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Abstract

I defend metaphysical coherentism, according to which reality is an interdependent network, system, or web, held together by a relation philosophers call “metaphysical explanation” or “grounding”. If coherentism is true, nothing is ungrounded, things ground each other, and understanding what it is to be any given thing – a tree, a house, or a person – is grasping how it fits in: how it grounds and is grounded by its environment.

Coherentism is inconsistent with a widely-accepted, orthodox view of grounding, according to which certain fundamental facts about reality asymmetrically determine everything else. In Chapter 1, I argue that this view is not supported by any compelling argument, but merely assumed.

In Chapter 2, I argue that explanation should be our guide to ground. In other words, I argue that claims about the total distribution of explanations may serve as premises in arguments for conclusions about grounding. I argue, in particular, that instances in which things explain each other are proof of the fact that things ground each other.

In Chapter 3, I argue for coherentism from understanding. To understand, I argue, is to recognize coherence, interconnection, and, generally, how things stand with respect to each other. We understand by grasping the complex weaving-together of relationships. Coherentism, I maintain, best accounts how we may, by discerning what grounds what, come to genuinely understand our world.

In Chapter 4, I pursue an intramural debate among varieties of metaphysical coherentism. I argue that the core features of coherentism are compatible with many different intuitions about the nature of reality, and that the view can take many different forms.

METAPHYSICAL COHERENTISM

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Dissertation

Submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy in Philosophy

Syracuse University

May, 2022

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Acknowledgments

This dissertation is the product of many people's generosity and support.

Mark Heller was an ideal supervisor and mentor. He was patient, compassionate, honest, encouraging, and cheerful. In a sense, this dissertation is a record of our conversations over the past few years. Mark has taught me how to be a decent philosopher, but also how to be a better person. I cannot thank him enough.

Each of the members of my dissertation committee – Kris McDaniel, Ricki Bliss, Michael Rieppel, and Robert Van Gulick – played an integral role in the development of my thinking and writing, and contributed many hours of careful work to that development. Together and individually, they motivated me to do my best and to create something meaningful.

In addition to the excellent feedback and guidance provided by my committee members, I was also fortunate to receive written commentary and advice from Kim Frost, Ben Cook, Byron Simmons, and Nathan Wildman. I am also grateful to audiences who discussed parts of this dissertation at the University of Waterloo, the Eastern Division of the American Philosophical Association, and the Canadian Philosophical Association Conference. I have always tried to do philosophy by talking to people. Thanks everyone who talked back.

Many of the ideas contained in this dissertation originated in excellent seminars at Syracuse University's Philosophy Department. I'd like to specifically acknowledge the skilled teaching of Frederick Beiser, Hille Paakkunainen, Kara Richardson, and Christopher Noble.

In Syracuse, I had the tremendous luck of living with excellent people who helped me to grow and inspired much of this dissertation. Thanks Ben Cook, Josh Tignor, and Ian

York.

Beyond those mentioned already, I owe a great debt of gratitude to the people with whom I have had the distinct privilege of doing philosophy. In alphabetical order, thanks to Rowan Bell, Teresa Bruno-Niño, Arturo Javier-Castellanos, Çağla Çimendereli, Thiago de Melo, Huzeyfe Demirtas, Carolyn Garland, Kellan Head, Weiting Huang, Li Kang, Stacy Kohls, Sanggu Lee, Isaiah Lin, Scott Looney, Yaojun Lu, Sean Nalty, Adam Patterson, and Roger Rosena.

I would not have been able to write this dissertation – or do just about anything – without the loving support of my friends and family. Thanks to Max Tillotson, for explaining foundations to me. Thanks to Marcin Terlik, for disagreeing with me. Thanks to my parents and grandparents, for their unwavering support and inspiration. Thanks to my life partner and best friend Julia Norris, for showing me that nobody is anything if they're alone.

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Chapter 1

Making Room for Coherentism

Abstract

Metaphysical coherentism is the view which states that the overall structure of grounding relations is an interconnected network, system, or web. It conflicts with two widely-endorsed theses about grounding. According to the Foundations Thesis, certain things are ungrounded. According to the Asymmetry Thesis, there is no mutual grounding. In this chapter, I argue that both these theses may be rationally denied. Therefore, I conclude that metaphysical coherentism is a potentially viable view.

Introduction

Many philosophers believe that the world has a structure. The world's inventory isn't a chaotic jumble. Nor are its myriad inhabitants in some sense *on a par*. Rather, we think that the world is an intricate tapestry, woven together by distinctively metaphysical rela-

tions.¹ Neurological events *give rise to* mental events. An artwork’s beauty is *explained by* its physical properties. The works of the historical Doyle *account for* the fictional Holmes. Society is *the product of* the total sum of individual people. And so on. On this view, an ontologist’s primary task isn’t just to list what exists. It is to spell out the relationships which constitute a particular structure. An ontological theory, instead of describing what there is, “aims to articulate the structure of reality.”²

I am interested in the question: what is the overall form of that structure? Imagine the entire ontological structure spread out before you. In it, you may find absolutely all that there is: you, me, Doyle, our respective minds and their contents, societies, ethical and aesthetic properties, Sherlock Holmes, and much more, all bound together by metaphysical relations. What *shape* does this tapestry of being have? Has it got a beginning and an end? Does it extend infinitely in one direction? Is there even a “direction” to it? Call this the “Question of Overall Structure”.³

Philosophers have often approached the Question of Overall Structure by analogy to the epistemological Agrippa’s Trilemma.⁴ Whereas the original trilemma asks about the overall structure of justification, the ontological one asks about the overall structure of ground. Foundationalists believe that there are certain ungrounded - fundamental -

¹Different brands of “interlevel” metaphysics have been around since Plato and Aristotle, but the beginning of the contemporary preoccupation with metaphysics as an investigation of structure is often marked by the works of Fine (2001), Schaffer (2009), and Rosen (2010). Other important contemporary works on metaphysical structuring relations include K. Bennett (2011), Audi (2012b), Raven (2015), DeRosset (2013), and Dasgupta (2016), to name a few. For overviews of the recent literature, see Correia and Schnieder (2012b), Bliss and Trogdon (2016), Ó Conaill and Tahko (2018), and Raven (2020). For a survey of the historical antecedents of the contemporary notion of grounding, see Raven (2019) and Raven (2020: Chapters 1–6).

²Jago (2018: 199)

³For an overview of the literature on this question, see Bliss and Trogdon (2016: Section 6.2), Bliss and Priest (2018b), Jago (2018: Section 6), Thompson (2020), and Dixon (2020).

⁴For example, this analogy is made by Schaffer (2009: 37), Morganti (2014: 223), (2015: 557), or Westerhoff (2020: 165). For an overview of the role of this trilemma in contemporary epistemology, see Klein (2008)

things.⁵ Infinitists believe that the sequence of grounds never ends.⁶ Coherentists believe that things may participate, indirectly, in grounding themselves.⁷

In this dissertation, I will defend coherentism. In this Chapter, I will make room for coherentism. That is, I will argue that, although the view contradicts many widely endorsed assumptions, there is no principled reason that coherentism should be rejected out-of-hand. In Section 1.1, I define grounding, and sketch the dialectical landscape. In Section 1.2, I consider arguments in favor of foundations and find those arguments lacking. In Section 1.3, I raise a few worries for foundationalism. In Section 1.4, I consider arguments in favor of asymmetry and find them, too, lacking.

In Chapter 2, I argue that claims about the distribution of explanations can serve as premises in arguments for conclusions about the distribution of grounding relations, or that claims of the form “ x explains y ” are evidence for corresponding claims of the form “ x grounds y ”. My main argument, presented in Section 2.2, is abductive. I argue that the most compelling reason to posit the existence of grounding relations is that they alone can account for the success of certain explanations. This means that what explains what provides an isomorphic guide to what grounds what. In Section 2.3, I defend this position against an objection, arguing that two notable accounts on which grounding and explanation diverge (2.3.1–2) are both susceptible to skeptical objections. In Section 2.4, I explore an upshot: in some instances, mutual explanations imply mutual grounding.

⁵The fundamental things might be ungrounded, not apt to be grounded, or self-grounded. Some prominent defences of grounding foundationalism are Cameron (2008), Schaffer (2009) (2010), K. Bennett (2011) (2017), or Dasgupta (2016). Tahko (2018b) (2018a) and Raven (2016) both defend views which resemble foundationalism, but aren’t committed to its central doctrine as I define it here.

⁶Some prominent defenses of grounding infinitism are Markosian (2007), Bohn (2009) (2018), Cotnoir (2013), and Morganti (2014) (2015). The term “infinitism” is not entirely apt: most of the authors mentioned maintain that the sequence of grounds is not well-founded, rather than merely infinite. But a foundationalist may still believe that the sequence of grounds is infinite, yet have a beginning, so long as that chain is well-founded. I will adhere to common usage and use “infinitism” to describe view according to which grounding is non-well-founded. See Tahko (2018b) - a defense of well-founded infinite grounds - and Tahko (2018a) - where “infinitism” is used to describe the views of believers in non-well-founded ground.

⁷Coherentism - or at least certain of its key features - has received favorable treatments from Thompson (2016) (2018) (2019), Nolan (2001) (2018), Bliss (2014) (2013), Rodriguez-Pereyra (2015), Barnes (2018), Morganti (2019a), and Calosi and Morganti (2021).

In Chapter 3, I argue for coherentism from understanding. In Section 3.1, I show how any explanation must offer understanding. In Section 3.2, I argue that the most compelling account of understanding is coherentist: to understand is to recognize coherence, interconnection, and, generally, how things stand with respect to each other. In Section 3.3, I show how only a coherentist account of grounding can offer the kind of understanding which one may expect from genuine metaphysical explanations.

In Chapter 4, I survey the new territory my dissertation opens for further research: the varieties of metaphysical coherentism. I argue that the core features of coherentism are compatible with many different intuitions about the nature of reality, and that it can take many different forms beyond those hinted at by philosophers so far.

1.1 Background on Ground

I'll understand the Question of Overall Structure by means of *ground*. In other words, I'll take grounding to be the relation which structures reality, and the overall "shape" of the overall structure to be a product of the sum total of grounding relations. Although there are a few rival ways to characterize ground in the dynamic literature, I will, in this section, present the general consensus understanding of it.

Ground evades easy definition. Although this makes it a target for certain skeptics, it's also precisely the result its defenders expect.⁸ After all, they maintain, primitive concepts like truth, or justice, or freedom are unanalyzable. We don't learn these concepts through definitions: we grasp them by considering applications, examples, illustrations, analogies, and so on. After they've been approximately glommed onto, we can debate specifics.

⁸The primitiveness of grounding is widely endorsed. See, for example, Rosen (2010) or Fine (2012).

It's customary to begin characterizing grounding by identifying situations in which it supposedly obtains.⁹ I've already gestured at a handful of pairs of grounds and grounded things. Among others, grounding is sometimes alleged to obtain between pairs like the following:

(i)	Parts	Wholes
(ii)	Individuals	Singleton sets
(iii)	Determinables	Determinates
(iv)	Physical states	Mental states
(v)	Works of fiction	Fictional entities
(vi)	Natural properties	Normative properties
(vii)	Facts about individuals	Facts about societies
(viii)	Mathematical structures	Numbers
(ix)	A thing's dispositional properties	Its modal properties
(x)	The total state of the Humean mosaic	The laws of nature

Whether each among these pairs represents an instance of grounding is controversial. Mind-body eliminativists and Cartesian dualists alike would take issue with including (iv) on this list: respectively, they maintain that mental states just are physical states (perhaps under some special description), or that neither of the two states is more fundamental than the other. Non-naturalists about normativity would dispute the inclusion of (vi), Platonists about fictions (v), modal realists (ix), non-Humeans about laws (x), and so on.¹⁰ But, despite these disputes, metaphysical questions about the above, and many other is-

⁹Similar characterizations are offered, among others, by Correia (2005: 49–50), Rosen (2010: 110–113), Fine (2012: 37–38), Audi (2012b: 106), Koslicki (2013), or Schaffer (2016: 54). I am using “ground” as a two-place predicate which joins referring terms. Some prefer to express “ground” as a *sentential operator* - more like the English expressions “because” or “in virtue of” - which joins claims or sentences. The main advantage of the operator approach is that it permits neutrality on the specific metaphysical status of ground, and whether it is, indeed, a relation. Since I assume that ground is a relation which obtains between worldly entities, I move directly to the predicate approach. See Raven (2015: 324–325).

¹⁰For certain entries on this list, there is also a controversy about the direction of grounding relations. I will explore such controversies in Section 2.4.

sues, are often framed as questions about ground. Each pair (i)-(x) conceptually resembles the others. They resemble each other in a way that they do not resemble, for example, things which are bound to each other by relations which are clearly mental (like beliefs, intentions, or judgments), or physical (like causes and effects), or logical (like premises and conclusions). The relations which bind each of (i)-(x) are of interest to metaphysicians – just as relations between beliefs and desires might be of interest to psychologists, or relations between premises and conclusions of interest to logicians. They have a pronounced metaphysical “flavor”.

Grounding is also connected to explanation. By identifying the grounds of something, we acquire some explanation of that thing. According to one locution, grounding is the “in virtue of” relation: if it is true that *x in virtue of y*, that claim is made true by a certain metaphysical relation which obtains between x and y.¹¹ By learning *in virtue of what* x (or that in virtue of which x), we gain some explanation of it. In other words, the grounds contribute to explaining the grounded things.¹² When we discover the grounds of something, we get some answer to a broadly metaphysical question. We discover, for instance, “how come it all turned out like *this*?”¹³ We learn about the grounded thing, which becomes illuminated, or accounted for.¹⁴ The explanations provided by grounding relations are unlike the explanations owed to other relations, like causation or others. Whereas a causal explanation will describe causes, a grounding explanation involves wholly different kinds of relations. Since the natural *relata* of explanation relations are facts, many proponents of grounding claim that that relation relates facts alone. For others, grounding may obtain between entities of any ontological category.¹⁵ For them, the sense of “explanation”

¹¹For example, see Fine (2012: 38–39).

¹²In Chapter 2 of this dissertation, I will further explore grounding’s connection to explanation.

¹³Although it might be taken to have a distinctively causal flavor, Dasgupta (2016: 382) uses it as a paradigmatic example of the kinds of questions which are meant to be answered by grounding.

