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The Geography of Fundamentality: An Overview

Ricki Bliss and Graham Priest

Reality is a rather large place. It contains protons, flamingos, economies, headaches, sentences, smiles, asteroids, crimes, and numbers, amongst very many other things. Much of the content of our reality appears to depend on other of its content. Economies, for example, appear to depend upon people and the way they behave, amongst other things. Some of the content of our reality also appears to be, in some significant sense, more important than other of its content. Whilst none of us would wish to deny the very important role that economies play in our lives, most of us would agree that without matter arranged certain ways in space, for example, there could be no economies in the first place.

The reality that we happen to occupy is, in some important sense, a physical one. Accordingly, matter is afforded a special place in our story about it. Indeed, not only is matter accorded a special place in our ontology, but some from amongst its elements are also thought to be particularly important. Chairs and flamingos and people are made from parts, and those parts from further parts and so on—with most folks being of the view that at some point these dependence chains must terminate in absolutely basic, or simple, parts which themselves have no further parts. It is these basic parts, so the story goes, that give rise to everything else.

The content of reality to which these parts give rise is arranged relatively neatly into layers: facts about economies and crimes reside at a higher level than facts about biological systems, which reside at a higher level than facts about chemical systems and so on. Or perhaps we might prefer to say that economic systems are further up the Great Chain of Being than ecosystems, which are further up the chain than carbon compounds.¹ This picture, or something very much like it, looms large over contemporary analytic metaphysics: a picture according to which reality is hierarchically arranged with chains of entities ordered by relations of ground and/or ontological dependence terminating in something fundamental.

¹ The Great Chain is normally taken as running downwards, with the ground at the top; we upend it here.

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The historical literature is also littered with what appear to be variations on this kind of view. Consider both Plato and Aristotle, for example. The former believed that everything was grounded in the Forms, with all of the Forms being ultimately grounded in the Form of the Good. The latter distinguished between primary and secondary substances, with a priority ordering amongst them—along, arguably, with making appeal to prime matter, without which there would be nothing whatsoever. Just as very many of the Medievals (Aquinas, for example) and Early Moderns (Descartes, Spinoza, Leibniz) thought that everything depended on God, the need to establish a fundamental ground breaks out in certain of the Continental thinkers, such as Heidegger, in the form of *The Problem of Being*: there must be something (fundamental), Being, if we are to account for the fact that anything has being at all.

Turning also to non-Western traditions, we see that the idea that reality is structured by metaphysical dependence relations, where there is something fundamental, is by no means an unfamiliar one.² Various of the Indian, Chinese, and Japanese traditions rely heavily on notions of metaphysical dependence and fundamentality. In fact, whole schools were formed based on disagreements over the fundamental structure of reality. According to the Indian Abhidharmika tradition, for example, there must be *dharmas*—simples—as there are aggregates which are built from them. And according to Kyoto School thinker Nishida, the ultimate ground of everything is consciousness, which is also absolute nothingness. The idea that reality is structured, and that there must be something fundamental, is by no means the monopoly of contemporary Western analytic thought.

The kind of view, or cluster of views, that appear to dominate the contemporary analytic debate can be thought of broadly as, or as species of, *metaphysical foundationalism*. As will become clearer in due course, there are, in fact, a variety of ways in which one can be a metaphysical foundationalist; with different species of foundationalism involving different core commitments. Although this list is by no means exhaustive, we assume the following to be amongst the core commitments of metaphysical foundationalism *as commonly endorsed in the contemporary literature*.

1. The hierarchy thesis: Reality is hierarchically structured by metaphysical dependence relations that are anti-symmetric, transitive, and anti-reflexive.
2. The fundamentality thesis: There is some thing(s) which is fundamental.
3. The contingency thesis: Whatever is fundamental is merely contingently existent.
4. The consistency thesis: The dependence structure has consistent structural properties.

Strictly speaking, in order to be considered a species of foundationalism, a view needs only commit to the the fundamentality thesis: 2., then, is both necessary and

² See Bliss and Priest 2017.

sufficient for a view to count as a kind of foundationalism. For proponents of what we can think of as the *standard view*, however, all four theses are necessary, with no one of them being sufficient.³

Is this the only view of the fundamental, or basic, structure of reality that is available to us, though? Of course it isn't. To be sure, deviations from the standard view exist in the literature.⁴ But the full spread of possible views has, so far as we can tell, been both grossly underestimated and grossly underexplored.

It is important and interesting to note that in foundational epistemology—where the structuring relations are strikingly similar to those invoked in talk of foundational metaphysics—one can be an epistemic foundationalist (of various sorts), an epistemic infinitist, or an epistemic coherentist. Is a similar spread of possible views available to us in foundational metaphysics? We are inclined to think that it is, as do Morganti and Thompson (this volume). Just as an epistemic infinitist thinks that chains of beliefs ordered by an anti-symmetric, anti-reflexive, transitive relation orders beliefs without termination, a metaphysical infinitist thinks that chains of entities ordered by an anti-symmetric, anti-reflexive, transitive relation orders entities without termination. So too for coherentism. Just as an epistemic coherentist thinks that beliefs are organized into a highly integrated web, with justification emerging from it, the metaphysical coherentist thinks that entities are organized into a highly integrated web with something like being or reality emerging from it. As one might expect, there will also be various possible shades between.

The papers contained within this volume can be thought of as contributing to a broader discussion of the reasons for which we are supposed to believe aspects of the standard view, the reasons we might have for embracing one or other of the alternatives, and what those alternatives might be like. Not all of the papers in this volume endorse types of anti-foundationalism, but each of them speaks to, and challenges, in some way or other, one or other of the core commitments of metaphysical foundationalism as noted above. In some cases, our authors even support one or other of the assumptions, with the aim of their contribution being to highlight weaknesses in the arguments commonly offered in their defence. The papers in this volume are arranged, then, according to the core assumption that they primarily address.

³ The idea that the world is ontologically 'flat', with everything being fundamental—a rejection of 1—has been described by Bennett (2011), as 'crazy pants', for example. Just as many philosophers balk at the suggestion that the fundamentalia are necessary beings.

⁴ It is worth noting that it does not follow from the appearance of a smattering of papers challenging the standard view that the standard view is not still just that, the standard view. A handful of dissenting papers does not a heterodoxy make. Although some authors have challenged aspects of the foundationalist picture, the dominant paradigm that drives many contemporary analytic research programmes is one according to which reality has a layered structure and a fundamental level. Even though a small number of philosophers have challenged aspects of the standard view, to the best of our knowledge, these challenges have not resulted in research programmes of their own, nor have they impacted upon the way much research is conducted.

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In what remains of this introduction, we take up the mantle of introducing and engaging with some of the most important issues that we believe need to be dealt with if foundationalism is to be a view that we actually have good reasons to endorse; and if the alternatives are to be considered not just logically, but also metaphysically, possible.

1 The Lie of the Land

Many philosophers accept a view according to which the world has an overarching causal structure. Thunderstorms cause trees to fall down, and water is caused to boil by the application of heat. This volume takes as one of its starting assumptions that the world (also) has an overarching metaphysical structure. Of course, causal structure is a kind of metaphysical structure; however, what philosophers tend to mean nowadays when they speak of metaphysical structure is that this structure is induced by relations of ground and/or ontological dependence.⁵ We refer to these as *metaphysical dependence* relations, and they are the relations around which the ideas presented in the following essays are centred.

There is a lot that has been, and continues to be, written on metaphysical dependence relations. And there is an enormous amount of disagreement over even the most basic of concepts in operation in the relevant literature.⁶ Is grounding to be understood on the operator view or the sentential connective view? Is grounding just explanation? How are grounding and ontological dependence related? Is grounding unitary? These are amongst some of the many issues that those working on issues pertaining to the structure of reality are concerned with. This volume is not primarily concerned with most of those disagreements, however. We leave it to our contributors to assume what they will regarding how they define their terms and the conceptual connections that they take to be in operation; and we leave it to our readers to find appropriate reading material if what they are interested in are those debates. For the sake of clarity in this introduction, however, we think it wise to say something about how we shall be understanding things.

It is not uncommon to see a distinction drawn in the literature between relations of *ground* and *ontological dependence*. Relations of ground, say many, obtain between facts, where relations of ontological dependence obtain between entities of any and all categories.⁷ So, where one would say that the fact that the weather is miserable today is grounded in the fact that it is pouring, one would say that the shadow ontologically depends on the object that casts it. And where one would say that the fact that the sky is blue or we are in Australia, is grounded in the fact that the sky

⁵ See Schaffer 2016 for a discussion of the relationship between grounding and causation, and a view according to which grounding is a kind of causing.

⁶ See Bliss 2014 for an overview of some of the major sources of disagreement.

⁷ See Schaffer 2009 for the development of a view according to which grounding obtains between entities of any and all categories and cross-categorically.

is blue, one would also say that the fact that the sky is blue ontologically depends on its constituents—the sky and blueness. Again, when we talk about relations of metaphysical dependence, we mean this term to act as a covering term for both grounding and ontological dependence. Where, in this introduction, we think it necessary to discriminate between the two, we say as much. We also don't think much as regards the reasons to endorse one fundamental view of reality over another is going to turn on whether grounding obtains between facts alone, for example. What bears consideration when settling the kinds of matters that this volume is concerned with will be the same, we believe, whether it turns out that ontological dependence just is a kind of grounding or not.

