The Regress and Ground of Being: In Defence of Metaphysical Infinitism

by

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Abstract

There is a common intuition among many philosophers that chains of ground cannot go on forever. Metaphysical foundationalists believe that there cannot be infinite chains of ground, where one thing depends upon another for its existence without end. For example, if the existence of my desk depends upon the existence of its parts, and those parts depend upon further parts, etc., foundationalists think this regress must terminate in something fundamental. A prominent argument for why foundationalists think there cannot be infinite chains of ground says we must posit something fundamental to explain why there exist any non-fundamental or dependent things at all. The main idea is that if everything were dependent, then there would be no explanation for why any dependent things exist in the first place.

In this dissertation, I develop an argument for an opposing view to foundationalism called *metaphysical infinitism*. On this view, there is no end to chains of ground. For example, insofar as the existence of my desk depends upon the existence of its parts, and those parts depend for their existence upon further parts, this regress carries on indefinitely. According to metaphysical infinitism, nothing is fundamental. Everything is dependent upon something else.

I argue in favour of this thesis by defending a version of the Principle of Sufficient Reason (PSR). Broadly speaking, the PSR says that everything has a reason or explanation. My defense of the PSR is situated within the theoretical framework of grounding. According to the ground-theoretic version of the PSR that I defend, every fact has a ground or metaphysical explanation. I argue that the PSR entails metaphysical infinitism because if everything has a ground, then nothing is ungrounded or unexplained. As a result, nothing is fundamental, contrary to what the foundationalist believes. Since metaphysical foundationalism has arguably been the received view

in analytic metaphysics, my dissertation seeks to challenge this consensus by providing a novel

argument for an alternative position.

Preface

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For my children.

I love you beyond measure. I pray that my accomplishments set an example for you to trust in the Lord for the plans that He has for. In all your ways acknowledge Him, and He will direct your paths.

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Chapter 1. Introduction

1. Introduction

Many metaphysicians today believe that metaphysics is not exclusively about saying what exists or categorizing certain features of reality but also about saying which phenomena are derived from or grounded in other phenomena. We not only want to know what things exist; we also want to know *how* they exist. For example, philosophers of mind are interested in the neurophysiological and physical basis of conscious experience. One way to construe this endeavour is to ask, "What grounds facts about conscious experience?". Similarly, physicalists argue that mental facts are, in some sense, nothing over and above physical facts. One plausible way to interpret this claim is to suggest that the mental facts are *grounded in* the physical facts. In addition to knowing what grounds what, the metaphysician also wants to know which facts are ungrounded or fundamental, if there are any. Metaphysics, on this approach, is also concerned with the most basic or foundational aspects of reality, those aspects of reality that are independent of, and somehow responsible for, everything else.

However, whether there is a foundation of reality, a set of fundamental facts in virtue of which everything else exists, is a contentious issue. This view, known as *metaphysical foundationalism,* is the topic of this dissertation. Foundationalism seems to have been the received view not only in analytic metaphysics but also throughout the history of both Western and non-Western philosophical traditions. Nonetheless there has been a growing tide of criticism against foundationalism in recent years and several attempts have been made to articulate and defend alternative conceptions of reality's structure, conceptions that do not require reality to 'bottom out' in an ultimate level of fundamental facts. In this dissertation, I argue for a rival view called

metaphysical infinitism. On this view, chains of ground descend indefinitely without every reaching a fundamental level. Since nothing is fundamental, everything is dependent.

In this chapter, I introduce the key notions involved in this debate and the plan for the dissertation. In the next section, I introduce the notion of grounding and metaphysical explanation and endorse ground as an explanatory relation that obtains between facts. In section 3, I introduce the debate between metaphysical foundationalism and its rivals, metaphysical infinitism and metaphysical coherentism. In section 4, I lay out the plan for the dissertation.

2. Grounding

Many metaphysicians today endorse a structured approach to ontology where reality is ordered by relations of metaphysical dependence.[1] On this view, some phenomena are 'built' out of or derived from other phenomena. For many, grounding is the primary notion that plays this structuring role. Ground is thought to limn the order or structure of reality itself, and thus provide us with a notion of metaphysical priority. In this vein, grounding delivers a notion of *relative* fundamentality in so far as some fact, *f*, is *more fundamental than* another fact, *g*, if *f* grounds *g*. And those facts which are absolutely fundamental, if there are any, and so comprise the fundamental level of reality, are ungrounded.[2] The conception of reality we get is a hierarchical or layered one, where derivative facts are grounded in more fundamental facts, terminating ultimately in a foundational level if there is one, or else descending indefinitely.

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[1] See Jonathan Schaffer, "On What Grounds What," in *Metametaphysics*, eds. David J. Chalmers, David Manley, Ryan Wasserman (Oxford University Press, 2009), 347-83: Gideon Rosen, "Metaphysical Dependence: Grounding and Reduction," in *Modality: Metaphysics, Logic, and Epistemology*, eds. B. Hale and A. Hoffmann (Oxford University Press, 2010), 109-136: Paul Audi, "A Clarification and Defence of the Notion of Grounding," in *Metaphysical Grounding: Understanding the Structure of Reality*, eds. Fabrice Correia and Benjamin Schneider (Cambridge University Press, 2012), 101-121.

[2] Schaffer, "On What Grounds What".

Ground is also widely considered to be a distinctively explanatory notion as well. Though the connection between ground and explanation is somewhat fraught, many understand grounding to be captured by the phrase "in virtue of" and express or underlie "because" claims in certain metaphysical, as opposed to causal, contexts. Indeed, some grounding theorists argue that grounding itself is necessary to account for certain kinds of non-causal explanations that obtain. For example, Paul Audi argues that if we are to recognize that there are explanations in which the explanans plays no causal role with respect to the explanandum, then there must be a noncausal relation of determination, which he calls 'grounding'.

A common way to motivate ground is by example. Consider the following typical cases of grounding.

- The fact that John is 5'10" and brown-eyed is true because John is 5'10" and John is brown-eyed.
- The set {Socrates} exists because Socrates exists.
- Mary's stealing from John is immoral because it contravenes the Divine law.
- John's pain obtains because of his C-fibers firing.
- The painting is beautiful in virtue of its proportions.

These diverse examples are united by exhibiting some phenomenon holding *in virtue of* some other phenomenon. The first says that conjuncts are true i*n virtue of* each of their conjuncts. The second says that sets exist in virtue of their members. The third says that an action is immoral if it fails to accord with God's commands. The fourth says that mental facts obtain in virtue of neurophysiological facts. And the fifth says that aesthetic properties hold in virtue of non-aesthetic properties.

The cases of grounding presented above are also said to be (or underlie) a metaphysical, as opposed to causal, form of explanation in the sense that they concern the constitutive generation

of a dependent outcome.[3] For instance, it is not that the truth of A and B *causes* A&B to be true. Rather, the relationship is one of constitutive explanation and determination. For example, we might suggest that what makes it the case that the desk is here is its constituent parts being arranged in the right way. Causal explanations, by contrast, are answers to "why questions". In a causal sense, the desk is here because of the actions of the carpenter who made it, the people who delivered the desk to my house, etc. One rough way to think of the difference is that causation links the world across time whereas grounding links the world across levels.[4] In other words, grounding connects less fundamental facts to more fundamental facts in a hierarchical and synchronic manner.

2.1 Grounding and Metaphysical Explanation

There are two main views about the relationship between grounding and explanation. *Unionism* is the view that grounding just is a form of metaphysical explanation.[5] For example, Kit Fine declares that grounding is "the ultimate form of explanation…".[6] He states, "We take *ground* to be an explanatory relation: if the truth that *P* is grounded in other truths, then they *account* for its truth; *P's* being the case holds *in virtue of* the other truths' being the case".[7] On this approach, the claim that *x* grounds *y* is the claim that *x* metaphysically explains *y*. *Separatism* is the view that

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[3] Jonathan Schaffer, "Laws for Metaphysical Explanation," *Philosophical Issues* 27, no. 1 (2017): 305.
[4] Jonathan Schaffer "Grounding, Transitivity, and Contrastivity," in *Metaphysical Grounding: Understanding the Structure of Reality*, eds. Fabrice Correia and Benjamin Schneider (Cambridge University Press, 2012), 122.
[5] See Rosen "Metaphysical Dependence": Kit Fine, "The Question of Realism," *Philosophers' Imprint* 1, no. 1 (2001): Kit Fine, "Guide to Ground," in *Metaphysical Grounding: Understanding the Structure of Reality*, eds. Fabrice Correia and Benjamin Schneider (Cambridge University Press, 2012): Shamik Dasgupta, "Constitutive Explanation," *Philosophical Issues* 27, no. 1 (2017): Jon E. Litland, "Grounding, Explanation, and the Limit of Internality," *The Philosophical Review* 124, no. 4 (2015): Michael Raven, "Ground," *Philosophy Compass* 10, no. 5 (April 2015).
[6] Fine "Question of Realism," 16.
[7] Fine "Question of Realism," 15.

grounding is a distinctive form of determination, where to determine is to produce or bring about some phenomenon.[8] On this view, grounding is not itself a form of explanation. Rather, grounding is first and foremost a worldly relation of ontological priority and determination that is said to *back* or *underlie* explanation.

Separatism is often referred to as *explanatory realism*, the view that explanations provide information about relations of productive determination.[9] For example, Schaffer models his view of grounding as analogous with causation. Insofar as causation is a concrete relation of determination in the world that backs causal explanation- an abstract pattern over facts or sentences, so too with grounding. On Schaffer's view, insisting that grounding is *only* a relation between facts or propositions, confuses instances of grounding (a concrete relation in the world) with grounding explanations (an abstract pattern over facts or sentences). The idea here is that grounding is a relation that obtains between concrete entities which backs an explanatory pattern over facts or sentences. What it means for grounding to *back* explanation isn't always clear on separatism. While I can't delve into this issue here, one proposal by Skiles and Trogdon is to understand the notion of backing in terms of representation. On this view, grounding backs explanation by being represented by representational entities (propositions) that feature in explanations.[10]

One should be careful not to equate *explanatory realism* with separatism since realism regarding explanation does not determine the relationship between ground and explanation. The

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[8] For examples of separatism, see Karen Bennett, *Making Things Up* (Oxford University Press, 2017), 61: and Naomi Thompson, "Questions and Answers: Metaphysical Explanation and the Structure of Reality," *Journal of the American Philosophical Association* 5, no. 1 (2019).

[9] See Stefan Roski, "In Defence of Explanatory Realism," *Synthese* 199 (2021): Jaegwon Kim, "Explanatory Knowledge and Metaphysical Dependence," *Philosophical Issues* 5 (1994): David-Hillel Ruben, *Explaining Explanation* (London: Routledge, 1990), 232: and Audi, "Clarification," 119.

[10] Alexander Skiles and Kelly Trogdon, "Should Explanation be a Guide to Ground?" *Philosophical Studies* 178 (2021): 4090.

issue with regards to explanatory realism is, roughly, whether metaphysical explanations are interest-relative in some way. If we understand grounding just to be metaphysical explanation, there is arguably no constraint on us to require that the explanation in question is somehow anti-realist or subject to cognitive values in any robust sense. Nonetheless, several thinkers have argued that the connection between grounding and explanation on either separatism or unionism *results* in a form of anti-realism.[11] Regardless, the taxonomic decision itself to apply the label "explanatory realism" to separatism is not intended to imply that unionism is essentially or automatically an anti-realist position.

My preferred approach in this dissertation is to take ground itself to be explanatory. While I do not think the arguments in this project crucially depend upon one view or the other, I have two reasons for favouring unionism. First, a pragmatic reason. Adopting unionism simplifies and streamlines discussion of the various explanatory issues connected with ground that arise in the course of this dissertation. As we'll see, regress arguments for foundationalism are not concerned with a notion of ground understood exclusively as a form of determination or dependence, one that has no connection to explanation whatsoever. Many, if not all, regress arguments make explanatory demands that appeal either implicitly or explicitly to explanatory principles, such as the principle of sufficient reason (PSR). For example, Ross Cameron argues,

> For if there is an infinitely descending chain of ontological dependence, then while everything that needs a metaphysical explanation (a grounding for its existence) has one, there is no explanation of everything that needs explaining. That is, it is true for every dependent x that the existence of x is explained by the existence of some prior object (or set of prior objects), but there is no collection of objects that explains the existence of every dependent x.[12]

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[11] See Thompson, "Questions and Answers": and Dasgupta, "Constitutive Explanation".
[12] Ross Cameron, "Turtles all the Way Down: Regress, Priority, and Fundamentality," *Philosophical Quarterly* 58, no. 230 (2008): 12.

Cameron's appeal to explanation here presupposes some underlying principle of explanation that presumably guides our theorizing regarding our explanatory target, i.e., what phenomena require an explanation, and what might constitute a good explanation of that phenomena. This is not to say that separatists cannot use the notion of ground to investigate these explanatory issues, only that doing so may be more cumbersome for them.

Second, the distinction between unionism and separatism may rest upon a false dichotomy between explanation and determination. Many suggest that separatism is committed to grounding as a determination relation but not necessarily to grounding explanations, whereas unionism is committed to grounding explanations but not necessarily a corresponding determination relation.[13] A relation is one of determination if it brings about, produces, generates, or is otherwise responsible for some phenomenon. One might think of determination relations as "difference-makers", in the way that some theorists like to think of causation in a robust non-Humean sense of making a difference to the world.

However, we might suggest that determination and explanation need not be viewed as incompatible or even distinct notions. This suggestion is controversial since much of the literature tends to presume that they are. For example, though Audi himself takes determination and explanation to be different, he admits that for a certain kind of explanation, "the kind that is factive, referentially transparent, and interest-independent", a relation of determination may be necessary and sufficient for an explanation.[14] And Carl Craver seems to make room for this sort of explanation in a causal context, suggesting that sometimes the term 'explanation' "refers to an

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[13] Skiles and Trogdon, "Should Explanation be a Guide to Ground," write, "Unionists are committed to there being instances of a distinctive form of explanation and providing an account of what it's like. They don't have a corresponding commitment regarding any form of determination. For separatists, things go in the reverse" (p. 4086).
[14] Audi, "A Clarification," 691.

objective portion of the causal structure of the world, to the set of factors that bring about or sustain a phenomenon (call them objective explanations)".[15] It is important to note that most grounding theorists do take grounding explanations to be factive, referentially transparent (in the sense that things explain each other independently of how they are conceived or picked out), and interest-independent, and so objective in the sense that Craver suggests. Neither of these (admittedly controversial) two reasons, of course, entail that unionism is the correct approach and it is not my intention to settle this debate here. But it is perhaps best to understand the convergence of the determinative and explanatory aspects of ground upon a single notion as a plausible working hypothesis.

I prefer to treat ground as a relational predicate that applies to facts.[16] On this approach, grounding claims take the following form.

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

Taking the relata to be facts contrasts with views that take grounding to hold between propositions or other non-fact entities of arbitrary ontological categories such as concrete particular objects. Unlike Rosen, I do not take facts to be propositions. I follow Raven in conceiving of a fact as "the *state of reality* that true representation represents, not the *representation* of that state".[17] Propositions themselves do not structure reality but are merely representations of reality's structure

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[15] Carl Craver, *Explaining the* Brain (Oxford University Press, 2007), 27.

[16] Understanding ground as a relation is controversial. Others regiment ground in terms of a sentential operator or connective. See Fine, "The Question of Realism,"15: Fine, "Guide to Ground," 46: Fabrice Correia, Grounding and Truth-Functions," *Logique et Analyse* 54, no. 211 (2010): Fabrice Correia and Benjamin Schnieder, "Grounding, an Opinionated Introduction," in *Metaphysical Grounding: Understanding the Structure of Reality*, eds. Fabrice Correia and Benjamin Schnieder (Cambridge University Press, 2012).

[17] Raven, "Ground," 327.

and, contra Rosen, are therefore not suitable relata for ground. I think Ross Cameron is right when he says grounding as a relation between propositions gets the subject matter wrong. He writes, "it is not the proposition that is doing the metaphysical determination, rather it's things being as the proposition says they are that metaphysically determines something".[18] Ground's structuring role favours ground relating non-representational or ontic entities.

Ground's explanatory role also seems to disqualify objects as relata. As Raven argues, "in order for ground to be explanatory, its relata must concern *how* things are without prejudging whether they are concrete or abstract".[19] For example, my shirt *itself* does not explain its being red. Rather, my shirt's being maroon, the certain way my shirt is, explains its being red. So, like Schaffer, I take grounding to obtain between worldly or ontic phenomena, that is, non-representation phenomena. But unlike Schaffer, I follow Raven in thinking of the relata of ground as facts or states of reality, rather than objects, say. Just what these facts or states are, exactly, is controversial. But I presume that we can have a good handle on grounding claims without first settling the metaphysics of facts. By analogy, one could work with the assumption that grounding relates concrete particular objects without first settling what the best account of concrete particular objects is.

Finally, just as explanation itself can be full or partial, so too grounding can be either full or partial. A partial explanation is just a full explanation that leaves something out. So, 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.[20] By a satisfactory or full grounding

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[18] Ross Cameron, *Chains of Being: Infinite Regress, Circularity, and Metaphysical Explanation* (Oxford University Press, 2022), 202.
[19] Raven, "Ground," 327.
[20] Kelly Trogdon and D. Gene Witmer, "Full and Partial Grounding," *Journal of the American Philosophical Association* 7, no. 2 (2021): 252.

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.[21]

It may be tempting to conflate a full grounding explanation with an ultimate explanation. But the two are distinct. Roughly, an ultimate explanation is 'buck-stopping', in some sense. As Alexander Pruss says, "An ultimate explanation is one in which the explanans itself does not call out for further explanation…".[22] This might be because the explanans itself has no explanation and is, hence, independent or is perhaps self-explanatory. We might think of an ultimate explanation as the terminus of a chain of grounding explanations. By contrast, a full explanation or ground explains all there is to be explained about the explanandum but is not itself necessarily buck stopping in the sense that an ultimate explanation is. For example, a full ground or explanation of A&B is provided by A, B.[23] It is full in the sense that the truth or obtaining of the conjunction is fully accounted for in terms of its conjuncts. But it is not necessarily ultimate because both A and B may not be fundamental truths and so may themselves be grounded in further facts.

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[21] Scott Dixon, "Infinite Descent," in *The Routledge Handbook of Metaphysical Grounding*, ed. Michael Raven (New York: Routledge, 2020), 245: Rosen, "Metaphysical Dependence," 115: Fine, "Guide to Ground," 50. There is some disagreement regarding this definition of partial ground. See Trogdon and Witmer, "Full and Partial Grounding."

[22] Alexander Pruss, *The Principle of Sufficient Reason: A Reassessment* (Cambridge University Press, 2006), 17.

[23] Fine, "Guide to Ground," 50.

2.2 Formal Properties of Grounding

Earlier, I described instances of grounding concerning the constitutive generation of a dependent outcome. But the sense in which grounded facts depend upon their grounds is open to debate. There are several accounts regarding ontological dependence that may or may not link up in various ways with grounding. Settling this issue is not my task here. Nonetheless, part of the reason metaphysicians have adopted the notion of grounding is that other modal notions do not capture the relevant asymmetric notion of dependence that many think is required to play the structuring and explanatory roles. Take supervenience, for example. Roughly, a set of properties A supervene upon another set of properties B just in case no two things can differ with respect to A-properties without differing with respect to B-properties. An oft-quoted critique of supervenience is that of Jaegwon Kim, who argues,

> Supervenience itself is not an explanatory relation. It is not a "deep" metaphysical relation; rather, it is a "surface" relation that reports a pattern of property covariation, suggesting the presence of an interesting dependency relation that might explain it.[24]

Necessary covariation is ill-suited for the task of articulating a kind of metaphysical dependence and explanation. This is partly because supervenience turns out to be non-symmetric whereas grounding is thought to be asymmetric. If there is no difference in A-properties without a difference in B-properties, then in some cases we can also say there is no difference in-B properties without a difference in A-properties.

As such, grounding is a hyperintensional notion whereas supervenience is not. Grounding is hyperintensional in the sense that it can hold asymmetrically between relata that mutually necessitate each other. For example, it is necessary that if Socrates exists, his singleton set

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[24] Jaegwon Kim, "Postscripts on Supervenience," in *Supervenience and Mind: Selected Philosophical Essays*, ed. Ernest Sosa (Cambridge: Cambridge University Press, 1993), 167.

{Socrates} does too and vice versa. Yet we want to say that Socrates' existence grounds {Socrates}'s existence, not the other way around.[25] Supervenience, by contrast, does not hold asymmetrically between mutually necessitating relata. We might say that {Socrates}'s existence supervenes upon Socrates' existence since it is necessary that if Socrates exists {Socrates} also exists. But then Socrates's existence also supervenes upon {Socrates}'s existence since it is also necessary that if {Socrates} exists, Socrates also exists. And given that explanation is a hyperintensional phenomenon, and ground is a form of metaphysical explanation, it is natural to think that ground is hyperintensional. If x explains y, and x and z are necessarily equivalent, then we are not required to say that z also explains y.

This approach of illuminating the formal properties of ground by appealing to the properties of explanation, that is, taking explanation to be a guide to ground, is widespread. For example, Raven argues the explanatory nature of ground imposes distinctive constraints on ground's logic, which includes,

> (i) irreflexivity: just as nothing explains itself, nothing grounds itself; (ii) asymmetry: just as cyclical explanations are prohibited, so too are cycles of ground; (iii) transitivity: just as the explanation of an explanation also explains the explanandum, so too the grounds of the grounds of the grounded also ground the grounded; and (iv) non-monotonicity: just as explanation needn't survive arbitrary additional premises, so too ground needn't survive arbitrary additional grounds.[26]

Similarly, several thinkers argue that since explanation is non-monotonic, so too is grounding. It does not follow from x's grounding y that both x and z ground y. in other words, adding an arbitrary component to a ground of y is not guaranteed to be a ground of y.[27] Despite forming something

[25] Kit Fine, "Ontological Dependence," *Proceedings of the Aristotelian Society* 95, no. 1 (1995): 271.
[26] Michael Raven, "In Defence of Ground," *Australasian Journal of Philosophy* 90, no. 4 (2012): 689.
[27] Paul Audi, "Toward a Theory of the 'In-Virtue-of' Relation," *The Journal of Philosophy* 109, no. 12 (2012): 699.

like an orthodox position, ground's irreflexivity, transitivity, and asymmetry have all been challenged.[28] I'll argue for the orthodox position in the final chapter.

3. Metaphysical Foundationalism

As a form of metaphysical priority, many take ground to deliver a notion of relative fundamentality. If x grounds y, x is more fundamental than y. If facts about mental states, for example, are grounded in facts about brain states, then brain state facts are more fundamental than mental state facts even though facts about brain states are not absolutely fundamental. Thus, on the grounding approach, reality exhibits a structure of less fundamental or posterior facts depending upon more fundamental or prior facts. Given this structured approach to ontology, we can ask what Roski and Steinberg call, 'The Fundamental Question' (FQ):

> FQ: Are there elements in the order of grounding that are absolutely fundamental, so that they are not grounded in anything further?[29]

To answer this question in the affirmative is to endorse the view called metaphysical foundationalism. Very roughly, foundationalism maintains that there must be something absolutely fundamental in reality upon which everything else depends. On this view, reality has a foundation, a "source of being" and a point at which there is no further dependence.

As such, there is a consensus that foundationalism involves a commitment to a) something absolutely fundamental, and b) the fundamental being complete or responsible for everything else.

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[28] Schaffer, "Grounding, Transitivity, and Contrastivity" has challenged transitivity. Naomi Thompson, "Metaphysical Interdependence," in *Reality Making*, ed. Mark Jago (Oxford University Press, 2016), has challenged asymmetry. Gonzalo Rodriguez-Pereyra, "Grounding is Not a Strict Order," *Journal of the American Philosophical Association* 1, no. 3 (2015) has argued ground is not a strict partial order.

[29] Stefan Roski and Benjamin Schnieder, "Fundamental Truths and the Principle of Sufficient Reason in Bolzano's Theory of Grounding," *Journal of the History of Philosophy* 57, no. 4 (2019): 675.

How the fundamental is responsible for everything else is cashed out in terms of a theoretical notion, in our case *ground*, that is used to link the fundamental to the non-fundamental. One can see these commitments operative in the following definitions of foundationalism offered in the literature.

(1) Metaphysical foundationalism is the view that necessarily, any non-fundamental entity is fully grounded by fundamental entities.[30]

(2) Metaphysical foundationalism is the view that there have to be some things that are absolutely fundamental—dependent on nothing—on which all else ultimately depends.

(3) Metaphysical foundationalism is the view that grounding relations form a well-founded partial ordering. In other words, there can be no limitless chains of dependence (*metaphysical infinitism*) and no circular dependence (*metaphysical coherentism*).[31]

We can see the two commitments above operative in at least the first two of these characterizations of foundationalism. There is some realm of facts that are independent of everything else, while everything else, i.e., the derivative or non-fundamental, are derived from the fundamental. The third characterization provides a more formal conception of foundationalism in terms of *well-foundedness*, which we will discuss shortly.

Understood in a broad manner, foundationalism is pervasive throughout not only analytic metaphysics but much of Western and non-Western philosophy.[32] In the Greek tradition, Plato maintained that the world of the forms, and ultimately the form of the Good, are ontologically prior to the world of sense perception and function as the ultimate and fundamental source of reality. Thinkers like Democritus and Leucippus took a more bottom-up approach, maintaining

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[30] Kelly Trogdon, "Inheritance Arguments for Fundamentality," in *Reality and its Structure, Essays in Fundamentality*, ed. Ricki Bliss and Graham Priest (Oxford: Oxford University Press, 2018): 182.

[31] Jonathan Schaffer, "Monism, the Priority of the Whole," *Philosophical Review* 199 (2010): 37.

[32] One finds conceptions of foundationalism in the history of non-Western thought as well. Most notably, Sankara, living in 7th century CE India, offered arguments for foundationalism that are strikingly similar to the contemporary literature.

that the fundamental constituents of the world are atoms, indivisible and immutable bodies. The neo-Platonists, most notably Plotinus, perpetuated Plato's top-down conception of reality, greatly influencing Christian, Jewish, and Islamic thinkers who conceived of God as the fundamental ground and source of all being. Additionally, one finds monistic versions of foundationalism in thinkers like Spinoza, Hegel, Bradley, and most recently, Jonathan Schaffer.

Conceptions of foundationalism, broadly conceived, are perpetuated throughout analytic philosophy as well. Perhaps most notably is David Lewis' doctrine of Humean Supervenience. At the fundamental level, Lewis described the world as an arrangement of instantaneous, point-sized instantiations of perfectly natural qualities, a mosaic of local particular matters of fact. As Lewis writes,

> Humean supervenience ... says that in a world like ours the fundamental relations are exactly the spatiotemporal relations ... And it says that in a world like ours the fundamental properties are local properties ... Therefore its says that all else supervenes on the spatiotemporal arrangement of local qualities throughout all of history.[33]

Note that for Lewis, the relevant notion connecting the fundamental to the derivative is supervenience rather than ground. Everything about our world supervenes on this distribution of local qualities. Nonetheless, what all these foundationalist accounts have in common are the two commitments outlined above, namely, some entities or facts being fundamental and thus acting as the ultimate ground or foundation for everything else.

Putting this broad picture of foundationalism aside, how we conceive of something acting as a foundation in the grounding literature in particular, which is referred to as the 'well-foundedness'

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[33] David Lewis, "Humean Supervenience Debugged," in *Papers in Metaphysics and Epistemology* (Cambridge University Press, 1999), 225-226.

of grounding, is somewhat of a delicate matter and requires further discussion, which we turn to next.

3.1 Well-Foundedness

The contemporary debate about foundationalism is cashed out in terms of the well-foundedness of grounding. Well-foundedness is a formal property of the grounding relation. But there are, in fact, several ways to understand this property. So, we must be careful to clearly specify how we are using the term. Perhaps the most straightforward interpretation of well-foundedness is requiring that every grounding chain terminates. On this intuitive conception, when we have a chain of one fact grounding another, we can follow the chain down, so to speak, and reach the fundamental ungrounded facts in a finite number of steps.[34]

However, it is widely recognized that foundationalism is compatible with chains of ground that are infinite in some sense.[35] A chain may be infinite but nonetheless have a lower bound. The chain of "less than" within the non-negative real numbers consisting of 1, 0.5, 0.25, 0.125,… is an infinite chain. But it has a lower bound in the sense that there is a real number that is the limit of the sequence of every number in the chain, namely, 0. An infinite chain of ground can work in a similar way. There can be structures of ground that involve an infinite number of grounding steps which, nonetheless, have a lower bound, i.e., a member that grounds all the rest but which itself is ungrounded.

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[34] E. J. Lowe, *The Possibility of Metaphysics* (Oxford: Oxford University Press, 1998), 158: Schaffer, "Monism," 37: Karen Bennett, "By Our Bootstraps," *Philosophical Perspectives* 25, no. 1 (2011), 30 all seem to implicitly endorse this notion of well-foundedness.

[35] See Cameron, "Turtles," 4: Ricki Bliss, "Viciousness and the Structure of Reality," *Philosophical Studies* 166 (2013), 416.

For example, consider a region of space, S, that is infinitely divisible. Divide S into subregions of halves, quarters, eighths, and so on. Suppose the existence of each subregion of S is grounded in a further subregion of S. This process forms an infinite descending chain. Yet there is a genuine sense in which S is well-founded in so far as there exist some ungrounded, absolutely fundamental points that ground each region of S.[36] As such, well-foundedness is not equivalent to being finitely grounded. As Rabin and Rabern argue, "A grounding structure is finitely grounded if one can't travel an infinite descending path of ground. But intuitively, a structure is well-founded if there is some set of ungrounded facts that ground the rest".[37]

Unlike a set-membership ordering, a ground-theoretic ordering can be dense. That is, two elements in a chain of ground can contain infinitely many elements between them.[38] So, the example of spatial region S also gives us reason to think that the notion of well-foundedness from set theory is too restrictive. The axiom of foundation in Zermelo-Fraenkel set theory excludes infinitely descending chains of set-membership. A set is well-founded if its closure under the set membership relation does not contain any infinite chains of set membership. But we've seen with the above example that a set of spatial points can act as the foundation of the infinite divisions of S even though this involves the existence of infinite chains of grounding. How, then, ought we to understand the well-foundedness of a grounding chain or structure?

Scott Dixon endorses the following definition of well-foundedness as Full Foundations (FS).

(FS) Every non-fundamental fact x is fully grounded by some fundamental facts Γ. [39]

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[36] Gabriel Rabin and Brian Rabern, "Well Founding Grounding Grounding," *Journal of Philosophical Logic* 45 (2016): 360-1.

[37] Rabin and Rabern, "Well Founding," 361.

[38] Rabin and Rabern, Well Founding," 369.