¹⁴In now widely-used terminology, originating from Raven (2015), “unionists” assert, and “separatists” deny, that grounding *just is* metaphysical explanation. For separatists, grounding isn’t identical to metaphysical explanation, but *backs* it. See Maurin (2019), Glazier (2020), and Brenner, Maurin, Skiles, Stenwall, and Thompson (2021) for discussion.

¹⁵For example, Schaffer (2009) or Cameron (2008) argue that grounding may cut across ontological

in “metaphysical explanation” only approximates the actual relation between grounds and grounded things. The specific relationship between grounding and explanation is the subject of Chapter 2.

Some have described grounding by additional analogies to yet other relations, philosophically technical or otherwise. Among these are production, causation, determination, ontological dependence, or reduction. All these relations, or at least certain versions of them, seem to belong to the same general “family” of relations.¹⁶ Others illuminate grounding by reference to other metaphysical concepts like essence, fundamentality, or naturalness.¹⁷ For some, grounding’s conceptual connection to these other notions suggests a small-g grounding view.¹⁸ On that view, grounding should be properly described as a family or genus of relations which are ontologically and conceptually prior to that genus. For fans of big-G Grounding, on the other hand, the grounding relation itself is prior to the various other metaphysical relations which it underwrites.¹⁹

Philosophers often distinguish between full and partial grounding.²⁰ Intuitively, things which merely participate in a larger process are unlike things which do something all by themselves, just as one is fully responsible for what one does on one’s own, and only partially responsible for what one has done in collusion or collaboration with others. x fully grounds y if x , and nothing else, grounds y . x merely partially grounds y if x grounds y , and some other things ground y as well. The relationship between full and partial grounding is the subject of some debate. For example, might something have only partial grounds, and no full ground? Is each part of the full grounds of something that thing’s partial ground?

categories.

¹⁶Karen Bennett (2017) describes these as a family of “building” relations. Despite the difference in terminology, Bennett’s building is generally understood as a view about grounding. That’s how I’ll treat it here.

¹⁷For example, Correia (2013) presents an essence-based description of grounding.

¹⁸In addition to Bennett (2017), the small-g grounding view is defended by J. Wilson (2014). This view is sometimes referred to as “separatism”, and its opposite “unionism”. I’ll reserve those terms for the rival views about the relation between grounding and explanation. See footnote 14.

¹⁹I explore the “disjunctive” or Big-G characterization of grounding at length in Section 2.3.2.

²⁰Both of these are generally understood following Fine (2012).

I will set these controversies aside, and point out only that, when I speak of grounding, without qualifying whether that grounding is full or partial, I mean partial ground.²¹

The recent surge of interest in grounding has its skeptics.²² They allege that ground is nothing new, just well-known and well-loved metaphysical concepts re-packaged in new, obscure language. Many philosophers simply *use* the grounding toolbox, pointing to its eminent usefulness as a defence, rather than facing skeptical objections down directly. Grounding offers a framework for solving metaphysical problems – like analyzing the relations between pairs (i)-(x), for example – which one must “buy into”. Those who accept the mainline assumptions of most adherents are referred to as the “orthodox”. Those who deny them are “heretics”.²³

Earlier, I introduced the Question of Overall Structure. It asks: what *shape* does the entire system of grounding relations have? According to the orthodoxy, that shape is dictated by the following four theses:

- Irreflexivity. Nothing grounds itself. (IT)
- Transitivity. If x grounds y, and y grounds z, x grounds z. (TT)
- Asymmetry. No two things ground each other. (AT)
- Foundations. There are ungrounded things. (FT)

If all four of the above are true, the grounding structure is a strict partial order.²⁴ I’ll refer

²¹The distinction between full and partial grounding will come into focus as the basis for two distinct objections in Section 4.2.

²²Important skeptical criticisms of ground include Hofweber (2009), Daly (2012), and J. Wilson (2014). For an overview of grounding skepticism, see Koslicki (2020). I’ll engage with skeptical arguments against certain characterizations of grounding in Section 2.3.

²³This language, as well as a generally rigorous articulation of orthodox grounding assertions, is due to Raven (2013). The orthodox description of ground is usually also taken to add a few other stipulations which will be less relevant to my discussion. They include that grounding relations are hyperintensional, factive, objective, and necessitating.

²⁴Bliss (2020: 337) describes foundationalism as “a package deal”, consisting of both FT and a “hier-

to the combination of all four as “the orthodoxy” or “foundationalism”.²⁵

Grounding infinitism is a moderately non-orthodox view. Infinitists reject FT, but maintain IT, TT, and AT. For them, the sequence of grounds extends indefinitely in one (or both) directions. Some motivate infinitism by analogy to mereological relations. The possibility that the mereological sequence continues indefinitely – we never find atoms, only atomless gunk – and, as mentioned above, that things are grounded by their parts, together imply that the sequence of grounds, too, will continue indefinitely.²⁶ Others see a more direct route to infinitism: there simply must be a further grounds for any given thing, just by virtue of the way explanations work.²⁷ I will discuss some of these arguments against FT in the next section.

Although infinitists deny that the sequence of grounds ever ends, they are moved to posit infinite sequences because of an aversion to loops.²⁸ Coherentism, the position I will defend in this dissertation, is quite unorthodox. As mentioned, it claims that things participate in a web of mutual grounding. If things ground each other, as the coherentist alleges, nothing is ungrounded, and FT is false.²⁹ But, unlike infinitists, coherentists main-

archy thesis” which combines IT, TT, and AT. Although the four theses are most often combined, I consider the motivations for them to be distinct, and, as such, consider them separately. See Bliss and Priest (2018a: 7–10) for a summary of how these theses may be combined to produce various views. As we shall soon see, infinitists reject just FT from the orthodox package. Although it may have fallen out of favor in recent times, certain historical antecedents of contemporary grounding foundationalism suggest that the fundamental things are an exception to IT – for example, Spinoza and Leibniz might both be understood as having thought that God’s existence grounds itself (see Amijee (2020: 67–68) for discussion. A view which Bliss (2011: 187) calls “weak coherence” endorses FT, but rejects one (or more) of IT, TT, and AT. I explore a view like this, which I call “coherentism-lite” in Section 4.4.

²⁵Some - including Raven (2016) and Tahko (2014) - have proposed alternative definitions of “fundamentality” or “foundations” on which fundamental things aren’t necessarily ungrounded. In this Chapter, I’ll use “fundamental” in the more popular sense of being ungrounded. In Section 4.4, I’ll consider unorthodox kinds of fundamentality.

²⁶For example, Markosian (2007) or Cotnoir (2013).

²⁷For example, Nolan (2001) or Morganti (2009) (2014) (2015).

²⁸Although Dixon (2020: 247) is sympathetic to looping chains of ground as a species of infinitely descending ground.

²⁹Raven (2016)’s alternative interpretation of fundamentality invokes ineliminability, rather than absence of ground. But things may be ineliminable, yet grounded, when they participate in a grounding system (thereby contributing to grounding the things which ground them). This may be taken to suggest that certain varieties of coherentism may be consistent with a fundamental level – a plurality of things which isn’t grounded by any further plurality – without fundamental individuals – the plurality being such

tain that there are mutual grounding relations. They claim that things ground each other, and, so, that AT is false. If the “orthodox package” – FT and AT – is true, it rules out coherentism. Any argument for coherentism must, therefore, contend with the widespread acceptance of these two theses.³⁰ I am suspicious of both. There seem to me to be plenty of instances in which things stand to each other in metaphysical relations analogous to the relations described between grounds and grounded. I will argue that it is also plausible that this kind of widespread and directionless interrelation among facts could be the most basic structure of reality. A coherentist metaphysics is a view worth exploring.

1.2 The Foundations Thesis

The grounding orthodoxy is foundationalist: it alleges that there are fundamental things which are ungrounded. But why should one believe that there are, indeed, any ungrounded things? Some find it intuitive that certain facts *don't* obtain in virtue of others. As I've stated, I am not moved by this intuition, and am not alone. The existence of ungrounded things is no more obvious to me than their absence. So, might a foundationalist do more? Is it possible to “*argue for this intuition*”?³¹

One argument invokes the sense that only fundamental things can enable a sequence of grounds to “get off the ground” or “get started”. Brzozowski illustrates how a non-terminating regress, “where facts about each element of an infinite series obtain wholly *in virtue of* facts about further elements of the series,” as they would in a hypothetical grounding sequence without foundations, is impossible.

that each of its members are grounded by other members of that plurality. See also Tahko (2018a: Footnote 16).

³⁰Since AT is implied by irreflexivity and transitivity, the coherentist must also deny one of these two plausible principles. I will address this issue below. I believe that coherentism's best bet is to rely on the distinction between mediate and immediate grounding. For mediate grounding, IT is false, but TT is true. For immediate grounding, TT is false, but IT is true.

³¹Cameron (2008: 8). Original emphasis.

Let us suppose that someone is royal only in virtue of their father being royal, and never in virtue of anything else. Then if there is only a finite series of people no one is royal. And even if there is an infinite series, still no one is royal. In effect, there is nothing in the world that makes it the case that *someone is royal* in the first place, rather than no one being royal. Equivalently: there is nothing in the world that distinguishes it from a qualitatively identical situation in which no one is royal. For someone to distinguish this world from a world in which no one is royal, one would need it to be the case that somewhere along the line, someone’s royalty is not wholly derived from their father’s royalty.³²

Grounding relations underwrite true “in virtue of” claims.³³ An unending sequence of in-virtue-of claims is like a sequence of royals, every one of whom has inherited their title by birth. If anybody is royal at all, that must mean that, at some point, somebody must have become royal by some *other* means than inheritance. In the same way, if the sequence of grounds doesn’t bottom out at all, it would consist wholly of derivative entities, without anything from which they derive.

In Schaffer’s words, without foundations or ultimate ground, being “would be infinitely deferred, never achieved.” The foundations requirement “is supposed to follow from the need for a ground of being, from which any derivative entities derive.”³⁴ Others identify intuitions in the vicinity as reasons to think that certain ungrounded, fundamental entities must exist.³⁵ In particular, considerations of sources which motivate the argument from the inheritance of being press exceptionally strongly against metaphysical coheren-

³²Brzozowski (2008: 200–201). Schaffer (2016: 95) illustrates the inheritance argument with a similar metaphor about inheriting wealth.

³³The exact nature of this underwriting is explored in Chapter 2.

³⁴Schaffer (2010: 62)

³⁵For example, Brzozowski (2016: 58–60) or Rabin and Rabern (2016: 350–352). Bliss (2013: 406–408) and Cameron (2008: 6–7) both draw comparisons between inheritance arguments for foundationalism and arguments from Leibniz. For further discussion of inheritance-style arguments for foundationalism, see Dixon (2016: 444–447) (2020: 251–252), or Trogon (2018).

tism. Infinitists, although they deny that reality comes from anywhere, seem to be able to describe which *direction* it came from: it is always transferred *up* the chain of grounding relations. On the other hand, the coherentist system is a kind of closed loop. Thompson illustrates this foundationalist intuition with the following metaphor:

The foundationalist can think of fundamental facts or entities as generators of a kind of “reality fluid”, which flows up via grounding relations (“pipes”) from the fundamental to the derivative. On the coherentist view, we can explain how the fluid moves around the pipes but not how it got to be there in the first place.³⁶

The inheritance argument for FT, then, will turn on three claims about how reality “flows through” the hierarchy of grounds. First, “Universal Inheritance” (UI), which claims that reality is always passed along in a sequence from grounds to the things which they ground, and that the grounded things have their grounds to thank for their reality. Second, an analysis of the notion of inheritance, a “Source of Inheritance” premise (SI), which alleges that any sequence of inheriting must have gotten its start somewhere. Finally, we have the plausible premise that whatever source of reality there is, we have good reason to treat that as fundamental (R/F): surely, if anything deserves to be called “fundamental”, the very source of reality had better be it! Putting these together, we get this argument:³⁷

1. Everything grounded inherits its reality from its grounds. (UI)
2. Whatever is inherited must have an ultimate source. (SI)
3. So, there must be an ultimate source of reality. (1, 2)

³⁶Thompson (2020: 267)

³⁷This formulation is adapted slightly from Trogdon (2018: 184).

4. Only ungrounded fundamental things could be the ultimate source of reality. (R/F)
5. So, foundationalism is true. (3, 4)

The first thing to note about this argument is that, although they are clearly intended as metaphorical, it is quite difficult to wrap one's mind around the talk of reality being "inherited", or much less being a "fluid" passing through pipes. Is reality the sort of thing which, like a family heirloom or a birthday card, may be passed from one entity to another? Likely not. What is it, then? It seems that, no matter how it is re-phrased or reimagined, UI will be a premise with some surprising and strange commitments.

SI, too, seems to be open to question. Even in contexts of more pedestrian inheriting, it is less than obvious that whatever is inherited must have an ultimate source.³⁸ Consider Schaffer's example of wealth. Once we think about the notion of wealth, it's difficult to imagine wealth having an ultimate source. Instead, I'm inclined to think that wealth is socially constructed, and perhaps that part of what makes something wealth is the capacity for that thing to be transferred or inherited (by extension, what makes a person wealthy is their ability to transfer their wealth). Wealth doesn't seem to need an ultimate source. The same is true of Brzozowski's example of royalty. Surely, the first royal didn't *create* their own royalty. More often, royalty is said to flow from some other source: the consent of the governed, or enchanted swords in stones, or the Grace of God. Of these, too, we can surely inquire whence *they* gained the royalty which they conferred onto the first royals. But, even if these examples describe kinds of inheritance with an ultimate source, there are plenty of other instances of "inheritance" or "transfer" with no source. Energy, for instance, doesn't seem to have had a source, but may still be described as being inherited. So, even granting the surprising metaphor UI, SI itself isn't all that certain.

³⁸Perhaps it's analytically true that any individual instance of something's being inherited – from one generation to the next, for instance – must involve a party from which the inheritance moves to the inheritor. But this does not yet show that the sequence of inheritance must have had an ultimate source (only a more proximate source).

