, meaning *of or from itself*. The doctrine says that God does not have his existence in virtue of anything else, and thus is ontologically independent. This notion of independence is equivalent to our notion of fundamentality in terms of ungroundedness above.¹⁵ And since everything other than God has the ultimate source of its existence in God, it will be facts about God's existence, or perhaps facts about an act of God's will, that ground every non-fundamental fact.

By contrast, the metaphysical infinitist denies that ground must be well-founded. The infinitist thinks that ground is a strict partial order but simply maintains there is nothing problematic with indefinitely descending chains of ground, i.e., chains that are not ultimately grounded in some fundamental facts. I'll assume that the proponent of the Hume-Edwards response to premise 2 of the cosmological argument endorses metaphysical infinitism.¹⁶ While the theist maintains that indefinitely descending chains of ground are explanatorily problematic, the proponent of the Hume-Edwards response maintains that such chains of ground are metaphysically possible and exhibit no explanatory failure of any kind.

3. Metaphysical Explanation and the Cosmological Argument

In this section, I offer two reasons for examining the cosmological argument within a framework of metaphysical explanation. First, metaphysical explanation is a kind of explanation that is relevant to cosmological arguments in general. As I note elsewhere (Oberle 2022), it is the idea of one thing existing in virtue of, or depending upon, another ad infinitum that has plagued many theists over the centuries. For example, Samuel Clarke argued that,

To suppose an infinite succession of changeable and dependent beings produced one from another in an endless progression without any original cause at all is only a driving back from one step to another and, as it were, removing out of sight the question concerning the ground or reason of the existence of things.¹⁷

And Caleb Cohoe, commenting on Aquinas' First Way, maintains that if there were no first fundamental or independent cause, "There would be ontologically dependent entities with nothing on which to depend. This is impossible".¹⁸ Of course, this is not to say that these

¹⁵ See Oberle manuscript.

¹⁶ An alternative position to both foundationalism and infinitism that may be compatible with HEP is metaphysical coherentism (see Cameron 2022 and Bliss 2014 for relevant discussion). I restrict my discussion in this paper to infinitism because coherentists deny that ground is a strict partial order (asymmetry and transitivity) and discussing these issues would take us too far afield.

¹⁷ Clarke (1998, p. 11).

¹⁸ Cohoe (2013, p. 840).

historical thinkers have in mind the very same notion of ground that contemporary metaphysicians do. Nonetheless, in the minds of many metaphysicians today, grounding captures a distinctive sense of metaphysical priority and dependence that is strikingly similar to the notion of dependence that many theists have traditionally been concerned with when formulating cosmological arguments.¹⁹

This general consideration is corroborated by the appearance of quasi-cosmological arguments in the contemporary grounding literature. I call these arguments ‘quasi-cosmological’ because their primary aim is to establish the existence of fundamental facts rather than the existence of God. Nonetheless, these arguments are nearly identical to historical and contemporary versions of the cosmological argument in form if not content. For example, Ricki Bliss presents and evaluates the following argument, which is reminiscent of Clarke’s version of the cosmological argument.²⁰

1. There is an explanation for why there are any dependent facts whatsoever.
2. No dependent fact can explain why there are any dependent facts whatsoever.
3. Therefore, there must be fundamental facts.

By ‘explanation’, Bliss means metaphysical explanation or ground. Notice how the structure of Bliss’ argument parallels the structure of our contingency argument outlined earlier. Both begin with an explanatory principle in premise 1 and then appeal to the Externality Assumption in premise 2.

Second, the Leibnizian cosmological argument in particular is arguably committed to a non-causal form of metaphysical explanation. The reason is that this style of argument does not seek to establish the existence of God as a first efficient cause in the way that, say, Thomas Aquinas’ proofs do. Rather, the Leibnizian argument seeks to establish the existence of God as the ultimate *reason* for why there are any contingent facts rather than none. And the sort of explanation that an ultimate reason is meant to convey is arguably captured by the contemporary notion of ground.

Consider what Leibniz says at the beginning of *On the Ultimate Origination of the Universe*. He argues that God is “superior to the world and, so to speak, beyond the world, and is therefore the ultimate reason of things”.²¹ God is, in some sense, the *extramundane* reason for things. Kenneth Pearce (2017) has interpreted Leibniz’ notion of an extramundane reason to mean a non-causal form of metaphysical explanation or ground. This reading is plausible given what Leibniz says a few lines down.