[39] Scott Dixon, "What is the Well-Foundedness of Grounding?" *Mind* 125, no. 498 (2016): 446. Rabin and Rabern, "Well-Founding" independently arrive at an equivalent understanding of well-foundedness.

By 'fundamental' Dixon means 'ungrounded'. Non-fundamental facts, therefore, are any facts that are grounded. FS allows for a number of grounding structures that are intuitively well-founded but nevertheless contain infinite chains of ground, like spatial region S above. I follow Dixon in conceiving of well-foundedness in terms of FS. Well-foundedness or foundationalism in this project should *not* be understood in terms of grounding chains that reach a fundamental member in a finite number of steps. As such, the debate between foundationalism and infinitism is not about whether there are infinite chains of grounding. Rather, the debate is about whether there are any fundamental entities that ground all the rest.

3.2 Rivals

There are two primary rival positions to foundationalism, both of which differ from foundationalism in how they conceive of grounding's formal properties. One rival is metaphysical infinitism. Infinitism answers the fundamental question above in the negative. Though the infinitist agrees with the foundationalist that reality is hierarchically structured by the grounding relation- that ground is a strict partial order- the infinitist denies that ground is well-founded. Rather, chains of grounding can carry on indefinitely without ever terminating or being ultimately grounded in something fundamental.

However, some infinitists seem to agree with the foundationalist that non-well-founded chains of ground lead to a problematic regress of being. Some foundationalists argue that when some fact x grounds another fact, y, y inherits its existence or being from x and so depends upon y for its existence. Jonathan Schaffer, for example, argues that this transference model of ground leads to a vicious regress, so that the existence or being of any given fact must ultimately be inherited or

derived from some fundamental fact. Matteo Morganti feels compelled to avoid this alleged vicious regress by denying Schaffer's notion that being is transferred from some fundamental or basic facts to the derivative facts. Instead, Morganti argues it is in virtue of an infinite chain of dependence relations that being or existence *emerges*.

On this view, there is nothing foundational. Nevertheless, everything that does exist, "exists exactly *in virtue of the infinity* of the constituent series".[40] According to Morganti's emergence model, "…the being of any given entity gradually arises out of an infinite series of progressively less dependent entities—it is not wholly transmitted, as it were, from a basic, ungrounded level to all the dependent ones in a step-by-step fashion".[41] As such, Morganti agrees with Schaffer that being or existence must "come from" somewhere, but thinks we do not need fundamental facts, a foundation, in order to give an account of where it comes from. On Morganti's emergentist picture, we can deny foundationalism because there is no need for there to be a specific fundamental entity or entities do not themselves depend upon other entities.

Tuomas Tahko's infinitist model differs slightly from Morganti's in that it is *boring* rather than emergentist. For Tahko, being does not gradually emerge out of an infinitely descending chain of dependence. Rather, Tahko employs a weaker notion of absolute fundamentality and well-foundedness and argues that a mereological chain of dependence, when we follow it down, supervenes upon an infinitely descending boring structure. This boring structure itself can be of any length as long as it eventually repeats itself. A mereological chain terminates in the boring structure, which forms a sort of atomless supervenience base that is itself nevertheless infinitely descending, though repetitive.[42] However, like Morganti, Tahko seems to be interested in

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[40] Matteo Morganti, "Metaphysical Infinitism and the Regress of Being," 45, no. 2 (2014): 235.
[41] Morganti, "Metaphysical Infinitism," 232.
[42] Tuomas E. Tahko, "Boring Infinite Descent," *Metaphilosophy* 45, no. 2 (2014): 261.

developing a form of infinitism that also doesn't run afoul of the alleged vicious regress of grounding.

The second rival view to foundationalism is metaphysical coherentism. Roughly, metaphysical coherentism is a kind of holism with regards to explanatory structure. The epistemic coherentist thinks a belief is justified if it coheres with a set of beliefs. In an analogous way, the metaphysical coherentist thinks that any given fact is interconnected with a network of facts that are mutually dependent in some manner. Metaphysical coherentism, thus, denies the hierarchical conception of grounding and instead maintains that grounding can form loops or cycles. There are several ways this can happen. If grounding can fail to be asymmetric, then there might be tight grounding circles of the form x grounds y and y grounds x. Larger circles of ground can be formed if grounding is asymmetric but fails to be transitive, so that x grounds y, y grounds z, and z grounds x. And if grounding can be reflexive, so that x grounds x, then perhaps coherentism is true in worlds where only x exists, and nothing else. Coherentism, like infinitism, answers the fundamental question in the negative. Provided the world in question is thoroughly coherentist, meaning that *all* grounding chains form a loop or cycle of some kind, then there will be no independent or ungrounded entities and foundationalism will be false.

However, matters are slightly more complicated. Coherentism is not equivalent to the denial that grounding is a strict partial order because some grounding theorists who do not describe themselves as coherentists nonetheless challenge certain formal properties of grounding. And there are various distinctions between weak and strong forms of coherentism in the literature which complicate matters even further. A weak view might insist only that symmetric or reflexive instances of grounding are possible, whereas a stronger view will maintain "*all* metaphysical

explanations are holistic explanations".[43] As such, coherentism is probably best thought of as a cluster of related views. I discuss these views in more detail in the final chapter.

4. Plan

This dissertation presents a sustained defence of metaphysical infinitism and is broken into two parts. In this first part, comprised of chapters 1-3, I argue against metaphysical foundationalism. In chapter 2, I examine and criticize several regress arguments for foundationalism. Roughly, these arguments maintain that an infinite regress or non-well-founded chain of ground would result in a vicious regress. We allegedly need to posit fundamental facts that halt the regress. I argue that none of these arguments are convincing. In chapter 3, I examine what I take to be the best argument for foundationalism, which I label 'the externality argument'. The argument says that no dependent fact can explain why there are any dependent facts at all. I argue that explaining the existence of dependent facts in terms of further dependent facts ad infinitum is unproblematic by arguing that the plurality of all dependent facts has a ground iff every dependent fact has a ground.

Part two of the dissertation is comprised of chapters 4-7. I provide a positive argument for metaphysical infinitism by presenting and defending a version of the principle of sufficient reason (PSR) that says, "every fact has a ground". I argue that if there are fundamental facts, then they are necessarily fundamental. But there are no necessarily fundamental facts since every fact is possibly grounded. Therefore, there are no fundamental facts. In chapter 4, I argue for the claim that every fact is possibly grounded largely on inductive grounds. I consider several potential

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[43] Naomi Thompson, "Metaphysical Interdependence, Epistemic Coherentism, and Holistic Explanation," in *Reality and its Structure, Essays in Fundamentality*, eds. Ricki Bliss and Graham Priest (Oxford: Oxford University Press, 2018), 119.

counterexamples, including necessary facts, identity and distinctness facts, and essentialist facts and argue that all three types of fact are possibly grounded. I then argue in chapter 5 that fundamental facts must be necessarily fundamental on explanatory grounds. The foundationalist's fundamental facts are meant to provide a kind of ultimate metaphysical explanation of everything other than themselves. I argue they cannot provide this kind of explanation unless they are necessarily fundamental.

In chapter 6, I address well-known objections to the PSR. In the final chapter, I argue in favour of infinitism by arguing against the possibility of circles of ground. This ensures that chains of ground are linear or hierarchical such that they do not form circles of any size, thus ruling out metaphysical coherentism.

Chapter 2. The Regress of Being

1. Introduction

The most common strategy for arguing in favour of foundationalism is to deploy a regress-style argument. The core motivation behind this style of argument is the foundationalist's uneasiness regarding unending or non-well-founded chains of ground. For example, Dasgupta asks us to consider the young child who asks, "Why is there a mountain here?". Suppose we answer her question by saying the mountain's existence is grounded in the arrangement of particles, which itself is grounded in some physical field, and so on ad infinitum. Dasgupta argues,

> Would citing some non-terminating descending chain of grounds like this answer her question? I think not. For her question is not answered at the first step when one describes the particle arrangements, since (as we have seen) she will just complain 'Yes, but why is the world like that?' But the same goes for any step in the chain. So all we have in a nonterminating descending chain is infinitely many bad answers. And infinitely many bad answers do not constitute a good answer.[44]

Dasgupta, unfortunately, doesn't tell us why a non-terminating descending chain is a bad answer to the child's question. The non-terminating chain of explanations can't be bad because it fails to be an ultimate explanation of the child's question in the sense that the foundationalist is after, for that would simply beg the question in favour of foundationalism. And there is a sense in which the child does receive a perfectly adequate answer to her question, even if the answer itself admits of further explanation. Most, if not all, causal explanations we provide for any given phenomena are still good or full explanations in some sense even though they don't cite the big bang, for example. It remains to be seen why things should be any different for metaphysical explanations.

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[44] Shamik Dasgupta, "Metaphysical Rationalism," *Noûs* 50, no. 2 (2016): 383.

This chapter has two goals. First, In section 2, I examine several prominent accounts of viciousness and argue that non-well-founded chains of ground are not vicious on any of these accounts. Second, in sections 3 and 4, I examine two prominent regress arguments for foundationalism, which I call 'the argument from global explanatory failure' and 'the reality inheritance argument' and conclude that both are ultimately unsuccessful. The first maintains that while each fact receives a ground in some further fact, the regress *as a whole* fails to receive a ground if infinitism is true. I offer three plausible interpretations of what a regress *as a whole* might mean in terms of sums, sets, and conjunctions, and argue that none of these interpretations favour foundationalism. The reality inheritance argument maintains that when x grounds y, y inherits its reality or existence from x, and where there is reality inheritance there must be a source of reality, a fundamental ground. I argue that the primary justification for this argument is question-begging.

2. Vicious Infinite Regress

Before examining specific regress arguments for foundationalism, it is important to get a handle on what the viciousness of an infinite regress allegedly consists in. I'll argue that non-well-founded chains of ground are not vicious according to some of the leading candidate accounts of viciousness. I'll remain neutral on whether there is only one or many ways for an infinite regress to be vicious.[45]

There is considerable adherence to the view that an infinite regress of grounding is vicious.[46] The idea is that certain grounding chains, what some thinkers call *infinitely descending* chains of

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[45] See Anna-Sofia Maurin, "Infinite Regress Arguments," in *Johanssonian Investigations.Essays in Honour of Ingvar Johansson on His Seventieth Birthday*, eds. Christer Svennerlind, Jan Almäng, and Rögnvaldur Ingthorsson (Ontos Verlag, 2013) for a monist perspective and Cameron, *Chains of Being*, for pluralist perspectives.
[46] See Jonathan Schaffer, "Grounding in the Image of Causation," *Philosophical Studies* 173 (2016): 95 and Cameron, "Turtles," 5.

ground, are problematic. An infinitely descending chain involves a series of grounding claims that are chained, such that *a* is grounded in *b, b* is grounded in *c ...,* ad infinitum.[47] I follow Cameron (2022) in espousing a form of relativism with regards to viciousness. On this view, whether an infinite regress is vicious has do to, at least in part, with our prior theoretical commitments and explanatory goals. As we'll see below, there are contexts in which a non-well-founded chain of ground would be vicious. But avoiding the viciousness is simply a matter of rejecting the theoretical or explanatory context in which the regress occurs.

Given this result, the arguments for foundationalism surveyed in sections 3 and 4 of this chapter, and in the next chapter, are, strictly speaking, explanatory arguments. They maintain that non-foundationalist ontologies fail to explain some phenomenon that foundationalism can explain in virtue of accepting the existence of fundamental facts. What differentiates the arguments surveyed over the course of this chapter and the next is the way in which they characterize their respective explanatory targets. For now, let's turn to a discussion of prominent accounts of viciousness.

2.1 Failure of Analysis

A common view attributes the viciousness of an infinite regress to a failure of analysis. This occurs when we have an explanation of some fact, F_1, in terms of another fact, F_2, and our explanans, F_2, presupposes the explanandum, and this problem reappears at each stage of the regress. In so far as we keep offering explanations of further facts while presupposing the very

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[47] Shamik Dasgupta, "The Possibility of Physicalism," *Journal of Philosophy* 111, no. 9/10 (2015): 558; Ted Sider, "Ground Grounded," *Philosophical Studies* 177(2020): 749, and Bennett, *Making Things Up*, 197 all make this point.

thing that needs to be explained, the regress appears to be vicious. The infinite regress that ensues only succeeds in indefinitely postponing an explanation of the original datum to be explained.

A well-known example of a failure of analysis is the homuncular theory of perception. Suppose we say that what it is to see y, what vision itself consists of, is to have a homunculus inside your brain that sees y. What it is for the homunculus to see y is for that homunculus to have a sub-homunculus that sees y, and so on ad infinitum. Ross Cameron suggests that "What seems wrong with the homuncular theory of vision is that it is aiming to say what it is to see something, but keeps appealing to seeing something in order to do so".[48] This is problematic because the explanans is of the same form or kind as the explanandum. The very phenomenon for which we are seeking an explanation of reappears as its own explanation.[49] The regress is arguably vicious because at each stage, our explanans presupposes the explanandum, thus indefinitely deferring an explanation of the datum we sought to explain in the first place.

However, a grounding regress does not exhibit a failure of analysis in this sense given above. If I am accounting for F_1's existence in terms of F_2 by saying F_1 exists in virtue of its ground, F_2, I am not presupposing the very thing that needs to be explained, namely, F_1's existence. Rather, ground relates two distinct facts and, as a result, each step in the regress does not presuppose the very same fact that needs accounting to begin with.[50] The homuncular theory goes wrong because each step of the regress presupposes the very same thing that is meant to be explained in the previous step. In a grounding regress, we have a fact, F_2, in virtue of which a distinct fact, F_1 exists, at each link in the chain. Grounding regresses seem to resemble causal regresses in this regard. Like causal explanations, metaphysical explanations can chain in virtue of partial ground being

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[48] Cameron, *Chains of Being*, 16.
[49] Bliss, "Viciousness and the Structure of Reality," 410.
[50] Bliss, "Viciousness and the Structure of Reality," 414 also makes this point.

transitive. But we don't typically understand causal regresses to be vicious. We offer satisfactory causal explanations of phenomena all the time without presupposing that the chain of causes must terminate in some first uncaused cause on pain of a vicious regress. Similarly, we can offer satisfactory metaphysical explanations of phenomena without presupposing that our chain of ground terminates in some ultimate or fundamental facts. If we thought otherwise, then an infinite or non-well-founded chain of grounding explanations, or causal explanations for that matter, would preclude us from explaining anything at all.[51]

However, there is another sense in which a regress can exhibit a failure of analysis but where, like a grounding regress, each stage of the regress consists of distinct facts. A regress can plausibly exhibit a failure of analysis even if we have distinct facts appearing at each stage of the regress. Cameron offers a slightly altered conception of a failure of analysis and argues that it too results in viciousness. Instead of saying that *what it is* to see x is to have a homunculus in your brain that sees x, we can say that what it is for person A to see x is for A to have a homunculus inside her brain that sees x. What it is for person A's homunculus, H, to see x is for H to have a sub-homunculus, H_1, that sees x, and so on. On his formulation of the theory, each stage of the regress appeals to distinct facts. Here, we're seeking an account of A's seeing x, and the next step of the regress makes no appeal to A seeing anything.[52] Yet, it seems plausible that the regress is vicious, despite there being distinct facts obtaining at each stage, because we still haven't said what it is for anything to see x.

Another example of this alternative conception of a failure of analysis is the infinite regress engendered by a naïve version of resemblance nominalism. Suppose we have three exactly resembling red spheres, *a*, *b*, and *c*. The resemblance nominalist says that each is red in virtue of

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[51] See Petri Ylikoski, "Causal and Constitutive Explanation Compared," *Erkenntnis* 78 (2013): 286.
[52] Cameron, *Chains of Being*, 17.

standing in the exact-similarity relation to each other. But since there are multiple instances of this exact-similarity relation, and it is the same type of relation in each instance, it is a universal. The (naïve) resemblance nominalist must admit that these relations resemble each other and, therefore, must say they also resemble in virtue of standing in a further exact-similarity relation. As Anna-Sofia Maurin argues, the regress is vicious because it only succeeds in indefinitely postponing an analysis of the original property, redness, by introducing a new type or property (the exact-similarity relation) that, once again, requires the same analysis. At no step of the regress are the conditions necessary for *a, b*, and *c* to resemble ultimately fulfilled, which means the regress itself "postpones- and hence hinders- the original position from constituting the explanation (account, definition, justified position, etc.) it claims to be".[53]

The resemblance nominalist is attempting to offer an analysis of what it is for something to be a property - a general term that has the appearance of being a universal - without appealing to a universal. That each step of her analysis postulates another property or relation, which looks like a universal and thereby requires the very same analysis to be applied again ad infinitum, indicates a failure of the original analysis. And like Cameron's alternative reading of the homuncular theory of vision, each stage of the resemblance nominalist regress appeals to some distinct fact. In saying what it is for *a, b*, and *c* to resemble, we make no appeal to *a*, *b*, *c*, but rather to distinct resemblance relations. But nonetheless, the regress still indefinitely postpones an account of what we are seeking an explanation for to begin with.

So, these cases seem to exhibit viciousness even though each step in the regress appeals to distinct facts. Might this cause trouble for a grounding regress then?

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[53] Maurin, "Infinite Regress Arguments," 433. Daniel Nolan, "What's Wrong with Infinite Regresses?" *Metaphilosophy* 32, no. 5 (2001): 530, describe this conception of viciousness as a failure of a theory that is intended to be reductive.

2.2 Grounding and Reduction

A grounding regress does not exhibit a failure of analysis because grounding is not associated with analysis, or what some call 'reduction', in the appropriate manner. Gideon Rosen has suggested that reduction entails grounding, what Rosen calls the 'Grounding-Reduction Link' (GRL).[54]

      GRL   If x reduces to y, then x is grounded in y.

Suppose that for it to be the case that F just is for it to be the case that Φ. F, therefore, reduces to Φ. According to GRL, then, Φ grounds F. However, Rosen's GRL does not lead to a worry of a failure of analysis with respect to non-well-founded chains of ground. Where we have an infinite regress of grounding, GRL does not entail that any given fact that is a member of that regress will be analysed in terms of, or reduced to, prior facts. Thus, no failure of analysis will occur.

Where a grounding regress might run into trouble is if the converse of Rosen's principle were true. Call this the "Reduction-Grounding Link" (RGL).

      RGL   If x grounds y, then y reduces to x.

Suppose that the existence of *y* is grounded in the existence of *x*. According to RGL, this also entails an analysis or reduction of the existence of *y* in terms of the existence of *x*. This means that when *x* grounds *y*, we must also say that *what it is* for *y* to exist just is for *x* to exist. And such an

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[54] Rosen, "Metaphysical Dependence," 122.

analysis will be problematic because if we analyze *y*'s existence in terms of *x*'s existence, we're simply pushing an analysis of x's existence back a step, similar to the resemblance nominalist. All this analysis or reduction manages to do is defer an analysis of *y*'s existence to *x*'s existence. If this goes on forever, then a failure of analysis will occur.

As such, I think a grounding regress may be vicious if something like RGL is true. Rosen's support for GRL comes from examples. But there aren't any plausible examples supporting RGL. As Rosen says, there is a tight connection between reduction and *real definition*, which corresponds to the nature of a thing and is the answer to a 'what it is' question.[55] So, an example supporting RGL would have to involve some *x* grounding some *y*, where what it is to be the case that *y* just is what it is to be the case that *x*. Suppose the fact that Socrates exists grounds the fact that {Socrates} exists. According to RGL, it is also the case that what it is for {Socrates} to exist just is what it is for Socrates to exist. But this is implausible. As Kit Fine taught us, arguably Socrates' nature has nothing to do with any set's existence.

Consider another example. Suppose that an act is lovable by the gods in virtue of its being pious. So, the fact that an act is pious grounds the fact that an act is lovable by the gods. It is implausible to then say *what it is* for an act to be lovable by the gods *just is* for an act to be pious. Presumably, the nature of an act's *being lovable by the gods* has something to do with the relationship of the gods to that act, not the nature of piety. Further, suppose that the existence of some mereological whole is grounded in the existence of its parts. It is implausible to then say that what it is for the whole to exist just is for the parts to exist. Of course, we might not think this is implausible if we endorse composition as identity. But then if the parts are identical to the whole,

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[55] Rosen, "Metaphysical Dependence," 122.

there will be no relation of grounding between parts and whole since ground is asymmetric and irreflexive, whereas identity is not.

The problem with RGL, and the above examples, is that a grounding regress of facts is not necessarily meant to tells us what it means or what it is for each fact to exist. When we say that *x* grounds *y*, we are not offering what Cameron calls a "what it is" account of the sort, "what it is for x to be f is for y to be g". Rather, when we cite grounds for some fact, *f*, *f*'s grounds simply tell us what *makes it the case* that *f* exists. And saying what makes it the case that some fact exists is altogether different from saying what it *means* for some fact to exist. The former is a "what it is claim" while the latter is not. A grounding regress of one fact existing in virtue of another fact, all on its own, doesn't exhibit a failure of analysis.

2.3 Quantitative Extravagance

Another potential worry with infinite regresses has to do with considerations of quantitative parsimony. Should we be faced with an infinite regress that does not exhibit a failure of analysis, it is natural to question whether the regress isn't unnecessarily quantitatively extravagant. The idea here is that we should seek to make our ontologies or theories as simple as possible by not only minimizing the kinds of entities postulated (qualitative parsimony) but also by minimizing the number of entities postulated.[56] When considering what the boundary between a vicious and benign regress ought to be, Daniel Nolan suggests that "a regress is taken to be benign when the quantitative extravagance is a cost worth paying, and vicious when…the quantitative extravagance

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[56] For a defense of quantitative parsimony as a virtue of theories, see Daniel Nolan, "Quantitative Parsimony," *British Journal for the Philosophy of Science* 48, no. 3 (1997). For skepticism about quantitative parsimony as a virtue of theories, see David Lewis, *Counterfactuals* (Oxford: Basil Blackwell, 1973), p. 87.

is not a cost worth paying…".[57] If we are trying to problematize infinite regresses, then considerations of quantitative parsimony would seem to have more force against metaphysical infinitism than the conception of viciousness in the previous section. Whatever merits infinitism may have over foundationalism, infinitism cannot claim to be the more quantitatively parsimonious theory.

However, Nolan's suggestion provides no straightforward way of determining whether a grounding regress is benign or vicious because doing so is relative to performing a cost-benefit analysis of the theoretical virtues and vices of competing theories.[58] This is no small task because, in part, there are often competing theoretical virtues and vices in play. For example, assuming that infinitism is more quantitatively extravagant than foundationalism, foundationalism is nonetheless more qualitatively extravagant than infinitism in virtue of positing two kinds of facts, fundamental and derivative. Infinitism posits only derivative facts. How much weight we should give to either theoretical virtue is unclear. Should we embrace qualitative parsimony while rejecting quantitative parsimony as David Lewis thought, or perhaps just give more weight to one rather than the other? Or do they receive equal weight, in which case the two theories cancel each other out? It's difficult to say and attempting to answer these questions here would take us too far afield.

Furthermore, if the viciousness of an infinite regress is a matter of its theoretical cost relative to rival theories, then whether we are willing to tolerate infinitism is also likely going to depend upon further considerations that have little to do with quantitative parsimony itself. For example, infinitism satisfies the plausible *ex nihilo nihil fit* principle that everything comes from something,

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[57] Nolan, "What's Wrong," 536.
[58] Nolan, "What's Wrong," 537 says, "Where the cost of the regress is only quantitative extravagance, its viciousness may be just a relative affair – whether a given theory with an infinite regress should be accepted may depend in part on whether a rival theory which is equally (or nearly equally) virtuous otherwise but with less quantitative extravagance is available – and so our estimate of how vicious its regress is may also depend on the availability of strong rival theories."

where "everything" and "something" range over facts and "comes from" is interpreted in terms of ground. Given a prior commitment to this principle, the infinitist is bound to consider positing fundamental facts – facts that "come from nowhere" – as a violation of this principle. The quantitative "extravagance" of infinitism is, in fact, required by the *ex nihilo* principle, in which case non-well-founded chains of ground would not be vicious but virtuous. So, there is no straightforward sense in which non-well-founded chains of ground are vicious due to quantitative extravagance.

Nonetheless, the issue of parsimony in general does raise legitimate questions regarding the relative strengths and weaknesses of infinitism and foundationalism as competing theories. Several thinkers in this debate have argued that we ought to prefer one theory over the other on methodological grounds, that is, on considerations of simplicity,[59] theoretical unification,[60] explanatory scope,[61] etc. However, this dispute is beyond the purview of this dissertation. We turn next to an evaluation of regress arguments for foundationalism, beginning with the argument from global explanatory failure.

3. The Argument from Global Explanatory Failure

Ricki Bliss characterizes what I call the argument from global explanatory failure in the following way, "At each state of the regress we *have* explained that upon which each fact depends. What we have *not* explained, however, is how the whole lot exists at all".[62] This approach relies upon a distinction between what I will call the global and local aspects of a regress.[63] On the local

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[59] Andrew Brenner, "Metaphysical Foundationalism and Theoretical Unification," *Erkenntnis* 88 (2023).
[60] Cameron, "Turtles".
[61] Jonathan Schaffer, "Is There a Fundamental Level?" *Noûs* 37, no. 3 (2003).
[62] Ricki Bliss, "Viciousness and Circles of Ground," *Metaphilosophy* 45, no. 2 (2014): p. 249.
[63] Scott Aikin, "Who is Afraid of Epistemology's Regress Problem?" *Philosophical Studies* 126 (2005): 195, makes this distinction with slightly different terminology, referring to it as the mediate/global distinction. Bliss,

aspect, each member of the regress has a full and adequate explanation in virtue of its antecedent grounds. The idea is that the existence of a fact at any given level of reality L_n is fully accounted for by the facts at the immediately prior level L_{n-1}.[64] As such, every member of the regress that needs to be explained gets explained precisely in virtue of the regress being infinite. However, suppose we take the regress itself as an individual, a kind of whole composed of all its members. We can then ask what I'll call 'the global question', namely, what grounds or explains the regress itself? The foundationalist will maintain that only fundamental facts can answer this global question.

Appealing to the global/local distinction is a prominent move made in cosmological arguments.[65] The foundationalist appropriates this approach to argue that non-well-founded chains of ground are not self-explanatory, that is, explaining the transitions from each member of the regress to its antecedent grounds does not explain the regress itself as a whole. By invoking the global/local distinction of a grounding regress, the foundationalist argues that a non-well-founded chain of grounding exhibits explanatory failure only when the target of our explanation shifts from the local to the global aspects of the regress.

However, there are issues with the global/local distinction. It is unclear just what a regress as *a whole* refers to. The idea seems to be, in part, that a non-well-founded chain of ground forms a kind of maximal whole, M. More formally, we can say that M refers to the series $(a_i)_{i \in I}$ where the items or terms, a, are facts ordered by the grounding relation and I is the set of non-null natural

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"Viciousness and the Structure of Reality"; Ricki Bliss, "What Work the Fundamental?" *Erkenntnis* 84, no. 2 (2019) also adopts this distinction.

[64] Matteo Morganti, "Dependence, Justification, and Explanation: Must Reality be Well-Founded?" *Erkenntnis*, 80 (2015): 560.

[65] Pruss, *The Principle of Sufficient Reason,* 211 argues, "One suggestion for when a regress is vicious is the case in which it is a grounding-type regress, such as a causal, explanatory, or justificatory regress. In those cases the chain of groundings *as a whole* is without grounding, and it is as if we explained why the Earth does not fall down by positing an infinite series of tortoises beneath it to hold it up – the infinite series is of no more use than one tortoise, and one tortoise is indeed of no more use than the Earth itself" (my emphasis).

numbers.[66] As such, $(a_i)_{i \in I}$ constitutes an infinite chain of grounding. The idea, then, is that M itself is a 'whole' that supposedly requires a ground as well and no member of M can ground M.

However, the idea of a regress as a whole is ambiguous between a first-order and second-order interpretation. The first-order question asks, for all facts in a grounding structure, in virtue of what do they obtain? The second-order question asks, in virtue of what does the grounding structure itself obtain? On the first-order interpretation, a well-founded chain of ground will look like this. 'F' denotes a fundamental fact. The other capital letters denote grounded or dependent facts in the order of grounding. '<' denotes partial ground.

$$F < \ldots C < B < A$$

The first-order interpretation is the standard view that a chain of ground itself terminates. The second-order interpretation of foundationalism will look like the following. Following Rosen (2010), letters in square brackets, [C], are to be read as *the fact that C*.[67]

$$F < [\ldots C < B < A]$$

This claim says that F partially grounds *the fact that* C grounds B and B grounds A. The idea here is that F grounds the obtaining of the *fact that* grounding relations obtain between C, B, and A. Proponents of the argument from global explanatory failure most likely have the first-order interpretation in mind. They are typically not interested in what explains the obtaining of

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[66] Alexandre Billon, "Are Infinite Explanations Self-Explanatory?" *Erkenntnis* 88 (2023): 1935.
[67] Rosen, "Metaphysical Dependence," 115.

grounding facts themselves. Rather, they are concerned with what explains the existence of all dependent entities taken together as some kind of whole.

Furthermore, it is unclear what sort of 'whole' a regress of dependent entities, *M*, is supposed to form and why no member of the regress itself could ground *M*. There are three candidates I'll consider, none of which bode well for the foundationalist. The first suggests that the members of a regress form a sum or mereological fusion. The second suggests they form a set and the third suggests that they form a conjunction.

3.1 Fusions

We might understand the phrase, "a regress as a whole", explicitly in mereological terms. Perhaps all the facts of the regress compose a whole in a standard mereological sense and it is this whole that requires a fundamental ground outside of its parts. This might be a natural reading if ground is associated with mereological composition. For example, Cameron has argued that if composite objects are gunky, so that every proper part is itself a proper part, and composite objects depend upon their proper parts for their existence, then a problematic regress ensues. Cameron then argues that this consideration does not bode well for cases of composition. He writes,

> In the composition case, the anti-gunk worry is that composition could never have got off the ground. If the existence of each complex object depends for its existence on the existence of the complex objects at the level below, and if we never reach a bottom level, then it is hard to see why there are any complex objects at all.[68]

It's not initially clear what Cameron means when he says that it is hard to see why there any complex objects at all in the gunky case. The existence of each object is grounded in, and explained

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[68] Cameron, "Turtles," 6.

by, some further object. If the objects in question truly are gunky, then every object has a ground and an explanation. So, it's not as though every object somehow lacks an explanation or ground.

Brzozowski, who offers a nearly identical argument to Cameron's but one which appeals to the location rather than existence of composite objects, spells this out a little further. Brzozowski insists that, though each step of the regress has its location derived from its proper parts, this is a piecemeal story that only provides half the explanation required because, "it is left unexplained how *any* object in the series is located in space-time".[69] As Brzozowski says, "Given the piecemeal story, there is no way for the *totality* of location relations to be grounded…".[70] So, both thinkers seem to be getting at the global/local distinction of a regress. On the local aspect, each member of the regress has a ground or explanation of its existence in terms of its antecedent ground, upon which it depends. But on the global aspect, the assumption is that the entire regress as a whole lacks a ground.