Trogon’s objection to the inheritance argument focuses on Premise 2: the “Source of Inheritance” thesis. Trogon argues by dilemma. The notion of reality inheritance, he claims, must be either primitive or molecular – consisting of the notion of reality and the notion of inheritance. If it is primitive, it’s unclear why we should believe that thinking about inheritance more generally, as Brzozowski and Schaffer do, would tell us anything about the nature of reality inheritance, and, so, the thesis is unmotivated.³⁹ If it is molecular, it’s based on “reality” and “inheritance” as they are traditionally understood. But, then, it really doesn’t seem like reality really could be the sort of “thing” which could get passed down. What’s more, one is compelled to wonder, to whom does the reality get passed down, if that thing is not around yet to do the inheriting (since before it inherited the being, it wasn’t there whatsoever).⁴⁰

Inheritance arguments are most at home in the context of grounding bound tightly to ontological dependence. The primitive relation between dependents and the things on which they depend is less mysterious than talk of “reality fluid” makes it out to be. Moving too far from the metaphor to lean on a primitive kind of ontological dependence leaves the inheritance argument open to the first horn of Trogon’s dilemma. But it also seems to underestimate the differences between the widely-endorsed concept of ground and dependence. Grounding, unlike dependence, explains, illuminates, and accounts for, while dependence does not. It isn’t really reality which gets inherited from grounds to grounded things, but something more like explanation.

I am not convinced by inheritance arguments for ungrounded things. Perhaps their analogues prove the well-foundedness of ontological dependence, or, as Trogon suggests, the transfer of causal efficacy.⁴¹ But it seems difficult to make the same point about grounding. Perhaps similar intuitions may be cashed out in more familiar language of expla-

³⁹Trogon (2018: 188)

⁴⁰Trogon (2018: 190)

⁴¹Trogon (2018: 192–195)

nation: it's not that a sequence of reality-inheritors must be sourced, but the sequence of explanations. Only explanations which terminate are any good. But if nothing is ungrounded, no grounding explanations will terminate, and, so, no such explanations will be any good.⁴² Call this the "Satisfactory Explanation Argument." Here it is:

1. If foundationalism is false, no explanation is completely satisfactory. (SF)
2. But there are completely satisfactory explanations. (S)
3. So, foundationalism is true.

It's not clear whether there are ever – or even could be – completely satisfactory explanations of the kind that this argument alleges. After all, that someone is satisfied by a certain explanation is, on its own, not evidence that that explanation ought to be considered completely satisfactory, or to have arrived at the kind of fact which stands in no need of further explanation.⁴³ So, it's not clear why we should endorse Premise 2.

An alternative way to respond is just to claim that explanations can come from all sorts of varieties, and that those who demand an explanation from foundations are themselves presupposing that the only way for a satisfactory explanation to come is for it to be an explanation which is coming out of foundations. But that's a strange thing to assume, all other things being equal.

Both the inheritance argument and the satisfactory explanation argument posit fundamental things in order to do something. In other words, both assert the existence of

⁴²For example, Fine (2010: 105), who argues that the only "completely satisfactory" explanation will be one which "terminates in truths that do not stand in need of explanation." Tahko and Lowe (2020) also call circular explanations unacceptable, due to their similarity to unacceptable circular arguments.

⁴³The characterization of fundamentality by way of naturalness, carried out by Sider (2011), for example, might also suggest an argument of this form. For someone like Sider, that there are fundamental things is guaranteed by the fact that there are perfectly natural things. But why must we believe that anything at all is perfectly natural? Presumably, the best reason for doing so involves thinking that, without the perfectly natural, there would be no good explanations of any kind. See also Bliss (2019: 340).

fundamental things as the only way to solve a certain kind of problem. In the form of rhetorical questions, these arguments ask: without fundamental things, what would account for all else which exists? What would provide the satisfactory explanations for things? In other words, the argument invokes fundamental things as the only way to offer a certain kind of explanation which is wanting.

1. If foundationalism is false, a certain fact (call it F) cannot be explained.
2. But F must be explained.
3. So, foundationalism is true.

The Source of Being argument fits this schema. According to that argument, the fact F which cannot be explained without fundamental things is the fact that there is anything at all. Bliss criticizes these kinds of arguments.⁴⁴ On her analysis, the basic conceit of these arguments is that, somehow, the grounded things themselves aren't up to the task. But it seems like they are up to the task, at least when there is a genuine task to carry out: they provide perfectly satisfactory explanations of just about anything. What's more – if foundationalism is false, there's always a further place to look for such explanations! For instance, all that there is to explaining why the world is thus and so just amounts to what the things which make it up are. As we recognize more grounded things which account for many other grounded things, the more implausible it becomes to think that there are some further things which they cannot account for.

Bliss suggests that the only defensible form of this argument presupposes a kind of externality principle. This principle states that no thing of a certain substantial kind can itself explain why there is anything of that kind in the first place. Only this principle would demonstrate why no grounded things could provide a certain explanation: no grounded thing could explain why there are any grounded things at all.

⁴⁴Bliss (2019)

It's unclear why this externality principle should be taken to be true.⁴⁵ Perhaps genuine natural kinds like biological species or chemical elements are such that the existence of that species or element demands an explanation which reaches beyond the existence of the particular individuals belonging to that kind. But it seems far less plausible when applied to distinctively metaphysical substantial kinds. For example, consider the distinctively metaphysical category: things which exist. One may ask: "why are there extant things at all?" I'm not sure how this question might be answered. But surely, we won't find the answer among the things which *do not* exist. Or, if one were to account for the existence of *abstract* things in general, one needn't look among the *concrete* things (or vice versa).⁴⁶ Overall, the principle breaks down once applied beyond the realm of natural kinds. For that reason, it is ill-suited to demand an ungrounded explanation for grounded things. Just as the abstract things seem to get along just fine without the concrete things, so, too, might the grounded things get along without ungrounded things.

But even if the principle is true in general, it is less than clear why all the grounded things should be considered to be of a single kind. Clearly, not any set of things arbitrarily picked out will constitute a natural kind. A natural kind presupposes a certain shared essence or nature to the kind itself, which somehow dictates how all the things of that kind are. Without presupposing that there are certain things which ground all other things, there doesn't seem to be much of anything that all the grounded things have in common. Indeed, if we begin from a non-foundationalist assumption, from which it is seen that all things are grounded by other things, the natural kind to which we are referring is, indeed, maximally dis-unified. It is maximally dis-unified because it is made up of everything that there is, thereby exhibiting a maximal breadth and diversity. But then, that

⁴⁵Dixon (2020: 252) makes a similar point. "One might wonder," he asks, "whether dependent entities form a substantial kind."

⁴⁶Of course, that's precisely where a nominalist would look. But it seems that, if the principle in question is true, it would follow that nominalism is true. But the nominalist will also face the demands of the principle, and be forced to explain why there are any concrete things, solely by reference to non-concrete things. Surely, this is not the consequence that the foundationalist is looking for.

group is not very well suited to being called a natural kind. So, if the satisfactory explanation argument really turns on a premise which alleges that only ungrounded things could explain the existence of grounded things, which, in turn, is based on a principle according to which grounded things constitute a substantial kind, the argument seems suspect.

We have interrogated arguments for foundations invoking inheritance and satisfactory explanations. We have found both lacking. We may also, following Cameron, consider an altogether different reason to endorse FT: theoretical virtue. Although it may be the case that denying FT is as plausible a starting-point for theorizing about the structure of reality as is asserting it, Cameron suggests that a theory with a fundamental level is more virtuous, for it achieves greater theoretical unification:

If we seek to explain some phenomena, then, other things being equal, it is better to give the same explanation of each phenomenon than to give separate explanations of each phenomenon. A unified explanation of the phenomena is a theoretical benefit. This seems to provide some evidence for the intuition under discussion. For if there is an infinitely descending chain of ontological dependence, then while everything that needs a metaphysical explanation (a grounding for its existence) has one, there is no explanation of everything that needs explaining. [...] This is a theoretical cost; it would be better to be able to give a common metaphysical explanation for every dependent entity.⁴⁷

Cameron acknowledges that the theoretical considerations in favor of foundationalism might not amount to an argument to convince someone who doesn't share foundationalist intuitions to, somehow, "see" them. Nonetheless, the considerations do provide some advantage to foundationalism over infinite descent. An infinitist picture of metaphysical explanation is exceedingly dis-unified: with each successive "level", we are presented with an

⁴⁷Cameron (2008: 12)

entirely novel set of explanations. A foundationalist theory’s explanations exhibit greater unity. Each explanation will, in the end, bottom out at the same place.

The theoretical virtue argument doesn’t lend support for FT, as much as it gives reason to doubt infinitism. Cameron’s discussion explicitly omits the possibility that the grounding structure may feature no hierarchy whatsoever, forming, instead, a coherentist web. It seems that such a web would provide precisely the kind of unified explanation of phenomena which theoretical virtue requires: its holistic explanations are exceptionally virtuous, in that sense.⁴⁸ Or, at least, the unification they provide are of commensurate theoretical value to the value of foundationalist explanations. So, although this argument might suggest that we had better believe in FT *rather than infinitism*, it doesn’t suggest that we should endorse FT over coherentism. Indeed, it might seem that similar considerations suggest that foundationalism fares *worse* in achieving certain theoretical goals – perhaps including unification – than non-foundational views like coherentism. In the next section, I turn to such considerations.

1.3 Anti-Foundationalist Arguments

I’ve canvassed and objected to arguments for ungrounded things. Not much can be done to prove that there are foundations, unless – by force of intuition or assumption – foundationalism is taken for granted. In this section, I’ll argue that it should not be taken for granted.

Bennett shares my skepticism towards foundationalist arguments (expressed here in the language of “building”, which is generally taken to be a cognate of “grounding”).

⁴⁸See the discussion of explanatory holism in Barnes (2018: 65–67) and Thompson (2019: 112–113). That holistic, internally coherent explanations are superior to foundationalist, linear ones, is the core of my argument for coherentism in Chapter 3. It bears noting that “monist” or “holist” foundationalism, in the vein of Ismael and Schaffer (2016) may capture some of the same theoretical advantages as does coherentism, by virtue of connecting *all* explanations to one and the same cosmos.

I have yet to see a decent argument for the doctrine that all priority chains must terminate, that building is well-founded. The doctrine is backed by a powerful intuition, and that is all. And it is not even clear how seriously to take that intuition. After all, it contradicts another powerful intuition – namely, that everything is explained, that nothing comes to be *ex nihilo*.⁴⁹

This second intuition is convincingly articulated by Bohn. To see it, he asks that we assume that there are certain ungrounded facts.

Consider these ungrounded facts. Either they have a metaphysical explanation [...] or they don't. If they do, they are of course not ungrounded, in which case grounding is not well-founded after all. If they don't, then they have no ground. But then the obvious question arises: whence these fundamental facts? Not being able to answer this question fails to provide *a natural resting point for thought*.⁵⁰

Without such a resting-place, no explanation will ever satisfy. Believing in brute, ungrounded facts which have no explanation is no natural resting point for thought.⁵¹ Furthermore, I'll now argue that there is no non-*ad-hoc* way to distinguish facts which do and those which do not have a metaphysical explanation. There is no compelling reason to expect our curiosity to be satisfied precisely by the latter if it is not satisfied by the former. An *ad hoc* line is surely no natural resting point for thought.

The intuition Bennett and Bohn describe is a version of the Principle of Sufficient Reason (PSR). That principle states roughly that “nothing happens in vain, but everything for a reason,”⁵² or that “nothing happens without it being possible for someone who

⁴⁹K. Bennett (2017: 122). Bennett does believe that there are compelling reasons to believe in AT, but that FT might be false due to the possibility of infinite descent. See K. Bennett (2017: Section 5.5).

⁵⁰Bohn (2018: 178). Bohn credits personal communication with Ralph Henk Vaags.

⁵¹Bohn (2018: 178)

⁵²Leucippus, quoted by Pruss (2006: 1)

knows enough things to give a reason sufficient to determine why it is so and not otherwise.”⁵³ There is some debate about whether the principle famously endorsed by Leibniz applies to the metaphysical explanations which ground is supposed to provide.⁵⁴ Even if it does not, those who sympathize with the principle familiar from history will also likely sympathize with its analogue, formulated in terms of grounding: for any x , there is some y such that y grounds x .⁵⁵ Call this the G-PSR.

Note that, as I’ve formulated it, G-PSR is unrestricted: *everything* has some grounds. Unrestricted, the G-PSR contradicts FT. No further explanation can be given for the ungrounded things, even if one knows all that there is to know. According to the PSR, there must be an explanation for everything. So, to endorse the G-PSR is to reject FT.

But different interpretations of the G-PSR are consistent with different answers to the foundations question.⁵⁶ In particular, *restricted* versions of the PSR motivate foundationalism. A restricted G-PSR states: for any x , there is some y such that y grounds x *provided that x is not F* (for some value of F). It is consistent with this restricted principle that certain things – the F ’s – are ungrounded. So, it is consistent with FT. For example, Dasgupta’s “metaphysical rationalism” supports the existence of ungrounded things by the demand for sufficient reasons. Dasgupta’s PSR is restricted: it does not apply to “autonomous facts”, which are “not apt to be grounded”.⁵⁷ Since autonomous facts need no further grounds, they must serve as the ultimate grounds of all else, while they are themselves ungrounded. But, as I’ll argue in this section, there is no plausible way to restrict the G-PSR. So, any version of the G-PSR which may be endorsed will also contradict FT.

Many believe that metaphysical views should be sensitive to the discoveries of the

⁵³Leibniz ([1710] 1985: 209), quoted by Amijee (2020: 64)

⁵⁴For discussion, see Amijee (2020), (2021).

⁵⁵Grounding-PSR is described and endorsed by Schnieder and Steinberg (2016: 524–525) and Dasgupta (2016: 379–380).

⁵⁶Amijee (2020: 71–72)

⁵⁷Dasgupta (2016: 379–380)

natural sciences. The history of science provides reasons to be skeptical of foundationalism, or to endorse some version of the non-foundationalist PSR, at least pertaining to concrete particulars. In the sciences, progress consists of delving ever deeper into the nature of reality, adopting a high intellectual bar for accepting any putative description of what the world is “ultimately” like. Things which were once called “fundamental” – like physicists’ molecules, atoms, hadrons – have been found to be themselves made up of more fundamental constituents. Similar movement through progressively “deeper” descriptions can be found in the historical development of other sciences. This does not prove that there is no fundamental level (or that we will never find it). But it does give us a meta-inductive reason to think that, for any given putative “fundamental” description of reality, that description will turn out, in the fullness of time, to be non-fundamental. The evidence provided by the history of scientific progress provides defeasible reason to expect that there are no ungrounded things which serve as the sole, satisfying explanation or basis for all else. Again, the commitment to identifying further reasons behind anything – with no commitment one way or another concerning whether that sequence of reasons must end – has some non-trivial intellectual precedents.