You may well suppose the world to be eternal; yet what you thus posit is nothing but the succession of its states, and you will not find the sufficient reason in anyone one of them, nor will you get any nearer to accounting rationally for the world by taking any number

¹⁹ See Oberle 2022 for a more detailed discussion of this similarity.

²⁰ Bliss (2019, p. 373). I’ve amended Bliss’ version slightly to target facts. Other examples of quasi-cosmological arguments in the grounding literature can be found in Dasgupta (2016), Schaffer (2010), and Cameron (2008).

²¹ Leibniz (1965, p. 84).

of them together: the reason must therefore be sought elsewhere. Things eternal may have no cause of existence, yet a reason for their existence must be conceived.²²

Here Leibniz explicitly juxtaposes causal explanation with the sort of explanation given by reasons. Leibniz is not attempting to establish the finitude of the past, as the Kalam cosmological argument does, and so grants that the series of contingent beings may be infinite. Thus, an ultimate reason for Leibniz is not intended to be a first cause that is temporally prior to all contingent things. Rather, it is intended to be a metaphysical ground that is ontologically prior to all contingent things in a non-causal manner.

The Leibnizian cosmological argument, therefore, is best understood within a framework of non-causal metaphysical explanation. And a good candidate for this kind of explanation is the contemporary notion of ground.

4. The Hume-Edwards Principle

As I mentioned earlier, the dialectical context of this paper is between the theist or metaphysical foundationalist and the metaphysical infinitist. This is appropriate since the Leibnizian cosmological argument grants that there is an infinite series of contingent facts. What the theist affirms is that there are fundamental facts that ground all the derivative facts. The infinitist, by contrast, denies the well-foundedness of ground. She will insist that insofar as each fact in an infinitely descending chain of ground has a ground, they all do. But before introducing my version of HEP, I need to clarify the explanatory target of the cosmological argument. Recall our outline of the argument from earlier.

1. There is an explanation for why there are any contingent facts at all.
2. No contingent fact can explain why there are any contingent facts at all.
3. Therefore, there must be non-contingent (i.e., necessary) facts that explain why there are any contingent facts at all.

Premise 1 stipulates our explanatory target as the existence of contingent facts. But there is considerable leeway in how we interpret this target. Do we mean the conjunction of all contingent facts or perhaps the set of all contingent facts? Or the general/existential fact that *there are contingent facts*? It is unclear from premise 1 alone how we ought to construe our target.

Fortunately, the notion of metaphysical ground itself gives us some direction here. Widely accepted principles of ground maintain that conjunctions are grounded in their conjuncts, sets are grounded in their members, and existentially quantified facts are grounded by each of their obtaining instances.²³ This makes interpreting the explanatory target of the cosmological argument as either the conjunction or set of all contingent facts, or the existentially quantified fact *there are contingent facts* implausible because there is a straightforward explanation of these

²² Leibniz (1965, p. 85).

²³ See Rosen (2010, p. 117) and Fine (2012, p. 59).

targets that requires no appeal to any non-contingent or necessary facts that are ‘external’ to the collection in question.

While these principles of ground are not entirely uncontested, I suggest we avoid these issues by following Pruss and Rasmussen (2018: 34-35) in construing our explanatory target as the *plurality* of all contingent facts.²⁴ On this approach, the theist is after an explanation of the existence of all *these* contingent facts taken plurally. Framing the explanatory target in this manner has the advantage of allowing us to speak of all contingent facts without presupposing that they form a distinct entity in and of itself, like a set, since a plurality is nothing over and above its members.²⁵ Let ‘*ff*’ be a plural term denoting all and only the contingent facts. The challenge, then, will be to say what grounds *ff*.

Construing our explanatory target as a plurality requires a plural conception of ground. Ground is typically thought of as a many-one relation. Call this *singularist ground*. While the explanans can be comprised of many facts, it is typically assumed that the explanandum is a single fact. Following Dasgupta (2014: 4), this conception of ground takes the following logical form.

Y is grounded in the Xs

Where ‘Y’ is a singular variable and ‘the Xs’ is a plural variable, both ranging over facts. On a plural notion of ground, however, ground is a many-many relation. Call this *pluralist ground*. This conception of ground takes the following logical form.