It is a plank of the grounding literature that grounding is somehow involved with *metaphysical explanation*. It is an open question, however, whether the relations are merely associated with metaphysical explanation or whether they are identical with it. Thompson (this volume) offers us some compelling reasons to think that grounding is better thought of *as being* an explanatory relation. She argues that were grounding relations to be relations that underwrite our explanations, we would still need to account for how the relations and the explanations they back are related to one another. If the way they are related to one another is via grounding, then we are really in trouble, says Thompson, because the notion of a metaphysical explanation is typically invoked to shed light on how we are supposed to understand grounding in the first place. Trogdon (this volume), on the other hand, thinks it natural to assume that grounding relations *back* metaphysical explanations. So far as we can tell, not much turns on resolving this particular issue for what we have to say here in this introduction. It is enough for us to point out that we assume that grounding is most certainly involved with metaphysical explanation, however that turns out to be, and move on.

It has been suggested that the connection between ontological dependence and explanation is weaker than the connection between ground and explanation. Tahko and Lowe suggest, for example, that the existence of hydrogen and oxygen—upon which water depends—do not, alone, explain the existence of water.⁸ Whilst we agree that the mere existence of hydrogen and oxygen does not fully explain the existence of water, we struggle to understand how the existence of the two could fail to be appealed to in an explanation of the other. Perhaps Tahko and Lowe are correct that the connection is *weaker*, but we here feel confident proceeding on the assumption that ontological dependence is sufficiently strongly tied to metaphysical explanation nonetheless.

Let us turn now to the notion of fundamentality itself. We assume that the categories of fundamental and derivative are exclusive and exhaustive. Some entity is either fundamental or derivative but never both.⁹ The category of derivative things is just

⁸ See Tahko 2015.

⁹ See Barnes 2012 for arguments against the exclusivity assumption.

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the category of metaphysically dependent things; which is just to say it is the category of grounded and ontologically dependent entities. It is true by definition that a derivative entity is dependent and, thus, that it has a metaphysical explanation. The fundamentalia, on the other hand, by definition, depend upon nothing else (except perhaps themselves) and are, thus, without metaphysical explanation (except perhaps in terms of themselves). This is not to say, however, that being independently existent is a *sufficient condition* for being fundamental (on some accounts, it's not even necessary). There may well be a plethora of independent entities that, nonetheless, do not serve as candidate fundamentalia.¹⁰ Although there are alternative ways of understanding fundamentality, such as discussed by Takho and Barnes (this volume), Fine, and Sider, we are happy to proceed on the independence understanding.¹¹

It is open, and indeed the case on many accounts, that the fundamental facts be fundamental *qua* grounding structure and yet dependent *qua* ontological dependence structure. This is because for any account according to which a fact is dependent upon its constituents, a fundamental fact will be ungrounded and yet, nonetheless, dependent. The term 'fundamentalia' can then be taken to refer to either fundamental facts or fundamental things depending upon which ordering one wishes to foreground.

We recognize that there are also subtly different ways in which the notion of *being fundamental* can be formally cashed out. One distinction that we think it particularly important to mention is that between the relation being *well-founded* and it having a *lower bound*.¹² To say that dependence relations are well-founded is to say that (i) chains ordered by the relation downwardly terminate in a fundamentalium, and (ii) that there is a finite number of steps between any member of a chain and the fundamentalium that it terminates in. Although it's not uncommon to hear philosophers speak in the language of well-foundedness, what they often mean is that any chain of entities ordered by that relation has a lower bound. Importantly, where a relation is bounded from below, there need *not* be a finite number of steps between any member of that set and the fundamentalium that grounds it. To better understand this, consider the relationship between God and the contents of reality; although there may be an infinite number of steps between, say, the number 7 and God, the number 7, along with everything else, depends on him nonetheless. In order to remain neutral on an understanding of fundamentality as well-foundedness and fundamentality as lower boundedness, we choose to capture this aspect of foundationalism formally in terms of the notion of extendability (E) and its negation; more of which anon.

¹⁰ Facts about numbers, for example, may be independent, without that entailing that they are therewith fundamental.

¹¹ Fine 2001 and Sider 2011. See Raven 2016 for another alternate account of fundamentality.

¹² See Dixon 2016, and Rabin and Rabern 2016, for formal treatments and discussions of different possible ways of understanding fundamentality.

2 Taxonomy

The hierarchy thesis says that the dependence relation is anti-symmetric, transitive, and anti-reflexive. The fundamentality thesis says that there must be something fundamental. Although it is common to assume that the relevant dependence relations have some combination of the aforementioned properties, a variety of different combinations are at least *logically possible*. To see this, let us first introduce some notation.¹³

We write ‘ x depends on y ’ as $x \rightarrow y$.¹⁴ (We may write $x \rightarrow x$ as \widehat{x} .) Next, four structural properties:

Anti-reflexivity, AR.

- $\forall x \neg x \rightarrow x$ [Nothing depends on itself.]
- So $\neg AR$: $\exists x x \rightarrow x$ [Something depends on itself.]

Anti-symmetry, AS.

- $\forall x \forall y (x \rightarrow y \supset \neg y \rightarrow x)$ [No things depend on each other.]
- So $\neg AS$: $\exists x \exists y (x \rightarrow y \wedge y \rightarrow x)$ [Some things depend on each other.]

Transitivity, T.

- $\forall x \forall y \forall z ((x \rightarrow y \wedge y \rightarrow z) \supset x \rightarrow z)$ [Everything depends on anything a dependent depends on.]
- So $\neg T$: $\exists x \exists y \exists z (x \rightarrow y \wedge y \rightarrow z \wedge \neg x \rightarrow z)$ [Something does not depend on what some dependent depends on.]

Extendability, E.

- $\forall x \exists y (y \neq x \wedge x \rightarrow y)$ [Everything depends on something else.]
- So $\neg E$: $\exists x \forall y (x \rightarrow y \supset y = x)$ [Something does not depend on anything else.]

We can now give a taxonomy, which is as follows. After the enumeration column, the next four columns list the 16 possibilities of our four conditions.

	AR	AS	T	E	Comments	Special Cases
1	Y	Y	Y	Y	Infinite partial order	<i>I</i>
2	Y	Y	Y	N	Partial order	<i>A, F, G</i>
3	Y	Y	N	Y	Loops	<i>I</i>
4	Y	Y	N	N	Loops	<i>F, G</i>

¹³ The contents of this section are reproduced from Bliss and Priest 2017.

¹⁴ One may distinguish between full dependence and partial dependence. (See, e.g. Dixon 2016, sec. 1.) Just to be clear: the notion of dependence we are concerned with here is partial dependence.

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5	Y	N	Y	Y	×	
6	Y	N	Y	N	×	
7	Y	N	N	Y	Loops of length >0	I
8	Y	N	N	N	Loops of length >0	F, G
9	N	Y	Y	Y	×	
10	N	Y	Y	N	×	
11	N	Y	N	Y	×	
12	N	Y	N	N	×	
13	N	N	Y	Y	Preorder	C, I
14	N	N	Y	N	Preorder	C, F, F', G
15	N	N	N	Y	Loops of any length	I
16	N	N	N	N	Loops of any length	F, F', G

Consider, next, the Comments column. Here's what it means.

- There is nothing in categories 5, 6, since if there are x, y , such that $x \rightleftharpoons y$, then by T , $\widehat{x} \rightleftharpoons \widehat{y}$, contradicting AR . ($\neg AS$ and T imply $\neg AR$.)
- There is nothing in categories 9–12, since if for some $x, x \rightarrow x$, then for some x and $y, x \rightleftharpoons y$, contradicting AS . ($\neg AR$ implies $\neg AS$.)
- All the other categories are possible, as simple examples (left to the reader) will demonstrate.
- In cases 13–16, since $\neg AR$ implies $\neg AS$, the second column (AS) is redundant.
- In categories 1 and 2, \rightarrow is a (strict) partial order; and in category 1, the objects involved must be infinite because of E .
- In categories 13 and 14 \rightarrow is a (strict) preorder, so loops are possible. (A loop is a collection of elements, $x_1, x_2, \dots, x_{n-1}, x_n$, for some $n \geq 1$, such that $x_1 \rightarrow x_2 \rightarrow \dots \rightarrow x_{n-1} \rightarrow x_n \rightarrow x_1$.)
- In cases 3, 4, 7, 8, 15, 16, transitivity fails, and there can also be loops. In cases 7, 8, there are no loops of length zero, \widehat{x} , since AR holds.

Turning to the final column, this records some important special cases.

- The discrete case is when nothing relates to anything. Call this *atomism*, A . In this case, we have $AR, AS, T, \neg E$. So we are in case 2 (though this is not the only thing in case 2).
- If \rightarrow is an equivalence relation (reflexive, symmetric, transitive), we have $\neg AR, \neg AS, T$, so we are in cases 13 or 14 (though this is not the only thing in these two cases). In case 13, there must be more than one thing in each equivalence class, because of E . A limit case of this is when all things relate to each other: $\forall x \forall y x \rightarrow y$. Call this *coherentism*, C .
- Call x a *foundational element* (FEx) if there is no y on which x depends, except perhaps itself: $\forall y (x \rightarrow y \supset x = y)$. *Foundationalism*, F , is the view that everything grounds out in foundational elements. One way to cash out the idea is as

follows.¹⁵ Let $X_0 = \{x : FEx\}$, and for any natural number, $n \in \omega$: $x \in X_{n+1}$ iff $x \in X_n$ or $\forall y(x \rightarrow y \supset y \in X_n)$. $X = \bigcup_{n \in \omega} X_n$. F is the view that everything is in X , $\forall x \ x \in X$.¹⁶ Intuitively, this means that everything is a foundational element, or depends on just the foundational elements, or depends on just those and the foundational elements, and so on. E entails that there are no foundational elements. Hence, this is incompatible with F . So, given F , we must be in an even numbered case—except those that are already ruled out by other considerations. (All are possible. Merely consider $x \rightarrow y \rightarrow z$. z is foundational; add in arrows as required to deliver the other conditions.)