In more abstract terms, any restricted PSR will face a charge of arbitrariness. The foundationalist alleges that, at a certain point, no further explanations can be given. Thereby, she contradicts the basic demand of the PSR (while the non-foundationalist does not), that everything must derive from some reason. Whenever we decide to call some level the fundamental one, we will face the inevitable question: why are we stopping here, of all places? Why is this the moment when things are going to have no further grounds – and need no further grounds? The foundationalist must give a principled answer to questions like these. There is a risk that any potential answer – any preference for one of the successive levels to be considered as the fundamental one – will turn out to be arbitrary. For example, to allege that something is to be exempted from the demands of the PSR because our available technology doesn’t allow us to discover more about it isn’t a compelling jus-

tification for an exemption. Our current abilities surely don't settle how the world really is, and our inability to provide reasons doesn't settle whether any reasons could be provided. To be exempted from the demands of the PSR, then, any candidate fundamental level must be shown to embody some characteristics which non-arbitrarily demonstrate that no further reasons may be given for it.

Pruss' preferred PSR is restricted to contingent propositions only. For Pruss, such a restriction is "natural and forced by the current state of the art," which is such that we "simply do not have a good handle on the nature of explanations of necessary propositions."⁵⁸ One may demand an explanation for any given contingent proposition, but not every necessary proposition. This avoids some of the arbitrariness inherent in a restricted PSR: there's a principled reason – necessity – which exempts certain propositions from the demand. But to ask, of some necessary proposition, why it is true, or what the reasons for it are, isn't at all an unreasonable request. Someone who knows enough things might, it seems, offer reasons for a necessary proposition, just as they may offer reasons for contingent propositions. It isn't clear why we should expect necessary propositions to receive explanations of a wholly different nature than those of their contingent counterparts. It is even less clear why that difference should indicate a difference in the applicability of the PSR.

But even if we accept Pruss' motivations for excusing necessary propositions from his PSR, these motivations don't carry over well to the grounding foundationalist's need to excuse certain things from the apparent need for further grounds. Although perhaps it's right that the "state of the art" of the explanation literature might rule out coherent treatments of reasons why for necessary facts – perhaps there simply is no reason why it is true that $2 + 2 = 4$, and it makes no sense to ask for one – it seems like the necessary facts may have *grounds*.⁵⁹ At any rate, even if there is something which the foundationalist may

⁵⁸Pruss (2006: 10)

⁵⁹See Amijee (2020: 72) for a similar response to the contingent-only version of the G-PSR.

excuse from the demand for further grounds, I know of no such thing.

To combine a (restricted) G-PSR with foundationalism also opens the principle up to a famous objection, which may be avoided if foundationalism is rejected.⁶⁰ In brief, and in the language of grounding, the charge concerns how one might explain the entire sequence of grounded entities. Call that sequence “S”. According to the G-PSR, there must be a grounds for S – call it G. But, then, G is part of S, by virtue of being the grounds of something. Then, S partially grounds itself. But nothing can do that. So, G-PSR must go.

This objection to the G-PSR works only if nothing may partially ground itself. This premise is just the Asymmetry Thesis (AT) of the so-called “orthodox package” introduced in Section 1.1. As I’ll argue in the next section, and again, somewhat differently, in Section 2.4, there are compelling reasons to reject AT. A non-foundationalist may simply deny AT and maintain that there is nothing untoward about S grounding itself. By the same token, the non-foundationalist opens the way for a PSR-based argument against FT. On the other hand, any G-PSR-based argument for foundationalism must grapple with the untenability objection in some other way, because any foundationalist will deny that anything could partially ground itself.⁶¹ Since the foundationalist PSR is open to an objection which its non-foundationalist counterpart pre-empts, we might be more inclined to endorse its latter form over the former.

I’ve already mentioned Dasgupta’s foundationalist G-PSR, which is restricted to non-autonomous facts, which are apt to be grounded. The class of autonomous facts is non-empty, he argues, because, without them, no explanation could be satisfying. In his illustration, the PSR is likened to the demand to answer a persistent child’s repeated question:

⁶⁰This objection is famously described by Van Inwagen (1983) (2009: 149–159) and J. Bennett (1984).

⁶¹Pruss’ defence of his restricted PSR against necessitarianism is that necessary propositions may explain contingent propositions (2006: Section 6.3). Even if this argument is compelling about explanations between propositions, to employ this response to defend a grounding PSR with exceptions is to run afoul of the widely-endorsed principle that grounding necessitates. Here, again, a non-foundationalist PSR – which states simply that there is a sufficient reason for everything, with no exceptions – pre-empts this objection. If there are no fundamental things, it won’t follow that these things must be necessary.

“but why?”

Would citing some non-terminating descending chain of grounds [...] answer her question? I think not. For her question is not answered at the first step when one describes the particle arrangements, since (as we have seen) she will just complain “Yes, but why is the world like *that*?” But the same goes for any step in the chain. So all we have in a non-terminating descending chain is infinitely many bad answers. And infinitely many bad answers do not constitute a good answer.⁶²

In other words, Dasgupta maintains that no non-terminating sequence of grounds could satisfy the PSR. Presumably, none of the reasons encountered “on the way down” through an infinite sequence – molecules, atoms, fields, and so on – would be a *sufficient* reason.⁶³ A sufficient reason, Dasgupta suggests, can only be one which puts an end to a sequence. This recalls a foundationalist assertion from Section 1.2: only an explanation which invokes fundamental things may count as a “completely satisfactory” explanation. So, as interpreted by Dasgupta, the PSR rules out chains of grounds without ungrounded things. Anyone committed to the PSR must, therefore, also be committed to the existence of endpoints for such chains – ungrounded things – which alone can serve as sufficient reasons. In other words, anyone committed to the PSR must be committed to a restricted version of that principle which allows explanations to “bottom out” at autonomous facts.

But a non-foundationalist will deny that no unending sequence of explanations can be satisfying, or that the only “sufficient” reason which may satisfy the principle is offered by ungrounded things. Indeed, not every satisfying explanation invokes ungrounded things.

⁶²Dasgupta (2016: 382–383). Compare Dasgupta’s “bad answers” to Fine’s “not completely satisfactory explanations” in the absence of foundations (2010: 105).

⁶³Bliss (2013: 415) also suggests that the PSR may motivate foundationalism. She advises foundationalists against such an argument due to the high cost of the commitments the PSR brings.

We've already seen that there seems to be no compelling reason to think that any satisfying explanation demands invoking foundations. Nor does the PSR's historic or basic form require that a sufficient reason be such that there are no further reasons behind it. I am not moved by the assertion that only ungrounded things could provide sufficient reasons. So, I see no motivation to endorse the restriction on PSR.

Proving that the PSR must have some restrictions isn't, on its own, enough to prove FT. That's because certain restrictions on the PSR are trivial. Consider restrictions which exempt a particular class of facts from the PSR, while that class happens to be empty. For example, "for any x , there is some y such that y grounds x , provided that x is not the fact $[P \wedge \neg P]$." Even given this restriction, FT is still false, because there are no ungrounded facts. So, not only must any restriction on the PSR be well-motivated, it must also show that there are, indeed, facts which meet the conditions that the restriction describes. So, Dasgupta's G-PSR must be accompanied by a proof of the existence of any autonomous facts whatsoever, in addition to a proof that these facts provide satisfying explanations.

My skepticism about the supposed explanatory power of facts at which all questions bottom out might also be read as skepticism about whether there are any autonomous facts at all. No fact strikes me as "not apt to be grounded": there seems to be nothing for which a further metaphysical explanation cannot be provided, or no fact which cannot have another fact underlying it.⁶⁴

Even if a restricted PSR were justified, and defenders of that restricted PSR were to have convincing responses to objections, they would face another problem. I suspect that, if we were to encounter ungrounded things, we wouldn't be very satisfied with explanations which they would license. I doubt that the way to respond to the curious child in Dasgupta's example is simply to arrive at the things "not apt to be grounded". These

⁶⁴In Section 4.5, I will propose that, even if no *individual* fact may be autonomous, there may be *groups* of facts which are jointly autonomous.

would only raise a new question: “why are they so inapt?” This question wouldn’t just prompt a new sequence of questions. It would also undermine the explanation in terms of autonomous facts. For the same reason, I don’t expect very satisfying explanations to be provided by fundamental things. Foundationalist explanations strike me as far from sufficient but, instead, unsatisfying – at least in comparison to certain alternatives. In Section 1.2, I argued that foundationalist metaphysical systems are superior to infinitism, but inferior to coherentism, in terms of their theoretical virtues. In Chapter 3 of this dissertation, I will argue that foundationalist explanations are superior to infinitist ones, yet inferior to coherentist ones: only the latter allow us to “make sense of explanation as a complex holistic system.”⁶⁵

I’ve been raising worries against foundationalism which amount to variations on a theme: once a sequence of questions or demands for explanation gets going, it’s difficult to imagine that sequence just stopping. But, effectively, a restricted PSR requires that that sequence just stop, at some class of facts which are an exception to the general rule, and about which the same questions can no longer be raised. So, I’m moved to think that only the fully general version of the grounding PSR is compelling. Perhaps some forthcoming argument will defuse these worries and vindicate foundationalism by demonstrating a “natural resting place for thought”. But, given what I’ve said so far, I find that position unattractive. I’ve argued, in Section 1.2, that no arguments for foundationalism are compelling. Beginning from a neutral starting-point, I can see no reason to presuppose foundationalism beyond what Bennett called a “powerful intuition”. In this section, I’ve described anti-foundationalist intuitions rivalling it in power. One who begins from a neutral position shouldn’t be moved to foundationalism without more argument.

I recognize the worth of certain considerations in favor of foundationalism. In the final chapter of this dissertation, I’ll present a form of coherentism which accommodates many

⁶⁵Thompson (2019: 113)

of these intuitions. But the point of this argument so far has been to show that, although one may rationally endorse foundationalism, one doesn't have to. In other words, foundationalism isn't obviously true. One might have a better view of reality, and a better way to solve some philosophical problems, if one endorses a somewhat different answer to the question of overall structure.

1.4 The Asymmetry Thesis

So far, I've suggested reasons against FT: the claim that there are certain ungrounded things. In Section 1.2, I've argued that none of the arguments in favor of FT – the inheritance argument, the theoretical virtue argument, or the explanation argument – are compelling. This suggested that FT tends to be *assumed*, rather than *argued for*. I've also argued, in Section 1.3, that FT isn't a supremely plausible initial assumption, because it violates a rough constellation of plausible principles associated with the PSR. So, I see no principled reason for endorsing FT, and nothing *prima facie* wrong with non-foundationalist answers to the question of overall structure, infinitism and coherentism.

But my goal isn't just to argue against foundationalism. I intend to clear logical space for coherentism. Infinitists, too, deny FT. But they do so while maintaining AT: the thesis that all grounding is asymmetric. Coherentism is the claim that there are at least some grounding loops: situations in which things ground each other or participate (perhaps indirectly) in grounding themselves. AT is quite widely believed. But what principled reason have we got to believe in it?

In this section, I will focus on direct arguments for AT. But one may instead offer an indirect argument for AT: it is entailed by IT (irreflexivity) and TT (transitivity). If both of these are true AT is no additional commitment for the orthodoxy, but a consequence

of others. Since IT and TT together rule out coherentism, it cannot be true unless one of them is false. Since both seem quite plausible, coherentism is in a bind.

To my mind, this represents a choice-point for coherentists. They may deny IT or TT.⁶⁶ But rejecting either becomes far more plausible once we consider that any plausible coherentist web will be relatively large: many connections would be exceedingly tenuous, connecting things only through the mediation of others, in a kind of indirect way. Denying IT, then, might be combined with the clarification that things only contribute to grounding themselves in a derivative way: facts will ground themselves because of their relationship with other facts. They couldn't do so on their own. Something may end up grounding itself, just because of how it is bound up with other things. On the other hand, TT could be denied with a similar caveat. That caveat is that things don't end up getting grounded in a kind of direct way by all the other participants of the grounding web: they are only grounded by their immediate "neighbors" and are related in a sort of mediate way, which is not the same as grounding, to other participants in the web. Although these moves are both unorthodox, I don't consider either absurd. If we have no plausible reason to believe AT, then, surely, we may have some reason to doubt one of IT and TT.

Let's turn to some reasons why one might be inclined to believe AT. Some argue that grounding is a kind of causation.⁶⁷ Others argue that grounding and causation are both members of a single kind.⁶⁸ These are two ways of claiming that grounding is *of a kind with* causation. Call this thesis $G \approx C$.⁶⁹ Together with the fact that causation is generally considered asymmetric, this suggests the Causal Argument for AT:

1. Grounding is of a kind with causation. ($G \approx C$)

⁶⁶Thompson (2020: 264) suggests that views which maintain mutual grounding should deny IT.

⁶⁷For example, Schaffer (2012: 122) (2016: 96), Fine (2012: 40), A. Wilson (2018).

⁶⁸For example, Audi (2012a) (2012b), who calls the genus "determination", and K. Bennett (2017), who calls it "building".

⁶⁹This symbolism evokes A. Wilson's stronger thesis, that grounding *is* metaphysical causation, which he represents "G=MC" (2018: 723).

2. Causation is asymmetric. (CA)
3. Therefore, grounding is asymmetric. (AT)

$G \approx C$ seems plausible. Grounding and causing are ways of making something the case, of producing or bringing about or being responsible for something, and both embody a “causative’ feel of making or shaping or generating.”⁷⁰ Both offer distinctively metaphysical answers to questions like “good grief, how come it all turned out like *this*?”⁷¹ References to both are signalled by locutions like “because”. Both play a similar role in the methodologies of their respective disciplines. Both face broadly empiricist criticisms. Some would deny CA, but I will grant it without argument.⁷²

As written, the Causal Argument is invalid. It does not follow from the fact that x and y are of the same kind that, for any property P which x has, y has P . A more cautious argument would take $G \approx C$ to suggest that it is likely that grounding shares the features of causation. CA makes it likely that AT is true, because it is likely that relations of the same kind are structurally alike.