The Ys are grounded in the Xs

Where both ‘the Ys’ and the ‘the Xs’ are plural variables ranging over facts. Instead of a plurality of facts grounding a single fact, we have one plurality grounding another plurality. *They* are explained by *them*. While plural explanations may be less common in the literature, they are no less viable than singularist explanations. For example, suppose you encounter an angry mob outside your workplace. You may well wonder not why each person is there but why *they* are there. Granted, there will be explanations of why each individual person is there. But there may also be an explanation of why *they* are all there, perhaps because of a controversial statement you posted to your social-media account the day before. We might think similar considerations hold for plural ground.²⁶

Given our construal of the explanatory target as the plurality of all contingent facts, we can offer the following ground-theoretic version of Hume and Edwards’ Principle (G-HEP).²⁷

G-HEP The plurality of all contingent facts, *ff*, are fully grounded iff, for each fact *x* among *ff*, there are Γ such that Γ fully grounds *x*.

²⁴ See Oberle 2023 for more detailed discussion of this approach.

²⁵ See Boolos (1984) and (1985).

²⁶ See Litland (2016).

²⁷ This version of G-HEP is adapted from Oberle 2023.

G-HEP is endorsed by the infinitist who maintains that every fact is grounded in some further facts ad infinitum. The infinitist, therefore, views the structure of reality in terms of infinitely descending chains of ground. On this view, we obtain a ground for ff by taking the union of full grounds of each member of ff . That is, for any x among ff , take the full ground, Γ , of x . Let's say that ' Δ ' denotes the union of full grounds for every member of ff . Our full ground of ff , therefore, is Δ .

An immediate worry with this proposal is that G-HEP is circular since it seems we are saying that the ground of ff is ff . And ground is allegedly irreflexive. Indeed, the primary justification offered by theists for the Externality Assumption, premise 2 of the cosmological argument, is that violations of it by proposals such as G-HEP are circular. As I argue in the next section, G-HEP is circular only if we make a controversial assumption regarding the nature of plural ground, namely, that it is collective rather than distributive. And as we'll see, it is unclear what independent motivation there is for thinking plural ground must be collective in the present dialectical context.

5. The No Circularity Objection

The prevailing justification for the Externality Assumption – that only a fact external to the plurality of contingent facts can explain why there are any contingent facts - is that explanations that violate it are circular. Call this the 'No Circularity Objection'. Insofar as both the theist or foundationalist and infinitist assume that explanation is anti-symmetric and irreflexive (i.e., asymmetric), explaining the existence of contingent facts in terms of contingent facts as G-HEP proposes is a non-starter. Consider the following examples. William Rowe (1997: 197) raises this objection within that context of a cosmological argument that targets dependent, rather than contingent, entities. But the same point still applies. He writes,

If you are going to explain why there are *any* objects of a certain kind (where it is a contingent matter that there are objects of that kind), you cannot do so by citing a fact of the form ' X caused there to be Y s', where X is an object of the kind in question. For to do so is circular.

Rowe suggests that explaining why there are any dependent entities by appealing to further dependent entities would be like explaining why there are any human beings by appealing to the causal activity of Adam and Eve in producing other human beings (1997: 190). He says, '...if every being were dependent any proposed explanation of why there are dependent beings would be viciously circular' (1997: 200). The same consideration seems to apply to contingent entities. For example, Peter van Inwagen writes,

In general, to explain the existence of the members of any class of contingent beings, one must cite facts about the properties and relations of beings outside that class. For example, to explain the existence of the human species, one must cite some facts about God or about non-human ancestors of human beings or about *something* besides human beings. And doesn't this rule apply to the whole class of contingent beings? To explain the fact that contingent beings exist "at all," one must cite some facts about non-contingent beings. And non-contingent beings are just necessary beings: any explanation

of the existence of contingent beings must involve facts about one or more necessary beings.²⁸

And Rasmussen argues,

For even if the explanation of a whole is entirely in terms of explanations of its parts, the parts *themselves* cannot be explained by those same parts – not without circularity. To avoid circularity, an explanation of the existence of some items (whether finite or infinite) must go beyond those same items.²⁹

However, it is initially puzzling what is supposed to be circular about G-HEP. Suppose we have a series of contingent facts f_1, f_2, \dots such that f_n is grounded by f_{n+1} . The series is, therefore, infinite. G-HEP tells us that since each fact is grounded, they all are. What, exactly, is circular about this proposal? Given that the series is infinite, it's not as though the infinitist thinks we have a series of facts that repeats, such that f_1 explains f_2 , f_2 explains f_3 , f_3 explains f_4 , ... f_n explains f_1 . Rather, at each 'level' of explanation, we have distinct facts from the ones that came before. So, there's no obvious threat of circularity in that regard.