However, this mereological approach doesn't fare very well, especially if we have classical extensional mereology (CEM) in mind. Among the standard principles of CEM is unrestricted composition (UC): for any collection of individuals, there is an individual which they compose, called their mereological sum or fusion. According to UC, composition is not a very involved affair. It occurs whenever there is a plurality of objects. UC, thus, guarantees a lot of counterintuitive sums in the world.

Following David Lewis, the composition-as-identity (CAI) thesis is supposed to show us how harmless this result is from an ontological point of view. On CAI, composition is either a kind of numerical identity or else analogous to numerical identity.[71] Roughly, the idea is supposed to be

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[69] Jacek Brzozowski, "On Locating Composite Objects," in *Oxford Studies in Metaphysics,* Vol. 4, ed. Dean Zimmerman (Oxford: Oxford University Press, 2008), p. 201.
[70] Brzozowski, "On Locating Objects," 201, my emphasis.
[71] See David Lewis, *Parts of Classes* (Oxford: Basil Blackwell, 1991).

that sums are nothing over and above the objects that compose them and so don't constitute any further ontological commitment. Given UC and CAI, it makes little sense to ask what grounds the regress as a whole because the existence of the parts guarantees the existence of the fusion. On CEM, sums are not anything over and above the parts because if the parts of the sum exist, that entails that the sum exists. When you have several things, you automatically get their fusion. As such, we don't need anything 'outside' the sum in order to account for it.

Furthermore, our earlier conception of a regress, M, is captured by the series $(a_i)_{i \in I}$. This is a rather formal conception of a regress consisting of an infinitely descending structure. While the terms, denoted by a_i, are the members *of* the regress, what makes it an infinite regress in the first place is the fact that the terms are members of the set of integers or non-null natural numbers, which is infinite. As such, the most natural interpretation of an infinite regress as a whole would be the set of integers. But the set-theoretic approach is unhelpful for the foundationalist, in part, because the foundationalist is seeking a fundamental ground of all the *facts* in a regress, not the integers.

3.2 Sets

Instead of forming a fusion, we might think of M as a set, the set of all the dependent or grounded facts that constitute the regress. Let's grant that a set is an entity distinct from its members, albeit an abstract individual in some sense (we might say a set has properties its members do not have, such as being an improper subset of itself). On this interpretation, the foundationalist's contention would be that every fact in a grounding regress has a ground, but the set of all grounded entities requires a ground as well and no member of the set could ground the set itself.

However, sets are standardly taken to be grounded in their members. As Kit Fine famously argued, if we take Socrates and his singleton set {Socrates}, it is intuitive to think that {Socrates} depends upon Socrates, not vice versa. On the iterative conception of a non-empty set, sets are formed or generated from prior objects or individuals. In the case of pure sets, we start with the null set and generate further sets from there. With impure sets, we start with individuals or non-set entities, and generate further sets from there. As such, {Socrates} is *formed from* Socrates, not vice versa, which implies that sets exist in virtue of their members. So, the infinitist has a clear and easy response to the foundationalist if the collection of dependent entities is a set. What grounds the existence of the set need not be some fundamental fact 'outside' of the set so to speak, but the members of the set itself. The set exists because the members do.

Nor does it help to frame the question contrastively as, "Why does the set of all dependent facts have the members that it does, rather than none?". This point comes up in discussions of cosmological arguments. For example, William Rowe argues,

> …from the fact that the existence of each member of the collection is explained, it does not follow that the existence of the collection is thereby explained…To explain the existence of the set we must explain why it has the members it has rather than none. But clearly if every member's existence is explained by some other *member*, then although the existence of every member has an explanation it is still unexplained why the set has the members it has, rather than none at all.[72]

As Quentin Smith points out, Rowe's suggestion here is predicated upon a misunderstanding of the nature of sets.[73] By Extensionality, a set's identity is determined wholly by its members and, as such, has its members essentially. As we've already seen, a set's members are in some sense

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[72] William Rowe, *The Cosmological Argument* (Princeton: Princeton University Press, 1975), 155.
[73] Quentin Smith, "Internal and External Causal Explanations of the Universe," *Philosophical Studies* 79 (1995): 292.

prior to it so that the existence of the set is a result of its members. So, a set has the members it does rather than other members because it is part of the identity of the set to have the member it has. If it had had different members, it would have been a different set.

3.3 Conjunctions

Finally, perhaps the collection of dependent facts forms one giant conjunctive fact. We might then ask what grounds the big conjunctive fact, call it BCF. But, again, a plausible principle of the logic of ground is that conjunctions are grounded in their conjuncts.[74] When you have facts p,q, you automatically get their conjunction, p & q. Nothing more is needed to explain the existence and truth of p & q beyond the conjuncts, p, q. So, BCF receives a perfectly acceptable explanation in terms of its conjuncts. The explanation is also not circular. It's not as though we are saying BFC grounds BFC. If the explanation of BCF is given in the form of a list of its conjuncts, there's no problem since each conjunct is distinct from BCF.[75]

So, on three interpretations of the phrase "a regress as a whole", the whole receives a perfectly good grounding explanation without any need to appeal to fundamental facts. If the collection is a set, the set's existence is guaranteed by its members. If it is big conjunctive fact, then the existence and truth of the conjunction is guaranteed by the existence and truth of its conjuncts. And if it is a fusion, then its existence is also guaranteed by its parts.

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[74] Rosen, "Metaphysical Dependence," 117, Fine, Guide to Grounds," 50.
[75] William Vallicella, "On an Insufficient Argument Against Sufficient Reason," *Ratio* 10, no. 1 (1997): 79.
Benjamin Schnieder and Alex Steinberg, "Without Reason?" *Pacific Philosophical Quarterly*, 97, no. 4 (2016): 528.

4. The Reality Inheritance Argument

Some employ the notion of reality inheritance to argue that non-well-founded chains of ground are problematic. When *x* grounds *y*, *y* supposedly inherits its 'reality' or existence from *x* so that *y* exists in virtue of *x*. The idea is that if there is a regress of grounding, where each fact inherits its existence from some further fact ad infinitum, there must be a source of that existence in the first place. As Jonathan Schaffer argues, "There must be a ground of being. If one thing exists only *in virtue* of another, then there must be something from which the reality of the derivative entities ultimately derives".[76] By 'source', he means fundamental facts that do not inherit their existence from anywhere else.

The main idea for Schaffer is that where there is nothing fundamental, "being would be infinitely deferred, never achieved".[77] By 'never achieved', we might plausibly take Schaffer to mean that being or existence never 'gets off the ground' in the first place, that nothing would exist at all. The argument, then, is demanding an explanation of the existence of any given fact. Without a fundamental ground, so the argument goes, there would be nothing in the world that *makes it the case*, i.e., that grounds or explains, that anything exists in the first place. Kelly Trogdon construes the reality inheritance argument in the following manner.

1. *The reality inheritance premise*: if A is non-fundamental then A inherits its reality from whatever fully grounds it.
2. *The source of reality premise*: necessarily, if A inherits its reality then there are Δ that are the source of A's reality.

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[76] Schaffer, "Monism," 37.
[77] Schaffer, "Monism," 62.

3. *The reality/fundamentality premise*: necessarily, if Δ are a source of A's reality then the entities among Δ are fundamental and Δ fully ground A.[78]

Many grounding theorists tend to think of grounding as a productive relation, one in which the ground facts produce or generate the existence of the grounded facts. So, premise 1 is a fairly reasonable assumption, though not completely uncontested.[79] Premise 2, then, is the most crucial premise of the argument for it essentially states that the reality-inheritance feature of grounding requires that there be some fundamental facts.

To motivate premise 2, proponents offer analogies with finite chains of transference that undoubtedly require a fundamental source and then extrapolate to the case of infinite chains of grounding to show that there must be a source in this case as well. Schaffer writes,

> Grounding must be well-founded because a grounded entity inherits its reality from its grounds, and where there is inheritance there must be a source. One cannot be rich merely by having a limitless sequence of debtors, each borrowing from the one before. There must actually be a source of money somewhere. Likewise something cannot be real merely by having a limitless sequence of ancestors, each claiming reality from its parents. There must actually be a source of reality somewhere. Just as wealth endlessly borrowed is never achieved, so reality endlessly dependent is never realized.[80]

However, few if any critics of Schaffer's argument have considered that this justification for premise 2 of the argument is question-begging. Schaffer's intuition that borrowed wealth requires a source is only correct if the chain of lenders is finite. It is then question-begging to assume that this intuition applies to the case of an infinite chain of transference.

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[78] Trogdon, "Inheritance Arguments,"185. Trogdon identifies the following principle as the rationale behind premise 2. *The inheritance principle*: necessarily, if A inherits φ then there are Δ that are a source of A's φ-ness (i.e. A inherits φ from Δ and no entity among Δ inherits φ.

[79] Audi, "Toward a Theory", 798-709 rejects this notion of grounding, arguing that grounding is not a link between degrees or levels of reality. Additionally, one who endorses the operation view of grounding will not conceive of grounding as a productive relation.

[80] Schaffer, "Grounding in the Image of Causation," 95. See Brzozowski, "On Locating." for a similar argument.

Suppose we have the rule that any given person can be rich only if they inherit or borrow their wealth from someone else. And suppose the chain is finite: x lends to y and y lends to z, so that z is rich. But given that there was no one who lent money to x, and our rule that *any* given person can be rich only by borrowing wealth, it then turns out that there is no source from which z actually acquired their wealth. So, the finite series tells us that wealth inheritance requires an unborrowed or uninherited source of wealth. *X* must have acquired their wealth by some means other than inheritance, by investing in the stock market, say. It would be impossible, then, to claim that the members of finite series comprised of *x, y,* and *z* are nonetheless still able to lend and borrow money to each other if there is no source of wealth to begin with.

But what is wrong, exactly, with the series being infinite? We saw that the problem with the finite series is that there is no ultimate source. If we deny that there is an ultimate source in that case, then it seems we do run into problems if we maintain that each member of the series inherits their wealth from the previous one. But, Schaffer might argue, affirming that the series is infinite also amounts to a denial of an ultimate source for the series. As such, if the finite series ran into trouble without an ultimate source, then it seems an infinite series without an ultimate source is no better off. After all, both lack an ultimate source. This, I take it, is Schaffer's implicit reasoning for thinking an infinite series of lenders is problematic, and by association, an infinite or non-well-founded chain of ground.

However, I think Schaffer's extension of considerations from a source-less finite series to a source-less infinite series is too quick. It seems Schaffer is assuming that if we maintain the series is infinite in length, this is akin to claiming that our finite series of borrowers and lenders – *x, y,* and *z* – can still lend each other money even if there is no member of the series who acts as an uninherited source of wealth, which we saw was problematic. But these are not equivalent claims.

Claiming that the series in question is infinite is not equivalent to claiming that the finite series of lenders are still able to lend money to each other even in the absence of a source of wealth. What was problematic about the source-less finite series was that, by tracing the series back, we arrived at a last member who neither had wealth in a derived nor underived manner. But if the chain of wealth transference is infinite, then we never reach a last member of the chain where someone neither has wealth in a derived nor underived manner. As such, even though an infinite series lacks a source, it also lacks the feature that made us think the finite source-less series was problematic in the first place.

As such, in an infinite series, it isn't immediately obvious (like it is with the finite series) that there must be an unborrowed source of wealth. In one sense, there is a source of the wealth of z in virtue of a never-ending line of borrowers. Furthermore, we are forced to assume that the infinite series functions sufficiently similar to the finite series. Schaffer needs to offer independent justification for thinking that an infinite series of lenders is just as problematic as a finite series of lenders that lacks a source of wealth altogether.

5. Conclusion

In this chapter, I've argued that a non-well-founded chain of ground is not necessarily vicious according to two conceptions of viciousness. On the first conception, a regress is vicious when a failure of analysis occurs. I argued that a non-well-founded chain of ground can be vicious on this conception if the sort of explanation of a given phenomenon exhibits this kind of failure of analysis. All that follows from this is that we should avoid giving these sorts of explanations that lead to a failure of analysis, not that grounding must be well-founded. On the second conception, a regress is vicious because it is ontologically extravagant. I argued that determining the relative

benefits and costs of foundationalism and infinitism on this account is not so straightforward and that infinitism is, therefore, not straightforwardly vicious on this account. I also argued that two prominent regress arguments for foundationalism, the argument from global explanatory failure and the reality inheritance argument, are ultimately unsuccessful. In the next chapter, I critically examine a further argument for foundationalism and argue that if each dependent fact has a ground, they all do.

Chapter 3. No Work for Fundamental Facts

1. Introduction

Metaphysical foundationalism is the view that ground is well-founded, that there are some fundamental facts that ground all the derivative facts. Metaphysical infinitism denies that ground must be well-founded. Chains of ground can descend indefinitely without ever reaching a level of fundamental facts. On infinitism, every fact is dependent. A common argument for foundationalism, which I term 'the externality argument', says there must be fundamental facts in order to explain why there are any dependent facts at all. Since the infinitist does not admit the existence of fundamental facts, the foundationalist argues infinitism exhibits a kind of explanatory failure.

A crucial premise of the externality argument is the externality assumption: no dependent fact can explain why there are any dependent facts at all. Only facts that are *external* to the collection of dependent facts, i.e. only facts that are fundamental, are up for the explanatory task. I argue that foundationalists have hitherto failed to offer convincing justification for the externality assumption. Thus, for all foundationalists have shown, there is nothing problematic with the infinitist explaining why there are any dependent facts at all in terms of further dependent facts.

Interestingly, a causal version of the externality assumption also motivates the cosmological argument from contingency. Theists typically endorse a version of the principle of sufficient reason (PSR) that says, 'every contingent fact has an explanation', and go on to argue that no contingent fact can explain why there are any contingent facts at all. The argument concludes that only a fact external to the collection of contingent facts - a necessary fact - is up for the explanatory task. Though various theists endorse the externality assumption for different reasons, endorsing the externality assumption amounts to rejecting the Hume-Edwards Principle (HEP), roughly, that

explaining the parts of a collection is sufficient for explaining the whole collection. I argue that explaining the existence of dependent facts in terms of further dependent facts ad infinitum is unproblematic by arguing for the plausibility of a ground-theoretic version of HEP, which states that the plurality of all dependent facts has a ground iff every dependent fact has a ground. Thus, there is no work for fundamental facts.

The plan for this paper is as follows. In section 2, I briefly introduce the notion of ground and the debate between metaphysical foundationalism and metaphysical infinitism. In section 3, I introduce the externality argument in more detail. In section 4, I attempt to clarify the explanatory target of the argument. In section 5, I critically evaluate two proposed lines of justification for the externality assumption. In section 6, I offer a ground-theoretic version of HEP and discuss some of its implications. In section 7, I conclude by considering objections.

2. Ground and Metaphysical Foundationalism

Ground is a determinative form of non-causal metaphysical explanation. Metaphysical explanations are familiar. They pertain to what makes or determines something's being the case. 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 grounded or consists in the various actions of its participants. Those actions are what make it the case that a football match is occurring in the first place. Unless otherwise noted, I use 'explanation' and 'ground' interchangeably throughout this paper.

As I mentioned in the previous chapter, some prefer to treat ground in terms of the sentential connective, 'because'. Grounding claims then take the following form,

S because Γ

where S is a sentence and Γ is a list of sentences, and 'because' is interpreted in a metaphysical rather than causal sense.[81] My approach 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.

And as a relation between facts, I prefer a conception of facts as non-representational states of reality as opposed to representational entities like propositions. This conception guarantees that our discussion pertains to the world itself rather than our representations of it. But this assumption is also not required. One can simply replace my conception of facts with their preferred view if they'd like.

Ground is also associated with a notion of fundamentality. I assume here a conception of fundamentality as independence. Those facts that are ungrounded, and hence independent, are fundamental. Thus, facts that are grounded are derivative or dependent. I also assume that ground forms a strict partial order; it is transitive, irreflexive, and asymmetric.

As a form of 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

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[81] See Shamik Dasgupta, "On the Plurality of Grounds," *Philosophers' Imprint* 14, no. 20 (2014).

satisfactory or full explanation of A.[82] 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.[83]

When I use 'ground' throughout this paper without qualification, I mean full ground.

Since grounding explanations can chain together, the question arises as to whether chains of

ground must eventually terminate, or be ultimately grounded, in some fundamental facts. The

metaphysical foundationalist answers this question in the positive, maintaining 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.[84] Thus, I follow Scott Dixon in

defining well-foundedness as follows.[85]

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

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[82] Trogdon and Witmer, "Full and Partial Grounding," 252.
[83] Dixon, "Infinite Descent," 245. See also Audi, "Toward a Theory," 698; Rosen, "Metaphysical Dependence," 115; Fine, "Guide to Ground," 50.
[84] For example, see Rabin and Rabern, "Well-Founding," 369.
[85] Dixon, "What is the Well-Foundedness of Grounding," 446.

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

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 that there is nothing problematic with indefinitely descending chains of ground, i.e. chains that are not ultimately grounded in some fundamental facts. As we'll see in the remainder of this paper, this dispute comes down to whether infinitism ultimately fails to meet some explanatory demand that foundationalism can.

3. The Externality Argument

The externality argument for foundationalism says that fundamental facts are required to explain why there are any dependent facts at all. Jonathan Schaffer says where there is nothing fundamental, "Being would be infinitely deferred, never achieved".[86] A plausible interpretation of this phrase is that without any fundamental facts, there would be no explanation of the derivative or dependent facts. Ross Cameron argues that if there are no fundamental facts, then "we are left without a complete explanation as to why the non-fundamental facts on that infinite chain obtain, or why the dependent entities on that infinite chain exist and/or are the way they are".[87] And Ricki Bliss argues, "Where one thing depends upon another, and that further thing depends on something else, and so on *ad infinitum*, whilst we have an explanation for each thing along the way, what we do not have is an explanation for is why there are any dependent entities whatsoever".[88] Bliss identifies a core assumption of this argument as *the externality assumption*: if we are to explain why there are any dependent facts at all, we must appeal to facts that are external to the collection

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[86] Schaffer, "Monism," 62.
[87] Cameron, *Chains of Being*, 90.
[88] Bliss, "What Work," 368.

of dependent facts, i.e. facts that are not dependent. And assuming that the categories of *being fundamental* and *being dependent* are mutually exclusive and exhaustive, the fact or set of facts external to the dependent facts that do the ultimate explaining must be fundamental.

What reason do we have to accept the externality assumption? Since I think Bliss' version of the externality argument is the most developed, I'll briefly mention her suggestion so that we can get her full version of the argument on the table. She motivates the externality assumption by appealing to the following principle.

> **KI**   Where K is any *substantial kind*, you can't explain why there are any Ks *at all* by invoking only Ks, even if your explanation goes on forever.[89]

Bliss' move is to then suggest that 'dependent fact' is a substantial kind.[90] If true, then it follows that we cannot appeal to any dependent fact to explain why there are any dependent facts at all. In certain contexts, I think KI is plausible. For example, consider someone who asks, 'Why are there any elephants at all?'. It seems right to say that a satisfactory answer to this question cannot appeal to any individual elephants. Instead, we'd have to appeal to certain biological or evolutionary processes that somehow gave rise to elephants as a species sometime in the past.

Putting the pieces together, Bliss presents the following version of the externality argument, which I've adapted slightly by replacing 'entities' with 'facts'.[91]

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.

> (a) (KI) Where K is any *substantial kind* you can't explain why there are any Ks *at all* by invoking only Ks, even if your explanation goes on forever.

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[89] Bliss, "What Work," 373
[90] Bliss uses 'entities' instead of 'facts'. I opt for the term 'fact' to streamline discussion and maintain continuity with the rest of the paper.
[91] Bliss, "What Work," 373. To be clear, Bliss does not endorse this argument.

(b) "Dependent fact" is a substantial kind.

(c) Therefore, you can't explain why there are any dependent facts at all by invoking only dependent facts, even if your explanation goes on forever.

3. Therefore, there must be fundamental facts.

As it stands, the argument faces two challenges. First, the explanatory target in premise 1 requires clarification. Second, justifying the externality assumption, premise 2, is notoriously difficult. My main goal in this paper is to evaluate the externality assumption. Before doing so, I will attempt to clarify the explanatory target in the next section. Doing so will help narrow our focus and clarify the issues at stake when discussing the externality assumption in section 5 and the Hume-Edwards Principle in section 6.

4. Clarifying the Explanatory Target

Premise 1 of Bliss' externality argument asserts that there is an explanation for the existence of dependent facts. The main problem with Bliss' construal of the explanatory target is that the question raised by the externality argument looks like a quantificational question. It seems to be asking for an explanation of an existential statement, namely, 'There are dependent facts'. What explains this fact? A plausible principle of ground is that an existentially quantified fact is explained by each of its obtaining instances.[92] Thus, we can plausibly say that the fact that there are dependent facts obtains in virtue of the fact that dependent $fact_1$ obtains, dependent $fact_2$ obtains, dependent $fact_3$ obtains, and so on. Thus, there is no need for fundamental facts.

Instead of the quantificational question, perhaps Bliss has the following modal question in mind: Why do these dependent facts exist given that they presumably don't *have* to exist? But I

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[92] Rosen, "Metaphysical Dependence," 117.

don't think this is right. The modal interpretation puts us squarely into the territory of the cosmological argument from contingency, which appeals to a necessary cause in order to account for some contingent feature of reality. I'll say more about the cosmological argument in the next section. However, unlike the cosmological argument, the externality argument is not seeking a necessary ground for the supposed contingent existence of dependent facts. Rather, it aims to establish a *fundamental* ground of dependent facts and there is nothing about the externality argument that requires the fundamental facts to be necessary. For all the externality argument says, the fundamental facts could be contingently existent. Though strikingly similar in many ways, as we'll see below, the cosmological argument and externality argument should be kept separate.

Alternatively, we might think that the foundationalist's explanatory target is a mereological fusion, set, or conjunction. Perhaps the idea is that, while every dependent fact has a ground on infinitism, the set of all dependent facts, say, does not have a ground. However, it is implausible that we understand the explanatory target to be a mereological fusion, set, or conjunction. Fusions obtain in virtue of their parts, at least according to classical extensional mereology. Sets obtain in virtue of their members, at least according to the iterative conception of a set. And conjunctions arguably obtain in virtue of their conjunctions. Thus, on any of these interpretations, there is no work for fundamental facts.

We are left wondering what, exactly, fundamental facts are needed to explain. Bliss' question of, 'Why there are any dependent facts' includes the qualifier 'whatsoever' or 'at all'. Admittedly, these qualifiers perform some function. They seem to rule out as inappropriate an explanation in terms of instances. But the alleged inappropriateness of an explanation in terms of instances is still unclear. We've seen already that, on various interpretations of the explanatory target, explanation

in terms of instances, parts, members, or conjuncts, is plausible. Thus, what these qualifiers are supposed to do seems to resist clarification.

To avoid these issues, my suggestion is that we construe the explanatory target as the plurality of all dependent facts. Let 'dd' be a plural term denoting all and only the dependent facts. We can now understand ground to accept plural terms on the right in addition to on the left, which I'll say a little more about shortly. The challenge, then, will be to say what grounds dd.[93] On this approach, the foundationalist is not looking for an explanation of the further fact that there are dependent facts, nor why the dependent facts exist as a fusion, set, or conjunction. On my proposal, what the foundationalist is after is an explanation of the existence of all *these* dependent facts taken plurally. Framing the explanatory target in this manner has the advantage of allowing us to speak of all dependent 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.[94]

We can then offer a more formal characterization of Bliss' explanatory principle underlying premise 1 of her argument. First, we introduce plural variables (*vv*, *xx*, *yy, …*) and plural quantifiers that bind those variables ($\forall vv$, $\exists xx$,…). We then introduce the following predicates. 'D(xx)' reads 'the xxs are dependent" and 'EE(xx)' reads 'there is an explanation of the existence of the xxs', assuming that the kind of explanation in question is ground. This allows us to formulate Bliss' explanatory demand as follows, keeping in mind that the domain of discourse ranges over facts.

    Explanatory Demand $\forall xx \, [D(xx) \rightarrow EE(xx)]$

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[93] Thanks to an anonymous referee for helping me clarify this.

[94] See George Boolos, "To Be Is To Be a Value of a Variable (or to Be Some Values of Some Variables),' *Journal of Philosophy* 81, no. 8 (1984): 430–449; George Boolos, "Nominalist Platonism," *Philosophical Review* 94, no. 3 (1985): 327–344.

The formula reads, 'All dependent facts have an explanation of their existence'.

However, there is a complication with my construal of the explanatory target as a plurality. Ground is typically taken to be a many-one connection, allowing any number of facts on the left but requiring a single fact on the right. As I noted above, however, formulating the explanatory target as a plurality requires a many-many or plural notion of ground, where a plurality of facts on the left-hand side grounds a plurality of facts on the right-hand side.[95] And just how we understand this notion of plural ground has implications for the externality argument.

The foundationalist's worry is that, on infinitism, each fact in a chain of ground is grounded whilst the collection or plurality of facts itself is ungrounded. Infinitism allegedly fails to explain something that it should, namely the plurality of dependent facts. My contention is the opposite, namely, that the plurality of dependent facts is grounded iff each member of the plurality is grounded. This raises an obvious worry of circularity. If the thing to be explained is the plurality of all dependent facts, and the infinitist says that this plurality is grounded in dependent facts, then we might worry that the infinitist's position amounts to an explanatory circle; the plurality of dependent facts being grounded in the plurality of dependent facts. As we'll see, this worry doesn't arise if plural ground is distributive. Since this issue is directly related to my ground-theoretic version of HEP, which I present in section 6, I address it in detail there.

For now, even with the explanatory target clarified, we are likely still wondering why infinitism does not have the resources to offer an explanation of this target. After all, each fact on infinitism is explained in terms of some further fact, ad infinitum. What is it that still needs explaining here that the infinitist can't explain? The main thrust of the externality argument is the

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[95] For recent plural accounts of ground, see Dasgupta, "On the Plurality of Grounds," and Jon E. Litland, "Pure Logic of Many-Many Ground," *Journal of Philosophical Logic* 45, no. 5 (2016): 531-577.

externality assumption, that we must appeal to some fundamental facts to offer a full or otherwise adequate explanation of our explanatory target. The problem is that the foundationalist offers no compelling reason to accept the externality assumption, or conversely, that the infinitist's answer to the explanatory target above is problematic. In the next section, I consider two proposed justifications for the externality assumption and argue that neither is plausible.

5. The Externality Assumption

The externality assumption says no dependent fact can explain why there are any dependent facts at all. As I noted above in section 1, the externality assumption also plays a key role in the cosmological argument from contingency. And since there is little explicit discussion of the externality assumption in the fundamentality/grounding literature, my evaluation of justifications for the externality assumption will also interact with what proponents of the cosmological argument have had to say about it. We needn't worry that these distinct literatures are too incongruous. It is true that the application of the externality assumption in the cosmological argument typically involves causal explanation while its application in the externality argument involves non-causal or metaphysical explanation. But, as we'll see below, the underlying structural principles motivating either application are the same. In fact, I think it has been generally underappreciated just how striking the similarities between the two literatures are.

The application of the externality assumption in the cosmological argument becomes clear when comparing the basic structure of the cosmological and externality arguments. Joshua Rasmussen offers the following typical structure of the cosmological argument.[96]

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[96] Joshua Rasmussen, "Cosmological Arguments from Contingency," *Philosophy Compass* 5, no. 9 (2010): 806-807, my bolding. Rasmussen's inclusion of 'category C' is meant to capture the idea that cosmological arguments target a diversity of contingent phenomena which can include facts, events, or substances, among other things.

Step 1. Causal Principle: Every contingent reality of category C has (or possibly has) a cause or explanation.

Step 2. **From Contingency to a Necessary Being**: For reason R, there is a contingent reality x of category C, such that x could not have been caused or explained by a contingent reality alone.

Therefore: There is a non-contingent (self-existent) reality, N, that serves as at least part of the cause or explanation of x.

We can see that this structure of the argument parallels the structure of Bliss' version of the externality argument. Both arguments begin with an explanatory demand, followed by the assumption that no fact internal to the collection of facts that need explaining can explain that collection. Step 2 above employs the externality assumption, which says that where the explanatory target is some contingent reality, *x, x* cannot be fully explained by some other contingent reality. If the externality assumption is true, *x* must be explained by something non-contingent, i.e. something necessary.

In the remainder of section 5, I discuss two proposed justifications for the externality assumption. The first says that explanations that violate the externality assumption are circular. The second says they are incomplete. If either justification were successful when applied to the externality argument for foundationalism, it would entail that the infinitist's explanation of the existence of dependent facts in terms of further dependent facts would be either circular or incomplete. I argue that neither line of justification for the externality assumption is convincing.

5.1 Circular Explanations

We saw earlier that Bliss considered justifying the externality assumption with the following principle, her suggestion being that 'dependent fact' is a substantial kind.

> **KI** Where K is any *substantial kind*, you can't explain why there are any Ks *at all* by invoking only Ks, even if your explanation goes on forever.

Assuming that 'dependent fact' is a substantial kind, the main problem with using KI to justify the externality assumption is that KI just is a version of the externality assumption recast in terms of kinds. As such, we're still left with the prior question of whether KI is true and, if so, what makes it true. So, KI all on its own is unhelpful as a justification for the externality assumption.

If KI were true, then we might think that explanations that violate KI are somehow circular and so are bad explanations. Indeed, William Rowe offers the following principle that is virtually identical to Bliss' KI principle (Rowe intends X and the Ys to be of the same kind).

> 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 Ys', where X is an object of the kind in question. For to do so is circular.[97]

Rowe then argues, "if every being were dependent any proposed explanation of why there are dependent beings would be viciously circular".[98] Similarly, Rasmussen asks us to consider a world in which there are purple balls of an unspecified quantity. Suppose the fact that those balls exist is explained by the fact that each purple ball was itself produced by a purple ball. Rasmussen suggests that this sort of explanation would be unsatisfying because, "To say that the purple balls themselves explain why the purple balls exist seems to be circular".[99] So, maybe the externality assumption is motivated by a circularity worry.

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[97] William Rowe, "Circular Explanations, Cosmological Arguments, and Sufficient Reasons," *Midwest Studies in Philosophy*, 21, no. 1 (1997): 197.

[98] Rowe, "Circular Explanations," 200.
[99] Rasmussen, "Cosmological Arguments," 812.