This cautious version of the argument is not compelling either. Belonging to the same kind only justifies alleged shared features if something about that kind suggests that these are the features to be shared. For example, the conclusion that I am mortal does not follow from the premises that I am of a kind with Socrates and that Socrates is mortal. If it did, by the same logic, it would follow that I speak Greek (because I am of a kind with Greek-speaking Socrates). But that does not follow. Socrates and his mortality are irrelevant to my mortality. That I am mortal follows from the fact that I am human and the

⁷⁰Schaffer (2016: 53). Typically, AT is cited as evidence for $G \approx C$ (Audi (2012a: 105) (2012b: 692), Schaffer (2016: 52–55), K. Bennett (2017: 32–34), A. Wilson (2018: 727).) Of course, $G \approx C$ could not be a premise for establishing AT if one were to argue for AT on the basis of $G \approx C$. I grant that there may be other considerations in favor of $G \approx C$.

⁷¹This is how Dasgupta describes the sorts of questions which descriptions of grounding relations would answer. He does not argue that causation would be relevant to answering them as well (2016: 382)

⁷²Consider, for instance, arguments for the possibility of time-travel involving causal bootstrapping. See Lewis (1976)

fact that mortality is a feature intrinsic to what it is to be human.⁷³

In the same way, that causation is asymmetric isn't obviously relevant to establishing that grounding is asymmetric. Instead, the conclusion is implied by the assumption that asymmetry is an intrinsic feature of the kind to which grounding and causing both belong.

What kind could this be? Grounding doesn't make things happen, or precipitate events, or shape the future, or many other things which causation seems to do – at least not in the way in which causation does. The most natural commonality between both relations seems to be that both track satisfying answers to “why?”-questions (albeit questions of different kinds). Citing the causes of events and the grounds of facts are appropriate ways to answer such questions, or to explain things in the respective contexts. The sense that grounding and causing are alike might just come down to this: both can participate in or contribute to explanations.⁷⁴ Then, the true reason for endorsing AT is the thesis that explanations of all sorts – grounding explanations and causal explanations and others – are asymmetric.

The most compelling version of the Causal Argument, then, turns on the assumption that any explanation is asymmetric. Call this thesis EA. That explanations are asymmetric secures the inference from the similarity between grounding and causation to AT.⁷⁵ If this reading of the Causal Argument is correct, causation *per se* is irrelevant to proving AT. The important argumentative work is achieved by EA, along with some link between

⁷³Perhaps Socrates' humanity and mortality are some evidence for the fact that to be human is to be mortal – they incline us to believe that that's the case – but they (Socrates and his mortality) don't contribute to my being mortal. Likewise, causation's asymmetry may, at most, be evidence to believe that some further kind of metaphysical relation which includes both causation and grounding is asymmetric. But it's not very conclusive evidence.

⁷⁴Certain influential theories of explanation – among them that of Aristotle and David Lewis (1986b: 73) (1986a: 217) – suggest that all explanations are causal (although it's controversial whether Lewis' account is meant to capture explanations of things *other than* events (see Dixon (2020: 129, fn.4) If that's correct, nothing can be distinguished from causation for being explanatory, because causation is explanatory by definition.

⁷⁵That grounding and causation are both kinds of explanation is a specification or instance of the thesis $G \approx C$, which does not specify to *which* kind both belong.

causation and explanation, not $G \approx C$ and CA. Then, there can be a more direct argument for AT.

Recall from the introduction of the concept of grounding in Section 1.1, that the connection between grounding and explanation - although complicated - is more-or-less consensus.⁷⁶ Some justify AT by appeal to the asymmetry of explanation. “Just as cyclical explanations are prohibited,” Raven argues, “so too are cycles of ground.”⁷⁷ Here’s the Explanation Argument for AT:

1. Grounding relations enable or back or *are* explanations. ($G \approx E$)
2. Any explanation is asymmetric. (EA)
3. Therefore, grounding is asymmetric. (AT)

EA seems plausible. Many explanatory failures are typified by cyclicity. But it is not clear why we should endorse it. The universal prohibition on cyclical explanations substantially under-represents the variety of explanations.⁷⁸ Many accounts describe explanations as involving unification, success, or some other things which don’t seem to prohibit cycles. Certain cycles, finite or infinite, do not undermine but enable explanation.⁷⁹

What motivates EA? Why prohibit mutual explanations? Recall that Fine claims that asymmetry is “a plausible demand on ground or explanation that we are unable to evade.” An explanandum, he continues, “should have a ‘completely satisfactory’ explanation, one that does not involve cycles.”⁸⁰ By Fine’s lights, apparently plausible mutual explanations

⁷⁶Maurin (2019), among others.

⁷⁷Raven (2013: 194) (2015: 327) (2016: 614). Compare Tahko and Lowe (2020)’s argument for the asymmetry of ontological dependence, which, they claim, follows from the fact that “two distinct states of affairs cannot *explain each other*”.

⁷⁸Thompson (2016: 43–46) considers essentially the same argument. She argues that there are many instances of plausible symmetric explanations. Similar arguments are given by Jenkins (2008) and Jansson (2017: 20–21). We will return to these arguments in Section 2.4, and again in 3.3.

⁷⁹Bliss (2013), Rodriguez-Pereyra (2015), Barnes (2018), and Nolan (2018) defend some distinctively metaphysical explanatory loops.

⁸⁰Fine (2010: 105)

are not satisfactory. But what is the reason behind this judgment? What do mutual explanations lack, which prevents their being completely satisfactory?

A common way to motivate EA in support of AT is to invoke priority. If one thing is prior to another, it obviously cannot be posterior to that same thing. Cameron stresses the connection between successful explanation and priority (expressed in Bennett’s “building” idiom) as follows. An explanation of a fact A which invokes that same fact cannot be a good explanation of where A comes from, he argues, because

it *presupposes* that A is here in the first place. Likewise if A builds some distinct B which in turn builds A. Where did they both come from, then? [...] The central problem, in both cases, is that it seems we need the builder “before” we can get the built, and both reflexive and symmetric cases of building require us to already have that which is built in having the builder: either because that which is built is the builder, or because it is needed to build the builder.⁸¹

Cameron’s case for AT is a version of the Explanation Argument. The problem with cycles of explanation is expressed with metaphors referring to movement and time. There’s a problem with where a grounding loop came from, and the builder must come before what is built. Both claims sound plausible when read literally, as does the ban on *diachronic* grounding loops.⁸² But grounding isn’t diachronic: there is no temporal “delay” between grounds and grounded. Aesthetic features do not come *after* physical features, for instance. Synchronic mutual grounding won’t be problematic for reasons having to do with priority in time. Presumably, the priority we’re interested in is of a different kind.

Rosen’s argument for AT also refers to priority, although his language is more strictly

⁸¹Cameron (2019: 484). Original emphasis.

⁸²Lewis’ (1976) famous example of closed time-travel loops comes to mind as a counter-example. See also K. Bennett (2019: 508)

logical or epistemic. “When we cite grounds for [p],” Rosen argues, “we cite facts that are strictly prior to [p] in a certain explanatory order. If [q] plays a role in making it the case that p, then [q] must be ‘more fundamental’ than [p], in which case [p] cannot play a role in making it the case that q.”⁸³

Rosen ties the asymmetry of explanation to the asymmetry of relative fundamentality. Grounding must be asymmetric because any explanation must follow a certain order, such that any *explanans* is prior to any *explanandum* in that order. Specifically, this is the order established by the “more fundamental than” relation.

As a claim about explanations in general, Rosen’s claim is false. Many instances of explanation obtain between things which are equally fundamental. The following sounds like a perfectly acceptable causal explanation: the window broke because it was struck by a flying baseball. But it would be strange to claim that one of these events is more fundamental than the other.

So, Rosen shouldn’t be taken to claim that *all* explanations track the fundamentality ordering. It must be that only the distinctively metaphysical “grounding explanation” does so. This is also the best interpretation of Cameron’s point: a good answer for “where a grounding loop came from” must identify its antecedents, not in the temporal order, but in the order of fundamentality. In other words, we must “already” have the grounds “prior” to the grounded if we are moving from the most to the least fundamental. This also makes sense of Fine’s demand for a “completely satisfactory” explanation. A grounding explanation is only “completely satisfactory” if it identifies the more fundamental basis for a less fundamental fact. Explanations are particularly interesting and illuminating when they reveal a new, deeper level. When we come to see how neurological features give rise to psychological features, for example, or how physical properties give rise to chemical properties, we sense that we have genuinely identified some of the metaphysical structure

⁸³Rosen (2010: 116). In his notation, “[x]” represents “the fact that x”.

of reality. If that's right, explaining in the metaphysical context is just tracking what's more fundamental.

So, the most compelling version of the Explanation Argument for AT turns on the assumption that any instance of grounding tracks relative fundamentality. In other words, this assumption is that, for any x and any y , if x grounds y , x is more fundamental than y . Call this thesis G-F. Since the fundamentality ordering is asymmetric, so, too, is grounding. Perhaps explanations, as they are understood by ordinary language, philosophy of science, or epistemology, need not track an asymmetric order. But, in metaphysics, explanations must be about what is more fundamental than what, and, so, they must be asymmetric, and AT is true. Or so it is alleged by this argument.

But, if this reading of the Explanation Argument is correct, explanation *per se* is irrelevant to proving AT. The important argumentative work is achieved by G-F, not $G \approx E$ and EA. Then, there can be a more direct argument for AT.

The connection between grounding and fundamentality might justify AT. One of the attractions of the grounding picture of metaphysics is that it affords us the ability to account for the relative fundamentality ordering – what is more fundamental than what – on the basis of the grounding ordering – what grounds what. In other words, ground provides the “relational underpinning” required for talk of relative fundamentality.⁸⁴ Without AT, the grounding ordering cannot help us to establish how fundamental things are relative to each other.

Here's the Fundamentality Argument:

1. Any instance of grounding tracks relative fundamentality: the grounds are always more fundamental than that which they ground. (G-F)

⁸⁴Fine (2001: 25). See also K. Bennett (2017: 40) and Tahko (2018a: Section 1.2)

2. Any instance of relative fundamentality is asymmetric. (FA)

3. Therefore, grounding is asymmetric. (AT)

FA is not just plausible, but analytically true. Nobody could be both taller and shorter than somebody else. For the same reason, nothing can be both more and less fundamental than something else.⁸⁵

The Fundamentality Argument trades on the importance of grounding for establishing the layered description of reality. Even beyond metaphysics and philosophy, there is a deeply-seated and widely-endorsed framing assumption that the world’s furniture falls in a hierarchy of levels, some more fundamental than others.⁸⁶ To some, grounding is an appealing theoretical tool because with it, we can describe the “hierarchy” without introducing new primitive concepts: we can account for the fact that one thing is more fundamental than the other in terms of their position in the grounding chain. But this demands that FA be true: there can be no such ordering if things at one level can be simultaneously above and below those at another level.⁸⁷ Since it allows for the compelling hierarchy intuition to be cashed out in terms of grounding, G-F seems like a good principle to endorse.

If the Fundamentality Argument succeeds, it accounts for the success of both the Causal Argument and the Explanation Argument. The Explanation Argument must show why grounding explanations must be asymmetric. One plausible reason for this is the implicit premise that grounding explanations must link things at different levels of fundamentality, which is explicit in the Fundamentality Argument. The Causal Argument must show why anything of the general grounding-causation kind must be asymmetric. Again,

⁸⁵Perhaps fundamentality is best understood as relativized – to kind, context, or something else. If that’s right, it may be the case that, for two things x and y , x is more fundamental than y relative to context A , and y is more fundamental than x relative to context B . Nonetheless, it sounds contradictory for one thing to be both more and less fundamental than another in the same context.

⁸⁶Lovejoy (1936) offers a thorough history of the idea of the “Great Chain of Being”. Cf. Bliss and Priest (2018a).

⁸⁷Rabin (2018)

the implicit reason for this seems to be that grounding is explanatory ($G \approx E$), and that explanations are asymmetric (EA), which, in turn, is justified if grounding explanations link different levels of fundamentality.

But if G-F is false, all three arguments fail. If G-F is false, there is no reason to think that the explanations which grounding provides must be asymmetric, and EA is false. If EA is false, there is no reason to think that the kind to which both causation and explanation belong is asymmetric. In that case, the Causal Argument fails as well.

G-F is false. Although many cases of grounding do track relative fundamentality, some do not. In some cases, grounding relations can plausibly obtain between equally fundamental facts.⁸⁸

Consider two propositions:

- B = <C is true.>
- C = <B is true.>

Suppose that both B and C are true. In virtue of what is B true? In other words: what grounds the fact that B is true? The truth of any true proposition is generally taken to be grounded in its content, or by what the proposition states. B states: C is true. So, the fact that B is true (if B is true) is grounded by the fact that C is true. Likewise in reverse. What grounds the truth of proposition C? A proposition's truth is grounded by its content. C's content is "B is true". So, the fact that C is true is grounded by the fact that B is true. So, we have two facts – the fact that proposition B is true and the fact that proposition C is true – which ground each other. Neither the fact that B is true nor the fact that C is true can be more fundamental. There is no plausible reason to think oth-

⁸⁸This example follows Rodriguez-Pereyra's (2015: 528–531) argument for the symmetry of grounding. Note that Raven's (2016) fundamentality as ineliminability is, on its own, consistent with mutual grounding among the fundamental things, as explored in Section 4.5.

erwise. These facts are precisely analogous in every way which could conceivably bear on how fundamental they are.

If it is possible that B and C are both true, they are a counterexample to G-F. That is, not every instance of grounding tracks relative fundamentality. B and C are equally fundamental. But B grounds C. I see no reason to think that the situation is not possible.⁸⁹

Note that the truth of B and C doesn't presuppose that the world must be *flat*.⁹⁰ That is, it's not a world in which everything is equally fundamental, and everything is grounded in everything else. Consider proposition D: <There are at least two true propositions.> If B and C are true, D is true too. It is true in virtue of B and C. But B and C are not individually nor collectively grounded by D. D makes no difference to B nor C. So, there are at least two levels of fundamentality. The more fundamental one contains B and C. The less fundamental one contains D. Although not every claim about grounding tracks a difference in fundamentality, each difference in relative fundamentality is the product of some grounding relation.⁹¹ In this case, B and C are more fundamental than D because B and C ground D. A connection between grounding and fundamentality, demanded by the compelling hierarchy intuition, remains. But G-F is false. Not every instance of grounding tracks relative fundamentality - they track something else entirely.