As I've argued elsewhere (Oberle 2023), my suggestion is that the only plausible way to motivate the No Circularity Objection is if we assume that plural ground is collective as opposed to distributive. The distributive/collection distinction as applied to predicates is well known. Take the statement, "The boys are tall". 'Are tall' is a distributive predicate. The boys are tall just in case each individual boy is tall. By contrast, the predicate 'surround the building' is collective. It is true of the boys as a group that they surround the building even though no individual boy surrounds the building.

We can define distributive and collective notions of plural ground as well. Take two pluralities of facts, Δ and Γ . Let's stipulate that Δ grounds Γ . On a distributive reading, each plurality will decompose into members such that individual members of one plurality ground individual members of the other. Fine (2012: 54) gives the following definition, where '<' denotes strict full ground. If Δ distributively grounds Γ , then

there is a decomposition of Δ into subsets $\Delta_1, \Delta_2, \dots$ (with $\Delta = \Delta_1 \cup \Delta_2 \cup \dots$) and a corresponding decomposition of Γ into members C_1, C_2, \dots (with $\Gamma = \{C_1, C_2, \dots\}$) such that $\Delta_1 < C_1, \Delta_2 < C_2, \dots$ ".

The idea for our purposes here is that for any plurality of facts, f_1, f_2, f_3, \dots , that distributively ground another plurality, g_1, g_2, g_3, \dots , it is individual members of the first plurality that ground individual members of the second plurality, such that f_1 grounds g_1 , f_2 grounds g_2 , f_3 grounds g_3 , ... etc. In other words, given two pluralities of facts, distributivity entails that individual members of each are grounded in individual members of the other.

²⁸ Van Inwagen (2024, p. 159).

²⁹ Rasmussen and Leon (2019, p. 18).

By contrast, on a collective reading, if Δ is grounded by Γ , then it is all the facts among Δ taken together that have a ground, while each does not. Jon Litland (2016: 534) has proposed a non-distributive notion of plural ground, one which allows a plurality, Γ , to ground another plurality, $\delta_0, \delta_1, \dots$ even though every Γ' that is a member of Γ is such that for no δ_i does Γ' ground δ_i . In other words, Γ grounds the plurality, $\delta_0, \delta_1, \dots$ even though no particular member of that plurality is grounded by Γ .³⁰

Now, the target of our explanation is the plurality of all contingent facts, ff . Recall that the infinitist maintains that insofar as each contingent fact is grounded by some further contingent facts *ad infinitum*, all the contingent facts are grounded. This proposal is unproblematic given a distributive notion of plural ground. As I mentioned earlier, for any x among ff , take the full ground, Γ , of x . Δ corresponds to the union of full grounds for every member of ff , which simply will be ff . But it's important to note that there is no circularity here on a distributive reading. It is not the case that the very same plurality of facts, ff , grounds Δ . Rather, it is only the case that the plurality ff has a ground just in case each individual member of that plurality has a ground, as G-HEP maintains. Insofar as each has a ground, they all do. In other words, G-HEP says that the relevant plurality is grounded in its members. As a result, no circularity ensues.

However, there is a threat of circularity for the infinitist's proposal if plural ground is collective. Let's say that ff is explained by Γ , where Γ is some unspecified plurality of facts. On a collective reading, Γ grounds ff even though there is no subset of Γ that grounds any individual member of ff , just as the building is surrounded collectively by the boys while none of them individually do. But the infinitist's proposal above was that the union of full grounds of each member of ff amounts to ff . Thus, in the present case, we can substitute ff for Γ . On a collective reading, then, the result is that ff (collectively) grounds itself, thus violating the irreflexivity of ground. On a collective reading, then, G-HEP is hopelessly circular.

So, the No Circularity Objection requires a collective notion of plural ground in order to succeed. However, it is unclear what independent motivation the theist can provide for thinking plural ground must be collective in this instance. The infinitist will assume that plural ground is distributive and ask the theist why it is illegitimate for her to do so. It is unclear to me what the theist can say in response. As I've argued elsewhere (Oberle 2023), challenges to distributivity in the literature are quite targeted. For example, Dasgupta (2014) motivates a plural non-distributive notion of ground by arguing it is required to properly formulate structuralist views like *qualitativism*, the view that the fundamental truths are qualitative, and *comparativism* about mass, the view that truths about masses of individual objects are grounded in mass-relations. While it is unclear to me how these challenges are relevant to the issue at hand, here's one way to try and motivate the issue.