To motivate this worry further, proponents of both the cosmological argument and the externality argument typically use biological analogies as an intuition pump for adopting KI. For example, 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.[100] Similarly, Bliss says,

> Of course, citing the existence of flamingo parents *is* a perfectly good explanation of how some flamingo or other came to be. But it seems like a woefully bad explanation of why there are any flamingos whatsoever…Analogously, so the reasoning might go, for dependent entities: no dependent entity, or chain of dependent entities can explain why there are any dependent entities whatsoever.[101]

Granted, appealing to the causal activity of the members of species *x* to say why there are any members of that species at all certainly does seem illicit. But, as I already mentioned, Rowe's and Bliss' analogy here functions at most as an intuition pump that is meant to motivate the use of KI in the cosmological and externality arguments, respectively. And it isn't obvious to me that the intuitiveness of KI within a biological/causal context, such as explaining why there are any human beings, automatically transfers into the non-causal or grounding context involving facts.

Here's why. I suspect part of the reason why explaining the existence of human beings, say, in terms of the causal activity of Adam and Eve strikes us as absurd is because we already know that human beings have not always existed. We already know that a genuine explanation for why any human beings exist at all must appeal to species and evolutionary factors that have nothing to do with particular members of the human species. The same goes for any biological species. But when it comes to explaining why there are any dependent facts, we have no such prior knowledge that there is a finite set of such facts. To assume that we do would be question-begging against the

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[100] Rowe, "Circular Explanations," 190.
[101] Bliss, "What Work the Fundamental," 371.

infinitist. Yet proponents of the externality assumption simply assume that the apparentness or intuitiveness of the biological analogies transfers over to the metaphysical case involving facts.

But when it comes to the question, 'Why are there any dependent facts at all?', there doesn't seem to be anything wrong with offering a non-causal explanation, i.e. a ground, that violates KI. Indeed, it's hard to see what else the question could be asking for if not a metaphysical or grounding explanation. A fact is dependent in virtue of being grounded by other facts. So, what makes it the case that there are any dependent facts is just the fact that there are grounded facts, that those facts obtain in virtue of others. Unlike the biological/causal cases, 'dependent fact' at most denotes an ontological category and therefore admits of no causal explanation. So, unless one already accepts the intuition that Rowe and others attempt to exploit, the use of various biological analogies within a causal context doesn't do much work in motivating a circularity worry for the infinitist within a non-causal or grounding context.

If our opponent then pivots and demands a ground for the plurality of dependent facts -in accordance with my proposed explanatory target above in section 4 - rather than the more general existential fact that *there are dependent facts*, then the infinitist has a ready answer. For any given fact, F, we can simply offer the full grounds of that fact, Δ, as an explanation for F. Of course, Δ will themselves be dependent facts and so an infinite regress ensues. As I mentioned earlier, one might worry that circularity ensues insofar as the infinitist seems to be explaining the plurality of dependent facts in terms of that very same plurality. This seems to be Rasmussen's worry as well. To use his example, he says that the entire collection of purple balls, C, explains itself. That would amount to saying, 'The purple balls exist because the purple balls exist'. But the infinitist is not necessarily committed to a similarly vacuous explanatory claim. The infinitist claims that, if every dependent fact has a ground, then the plurality of dependent facts is thereby grounded. As we'll

see in more detail in section 6, so long as the notion of plural ground involved here is distributive, there is no circularity problem.

Let's consider one more attempt to generate a worry of circularity. Alexander Pruss admits that it is not immediately obvious that an infinite regress of explanations is as vicious as a circle of explanations. But he suggests there is a way of closing the gap between these two. Pruss suggests that an infinite series of facts, f_1, f_2, ... such that f_n is explained by f_{n+1}, can result in circularity. Pruss' discussion is in terms of propositions, but this is inconsequential for our purposes. He writes,

> Let P indicate the conjunction of all of these propositions. Let E be the conjunction of the even numbered ones. Let O be the conjunction of the odd numbered ones. Every conjunct of E then has an explanation in terms of O, since p_{2n} is explained by p_{2n+1}, with none of the propositions being self-explanatory. Therefore, O has the resources for an explanation of E, if we are dealing with a case in which the conjunction can be explained simply by giving explanations of the conjuncts. But by exactly the same reasoning, every conjunct of O has an explanation in terms of E, since p_{2n+1} is explained by p_{2n+2} . Therefore, E has the resources for an explanation of O. Thus, we explain E in terms of O and O in terms of E, once we admit the sort of reasoning that the [Hume-Edwards Principle] posits.[102]

Pruss' point is that if conjunctions are satisfactorily explained in terms of their conjuncts, which he takes HEP to be saying, then a vicious circularity ensues.

Before addressing HEP below in section 6, I'd like to point out that I think Pruss' example is spurious. If we take the conjunction of all even-numbered propositions, E, the only things that explain E are its own conjuncts because conjunctions are plausibly grounded in their conjuncts. The same goes for conjunction O of all the odd-numbered propositions. It is not the case in Pruss' example that one conjunction, E, explains another conjunction, O, and vice versa. It is only the case that those conjunctions are explained by their respective conjuncts, not each other. All that Pruss' example shows is that some conjuncts of E are explained by some conjuncts of O, and vice

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[102] Pruss, *The Principle of Sufficient Reason,* 43.

versa, since every even-numbered proposition is explained by an odd-numbered proposition and vice versa. But there is no circularity here because, again, it is only ever individual propositions that explain or are explained, rather than two conjunctions that explain each other.

As such, Pruss' example strikes me as rather contrived. Consider the following analogous example.[103] Suppose that A is explained by B and B is explained by C. Now consider the sets {A, C} and {B}. By Pruss' lights, the former set is explained by the latter while, simultaneously, the latter set is explained by the former. But it's clear that our chain of explanations, comprised of A, B, and C, is not viciously circular.

5.2 Incomplete Explanations

Another common justification for the externality assumption is that explanations that violate it are incomplete in some sense. For example, Timothy O'Connor disagrees with Hume that a beginningless sequence of events may admit of a complete explanation. O'Connor writes, "That there can be immanent, stepwise explanations for particular events in terms of prior causes is hardly news. The crucial claim here, it seems to me, is that this form of explanation can be complete, leaving nothing further to be explained…".[104] And Ross Cameron argues,

> I think the foundationalist argument is right that, at least in some infinite regresses of metaphysical determination, we are left without a complete explanation as to why the non-fundamental facts on that infinite chain obtain, or why the dependent entities on that infinite chain exist and/or are the way they are. As a result, there are explanatory goals that the metaphysical foundationalist can meet that the infinitist cannot.[105]

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[103] Thanks to an anonymous referee for this example.
[104] Timothy O'Connor, *Theism and Ultimate Explanation: The Necessary Shape of Contingency* first edn. (Oxford: Wiley-Blackwell, 2008), 74.
[105] Cameron, *Chains of Being,* 90.

O'Connor's concern strikes me as unwarranted, at least if the notion of explanation in question is ground. Given our distinction between full and partial ground, we can see that there isn't necessarily anything deficient about 'immanent step-wise explanations', as O'Connor calls them, because such explanations can be full grounding explanations. For example, the fact A&B is fully grounded by A, B respectively. So long as an infinite regress is a regress of partial grounding, every fact is fully explained. Since any ground, either partial or full, will contribute to explaining what it grounds, any ground is a partial ground. And given our definition of partial ground, a partial ground, Δ, of z is always a subset of a collection of facts, Γ, such that Δ, Γ fully ground z. So, even an infinite regress of partial grounds does not rule out that every fact that is a member of the regress nonetheless has a full ground and is, therefore, fully explained. At no point in the regress would we be concerned that some fact has not received a full explanation.

A more plausible worry with infinite successive explanations is that a certain kind of explanation of a certain phenomenon has not been achieved, namely, a full or complete explanation. This is Cameron's concern, namely, that infinite successive explanations without a fundamental ground can, at best, only offer us an incomplete explanation of the existence of the plurality of dependent facts. If that is true, then infinitism may be able to offer only a partial explanation of the existence of dependent facts, rather than a full explanation.

But what reason do we have to think that the infinitist can only offer an incomplete explanation of the plurality of dependent facts? If every dependent fact has a full ground on infinitism, why does the plurality of dependent facts fail to receive a full ground? It seems perfectly legitimate for the infinitist to maintain that if every member of the plurality of dependent facts has a ground, then the plurality itself has a full ground. We need some reason from the foundationalist to think this claim is problematic.

One reason is that the infinitist's claim sounds a lot like the Hume-Edwards Principle (HEP) and many have argued that this principle is false. In the next section, I offer an explicit formulation of HEP in terms of ground. If this version of HEP is plausible, there is neither a worry of incomplete nor circular explanations for infinitism.

6. The Hume-Edwards Principle

In the previous section, I suggested that it seems perfectly legitimate for the infinitist to maintain that if every member of the plurality of dependent facts has a full ground, then the plurality itself has a full ground. Those familiar with David Hume's response to the cosmological argument will recognize this claim as a variation of what has come to be called the Hume-Edwards Principle. Hume, who was perhaps reacting to Samuel Clarke's version of the cosmological argument, famously argued,

> Also: in such a chain or series of items, each part is caused by the part that preceded it, and causes the one that follows. So where is the difficulty? But the *whole* needs a cause! you say. I answer that the uniting of these parts into a whole, like the uniting of several distinct counties into one kingdom, or several distinct members into one organic body, is performed merely by an arbitrary act of the mind and has no influence on the nature of things. If I showed you the particular causes of each individual in a collection of twenty particles of matter, I would think it very unreasonable if you then asked me what was the cause of the whole twenty. The cause of the whole is sufficiently explained by explaining the cause of the parts.[106]

Paul Edwards also invoked a similar criticism of the cosmological argument, arguing that "If the existence of every member of a set is explained, the existence of that set is thereby explained".[107]

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[106] David Hume, "Dialogue Concerning Natural Religion," Part IX, page 38. Retrieved from, https://earlymoderntexts.com/assets/pdfs/hume1779_3.pdf 11 July 2022.
[107] Paul Edwards, "The Cosmological Argument," in *Philosophy of Religion, a Guide and Anthology*, ed. Brian Davies (Oxford: Oxford University Press, 2000). 202-213.

William Rowe later came to refer to this criticism as the 'Hume-Edwards Principle', which I've adopted here.

In the context of cosmological arguments, HEP is intended as an objection to the theist's claim that there must be a cause of the universe itself in addition to the universe's individual parts, states, or events each having a cause. However, we should note that HEP comes in different forms and the initial plausibility of HEP, thus, depends upon how the principle is interpreted. Interpreted as a claim about sets, fusions, or conjunctions, HEP is arguably unproblematic. As we've seen above, a common assumption regarding ground is that sets, fusions, and conjunctions are grounded in their members, parts, and conjuncts respectively. Interpreted as a claim about highly unified wholes, such as biological organisms for example, then HEP perhaps has less plausibility because we might think that a full explanation of the whole organism cannot be achieved solely in terms of its parts.

In the context of the externality argument, the explanatory target under consideration is a plurality of facts, dd, and the notion of explanation in question is metaphysical rather than causal. So, our interest here is in a version of HEP that is interpreted accordingly. These differences between our version of HEP and more traditional versions notwithstanding, the question at hand is the same one that Hume raised, namely, whether explaining the individual members of a collection in terms of further members is sufficient to explain them all. I say that it is. As a result, we get the following ground-theoretic version of HEP, which I label 'G-HEP'.[108]

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

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[108] Thanks to an anonymous referee for help reformulating G-HEP.

Since the foundationalist is concerned with the *existence* of dependent facts, I assume here that the existence of a fact is explained if that fact has full grounds. I discuss this assumption in more detail below in section 7.

The foundationalist's worry here will be that G-HEP is false. Even though every member of the plurality has a ground on infinitism, the foundationalist worries that the plurality itself lacks a ground. So, by the foundationalist's lights, infinitism fails to explain the existence of why there are any dependent facts at all, construed as a plurality. But this seems odd. How are we to make sense of a situation where each individual fact has a ground while the plurality, dd, does not? Interestingly, we can make sense of it with a non-distributive or collective notion of plural ground.

As I've formulated it above, distributivity holds for G-HEP. If it is true to say of every individual x that is a member of dd that x is fully grounded, then the plurality thereby has a full ground. Compare with saying, "The boys are tall". If it is true of every boy among the group that he is tall, then the boys *plurally* are tall. For distributivity to fail, it would have to be true of the dependent facts collectively that they are fully grounded but not true of any individual dependent fact that is a member of the plurality. Compare with saying, "The boys surrounded the building". It is true of the boys as a group even though no individual boy surrounds the building.

Jon Litland has proposed a non-distributive notion of plural ground, one which allows a plurality, Γ, to ground another plurality, $\delta_0, \delta_1, \ldots$ even though every Γ' that is a subset of Γ is such that for no δ_i does Γ' ground δ_i. In other words, Γ grounds the plurality, $\delta_0, \delta_1, \ldots$ even though no particular member of that plurality is grounded by Γ. The foundationalist's worry, then, constitutes the converse of this scenario, where every member of the plurality is grounded whilst the plurality itself is not.[109]

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[109] Litland, "Pure Logic," 534.

Contrast this with a distributive notion of plural ground. Following Fine, if Δ distributively grounds Γ, then 'there is a decomposition of Δ into subsets $\Delta_1, \Delta_2,\ldots$ (with $\Delta = \Delta_1 \cup \Delta_2 \cup \ldots$) and a corresponding decomposition of Γ into members $C_1, C_2, \ldots$ (with $\Gamma = \{C1, C2, \ldots\}$) such that $\Delta_1 < C_1$, $\Delta_2 < C_2, \ldots$', where '$<$' denotes strict full ground.[110] In other words, given two pluralities of facts, distributivity entails that individual members of each are grounded in individual members of the other. G-HEP will be false, then, on the non-distributive or collective notion of plural ground. For even if every fact has a ground, if distributivity fails then it does not follow that the plurality has a full ground as well.

So, we can make sense of the foundationalist's worry by adopting a non-distributive notion of plural ground. How should the infinitist respond? My main concern here is that a failure of distributivity is unmotivated. Challenges to distributivity in the literature are typically quite targeted. Thinkers like Litland and Dasgupta provide independent motivation for adopting and developing non-distributive notions of ground for certain purposes. For example, Dasgupta motivates a plural non-distributive notion of ground by suggesting it is required to properly formulate certain 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.

However, it is unclear how these sorts of challenges to distributivity are relevant to the externality argument. After all, the foundationalist did not begin with the contention that all the dependent facts require a *non-distributive* ground. Nor was there any puzzle the foundationalist presented us with that adopting a non-distributive notion of ground could potentially solve. As it stands, it seems the only motivation for adopting this notion of ground would be to make sense of

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[110] Fine, "Guide to Ground," 54.

the foundationalist's worry in the first place, that each individual fact has a ground while the plurality does not. And this would be question-begging against the infinitist. This is not to repudiate a non-distributive notion of ground. It is only to say that it must be independently motivated within the dispute between foundationalists and infinitists.

However, a more cautious approach might be wise here. Challenges to distributivity in the context of the dispute between foundationalists and infinitists is currently underexplored terrain. Thus, I am willing to concede that it may be possible to transpose extant challenges to distributivity into the externality argument. Though I currently see no good reason to, let's suppose for the sake of argument that there is. Even still, we might grant that on infinitism there is no non-circular answer to what grounds the plurality of dependent facts but that this is not an explanatory burden that infinitists should shoulder.[111]

It is important to note that this is not a concession. Infinitism exhibits no explanatory failure if the explanatory demand in question is not one that infinitism is obligated to meet in the first place. Recall that premise 1 of Bliss' externality argument says there is an explanation for why there are any dependent facts whatsoever. As Bliss herself notes, this is a result of some implicit version of the PSR. Just how this version of the PSR should be formulated, and whether the infinitist ought to be committed to it, will likely be a legitimate area of dispute between foundationalists and infinitists. So, we should perhaps not expect that infinitists will automatically acquiesce to the explanatory demands of foundationalists. Even if the foundationalist demands a non-distributive ground for the plurality of dependent facts, the infinitist is not necessarily obligated to meet this demand, at least not without further argument from the foundationalist. Much more could be said about these important issues. But I haven't the space here.

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[111] Thanks to Jon Litland for mentioning this option to me. Cameron, *Chains of Being,* makes a similar argument in favour of infinitism.

We can see now why the infinitist does not face any worry of circularity. G-HEP says that the plurality of dependent facts, dd, has a full ground. We can regiment this grounding claim by saying, Δ (fully) grounds dd. As per Fine's notion of distributive ground, if Δ *distributively* grounds dd, that just means there is a decomposition of Δ into subsets and a corresponding decomposition of dd into members, such that the subsets of Δ ground the members of dd. So, for any *x* among dd, take the full ground, Γ, of *x*. Δ corresponds to the union of full grounds for every member of dd, which simply will be dd. So, if every member of dd has a ground, dd thereby has a ground. Just as the boys (plurally) are tall iff each individual boy is tall, so too the dependent facts (plurally) have a ground iff each individual dependent fact has a ground.

7. Objections

I want to conclude by responding to objections to G-HEP. A more general version of HEP will say that if one has explained each conjunct of a proposition or each member of an aggregate, then one has explained the conjunction or whole. Many counterexamples to this general version of HEP have been offered over the years.[112] My view is that these counterexamples aren't relevant to G-HEP. While I can't address them all here, consider perhaps the most common criticism of HEP, that explanation is not *agglomerative*. Take the conjunction of a series of facts that need explaining. Explanation is agglomerative if by explaining the individual conjuncts, we have thereby explained the conjunction. Pruss gives the following counterexample to explanation being agglomerative.

> For instance, even if one had explained why one Mason was at the corner in terms of his desire to buy bread at the bakery on the corner, and why another Mason was at the corner

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[112] See Richard Gale, *On the Nature and Existence of God* (Cambridge: Cambridge University Press, 1991); James Cain, "The Hume-Edwards Principle," *Religious Studies* 31, no. 3 (1995): 323-328; and Alexander Pruss, "The Hume-Edwards Principle and the Cosmological Argument," *International Journal for Philosophy of Religion* 43, no. 3 (1998) :149-165.

in terms of his desire to eat at the café on the corner, and why a third Mason was at the corner in terms of its being his usual way to work, and why a fourth Mason was at the corner in terms of his having to get his watch repaired at the jeweler's there, it does not follow that one would thereby have explained why the four Masons were there. For all of the preceding is compatible with the proper explanation of the conjunction's being a *Masonic conspiracy* that took them to that location, and ensured that the fourth went to this jeweler rather than to another, and so on.[113]

Here we have a case where HEP seems to be false. Does this objection apply to G-HEP? I don't think so. These sorts of counterexamples rely on cases where it is already known or assumed that there is an explanation external to the collection. But when it comes to the issue at hand, namely, whether each dependent fact having a ground results in the plurality having a ground, simply assuming there is an external explanation will beg the question against the infinitist. As I mentioned earlier, interpreted as a claim about sets, fusions, and conjunctions, HEP is quite plausible. These sorts of collections arguably do not require an external explanation but are explained in terms of their members.

So, the prior question should be this. If we form a collection of all the facts that are members of a non-well-founded chain of ground, is that collection explained in terms of its members? To point out that there can be collections where there is an external explanation is irrelevant to the case at hand. Given that distributivity holds for G-HEP, no external explanation is required. That there might be pluralities of facts that have an external explanation is neither here nor there. If the foundationalist wants to deny G-HEP, then she needs to say why my characterization of her explanatory target is problematic.

Finally, William Vallicella offers an interesting critique of the more general version of HEP that is, I think, relevant to G-HEP. A brief look at his critique will help further motivate our grounding-based version of the principle. In the context of the cosmological argument, Vallicella

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[113] Pruss, *The Principle of Sufficient Reason*, 41-42.

thinks several prominent objections against HEP are unsuccessful. Nonetheless, he argues the following.

> We may grant that to explain the members of the universe is to explain the universe, if what this means is that the universe is not something in addition to its members requiring a separate causal explanation. And we may grant that each member is explainable in terms of a preceding member together with the laws of nature. But what explains the fact that there are any members in the first place? What explains the *existence* of the members of the universe, and thus the existence of the universe itself?[114]

Vallicella argues that several prominent nomological theories of event or state causation are not existentially productive, that is, they cannot account for the very *existence* of some state or event of the universe.[115] Vallicella examines three accounts of laws: the Humean or regularity view, the Hempelian or covering law view, and the nomological view that takes laws to be relations between universals. He argues that all three forms of nomological causation are relations that connect events whose existence or occurrence is logically independent of their standing in a causal relation. While the proponent of HEP can explain later states of the universe in terms of earlier ones, she cannot maintain that the very *existence* of later states of the universe are brought about by the causal activity of earlier states. Vallicella concludes that the proponent of HEP cannot explain the very existence of the universe itself by simply explaining later states in terms of earlier states ad infinitum. Applying Vallicella's objection to our case, we might worry that while the infinitist can explain any given fact in terms of other facts, she cannot explain the very existence of those facts in terms of other facts, and so cannot explain the very existence of any dependent facts at all.

For the sake of argument, let's grant Vallicella the even stronger claim that there is no plausible account of causation that is existentially productive. Interestingly, G-HEP avoids this objection

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[114] William Vallicella, "The Hume-Edwards Objections to the Cosmological Argument," *Journal of Philosophical Research* 22 (1997): 430.

[115] Vallicella seems to be confusing analyses of causation with laws. However, this oversight doesn't impact my larger point.

because many, in fact, do conceive of ground as an existentially productive or generative relation.[116] For example, Kelly Trogdon writes, "a relation is generative just in case its instantiation brings things into existence. Grounding is generative given that grounded entities exist *due to grounding*".[117] Sara Bernstein says, "production does play an implicit role in concepts and elucidations of grounding which take it to be a kind of synchronic generation or "bringing into existence". We might consider production to undergird a "thick" concept of grounding according to which grounders transfer being to their groundees".[118] And for Jonathan Schaffer, when *x* grounds *y*, *y depends* for its nature and existence upon *x*.[119] If we accept this conception of ground, then the infinitist has no problem accounting for the very existence of any dependent facts whatsoever because the very existence of any given dependent fact is produced or generated from its antecedent grounds.

But suppose instead that ground is merely a non-causal explanatory connection between facts whose existence is independent of their standing in that relation of ground to begin with. In that case, the infinitist may have a tough time meeting the explanatory demand of the externality argument. For while every fact is explained on infinitism, we wouldn't get an explanation for the very existence of any dependent facts, as Vallicella worries. But this worry poses no unique challenge to infinitism. If ground is not a productive relation, then the foundationalist's fundamental facts can't account for the existence of the derivative facts either. Of course, this doesn't mitigate the problem for infinitism. But it would motivate both foundationalists and infinitists to take up the common cause of defending ground as a productive or generative relation. Doing so, however, is beyond the purview of this paper.

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[116] Of course, proponents of the operator view of ground would not accept this characterization.
[117] Trogdon, "Inheritance Arguments," 189.
[118] Sara Bernstein, "Grounding is not Causation," *Philosophical Perspectives* 30, no. 1 (2016): 23.
[119] Jonathan Schaffer, "The Internal Relatedness of All Things," *Mind*, 119, no. 474 (2010): 345.

We've seen no good reason to think that the infinitist is incapable of offering a non-circular and full or complete explanation of the externality argument's explanatory target. In so far as every fact has a full ground, the plurality of all dependent facts has a full ground.

8. Conclusion

I've argued in this paper that the externality argument for metaphysical foundationalism is ultimately unconvincing. To be clear, I have not shown that the externality assumption is necessarily false, only that foundationalists have hitherto failed to offer convincing justification for it. As a result, we've seen no good reason to think that infinitism cannot offer a non-circular and full explanation of the existence of dependent facts. Hence, there is no work for fundamental facts. This gives us indirect reason to believe that infinitism is, at the very least, possible.[120]

Part II. Metaphysical Rationalism

1. Introduction to Part II

So far, I've critiqued several prominent arguments for metaphysical foundationalism, and I argued in the last chapter that metaphysical infinitism is possible. So long as each dependent fact has a ground, they all do. Infinitism, therefore, exhibits no explanatory failure. My focus in the remainder of the dissertation now shifts towards offering a positive defence of infinitism. My strategy proceeds in two steps. First, in chapters 4-6, I defend an argument for a version of the Principle of Sufficient Reason (PSR) that says, "Every fact has a ground". If plausible, the PSR provides positive reason believing that foundationalism is false. Second, in chapter 7, I argue against circles of ground. The most plausible view is that ground is asymmetric (while transitivity is also usually included, I focus on asymmetry). The PSR, together with the claim that ground is asymmetric and transitive, entails a strong form of infinitism according to which every chain of ground indefinitely descends in a hierarchical or non-circular manner. In the present chapter, I introduce my approach to the PSR, also known as *metaphysical rationalism*.

The PSR says that everything has a reason or explanation and was widely endorsed by rationalist philosophers, most notably Parmenides, Spinoza, Leibniz, and Clarke. Interestingly, the PSR has received renewed attention lately in the grounding literature. As a result of ground being a form of metaphysical explanation, we can naturally formulate a version of the PSR in terms of ground.

PSR   Every fact has a ground.

There is historical precedent for indexing the PSR to metaphysical explanation as opposed to, say, causal explanation. Ground is arguably continuous with Leibniz's conception of a sufficient reason. 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".[121] God is, in some sense, the *extramundane* reason for things. Kenneth Pearce has interpreted Leibniz' notion of an extramundane reason to mean a non-causal form of metaphysical explanation or ground.[122] 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 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.[123]

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 but rather a metaphysical ground that is metaphysically or ontologically prior to all contingent things and explains their existence in a constitutive and synchronic manner. Leibniz's demand for a sufficient reason, therefore, can plausibly be understood within a framework of non-causal metaphysical explanation.

As I mentioned, the espousal of a ground-theoretic version of the PSR has come to be called *metaphysical rationalism*.[124] However, rationalism itself is a broad school of thought. Therefore,

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[121] G. W. Leibniz, *The Monadology and Other Philosophical Essays* (The Bobbs-Merrill Company, Indianapolis NY, 1965), 84.
[122] Kenneth Pearce, "Foundational Grounding and the Argument from Contingency," in *Oxford Studies in Philosophy of Religion,* Volume 8, ed. Jonathan L. Kvanvig (Oxford University Press, 2017).
[123] Leibniz, *The Monadology*, 85.
[124] See Michael Raven, "Explaining Essences," *Philosophical Studies* 178, no. 4 (2021):1043-1064; Dasgupta, "Metaphysical Rationalism."; Fatema Amijee, "Principle of Sufficient Reason," *The Routledge Handbook of*

it's worthwhile noting in what sense metaphysical rationalism is distinctively *metaphysical* and in what sense it is distinctively *rationalist.*

First, in what way is metaphysical rationalism *metaphysical*? Though there are different varieties of rationalism, it is typically contrasted with empiricism. The dispute between rationalism and empiricism, historically speaking, is primarily an epistemological one. Roughly, empiricists claim that knowledge is primarily derived empirically or from sense-experience while rationalists claim that at least some of our knowledge is derived non-empirically or a priori, thereby privileging a priori modes of cognition over sensory modes of cognition. However, metaphysical rationalism as I conceive of it is intended to be neutral with respect to this epistemological dispute. Consider Michael Raven's (2021) characterization of metaphysical rationalism.

> The qualifier 'metaphysical' distinguishes *metaphysical* from *epistemological rationalism.* Metaphysical rationalism implies that all things have an explanation. This neither requires nor prevents these explanations to be knowable, let alone knowable independent of experience. So it neither implies nor contradicts epistemological rationalism, the view that beings like us can have non-trivial non-empirical knowledge.[125]

And Michael Della Rocca argues,

> This openness to rationalism – understood as the insistence on explanation – is completely compatible with empiricism which concerns the centrality of experience to those explanations. Philosophers have more and more recognized the rationalist core – the explanatory demand or the search for reasons – of even the most empirically minded approaches to metaphysics.[126]

Metaphysical rationalism is, therefore, compatible with empiricism broadly construed. So, our version of rationalism here is metaphysical in the sense that our concern is with the objective

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Metaphysical Grounding, ed. Michael J. Raven (New York: Routledge, 2020), 63-75; Fatema Amijee, "Inquiry and Metaphysical Rationalism," *Australasian Journal of Philosophy* 101, no. 4 (2022): 809-823.

[125] Raven, "Explaining Essences," 1044-45. See also Dasgupta, "Metaphysical Rationalism," for similar comments.

[126] Michael Della Rocca, "Introduction," in *The Oxford Handbook of Spinoza, ed.* Michael Della Rocca (Oxford University Press, 2013), 3.

explanatory/priority structure of the world itself as opposed to our knowledge or representation of the world. This is a result of the objective nature of ground. While somewhat controversial, many grounding theorists assume that ground is objective in the sense that it pertains to a worldly form of metaphysical explanation and determination that is not interest-relative or sensitive to various cognitive constraints. This explanatory structure of the world is neutral with respect to how our knowledge of it is acquired.

As Raven notes above, the result of this objective or worldly conception of ground is that metaphysical rationalism does not require that all of these explanations are *known* by us. There is also historical precedent for this approach to rationalism. Consider Leibniz again.

> Our reasoning is founded on two great principles: The first is the principle of *contradiction*, by virtue of which we consider as false what implies a contradiction and as true what is the opposite of the contradictory or false. The second is the principle of *sufficient reason*, by virtue of which we hold that no fact can be true or existing and no statement truthful without a sufficient reason for its being so and not different; albeit these reasons most frequently must remain unknown to us.[127]

As Leibniz explicitly says, that every fact has an explanation is consistent with its being the case that we don't necessarily know every reason for every fact. In fact, he suggests they sometimes *must* remain unknown. His suggestion, then, is that there is an objective explanatory structure to the world that is 'out there' irrespective of whether our minds make contact with it.

However, this conception of explanation strikes many as implausible. Some think that explanations are inherently epistemic phenomena, and thus, are subject to various epistemic and pragmatic constraints. For example, Naomi Thompson says that what qualifies as a successful

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[127] Leibniz, *Monadology,* 153.

explanation depends on the background beliefs and theoretical commitments of the explanation seeker.[128] And Ross Cameron writes,

> As I see it, we simply take for granted some features of reality, and demand explanation for others, and there are only pragmatic reasons for our choice…There is no "explanation structure" to reality that can render our choice objectively correct or incorrect.[129]

An overarching assumption in this dissertation is a commitment to a broad form of metaphysical realism, according to which ground is an objective form of metaphysical explanation. I won't, therefore, offer any justification in favour of this view. However, in the final chapter, I note that issues of informativeness do arise when considering the possibility of circles of ground. Nonetheless, the relationship between ground and realist/anti-realist debates is complex and largely beyond our purview here.