⁸⁹One may object that the relationship between B and C is impossible, perhaps because both B and C are, in a sense, empty: there is nothing which either of them actually says. In response, I maintain (again following Rodriguez-Pereyra (2015: 526–528)), that this sense is driven primarily by a theory of truth which may be reasonably rejected. According to this view, the truth of any proposition must be ultimately grounded in non-semantic content, but the content of B and C is merely semantic. However, it seems just as plausible to claim that the pair B and C is actually a counterexample or an exception to this general rule: it does seem possible for both of them to be true at once. Thank you to Michael Rieppel for discussion on this point. Chapter 2 of this dissertation, I consider a number of other instances of mutual grounding, which may serve in place of this example instead.

⁹⁰For a critique of the view that the actual world is flat, see K. Bennett (2017: 215–230)

⁹¹Note that not every difference in fundamentality is accounted for by some grounding relation between the two specific things which differ in terms of fundamentality. That is, it's not the case that whenever it is the case that x is more fundamental than y, x grounds y. Perhaps the atoms which ground you are more fundamental than I am, even though there is no grounding connection between your atoms and me.

Since G-F is false, all three arguments for AT fail. The Fundamentality Argument fails because its first premise (G-F) is false. The Explanation Argument fails because its second premise (EA) is unjustified: since there is no connection between grounding and fundamentality, there is no reason to think that grounding explanations must be asymmetric. The Causal Argument fails because its premises fail to imply its conclusion: unless they both belong to a further, intrinsically asymmetric kind, the fact that causation and explanation are of a kind does not support AT.

1.5 Conclusion

The goal of this chapter has been to “make room” for coherentism. In other words, I’ve shown that a view according to which the structure of reality is an interdependent network, system, or web, is not obviously false. This view contradicts the orthodox conception of grounding. In particular, it contradicts both the foundations thesis (FT) and the asymmetry thesis (AT). I’ve argued that one may reasonably deny both FT and AT. In Section 1.2, argued that the inheritance, satisfactory explanation, and theoretical virtues arguments for FT fail. In Section 1.3, I argued that there are good reasons not to assume FT. In Section 1.4, I argued that the causal argument, the explanatory argument, and the fundamentality argument for AT fail. In the next chapters, I will turn to consider positive arguments in favor of adopting coherentism as the default view in place of the orthodoxy.

Chapter 2

Grounding Must Explain

Abstract

In this chapter, I argue that claims about the distribution of explanations can serve as premises in arguments for conclusions about the distribution of grounding relations, or that claims of the form “ x explains y ” are evidence for corresponding claims of the form “ x grounds y ”. My main argument is abductive. I argue that the most compelling reason to posit the existence of grounding relations is that they alone can account for the success of certain explanations. This means that what explains what provides an isomorphic guide to what grounds what. I defend this position against an objection, arguing that any account on which grounding and explanation diverge is susceptible to skeptical objections. I close the chapter by exploring an upshot: in some instances, mutual explanations imply mutual grounding.

2.1 Introduction

In Chapter 1, I introduced the Question of Overall Structure. That question asked what *shape* the entire collection of grounding relations would have, were it to be arranged before us. I criticized the orthodox answer to this question: foundationalism. According to grounding foundationalists, everything is grounded asymmetrically, and all chains of grounding ultimately terminate at ungrounded, fundamental facts.¹ I argued that none of the widely cited arguments for foundationalism are compelling. I argued, further, that foundationalism isn't overwhelmingly plausible as a starting assumption, because it conflicts with other, comparably plausible principles. I concluded, therefore, that there was space for alternative, non-foundationalist positions regarding the Question of Overall Structure.

Coherentism offers a promising alternative to foundationalism. My main argument for coherentism will come in Chapter 3. There, I will argue that a coherentist account of the structure of reality best approximates how metaphysical explanations may genuinely explain by offering understanding. Understanding, I will argue, is characterized by recognizing interrelations among discrete parts of complex systems, what one epistemologist describes as “putting together an intellectual puzzle.”² Further, explanations characteristically offer understanding, making it possible for us to so “put things together”. Since explanations are guides to coherentist structures, grounding, too, will have a coherentist structure, since grounding is most commonly closely related to (perhaps distinctively metaphysical) explanation.

The argument to come turns on the conceptual ties which bind together grounding,

¹Here, and throughout, I assume that the *relata* of grounding relations are facts. I make this assumption because, as this chapter will make clear, I believe that the nature of grounding is intertwined with the nature of explanation. Since the *relata* of explanation relations are facts, not things, I take the *relata* of grounding relations to be so too.

²Kvanvig (2011: 89)

explanation, understanding, and coherence. Perhaps the most controversial of these is the relationship between grounding and explaining. The burgeoning literature on that relationship casts it thoroughly into question. Although no discussion of grounding is complete without a characterization of that relation by means of explanation in some respect or other, what that characterization amounts to has, of late, become quite controversial.

I believe that there are many fascinating questions turned up by the ongoing struggle between “unionists” and “separatists” about grounding and metaphysical explanation. However, in this chapter, I aim to fly under the radar of both, and defend a claim which both parties agree on. I choose to do so because the argument of Chapter 3 does not presuppose any specific relation in particular – identity, backing, essential dependence, or any other – between grounding and metaphysical explanation. Rather, that argument presupposes only that the fact that x explains y provides us with a reason to believe that x grounds y . So, the argument requires only a basic connection: that the two relations share a pattern of instantiation, extension, or arrangement. In other words, I am interested in *where* they obtain, or which pairs (or pluralities) of facts are bound by them. I do not intend to argue for any intrinsic or essential connection between grounding or explanation. Nor am I committed to any particular account of the nature of grounding, or of the nature of explanation. My claim is only about how these relations are instantiated throughout the world – they have isomorphic patterns of instantiation.³ Sometimes, I will refer to these patterns as “structures”. When I talk about the “structure of explanations”, I mean the complete description of the way explanations are distributed or instantiated. Likewise, by the “structure of grounds”, I mean the analogous distribution or instantiation.

Expressed in those terms, I will argue that there are valid arguments of the following form:

³As I will soon specify, I mean only certain explanations: metaphysical explanations, the success of which cannot be accounted for without positing grounding relations.

1. The structure of explanations is F.
2. Therefore, the structure of grounding relations is F.

Call the claim that there are valid arguments of this form the “Target Claim” (TC). Specifically, TC states that it is valid to reason from the structure of explanation (that is, the arrangement and distribution of explanations throughout the space of facts) to the structure of ground (that is, the analogous arrangement of grounding relations). If it is valid to reason from the structure of explanation to the structure of ground, my argument from understanding in Chapter 3 is valid. According to that argument, explanations must offer understanding, and understanding can only be offered by coherentist structures: situations in which facts may explain each other, and in which no facts are unexplained. From this, I conclude that the structure of grounding relations, too, must feature mutual grounding, and no ungrounded things. TC vindicates this final step. So, I will arrive at coherentism.

My positive argument for TC will be this.

1. It is valid to reason abductively from claims about what explains what to conclusions about what grounds what.
2. If it is valid to reason abductively from claims about what explains what to conclusions about what grounds what, it is valid to reason from the structure of explanation to the structure of ground.
3. Therefore, it is valid to reason from the structure of explanation to the structure of ground. (TC)

In Section 2.2, I make this argument. I showcase the widespread use of abductive arguments from premises about explanations to conclusions about metaphysical structure.

Next, I show how reasoning of this same kind offers us the first and best reason for believing in the existence of any particular grounding relation: we can infer that any particular

grounding relation obtains because the success of certain explanations is, itself, best explained by a metaphysical relation between *explanans* and *explanandum*.

In Section 2.3, I defend this argument against a possible objection. That objection alleges, contrary to the widespread agreement which I've mustered, that the distribution of explanation relations cannot be used to determine the distribution of grounding relations. On the contrary, according to that objection, grounding is not related conceptually to explanation. But such a view, I argue, must be reasonably expected to provide an alternative way for understanding the grounding relation, in such a way that does not invoke explanation. No such explanation, I will argue, will be able to withstand skeptical arguments. As case studies, I present three different characterizations of ground in Subsections 3a-3c. Since no acceptable definition of grounding without explanation can withstand skeptical objections, I conclude that the argument for TC by abduction resists being blocked.

In Section 2.4, I explore an upshot of TC: symmetric, mutual grounding. Specifically, I describe plausible cases of mutual explanations between parts and wholes (2.4.1), properties and dispositions (2.4.2), and various other inter-definable properties (2.4.3) – each case presents us with mutual explanations.

2.2 A Family of Abductive Arguments

In a range of situations, the success of explanations is considered evidence for the world's having certain features. A venerable tradition of contemporary arguments derives metaphysical conclusions from premises about explanations. In that tradition, the reasoning from facts about explanation to facts about ontology is abductive. It is justified because the success of certain explanations itself demands an explanation. That second explana-

tion could only be provided by some facts about metaphysics. In this section, I will explore the development of this abductive reasoning in metaphysics. In the end, this exploration will reveal the deep conceptual connection between grounding and explanation, vindicating arguments from what explains what to what grounds what.

For example, consider the “No Miracles” argument for scientific realism.⁴ Scientific realists assert, and anti-realists deny, that the best current scientific theories are (at least approximately) literally true, even when they concern unobservable entities. According to the No Miracles argument, unless realism is true, science’s success at predicting the future is a kind of miracle. For a community or intellectual practice to have maintained a reliable record of success while operating with an untrue description of the facts certainly does seem miraculous. If the scientific anti-realist is correct, the history of science is precisely such a long-term miracle. According to the realist’s argument, the success of science is utterly baffling unless scientific realism is true. A view which posits miracles is inferior to one which does not, and we conclude that realism is true: the descriptions proffered by the best current science (at least approximately) glom onto reality.

The No Miracles argument is popular, but controversial.⁵ A full treatment of the debate about the argument is beyond the scope of this chapter. It would demand a much closer scrutiny of questions about the nature and methods of science, its goals, relation to truth, evidence, or representation. For my purposes, however, it suffices to recognize that many find it compelling. In particular, many are moved by its central tenet: a certain kind of success cannot be accounted for unless the world has certain ontological features, and the fact of that success is evidence for the existence of those features. The No Miracles argument is just one famous representative of a family of abductive arguments. These ar-

⁴For example, see Putnam (1975: 73), Boyd (1989), or Lipton (1994)

⁵One famous argument, associated with van Fraassen (1980), alleges that no additional ontology is required to account for the success of science, which may alternatively be explained by analogy to the trial-and-error progress of evolutionary development. Other opponents raise more wholesale criticisms of the intuitions underlying realist arguments. For a summary, see Devitt (2008: 227–229) or Frost-Arnold (2010).

guments turn on the claim that a certain broadly epistemic success must be underpinned by how things are.⁶

Next, consider the success of causal explanations. By “causal explanations”, I mean nothing more metaphysically loaded than bits of language which (purport to) identify the cause of some event. Discerning causes genuinely illuminates and improves our understanding of effects.⁷ When we realize that a window shattered because it was struck by a baseball, we come to understand that window’s breaking better. But why do causal explanations succeed? To what do they owe their explanatory force? An overwhelmingly plausible answer is analogous to the No Miracles argument: causal explanations succeed because they, in fact, glom onto reality. A good causal explanation succeeds because it tracks a metaphysical connection between cause and effect. It is from that objective, worldly connection that the explanation derives its potency. If we are not predisposed to include causal relations in our ontology, a compelling argument for doing so is that, without them, causal explanations are utterly baffling and miraculous.⁸

To see how metaphysical connections underwrite explanations, consider how puzzling causal explanations are if one assumes a Humean eliminativism about causation. On that view, the encountered regular conjunctions of discrete occurrences signal no deeper con-

⁶Not all versions of the No Miracles argument for scientific realism involve an epistemic component. For example, one may argue directly from the fact that the methods of natural science successfully predict future events, without invoking any specific mental state in any particular thinker or individual. Nonetheless, at least one version of the argument succeeds precisely because the fact that natural phenomena can be explained scientifically itself demands explanation.

⁷For simplicity, I assume that the terms in any causal explanation will refer to events. Some may deny this, maintaining instead that causal explanations may refer to *properties*, or *things*, or *agents*, as causes. But the nature of the causal *relata* doesn’t undermine my overall point, which is to identify instances of plausible and widely endorsed abductive arguments which move from the structure of explanations to the structure of reality. Consider agent-causation: if the appropriate explanation of some motion ultimately terminates at an *agent*, the success of that explanation remains baffling and perplexing unless we admit into our ontology a new kind of entity - an agent. Thus, the success of the explanation bears consequences for the nature of reality. This apparent commitment to a bifurcated ontology serves as the basis for a number of objections to agency theory.

⁸Tooley (1988: 297–303) presents an argument like this one in favor of a specific brand of realism about causation.

nections between (so-called) causes and effects – there are none.⁹ To a Humean, events succeed each other only accidentally: it is perfectly conceivable for a window struck by a baseball to undergo a thousand different transformations instead of shattering. If Humeanism is true, it is a mystery why, luckily or unluckily, any given baseball-struck window has happened to shatter. Without the necessary connection between the two events, the striking could not wholly explain the shattering. But it does. Without a causal relation between the events, the success of causal explanations is a profound mystery, accident, or miracle.¹⁰

The Humean, or other kinds of causal eliminativist, may seek to explain the perceived success of causal explanations by some other means. But any such explanation is inferior to the simplest one. Here, again, much more remains to be said to appropriately evaluate the argument.¹¹ But the explanatory argument for realism about causation, too, is a paradigm of a compelling abductive argument from explanations to metaphysical conclusions. The most natural way to account for explanatory success, in the case of causal or metaphysical explanations, is to recognize that success as adequately tracking the real, objective connections which obtain between different parts of reality.

Similar abductive considerations motivated many early arguments which anticipated the contemporary preoccupation with non-causal, metaphysical explanations. There are, after all, many explanations which succeed *without* connecting events in causal chains. Although the links in explanatory chains may be altogether different, the success of those explanations still seems to demand something to account for them. Ruben argues that a particular metaphysical structure is in fact the precondition for the success of any given

⁹This argument is presented most clearly in Section IV of Hume’s *Treatise*. Russell (1992: 193) famously called causation “a relic of a bygone age, surviving, like the monarchy, only because it is erroneously supposed to do no harm.”

¹⁰Without causal connections, causal explanations track only temporal succession. But that gets the order of explanations backwards. An appropriate answer to a question about succession – “why did event e follow event f ?” – identifies the causal link between e and f . Claiming that f causally explains e because f preceded e is precisely backwards.