- A special case of foundationalism is when the foundational objects, and only those, depend on themselves: $\forall x(FEx \equiv x \rightarrow x)$. Call this view F' . Since AR must fail in this case, we must be in cases 14 or 16 of the taxonomy.
- Another special case of foundationalism is when there is a unique foundational object on which everything else depends: $\exists x(FEx \wedge \forall y(y \neq x \supset y \rightarrow x)$ [Something is a foundational element, and everything else depends on it.] The x in question does not depend on anything, except perhaps itself, and it must be unique, or it would depend on something else. Call this case G (since the x could be a God which depends on nothing, or only itself). This is a special case of F , and could be in any of the cases in which F holds.
- Write $x \xrightarrow{*} y$ to mean that y is in the transitive closure of \rightarrow from x . That is, one can get from x to y by going down a finite sequence of arrows. An element, x , is *ultimately ungrounded*, UGx , if, going down a sequence of arrows, one never comes to a foundational element: $\forall y(x \xrightarrow{*} y \supset \neg FEy)$. Infinitism, I , is the view that every element is ultimately ungrounded: $\forall x \ UGx$.¹⁷ We note that Infinitism allows for the possibility of loops, that is, repetitions in the regress. Thus, we have the following possibility: $x \rightarrow y \rightarrow z \rightarrow x \rightarrow y \rightarrow z \rightarrow \dots$. However, if \rightarrow is transitive and anti-symmetric (T and AS), such loops are ruled out. Infinitism entails Extendability, E . So if I holds we must be in an odd numbered category of our taxonomy (which is not ruled out by other considerations). All such are possible, as simple examples demonstrate. (Merely consider $x_0 \rightarrow x_1 \rightarrow x_2 \rightarrow x_3 \rightarrow \dots$, where these are all distinct. Add in other arrows as required.) Note that if there are at least two elements, then C is a special case of I .

¹⁵ We note that, how, exactly, to cash out the idea of foundationalism is contentious. For some discussion of the matter, see Dixon 2016. We suspect that the notion may be vague, to a certain extent, and so susceptible to different precisifications. The definition we give here is strong, simple, and very natural.

¹⁶ One may, if one wishes, iterate the construction into the transfinite, collecting up at limit ordinals in the obvious way.

¹⁷ We note that Infinitism, also, is certainly susceptible to various precisifications. For example, one might require that only *some* element is ungrounded. Again, the definition we give here is strong, simple, and natural.

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- A final special case. Let $x \rightleftharpoons y$ iff $x \rightarrow y \vee y \rightarrow x$. Then x and y are connected along the dependence relation, xCy , iff for some $n \geq 1$:

$$x \rightleftharpoons y \vee \exists z_1 z_2 \dots z_n (x \rightleftharpoons z_1 \wedge z_1 \rightleftharpoons z_2 \wedge \dots \wedge z_n \rightleftharpoons y)$$

[Everything relates to everything else along some sequence of dependence relations.] \rightarrow itself is connected iff $\forall x \forall y xCy$. In all of the ten possible cases, \rightarrow may be connected or not connected. G is a special case of connectedness; C is an extreme case of connectedness; and A is an extreme case of disconnectedness.

Let us finish this section with an informal summary. The taxonomy is built on four conditions. (i) *Anti-reflexivity*, AR : nothing depends on itself. (ii) *Anti-symmetry*, AS : no things depend on each other. (iii) *Transitivity*, T : everything depends on whatever a dependent depends on. (iv) *Extendability*, E : everything depends on something else. This gives us $16 (= 2^4)$ possibilities. Six of these are ruled out by logical considerations, leaving ten live possibilities. Within these, some special cases may be noted. Atomism, A : nothing depends on anything. Foundationalism, F : everything is a fundamental element or depends, ultimately, on such. F' : Foundationalism, where the fundamental elements and only those depend on themselves. G : Foundationalism where the fundamental element is unique. Infinitism, I : there are no fundamental elements. Coherentism, C : everything depends on everything else.

3 On the Metaphysical Possibility of the Alternatives

So far, we have seen that alternatives to metaphysical foundationalism in general, and the standard view in particular, are logically possible: lines 1–4, 7, 8, and 13–16. One might wonder, however, if they are *metaphysically* possible. In this section, we will argue that they are. But before turning to a discussion of the viability of the alternatives to the standard view, let us first address one particular issue that we will face time and again.

It is quite common to hear friends of the standard view defend their commitments to various aspects of the view by appeal to their intuitions. These philosophers will claim to have intuitions that there is something fundamental, that nothing can ground itself, and so on. Moreover, these philosophers appear to take their intuitions to serve as something like arguments in defence of the view: these philosophers will not only claim to have said intuitions, but also that nothing more needs to be said on the matter. We simply do not share these intuitions. In fact, neither of us has any intuitions whatsoever regarding a subject matter as abstract and *recherché* as the fundamental structure of reality. But, more importantly, we also firmly believe that intuitions are no replacement for actual arguments. That intuitions have been allowed to play the role they have in the dependence/fundamentality debates thus far is, in our view, why alternative views have been so poorly explored, and why actual arguments in defence of the view have been allowed to be so bad.

In what follows, although appeal to intuition is often made in defence of one commitment or another, we will not respond to them further. Our response in each case is as stated here. Let us continue our investigation, then, by turning to a consideration of actual arguments, beginning with the hierarchy thesis.

3.1 *The Hierarchy Thesis*

According to the proponent of the standard view, reality is hierarchically arranged. That reality is like this, we are told, is intuitive and somehow obvious.¹⁸ It has been suggested that to challenge the idea that reality has such a shape, by questioning whether dependence relations are transitive, irreflexive, and anti-symmetric, is preposterous for the reason that metaphysical dependence relations are introduced into the philosophical vernacular *exactly* to capture this aspect of reality. A reason often cited in favour of abandoning talk of supervenience—a symmetric and reflexive relation—in favour of, say, grounding talk, is that we need a relation that can capture reality's hierarchical structure. We agree that *if* metaphysical dependence relations are introduced exactly to allow us to capture the idea that reality has a hierarchical structure, then it makes little sense to call into question the properties that are securing that structure. But the important question, we think, is why we ought to believe reality has such a structure in the first place. And it is when we focus on *this* question that reasons so often offered to commit to the hierarchy thesis look less compelling. Let us now consider them.

3.1.1 ANTI-REFLEXIVITY

In defence of the claim that dependence relations are necessarily anti-reflexive, philosophers have tended to argue that it would be absurd to assume that something can ground itself, or that, given the tight connection between grounding and explanation, as it is a principle of explanation that nothing explains itself, it ought to also be a feature of dependence relations.¹⁹

Let us first consider why one might think it absurd to assume that metaphysical dependence relations can be reflexive. As dependence talk is *about* reality, it is reasonable to wonder if self-dependence is absurd because there is some way that the world would have to be, such that things can depend on themselves, which is unacceptable. But what might this be?

A first worry about self-dependence is that anything that depends upon itself would have to *bootstrap* itself into being. But why think this is a problem? In the case of causation, the problem is apparent: something that is self-caused would have to exist *prior to itself in time* in order to bring itself into existence. But metaphysical dependence relations are typically thought of as being synchronic, so what goes

¹⁸ See Raven 2013 for a well-articulated defence of the hierarchy thesis.

¹⁹ See Jenkins 2011 for a somewhat different discussion of dependence and irreflexivity.

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for causation here does not (necessarily) go for metaphysical dependence.²⁰ As metaphysical dependence relations are thought of as inducing a priority ordering, perhaps the problem, then, is that where the relations are reflexive, the very idea of a priority ordering goes out the window. This may well be the case, but of course this is no *reason* to think that dependence relations cannot be reflexive, for it is just to assert that the relation must be anti-reflexive in the first place. Exactly what is required in order to have a priority ordering is that the ordering relation is anti-symmetric and anti-reflexive.

Anyone with even a passing familiarity with the historical literature would be aware that there is, in fact, precedent for a view according to which there is at least one thing that is self-dependent, namely, Leibniz's account of God. According to Leibniz, God exists, indeed, exists necessarily. He does so because existence is part of his essence; but to say this means, *inter alia*, that God necessarily exists. So God necessarily exists because he necessarily exists. One might wonder, then, if a good reason to reject the possibility of reflexive instances of ground is that anything that is self-grounded would be a necessary being. Now, of course this is only going to be a problem if the wrong things, or kinds of things, turn out to be self-grounded; take, for example, the *fundamentalia*. A potential serious worry, then, is that if the *fundamentalia* are necessary beings, and they ground the being of everything else, then there is only one way the world can be, which is exactly how the world actually is.²¹

Are we compelled, though, to accept this story—the story according to which self-grounded entities are necessary beings? Bliss (this volume) suggests that we are not. But if this is the case, we seem no closer to understanding (i) what reflexive dependence amounts to and (ii) why it is unacceptable. Failing all else, one might simply worry that the idea that anything can depend upon itself is absurd just because it is plain weird. Maybe it is weird (the judgement of which would seem to require knowing what self-dependence actually amounts in), but we struggle to see how self-dependence is any weirder than the commonly held belief that there are some entities that pop into being from nowhere and for no reason at all—which is exactly what the *fundamentalia* are like by most people's lights. Metaphysically speaking, it is not so clear what is so bad about something's being self-dependent.