Second, in what way is metaphysical rationalism *rationalist*? Even with the above epistemological issues set aside, metaphysical rationalism is consistent with historical versions of rationalism insofar as both share a broad commitment to the inherent explicability or intelligibility of the world. For example, Spinoza argues that, "For each thing there must be assigned a cause or reason for its existence (if it exists) and for its nonexistence (if it doesn't)… This reason or cause must be either contained in, or lie outside of, the nature of the thing".[130] As Michael Della Rocca puts it, Spinoza is affirming a basic form of rationalism that is comprised of,

> the commitment to the intelligibility of the world and of all the things in the world. On this view, the world and the things in the world are through and through intelligible. Nothing happens for no reason. On the contrary, whatever takes place, whatever exists, takes place

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[128] Thompson, "Questions and Answers."
[129] Cameron, *Chains of Being*, 106.
[130] Spinoza, *Ethics*, 1, P11, retrieved from https://earlymoderntexts.com/assets/pdfs/spinoza1665.pdf, 5.

or exists for a reason. Everything. On this view there are no brute facts. Each thing that exists has a reason that is sufficient for explaining the existence of the thing.[131]

Though less sweeping, metaphysical rationalism is in keeping with Della Rocca's and Spinoza's characterization of rationalism in so far as the world is intelligible. It is intelligible in the sense that there are no ungrounded or metaphysically inexplicable facts. As I will argue, not only are there no fundamental facts, there are no facts that, in principle, cannot be grounded. Thus, our version of metaphysical rationalism makes no claims about the *causal* intelligibility of the world. For all metaphysical rationalism says, there may be brute causal facts about the world, such as the initial conditions of the universe.

In the remainder of this dissertation, I turn to a defense of metaphysical rationalism. I do so by presenting and defending an argument for the following version of the unrestricted PSR.

   UPSR Every fact has a ground

As we'll see in the next chapter, there are several axes along which various versions of the PSR differ. The relevant axis here pertains to the scope of the PSR. A version of the PSR is unrestricted (UPSR) if its range over facts is universal. The PSR is restricted (RPSR) if its range over facts is not universal but restricted to some subclass thereof. Many proponents of the PSR restrict the principle in various ways. The most common version restricts the principle to contingent facts, thus exempting necessary facts from explanations. By endorsing and defending an unrestricted version of the PSR, I thereby aim to endorse metaphysical infinitism.

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[131] Michael Della Rocca, "Adventures in Rationalism," *Philosophic Exchange* 43, no. 1 (2013), 2.

In the next chapter, I present and defend a modal argument for the UPSR. I argue that if there are any fundamental facts, then they must be necessarily fundamental. But since every fact is possibly grounded, there are no fundamental facts. Chapter 4 defends the claim that every fact is possibly grounded. I do so largely on inductive grounds. I survey several candidate types of facts that might be necessarily fundamental and argue they are possibly grounded. In chapter 5, I defend the claim that for every fact F, if F is fundamental, then F is necessarily fundamental. I do so by providing an account of what makes a metaphysical explanation ultimate. I argue that the metaphysical foundationalist is committed to a conception of ultimate metaphysical explanation that requires that fundamental facts are necessarily fundamental. In chapter 6, I address prominent objections to the UPSR. In the final chapter, I argue that circles of ground are implausible. The result is a strong form of metaphysical infinitism.

Chapter 4. The Principle of Sufficient Reason

1. Introduction

In the first half of this dissertation, I've argued that the most prominent versions of the regress argument for metaphysical foundationalism are ultimately inconclusive. This result shows that, for all that foundationalists have shown, there is nothing inherently problematic with non-well-founded chains of ground. In this chapter, I pursue a positive argument for infinitism by defending a ground-theoretic version of the principle of sufficient reason (PSR). Since ground is a form of metaphysical explanation, we can naturally formulate a version of the PSR that says, "every fact has a ground", a view that has come to be known as *metaphysical rationalism.* This version of the PSR is unrestricted such that no facts are exempt from ground.

Many recognize that the PSR, together with the assumption that ground is a strict partial order, entails infinitism. First, insofar as every fact has a ground, there are no fundamental facts. For example, Fabrice Correia and Benjamin Schnieder write, "For the *PSR* in effect denies that there are fundamental facts, i.e., facts that are not grounded by anything else".[132] Also, Schnieder and Alex Steinberg write,

> Once the PSR is phrased in terms of grounding, it becomes apparent that the principle is of much current interest. It is, in effect, the denial of the widely endorsed claim that there are fundamental truths (which are true, but not because of other truths) or brute facts (which obtain, but not because of other facts). If the argument against the PSR is successful, there must be such fundamental truths or brute facts.[133]

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[132] Correia and Schnieder, "Grounding, an Opinionated Introduction," 5.
[133] Schnieder and Steinberg, "Without Reason?" 524-525.

And Einar Bohn argues that infinitism ought to be preferred over foundationalism since foundationalism violates the PSR.[134]

Second, insofar as ground is a strict partial order, there can be no loops or circles of ground, thus ruling out metaphysical coherentism and versions of foundationalism that are compatible with the PSR. PSR-compatible versions of foundationalism admit the existence of fundamental self-grounded or mutually grounded facts. These facts would then be fundamental in virtue of being complete rather than independent. Roughly, the idea is that some set of self-grounded or mutually grounded facts could be complete in so far as it serves as the grounding-base for every other derivative fact. But the asymmetry of ground rules out these possibilities.

Traditional arguments for the PSR take one of two approaches. One approach takes the PSR to be somehow self-evident. The other treats the PSR as a condition for the satisfaction of our primitive desire to understand the world. My argument for the PSR follows neither of these approaches. In this chapter, I defend the PSR by arguing from every fact being possibly grounded to every fact actually having a ground. Since every fact is possibly grounded, there are no necessarily ungrounded facts. I then argue that if there are any ungrounded facts, they are necessarily ungrounded. Thus, there are no fundamental facts. I focus on defending one key premise of the modal argument in this chapter, namely, that for every fact F, F is possibly grounded. In the next chapter, I defend the other key premise of the argument, that if a fact is ungrounded, it is necessarily ungrounded. Though the PSR will equally apply to second order facts, like the fact that [A grounds B], my concern here is primarily with first order facts.[135]

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[134] Einar Bohn, "Indefinitely Descending Ground," in *Reality and its Structure, Essays in Fundamentality*, eds. Ricki Bliss and Graham Priest (Oxford: Oxford University Press, 2018).

[135] After all, that second order grounding facts must be grounded is widely agreed upon. Thus, meta-ground does not pose any unique problem for the UPSR.

The plan for this chapter is as follows. In the next section, I briefly discuss the relationship of ground to the PSR and discuss the various axes along which versions of the PSR differ. In section 3, I present the modal argument for the PSR. In the remaining sections, I address potential counterexamples to the claim that every fact is possibly grounded and their corresponding restricted versions of the PSR. These include necessary facts, identity and distinctness facts, and essentialist facts. I argue that all three types of fact can be grounded.

2. Ground and the PSR

The relationship between metaphysical rationalism and the PSR itself requires further qualification. So far, I've equated metaphysical rationalism with the unrestricted version of the PSR, the view that *every* fact has a ground. Though I intend to defend this unrestricted version of the principle in this chapter and the next, one needn't endorse this unrestricted version of the PSR to be a metaphysical rationalist because there are ways to restrict the scope of the principle. And aside from the scope of the PSR, there are additional ways to qualify the principle as well.

There are four axes along which various versions of the PSR differ. The first concerns the notion of explanation captured by the term 'sufficient reason'. Many versions of the PSR focus on causal explanation. Our focus here is, of course, on ground as a non-causal determinative form of metaphysical explanation. Interestingly, the contemporary notion of ground has an affinity with certain historical conceptions of the PSR. As I mentioned earlier, ground is intended to be a worldly and objective phenomenon. So, we might think grounding explanations are the sort of explanations that someone who is in a position to know all the facts would be able to give. As Amijee notes,

this kind of explanation is continuous with Leibniz's conception of a sufficient reason.[136] Leibniz says,

> So far we have just spoken as simple physicists; now we must rise to metaphysics, by making use of the great principle, little used, commonly, that nothing takes place without sufficient reason, that is, that nothing happens without it being possible for someone who knows enough things to give a reason sufficient to determine why it is so and not otherwise.[137]

However, Leibniz's claim here seems to be a contrastive one, that we need a reason for why p is the case rather than q or not-p. Our PSR makes no requirement for there being a ground of why a fact obtains *and* why it is not otherwise.

The second axis specifies the domain to which the principle applies. The domain may target facts, propositions, events, or even objects. I assume the domain of the PSR is facts conceived of as worldly non-representational states of reality, as opposed to representational entities like propositions. However, in section 4 below, I will expand my focus to representational facts or propositions as well. The reason for this is that a common version of the PSR is restricted to contingent facts. Necessary facts, on this view, are exempt from explanation. Since most who adopt this version of the PSR target propositions, I expand my focus to propositions as well to assess the viability of this restricted form of the PSR.

The third axis concerns the scope of PSR. A version of the PSR is unrestricted (UPSR) if its range over facts is universal. The PSR is restricted (RPSR) if its range over facts is not universal but restricted to some subclass thereof. As I mentioned, many proponents of the PSR restrict the principle to contingent facts, thus exempting necessary facts from explanations. Another view is

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[136] Fatema Amijee, "Explaining Contingent Facts," *Philosophical Studies* 178 (2021):1163-1181.

[137] G.W. Leibniz, "Principles of Nature and Grace, Based on Reason," in *Leibniz: Philosophical Essays*, eds. R. Ariew & D. Garber (London: Hackett, 1989), 209.

that essentialist facts are exempt from ground and so ungrounded. The idea is that if certain facts are exempt from ground, their being ungrounded poses no challenge to the PSR.

The fourth and final axis concerns the modal force of the PSR. We may interpret some versions of the PSR where "has" in "Every fact has a ground" has modal force such that every fact *must* have an explanation.[138] This is ambiguous between saying that every fact necessarily has some ground or other, and that every fact necessarily has the ground it has. I intend to remain neutral on this issue.

3. A Modal Argument for the UPSR

In this section, I present a novel modal argument for the UPSR.[139] I first present a formal rendering of the premises and conclusions of the argument, followed by a brief discussion of the premises. I use standard notation for the modal operators "$\Diamond$" and "$\Box$" to denote metaphysical possibility and necessity, respectively. "G" denotes the predicate "is grounded" and "F" denotes the predicate "is fundamental". By 'fundamental' I mean 'ungrounded'. I understand the domain of the quantifiers to range over facts.

To begin, the modal argument for the UPSR distinguishes between facts that can and cannot be grounded. This distinction results in three classifications. Either a) every fact can be grounded, b) no fact can be grounded, or c) some facts can be grounded while others cannot. I endorse option a): every fact is possibly grounded.

     1. $\forall x \; \Diamond Gx$

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[138] Raven, "Explaining Essences," 1045.
[139] I assume the axiomatic system of S5 in what follows.

From 1, it follows that there are no necessarily fundamental facts.

     2. ~∃x □Fx

The next premise of the argument says that if a fact is fundamental, it is necessarily fundamental.

     3. ∀x (Fx□ → □Fx)

It follows from 2 and 3 that there are no fundamental facts.

     4. ~∃x Fx

From 4, it follows that every fact has a ground, assuming that every fact must be either grounded or ungrounded, and not both.

     5. ∀x Gx

Here's the argument informally and more succinctly.

1. For every fact F, F is possibly grounded.
2. Therefore, no fact is necessarily fundamental.
3. For every fact F, if F is fundamental, then F is necessarily fundamental.
4. Therefore, there are no fundamental facts.
5. Therefore, every fact has a ground.

Importantly, I remain neutral on whether our UPSR is necessarily true. That is, I don't think we should automatically interpret line 5 above as follows.

     6. □∀x Gx

There are likely competing reasons for thinking the UPSR is necessarily or contingently true. Pursuing this issue will take us too far afield. Since I'll argue that the UPSR entails a strong form of infinitism, I therefore remain neutral on whether infinitism is contingently or necessarily true.

Let's briefly discuss the premises, beginning with premise 1. Premise 1 has strong inductive support. Ground seemingly applies to any fact at all, regardless of whether the fact in question actually has a ground or not. As Ted Sider says, "surely there are no antecedently imposed limitations on what sorts of facts we can query for metaphysical explanation. And so, since ground

is, or is closely connected to, metaphysical explanation, ground also lacks the restriction in scope".[140] As such, many, if not most facts we know about possibly have grounds even if it turns out that some actually have none. Consider some representative cases.

1. The fact that either $0 = 0$ or $0 = 1$ is grounded in the fact that $0 = 0$.
2. The fact that {Socrates} exists is grounded in the fact that Socrates exists.
3. The fact that an act is right is grounded in the fact that it maximizes happiness.
4. The fact that a conference is occurring is grounded in the fact that its participants are engaged in conference-like activities.
5. The fact that every human being is a mammal is grounded in facts about the biology of human beings.

These examples cover a wide variety of cases. 1-2 involve abstract facts while 3-5 involve concrete facts. 1-3 arguably involve necessary facts while 4-5 involve contingent facts. 1-4 involve specific facts while 5 involves a general fact. And, arguably, at least some of the facts involved in 1-3 are known a priori while the facts in 4-5 are known a posteriori. So, we have a broad and diverse inductive base for facts possibly receiving grounds, which gives us warrant, though not proof, to accept premise 1.

Premise 3 maintains that facts that are fundamental are necessarily fundamental. I provide support for this premise in the next chapter. As we saw in chapter 3, metaphysical foundationalists intend fundamental facts to play a specific explanatory role. In short, they are meant to provide a kind of ultimate explanation of non-fundamental facts which non-fundamental facts allegedly cannot provide. In chapter 5, I argue that fundamental facts can only perform this explanatory role if they are necessarily fundamental.

In the remainder of this chapter, I defend premise 1 of the modal argument indirectly by considering three types of facts that are candidates for being necessarily fundamental, two of which

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[140] Sider, "Ground Grounded," 754.

result in well-known versions of the RPSR. These include necessary facts, identity and distinctness facts, and essentialist facts. I argue all three types of facts can be grounded. The failure of these exemption attempts, together with the inductive support for premise 1, provides strong support for the claim that every fact is possibly grounded. While offering plausible grounding proposals for these facts would increase the strength of support for premise 1, and hence also the conclusion of the modal argument for the UPSR, doing so would take us too far afield. Offering such proposals will be part of a larger rationalist project, which some have already undertaken.[141] I turn now to the possibility of grounding necessary facts.

4. Necessity

It is a common view that necessary facts are the natural terminus points of chains of explanation. On this view, necessary facts either cannot be explained or else do not require explanation because they are, in some sense, self-explanatory. This view is common among theists who consider God to be a necessary being who serves as the ultimate explanation for everything other than himself.[142] For example, Peter van Inwagen writes, "Thus, for any necessary being, there is by definition a sufficient reason for its existence: there could hardly be a better explanation of the existence of a thing than that its non-existence would be impossible".[143] Furthermore, John Danaher argues against Divine Command theorists who seek to ground necessary moral facts in God's commands on the basis that it is not possible to explain necessary (moral) facts. And a common argument maintains that all genuine explanation is contrastive. If so, then only facts

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[141] For example, Raven, "Explaining Essences," has explored the tension between the PSR and essentialism and has offered grounding proposals for facts about essence. Erica Shumener, "Do Identity and Distinctness Facts Threaten the PSR?" *Philosophical Studies* 178 (2021):1023-1041, has explored the tension between the PSR and identity facts and offers a grounding proposal for identity and distinctness facts.

[142] See Richard Swinburne, *The Existence of God* (Oxford: Oxford University Press, 2004), 96.

[143] Peter van Inwagen, *Metaphysics*, fourth ed. (NY: Routledge, 2015), 161.

which have alternatives can be explained. One cannot explain why P unless there is a Q to contrast with P. But if P is necessary, there are no possible alternatives. Thus, necessary facts cannot be explained.[144] If it is true that necessary facts cannot be grounded, then it is no strike against the PSR that necessary facts fail to be grounded. We arrive, then, at the following classic version of the RPSR.

RPSR-Contingent   Every contingent fact has a ground.

Since debate regarding the explicability of necessary facts is typically concerned with necessary truths, I will broaden my scope of facts in this section to include representational entities, such as propositions, that can be truthbearers. Though my primary concern up until this point has been with a non-representational conception of facts as states of reality, the view that necessary facts or truths do not require explanation, and the corresponding version of the RPSR is central to a discussion of the UPSR.

One argument against necessary facts being grounded is based upon Simon Blackburn's dilemma.[145] The dilemma goes like this. Suppose we explain Np (p is necessary) by appealing to q. Either q is necessary or contingent. If q is contingent, then q allegedly cannot explain p since p would not be necessary. If q is necessary, then we have simply deferred an explanation of the necessity of p to q and so have failed to explain Np. So, either way, necessary facts cannot be explained. Now, consider the following argument, adapted from Danaher.

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[144] See John Danaher, "Necessary Moral Truths and Theistic Metaethics," *Sophia* 53 (2014): 315; James van Cleve, "Brute Necessity," *Philosophy Compass* 13, no. 9 (2018), 10; Brian Leftow, *God and Necessity* (Oxford: Oxford University Press, 2012), 498; and Bob Hale, "The Source of Necessity," *Noûs* 36, no. 16 (2002): 308 for discussions of this argument.

[145] See Simon Blackburn, "Morals and Modals," in *Fact, Science and Value, Essays in Honour of A.J. Ayer's Language, Truth and Logic,* eds. C. Wright & G. Macdonald (Oxford: Blackwell, 1987).

1. To explain any necessary truth, we must not only explain why it is true but also why it is *necessarily* true.
2. It is not possible to explain the necessity of necessary truths.
3. Therefore, it is not possible to explain necessary truths.

Blackburn's dilemma is meant to support premise 2. While I'm skeptical of premise 2, I am willing to grant it for the sake of argument and instead deny premise 1. The idea behind premise 1 is that a successful explanation of a fact should explain all the distinguishing features of that fact, which would include the necessity of a necessary fact.[146] Premise 1, therefore, is asking for an explanation of the necessity of necessary facts, that is, an account how necessary truths are grounded in some more basic set of non-modal facts.[147]

Premise 1 is implausible because it holds the explanation of necessary facts hostage to the success of a reductive account of necessity. The above argument, therefore, confuses two distinct questions. We should keep distinct the question of what explains a necessary fact from the question of what explains the necessity of a necessary fact. To explain the fact that 1+1=2 requires doing some math, not doing any modal metaphysics. Not everyone agrees that a reductive account of necessity can be given. Suppose we believe that necessity is a *sui generis* or primitive phenomenon, a real feature of the world but nonetheless incapable of being reduced to non-modal phenomena. If premise 1 were true, it would follow that we can never explain necessary facts. But that's not right. Necessary facts can have grounds even if we have no reductive account of necessity on hand. Here's a counterexample. The fact that [Edmonton is in Alberta] plausibly grounds the necessary fact that [Edmonton is in Alberta or Edmonton is not in Alberta].

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[146] For example, Peter Hanks, "A Dilemma About Necessity," *Erkenntnis* 68 (2008) writes, "Necessary truth is a mode of truth. Propositions that are necessarily true are true in a certain way. It should be no surprise, then, that an explanation of a proposition's truth should explain why it is necessarily true. If we can understand what makes a proposition true, we should also be able to understand why it is true in a particular way" (p. 132).
[147] Hanks, "A Dilemma," 145.

What about the idea that explanation is contrastive? On this view, when we explain some fact P, we don't explain why P is the case but instead why P *rather than* Q is the case. But if a fact is necessary, there is no possible alternative to contrast it with. Thus, if explanation is contrastive, we cannot explain necessary facts. The easiest response here is to simply deny that ground must be contrastive. Jonathan Schaffer has argued that a contrastive account of ground helps us avoid alleged counterexamples to the transitivity of ground. But whether Schaffer's alleged counterexamples are genuine is a controversial matter. And even if the counterexamples are genuine, it doesn't follow that ground *must* be contrastive, only that ground may fail to be transitive. And grounding explanations of necessary facts can be perfectly legitimate even if ground isn't always transitive. Schaffer also argues that since grounding is akin to causation, and causation is plausibly contrastive, grounding is plausibly contrastive as well.[148] But Schaffer's grounding-causation analogy, which is controversial, relies upon providing structural equation models for ground, which is also controversial. Thus, I think the case for thinking that ground must be contrastive is unmotivated.

Furthermore, even if ground is contrastive, it is unclear to me why the necessity of a fact prohibits us from contrasting it with another fact. For example, suppose the fact that 2+2=4 is a necessary fact. There seems to be nothing illegitimate about asking why 2+2 equals 4 rather than 5. The answer is that 2+2=4 and not 5 because the fact that 2+2=4 is necessarily true or perhaps true in virtue of the Peano axioms of arithmetic. To take another example, there doesn't seem to be anything problematic with saying every bachelor is an unmarried man rather than a married man because it is necessary (assuming analyticity involves necessity) that every bachelor is an

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[148] Schaffer, "Grounding, Transitivity, and Contrastivity."

unmarried man. Thus, even if explanation must be contrastive, it is false that necessary facts cannot be contrastively explained.

There is also positive reason to think necessary facts can be grounded. We have a good handle on the grounds of at least some necessary facts. For example, grounding theorists often take logically complex facts to be grounded in less complex facts. Some disjunctive facts hold necessarily, such as the fact that [Edmonton is in Alberta or Edmonton is not in Alberta], which we saw above. This fact is not fundamental but plausibly grounded in the fact that [Edmonton is in Alberta]. These considerations apply to facts about properties and relations as well. On an abundant view of properties, there might be properties that every object necessarily instantiates, like *is such that something exists,* and *is taller or not taller than*.[149] But it is plausible that these facts are not fundamental. To take Erica Shumener's example, an apple arguably has the necessary property of *being such that something exists* in virtue of the fact that the apple exists.[150]

One might object that all I've established here is the mixed view that only some necessary facts are grounded while others are not. While true, I am not arguing at this point that every fact has a ground. All I am arguing for at this stage is that every fact is *possibly* grounded. That some necessary facts are grounded shows that there is nothing about necessary facts that makes it so they can't be grounded, in principle. If some necessary facts can be grounded, this gives us good reason to think necessary facts in general are possibly grounded. My opponent would need to provide principled reasons for why some necessary facts, but not all, are not possibly grounded.

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[149] Shumener, "Identity and Distinctness Facts," 1028.
[150] Shumener, "Identity and Distinctness Facts," 1028.

5. Identity

Identity and distinctness facts might pose a challenge to the UPSR. Identity and distinctness facts have the identity relation as a constituent. Examples include the fact that Jon = Jon. And we can treat distinctness facts as negated identity facts, such as ~ Jon = Jane. We can also formulate distinctness facts using the symbol '≠'; Jon ≠ Jane. As Erica Shumener notes, we must distinguish between individual and general identity and distinctness facts. Individual identity and distinctness facts will involve particular objects and no quantifiers, such as the fact above that Jon = Jon. General identity facts involves quantifies, such as $(\exists x)(\exists y)[(Fx \ \& \ Gy) \ \& \ x = y]$.[151]

Why think that identity and distinctness facts are necessarily fundamental? Though David Lewis' concern with identity was certainly not the grounds or metaphysical explanation of identity and distinctness facts, Shumener draws inspiration from his quip that "Identity is utterly simple and unproblematic…There is never any problem about what makes something identical to itself; nothing can ever fail to be".[152] She presents the following argument.[153]

> 1. Everything necessarily stands in the *identical with* relation to itself, and distinct objects necessarily stand in the *distinct from* relation to each other.
>
> 2. If objects stand in a relation to each other necessarily, then we need no metaphysical ground or explanation of the fact that they stand in that relation to each other.
>
> 3. Therefore, identity and distinctness facts need no metaphysical ground or explanation.

The idea here is that identity and distinctness facts would be exempt from ground because we do not need to explain certain kinds of metaphysical necessities. Shumener rejects the argument for

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[151] Shumener, "Identity and Distinctness Facts," 1027.
[152] David Lewis, *On the Plurality of Worlds* (Oxford: Basil Balckwell, 1986), 192-193.
[153] Shumener, "Identity and Distinctness Facts," 1027-8.

the same reason I do, namely, that necessary facts are capable of being grounded, as I argued in the previous section. So, identity and distinctness facts, if necessary, will be no exception.

Furthermore, Shumener presents compelling motivation to think that identity and distinctness facts are grounded. One common conception of fundamentality is independence. On this approach, a fact will be fundamental just in case it is ungrounded. An object (or property/relation) is fundamental just in case it is a constituent of a fundamental fact. For example, suppose it is a fundamental fact that electron *e* has a negative charge. The electron, *e*, and the property *negative charge*, therefore, will be fundamental in virtue of being constituents of this fundamental fact. As a result of this conception of object fundamentality, if we take every identity and distinctness fact to be fundamental, then we are forced to conclude that every object is fundamental.[154] This is a result of the fact that every object is a constituent of identity and distinctness facts. That's because every object is identical with itself and distinct from other objects.

But this has untoward results. As Shumener notes, this result dramatically overcounts fundamental objects. The fundamental/derivative distinction is intuitively meant to track the priority structure of reality. The fundamental facts and objects are the basic things from which all else is derived. If every object is fundamental, then the world of objects will be flat in the sense of lacking a priority structure. To be sure, perhaps it is the case that the world is flat in this sense. But we should arrive at this conclusion via independent argument, rather than a prior conception regarding the grounding status of identity/distinctness facts. If the world is flat, this will be revealed by first order considerations about the nature of objects themselves, not by considerations of the nature of identity and distinctness facts of which those objects are constituents.

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[154] Shumener, "Identity and Distinctness Facts," 1029.

Again, a natural response is to endorse a mixed view where only some identity and distinctness facts are fundamental while the rest are not. But, like before with necessary facts, this approach undermines the view that identity and distinctness facts are, in principle, necessarily fundamental. If at least some identity and distinctness facts can be grounded, then this gives us prima facie reason to think the rest can be as well.

One might also question the assumption that fundamental objects are those that are constituents of fundamental facts. There are certainly alternative proposals in the literature. For example, Raven argues that entities- constituents of facts- can be fundamental in virtue of being ineliminable. A constituent is ineliminable if facts about it are unbounded, where for some constituent c to be bounded in some fact, Φ, is for Φ to contain c and for some full ground, Γ, of Φ, c is not a constituent of any fact, or any partial ground of any fact, in Γ.[155] However, it is important to note that various approaches to object-fundamentality are not necessarily in competition with each other. So, we would need an independent argument for thinking that object-fundamentality in terms of fundamental facts is problematic.

6. Essence

Some have suggested that facts about essence are ungrounded. These include facts like *water is essentially H₂O* and *Socrates is essentially human.* I'll focus here on Shamik Dasgupta's claim that facts about essence are autonomous or exempt from ground entirely, where the question of what grounds essentialist facts cannot legitimately be raised. Dasgupta follows Kit Fine in thinking of essence as the ontological equivalent of linguistic real definitions.[156] The essence or nature of

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[155] Michael Raven, "Fundamentality Without Foundations," *Philosophy and Phenomenological Research* 93, no. 3 (2016): 615.
[156] See Kit Fine, "Essence and Modality," *Philosophical Perspectives* 8 (1994):1-16.

an object acts as the non-modal real definition of what that object is in its most core respects. Fine says we may regard the essence of an object as the class of propositions that are true in virtue of what the object is.[157] So, for example, suppose we want to know what Socrates is. Presumably, the answer will be that Socrates is human. It is at least part of the nature or essence of Socrates that he is human.

Following Raven, we can make a distinction between essentialist statements and essentialist facts. An essentialist statement expresses that something is essentially thus-and-so, such as 'Socrates is essentially human'.[158] Presumably, an essentialist statement is made true by some state of reality, an essentialist fact. If it is true that Socrates is essentially human, then presumably there is some fact about Socrates that makes it true. It is the grounding status of essentialist facts that is our concern here.[159]

Fine's notion of essence can be extended in various ways. For example, we can chain essences together to get *mediated* essences. To use Fine's example, suppose it is essential to {Socrates} that it contains Socrates, and it is essential to Socrates that he is a man. Does it follow that it is essential to {Socrates} that Socrates is a man? Fine says it is of the immediate essence of {Socrates} to contain Socrates but of the mediate essence of {Socrates} that it should contain something that is a man.[160] The immediate essence of an object captures what that object is in its most core respects. It is this notion of essence that Dasgupta has in mind when he says that essentialist facts are autonomous. If it is only mediately essential to {Socrates} that it contains a man, this is presumably *because of* the core essentialist claim that Socrates is essentially a man.[161]

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[157] Kit Fine, "Senses of Essence," in *Modality, Morality and Belief. Essays in Honor of Ruth Barcan Marcus*, eds. Walter Sinnott-Armstrong, Diana Raffman & Nicholas Asher (Cambridge: Cambridge University Press, 1995), 55.
[158] Raven, "Explaining Essences," 1047.
[159] Dasgupta's concern is with essentialist *truths* as opposed to facts. See Dasgupta, "Metaphysical Rationalism," 388. But this difference doesn't have any impact for my overall argument.
[160] Fine, "Senses of Essence," 61.
[161] Dasgupta, "Metaphysical Rationalism," 388.

Dasgupta distinguishes between substantive and autonomous facts. A substantive fact is one that is apt to have a ground, such as why some particles are arranged in a certain way. A fact's substantiveness resides in our ability to ask 'why questions' about it. As Dasgupta says,

> Roughly speaking, then, let us call a fact substantive if it is "apt for being grounded", if the question of what grounds it can legitimately be raised and admits of a sensible answer (an answer that either states its ground or else states that it has none)".[162]

By contrast, a fact is autonomous "if it is not apt for being grounded in the first place, if the question of why it obtains does not legitimately arise".[163] However, there is more to autonomy than just being ungrounded. A fact is not autonomous in virtue of being ungrounded because substantive facts can be ungrounded too. The difference for Dasgupta is that substantive ungrounded facts are in some sense arbitrary. They are the brute or fundamental facts, facts that could have had a ground but just happen not to. By contrast, there is supposed to be nothing arbitrary about autonomous facts being ungrounded since the question of what grounds them supposedly doesn't even arise in the first place. So, autonomous facts are ungrounded. Dasgupta then offers the following version of the RPSR.[164]

RPSR-Substantive   For every substantive fact Y there are some facts, the Xs, such that (i) the Xs ground Y and (ii) each one of the Xs is autonomous.

The target of Dasgupta's version of the PSR is restricted to substantive facts. For Dasgupta, facts about essence, such as the fact that it is essential to water that it is composed of H_2O, are autonomous and, thus, are exempt from ground.

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[162] Dasgupta, "Metaphysical Rationalism," 383.
[163] Dasgupta, "Metaphysical Rationalism," 383.
[164] Dasgupta, "Metaphysical Rationalism," 390.

Dasgupta's exemption of essentialist facts from ground is inspired by the domain-fixing conception of essence. On this conception of essence, essences are in some sense prior to the worldly circumstances that embody them. For example, Dasgupta clarifies his conception of essentialist facts as follows.