Dasgupta (2014) and Litland (2016) appeal to *explanatory relevance* in motivating their accounts of plural ground. On this view, if x grounds y , x must be explanatorily relevant to y , otherwise mere necessitation would suffice for grounding. If mere necessitation were sufficient for grounding, then any truth would ground the fact that $2+2=4$. As Litland notes, this idea of

³⁰ Litland does not explicitly formulate these claims in terms of pluralities.

relevance, or what he calls ‘support’, can help motivate a collective notion of ground. Suppose a plurality, Δ , grounds another plurality, Γ . We might think that while no member of Δ is individually relevant for any individual member of Γ , Δ itself is relevant to Γ .

Applying this to the present case, the theist’s worry may be that even if ff has a distributive ground in virtue of each fact being grounded in some further fact ad infinitum, there is nonetheless some facts *about* ff left over that still need to be explained. Maybe there are facts about ff that can only be explained holistically such that a collective ground of ff is nonetheless still required. If that is the case, then we might think that no individual contingent fact is explanatorily relevant to explaining certain facts about ff .

What might these facts be? Here’s one suggestion. Perhaps the fact that ff exists requires a collective ground. The idea here would be that while each contingent fact has an explanation in virtue of the next ad infinitum, we still don’t have an explanation for why they all exist. The idea is that the members of ff , call them the x s, collectively exist while no individual x exists. However, this suggestion strikes me as implausible. Existence is, I think, a distributive affair. Insofar as John exists and Mary exists, we can infer that John and Mary exist. Consider that our explanatory target is the *plurality* of all contingent facts. If we were to suggest that ff exists while no individual member of ff exists, then it seems we are making a conceptual mistake regarding the nature of pluralities. After all, what it is to be a plurality is plausibly just to be many genuine individuals.³¹ And that implies that the individuals themselves exist. It seems, then, that there cannot be a plurality without any genuinely existing individuals that make up the members of that plurality in the first place.

What about contingency? Perhaps the fact that ff is contingent requires a collective ground. The idea here would be that even if each individual fact that is a member of ff is explained in terms of further individual facts ad infinitum, we have not thereby explained why they are all contingent. Again, this option strikes me as unmotivated. I think we can plausibly say that insofar as the contingency of a given fact, f_1 , is explained in terms of another fact, f_2 , and the contingency of f_2 is explained in terms of f_3 , and so on ad infinitum, we have thereby explained why they are all contingent. Otherwise, we would be forced to say that the x s collectively are contingent while no individual x is contingent, which strikes me as implausible.

More plausible examples include well-known non-distributive or collective predicates that would apply to ff but no individual member of ff , such as ‘is numerous’. The plurality of all contingent facts is numerous, yet no individual member of that plurality can be said to be numerous. As a result, the fact that *the contingent facts are numerous* cannot be explained in a distributive manner by its individual members in accordance with a principle like G-HEP since no individual contingent fact is itself numerous. And suggesting that the fact that ff are numerous is *collectively* explained by its members would be patently circular and so violate the irreflexivity of ground. This raises the interesting possibility that G-HEP may in some sense not entirely rule out the Externality Assumption. For even if G-HEP is true, we might think there are certain facts, like the fact that *the contingent facts are numerous*, that are not grounded solely by contingent facts.

³¹ Thunder (2023, p. 42). See Werner 2022 for some pushback on this response.

However, it isn't clear to me that this presents a serious challenge to G-HEP. That's because the fact that *the contingent facts are numerous* is arguably a necessary fact. And if that's the case, then even though no individual contingent facts can explain why the plurality of all contingent facts are numerous, this arguably isn't a contingent fact and so is not a member of the target plurality that needs to be explained in the first place.

Many consider pluralities to be modally rigid.³² On this view, it is necessarily the case that any given pluralities have their members. As Florio and Linnebo (2021: 205) note, this can be captured by the following two modal constraints on plural membership, where 'E' denotes the existence predicate and '<' denotes plural membership.

$$(RGD^+) \quad \bullet \forall x \forall yy (x < yy \rightarrow \bullet (Eyy \rightarrow x < yy))$$

$$(RGD^-) \quad \bullet \forall x \forall yy (x \not< yy \rightarrow \bullet (x \not< yy))$$

(RGD⁺) tells us that if the things from which we choose an item exist at all, then necessarily, whenever they exist, they include that chosen item. Likewise, (RGD⁻) tells us that if some item is not one of those things, then this too is a matter of (conditional) necessity.³³ So, the claim that pluralities are rigid is the conjunction of these two constraints. As Florio and Linnebo point out, these rigidity principles tell us that, necessarily any given things have their members by necessity. As such, a plurality cannot vary in its membership across possible worlds.³⁴

Contrasting pluralities with groups, like teams, is helpful to elucidate this point. A group, like my university's football team, might have had members other than the ones it currently has. Groups, unlike pluralities, do not have their members necessarily. To account for the difference, Florio and Linnebo suggest that since a plurality is nothing over and above its members, it is thereby fully specified when we have circumscribed its members. Tracking a plurality across possible worlds is "simply a matter of tracking its members".³⁵ This is not the case for groups since a group is something over and above its members. It is not fully specified when we have circumscribed its members. Since our target in the present context is the plurality of all contingent facts, it follows that this plurality has its members necessarily. We can infer, then, that it is a necessary fact that the contingent facts are numerous. This is not to say that there isn't a plausible idea in favour of the theist's position worth exploring here. But doing so is beyond the scope of the present paper.