More compelling, we think, are explanatory reasons for thinking that reflexive instances of dependence are unacceptable. It is a plank in much of the literature on explanation that reflexive explanations are trivial, uninformative, and explanatorily useless. A reflexive explanation, so the thought goes, is as good as no explanation at all. We are inclined to think, though, that whilst there may be something to this, matters here are thornier and more subtle than they appear.²² For a start, not all

²⁰ There are reasons to believe that there are cases of non-synchronic grounding, just as there are cases of synchronic causation. Obviously the intricacies of these issues cannot be covered here.

²¹ See Dasgupta 2016 for a discussion of this view according to which it would not be a problem.

²² See Keefe 2002 for a most illuminating discussion of issues relevant to this debate.

circular explanations are trivial—we have already seen this in the case of God and his explanatory relationship to himself—nor are they necessarily uninformative or useless. After all, coming to understand that something has no further explanation is coming to understand something more about that thing. In the worst case, what we may be dealing with is a problem with explanatory superfluity: something's explaining itself is as good as it having no explanation whatsoever, so why bother permitting self-dependence in the first place.

As things stand, the reasons to disavow self-dependence appear to be fairly thin on the ground. Metaphysically speaking, it's not clear how a world would have to be such that things depend on themselves, leaving us with explanatory considerations. But if this is the conclusion it is hardly welcome. Suddenly the problems with reflexivity appear to be *epistemic* rather than metaphysical which would seem to fly in the face of how the friends of foundationalism understand the overarching structure of reality.

3.1.2 ANTI-SYMMETRY

Let us now turn our attention to anti-symmetry. Advocates of the standard view rely on (some combination of) arguments from intuition, arguments from the data, and arguments from structural similarities with explanation. Appeal is also made to what we might call arguments from relative fundamentality. The argument from relative fundamentality is just a variation on the kind of argument in terms of structure that we mentioned in the introduction to this section. We consider these first.

According to the argument from relative fundamentality 'dependence is intimately connected to (and perhaps even explains or is one and the same things as) relevant notions of fundamentality, priority, grounding, etc. Dependence is the kind of relation that explains the connection between the fundamental and the derivative (the dependent) to the fundamental (the independent). Any relation that plays this role must be asymmetric' (Barnes, this volume). The idea that reality is ordered into a hierarchical structure is a very old one that can be traced back to the Ancient Greeks. Indeed, right the way through the history of the Western tradition, many philosophers have been engaged in some way or other with filling in the details of this picture.²³ That some folks claim to have intuitions regarding the structure of reality is hardly surprising given the pervasiveness of this view (and imagery) in the history of Western thought.²⁴

As Barnes points out, if moving us from the fundamental to the derivative *is* the role that dependence is supposed to play, then it seems right to suppose that dependence must be anti-symmetric. Indeed, as already mentioned, it just follows from the idea

²³ See Lovejoy 1934 for an informative and charming discussion of the notion of the Great Chain of Being and its centrality to the development of Western metaphysics.

²⁴ The idea that reality is hierarchically structured has not only been the purview of the metaphysician, but was also commonplace in the sciences, art, and theology up until the end of the nineteenth century. This view went out of vogue with the momentous changes to our understanding of the world precipitated by scientific developments.

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that reality is hierarchically structured that the structuring relation is anti-symmetric. But exactly what the argument from relative fundamentality does not provide us with is a *reason* to suppose that the relation is anti-symmetric—it simply assumes it. One way to respond to the relative fundamentality argument, then, is to challenge the idea that we have reasons to suppose that reality is hierarchically structured in the first place. To put the point more finely, we can challenge the idea that reality exhibits a robust hierarchical structure by arguing that metaphysical dependence relations are either symmetric (which might generate a species of metaphysical coherentism) or that they are non-symmetric (a weaker claim that may yet allow for a hierarchy to emerge nonetheless).

Whilst we agree that the world appears to present us with cases of anti-symmetric dependence, that dependence relations are necessarily anti-symmetric is not obvious to us at all. As Barnes and Thompson (this volume) argue, some of our most beloved metaphysical theories appear to posit symmetric instances of dependence; or at least make more sense if they do. Consider, for example, Armstrong's account of states of affairs. Armstrong's picture is one according to which atomic states of affairs are ontological rock-bottom with their constituents as abstractions from those states of affairs. The problem with this picture is that the states of affairs really seem to depend on their constituents, with those constituents explaining the nature and existence of those states of affairs. Barnes suggests that if Armstrong were to allow symmetric instances of dependence, then he could have his cake, as it were, and eat it too: atomic states of affairs depending on their constituents, but the constituents depending on their state of affairs.

Theoretical cases aside, consider also the relationship between the north and south poles of a magnet: without the north pole, the south pole would not exist and without the south pole, the north pole would not exist. The list, it would seem, goes on. We appear to have compelling reasons to temper our commitment to anti-symmetry and endorse the more modest suggestion that the relation(s) is non-symmetric.

What about the much stronger claim that dependence is, in fact, *symmetric*? Can the case be made for such a strong view? Well, it can because it has been. As Priest (this volume) discusses, the Chinese Huayan Buddhist tradition endorses a species of full-blown coherentism with everything depending symmetrically upon everything else.²⁵

It has been suggested that as metaphysical dependence is intimately involved with explanation, we can infer from the structural properties attributed to (good) explanations on some models that metaphysical dependence relations also share such properties. As explanations are anti-symmetric, so the objection goes, so too are dependence relations. But as both Barnes and Thompson (this volume) point out, there are alternative (very good) explanatory models on which explanations are not

²⁵ See also Priest 2014, esp chapters 11–13, for a contemporary presentation of a coherentist picture inspired, in part, by Huayan.

necessarily anti-symmetric. Indeed, according to Barnes and Thompson, explanation as understood wholistically, may well do a better job of capturing certain aspects of our everyday and theoretical explanatory praxis.

That metaphysical dependence relations are introduced to capture reality as hierarchically structured does not provide us with a reason to think reality has that structure in the first place. Although ‘the data’ suggests that some instances of dependence relations are anti-symmetric, this is also no reason to suppose that the relation is in general. Indeed, the cherry-picking of instances of dependence relations that appear to be anti-symmetric to use as our paradigmatic cases of dependence ought not blind us to the presence of other instantiations of the relation that are plausibly thought to be symmetric. All told, there seems to be good reasons to suppose that metaphysical dependence relations are at least non-symmetric.

3.1.3 TRANSITIVITY

There is something natural-seeming about the idea that metaphysical dependence relations are transitive. Where a person depends on their vital organs, it also seems true that they depend upon the cells that compose those vital organs. However, a number of authors, including Nolan (this volume), have pointed out that at the very least, we could well allow that some instances of dependence relations fail to be transitive, and hold a view according to which metaphysical dependence is non-transitive.

Why question the transitivity assumption? Well, one good reason is that reality appears to present with *actual* cases of failures of transitivity. Schaffer asks us to consider the following propositions: (1) the fact that *o* has a dent, *d*, grounds the fact that *o* has shape *S*, (2) the fact that *o* has shape *S* grounds the fact that *o* is more or less spherical, and (3) therefore, the fact that *o* has a dent grounds the fact that *o* is more or less spherical. If grounding were transitive, then we would expect this argument to go through but, Schaffer argues, it does not because *o* ‘is more-or-less spherical despite the dent, not because of it.’²⁶ As far as Schaffer is concerned, the fact that *o* has a dent *does not* ground the fact that *o* is more or less spherical, in which case grounding is not necessarily transitive.²⁷ Or consider other problematic cases: singleton Obama is dependent upon its member Obama, and Obama is dependent upon his parts, and yet we might well not want to say that the existence of Obama’s heart (partially) explains the existence of singleton Obama.

One way to respond to these sorts of cases is to point out that dependence is not univocal. What one might think is going on in these cases is the chaining together of instances of dependence relations that don’t, in fact, properly belong together. One might try and argue, for example, that the way in which a singleton depends upon

²⁶ Schaffer 2012, p. 127.

²⁷ This is not the only purported failure of transitivity that Schaffer presents us with. See also Raven 2013 for a defence of the thought that grounding is transitive.

its member is different to the way in which the member depends upon its parts.²⁸ Were one to pursue such an approach, however, one must remain mindful of the costs such an approach might incur: do we really want or need a proliferation of species of dependence relations, for example?²⁹

Another approach might be to distinguish between relations of *mediate* and *immediate* dependence, where the former is transitive and the latter is not. Indeed, in the literature, philosophers have suggested that we should take seriously a distinction between immediate and mediate dependence.³⁰ Purported failures of transitivity can then be understood as involving the transitive closure of an intransitive relation. So what appears to be a failure of transitivity, in fact, involves a case of mistaken identity.