> …on my conception the essentialist facts concern what those things are in the first place. It is not that there is some independently given domain and the essentialist facts are certain facts about what properties they have. It is rather that the essentialist facts specify what the domain is in the first place. It is those kinds of facts that strike me as autonomous.[165]

We might sum up the domain-fixing conception of essence with the dictum that *essence precedes existence*.[166] Kit Fine suggests that "essence will precede existence in the sense that the identity of an object may be fixed by its unworldly features even before any question of its existence or other worldly features is considered".[167] Thus, essences primarily fix the domain of objects in question and only secondarily express essential properties of things in that domain. Dasgupta concedes that essentialist facts appear to be substantive on a non-domain-fixing conception of essence, one according to which essentialist facts primarily express the properties of objects had in an essential way. On that conception, Dasgupta says "surely we can ask why (in the metaphysical sense) the given object has that property in the essential way".[168] Thus, essentialist facts on the domain-fixing conception of essence seem to be exempt from ground for being autonomous and, thus, seem to pose a challenge to the UPSR.

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[165] Dasgupta, "Metaphysical Rationalism," 389.
[166] See also E.J. Lowe, ""Two Notions of Being: Entity and Essence," *Royal Institute of Philosophy Supplement* 62 (2008): 40 for the claim that essence precedes existence.
[167] Kit Fine, "Necessity and Non-Existence," in *Modality and tense: Philosophical Papers*, ed. Kit Fine (Oxford University Press, 2005), 321.
[168] Dasgupta, "Metaphysical Rationalism," 389.

However, Dasgupta's substantive/autonomous distinction is not equivalent to our modal distinction between facts that can and cannot be grounded. A fact can be substantive and necessarily ungrounded. That is, the question of what grounds a fact may legitimately arise even if that question is answered by "nothing" in every world. Conversely, there is arguably nothing about autonomy that precludes an autonomous fact from being possibly grounded. Perhaps it seems natural to think otherwise. For example, one might plausibly think that if the question doesn't arise as to what grounds some fact, then it *cannot* arise. But there can be many sources of the seeming illegitimacy of inquiring into the grounds of some fact. As Raven says,

> Asking what, if anything, grounds a fact might feel illegitimate in many ways. It might seem insubstantial because the fact is necessary or analytic or apriori or otherwise trivial. Or it might seem pointless because it is obvious that the fact has certain grounds or else that it has none. Or it might seem flummoxing because we don't know how to approach it. But none of this implies that the fact itself somehow prevents the question even from arising.[169]

Similarly, the feeling that it is illegitimate to ask what grounds a fact, if anything, does not preclude the possibility of that fact being grounded. That's because these are distinct notions.

To see this more clearly, consider that Dasgupta's substantive/autonomous distinction will collapse if interpreted in modal terms. Consider the following modal analysis of autonomy and substantivity.

> **Autonomy** $=_{df}$ For any fact, x, x is autonomous iff x is ungrounded in every possible world in which it exists.

> **Substantivity** $=_{df}$ For any fact, x, x is substantive iff x is grounded in at least one possible world.

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[169] Raven, "Explaining Essences," 1055.

Dasgupta endorses a version of necessitarianism where every truth is metaphysically necessary. Given necessitarianism, a modal analysis of autonomy collapses because any fact that is actually ungrounded will be necessarily so and, hence, would count as autonomous. But Dasgupta wants to distinguish between ungrounded facts that are autonomous and ungrounded facts that are substantive. He wants to be able to draw the autonomy/substantivity distinction independently of assumptions regarding the extent of modal space. We might want to say that we can legitimately ask about the ground of some fact, thus resulting in that fact being substantive, even if it is impossible for that fact to have a ground.

So, even if Dasgupta is right that essentialist facts are autonomous, and hence ungrounded, it does not follow that they are necessarily ungrounded. Autonomous facts, therefore, pose no challenge to the modal argument for the UPSR.

7. Conclusion

In this chapter, I've presented a novel modal argument for the UPSR and defended premise 1, that every fact is possibly grounded. I endorsed premise 1 on inductive grounds and argued that various candidates for necessarily ungrounded facts are, in fact, possibly grounded. Though perhaps not decisive, I take these considerations to provide strong motivation for accepting premise 1 of the modal argument. In the next chapter, I turn to a defense of premise 3, that every ungrounded fact is necessarily ungrounded.

Chapter 5. What Makes a Metaphysical Explanation Ultimate?

1. Introduction

In the previous chapter, I presented the following argument for the unrestricted principle of sufficient reason (UPSR) and defended premise 1.

1. For every fact F, F is possibly grounded.
2. Therefore, no fact is necessarily fundamental.
3. For every fact F, if F is fundamental, then F is necessarily fundamental.
4. Therefore, there are no fundamental facts.
5. Therefore, every fact has a ground.

The focus of this chapter shifts to a defence of premise 3, which I'll refer to as Necessary Fundamentality. Necessary Fundamentality is opposed to what I call Contingent Fundamentality.

Contingent Fundamentality   For every fact F, if F is fundamental then F is contingently fundamental.[170]

I argue that Contingent Fundamentality is ultimately inconsistent with metaphysical foundationalism for explanatory reasons. We need good reason to posit fundamental facts, since doing so is in some sense theoretically costly. We've seen in previous chapters that the foundationalist justifies positing fundamental facts for explanatory reasons. For the foundationalist, fundamental facts are meant to provide a kind of ultimate metaphysical explanation of a given explanatory target. For example, as we saw in chapter 3, only fundamental facts are capable of playing this important explanatory role. In this chapter, I argue that only

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[170] See Nathan Wildman, "On Shaky Ground," in *Reality and its Structure, Essays in Fundamentality*, eds. Ricki Bliss and Graham Priest (Oxford: Oxford University Press, 2018); Jonathan Schaffer, "The Action of the Whole," *Proceedings of the Aristotelian Society* 87, no. 1 (2013): 81.

fundamental facts that are *necessarily fundamental* can play this explanatory role. The result is that affirming Contingent Fundamentality undermines the initial justification required for positing fundamental facts in the first place.

I argue for this claim by providing an account of what makes a metaphysical explanation ultimate. I'll refer to this feature of metaphysical explanation as 'Ultimacy'. I analyze Ultimacy in terms of two individually necessary and jointly sufficient conditions. Roughly, an ultimate metaphysical explanation is a satisfactory stopping point for a series of metaphysical explanations of some target phenomenon. I concede that contingently fundamental facts can satisfy the second condition but fail to satisfy the first. Only necessarily fundamental facts can satisfy both.

The plan for this chapter is as follows. In section 2, I present and defend my analysis of Ultimacy. In section 3, I argue that necessarily fundamental facts can satisfy both conditions that my account imposes on Ultimacy. In sections 4 and 5, I consider whether Shamik Dasgupta's notion of autonomy and the notion of a fact's not calling out for explanation, respectively, can function as alternative analyses of Ultimacy.

2. Ultimate Metaphysical Explanation

What justifies our positing fundamental facts, according to the metaphysical foundationalist, is the alleged explanatory work that only fundamental facts can do. Recall the externality argument for foundationalism from chapter 3. Ricki Bliss argues, "Where one thing depends upon another, and that further thing depends on something else, and so on *ad infinitum*, whilst we have an explanation for each thing along the way, what we do not have is an explanation for is why there are any dependent entities whatsoever".[171] According to the externality argument, fundamental

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[171] Bliss, "What Work," 368.

facts are required because no dependent fact or collection thereof can allegedly explain why there are any dependent facts.

However, there has been virtually no discussion in the literature regarding what conditions a metaphysical explanation must satisfy to count as being ultimate. In this section, I present and motivate two conditions that a metaphysical explanation must satisfy to be considered ultimate. I intend these conditions to be individually necessary and jointly sufficient. I present the conditions below and then explain and defend them in more detail.

> **Ultimacy**   Some fact, f, is an ultimate metaphysical explanation of $y =_{\text{df}}$ f is 1) fundamental and 2) a satisfactory stopping point for a series of metaphysical explanations of y.

Some preliminary remarks are in order. First, to streamline discussion, I've chosen to formulate the above definition in a singular manner, referring to some *fact* rather than some *facts*. This isn't strictly required since the fundamental facts that serve as an ultimate metaphysical explanation may be many. Second, by a 'series' of metaphysical explanations, I mean a chain of ground. Following Dixon, we can offer the following formal definition. It is helpful to begin with the notion of a grounding structure.

> **Grounding Structures.** Γ form a *grounding structure* $=_{df}$ there are x and y among Γ such that x is partially grounded by y.[172]

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[172] Dixon, "Infinite Descent," 245.

A grounding structure is just the familiar notion of some facts standing in a grounding relationship to one another. We can then define the notion of a grounding chain in terms of a grounding structure.

> **Grounding Chains.** Γ form a *grounding chain* =$_{df}$ (i) Γ form a grounding structure and (ii) for every x and y among Γ, either x is partially grounded by y, y is partially grounded by x, or $x = y$.

What Ultimacy says, then, is that an ultimate metaphysical explanation of some target phenomenon will be a fundamental fact that terminates a chain of ground. Ultimate metaphysical explanations, therefore, are meant to be inconsistent with infinitely descending chains of ground. In the next two sub-sections, I discuss and defend each condition of Ultimacy.

2.1 The Stopping-Point Condition

The first condition of Ultimacy says that a fact must be fundamental to count as an ultimate metaphysical explanation. I'll refer to this as the 'Stopping-Point Condition'. According to the foundationalist, an ultimate metaphysical explanation must act as a stopping point for a series of explanations of some target phenomenon because a non-well-founded or indefinitely descending chain of ground would be an instance of a vicious infinite regress. A fundamental fact, therefore, is meant to act as a 'regress stopper'. It halts the chain of explanation by virtue of being ungrounded. There is a broad consensus among foundationalists on the stopping-point condition, which is reflected by the standard definition of fundamentality in terms of ungroundedness or independence.

This notion of an ultimate explanation acting as a stopping point is reflected in areas of philosophy other than the grounding literature. For example, ultimate explanation is understandably an important notion in the philosophy of religion since God is meant to be the sole ultimate reality that explains everything other than himself. Richard Swinburne writes, "I define an ultimate explanation of E as a complete explanation of E, in which the factors C and R cited are such that their existence and operation have no explanation either full or partial in terms of any other factors. Those factors are ultimate brute facts".[173] And Timothy O'Connor thinks of an ultimate explanation as "a natural or nonarbitrary stopping point (even if only a schematic one) to the nested series of available plausible explanations for increasingly general aspects of the world".[174] Part of what it is for an explanation in general to be ultimate is for that explanation to be unexplained. This condition, I maintain, is no different in the context of metaphysical explanation.

One might object that the Stopping-Point Condition on Ultimacy fails to remain neutral between competing accounts of what the fundamental facts may be like. For example, some have suggested that the fundamental facts can be self-grounded or mutually grounded rather than ungrounded.[175] We can alleviate this concern by appealing to conceptually distinct, though not mutually exclusive, notions of fundamentality. For example, mutually grounded facts can be fundamental insofar as they are *complete*. Completeness is the idea that the fundamental facts determine or are responsible for everything else. While independence or ungroundedness says that nothing grounds the fundamental facts, completeness says that the fundamental facts ground everything else. As Bennett notes, "independence and completeness together reflect the two halves

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[173] Swinburne, *The Existence of God*, 78-89.
[174] O'Connor, *Theism and Ultimate Explanation*, 65.
[175] See Jessica Wilson, "No Work for a Theory of Grounding," *Inquiry* 57, no. 5-6 (2014) and Scott Dixon, "Metaphysical Foundherentism," *Synthese* 201, no. 86 (2023).

of the familiar phrase 'unexplained explainers', which precisely invokes both notions".[176] And

completeness certainly captures at least one aspect of our intuitive understanding of the concept of

fundamentality. When we give an account of the fundamental nature of the world, presumably we

are trying to "characterize things completely and without redundancy" in order to say why

everything is as it is.[177] The stopping-point condition can accommodate self-grounded fundamental

facts by simply stating that an ultimate metaphysical explanation is one for which no further

explanation *in terms of anything other than itself* is forthcoming.

The Stopping-Point Condition can also accommodate fundamental mutually grounded facts

by appealing to the notion of a grounding base. Consider the following definition of completeness

from Leuenberger. He refers to completeness as "A-fundamentality."

f is A-fundamental $=_{df} f$ belongs to every grounding base.[178]

The notion of a grounding base is based upon the familiar idea of a supervenience base, where "Γ

is a *grounding base* iff for every f that does not belong to Γ, there is $\Gamma' \subseteq \Gamma$ such that Γ' is a ground

for f".[179] The idea here is that, for any fact, f, that itself is not part of the grounding base, there is a

subset of that grounding base such that it is a ground for f. In other words, the grounding base is

the ground of everything outside the base. All that completeness requires is that the fundamental

facts ground, or act as a base for, everything else.

If we assume that mutually grounded facts form a grounding base, then the stopping-point

condition says that an ultimate metaphysical explanation is one for which no further explanation

[176] Bennett, *Making Things Up*, 111.
[177] Lewis, *On the Plurality of Worlds*, 60.
[178] Stephan Leuenberger, "The Fundamental: Ungrounded or All-Grounding?" *Philosophical Studies* 177, no. 9 (2020): 2651.
[179] Leuenberger, "The Fundamental," 2651.

in terms of any fact outside the grounding base is forthcoming. So, our chain of explanations will come to a stopping point in the grounding base itself, though the fundamental facts in that base still receive explanations from each other. So, Ultimacy can remain neutral with respect to differing accounts of fundamentality.

2.2 The Satisfactoriness Condition

The second condition of Ultimacy says an ultimate metaphysical explanation must also be a *satisfactory* or non-arbitrary stopping point. I'll call this second condition the 'Satisfactoriness Condition'. The idea here is that simply being fundamental is insufficient for some fact to count as an ultimate metaphysical explanation. To put it roughly, the way in which a fundamental fact terminates a series of metaphysical explanations matters. Some fundamental facts may be more or less appropriate stopping-points for a series of explanations, given the foundationalist's explanatory demands. As I'll spell out in more detail below, a fundamental fact will act as a satisfactory stopping-point just in case it performs the explanatory work that the foundationalist intends for it. Short of this, a fundamental fact will be an unsatisfactory or arbitrary stopping-point.

But first, let me head-off an objection. The Satisfactoriness Condition may seem like a recapitulation of the Stopping-Point Condition. If a series of metaphysical explanations terminates in some fundamental fact, what could be arbitrary or unsatisfactory about such an explanation? In response, recall that the foundationalist argues non-well-founded chains of ground are explanatorily problematic. If there are no fundamental facts, an explanation of some target phenomenon that the foundationalist is after is allegedly indefinitely deferred, never achieved. An ultimate metaphysical explanation, therefore, is meant to be *buck stopping*. It's meant to finally deliver the explanation of some target phenomenon that the foundationalist alleges has been

deferred all along. My claim is that a stopping-point for a series of metaphysical explanations will be unsatisfactory or arbitrary if it fails to deliver the kind of ultimate explanation that the foundationalist is after, i.e., if it fails to perform the explanatory work that foundationalists intend for it to do.

To illustrate how a stopping-point for explanation can fail to be satisfactory in the above sense, consider first a parallel debate in the philosophy of religion. Proponents of the cosmological argument from contingency seek to infer the existence of a necessarily existent divine being from the existence of contingent beings. The question to be answered is, 'Why do any contingent things exist at all'? One answer is to point out the explanatory relationship obtaining between each contingent thing. Insofar as each continent thing is explained in terms of some further contingent thing ad infinitum, one might argue they are all thereby explained. But like the metaphysical foundationalist, the theist finds this infinite regress of explanations problematic. Even if there is an infinite regress, the theist argues that no contingent thing, or series of contingent things, can explain why any contingent things exist at all. The series of explanations must terminate. Theists argue there must be a necessary being, something that exists necessarily rather than contingently, that provides an ultimate explanation for why any contingent thing exists at all.

If we grant the theist's claim that an infinite regress would be problematic, so that there must be an ultimate explanation for why any contingent thing exists at all, then it is arguably straightforward why that ultimate explanation cannot itself be contingent. The theist could not plausibly argue there must be a divine *contingently existing* being to explain why anything contingent exists. That's because if God were contingently existent, then God would possess the very feature in question that he is meant to be the ultimate explanation of, namely, contingent existence. If God's existence were contingent, then God's existence would be among what the

theist is seeking to ultimately explain in the first place. Positing God's existence would be explanatorily redundant. As a result, God's existence would be an unsatisfactory or arbitrary stopping-point for explanation.

Keep in mind that my claim here is conditional. We may certainly dispute the theist's claim that no contingent thing can explain why there are any contingent things at all. But if we do grant the need for an ultimate explanation of the kind the theist is after, then that ultimate explanation cannot do the explanatory work the theist intends for it if it appeals to something that is also contingently existent. For God's existence to provide an ultimate explanation for why anything contingent exists at all, and hence act as a satisfactory stopping point to a series of explanations, it cannot possess the very feature that it is meant to be the ultimate explanation of. The Stopping-Point Condition and Satisfactoriness Condition are, therefore, not equivalent.

These considerations apply to ultimate metaphysical explanation, only the metaphysical foundationalist's explanatory target differs from the theist's. I'll specify this difference in more detail in the next section. For now, I'll note that simply being fundamental is insufficient for Ultimacy. Grounding explanations start with why-questions. The foundationalist initially encounters a phenomenon or state of affairs that she finds puzzling, and then proceeds to inquire about why it is the case (in the metaphysical sense). She is then led into a series of explanations that she argues must ultimately terminate if her initial inquiry is to be resolved and an ultimate explanation is to be achieved. But if the series of explanations ultimately terminates in some fundamental facts which have the very feature that they are meant to be the ultimate metaphysical explanation of, they will be incapable of providing that ultimate metaphysical explanation.

Though my imposition of the Satisfactoriness Condition on Ultimacy is likely the most controversial of the two, it is acknowledged implicitly in the grounding literature. For example,

Jonathan Schaffer argues where there is nothing fundamental, "Being would be infinitely deferred, never achieved".[180] And in earlier work Ross Cameron argues, "…if there is no ultimate fundamentality, there is the strong intuition that nothing has a metaphysical explanation".[181] The idea for the foundationalist is that when we have an infinite regress of grounds, at each stage in the regress, an explanation of our target phenomenon is allegedly deferred to the next stage. The implicit assumption above is that fundamental facts must finally *deliver* the explanation in question. Einar Bohn also echoes this sentiment. Referring to metaphysical foundationalism as 'brutalism', he argues, "Brutalism too is no natural resting point for thought. This is so because there is no non-ad hoc way to draw the line between facts that do and do not have a metaphysical explanation, and drawing an ad hoc line is surely no natural resting point for thought".[182] A plausible interpretation of Bohn's argument is that fundamental facts must be satisfactory insofar as they finally achieve the sort of explanation that the foundationalist is after.

Dasgupta invokes the Satisfactoriness Condition more explicitly. He considers the question of why there is a mountain here. Supposing it is true that there is a mountain here because some particles are arranged thus and so, Dasgupta maintains this is a poor explanation if it is a brute fact that some particles are arranged thus and so. The problem, for Dasgupta, is that the appeal to the arrangement of particles as a fundamental fact fails to explain why the world is one that gives rise to a mountain rather than one in which the particles are arranged differently and give rise to something else, like an ocean.[183] The question of why those facts obtain continues to arise. As

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[180] Schaffer, "Monism," 62.
[181] Cameron, "Turtles," 9.
[182] Einar Bohn, "Indefinitely Descending Ground," in *Reality and its Structure, Essays in Fundamentality*, eds. Ricki Bliss and Graham Priest (Oxford: Oxford University Press, 2018), 178.
[183] Dasgupta, "Metaphysical Rationalism," 382.

we'll see in more detail in section 4, Dasgupta argues a satisfactory explanation is a fact for which the question of why they obtain does not arise in the first place.[184]

In the next section, I argue that given a certain explanatory demand that foundationalists arguably must adopt, contingently fundamental facts fail to meet the Satisfactoriness Condition and so will be unable to perform the explanatory work that foundationalists intend for fundamental facts. To satisfy both conditions and thus count as an ultimate metaphysical explanation, fundamental facts must be necessarily fundamental.

3. Necessary Fundamentality

I argued above that for a fact to be an ultimate metaphysical explanation of some target phenomenon, *y*, it must i) be fundamental and ii) act as a satisfactory stopping point for a series of metaphysical explanations of *y*. And to be a satisfactory stopping point is to finally deliver the explanation that has been deferred all along. I suggested this involves fundamental facts not having the very feature in question that they are meant to be an ultimate explanation of. In this section, I specify what the target phenomenon of an ultimate metaphysical explanation is. In doing so, I argue that only facts that are necessarily fundamental can meet the satisfactory condition on Ultimacy in relation to this particular explanatory demand. If my argument is correct, then foundationalists are committed to Necessary Fundamentality.

To begin, contingently fundamental facts straightforwardly satisfy the Stopping-Point Condition on Ultimacy. Insofar as contingently fundamental facts are fundamental, they act as a stopping point to a series of grounding explanations. That they are *contingently* fundamental does

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[184] Dasgupta, "Metaphysical Rationalism," 383, explicitly uses the term 'satisfactory'. He says, "What then would a satisfactory explanation look like?"

not impede their ability to do so. But contingently fundamental facts cannot meet the Satisfactoriness Condition on Ultimacy with respect to a certain explanatory demand that I think the foundationalist must adopt.

Recall from chapter 3 that the explanatory target of the externality argument for foundationalism is the *existence* of the plurality of dependent facts. In addition to the *existence* of dependent facts, I argue fundamental facts must also provide an ultimate metaphysical explanation of the *contingent dependence* of dependent facts. It may help to frame this explanatory target contrastively. It is a contingent matter that the dependent facts are dependent. The fundamental facts should provide an ultimate metaphysical explanation for *why the dependent facts are dependent rather than fundamental*. I'll refer to the contingent dependence of dependent facts as their 'Fundamentality Status'.

Before making my argument, some clarifications are in order. First, this additional explanatory demand is not simply a requirement that fundamental facts explain what we might call the groundedness of grounded facts. A prominent issue in the grounding literature is the question of meta-ground. Suppose that X is a fundamental fact and X grounds Y. A further issue is what grounds the fact that X grounds Y? Since to be dependent is to be grounded and X, as a fundamental fact, is supposed to serve as an ultimate metaphysical explanation, one might worry that my additional explanatory demand predicts that X also grounds the fact that X grounds Y. This result is problematic given that it is a controversial claim of meta-ground.[185]

In response, my additional requirement is not that the fundamental facts provide an ultimate metaphysical explanation of second-order facts like these. The question we are concerned with here is, for any given dependent fact, Y, what grounds the fact that Y is grounded *simpliciter*? If X

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[185] See Bennett, "By Our Bootstraps," and Bennett, *Making Things Up* for this view. See Sider, "Ground Grounded," for dissent.

grounds Y, then the answer is most plausibly 'X'. We can plausibly say that X grounds the fact that Y is grounded *simpliciter* without also being committed to saying that X rigidly grounds the fact that X grounds Y, in the sense that the fact that X grounds Y cannot be grounded except by X. These are distinct second-order facts. That Y is grounded at all plausibly obtains in virtue of the grounds it happens to have. But that Y is grounded specifically in X may obtain in virtue of some other facts altogether.

Second, why is the foundationalist committed to this additional explanatory demand in the first place, namely, of explaining what I call the Fundamentality Status of dependent facts? The reason is that fundamental facts are full grounds. As I outlined in chapter 1, ground can be either full or partial. A partial ground is just a full ground that leaves something out. So, we can say that Δ partially grounds A if it contributes to metaphysically explaining or helps to metaphysically explain A, and Δ fully grounds A if Δ provides us with a full metaphysical explanation of A.[186] By a full metaphysical explanation, I mean that Δ leaves nothing to be metaphysically explained about A. If the fundamental facts are meant to be a full ground of the plurality of dependent facts, the fundamental facts must, therefore, explain every aspect of them without leaving anything about them metaphysically unexplained. The Fundamentality Status of dependent facts - their contingent dependence - is an aspect of those facts. So, it follows that fundamental facts must metaphysically explain this feature of dependent facts in addition to their existence.

As a general requirement, the claim that full grounds must metaphysically explain every feature of the facts they ground faces counterexamples. Take the following disjunctive fact, [John is tall or John is short]. That John is tall grounds the fact that [John is tall or John is short]. Similarly, that John is short grounds the fact that [John is tall or John is short]. But there are various features

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[186] Trogdon and Witmer, "Full and Partial Grounding," 252.

of this disjunctive fact that neither disjunct grounds. A necessary feature of this disjunction is that it is consistent with $2 = 2$. But neither disjunct explains the fact that this disjunction has that feature. So, it seems false to suggest that full grounds do, or indeed must, metaphysically explain *every aspect* of the facts that they ground.

In response, my suggestion is that this is a requirement we can reasonably expect of full grounds only when those full grounds are also fundamental facts. The reason is that the fundamental facts need to pull more explanatory weight precisely because they are more theoretically costly to posit. The more explanatory work they can do, the better. The foundationalist should not posit her fundamental facts in a spirit of austerity or parsimony. The fundamental facts should explain as much as possible to justify positing them in the first place. This requirement is consistent with a more general commitment to ontological parsimony of the form, roughly, that entities are not to be multiplied beyond necessity. The foundationalist, of course, posits fundamental facts because she thinks they are necessary. The kind of parsimony I'm advocating against here pertains to the explanatory power of a given foundationalist ontology, not the ontological commitments of a theory or ontology. The foundationalist should not resist the imposition of additional explanatory demands upon her ontology, provided they are independently motivated.

My claim, then, is that the foundationalist will find a non-well-founded chain of ground problematic with respect to the Fundamentality Status of dependent facts as an additional explanatory demand. Suppose f is grounded in g, g is grounded in h, and so on ad infinitum. The foundationalist wants to know why these facts are dependent rather than fundamental. G explains why f is dependent, h explains why g is dependent, and so on ad infinitum. But just as the foundationalist thinks the existence of any given fact is infinitely deferred and never achieved so

long as there are no fundamental facts, she arguably should also think the same regarding an explanation of the dependence of dependent facts. At each stage in the series of explanations for why any given fact is dependent, we arrive at yet another fact that is dependent. According to the foundationalist, there must be fundamental facts that provide an ultimate metaphysical explanation for why the dependent facts are dependent at all, rather than not.

However, contingently fundamental facts will be explanatorily inadequate with respect to this new explanatory demand. Recall that to act as a satisfactory stopping point means that an ultimate metaphysical explanation must finally deliver the explanation in question that has been deferred all along. And to do this, the fundamental facts cannot possess the feature in question that they are meant to be the ultimate metaphysical explanation of in the first place. By way of illustration, I argued earlier that God's existence could not provide an ultimate explanation for why anything contingent exists if God's existence is also contingent. To be an ultimate explanation, God's existence cannot possess the feature that his existence is meant to be an ultimate explanation of, namely, contingent existence. Similarly, if the fundamental facts are contingently fundamental, they exhibit the very feature that they are intended to be the ultimate explanation of.

So, if all along a series of metaphysical explanations we are asking why this or that dependent fact is dependent rather than fundamental, we will not arrive at an ultimate metaphysical explanation of this fact if the fundamental facts themselves might have been dependent. By arriving at the fundamental facts, so to speak, our ultimate explanation will once again be deferred. So, if the fundamental facts are contingently fundamental, the foundationalist never achieves the ultimate answer to her question, namely, why the dependent facts are dependent rather than fundamental. Her fundamental facts will have been posited in vain. To provide an ultimate

metaphysical explanation of the fundamentality status of dependent facts, the fundamental facts cannot be contingently fundamental. They must, therefore, be necessarily fundamental.

To conclude this section, it is worth briefly spelling out again why metaphysical infinitism does not fall prey to explanatory failure in light of the account of ultimate metaphysical explanation I've offered above. Any account of ultimate metaphysical explanation is, of course, dependent upon the assumption that an ultimate metaphysical explanation is required in the first place. This follows from the claim that there is something explanatorily problematic with non-well-founded chains of ground. Infinitism avoids the explanatory failure that foundationalists think is exhibited by non-well-founded chains of ground because, as I argued in chapters two and three, there is nothing wrong with non-well-founded chains of ground in the first place. Since infinitism simply rejects the claim that we cannot explain the existence of dependent facts without fundamental facts, infinitism is thereby not obliged to provide an explanation that satisfies the two conditions I place upon Ultimacy.

The problem with contingently fundamental facts, therefore, is one internal to the foundationalist's theoretical framework. Given foundationalism and the explanatory work that fundamental facts are meant to perform, they must satisfy certain conditions, as I argued above. My argument in this chapter, therefore, is conditional. *If* there are fundamental facts, *then* they must be necessarily fundamental.

4. Autonomy

In the remainder of this chapter, I'll consider alternative proposals for how we should interpret the Satisfactoriness Condition on Ultimacy. The first alternative I'll consider is Dasgupta's notion of autonomy, which we discussed in the previous chapter.

Recall that Dasgupta distinguishes between substantive and autonomous facts. A substantive fact is one that is apt to have a ground, such as why some particles are arranged in a certain way. A fact's substantiveness resides in our ability to ask why questions about it. By contrast, a fact is autonomous "if it is not apt for being grounded in the first place, if the question of why it obtains does not legitimately arise".[187]

As I mentioned earlier, Dasgupta is sensitive to the Satisfactoriness Condition on Ultimacy. He argues that substantive fundamental facts, what he calls 'brute facts', are explanatorily inadequate because the question of what grounds them does, in fact, arise. For example, Dasgupta says that explaining the existence of a mountain in terms of an arrangement of particles, which themselves have no further ground, fails to ultimately explain the existence of the mountain. He argues,

> The problem is not so much that there is an ungrounded fact about *the arrangement of the particles*. The problem is rather that because of this the original fact *of the mountain's being here* has not been explained in the way that the rationalist wants. The desire for this special kind of explanation stems from a childlike curiosity in which one looks at the surrounding mountains and oceans and thinks 'Good grief, how come it all turned out like *this*?' Being told that it is because some particles are arranged thus and so does not (even if true) answer the question.[188]

Similarly, he thinks an infinite regress of explanations, or a non-well-founded chain of ground, is equally problematic because insofar as the chain of explanations has no end, an explanation of the mountain is thereby indefinitely deferred. So, neither an infinite regress nor a well-founded chain of ground, where the fundamental facts in question are substantive, will do for Dasgupta. His solution is to argue that chains of ground must ultimately terminate in autonomous facts.

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[187] Dasgupta, "Metaphysical Rationalism," 383.
[188] Dasgupta, "Metaphysical Rationalism," 382.

The source of this problem for Dasgupta is the fact that the question always arises as to why those underlying facts obtain, thus forever precluding our ability to arrive at a satisfactory stopping place. Dasgupta says that only by explaining the mountain's existence in terms of autonomous facts will the question as to why those underlying autonomous facts obtain no longer arise. If chains of ground ultimately terminate in autonomous facts, rather than necessarily fundamental facts, there would then be no further question as to why the world turned out the way that it did because the question as to why those facts obtain doesn't even arise in the first place. Autonomous facts, therefore, seem to provide us with a satisfactory stopping point for our explanations, thereby meeting the satisfactory condition on ultimate metaphysical explanation. On this approach, Necessary Fundamentality is not required for understanding what makes a metaphysical explanation ultimate.