6. Sufficient Reason

Next, I'll consider an alternative line of justification for the Externality Assumption. The theist may grant that there is nothing circular about explaining the existence of contingent facts

³² Hewitt 2012 challenges this view. See Florio and Linebo (2021, chapter 10, section 10.3) for their responses to challenges to the claim that pluralities are modally rigid.

³³ Florio and Linnebo (2021: 205).

³⁴ Florio and Linnebo (2021: 206).

³⁵ Florio and Linnebo (2021: 206).

in terms of further contingent facts ad infinitum, while nonetheless maintaining that there is something else wrong with such an infinite explanatory regress. Instead, the theist might argue that G-HEP is inadequate because the union of full explanations of each member of ff does not constitute a complete explanation or *sufficient reason* of ff , given a prior conception of sufficient reason. Call this the ‘No Incomplete Explanations Objection’.

I take it this is Leibniz’s approach in the following oft-quoted passage from the beginning of his *On the Ultimate Origination of the Universe*.

Neither in any single thing, nor in the total aggregate and series of things, can the sufficient reason for their existence be discovered. Let us suppose a book entitle *The Elements of Geometry* to have existed eternally, one edition having always been copied from the preceding: it is evident then that, although you can account for the present copy by reference to the past copy which it reproduces, yet, however far back you go in this series of reproductions, you can never arrive at a complete examination, since you always will have to ask why at all times these books have existed, that is, why there have been any books at all and why this book in particular. What is true concerning these books is equally true concerning the diverse states of the world, for here too the following state is in some way a copy of the preceding one (although changed according to certain laws). However far you turn back to antecedent states, you will never discover in any or all of these states the full reason why there is a world rather than nothing, nor why it is such as it is.³⁶

Leibniz’s contention here is that even though each member of the series is explained, the contingency of any given member of the series precludes the series *itself* from being fully or completely explained. One reading of Leibniz’s objection above is that a full or complete explanation (sufficient reason) must be one that is necessitating. As Billon suggests, “we could have an infinite series of books such that each book has been copied by a regular scribe from its successor but such that not all books are copies of the Elements of Geometry instead (they could for example all be copies of Bible instead)”.³⁷ After all, one might argue that if an explanans fails to necessitate or entail its explanandum, then it’s not sufficient for it. The explanans could hold even though the explanandum does not. So, the thought is that without an external or necessary ground, the infinite series itself would lack a necessitating, and hence sufficient, reason.³⁸

However, this approach to Leibniz’s objection arguably runs the risk of collapsing back into a version of the No Circularity Objection. Consider first that many take ground to be a kind of metaphysical explanation that is necessitating, the relevant sort of necessitation here being entailment. We can define necessitation as follows. Let $P1, P2, \dots$ necessitate Q just in case any possible world in which the $P1, P2, \dots$ obtain is also a world in which the latter obtains.³⁹ On this approach, if x grounds y then if x obtains, y must obtain. And let’s assume a version of the Principle of Sufficient Reason (PSR) that says ‘every contingent fact has a sufficient reason’,

³⁶ Leibniz (1965, p. 84-85).

³⁷ Billon (2023, p. 1939).

³⁸ See Billon (2021; Forthcoming) for an in-depth discussion of these issues.

³⁹ See Bennett (2011), Litland (2015), and Lovett (2019) for discussions of grounding and necessitation. The necessitation of grounding is controversial. See Skiles (2015) for dissent.

where a ‘sufficient reason’ is an explanation that is necessitating. Suppose then that ground is necessitating. If each fact is grounded by further facts ad infinitum, then every fact has a sufficient reason, thereby satisfying the PSR. So, there isn’t necessarily any principled reason to think an infinite series of explanations will fail to be necessitating, and thus fail to provide the relevant kind of complete explanation.