There are advantages to admitting a distinction between a transitive and a non-transitive species of the relation. On the one hand, it allows us to avoid a proliferation of relation-types in response to the purported problem: where part/whole relations are a species of dependence relation, truthmaking another and so on. And, on the other hand, it allows for certain possibilities. Nolan (this volume) suggests, for example, that some species of dependence, or instances of the relation, may fail to be transitive allowing the possibility of giant cosmological loops. And more generally, where there is a species of the relation that is intransitive, loops of various sizes could be admitted *without* being forced to sacrifice anti-symmetry and anti-reflexivity. All told, there are reasons to doubt that metaphysical dependence relations are necessarily transitive. Not only do we appear to be in possession of counterexamples to the transitivity thesis, but we have reasons to suppose that admitting an intransitive species of the relation to our repertoire would be to our advantage.

Of course there is so much more to be considered regarding the widespread commitment to the hierarchy thesis, and the possible alternatives to it. Rabin (this volume) believes that unorthodox accounts of grounding allow us to better capture the layered conception of reality. Looking to other traditions, as Priest (this volume) does, we can see that a number of accounts from the Asian Buddhist traditions, for example, reject the idea that reality is hierarchically structured. Anyone seriously interested in non-standard conceptions of the structure of reality would do well to look beyond the Western canon. And Litland (this volume) argues that, what he calls a bi-collective account of ground, may have interesting applications for certain types of coherentist structures.

²⁸ Consider what happens when we say that Harry banks on Sally and Sally banks on Tuesday. No one would claim that, therefore, Harry banks on Tuesday. Nor would anyone claim that the relation *banking on*, as demonstrated by this example, is not, therefore, transitive. What we would be inclined to say is that the expression 'banks on' picks out different relations in the two cases.

²⁹ See Wilson 2014 for a defence of the claim that all we need are the many different kinds of small-g grounding relations with which we are familiar—supervenience, parthood, etc.—rather than one big-G grounding relation.

³⁰ See, for example, Fine 1994, 1995, and 2013 for discussions of such possibilities as regards both ontological dependence and grounding.

3.2 *The Fundamentality Thesis*

One might well have the impression that nary a paper is produced in analytic metaphysics these days that does not make reference to the notion of fundamentality.³¹ Somewhat surprising, then, is the dearth of good arguments available in the literature in defence of the fundamentality thesis. Broadly construed, there appears to be at least three types of argument on offer. The first of these, as might be expected, are arguments from intuition; the second of these are arguments from vicious infinite regress; and the third, arguments from theoretical virtue. In keeping with our promise above, we desist from discussing arguments from intuition and turn immediately to regress arguments.

3.2.1 REGRESS ARGUMENTS

What explains the fact that we exist? A good place to start will surely involve appeal to facts about the existence of our parents and the genetic material they have bequeathed to us, our vital organs, and so on. Of course, we are causally dependent upon our parents, but we are also *metaphysically* dependent upon them: it's not simply that our parents cause us to exist, but they also ground our existence as well. Although the story of the existence of any one of us is metaphysically complex, most of us would feel confident in assuming that we have some rough idea of how to tell it. Suppose, now, that we also wish to explain the existence of our parents and our vital organs. Again, a complex matter, but surely one that will involve appeal to their parents—our grandparents—and the cellular structure of the organs and so on. At each stage, it would appear as though we have explained something about the entities for which we are seeking an explanation, and that this process could go on successfully without termination. But exactly what the fundamentality thesis tells us is that it doesn't (or can't) go on forever, and a justification for this position is going to have to tell us why this is the case.³²

One obvious seeming thought is that where we have limitless descending dependence chains, although we have explained something (probably even a lot), we haven't yet explained *everything* that we need an explanation for.³³ Or another thought might be that where we have limitless descending dependence chains, although we have explained something, we haven't yet arrived at an explanation that is complete, or at least *completely satisfactory*. And, of course, there is a way of understanding these two explanatory concerns that is intimately related, for an explanation will surely be

³¹ One needs not only be reading from the dependence/fundamentality literature to notice this. Appeal to fundamentality is made in the literature ranging from topics as diverse as the philosophy of mind to aesthetics and ethics, to offer but a few examples.

³² See Bliss (forthcoming), from which much of the following discussion in this section is borrowed, for a more sustained elaboration of these thoughts.

³³ See Bliss 2013.

unsatisfactory exactly when we have failed to explain everything that we need an explanation for.

Both of these kinds of concerns are echoed by various authors in the literature. Schaffer, for example, claims that where there is nothing fundamental ‘being is infinitely deferred and never achieved.’³⁴ Dasgupta suggests that it is at least plausible to think that we might justify our commitment to fundamentality as ‘the desire for this special kind of explanation . . . in which one looks at the surrounding mountains and oceans and thinks “good grief, how come it all turned out like *this?*”’³⁵ Where the ‘special kind of explanation’ he refers to is exactly the kind of explanation we *don’t* have when we point out that mountains depend upon arrangements of matter in space, and so on. Although concluding that the best reason we have for supposing that there is something fundamental is that it would be better to have a unified explanation of everything that needs explaining, Cameron also states that ‘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 for 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 .’³⁶ And finally, concerned with satisfaction, Fine suggests that ‘. . . given a truth that stands in need of explanation, one naturally supposes that it should have a “completely satisfactory” explanation, one that does not involve cycles and terminates in truths that do not stand in need of explanation.’³⁷

An unfortunate consequence of the alleged obviousness of the fundamentality thesis is that remarks such as these are seldom presented in the form of arguments in the literature. It is not uncommon, nor unreasonable, to suppose that comments such as these can be reconstructed in the form of arguments from vicious infinite regress. One might suppose, for example, that where there is nothing fundamental, a regress is generated, and it is vicious because it leaves us without an explanation for something that we think needs explaining, or that we are left without an explanation that is completely satisfactory.

We think, however, that there is a simpler way of reconstructing arguments in defence of fundamentality of this stripe that does not make direct appeal to arguments from vicious infinite regress.³⁸ Reconstructing the arguments after such a fashion has the added advantage of allowing us to bring to the fore an assumption crucial to the foundationalist view that appears to have gone largely unnoticed in the literature.

One way of reconstructing the kinds of claims mentioned above as arguments requires two assumptions. The first of these is an assumption that stipulates an

³⁴ Schaffer 2010, p. 62.

³⁵ Dasgupta 2016, p. 4.

³⁶ Cameron 2008, p. 12.

³⁷ Fine 2010, p. 105.

³⁸ This approach also fits with our view—which we have argued for independently—that the infinite regress is, in most cases, never the disease but, rather, a symptom. See Bliss 2013 and Priest 2014, 1.4.

explanatory target. Such a stipulation might make appeal to something that needs to be explained; or it might make appeal to a type of explanation. In light of the discussion above, our explanatory targets might include (i) why anything has being whatsoever, (ii) why things turned out this way rather than any other, or (iii) that we need completely satisfactory explanations of everything that we think needs explaining.

But note that having stipulated what our explanatory target is, or could be, we do not yet have an *argument* in defence of fundamentality. For it is not enough that we know that there is something that needs explaining, or some particular kind of explanation that we are after, but we also need an assumption that tells us that no dependent entity is up to the task to hand. Arguments in defence of fundamentality rely, crucially, on a second assumption which tells us that no dependent entity can do the kind of explanatory work that we are after.

For the sake of economy let us reconstruct two possible arguments in defence of fundamentality; arguments that are congruous with suggestions made in the literature.³⁹ Assuming that the world divides exclusively and exhaustively into the fundamental and the derivative:

Argument I

1. There is an explanation for why anything has being whatsoever.
2. No dependent entity can explain why anything has being whatsoever.
3. Therefore, there must be something fundamental.

Argument II

1. There is a complete metaphysical explanation for things that have metaphysical explanations.
2. No dependent entity can generate a complete explanation for things that have metaphysical explanations.
3. Therefore, there must be something fundamental.

What are we to make of these arguments? In particular, are these good arguments in defence of the fundamentality thesis? Let us begin by considering the first assumption of our first argument. It seems obvious that what is at issue on this kind of reconstruction is a variation on an old theme: the cosmological argument. Understood in this way, the foundationalist is concerned to answer some version or other of a cosmological question. Indeed, many historically important figures have been engaged with such explanatory projects, including, as Casati (this volume) points out, Heidegger. Foundationalism, so understood, is of course not motivated by a concern to establish an ultimate *cause* of reality, but, rather, by a concern to establish an ultimate ontological *ground*.

³⁹ We are of the view that many of the philosophers who worry about the grounds of being, or explaining the existence of everything, and so on, are, in fact, circulating roughly in the same waters. These philosophers are concerned with age-old questions such as why are there any beings whatsoever.

Before assessing the merits of these arguments, it is interesting to note that their very appearance would appear to be in tension with what is a common view amongst contemporary analytic thinkers. Inspired by Hume, it is not uncommon for philosophers to suppose that having explained the existence of this thing here, and the existence of that thing there, everything that needs a (causal) explanation has one. This is just to say that, following Hume, many folks are of the view that there is nothing left over that needs to be explained and therewith, no blazing cosmological questions that demand an answer. Indeed, some philosophers have even gone so far as to claim that cosmological questions are ill-formed and non-sensical.⁴⁰ It is an item of curiosity why it is, then, that in the causal case, cosmological arguments (and the kinds of questions they are offered in response to) are passé and, yet, in the metaphysical case they are not. This is not to say that there is not a principled reason for the difference, but that it would be nice to know what it is.