¹¹Since anti-realism about causation is less popular than is anti-realism in science, this kind of abductive argument for the presence of causal relations has received less attention in the literature.

explanation. Objects or events, he argues, “*must really stand in some appropriate ‘structural’ relation before explanation is possible.*” Explanations work, when they do, only in virtue of underlying determinative or dependency structural relations in the world.”¹² According to Ruben, then, the success of some (perhaps non-causal) explanation entails the existence of some appropriate “determinative or dependency” relation. Without that relation, explanation would be impossible, or, perhaps, miraculous. Then, the success of the explanation “*x* because *y*” is a sufficient reason for thinking that there’s a metaphysical relation between whatever “*x*” and “*y*” refer to. Ruben’s reasoning is supported by an even stronger claim than in the abductive arguments discussed so far: the structural claim isn’t the best explanation, but the *only* explanation.

Formulating his “realist” theory of explanation, Ruben acknowledges the influence of Kim, who serves as a conceptual link between the general arguments for realism from explanation to arguments about what philosophers today discuss as grounding. “Explanations,” Kim argues “track dependence relations. The relation that ‘grounds’ the relation between an *explanans*, *G*, and its explanatory conclusion, *E*, is that of dependence; namely, *G* is an *explanans* of *E* just in case *e*, the event being explained, depends on *g*, the event invoked as explaining it.”¹³ Here, we are led to believe that worldly entities are bound by metaphysical relations – which Kim calls “dependence relations” – precisely because such relations are called-for by certain explanations. The explanations themselves must be somehow grounded, and the only thing which can secure them or explain their success is a certain worldly structure. Thus, clearly, the passage invites us to reason abductively from the structure of explanations to the metaphysical structure.

Now, consider the following explanations:

- (i) A&B is true because A is true and B is true.

¹²Ruben (1992: 210). Original emphasis. See also Schaffer (2016: 83).

¹³Kim (1994: 68). Original emphasis.

- (ii) {Socrates} exists because Socrates exists.
- (iii) I experience pain at time t because my C-fibers are firing at t .
- (iv) Torture is wrong because it inflicts unnecessary suffering.
- (v) *The Winged Victory of Samothrace* is beautiful because of its shape, color, texture, and other physical features.
- (vi) My sweater is red because it is ochre-red.

(i)-(vi) are explanations. In each case, the fact referred to by the right-hand side illuminates and genuinely improves our understanding of the fact referred to by the left-hand side. Each pertains to an issue – like the nature of existence, the mind, or the worldly basis of normativity – which has traditionally drawn the interest of philosophers working on metaphysics.¹⁴ Earlier in this section, I called bits of language which offer insights into events by (purporting to) identify their cause of some event “causal explanations”. Now, analogously, I’ll call bits of language which offer insights into facts by (purporting to) identify some fact which non-causally determines some other fact, like (i)-(vi), “metaphysical explanations”.

In each metaphysical explanation (i)-(vi), the *explanans* improves our grasp of the associated *explanandum*. Each of (i)-(vi) succeeds at improving our epistemic state. Why do they? What explains their success? It would be surprising were that success itself inexplicable, a stroke of luck, accident, or miracle. On the contrary, we should expect the success to be accounted for by the way things stand in reality, or some relation between *explanantia* and *explananda* which these explanations glom onto.¹⁵ Absent this relation,

¹⁴In the terminology of Richardson (2020: 201) (2021: 465–470), these are all examples of “what-grounding”. That is, each of the explanations turns on the *explanans* providing some illumination of *what it is to be* something.

¹⁵Or, in slightly different terms: we take “in virtue of” claims like (i)-(vi) to be (at least potentially) true. So, (i)-(vi) must be (potentially) made true by some feature of reality.

the explanations in question would not be satisfying. Just as success in scientific or causal explanations suggests metaphysical commitments, the success of metaphysical explanations suggests the existence of certain objective, mind-independent, non-causal metaphysical relations which the good explanations track. Call those relations “grounding”.

My aim in this chapter is moderately conservative. It is only to argue that there are valid inferences from premises about the structure of explanation to conclusions about the structure of grounding. Each of (i)-(vi) licenses an inference of the kind suggested by TC. That is, each of (i)-(vi) is a claim about the structure of explanations – what explains what – from which we draw an inference about the structure of grounding – what grounds what. For example, from the fact that I experience pain at time t because my C-fibers are firing at t , many will infer that the fact that I experience pain at time t is grounded by the fact that my C-fibers are firing at t . Similar conclusions are taken to follow from each of (i)-(vi). We have seen how this kind of reasoning is part of a tradition, whereby metaphysical underpinnings account for and explain the success of explanations. Just as successes in scientific explanations would be miraculous without realist commitments, so, too, would explanations of a wide swath of other facts be miraculous without metaphysical underpinning. So, the inference from the structure of explanations to the structure of grounds is essentially abductive. It is justified if there is no other way to explain why or how the explanations in question succeed.

But, as mentioned earlier, the relationship between grounding and metaphysical explanation is fraught with controversy. Metaphysical explanations have been alleged to have a puzzling dual nature. According to the authors of the encyclopedia entry describing metaphysical explanations, they

have one foot *in the world* – something to do with the way it is (causally or non-causally) structured seems to play a role. Metaphysical explanations are

metaphysical, after all (or so one might think). Yet they seem to have another foot in our *thought and communication about* the world – our desire for explanation (even if not a natural one, as Aristotle claims) is at least in part a desire to *understand*, to make the world *intelligible* to ourselves and others, to *learn* the why and how of things and what to *expect*, to satisfy our *curiosity*.¹⁶

This duality has prompted a discussion, the battle lines of which tend to be drawn between separatism and unionism.¹⁷ Unionists assert, and separatists deny, that metaphysical explanations are identical to grounding relations. However, as I will now argue, the claim that I’m defending – TC – will be true regardless of whether unionism or separatism is true (although, depending on which is true, TC will be true for different reasons). Regardless of whether one believes that grounding and metaphysical explanation are, in fact, one and the same, the structure of explanation relations may still serve as the basis for inferences about the structure of grounds.

Separatism neatly keeps the “metaphysical” and “communicative” apart. A separatist posits no mysterious “double nature”, no acrobatic straddling across a mind-world divide. For her, metaphysical explanations are as innocuous as their causal counterparts. A thoroughly metaphysical causation relation raises no ontological suspicions for occasionally rendering the unfolding of events intelligible to curious learners. Neither should a metaphysical explanation’s mere tracking of grounding relations, the separatist maintains, sully the latter’s reputation as metaphysical and objective. However, as the authors note, the separatist cannot cleave the Gordian Knot quite so cleanly. The conceptual bind between grounding and explaining is too integral to both notions to go unaccounted for. Separatists must, somehow, keep the explanatory and metaphysical components from “flying

¹⁶Brenner, Maurin, Skiles, Stenwall, and Thompson (2021). Original emphasis

¹⁷This terminology is due to Raven (2015: 326), who cites Dasgupta (2014), Fine (2012), Litland (2013), Raven (2012), and Rosen (2010) as representatives of this view. Some, like Maurin (2019) and Thompson (2020), suggest that the relationship between grounding and metaphysical explanation is more complicated than this dichotomy suggests.

off in opposite directions”.¹⁸ On the other hand, that the relation is both explanatory (in the intellectual sense) and metaphysical is exactly to be expected according to the unionist.¹⁹

If unionism is true, the argument for TC is mostly straightforward. If unionism is true, metaphysical explanations and grounding relations are one and the same. Suppose that “ x because y ” is a metaphysical explanation. Then, by the same token, x and y are bound by a relation of ground. Indeed, whenever two things are bound by a relation of metaphysical explanation, they are bound by a relation of ground – because those are just one and the same relation! It is plainly valid to argue from facts about the structure of one to facts about the structure of the other, in just the same way as it’s valid to argue from facts about bachelors to facts about unmarried men. It seems that any unionist must be committed to TC.

Of course, unionists will reject my characterization of “metaphysical explanations” as “bits of language”. On their view, metaphysical explanations are parts of the fabric of reality. A bit of language could never be a part of the fabric of reality. Therefore, unionists cannot think that a metaphysical explanation is *just* a bit of language. TC alleges a correspondence between actual explanatory practice and metaphysics. If the unionist specifies that her “metaphysical explanation” is a worldly phenomenon, diverging markedly from communicative phenomena, the previous paragraph’s direct argument from unionism to TC is blocked.

But, even given this obscure specification of unionism, on which grounding is a kind

¹⁸Brenner, Maurin, Skiles, Stenwall, and Thompson (2021)

¹⁹Brenner, Maurin, Skiles, Stenwall, and Thompson (2021) also propose an anti-realist strategy for solving this puzzle. Anti-realists about a particular domain deny that it describes a genuine feature of reality, only a species of construct, creation, or fiction, which are treated as if real out of convenience (or perhaps laziness). Like a moral anti-realist will explain morality’s unique and powerful psychological pull on us by calling morality a psychological phenomenon through and through, an anti-realist about grounding will claim that metaphysical explanations are true only according to a certain fiction – the fiction of grounding!

of explanation which diverges from our explanatory behaviors, the view still implies TC, albeit indirectly. If it is not a bit of language, the unionist’s metaphysical explanation must nonetheless correspond or be somehow associated with certain successful instances of conventional, ordinary, merely verbal explanation. They could not be called explanations were they not so related! For example, any plausible unionism must maintain that the mere verbal expression “*The Winged Victory of Samothrace* is beautiful because of its shape, color, texture, and other physical features”, if it is not identical to a metaphysical explanation, must, at least, be referring or mapping onto some such explanation. But then, on any plausible unionism, the “merely verbal” explanations must somehow track the metaphysical structure of metaphysical explanation/grounding. From this, TC follows. Premises about the structure of “merely verbal” explanations lead to valid arguments about metaphysical structures: these explanations could not succeed, were they not isomorphic in distribution to the distribution of relations throughout the world.²⁰

Now suppose that separatism, not unionism, is true. Is TC still true? According to separatists, grounding is not identical to metaphysical explanation, but it is related to it in some other way. As I’ll argue, it seems that separatists, too, seem committed to a version of TC.

A widely cited separatist account is Audi’s. Audi begins by arguing for the existence of ground. On his view, if we recognize examples like (i)-(vi) above “as genuine explanations, and we agree that explanations require nonexplanatory relations underlying their correctness, then we are committed to recognizing a noncausal relation at work in these explanations.”²¹ This is the relation which Audi calls grounding. Here is his argument:

1. One fact explains another only if the one plays a role in determining the other.

²⁰I’ll say more about views which invoke this “divergence” thesis in the next section.

²¹Audi (2012b: 687–688). It bears noting that, later on, Audi distinguishes determination and grounding from explanation.

2. There are explanations in which the explaining fact plays no causal role with respect to the explained fact.
3. Therefore, there is a non-causal relation of determination.²²

This argument's first premise states the nature of explanations, and the second asserts something about the explanatory structure (that is, asserts the existence of certain explanations). The conclusion asserts something about the metaphysical grounding structure. This is an instance of the kind of reasoning TC seeks to vindicate. Indeed, this argument might be seen as another iteration of the Ruben–Kim abductive-style argument, on which metaphysical conclusions are drawn from the fact that explanations call out for further explanation. Premise 1 is effectively the ban on miraculously successful explanations with no connection to reality. Further on, Audi evokes the demand for explaining explanation even more clearly. Discussing two cases of metaphysical determination – between determinates and determinables, and between normative and non-normative properties – and pointing out their extensive similarity, he argues as follows:

Each case involves noncausal explanation; each appears metaphysically necessary; each involves the instantiation of one property making another property to be instantiated; the relevant properties in each case seem to be essentially connected with one another. Such pervasive similarity among such diverse subject matters cries out for explanation. I propose that what accounts for the similarity is simply that there is a single relation at work in each case.²³

This is an abductive argument which moves from premises about what explains what to conclusions about what grounds what. Audi claims that certain features of the explanatory structure imply isomorphic features in the metaphysical structure. The success of

²²Audi (2012b: 688)

²³Audi (2012b: 689)

explanations is accounted for by the presence of a certain metaphysical relation. So, TC seems baked right into Audi's separatism. Indeed, most separatists motivate the belief in a metaphysical relation which "underlies" explanations precisely on the grounds that those explanations demand explanation, as in the abductive arguments, and as suggested by TC.

Other separatists are more skeptical of structural parallels between grounding and explanation than Audi. However, their wariness of tight connections between explanation and ground offers no conclusive considerations against TC. For example, Correia and Schnieder caution against characterizing grounding by reference to "a full-blooded notion of explanation", suggesting instead "to separate the objective notion of grounding, which belongs to the field of metaphysics, from an epistemically loaded notion of explanation."²⁴ The motivation for this separation is that, were grounding "intimately tied to explanation in that sense, it might inherit all sorts of context-dependence and interest-relativity that go along with such a notion of explanation."²⁵ A similar tone is expressed by Koslicki. She describes how "a number of writers" have thought that "an explanation, when successful, captures or represents (e.g., by means of an argument or an answer to a 'why'-question) an underlying real-world relation of dependence of some sort which obtains among the phenomena cited in the explanation in question."²⁶ More specifically of that relationship, Koslicki writes that "the type of explanation at work here cannot be viewed as one that is to be understood in primarily subjective, pragmatic, or epistemic terms."²⁷ Both of these cases represent classic motivations for grounding-explanation separatism. The view is motivated by concerns about subjectivism and context-sensitivity.

These concerns raise legitimate doubts about unionism. But they do not compel us to reject TC, or to abandon explanation as a useful guide to the distribution of grounding relations. Grounding might be expected to inherit features such as context-dependence and

²⁴Correia and Schnieder (2012a: 24)

²⁵Correia and Schnieder (2012a: 24)

²⁶Koslicki (2013: 212–213)

²⁷Koslicki (2013: 213, fn. 27)

interest-relativity from explanations if being explanatory was considered somehow constitutive, integral, or essential to grounding. But TC makes no such claim. It alleges only that there is an isomorphism between, on the one hand, the structure of what explains what and, on the other, the structure of what grounds what. This mere isomorphism does not imply, nor even suggest, that grounding would inherit the context-sensitivity of explanations, nor any of its other features which worry grounding-explanation separatists like Correia, Schnieder, and Koslicki. After all, TC seems to follow neatly from Audi's separatist argument for grounding.