Now, the theist will likely object that even if ground is necessitating, contingent facts still cannot provide the right kind of necessitating explanation. If we have indefinitely descending chains of ground, as the infinitist insists, and each fact is contingent, it seems that the whole thing is in some sense arbitrary because every single fact might have been otherwise. And so, we still seem to be left with the question of why these facts obtain rather than not. Consider this response in light of Leibniz’s example. Despite the fact that the content and existence of each book is explained by its antecedents, Leibniz’s claim is that the whole series of book content is not explained because the explanation in question only necessitates that all books have the same content, not that this content is Euclid’s Elements of Geometry, say.

But this response puts us squarely back in the territory of the No Circularity Objection. The theist’s idea here is that even if each fact that is a member of the plurality is necessitated, they are not *all* thereby necessitated in the absence of an external explanation. However, our appeal to G-HEP, and the distinction between distributive and collective ground, can address this issue. On the distributive reading of plural ground, the infinitist can say that all books have the content they have (Euclid’s Elements) *because* each book’s content is explained by being copied from the previous one. Hence, if the content of any one book is explained, then the content of all of them is explained. And if grounding is necessitating, then it follows that if each fact that is a member of the plurality is necessitated by its antecedents, then the plurality is necessitated as well.

One might also worry that if ground is necessitating, this undermines the contingency of contingent facts. Given an infinitely descending chain of ground, if it is ‘necessitation all the way down’, then no fact appears to be contingent. However, necessitation does not entail this result. Suppose f grounds g . All necessitation tells us is that, if f obtains, then g must obtain. So, there may be a sense in which some fact we initially took to be contingent is necessary. But it is necessary only relative to its grounds. This does not undermine the contingency of g in some sense since f might not have obtained.

7. Objections to the Hume-Edwards Principle

In this final section, I’ll defend G-HEP against several recent objections Pruss and Rasmussen (2018) raise against HEP more generally. While much of their response concerns causal explanation, we can generalize to metaphysical explanation and, hence, our ground-theoretic version of HEP.

Pruss and Rasmussen consider the Humean response to the cosmological argument that an explanation of the contingent facts simply consists in the conjunction of the explanations of each fact, captured by G-HEP above in section 4. Pruss and Rasmussen concede that HEP may in fact be true in some instances. To motivate instances where HEP may fail, Pruss and Rasmussen

present the following scenario to motivate what they call their No Internal Explanation Reply to Hume and Edward's challenge (2018: 50-51). Imagine a snake that has undergone an infinite number of stages in its development. The growth process occurs such that the front half of the snake was caused by events within an adjacent quarter section of it, which in turn was caused by events within an adjacent eight section of it, and so on. Each part of the snake was caused by events within another part, ad infinitum. Pruss and Rasmussen argue that the causal connections between the snake's parts fail to constitute an explanation of the existence of the snake itself since it makes perfectly good sense to wonder why there is this snake rather than a different one or none at all.

Unfortunately, I don't find this case all that compelling. I agree with Pruss and Rasmussen that it makes perfectly good sense to wonder why there is a snake rather than none at all. But the question is not whether HEP precludes us from this line of inquiry but whether HEP can provide a satisfactory explanation in response. My suspicion is that Pruss and Rasmussen find the case compelling because they've chosen an example for which there is undoubtedly an external explanation of the series to begin with. After all, snakes exist finitely. This suspicion is confirmed, I think, when we consider the second case that Pruss and Rasmussen use to bolster the snake example. They write,

Suppose that time is continuous and a particle came into existence right after noon, so that for all times $t > \text{noon}$ the particle exists and for no time $t \leq \text{noon}$ does the particle exist. Let $S(t)$ be the state of the particle existing at time t . Suppose, as may well be the case that, for a time $t > \text{noon}$, there is an earlier time t' such that $t > t' > \text{noon}$ and such that the particle's existing at t' explains why it exists at t . Thus, the particle's existence states $S(t)$ are such that each of the states is explained by another of the states. Hence the whole sequence of existence states of the particle is explained according to Hume's principle. But surely this is mistake. If the particle was caused to exist in the first place, then that sequence of existence states is explained by that cause and not by itself. If the particle was uncaused, then the sequence is unexplained. This intuition supports our No Internal Explanation Reply.⁴⁰

On the assumption that the particle was caused to exist, I think this argument is question-begging. For example, one cannot reject G-HEP as a principle applied to the plurality of all contingent facts by showing that a different version of HEP is unsuccessful in an altogether different context, such as the snake or particle examples above. I'm willing to grant that a version of HEP that is indexed to causal explanation will be false in the particle example above where it is assumed that the existence of the particle is caused. But this case has no obvious bearing on a version of HEP that is indexed to metaphysical explanation and applied to the plurality of all contingent facts. And in the event that the particle is uncaused such that no external explanation is assumed, it's unclear to me why Pruss and Rasmussen maintain that the whole sequence is thereby unexplained. That the first state is uncaused or unexplained doesn't preclude its being able to explain all its subsequent states.