Sociological observations aside, there is what we believe to be a considerable concern with the use of cosmological questions to motivate metaphysical foundationalism: they appear to rely on an application of the principle of sufficient reason (PSR). Although there may be a suitably constrained version of the principle in the vicinity, the employment of the full-blown principle—according to which *every thing* has an explanation for its existence—to motivate foundationalism would be a disaster for the view: exactly what the foundationalist believes is that not everything has an explanation. Metaphysical foundationalism, so motivated, runs the risk of pulling the rug out from beneath itself.

Let us now turn to the second argument and consider the thought that there is a complete metaphysical explanation for things that have metaphysical explanations. We do not wish to be distracted by how we have formulated the assumption here. Whether we formulate the target as *all* or only *some* things that have metaphysical explanations have complete explanations, what we are concerned with is why we should think *anything* that has a metaphysical explanation has a complete one in the first place. So what can we say about this assumption? One might suppose, as Fine does, that it is a plausible demand on explanations that they be completely satisfactory. Alternatively, one might be of the view that, independently of any general explanatory considerations, it is a plausible demand on metaphysical explanations *in particular* that they be completely satisfactory.

But there appears to be a lot to be concerned about with the first assumption in our second argument as well. First and foremost, there is a way of understanding the assumption that looks as though it simply begs the question. We assume that no argument in defence of fundamentality can contain an assumption from which it follows that there is something fundamental. But the demand that some (or all) of our metaphysical explanations be complete just seems to be the demand that those

⁴⁰ See Maitzen 2012 and 2013.

explanatory chains terminate, which, of course, is just to say that there must be something fundamental.

A good reason to think that our metaphysical explanations ought to be complete is that there is something wrong with explanations (in general) that are *incomplete*. But explanations are not typically rendered defective by dint of being incomplete. If someone wants to know why their window is broken, a story that makes appeal to the storm the previous night would be adequate. It is simply not the case that an explanation for a broken window is rendered defective in virtue of its failing to make appeal to the origins of the universe. Of course, what goes for causal explanations needs not go for metaphysical explanations, and the foundationalist may well be better off making recourse to the idea that there is something special about metaphysical explanations in particular which means they must be complete.

We think it is worth pointing out at this juncture that there is something of an odd tension between the demand, on the one hand, for completely satisfactory explanations *that can only be achieved by terminating our dependence chains* and, on the other hand, the notion of a *full ground*. Let us suppose that singleton Socrates—{Socrates}—is fully grounded in Socrates. The way we are often encouraged to understand what full grounding amounts to is that, in this case, the existence of {Socrates} is fully explained by the existence of Socrates. If, however, where the non-terminating dependence chain of which these two are members leaves us with an incomplete or a not completely satisfactory explanation of {Socrates}, this would indicate that Socrates doesn't completely explain {Socrates} in the first place. If, on the other hand, Socrates does completely explain the existence of {Socrates}, then there must, in fact, be something else at issue such that our explanations are not satisfactory unless there is something fundamental.

Returning to broader explanatory considerations, one thought might be that whilst causal explanations may be incomplete, metaphysical explanations cannot be, for it is the purview of metaphysical explanations to afford us a complete explanation of reality. We can't help but think that something a bit slippery has gone on here, though. First, where there is something fundamental, exactly what we don't have is a complete explanation of reality, for we have the *fundamentalia* that are unexplained. Second, this proposal looks a lot like a cloaked version of the question-begging insistence that there is something fundamental mentioned above.

Let us turn now to a consideration of the second assumptions in our arguments. As pointed out above, to note that there is something that has not yet been explained, is not yet to have an argument in defence of fundamentality. What is further required is an assumption that stipulates that no dependent entity is up to the task to hand. Without such an assumption, we have no need to move beyond the collection of dependent entities and, thus, no need to posit the existence of something fundamental. If our foundationalism, however, is to be well motivated, we need to know why this is the case. We need an answer to the question, why can't any dependent entity explain where, say, being comes from?

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We think there are at least five *prima facie* plausible reasons to suppose that no dependent entity is able to be invoked to explain that for which it is being invoked. We list these as follows: (a) the reflexivity objection; (b) the never-ending questions objection; (c) the same questions objection; (d) the predicate-satisfaction objection; (e) the same kind objection. We discuss each in their turn.

Some versions of cosmological arguments to the existence of God arrive at their conclusion by pointing out that no contingent thing can explain why there are any contingent things at all on pain of violating an anti-reflexivity assumption. They claim that as any contingent thing would be amongst the collection of things to be explained, were something contingent to explain why there are any contingent things at all, then the collection would be self-explanatory. Or put slightly more formally, let [A] be the state of affairs described by A. Suppose that there only two states of affairs, [A] and [B], and that [A] causally explains [[A] and [B]], then [A] causally explains [A] (and [B]). One might think that an analogous worry is what motivates the metaphysical foundationalist. The worry in this case would be that where [A] grounds [[A] and [B]], [A] grounds [A] (and [B]).

We think there are at least two reasons to reject this concern as a reason for accepting the second assumption of the proposed foundationalist argument. The first of these pertains to understanding the explanatory target as a conjunctive fact. Cashing out the foundationalist concern over the ground of being in terms of a giant conjunctive fact doesn't seem to really respect the concern that is driving the view in the first place. Moreover, the logic of ground, as it is commonly understood, is such that conjunctions are grounded in their conjuncts—exactly what explains the super conjunction are its conjuncts. Our second reason for rejecting this way of understanding the foundationalist concern also relates to the logic of ground. Although [[A] and [B]] *necessitates* [A] and [B] it does not metaphysically explain them. Quite on the contrary, as we have seen. The reflexivity objection, we would like to suggest, provides us with no good reason to suppose that no dependent entity can explain why anything has being whatsoever.

Perhaps the reason we ought to endorse the second assumption, then, is that were our chains not to terminate we would be forced to ask a never-ending series of questions: dependent entities, by their very nature, have explanations, and for every new dependent entity that we invoke, we can ask of it 'why does this thing exist?' (or something of the like) *ad infinitum*. It's not hard to see how some of the concerns extant in the literature can be understood in these terms. Exactly what a never-ending series of questions would seem to leave us without is a completely satisfactory explanation, for example.

Once again, we find this line of reasoning—the never-ending questions' objection—wanting. Why? In short because it appears to us to beg the question. When do we cease to ask questions? When we arrive at the existence of something that does not demand that we ask of it certain (relevant) questions. And when do we arrive at the existence of such a thing? When we arrive at something fundamental, of course. To insist that

our explanatory chains terminate is just to insist that there is something fundamental. Or put another way, to insist that our explanations be completely satisfactory is just to insist that there is something fundamental.

What would not be a question-begging motivation for endorsing the never-ending questions' objection would be if we had an *independent reason* for endorsing it: a reason over and above the mere stipulation that explanatory chains need to terminate. An independent reason to endorse the *never-ending questions* objection might just be that where we are forced to keep asking questions this must be because we haven't answered the question we are seeking an answer to in the first place. This is one way we might interpret Schaffer's concerns over the grounds of being, for example. Where of each new thing we are compelled to ask 'and what explains the being of this thing?' one might suppose we have not really answered the question that we were seeking an answer to in the first place.

Be that as it may, this reason to endorse the second assumption of the argument is peculiar. Our reason for thinking so is that it seems to trade on a confusion. Where we are forced to ask a never-ending series of questions, the problem may not be that the chain does not terminate, but that one may be going about answering the question in the wrong way. Put differently, the never-ending questions are not themselves the disease, but, instead, a symptom of a deeper problem.

Interesting as this may be, this is not a good reason to suppose that no dependent entity can explain where being comes from. Why? Let us grant that the series of never-ending questions and answers is generated because we are going about answering the questions in the wrong way. But if this is the case, what good will terminating the chain do? How does terminating the chain at some, likely arbitrary, point solve our problem if the problem is generated by a mismatch between question and answer in the first place? It is hard to see how it could. Moreover, what reason could we have for supposing that our answers are incorrect? If this reason for endorsing the second crucial assumption is to play the justificatory role that we need it to, it cannot be because we are lumbered with a never-ending series of questions and answers because no dependent entity can explain why anything has being whatsoever. Exactly what we appear to be left without is a motivation for the assumption.

Let us turn, then, to the *same questions* objection. Suppose one of us were to ask you why there are any flamingos whatsoever. Suppose that you responded that there are flamingos because there are an enormous number of them living in the Rann of Kutch. Dissatisfied with your response, we might press you and say, 'Ok, fine. So why are there those flamingos?' Were you to respond by pointing out that those particular flamingos exist because their parents existed, we would be forced to suggest that you seem to be missing the point. Whilst it is surely true that the particular flamingos presently inhabiting the Rann of Kutch exist because their parents existed, no number of flamingos can help us explain why there are any flamingos whatsoever. By parity of reasoning, no dependent entity—entity with being—can help us explain why there are any beings whatsoever. What is going wrong in both of these cases is that we are

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*invoking the very thing for which we are seeking an explanation in our explanans.*⁴¹ The problem is *not* that we have an infinitude of explanations, but rather that things go badly out of the gate. We are forced to keep asking the same question because we simply never receive an answer to it.

Whilst we find this line of reasoning compelling, what it seems to supply us with—as with one interpretation of the never ending questions’ objection—is more a restatement of the principle for which we are seeking a justification and less a justification itself. The *same questions* objection seems to presuppose the idea that no dependent entity can explain where being comes from rather than justify it.

But perhaps there is some principle lurking in the background here according to which where *F* is any predicate that applies to dependent entities only, you can’t explain why there are any *F* things at all by invoking only those things that are *F*, even if your explanations go on forever.⁴² Let us call this principle the *predicate satisfaction principle*. According to the predicate satisfaction objection, no dependent entity can be invoked to explain why anything has being whatsoever because this would violate the predicate satisfaction principle.