The first thing to note is that, although autonomous facts are ungrounded and so fundamental, autonomous facts are indeed distinct from necessarily fundamental facts. As I argued in the previous chapter, a fact can be substantive and necessarily ungrounded. That is, the question of what grounds a fact may legitimately arise even if that question is answered by "nothing" in every world. Conversely, there is nothing about autonomy that precludes an autonomous fact from being possibly grounded. The question, then, is whether autonomous facts can meet the satisfactory condition on ultimate explanation.

I think the notion of autonomy is not up for the task. The reason for this specifically has to do with my imposition of the fundamentality status of dependent facts as an additional explanatory demand upon the foundationalist. Fundamental facts that are autonomous will still fail to provide a satisfactory stopping if the explanatory target in question is the fundamentality status of dependent facts. If autonomous facts can be grounded, then they are not necessarily fundamental.

And if they are not necessarily fundamental, then they have their fundamentality status conditionally or contingently in the very same respect that dependent facts do. If so, then they will not have unconditionally the feature in question that requires explanation, namely, fundamentality status, and so will not be able to meet the satisfactory condition. If autonomous fundamental facts are necessarily fundamental, then they will be able to meet the satisfactory condition. But it will be the necessary fundamentality, not the autonomy, that is doing the work to meet this condition.

The main problem with Dasgupta's notion of autonomy is that it is largely an epistemic notion. Whether a fact is autonomous or not comes down to the relationship between that fact and the person who is seeking explanations. What makes a fact autonomous is the illegitimacy of some person inquiring into its grounds. As a result, autonomy has little to do with the nature of the fact itself and so holds no utility for the metaphysical foundationalist who endorses a very particular metaphysical explanatory task for her fundamental facts.

5. Calling Out for Explanation

Another alternative to necessary fundamentality for understanding the Satisfactory Condition is the notion of calling out for explanation. The notion of calling out for explanation is similar, though not necessarily equivalent to, autonomy. Though Dasgupta opts to leave autonomy as a primitive notion, we might think it is natural to interpret the autonomous facts as those which do not call out for any further explanation. However, in this section, I consider various analyses of 'calling out for explanation', and so assume that 'calling out for explanation' is a notion distinct from autonomy.

One may plausibly argue that a fundamental fact acts as a satisfactory stopping point insofar as it does not call out for any further explanation. This is a plausible suggestion since it seems

entirely non-arbitrary, and hence satisfactory, that a series of metaphysical explanations should terminate in a fact that neither has nor requires, as it were, no further explanation. And conversely, a fundamental fact, *f*, that calls out for explanation does strike us as an unsatisfactory or arbitrary stopping point for explanation. After all, why does our series of explanations stop at *f*, given that *f* calls out for explanation?

'Calling out for explanation' is ambiguous. In what follows, I consider some analyses of this notion to see how they fare with respect to Ultimacy. Alexander Pruss argues that "An ultimate explanation is one in which the explanans itself does not *call out for further explanation* because it is either self-explanatory or necessary or both".[189] On Pruss' view, a fact does not call out for further explanation so long as it is either necessary or self-explanatory (or both). However, neither of these interpretations of 'calling out for explanation' will be adequate for our purposes. Let's tackle necessity first.

Let '*f*' be a fundamental fact. There is a distinction between *f's* being necessarily the case and *f* being necessarily fundamental. It may be the case that *f* obtains in every possible world but is contingently fundamental. And *f* may be necessarily fundamental while failing to obtain in every possible world. By 'necessary', I take it Pruss has in mind a fact's being necessary or necessarily obtaining, not a fact's being necessarily fundamental. The same issue applies here that also applied to Dasgupta's notion of autonomy. If our chain of explanation terminates in some fundamental facts that are necessary but nevertheless contingently fundamental, then those facts will be incapable of providing an ultimate metaphysical explanation for the explanatory target in question, namely, the fundamentality status of dependent facts. And self-explanatory fundamental facts are also of no help since they too can be contingently fundamental. And if necessary or self-grounded

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[189] Pruss 2006, *The Principle of Sufficient Reason,* 17, my italics.

fundamental facts are necessarily fundamental, then it is the necessary fundamentality that ends up doing the work.

Dan Baras offers the following senses of 'calling out for explanation', where '*E*' stands for some fact or explanandum.[190] Let's first consider two psychological senses of 'calling out for explanation'.

> *Psychological sense (descriptive)*: *E* gives rise to a sense of curiosity and interest in discovering what the explanation of *E* is.
>
> *Psychological sense (normative)*: It is fitting to be curious and interested in discovering an explanation for *E* (perhaps a certain kind of explanation).

On these interpretations, fundamental facts will not call out for explanation insofar as they do not give rise to a sense of curiosity about what explains them, or it is not fitting to be curious about what explains them. But like the notion of autonomy, these interpretations primarily concern the epistemic relation a knower has to the facts in question, and so have nothing to do with the facts themselves. Fundamental facts that do not call out for explanation in either of these two senses may, again, still be contingently fundamental.

The following interpretation seems more plausible but also raises considerable difficulties about the nature of explanation in general.

> *Practical sense*: Given a set of background assumptions about the world *A*, we have reason to seek an explanation for *E*. [191]

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[190] Baras, *Calling Out for Explanation* (Oxford University Press, 2022), 14-16.
[191] Baras, *Calling Out for Explanation,* 15.

According to the practical sense, some fundamental facts may act as a satisfactory stopping point for explanation insofar as we have no reason to seek an explanation for those facts. There is a sense in which fundamental facts of this type do provide a satisfactory stopping point. It is satisfactory because we reach a level of facts where, given our background assumptions, we have no further reason to believe an explanation is forthcoming. That seems like a non-arbitrary stopping point for explanation. Nonetheless, this is not the sort of satisfactoriness with which we are concerned here. Satisfactoriness, as I've argued, consists in a fundamental fact finally delivering an explanation, which involves that facts having unconditionally the feature in question that needs to be explained in the first place. Again, fundamental facts that do not call out for explanation in the practical sense may still be contingently fundamental, their contingency being relative to our background assumptions.

Thus, there is a pragmatic or anti-realist conception of metaphysical explanation embedded in this understanding of the notion of 'calling out for explanation'. According to the practical sense, the satisfactoriness of the fundamental facts is a function of our background assumptions, which may change over time, rather than the nature of the facts themselves. The metaphysical foundationalist's project, by contrast, is typically a realist one. The foundationalist wants to account for the existence of all the dependent facts, and her inquiry is assumed to be about the world as it is independent of our pragmatic considerations.

As the above analyses of 'calling out for explanation' show, they are inadequate for principled reasons. Given the additional explanatory demand that I've placed upon foundationalism, arguably nothing short of Necessary Fundamentality will do for meeting the satisfactory condition. The only plausible strategy for rejecting this approach, then, is to either reject my analysis of Ultimacy or to reject my additional explanatory demand for foundationalism.

6. Conclusion

The third premise of my argument for the UPSR states that, for every fact F, if F is fundamental, then F is necessarily fundamental. I've argued for this premise on the basis of a conception of ultimate metaphysical explanation that I take the metaphysical foundationalist to be committed to. My analysis of ultimate metaphysical explanation involved two necessary and jointly sufficient conditions. Some fact, f, is an ultimate metaphysical explanation of y just in case f is 1) a fundamental fact and 2) a satisfactory stopping point for a series of metaphysical explanations of y. I argued that while contingently fundamental facts can meet the first condition, they cannot meet the second. Only fundamental facts that are necessarily fundamental can do so. The result for the foundationalist is that if her fundamental facts are contingently fundamental, they will be explanatorily inadequate, and thus the justification for positing them in the first place will be undermined. If there are any fundamental facts, they must be necessarily fundamental.

Chapter 6. Objections

1. Introduction

In the previous two chapters, I've presented and defended an argument for an unrestricted version of the principle of sufficient reason (UPSR) that says, 'every fact has a ground'. In this chapter, I consider and respond to several common objections to the UPSR. In section 2, I consider the objection that the UPSR entails necessitarianism, the view that every truth is necessarily true. In section 3, I consider the objection that the UPSR entails the existence of God. In section 4, I consider the objection that the lack of good explanations for certain facts undermines the UPSR. In section 5, I consider a methodological objection from a naturalistic approach to metaphysics.

2. Necessitarianism

A well-known objection to the principle of sufficient reason (PSR), originally offered by Peter van Inwagen, runs roughly as follows.[192] Let's assume that C is the conjunction of all contingent truths and that C itself is contingent. According to the UPSR, C has a ground, call it G. The objection takes the form of a dilemma. Either G is necessary or contingent. If G is contingent, then G is a conjunct of C. And a contingent conjunct of C cannot explain C. If G is necessary, then C is necessary since whatever is entailed by a necessary truth is itself necessary. So, if G must be necessary, it follows that C is necessary as well, contrary to our original assumption.

For some time, this objection was thought to vanquish the PSR. However, if the notion of explanation in question is ground, then we can reject the argument for principled reasons. It is widely held that logically complex facts are grounded in logically less complex facts. This includes

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[192] Peter van Inwagen, *An Essay on Free Will* (Oxford University Press, 1983).

conjunctive facts. Given this assumption, the conjunction of contingent truths or facts, C, has a full ground in its contingent conjuncts taken collectively.[193] Thus, we can embrace the first horn of the dilemma by maintaining that C is explained by its conjuncts.

However, Kris McDaniel has recently argued that van Inwagen's argument can be adapted to avoid this response. McDaniel assumes ground can be plural such that a plurality of facts on the left-hand side grounds a plurality of grounds on the right-hand side. McDaniel then asks us to consider the following version of the PSR.[194]

PSR-Plural   Any plurality of contingent truths has a full ground.

Now, let 'Cs' collectively denote the plurality of contingent truths. Given the PSR-Plural, the Cs have a ground. Call it 'G'. G might be a plurality of truths or a single truth. We then run the dilemma again as follows. Either the Gs are contingent or necessary. If the Gs are necessary, then Cs are necessary as well since McDaniel assumes that grounding induces entailment.

But if the Gs are contingent, then a problem arises. McDaniel maintains that, on this version of the objection, the proponent of the PSR can no longer appeal to the principle that conjunctions are grounded in their conjuncts. Gs must be identical to the Cs or overlap the Cs. If the Gs just are the Cs, then the Gs cannot be the full ground of the Cs since grounding is irreflexive. So, Gs must overlap Cs, meaning that there is at least one truth among the Gs that is also among the Cs. But McDaniel argues we should accept the following version of *general irreflexivity*.[195]

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[193] See Schnieder and Steinberg, "Without Reason."
[194] Kris McDaniel, "The Principle of Sufficient Reason and Necessitarianism," *Analysis* 79, no. 2 (2019): 232.
[195] McDaniel, "The Principle of Sufficient Reason," 233.

General Irreflexivity   Necessarily, for any *X*s and *Y*s, if *X*s and *Y*s overlap, then *X*s are not the full ground of *Y*s.

As McDaniel notes, this version of the objection is immune to the original response to van Inwagen's argument that conjunctions are grounded in their conjuncts. That's because the Cs in this case do not denote a conjunction but rather a plurality all the contingent truths. He concludes, "we can't say that the individual contingent propositions collectively ground Cs, since the individual contingent propositions just are Cs. The general irreflexivity of ground saves this version of van Inwagen's argument".[196]

I have two responses. First, we can dismiss McDaniel's objection out of hand since his PSR-Plural is not the focus of my discussion. Recall that my version of the PSR says, "every fact has a ground". The PSR-Plural, by contrast, demands that every *plurality* of contingent truths has a full ground, which is likely too demanding. As Jonas Werner notes, we would then need a collective full ground for a plurality that has facts about the distribution of polar bears in Alaska, facts about my plans for lunch, and facts about some particles of dust near Alpha Centauri among it.[197] And if a collective full ground only arises for privileged pluralities that are unified in some relevant sense, then we should expect that such gerrymandered pluralities have no collective full ground.

Second, McDaniel's non-distributive notion of plural ground is at odds with my version of the Hume-Edwards Principle in chapter 3. Recall in chapter 3 I argued for the following ground-theoretic version of the Hume-Edwards Principle (G-HEP).

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

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[196] McDaniel, "The Principle of Sufficient Reason," 233.
[197] Jonas Werner, "Plural Grounding and the Principle of Sufficient Reason," *Analysis* 80, no. 1 (2020): 91.

We can adapt G-HEP to the present case of contingent facts in order to respond to McDaniel's objection.

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

So, assume the Cs have a ground, Gs. We can maintain that the Gs and the Cs overlap and that the Gs are the full ground of the Cs provided that the notion of plural ground is distributive. Assume there is a ground for the Cs. We can regiment this grounding claim by saying Δ (fully) grounds the Cs. As per Fine's notion of distributive ground, if Δ *distributively* grounds the Cs, that just means there is a decomposition of Δ into subsets and a corresponding decomposition of the Cs into members, such that every subset of Δ ground the members of the Cs. So, for any x among the Cs, take the full ground, Γ, of x. The union of full grounds for every member of the Cs yields the full ground of the Cs.

This is the case with infinitely descending chains of ground. Let F_1, F_2, F_3, … be an infinite sequence of facts such that (i) F_1 is fully grounded in F_2, which in turn is fully grounded in F_3 and so on and (ii) none of the single facts F_1, F_2, F_3, … is fully grounded in any facts that are not themselves in F_1, F_2, F_3, … Let 'Cs' denote the plurality that consists of all and only the facts in the sequence F_1, F_2, F_3, ... According to G-HEP*, the Cs are grounded in a plurality that has only facts among it that are also among the Cs. As a result, General Irreflexivity fails.

3. God

The PSR has played a prominent role in cosmological arguments for God's existence throughout the history of Western thought, but especially since the early modern period. As we saw in chapter 3, a standard structure of the cosmological argument from contingency involves an appeal to some version of the causal principle or PSR. And many theists suggest that the PSR straightforwardly entails God's existence. For example, Alexander Pruss says that "despite some notable dissent, it now appears generally established that once one grants an appropriate version of the PSR, it follows that there is a necessary first cause of the cosmos, that is, of the aggregate of all contingent beings".[198] And a 'necessary first cause' is likely to be a good candidate for a divine being. One might worry, then, that a defence of the UPSR will have religious implications.

This worry is not entirely unjustified. Though our version of the UPSR targets metaphysical explanation rather than causal explanation, ground naturally lends itself to cosmological arguments. 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".[199] God is, in some sense, the *extramundane* reason for things. Kenneth Pearce has interpreted Leibniz' notion of an extramundane reason to mean a non-causal form of metaphysical explanation or ground. He suggests that the cosmological argument from contingency should not be interpreted as requesting a *cause* of the origination of the universe. For in that case, it seems the theist is introducing God as one more 'billiard ball' "prepended to the causal sequence studied by natural science".[200] To avoid this issue, Pearce suggests that rather than

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[198] Pruss, *The Principle of Sufficient Reason,* 4.
[199] Leibniz, *The Monadology*, 84.
[200] Kenneth Pearce, "Foundational Grounding and the Argument from Contingency," in *Oxford Studies in Philosophy of Religion,* Volume 8, ed. Jonathan L. Kvanvig (Oxford University Press, 2017), p. 245.

conceive of God as the first cause, we must demand a non-causal or grounding explanation of the world. 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 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.[201]

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 but rather a metaphysical ground that is metaphysically or ontologically prior to all contingent things and explains their existence in a constitutive and synchronic manner. So, a ground-theoretic version of the UPSR does have a natural affinity with cosmological arguments for God's existence.

However, it isn't the case as Pruss suggests that the UPSR straightforwardly entails God's existence. The theist who wishes to utilize our version of the UPSR to argue for God's existence faces two challenges. First, the theist might attempt to defend a version of the externality argument, which I critically examined in chapter 3. In that chapter, I noted that the externality argument, if successful, does not establish the existence of necessarily existing facts but only the existence of *fundamental* facts. For all the externality argument for foundationalism says, those facts may be contingently existent. Thus, if the theist wishes to defend a version of the externality argument to establish God's existence, she must offer further reasons for why the fundamental facts in question pertain to a divine necessary being.

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[201] Leibniz, *The Monadology*, 85.

Second, and more pressing, the theist must also address my grounding version of the Hume-Edwards Principle (G-HEP). Since theism is a version of foundationalism, and G-HEP rules out the need for fundamental facts, the UPSR does not automatically entail the existence of God. So, in addition to endorsing the UPSR, the theist needs to posit an explanatory demand that only fundamental facts about God's nature or existence could explain. I've argued in previous chapters that there is no plausible explanatory demand that infinitism cannot handle. Thus, any misgivings about the UPSR with respect to God's existence are misplaced.

4. What Grounds Facts About ___?

If every fact has a ground, then we are sure to wonder what grounds certain facts. Perhaps for most facts we have an intuitive judgment about what grounds what. For instance, it's intuitive to suggest that facts about economies are grounded in sociological, political, and cultural facts about the people that make up those economies. But there are some facts for which our intuitions seem to fail us. In Chapter 4, we saw examples of candidate facts that seem to resist explanation. These included necessary facts, essentialist facts, and facts about identity and distinctness. However, I did not present explanation solutions for these facts. All I argued was that these facts are *possibly* grounded. Our opponent might argue the proponent of the UPSR owes us plausible explanation strategies for those facts that seem to resist explanation. To be clear, this isn't an objection to the UPSR, strictly speaking. Rather, it is a demand for explanations that the proponent of the UPSR is allegedly committed to.

In response, the truth of the UPSR is compatible with our lack of knowledge regarding the grounds of certain facts. We can make a distinction between facts that are *epistemically*

fundamental and facts that are *objectively* fundamental.[202] A fact that is objectively fundamental is one that lacks a ground irrespective of whether we know it or not.[203]

> **Objective Fundamentality:** a fact, f, is objectively fundamental iff f is fundamental irrespective of whether some person p knows that f is fundamental.

Epistemically fundamental facts are facts that have a ground, objectively speaking, though we are ignorant of it. There are two kinds of epistemic fundamentality depending upon whether it is epistemically possible for someone to acquire knowledge of the grounds of some fact.

> **Epistemic Fundamentality$_1$:** a fact, f, is epistemically fundamental$_1$ iff f has a ground, g, some person p lacks knowledge of the fact that g grounds f, and it is epistemically possible for p to know that g grounds f.

> **Epistemic Fundamentality$_2$:** a fact, f is epistemically fundamental$_2$ iff f has a ground, g, some person lacks knowledge of the fact that g grounds f, and it is epistemically impossible for p to know that g grounds f.

Epistemic Fundamentality$_2$ asserts that it is, in principle, impossible for someone to know that g grounds f. The impossibility here may be cognitive or nomological. To illustrate, consider the following example from Joshua Brown. Suppose an astrophysicist named Gertrude tells you the following fact is unexplained.[204]

> F1: Roughly 68% of the universe is dark energy.

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[202] This distinction is adapted from Eric Barnes, "Explaining Brute Facts." *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association* vol. 1994, no. 1 (1994): 61–68.
[203] See Joshua Brown, "An Epistemological Challenge to Ontological Bruteness," *International Journal for Philosophy of Religion* 91 (2021) for a similar distinction.
[204] Brown, "An Epistemology Challenge," 29.

Though F1 indeed does have an explanation, Gertrude is claiming that human beings currently do not know the answer to why, or in virtue of what, F1 obtains. Let's assume that, hypothetically speaking, to explain why F1 obtains, she would have to build an observational device the size of a large galaxy. As Brown points out, Gertrude is faced with an insurmountable obstacle that is preventing her from knowing why F1 obtains. Because she cannot know why F1 obtains without a galaxy-sized observational device, she is cognitively hindered. And because it is physically impossible to construct such a device, she is nomologically hindered.[205] Even though F1 has an explanation, it is epistemically impossible to know what it is.

That we know every fact must have a ground, as per the UPSR, is distinct from knowing *what* grounds every fact. The former issue is metaphysical or objective while the latter is epistemological. Thus, failing to have knowledge of what grounds some fact does not entail that that fact is objectively fundamental. In the absence of further argument, at most it would show that the fact in question is epistemically fundamental in one of the two senses above.

What would it take to show that some fact, *f*, is objectively fundamental? Brown provides several reasons.[206] First, one might argue that when we don't know the ground of some fact, *f*, and there is no currently adequate ground on hand, it is reasonable to believe that *f* is objectively fundamental. But these considerations aren't enough to think *f* isn't epistemically fundamental in either of the two senses above because it is possible that, over time, we will eventually develop a plausible account of what grounds *f*.

Second, one might argue that there have already been a sufficient number of failed attempts to adequately explain why *f* obtains and, therefore, it is reasonable to conclude that *f* is objectively

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[205] Brown, "An Epistemology Challenge," 31.
[206] Brown, "An Epistemology Challenge," 35-40.

fundamental.[207] However, there is no non-arbitrary way to determine when there have been a *sufficient* number of failed attempts at explaining *f*. And as Brown argues, even if there is a non-arbitrary number of sufficient attempts, this at most would give us reason to think that *f* is Epistemically Fundamental$_2$, that it isn't epistemically possible to know what grounds *f*. We would need further reason for thinking that *f* is objectively fundamental.

Third, one might argue that *f's* being objectively fundamental is part of a general theory with strong abductive support.[208] Since we have good reason to believe that some theory T is true, and T includes the truth of the proposition <*f* is objectively fundamental >, we then have good reason to think *f* is objectively fundamental. But as Brown notes, we can ask why T posits *f* as an objectively fundamental fact. T might take *f* to be objectively fundamental for the first reason above, namely, that there are currently no adequate explanations for *f*. But we've already seen that this reason doesn't support taking *f* to be objectively fundamental. Alternatively, T might take *f* to be objectively fundamental for the second reason above, namely, that there have been a sufficient number of failed attempts at providing an explanation for *f*. But again, we've seen that this second reason doesn't work either. T might simply stipulate that *f* is objectively fundamental. But merely stipulating this doesn't make it the case that *f* actually is objectively fundamental.[209]

So, when faced with some fact, *f*, for which we lack an explanation, I've argued that it isn't reasonable to infer that *f* is objectively fundamental. At most, we can only infer that *f* epistemically fundamental in either of the two senses laid out above. And *f's* being epistemically fundamental, in either sense, is compatible with the UPSR.

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[207] Brown, "An Epistemology Challenge," 36.
[208] See Elanor Taylor, "How to make the case for brute facts," in *Brute Facts*, ed. E. Vintiadis & C. Mekios (Oxford University Press, 2018), 41-42.
[209] Brown, "An Epistemology Challenge," 39.

5. Naturalism

Finally, one might object that the UPSR is incompatible with a naturalistic approach to metaphysics. Roughly, naturalism says metaphysics ought to be subsidiary to, or at least informed by, natural science. For example, suppose that ground is associated in some way with mereological composition. There are two broad options for how this relationship works. First, if facts about wholes are grounded in facts about their parts, then the UPSR entails that the world is *gunky*, such that every part is made up of proper parts. Call this *infinite descent.* Second, if facts about parts are grounded in facts about wholes, then the UPSR entails that the world is *junky*, such that everything composes forever into greater and greater wholes.[210] Call this *infinite ascent*. And whether the world is gunky or junky, or perhaps both, is a physical thesis the truth of which arguably requires empirical verification. Since the UPSR, and competing ontologies like foundationalism and infinitism, are theses about the priority structure of the world itself, not just about our language or our representation of the world, a naturalistic view of metaphysics says these sorts of arguments are problematic insofar as they operate independently of natural science.

In response, the UPSR doesn't require a conception of metaphysics that operates independently of the natural sciences. Of course, there is a question of whether or to what degree metaphysics overlaps with science, either in subject matter or method. But the UPSR can remain neutral with respect to how we decide to understand these connections. My suggestion is that the UPSR, as a metaphysical thesis, is compatible with naturalistic approaches to metaphysics insofar as it is compatible with a range of current physical and cosmological theories about the structure of the world.

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[210] Schaffer, "Monism," 64.

The question of whether there is a fundamental level in nature, which would undermine the truth of the UPSR, is not definitively settled in current physical theory. To give the devil his due, current physical theory does seem to favour a foundationalist picture of reality. For example, consider the following layered conception of physics. Writing about Steven Weinberg, Matteo Morganti says,

> he thinks that the domain of inquiry of particle physics qualifies as fundamental because it is characterized by the simplest, most general and coherent system of laws, and these laws ground all the properties that appear at the other levels of description. Elementary particles consequently occupy the apex of a hierarchical structure whereby every other level of reality—while not being fully reducible—is dependent on the level explored by particle physics. Importantly, according to Weinberg, it is not only our descriptions and explanations that possess such a layered, hierarchical structure, but reality itself.[211]

Similarly, the fundamental theory of matter is quantum field theory, which posits ontologically primitive fields. Given a layered conception of reality, the Standard Model can be understood as indicating that there are certain well-defined types of elementary particles, the interactions among which give rise to the rest of reality.[212]

However, several philosophers working on the foundationalism debate, including Morganti, have pointed out that there are viable physical and cosmological models that posit infinite descent. One model is S-matrix theory, dating back to Wheeler's and Heisenberg's work in the late 1930s. Morganti argues the theory does not need to define a priori the properties of fundamental elementary particles. The theory in fact requires that all particles described by the theory are

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[211] Matteo Morganti, "Fundamentality in Metaphysics and the Philosophy of Physics. Part II: The Philosophy of Physics," *Philosophy Compass* 15, no. 10 (2020): 3.
[212] Morganti, "Fundamentality in Metaphysics and the Philosophy of Physics," 8.

necessarily composed of other particles.[213] As Morganti suggests, this sort of endless composition makes sense in a context of metaphysical infinitism.

There are also inductive reasons for thinking that reality does not 'bottom out' in a fundamental level. Jonathan Schaffer argues,

> Indeed, the history of science is a history of finding ever-deeper structure. We have gone from "the elements" to "the atoms" (etymology is revealing), to the subatomic electrons, protons, and neutrons, to the zoo of "elementary particles", to thinking that the hadrons are built out of quarks, and now we are sometimes promised that these entities are really strings, while some hypothesize that the quarks are built out of preons (in order to explain why quarks come in families). Should one not expect the future to be like the past?[214]

Morganti makes a similar argument. He writes,

> After all, the history of particle physics is a sequence of discoveries at progressively smaller scales, whereby what was for some time taken to be fundamental later turned out to have internal structure. Why should we think that this will not happen also for the particles that we regard as fundamental now? … Indeed, it is a short step from the historical facts about the development of particle physics mentioned a moment ago to the idea that it might in fact be the case that every (kind of) particle can be further analysed, ad infinitum … And, crucially, the same goes in the other direction. It is not incoherent, that is, to think of a universe in which everything is a proper part of something. In fact, this could even be actually true: among the various alternatives to the standard Big Bang model, some imply, at least indirectly, that the universe we inhabit is just one among infinitely many in an endless matrioska-like structure.[215]

One of these cosmological models has been recently proposed by Lee Smolin, according to which physical laws evolve in time through an astrophysical mechanism of natural selection, whereby every universe is created and exists within a black hole in a larger universe.[216] Morganti

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[213] Matteo Morganti, "The Structure of Physical Reality: Beyond Foundationalism", in *Reality and its Structure, Essays in Fundamentality*, eds. Ricki Bliss and Graham Priest (Oxford: Oxford University Press, 2018), 260.

[214] Schaffer, "Is There a Fundamental Level?" 503.

[215] Morganti, "Fundamentality in Metaphysics and the Philosophy of Physics," 8.

[216] Lee Smolin, *Time Reborn: From the Crisis in Physics to the Future of the Universe* (Boston, MA: Houghton Miffline Harcout, 2013).

acknowledges that, while these are minority views in the current physics community, they show that scientific and philosophical inquiry need not be anchored to metaphysical presuppositions that may appear reasonable given our present state of knowledge.[217]

Though cursory, the above considerations suggest there is no obvious worry that the UPSR is inconsistent with a form of metaphysical naturalism. Granted, the UPSR, as a claim about the priority structure of reality, overlaps in subject matter with natural science. And I have defended the UPSR on largely a priori grounds. Nonetheless, the picture of reality that the UPSR may commit us to, such as atomless gunk or infinite ascent, are both metaphysically and scientifically serious possibilities. Given the availability of alternative scientific models, I don't think the UPSR necessarily commits us to an anti-naturalist methodology in metaphysics.

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[217] Morganti, Fundamentality in Metaphysics and the Philosophy of Physics," 8.

Chapter 7. The Structure of Reality

1. Introduction

In the foregoing chapters, I've argued against metaphysical foundationalism and defended a version of the unrestricted principle of sufficient reason (UPSR) that says, 'every fact has a ground'. However, the UPSR alone doesn't tell us what the structure of reality is. That's because both metaphysical infinitism and metaphysical coherentism, the view that ground can form loops or cycles, are compatible with the UPSR. A thoroughgoing coherentism can maintain that every fact has a ground but disagree with the metaphysical infinitist that ground forms a strict partial order. My goal in this final chapter is to argue against coherentism. I consider two forms of coherentism, which I call 'Standard Coherentism' and 'Metaphysical Holism' and offer reasons to reject both.

Here's the plan for this chapter. In section 2, I begin by clarifying metaphysical infinitism and noting its relation to the UPSR. In section 3, I introduce and clarify metaphysical coherentism. In sections 4 and 5, I offer reasons for why Standard Coherentism and Metaphysical Holism are problematic. I focus on arguing against symmetric and irreflexive instances of ground and leave transitivity aside. In section 6, I argue that Metaphysical Holism is ultimately incompatible with the UPSR since it rejects the notion of ground as an explanatory relation.

2. Metaphysical Infinitism

Metaphysical infinitism is also referred to as 'the infinite descent' of ground. On this view, ground is not well-founded. Instead, chains of ground can descend infinitely without ultimately

terminating in a level of fundamental facts. Following Dixon, we can offer the following formal definition. It is helpful to begin with the notion of a grounding structure.

> **Grounding Structures.** Γ form a *grounding structure* $=_{df}$ there are x and y among Γ such that x is partially grounded by y.[218]

A grounding structure is just the familiar notion of some facts standing in a grounding relationship to one another. We can then define the notion of a grounding chain in terms of a grounding structure.

> **Grounding Chains.** Γ form a *grounding chain* $=_{df}$ (i) Γ form a grounding structure and (ii) for every x and y among Γ, either x is partially grounded by y, y is partially grounded by x, or $x = y$.

Infinite descent, then, is a feature exhibited by any grounding structure which contains a grounding chain that has no end. We can then define an infinitely descending grounding chain as follows.[219]

> **Infinitely Descending Grounding Chains.** Γ form an *infinitely descending grounding chain* $=_{df}$ (i) Γ form a grounding chain and (ii) for every x among Γ, there exists a y among Γ such that x is partially grounded by y.