I'll consider two further arguments that Pruss and Rasmussen provide to motivate their No Internal Explanations Reply to G-HEP (2018: 52-53). First, they write,

⁴⁰ Pruss and Rasmussen (2018, p. 51-52).

in any case where the *x*s are merely causally connected to each other, it still makes perfectly good sense to ask why those *x*s exist: we may still wonder why there are those causally connected *x*s in the first place. Suppose instead we know that the *x*s were all produced by a factory, say. Then it no longer makes sense to wonder why they exist; we already know why. But without an external cause of some kind, we remain curious. And the fact that we may still wonder why the *x*s exist suggests that their causal connectedness doesn't *by itself* suffice to explain why they exist. An external explanation is called for.⁴¹

The suggestion here is that our curiosity about the existence of the *x*s is satisfied when the *x*s have an external explanation but not when the *x*s apparently lack an external explanation. I disagree that the presence of our curiosity in the latter case is best accounted for by Pruss and Rasmussen's No Internal Explanations Reply. First, with respect to the plurality of all contingent facts, I can report that G-HEP satisfies my curiosity. Thus, I don't share Pruss and Rasmussen's intuitions. But even more fundamentally, why think our curiosity is an infallible guide to reality? For all we know, a person's curiosity about the *x*s might simply imply that she has failed to understand that G-HEP provides a satisfactory explanation. To assume otherwise without argument is, I think, question-begging.

Second, Pruss and Rasmussen argue that the No Internal Explanations Reply makes good sense of our intuitions about wholly internal explanations. They present the common scenario of an infinite stack of monkeys, which is suspended two feet off the ground. Pruss and Rasmussen suggest that our curiosity regarding why those monkeys are there is not satisfied when we are told that they are there because each monkey among them is hanging onto the one just above it. They argue that,

The problem with the monkey stack... is that there cannot be an explanation of a contingent fact that is wholly 'internal' to that very fact. This answer makes sense of our intuitions regarding the monkey stack. By forbidding wholly internal explanations of contingent facts, we neatly rule out certain cases of seemingly absurd explanations.⁴²

The idea here is that wholly internal explanations of the sort that HEP produces do not sit well with our intuitions regarding such cases.

Infinite stacks of monkeys or trains comprised of an infinite number of cars are common thought experiments in the philosophy of religion literature designed to pump our intuitions against the plausibility of G-HEP. But it seems to me these sorts of thought experiments are just too disanalogous with the case at hand to do any serious work in motivating The No Internal Explanations Reply.⁴³ On the one hand, my intuitions are aligned with Pruss and Rasmussen's if nomic or physical possibility is at issue. But the kind of possibility at issue is presumably metaphysical or broadly logical since I think we'd be missing the point if we rejected the example on the grounds that an infinite stack of monkeys as described by Pruss and Rasmussen

⁴¹ Pruss and Rasmussen (2018, p. 52).

⁴² Pruss and Rasmussen (2018, p. 53).

⁴³ I make a similar point in Oberle 2022.

is a physical impossibility. On the other hand, I find nothing metaphysically or broadly logically impossible or unintuitive about an infinite stack of monkeys existing without a ‘first monkey’. Thus, I find Pruss and Rasmussen’s appeals to intuition here ultimately unconvincing.

8. Conclusion

I’ve defended a ground-theoretic version of the Hume-Edwards Principle (G-HEP) in response to premise 2 of the cosmological argument from contingency, which says that no contingent fact can explain why there are any contingent facts at all. The primary objection to G-HEP is that it results in a circular explanation. And I argued this objection requires a controversial assumption about the nature of plural ground, namely, that it is collective rather than distributive. As far as I can tell, no proponent of the No Circularity Objection in support of premise 2 has recognized this implicit assumption in their rejection of G-HEP. I also argued that the Leibnizian approach to justifying the second premise is susceptible to G-HEP because it risks collapsing back into a variation of the No Circularity Objection. Thus, Hume and Edwards’ response still constitutes a formidable challenge to justifying the second premise of the Leibnizian contingency argument for God’s existence.⁴⁴

⁴⁴ I’m thankful to several anonymous reviewers whose feedback undoubtedly helped to improve this paper.

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