Although plausible seeming, we don’t think this is the right reason to endorse our second assumption. The reason for this is that we *do* seem to allow explanations where the *G* things explain the *F* things, but all the *G*s happen to be *F*s as well: all that is required to explain why there are any *F* things at all is the *G* things that happen to be the *F* things as well.⁴³ Consider explanations of pain in terms of C-fibre firings. Anything that satisfies the predicate ‘being in pain’ will also satisfy the predicate ‘has C-fibre firings’, according to an appropriate version of physicalism, for example. As much as we can explain why there are any pains at all, some theories do so in terms of C-fibre firings, even though what satisfies the former predicate will also satisfy the latter. Or how about the predicate ‘is the auditory threshold for the normal human ear’? Let this predicate be denoted by *F*. The instantiation of this predicate is explained by the *G* things—‘sounds falling within a range of 16 to 32 hertz’—where everything that is a *G* is also an *F*. Other, non-scientific, examples also come to mind. Let *F* be ‘is money’ and *G* be ‘is used as money’, for example. At first blush, the predicate satisfaction principle appears intuitive and plausible, but it seems to be a principle stronger than one that we ought to accept. We frequently explain why there are any *F* things by making appeal to things that are, in fact, *F* things. So let us set this principle aside.

Finally we come to what we call the *same kind* objection. According to this objection, no member of a kind can explain why that kind exists at all. A reason to endorse our second assumption would be that no dependent thing can explain, say,

⁴¹ See Bliss 2013 and Passmore 1970.

⁴² See Maitzen 2013, p. 263 for the formulation of the principle from which the one here was borrowed.

⁴³ See Keefe 2002 for a discussion of ways in which explanations that fit this structure can be unproblematic, and Maitzen 2013, p. 264 for an elaboration of the same point.

why anything has being whatsoever because dependent things form a kind and no member of a kind can explain why that kind exists at all. Again, at least one of us finds this argument compelling (which is not to say it is well motivated!). And allusion to the idea that no member of a kind can explain why that kind exists at all can be found at various places in the literature.⁴⁴

The argument also appears to be in keeping with at least one of the aforementioned motivations for foundationalism. Let us return to the idea that metaphysical explanations must be complete because it is the job of a metaphysical theory to give us a complete story of reality. In previous remarks, we suggested that there is at least one problem with this understanding of foundationalism *cum* metaphysical theory of everything: it leaves something out, namely, the *fundamentalia*. What appears to be implicit in this line of reasoning, however, is the idea that what we need an explanation for is all the *dependent entities*. It at least accords with foundationalism understood in this way that the world carves into two fundamental kinds—the derivative and the fundamental—and that whatever is of the same kind as the derivative cannot explain why there are any derivative things in the first place.

Understanding what motivates foundationalism in these terms, and as ultimately being motivated by the same kind of objection, whilst plausible, brings with it its own problems. There are going to be difficult issues associated with the thought that ‘dependent entity’ and ‘fundamental entity’ are kind-terms. Where ‘dog’ seems like a good example of a kind term, it is less clear that ‘dependent entity’ is. Secondly, foundationalism, so motivated, seems to land us in the awkward position whereby the *fundamentalia* are invoked to explain the being of the dependent entities, but the being of the dependent entities also explains the *fundamentalia*!

3.2.2 ARGUMENTS FROM THEORETICAL VIRTUE

To the best of our knowledge, only one philosopher, Cameron, has explicitly endorsed an argument from theoretical virtue in defence of the fundamentality thesis.⁴⁵ Cameron argues that a theory of reality on which we have a unified explanation of everything that needs an explanation is more virtuous than one on which we have no such unity. And metaphysical foundationalism, unlike its rivals, is just such a theory, according to Cameron.

In addition to the argument from theoretical virtue that is available in the literature, one can imagine other possible arguments in the same spirit in defence of the fundamentality thesis. One might argue, for example, that metaphysical foundationalism has the virtue of being parsimonious where its rival, metaphysical infinitism, does not. Just as one might argue that foundationalism is simpler or more elegant than coherentism.

⁴⁴ See Lowe 2003, p. 91.

⁴⁵ Cameron 2008.

Arguments from theoretical virtue are not designed to determine whether a theory is impossible. Rather, their role is to help us adjudicate between theories that we already believe to be possible. No argument from theoretical virtue, then, can lead us to conclude that any one from amongst our theories is to be stricken from our list of possibilities. But of course, what these arguments can do is help us make choices as to which of our theories are better than the others.

That said, arguments from theoretical virtue are tricky, it seems, at least twice over. On the one hand, how we are to understand the virtues is a matter of contention. And, on the other hand, how the virtues interact with one another can make it hard to determine, in some cases, when a theory is, in fact, better than another.

Consider the thought that foundationalism is more parsimonious than infinitism. Are we to understand this as a claim regarding quantitative or qualitative parsimony? If it's the former, it is not entirely clear why we should believe this to be the case. Moreover, it is not clear why we should believe that any foundationalist could, in fact, run such an argument. Even though the infinitist denies that there is a fundamental level, and is, therewith, committed to infinitely descending chains, foundationalism says nothing about the number of entities that reside at the fundamental level; or any other for that matter. It is not at all obvious, then, that infinitism is more ontologically splashy than foundationalism after all, if what we are concerned with is the number of things. Things may look differently, however, if what we are counting are the levels themselves. Foundationalism does seem to do better as it does not commit us to ever deeper layers or levels. But again, things here aren't as straightforward as they might appear. Were the world to be open at the top—with infinitely ascending layers, then whether or not there is something fundamental makes little difference to the parsimony of either view.⁴⁶ Of course, it is not unreasonable to suppose that the world is closed at the top, but how both infinitism and foundationalism fare in terms of quantitative parsimony will be both complex and intimately involved with additional commitments.

More often than not, what philosophers claim to be concerned with is qualitative rather than quantitative parsimony. But here, again, matters do not appear to be straightforward. Which view is more parsimonious than the other will depend upon which kinds we think are there to be counted. On one way of carving up the space, metaphysical infinitism is, in fact, more parsimonious than foundationalism; where foundationalism has two fundamental kinds (the derivative and the fundamental) infinitism only has one (the derivative). Suppose one were to argue, instead, that qualitative parsimony pertains to *kinds* and not *categories*, and that terms such as 'fundamental thing' are category terms. What we ought to count, so this argument goes, is all the cats, protons, and wave functions (rather than derivative and fundamental things), and that where there is nothing fundamental there is surely an obnoxious

⁴⁶ See Bohn 2009 and Schaffer 2010 for contrasting discussions of this possibility.

number of kinds instantiated in the world. But even here, if we want to push such an argument through, we require some additional assumptions. We would need to assume, for example, that for the foundationalist there is only a finite number of kinds of things that reside at the fundamental level. Alternatively, it might be the case, as has been suggested by Tahko (this volume) that below a certain level for the infinitist there are repetitions. It is possible, then, that in spite of not committing to a fundamental level, the infinitist is still not committed to there being an infinite number of kinds in the world.

Matters are more complex still when we consider virtues such as simplicity or explanatory power. One might suppose that a reality with a hierarchical structure and a fundamental level is simpler than one on which, say, everything depends on everything else. But why this is the case is not altogether clear. It certainly *seems* simpler, but that could just be because it is the picture in terms of which most of us are accustomed to thinking. Arguably, a picture of reality on which everything is at the same level is simpler than one that contains multiple levels.

Just as it is not clear which one of our theories wins the prize regarding explanatory power. On the one hand, foundationalism looks to do well as the presence of a fundamental level allows us to explain the existence of everything else. On the other hand, anti-foundationalisms look to do better as there is nothing that is posited that does not have an explanation. The balance could tip here, however, if it turns out that where there is nothing fundamental there *is* something that is unexplained. As we have seen in the discussion above, what anti-foundationalisms might leave us without an explanation for is, say, why anything has being at all. But of course, this is its whole own additional commitment that, as we have seen, brings with it its own potential strife.

Much work remains to be done on the virtues of metaphysical foundationalism and its alternatives. What we think the outcome of such work will be is that it is far from clear that metaphysical foundationalism is obviously the most virtuous of the theories available to us.

Of course there is much more to be said regarding the fundamentality thesis and the kinds of arguments offered in defence of it. Bohn (this volume) argues that we do not have good reasons to support the fundamentality thesis. Moreover, he argues in addition to this that we even have good reasons to think that it is false once we consider arguments involving gunk, junk, and hunk, and what he calls the *metaphysical principle of sufficient reason*. Trogdon (this volume) suggests that we can better understand Schaffer's concern over the grounds of being in terms of the notion of *reality inheritance* and that the argument so understood doesn't work. This is not to say, thinks Trogdon, that we, therewith, have no argument(s) in defence of the fundamentality thesis, but that we need to understand fundamentality (as motivated by the inheritance principle) as a kind of *causal foundationalism* or *concrete foundationalism*. Jago (this volume), on the other hand, proposes an account of a thing's nature or essence that can allow us to provide grounding conditions for that

thing. Essences, so understood, vindicate the hierarchy thesis as endorsed by the proponent of the standard view, but allow that the relation may be non-well-founded.