In addition to denying well-foundedness, the infinitist maintains that ground obeys the following principles:

Irreflexivity	No fact grounds itself.
Anti-symmetry	No two distinct facts ground each other.

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[218] Dixon, "Infinite Descent," 245.
[219] Dixon, "Infinite Descent," 246.

These both entail asymmetry:

> **Asymmetry**   There are no facts, x and y, such that x grounds y and y grounds x.

Lastly, (partial) ground is transitive:

> **Transitivity**   For any facts, x, y and z, if x grounds y and y grounds z, then x grounds z.

Ground, as a strict partial order, ensures not only that relations of ground induce a hierarchical structure on reality, but that there can be no circles of ground of any size. We can capture the commitments of infinitism with the following.

> **The Infinitist Canon**   (i) for any fact x, there is some fact y such that y grounds x, (ii) ground forms a strict partial order.

Infinitism can then be categorized into the following forms along four axes. The first and second axes, noted along the top of the table below, concern what I'll call 'standard' and 'non-standard' infinitism. These forms of infinitism concern the modal status of the thesis in question. Standard forms of infinitism claim that infinitism is merely possible, while non-standard forms claim that infinitism is actual. The third and fourth axes, noted along the leftmost column in the table below, concern the scope of each claim.

= Compatible with the UPSR	**Standard Infinitism**	**Non-Standard Infinitism**
Restricted	Possibly, *only some* chains of ground are non-well-founded.	*Only some* chains of ground are non-well-founded.
Unrestricted	Possibly, *every* chain of ground is non-well-founded.	*Every* chain of ground is non-well-founded.

Table 1

The two highlighted boxes in the table above show which versions of infinitism are compatible with the UPSR. The other two are incompatible. First, Restricted Standard Infinitism is incompatible with the UPSR. What is actually true is possibly true. So, if every chain of ground is non-well-founded as per the UPSR, then it is possibly true that every chain of ground is well-founded. But Restricted Standard Infinitism says it is possible that only some, but not all, chains of ground are well-founded, and is thus incompatible with the UPSR. Similarly, Restricted Non-Standard Infinitism is ruled out by the UPSR insofar as it denies that every fact has a ground. Both Unrestricted Standard Infinitism and Unrestricted Non-Standard Infinitism are compatible with the UPSR.

Of course, it is possible for Unrestricted Standard Infinitism to be true and Unrestricted Non-Standard Infinitism to be false so long as the possible world in question is not the actual world. But if the UPSR is true, then both unrestricted forms of infinitism are true. Since I've argued for the truth of the UPSR in the preceding chapters, I endorse the unrestricted version of Non-Standard Infinitism, whereby every chain of ground is actually non-well-founded. Henceforth, I drop the qualifier 'Unrestricted Non-Standard' and will simply refer to this view as 'infinitism'.

As we'll see in the next section, strong forms of coherentism agree with clause (i) of the Infinitist Canon. As such, coherentism differs from infinitism by rejecting clause (ii).

3. Metaphysical Coherentism

Metaphysical coherentism is characterized by interdependence. Rather than view reality as hierarchically structured such that chains of ground are ordered from the derivative to the more fundamental, the metaphysical coherentist countenances circles of ground. Circles or loops of ground may be achieved in several ways. One way is by symmetric instances of ground such that x grounds y, y grounds x, and $x \neq y$. Another is by reflexive instances, such that for some facts x and y, x grounds y and $x = y$.

Many attempt to motivate coherentism by challenging various formal properties of ground, such as attempting to motivate symmetric or reflexive instances of grounding. It's unclear, however, whether countenancing such instances amounts to a form of metaphysical coherentism. For example, Schaffer denies that ground is a partial order by rejecting transitivity.[220] But he is not, thereby, a coherentist. 'Coherentism' is a broad label that incorporates a dizzying number of varieties, all with varying degrees of strength. The common core is coherence, namely, a rejection of foundationalism and infinitism. Swiderski captures this with the following two commitments, which he calls the 'Coherentist Canon'.[221]

The Coherentist Canon   (i) For any x, there is some y such that y grounds x, and (ii) there is some z and some w such that z (perhaps indirectly) grounds w and vice versa.

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[220] Schaffer, "Grounding, Transitivity, and Contrastivity."
[221] Jan Swiderski, "Varieties of Metaphysical Coherentism". *Erkenntnis* (2022): 4.

The first clause is equivalent to our version of the UPSR and so functions as a rejection of foundationalism. The second clause is a denial ground as a strict partial order. So, Swiderski's characterization of coherentism involves 1) non-well-foundedness and 2) mutual (i.e., symmetric) grounding. It may also be natural for the coherentist to deny irreflexivity as well.[222]

Coherentism is more difficult to classify than infinitism. There doesn't appear to be standard and non-standard forms present in the literature. And what gets called 'coherentism' varies considerably. Nonetheless, there are various coherentist models that satisfy clause (i) of the Coherentist Canon, each of which come in varying degrees of strength, and hence, plausibility. I won't get into these various models since the finer details are irrelevant to my overall argument. The main point is that, so long as a coherentist model of grounding relations satisfies clause (i) of the Coherentist Canon, coherentism is seemingly compatible with the UPSR. For example, consider the following version.[223]

> **Strong Coherentism** For any facts x and y, x (partially) grounds y and y (partially) grounds x.

In a world where Strong Coherentism obtains, every fact is partially grounded in every other fact. Such a world exhibits the maximal degree of coherence, and for that reason, is likely the most implausible. For instance, it would entail that the fact that I am 5'10" is partially grounded by the fact that Edmonton is located in Alberta, Canada. And it seems incredible that the location of Edmonton should stand in any sort of explanatory relationship with my height. Though perhaps not a decisive objection, Strong Coherentism violates our intuitive judgments about what grounds what.

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[222] Swiderski, "Varieties," 2-3, footnote 7.
[223] This is adapted from Swiderski, "Varieties," 5.

Nonetheless, Strong Coherentism and other weaker versions are consistent with the UPSR in so far as every fact has a ground.[224] The issue, then, is whether ground forms a strict partial order. In the next section, I reject coherentism by arguing that circles of metaphysical explanation are problematic.

4. Problems for Standard Coherentism

It's important to note that metaphysical coherentism assumes, as I have in this project, that ground is an explanatory relation. Let's refer to any coherentist model that assumes ground is an explanatory relation as 'Standard Coherentism'. In this section, I argue that Standard Coherentism is problematic, and so ought to be rejected. Later, I'll argue against a non-standard version of coherentism that denies ground is an explanatory relation. Following Ross Cameron, I call this version of coherentism 'Metaphysical Holism'.

To begin, many have proposed counterexamples to ground as a strict partial order. One strategy seeks to assimilate ground to truthmaking and then to point out that there are circular instances of truthmaking. Truthmaking is a relation that obtains between a true proposition and its Truthmaker, that in virtue of which it is true. On many accounts, the fact or state of affairs that Socrates exists is the truthmaker for the proposition <Socrates exists>. Rodriguez-Pereyra argues that truthmaking is a case of grounding. He argues, "The relation between truthmaker and truth seems analogous to the relation between member and set, between part and whole, and between being a cruel action and being a wrong action, and these are all initially plausible cases of ground and grounded".[225]

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[224] See Swiderski, "Varieties," for a survey.
[225] Rodriguez-Pereyra, "Grounding is Not a Strict Order," 518.

This is a contentious claim. Ground in the sense that I'm concerned with here is a non-causal form of dependence. But then it follows that grounding is not truthmaking since it is the truth of the proposition <Socrates exists> that depends upon Socrates existence, not the existence of the proposition itself. In response, Rodriguez-Pereyra claims that grounding is the non-causal generic relation of *being F in virtue of*. And a relation is a species of grounding if it is a specification of the non-causal generic relation of *being F in virtue of*. Therefore, truthmaking is a species of grounding since it is the non-causal relation of *being true in virtue of*.

Rodriguez-Pereyra doesn't offer an independent reason for accepting this generic conception of grounding. And there are reasons to think it is problematic. Truthmaking excludes chains. Chaining a relation requires relata of the same type. But the truthmaker relation's first relatum (truth) can be of a different type than its second (Truthmaker).[226] But (partial) ground as a form of metaphysical explanation can chain. If A metaphysically explains B, and B metaphysically explains C, then A metaphysically explains C. So, if truthmaking fails to chain, then it cannot be a species of grounding. Perhaps there are independent motivations for adopting an alternative notion of generic ground. Be that as it may, this notion is not the one under consideration here.

Some have proposed specific instances of circular grounding. But the apparent reflexivity or symmetry of these instances is easily explained away. For example, Bliss suggests that symmetric grounding obtains between the north and south poles of a magnet presumably because they cannot exist independently. She says, "The fact that the magnet's north pole exists depends upon the fact that the south pole exists, and vice versa".[227] This example is spurious. Each pole does not exist in virtue of the other. Rather, magnetic poles exist in virtue of underlying facts about magnetic fields and electric charge. No symmetrical explanatory relationship is required to explain them.

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[226] Michael Raven, "Is Ground a Strict Partial Order?" *American Philosophical Quarterly* 50, no. 2 (2013): 194.
[227] Bliss, "Viciousness and the Structure of Reality," 248.

Jenkins argues that mind-brain identity theories involve reflexive instances of dependence or grounding insofar as mental states are both identical to and grounded in physical states. But this is likely a careless formulation of reductive physicalism.[228] As Bennett notes, the identity theorist's claim is that pain, say, is identical to some high-level grounded physical state that is in turn grounded in lower-level physical states. On this view, the pain is identical to physical state A, and A is grounded in physical states B, C, and D. So, the physical facts that ground the mental facts aren't the same facts as the ones that are identical to the mental facts.[229]

Putting aside counterexamples, a major problem with Standard Coherentism is that symmetric and reflexive grounding is a non-starter insofar as symmetric and reflexive metaphysical explanations are illegitimate. One approach argues that circular metaphysical explanations are pathological because they are trivial, uninformative, or otherwise fail to increase our overall understanding. But notions like understanding are notoriously obscure. Whether an explanation increases understanding is a context-sensitive matter, depending upon what our explanatory goals are, whether the people involved are receptive to or capable of processing the explanation, etc. For example, Bliss notes, "Whether or not we are dealing with genuine cases of explanatory circularity, and the reasons for which they may be trivial, will be sensitive to very many of our theoretical commitments".[230] When an explanation is given, certain circumstances may prevent an increase in understanding. But it doesn't necessarily follow that no explanation has been given. So, while considerations of understanding or informativeness may go some way in motivating ground as a strict partial order, failure of understanding may not get to the core of what's wrong with circular metaphysical explanations.

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[228] Carrie Jenkins, "Is Metaphysical Dependence Irreflexive?" *The Monist*, 94 (2011): 268.
[229] Bennett, *Making Things Up,* 38.
[230] Ricki Bliss, "Grounding and Reflexivity," in *Reality and its Structure, Essays in Fundamentality*, ed. Ricki Bliss and Graham Priest (Oxford: Oxford University Press, 2018), 88.

A more plausible argument against circular grounding says it is problematic because it violates the *raison d'être* of ground itself. Ground is meant to play a characteristic structuring role. Ground is a form of metaphysical priority. This is cashed out in terms of both relative and absolute fundamentality. If there is an absolutely fundamental level of facts, then those facts are described as ungrounded. And it is assumed there is a link between ground and relative fundamentality. If f grounds g, while f itself is grounded in some further facts, then a plausible suggestion is that f is more fundamental than g.[231] On this view, ground is meant to capture a layered conception of reality that other familiar notions like supervenience cannot capture. For example, supervenience isn't up for the task because it is reflexive. The core idea of "no difference in such-and-such without a difference in so-and-so is decidedly reflexive.[232]

Nonetheless, some thinkers have challenged this approach to ground as a strict partial order. Bliss maintains that admitting reflexive grounding does not necessarily lead to reintroducing supervenience in ground's clothing. She suggests that even if ground can be reflexive, ground is nonetheless a richer notion than supervenience. She says, "Grounds *metaphysically explain* that which they ground, in a way that the supervenience base does not explain what supervenes upon it. The point is just that ground plus reflexivity does not necessarily yield supervenience".[233] However, it is the distinctive constraints on ground's logic imposed by its *raison d'être* that make ground a richer notion in the first place. Once we drop these constraints, it's difficult to say in what sense ground can be such a rich notion. And it's then unclear in what sense a fact can metaphysically explain itself in any kind of plausible or interesting way.

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[231] David Kovacs, "What is Wrong with Self-Grounding?" *Erkenntnis*, 83, no. 6 (2018): 1163.
[232] Raven, "Is Ground a Strict Partial Order?" 194.
[233] Bliss, "Grounding and Reflexivity," 81.

Consider again the structuring role ground is meant to play. The idea here is that, for all facts *x* and *y*, if *x* grounds *y*, then *x* is more fundamental than *y*. This entails that ground is asymmetric because *more fundamental than* is asymmetric (and transitive).[234] The problem is that reflexive grounding would allow facts to be more fundamental than themselves and antisymmetric grounding would allow facts to be both more and less fundamental than each other.[235] Since an asymmetric notion of ground is introduced to capture the phenomenon of relative fundamentality in the first place, this seems to rule out symmetric and reflexive cases.

Bliss argues that the structuring role for ground, captured by the language of relative fundamentality, is insufficient for thinking ground is irreflexive. She writes,

> Stipulating that some things are more or less fundamental relative to other things does not provide us with reasons to suppose that reality exhibits such a structure in the first place. As exactly what we are after is a reason to suppose that grounding is necessarily irreflexive, the appeal to relative fundamentality goes no way towards helping us uncover such a reason.[236]

However, I think Bliss' concern is misplaced. As we saw above, there don't seem to be any plausible instances of reflexive or symmetric grounding. The cases with which we are familiar are cases of asymmetric ground. And it is because we have good reason to think that reality exhibits this kind of structure that a notion of ground, unlike supervenience, is useful for capturing it. It is not so much a stipulation as it is an observation of phenomena in the world and their relationship to each other that leads metaphysicians to adopt an asymmetric notion like ground.[237]

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[234] Bennett's discussion takes place within her theoretical framework of 'building'. However, since she includes ground as a building relation, I elide this detail to streamline discussion.

[235] Bennett, *Making Things Up*, 42. Kovacs, "What is Wrong with Self-Grounding?" makes a similar argument.

[236] Bliss, "Grounding and Reflexivity," 80.

[237] Intuition supposedly also plays a role in determining what grounds what.

I think it's also worth considering further attempts to motivate circular explanations in general and whether they apply to metaphysical explanation in particular. Koons and Pruss argue that a commitment to the UPSR in addition to other formal features of explanation, results in self-explaining facts. Of course, we may just take this to be a reductio ad absurdum of our initial assumptions since self-explaining facts are problematic for the reasons outlined above. After all, if x explains y, then y arguably does not explain x. So, if we let $y = x$, we should conclude that x cannot explain x.[238] But Koons and Pruss argue that there are plausible cases of self-explanatory facts. They write,

> e.g., that $0 = 0$ and that all triangles have three vertices. We can think of a self-explanatory fact as one such that knowing that the fact obtains and fully understanding the nature of the fact removes all of the mystery about why the fact obtains. While our two examples above were analytic, there may even be synthetic self-explanatory facts, such as the fact that water is H_2O. Once we understand what it means to say that water is identical with H_2O, no mystery about water being H_2O remains.

> Alternately, we could say that there are two kinds of facts: There are facts that, even when their nature is fully understood, still have a mystery about them and there are facts that when their nature is fully understood are wholly unmysterious. If explanation is removal of mystery, then facts of the second sort cannot be explained, but only because there is no need to explain them. We could then reformulate our principles and arguments by replacing statements like "x explains y" with disjunctions like "x explains y, or x = y and x is wholly unmysterious.[239]

There are several problems with Koons and Pruss' approach here. First, that a fact may be wholly unmysterious if fully understood does not entail that it is self-explaining in the robust sense that x explains y and $x = y$. Koons and Pruss say explicitly above that since explanation is the removal of mystery, and self-explained facts are wholly unmysterious, they are not apt to be explained. In a footnote, they cash this out in terms of Dasgupta's notion of autonomy.[240] As such, Pruss and

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[238] Robert Koons and Alexander Pruss, "Skepticism and the Principle of Sufficient Reason," *Philosophical Studies* 178 (2021): 1081.
[239] Koons and Pruss, "Skepticism," 1081.
[240] See Koons and Pruss, "Skepticism," footnote 4, page 1081.

Koons are conflating Dasgupta's notion of autonomous facts with self-explained facts. These are not equivalent notions.[241] Autonomous facts are facts such that the question of what explains them does not even arise. They are not apt to be grounded. Self-explained facts, by contrast, are facts which stand in the grounding relation to themselves. Since self-grounded facts are grounded, they are apt to be grounded, and therefore cannot be autonomous. So, one should not attempt to elucidate self-groundedness in terms of autonomy.

Second, Koons and Pruss' examples of self-explaining facts are dubious. As they note, the examples are analytic statements and so are true by definition. For example, it is built into the definition of 'triangle' that it has three vertices. So, these are illegitimate candidates for self-explaining facts. Pruss and Koons might drop the notion of autonomy and instead insist that certain facts are wholly unmysterious when fully understood because they are self-evident. And perhaps those facts are self-evident because they contain their own explanation or ground.[242] This seems to be Pruss' approach in earlier work. He writes,

> a self-explanatory proposition is a true and understandable proposition such that, necessarily, as soon as one understands it and believes it to be true, one has explained why it is true, or at least one has the resources to explain it. There is no more mystery. Therefore, any true and understandable proposition such that as soon as one has understood it one has to know that and why it is true will be self-explanatory.[243]

Pruss' point here is that a self-explanatory fact, x, is such that understanding x entails also understanding the explanation of x. But it is unclear what work the notion of understanding is doing here. Understanding is an inherently epistemic/cognitive notion, and thus varies with context. Ground, however, is an objective notion. By 'understanding some fact, x', Pruss may just

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[241] Dasgupta, "Metaphysical Rationalism," 397.
[242] Raven, "Explaining Essences," 1054.
[243] Pruss, *The Principle of Sufficient Reason*, 123.

mean that someone believes *x* obtains. But simply believing *x* obtains does not entail that one thereby has the resources for explaining *x*. Indeed, believing that *x* obtains does not entail or require that we thereby also automatically have an explanation for *x*.

Another option is to suggest that self-explanatory facts are self-evident. But the notion of self-evidence is controversial. Self-evidence is an epistemic notion that, for thinkers like Frege for example, concerns the justification of a proposition. According to Burge, propositions are self-evident when "their justification is carried in their own contents".[244] So, one might say a self-explanatory fact is one that already contains its own justification. But if by 'justification' we simply mean 'ground', then a self-explaining fact is simply one that contains its own ground. So, self-explanation in this sense becomes tautologous.

Given the above considerations, I maintain the burden is on the proponent of circular grounding to show that circular metaphysical explanations are not pathological. There doesn't seem to be any plausible cases of circular grounding. And extant attempts to articulate plausible cases of circular explanation in general are spurious.

5. Problems for Metaphysical Holism

I've argued that Standard Coherentism is problematic for explanatory reasons, and so ought to be rejected. Cameron's version of coherentism, which he calls 'Metaphysical Holism', parts ways with Standard Coherentism by rejecting the link between ground and metaphysical explanation. On his view, there can be circles of ground or metaphysical determination. But metaphysical explanation is holistic in the sense that it does not 'transfer' along lines of ground. While holism involves circles of determination, it does not involve circles of metaphysical explanation and so is

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[244] Tyler Burge, "Frege on knowing the foundation," *Mind* 107, no. 426 (1998): 326.

immune to the above objections to Standard Coherentism. However, just as circles of metaphysical explanation are problematic, circles of determination seem problematic as well. However, like circles of metaphysical explanation, it can be difficult to say why.

For example, a pressing metaphysical concern with circles of ground is the bootstrapping objection. On a strong or 'thick' notion of ground of the sort I've assumed in this project, ground is an existentially productive or generative determination relation. Facts that do the grounding make the grounded facts exist. For example, Kelly Trogdon writes, "a relation is generative just in case its instantiation brings things into existence. Grounding is generative given that grounded entities exist *due to grounding*".[245] Sara Bernstein says, "production does play an implicit role in concepts and elucidations of grounding which take it to be a kind of synchronic generation or 'bringing into existence'. Production undergirds a 'thick' concept of grounding according to which grounders transfer being to their groundees".[246] And for Jonathan Schaffer, when x grounds y, y *depends* for its nature and existence upon x.[247]

Given this conception of ground, self-grounding might start to look problematic. If ground is reflexive such that some fact x grounds itself, it seems that x 'bootstraps' itself into existence. A common worry is that this sort of bootstrapping is somehow contradictory. Speaking of ground in its determinative, rather than explanatory, aspect, Paul Audi says,

> Metaphysically speaking, there is nothing properly called self-determination. Putative cases involve determination between different facts, events, parts, or temporal stages of or about a single particular. I move myself, to be sure, but only by events in one part of me causing events in another.[248]

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[245] Trogdon, "Inheritance Arguments for Fundamentality," 189.
[246] Bernstein, "Grounding is not Causation," 23.
[247] Schaffer, "Monism," 345.
[248] Audi, "Toward a Theory," 691-692.

Implicit in Audi's remark here is a concern about the principle of non-contradiction. I move myself in the sense that one distinct part of me moves another distinct part of me. Assuming, then, that nothing moves itself at the same time and in the very same respect, a worry of contradiction arises.

However, it is unclear exactly how a formal contradiction arises from an instance of reflexive grounding. By generalizing away from ground to causal forms of metaphysical determination, we can look to the history of philosophy for insight. One concern is that for something to metaphysically determine itself, it must precede itself in time, which is impossible. However, on some readings, thinkers like Spinoza and Descartes held that efficient causation need not be diachronic or spread out in time. For example, Descartes writes,

> I did not say that it was impossible for something to be the efficient cause of itself. This is obviously the case when the term 'efficient' is taken to apply only to causes which are prior in time to their effects, or different from them. But such a restriction does not seem appropriate in the present context. First, it would make the question trivial, since everyone knows that something cannot be prior to, or distinct from, itself. Second, the natural light does not establish that the concept of an efficient cause requires that it be prior in time to its effect. On the contrary, the concept of a cause is, strictly speaking, applicable only for as long as the cause is producing [producit] its effect, and so it is not prior to it."[249]

Since causes are not necessarily temporally prior to their effects for these thinkers, the concern that in order for something to cause itself, it must first exist, didn't arise. Similarly, many understand grounding as a synchronic notion rather than a process that unfolds over time. Thus, there's no obvious problem with self-grounding in the sense that some fact must first exist in order to then make itself exist.[250]

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[249] René Descartes, "Objections to the meditations and Descartes' replies," 7.
[250] Bliss, "Grounding and Reflexivity," 81 makes a similar point.

Nonetheless, self-causation, or more generally self-production, was widely rejected as impossible by many historical thinkers.[251] This is especially true for Scholastic thinkers like Aquinas. And understanding why thinkers like Aquinas rejected reflexive causation as impossible is instructive for understanding why self-grounding does not face a similar problem.

For Aquinas, the idea of something causing itself to exist such that it is both cause and effect simultaneously, was logically contradictory because of his Aristotelian analysis of causation (or motion more generally) as a reduction of potency to actuality. In his *Summa Contra Gentiles* (I, 13) Aquinas argues,

> Nothing is at the same time in act and in potentiality in respect of the same thing. Now whatever is in motion, as such, is in potentiality, because motion is *the act of that which is in potentiality, as such.* Whereas whatever moves, as such, is in act, for nothing acts except in so far as it is in act. Therefore, nothing is both mover and moved in respect of the same movement. Hence, nothing moves itself.[252]

Given this conception of causation, the idea of self-causation clearly violates the principle of non-contradiction. Thus, the idea of self-causation for thinkers like Aquinas is, strictly speaking, contradictory. But the contradiction arises only given the assumptions underlying Aquinas' Aristotelian conception of causation. As Richard Lee notes,

> It is only when causation as a whole is thought on the model of actuality and potentiality, that is, as the leading out of potentiality into actuality, that the notion of causa sui presents itself as a violation of the principle of non-contradiction... If potentiality is not thought in this way, we are not forced into saying that something is both A (potential) and not A (actual) at the same time and in the same way.[253]

[251] Richard Lee, "The Scholastic Resources for Descartes's Concept of God as *Causa Sui*," in *Oxford Studies In Early Modern Philosophy*, eds. Daniel Garber and Steven Nadler (Oxford University Press, 2006), 91.
[252] Thomas Aquinas, *Summa Contra Gentiles* (Burns Oates and Washboure, 1924), 25-26.
[253] Lee, "The Scholastic Resources," 97.

However, ground is not analyzed in Aristotelian terms. Rather, ground is typically left as a primitive notion. Thus, there is no clear path to generating a formal contradiction from the state of affairs of some fact being both ground and groundee in the same respect. And any analysis of ground that can generate such a formal contradiction will likely be controversial. So long as ground is a primitive notion, self-grounding presents no immediate or obvious threat of formal contradiction on this front, at least.

This is not to say that the only way for self-grounding to be formally inconsistent is if ground is if there is an analysis of ground that entails there cannot be self-grounding. There may be other reasons. It's just unclear what those may be. Cameron says that as soon as we divorce ground from metaphysical explanation, such that ground neither is nor tracks/backs metaphysical explanations, there's no longer any problem with circles of ground. But considerations of ground's structuring role still apply here. Even if we drop ground's explanatory role as Cameron does, that still leaves ground's structuring role. And self-grounding is incompatible with the structuring role. If f grounds g and $f = g$, then f is more fundamental than itself, which is absurd. Ground's structuring role, therefore, cautions us against circular ground even if ground is purely a non-explanatory determination relation.

6. Metaphysical Holism and the UPSR

I argued above that even if the metaphysical holist divorces ground from metaphysical explanation and maintains that ground is solely a determination relation, holism may still be problematic because circles of determination are problematic. But there is another reason to reject metaphysical holism. While Standard Coherentism is consistent with the UPSR insofar as ground is assumed to be explanatory, Cameron's version of holism is not.

Cameron disagrees with Standard Coherentism that metaphysical explanation can literally be transferred along lines of grounding in a circle. Instead, metaphysical explanation is a holistic or collective affair. Suppose we have two mutually grounded facts A and B such that A grounds B and B grounds A. In such a scenario, it's not that A explains the nature or existence of B and vice versa. Rather, Cameron argues, "we explain the nature of A and B *collectively* by pointing to the pattern of dependence that holds between the (very small, in this case) system of entities".[254] Cameron cites gender and sexuality as an example. On his view, the nature of gender involves sexualized subordination, and the nature of sexuality involves gendered subordination.[255] However, we do not thereby explain the nature of gender in terms of sexuality and vice versa. Rather, by this mutual relationship of dependence, we explain something about the nature of gender and sexuality *collectively*, namely, "that nothing would be gender, or sexuality, unless it related to the other in certain ways".[256] Instead of taking 'A has such-and-such a nature' to be the primary target of explanation, and then go on to explain it in terms of B and vice versa, the holist's explanatory target should be claims like 'the xs have so-and-so nature'.[257] It is the nature or existence of the system of entities itself, collectively speaking, that is explained.

As a result, Cameron conceives of metaphysical explanation in terms of "What it is" claims, which are not to be understood in terms of grounding. For Cameron, an explanation is "metaphysical" in so far as it is an explanation of the nature of some phenomenon.[258] Cameron's suggestion is that we have a metaphysical explanation of some phenomenon, Φ, if there is a true what it is claim, of the form "What it is for Φ just is for Ψ".[259] On Cameron's view, one and the

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[254] Cameron, *Chains of Being,* 166.
[255] Cameron, *Chains of Being,* 171.
[256] Cameron, *Chains of Being,* 176.
[257] Cameron, *Chains of Being,* 165.
[258] Cameron, *Chains of Being,* 142.
[259] Cameron, *Chains of Being,* 135.

same fact in the world can be structured in different ways and hence described differently. For example, Cameron understands Lewis' modal realism as the view that what it is to be possible just is to be true at some world. On Cameron's view, there is no grounding involved here. Rather, this is just the same worldly phenomenon described equally accurately in two different ways. Nonetheless, Cameron argues one of these descriptions can be explanatorily more basic than the other, and as a result the "what it is" claim can help us understand an otherwise intractable phenomenon.[260]

As a result, Metaphysical Holism is incompatible with the UPSR for the simple reason that the holist rejects the notion of ground as an explanatory relation. Metaphysical explanation is something else entirely. Cameron argues,

> In a holistic metaphysics, we only ever explain facts concerning a particular one of the Xs by explaining facts concerning the nature of the Xs collectively…the explanation does not concern the individual nodes in the structure, and it does not flow along the lines of metaphysical determination that hold the structure together. Rather, the explanation concerns the structure as a whole – the *system* of entities, and what *they* are like collectively.[261]

Perhaps Cameron's holism is consistent with a version of the UPSR that is indexed to his particular notion of metaphysical explanation. But since ground isn't explanatory for Cameron in the sense I think it is, even if every fact has a ground on his view, no fact has a metaphysical explanation in the sense stipulated by our version of the UPSR. This is not to say that we ought to reject Cameron's notion of metaphysical explanation. Perhaps we can reformulate metaphysical rationalism to encompass not only ground as I've conceived of it, but other notions of metaphysical explanation as well. But our narrow concern here is with a version of metaphysical rationalism

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[260] Cameron, *Chains of Being,* 141.
[261] Cameron, *Chains of Being,* 164.

that is indexed to a notion of ground as an explanatory relation. On that narrow conception, Metaphysical Holism is inconsistent with the UPSR.

7. Conclusion

In this chapter, I argued that there are plausible reasons to reject metaphysical coherentism. I argued that Standard Coherentism, according to which ground is an explanatory relation, is implausible for explanatory reasons. Insofar as ground is explanatory, and circles of metaphysical explanation are illegitimate, Standard Coherentism is implausible. I then argued Ross Cameron's version of Metaphysical Holism is problematic because circles of metaphysical determination are problematic. Even granting their possibility, I noted that holism is incompatible with our version of the UPSR since holism rejects the notion of ground as an explanatory relation. The most plausible view of the structure of reality, then, is infinitism. Ground is not well-founded, nor does ground form loops or cycles. Given the UPSR, every chain of ground descends indefinitely.

Conclusion

In this dissertation, I've examined arguments in favour of metaphysical foundationalism and concluded that they are ultimately unsuccessful. Minimally, this result shows that non-well-founded chains of ground are possible. I then proceeded to present and defend an argument in favour of a ground-theoretic version of the Principle of Sufficient Reason (PSR) to motivate a positive defence of metaphysical infinitism. While the PSR is admittedly controversial, I hope to have shown that there are plausible reasons to accept it and plausible responses to standard objections. I also argued against the possibility of circles or cycles of ground. The result is a strong form of metaphysical infinitism, according to which every chain of ground fails to be well-founded.

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