It is somewhat surprising that the literature on metaphysical dependence and different kinds of structuralisms are not brought more often into dialogue with one another. Wigglesworth (this volume) argues that there are species of mathematical structuralism that can plausibly be understood (i) to involve metaphysical dependence relations and (ii) to challenge almost all of the structural features typically attributed to those relations. In particular, he argues, there are species of structuralism that involve both infinitely descending grounding chains and something fundamental. Tahko (this volume) argues that standard accounts of fundamentality are generally framed in terms of a kind of atomism. He argues that the fundamentality thesis, so understood, has problems accounting for the picture of reality that emerges from certain kinds of structuralisms. In place of this he proposes an account in terms of *ontological minimality* which, interestingly, can accommodate both species of fundamentality and infinitism. Morganti (this volume) undertakes a more general investigation of alternative conceptions of physical reality. In particular, he defends the idea that physics may well be able to be interpreted as supporting both infinitist and coherentist structures, supporting a kind of pluralism about metaphysical structure.

3.3 *The Contingency and Consistency Theses*

We come now to a consideration of the contingency and consistency theses. We discuss each in their turn. As Wildman (this volume) correctly points out, how fundamentality intersects with modality is a spectacularly under-explored topic in the current grounding literature. It is safe to assume, however, that the standard view is one on which the fundamentalia are contingently existent. Of course, it is not necessary for a foundationalist to believe that the fundamentalia are merely contingently existent. Indeed, paradigmatic accounts of fundamentality have it that the fundamentalia are necessary beings: consider God or Plato's forms, for example. The problem for such views, however, is how we are to preserve contingency in the world, for where the fundamentalia are necessary beings, and beings that necessitate the existence of everything else, there is only one way that the world can be, namely exactly how it actually is.⁴⁷ Not everyone agrees that this problem is as serious as it sounds. Dasgupta, for example, has argued that a sufficiently constrained picture of reality on which the fundamentalia are necessary existents (facts about essences in his case) is plausible and appealing in certain ways.⁴⁸

In his contribution to this volume, Wildman argues that there is a further issue related to the contingency thesis that has, thus far, not been treated in the literature. Whatever the modal status of the fundamentalia, is being fundamental itself a

⁴⁷ See Skiles 2014 for a defence of the thought that grounding does not involve necessitation and Trogdon 2013 for a defence of the thought that it does.

⁴⁸ Dasgupta 2016.

necessary or merely contingent property of the fundamentalia? Whilst a number of combinations of views are possible—where the fundamentalia are, say, necessary beings and necessarily fundamental—Wildman argues that several prominent accounts appear to assume that the property of *being fundamental* is a merely contingent property of the fundamentalia. Wildman aims to explore how one might go about thinking about the intersection between modality and fundamentality, and argues that the contingency of fundamentality is not as problematic as one might suppose.

Let us turn to the consistency thesis. Although one of us has developed and defended vigorously both logics and metaphysical accounts according to which contradictions are tolerable or even actual,⁴⁹ there is no denying that the idea that contradictions are insufferable is a stalwart in the Western tradition. As noted above, some philosophers have been willing to question the first three of the foundationalists' core commitments, but to the best of our knowledge, no one, to date, has challenged the thought that whatever properties grounding structures have, they have them consistently.

As we have seen, in the case of the first three of the foundationalist's commitments, philosophers have either offered, or it is at least possible to see, what the reasons might be for defending or rejecting any of these commitments. In the case of the consistency thesis, were a philosopher to defend their commitment, they would likely make appeal to the host of arguments commonly levelled against inconsistencies already available in the literature. We have no desire to rehearse or discuss the relevant arguments here.⁵⁰ In the final paper in this collection, Casati develops an account of the 'second Heidegger' according to which we can understand him as espousing a kind of *para-foundationalism*; where the grounding structure both is and is not anti-symmetric, anti-reflexive, and extendable. One way of making sense of the later Heidegger, argues Casati, is to bite the bullet, accept that he endorses contradictions, and with it, a view according to which the grounding structure has inconsistent properties.

Let us return momentarily to the taxonomy presented in §2. Recall that there were a number of lines—combinations of formal properties—that we dismissed as impossible. We said, for example, that the dependence structure cannot be symmetric, transitive, and anti-reflexive. Our taxonomy, along with every paper with one exception in this volume, has assumed the consistency thesis. In our taxonomy, we rule out multiple views as impossible on the assumptions that for each of our four formal properties a grounding structure either does or does not have (but not both) that property. Our taxonomy assumes consistent axioms and rules out as impossible any combination of views that, in spite of this, yields an inconsistency. But the kind of view presented by Casati does not appear in our taxonomy for the reason that, unlike us, the axiomatic system he proposes is itself inconsistent—a view so radical that it does not appear on our taxonomy in order to be ruled out in the first place. Rather

⁴⁹ See, e.g. Priest 1987, 2006.

⁵⁰ Discussion can be found in Priest 2006.

than return to the same old arguments in defence of consistency, and the arguments against them, we prefer to say a few words about why one might go to the trouble of challenging the consistency thesis to begin with.

The history of philosophy (East and West) is a history littered with accounts that are plausibly construed as harbouring contradictions. This is not to suggest that the history of philosophy is a history of dialethism, for, indeed, many of The Greats found themselves deeply troubled by the appearance of contradictions in their systems. What it is to suggest is that many interesting and important philosophical accounts have invariably involved contradictions, and that one way of dealing with these contradictions is just to accept them. Of course, contradictions can crop up all over the place, but what we are particularly interested in are accounts of the structure of reality—accounts that are plausibly construed as being couched in the language of metaphysical dependence relations—that involve contradictions.

Consider the picture of reality espoused by twentieth-century Japanese thinker Nishida.⁵¹ What emerges from his writings in influential texts such as his *Basho* is the idea that to be an object just is to be enplaced—what it is for an object to be a cat is to lie in the place ‘being a cat’. In the same way, a cat lies in the place ‘being a mammal’, and a mammal lies in the place of ‘being an animal’, and so on and so forth. This cannot go on forever, thinks Nishida, and there is the ultimate place—the place of all places—which for Nishida is absolute nothingness (which also happens to be pure consciousness). Importantly, if the place of all places is to do the work required of it, it must not, itself, lie in a place; which is just to say it cannot be an object. However, this is where the trouble begins. Indeed, as we have stated above, we know that, according to Nishida, absolute nothingness does not lie in any place. But it turns out that what this means is that absolute nothingness lies in at least one place, which is the place of not lying in a place! So it turns out that for Nishida, the ultimate ground both is and isn’t an object, which means it both is and isn’t fundamental.

Faced with this seeming contradiction at the bottom of his world, one might suppose that Nishida was confused and that his system ultimately failed. There is textual evidence to support the thought, though, that pure consciousness as a dialethia was, in fact, exactly how Nishida intended it to be. Supposing that the enplacement relation is a metaphysical dependence relation, we appear to have an historical example of an inconsistent grounding theory.⁵²

It is not simply that inconsistent grounding theories might be a useful tool for engaging with certain historical figures. They may well have other interesting applications. Let us suppose that the membership and parthood relations are kinds of metaphysical dependence relations. If this is the case, then it would seem that inconsistent set theory, inconsistent mathematics, and inconsistent mereologies all

⁵¹ See Maraldo 2015.

⁵² Nishida’s view is closely related to the view of nothingness discussed in Priest 2014, ch. 13.

entail, or at least have need of, inconsistent grounding theories. Of course, this will not convince anyone who is not on board with these particular research programmes in the first place, but the connections between the two, given a small number of very plausible assumptions, are wide-ranging and interesting.

4 Taking the Alternatives Seriously

The taxonomy we presented in §2 makes certain matters clearer. We can now see, for example, that there are, in fact, many more logically possible views about the structure of reality than commonly supposed. But the taxonomy, and our classifications of certain views, have their limitations. As is clear, our taxonomy rules out as impossible very many combinations of properties of the dependence relations. Were we to employ certain types of non-classical logics, however, these views might become worthy of further consideration. We have also seen that our taxonomy fails to include the type of para-grounding account Casati (this volume) believes to be attributable to Heidegger.

Moreover, the way in which we have distinguished between foundationalism, infinitism, and coherentism is overly simplistic. Had we tried to accommodate all the possible ways in which species of these views could be, the taxonomy would have become unwieldy and enormous. Much will turn on matters of definition, but it certainly seems that *mixed worlds* might be possible. One can imagine a world in which *some* dependence chains terminate in fundamentalia, where others do not; what we call such a view will depend upon how foundationalism and infinitism are defined. Understanding coherentism as a view according to which everything depends upon everything else is particularly strong. It is possible to understand coherentism as a kind of view, where various species of it may be possible. One might think that views that allow ontological loops of any kind ought to be considered weaker species of coherentism. If this is the case, it is worth pointing out that the mere presence of loops does not entail a denial of the fundamentality thesis, as defined. One can imagine a world in which there is something fundamental—even a world in which every grounding chain terminates in the fundamental—but some grounding chains contain loops. What we call such a view will depend upon how foundationalism and coherentism are defined. Indeed, we can even imagine a world in which some grounding chains are infinitely descending, some chains terminate in something fundamental, and some chains contain loops of various sizes. Our taxonomy, unfortunately, does not cater for such nuances.

The metaphor of the Great Chain of Being has wielded very significant influence—both overt and covert—on the history of Western philosophy. It is about time to think outside that particular box. We believe that the contents of this volume provide ample evidence for this claim. Reality may well not have the metaphysical structure of a well-founded chain, but a much more complex and fascinating one.

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