So, we arrive at conclusion of our proof by cases. If separatism is true, TC is true too. Since TC is also true if unionism is true, TC is true no matter what the precise nature of the relationship between grounding and explanation.

As I've argued, we can discern what grounds what on the basis of what explains what. I recognize that I take on only the barest metaphysical commitment, the one suggested by the abductive argument: *some part of reality* must non-accidentally and non-miraculously account for the success of these explanations. The existence of grounding relations is justified by the role those relations play in explaining the success of metaphysical explanations. Unless they are underwritten by grounding relations, how expressions like (i)-(vi) can successfully explain is at least puzzling, and at most miraculous. Unless they are underwritten by grounding relations, we should expect them to be no more satisfying than we expect causal explanations in a world without causation to be – which is not at all! Therefore, if we believe that grounding relations are that part of the fabric of reality which metaphysical explanations glom onto, there must be a structural isomorphism between metaphysical explanations and grounds. In other words, we may use premises about what explains what to establish conclusions about what grounds what. Those relations must be strongly related to explanation itself. This is just our Target Claim. Apart from being plausible in its own right, it has a historic pedigree, and follows from both of the more

specific characterizations of the relationship between metaphysical explanation and grounding. Thus, we've seen some initial reasons to think that TC is true. In the next section, I'll show how no account of grounding which rejects TC will stand up to skeptical objections.

2.3 Grounding without Explanation?

I've described a tradition of abductive arguments which move from premises about what explains what to conclusions about what grounds what. Certain explanations in metaphysics, I've argued, can only be made sense of in a "non-miraculous" way if there is an objective, metaphysical connection between the referents of the *explanans* and *explanandum*.²⁸ Absent that connection, these explanations' success is mysterious and inexplicable. This argument establishes that discerning the distribution and arrangement of explanation relations can settle what we think about the distribution and arrangement of grounding relations. As I've put it, one can argue from the explanatory structure to the grounding structure. That's what I've been calling TC – the "Target Claim".

In Section 2.2, I argued that plausible assumptions about grounding entail TC. Now, I will argue in the opposite direction: assuming that TC is *false* entails implausible consequences. Any denial of TC must be motivated by a characterization of grounding which alleges a strong divergence between grounding and explanation. But I will argue that two accounts which avoid characterizing grounding by reference to explanation are open to significant skeptical objections. Therefore, I will conclude, there is no way to block the argument for TC without also endorsing an implausible account of grounding.

Recall an obscure variety of unionism sketched in the previous section. That view

²⁸Earlier, I defined various kinds of "explanations" as bits of language. Since *explanans* and *explanandum* are usually used to refer to the constituents of explanations, I define these as further linguistic entities referring to features of the world.

alleged that “metaphysical explanation” is a purely technical notion, markedly different from merely verbal or ordinary explanations. Due to such a supposed divergence between explanation and grounding, one might be inclined to deny the structural isomorphism between the distribution of (non-technical) explanations and the distribution of grounding relations, thereby blocking TC. Separatists might be drawn to a similar view. They might claim that, although grounding is not identical to, but merely backs metaphysical explanations, those explanations are wholly divergent from ordinary or merely verbal explanations like examples (i)-(vi).²⁹ Call this the “Divergence Thesis” or “DT”.

Divergence: Grounding and explanation are not connected. The distribution and arrangement of grounding relations, on the one hand, and the distribution and arrangement of explanation relations, on the other, are unrelated and dis-analogous.

Premise 1 of the argument for TC was: it is valid to reason abductively from claims about what explains what to conclusions about what grounds what. If DT is true, this premise is false. Divergence views wholly unmoor the grounding relation from the relation of explanation (at least in a familiar sense of the latter term), and thereby block the abductive argument for TC – even if that argument is widely accepted and used.

As I’ve argued in the previous section, there seems to be no space to argue for DT in the mainstream grounding literature. Separatists and unionists alike agree that there is some explanatory aspect to grounding. To endorse DT is to deny what Skiles and Maurin earlier described as metaphysical explanations’ seeming “to have [a] foot in our *thought and communication about* the world.”³⁰ Indeed, it seems difficult to imagine what exactly grounding could be, if it diverges so much from explanatory practice. But even if it does

²⁹The issue of divergence is separate from the issue of identity, which is at stake in the separatist-unionist debate. As far as I can tell, no one on either side of that debate asserts divergence, taken as the claim that grounding is not bound to metaphysical explanation whatsoever.

³⁰Skiles and Maurin (2021)

go against the consensus, at least *prima facie*, DT seems to be a position available in logical space. However, as I'll now argue, DT's prospects are grim. Its main flaw is that it requires that grounding be characterized in a way which avoids reference to explanation. But such characterizations, I'll argue, render grounding susceptible to strong skeptical objections. This makes DT a non-starter: there are no available ways to block the argument for TC.

Before I criticize DT and associated non-explanatory characterizations of grounding, one issue bears noting. If a divergence view does offer some principled description of what a metaphysical explanation is, that view will still have to somehow account for the success of explanations like (i)-(vi) – and, to do so, will have to posit precisely the kind of relation of which TC is true! Just like the indirect argument for TC above showed, even if neither grounding nor metaphysical explanation (in the divergent sense) have got anything to do with ordinary English sentences like (i)-(vi), metaphysicians had better say something about the success of those explanations. In other words, to reiterate the Ruben–Kim–Audi line of reasoning, we would still need to posit some other metaphysical relation in the conceptual vicinity of ground which would account for the success of explanations like “I am in pain because my C-fibers are firing” or “torture is wrong because it inflicts unnecessary suffering”. The only advantage of DT views seems to be avoiding TC. They would necessitate positing a new kind of metaphysical structuring relation which would do the task which has been traditionally asked of grounding, that is, which would isomorphically track the arrangement and distribution of explanation relations in the world.

But, even setting aside these difficulties, a bigger threat looms for DT. Note that it is a purely negative claim. It tells us what grounding is not: it is not isomorphic to explanation. But it says nothing of what grounding is. A negative characterization, on its own, is not enough. DT tells us that the instantiation pattern of grounding relations isn't settled by the instantiation pattern of explanations. So, by what means is it settled? If TC

is false, the grounding concept must be characterized somehow without reference to explanation. Without such a positive characterization, positing divergence seems empty – indeed, it is difficult to imagine what, apart from an aversion to TC, would motivate the thesis. The only way to appropriately motivate DT, then, is to characterize the concept of grounding in some other way. As I’ll now argue, two apparent ways of doing so are untenable.³¹

2.3.1 Grounding without Explanation - Intuitive Accounts

One way to positively characterize divergent grounding without referring to explanation is to point to an unanalyzable, primitive notion, to which we have direct access by intuition. Some notions – like existence or truth or personhood – must be primitive and cannot be further analyzed. We may debate whether, for instance, some particular thing exists, or is a person. But, when we do so, we debate the extension, rather than the nature, of existence or personhood. Although we disagree about cases, we have a basic sense of what a person is. That concept is primitive and may be accessed by anybody through sheer intuition.³²

Bennett’s discussion of the relation between explanation and grounding adds some more material to that intuition.³³ On her view, grounds don’t explain in an “epistemic

³¹This argument assumes that following principle: if skepticism about C is warranted unless C is F, C is F. This principle seems plausible and widely endorsed across philosophy. Many philosophers argue for their preferred accounts of knowledge (or free will, or moral responsibility, or others), on the grounds that that account is the only one which makes knowledge (or what have you) possible. But, of course, this principle isn’t true for all values of C. Skepticism about ghosts is warranted unless “ghosts” are defined as “white cats” – in which case, we have plenty of demonstrable evidence that, indeed, there are plenty of ghosts! That doesn’t mean that ghosts are white cats. It may well be that grounding is a lot more like ghosts than it is like knowledge, and that it is worthwhile to develop an account of it which withstands skeptical objections.

³²Especially strongly primitivist definitions of ground occur in Fine (2001) and Schaffer (2009: 364).

³³For now, I will consider Bennett’s building just another word for the relation more commonly referred to as grounding. I will return to this issue in the next subsection. Note that I am not claiming that the view under consideration in this section is Bennett’s view: it is not. It is a toy view which can be regimented by some of the technical machinery she is introducing.

sense”, in which an *explanans* “renders the [*explanandum*] intelligible, sheds some light on how or why it happened, or perhaps puts an end to a line of questioning.”³⁴ Instead, she maintains, grounding tracks a “purely metaphysical sense” of explanation. For one thing to explain another in this “purely metaphysical sense,” Bennett argues, “is to say that the first fully accounts for the second, that the first makes the second exist or obtain or happen.”³⁵

It seems clear that Bennett’s “purely metaphysical” explanations are not really anything like explanations in the ordinary sense at all. Instead, they seem to be a somewhat difficult-to-grasp concept in the vicinity of accounting for, making exist, happen, or obtain. These ideas, then, might form the basis of a positive characterization of grounding to be complemented by Divergence. On the proposed definition, grounding is clearly intuited:

Grounding_I: A unique, primitive, unanalyzable relation into which we have intuitive insight, which obtains at least between the range of paradigm cases covered roughly by examples like (i)-(vi), and which is like making exist, happen, or obtain.

Bennett herself does not characterize grounding as explanatory in the “purely metaphysical sense”. For her purposes, that characterization is redundant: the discussion of explanations follows her detailed, disjunctive definition of grounding, which I’ll turn to in the next section. But grounding_I is of note because it offers an internally consistent characterization of grounding which does not appeal to explanation. By so doing, it justifies the Divergence thesis, which, in turn, undermines TC. One who endorses grounding_I, then, would have the resources to reject TC. I will now argue, however, that grounding_I is a thoroughly unappealing view.

³⁴K. Bennett (2017: 61–62)

³⁵K. Bennett (2017: 61)

Like its analogues in other domains, a purely intuitive characterization of grounding raises epistemic worries. Insight into a primitive notion through a faculty of intuition does poorly under pressure, especially if ever intuitions happen to conflict. But surely, some primitive concepts must be epistemically accessible. Perhaps, if we can reliably intuit the primitive nature of existence and truth, then we may also do the same for ground.

A second, more significant problem with this characterization is that it struggles to distinguish grounding_I from other relations in the logical vicinity, like causation or supervenience. The traditionally-cited feature distinguishing ground from those relations is that, by identifying grounds, we gain explanations, and gain some epistemic insights into the nature of the grounded things which we cannot gain just from identifying those things' supervenience bases or causes. But, if grounding_I is supposed to vindicate DT, it cannot invoke explanation to do so. Then, it seems like there is no easy way to differentiate that relation from others in the vicinity. One simple way to solve this issue is just to claim, further, that the “intuitive sense” that one has of the relation being talked about is also somehow discerned as distinct from the other relations in the vicinity. But offloading even more content and information about substantive issues onto an “intuitive sense”, as this suggestion seems to be doing, even if it were convincing, only compounds the big problem, to which I now turn.

The most pressing issue for purely intuitive descriptions of ground amounts to what Hofweber evocatively describes as “esotericism”, contrasted with “egalitarianism”. Esoteric metaphysics, according to Hofweber, employs distinctly metaphysical, rather than scientific or ordinary, terminology. This approach is called esoteric “since one needs to understand distinctly metaphysical terms [...] to be an insider to get in the door”³⁶ in order to properly engage with these questions. Metaphysicians who employ terms like “prior”, “fundamental”, or “the ground of” assume that we “have some handle on these metaphys-

³⁶Hofweber (2009: 267)

ical concepts,” but, Hofweber alleges, are guilty of a “bait and switch”: the literal senses of these terms do not correspond to the apparently unique metaphysical sense. It’s unclear whether ground (in the distinctively metaphysical sense) “can be spelled out in ordinary terms” at all.³⁷

To remove explanation from the definition of grounding and replace it with pure intuitive insight is to make that concept precisely esoteric in Hofweber’s sense. We have no non-metaphysical, ordinary concepts to fall back on to interpret what it means to say that one thing grounds another.³⁸ We are left wondering whether there is any such relation in the first place – and, if there is, how we are meant to get a grip on it at all.

Is esotericism a unique problem for characterizations which, like grounding_i, suggest that Divergence is true? That is, does introducing explanation into the definition solve the problem? Certainly, some skeptical worries will remain. But they will be far less pressing. Explanation is far more egalitarian – that is, ordinary and accessible to those aren’t “on the inside” than the purely metaphysical, primitive grounding. We all have a basic grip on explanation: even if we disagree on certain cases, we can generally tell when one thing appropriately explains another. The worry about the esotericism of explanation is especially less pressing given this Chapter’s goal. Recall that I am interested in claims about patterns of instantiation, or about where explanations and grounds are to be found distributed throughout the world. I am not interested in the more complicated – and equally fascinating – question of what explanations are, or how they work, or their essential nature. I grant that inquiries into explanations along this dimension are open to

³⁷Hofweber (2009: 269, fn. 5). Similar criticisms from the perspective of grounding skepticism are raised by Daly (2012). For a survey of this “old-school” grounding skepticism, see Koslicki (2020).

³⁸Some may allege that to use “metaphysical explanation” to clarify “grounding” is to move a bump in a rug, and replace one esoteric, inaccessible primitive with another. See, for example, Daly (2012: 94–95). I agree, but only insofar as “metaphysical explanation” is meant to signify something like Bennett’s “purely metaphysical explanation” (see above), which apparently has little to do with explanation in the ordinary sense. But, insofar as the notion of “explanation” used to formulate grounding is not distinctively metaphysical, as I maintain that it is not, it seems to amount to a replacement of an inaccessible or esoteric notion with one far less so.

charges of esotericism, in the sense that people without technical, “in-crowd” knowledge will be unable to grasp them. But I am confident that to judge where explanations are to be found, or when one has encountered an explanation while perusing the total distribution of worldly relations, is to deploy remarkably egalitarian concepts, skills, and knowledge. At least, explanation is far more egalitarian in this respect than is grounding. No special, technical background in metaphysics is required to be able to recognize whether one thing explains another. On the other hand, such a background is needed to recognize whether one thing grounds another, and to understand why some particular explanation works, or what it is.

So, I conclude that defining grounding by appeal to intuition, but not by appeal to explanation, is not a promising strategy. It cannot be used to motivate an objection to the argument for TC based on the Divergence Thesis. Defenders of that thesis had better look elsewhere.

2.3.2 Grounding without Explanation - Disjunctive Accounts

To define grounding without explanation, one may turn to a list-based, disjunctive definition.³⁹ According to this definition, one thing grounds another if and only if it stands to it in some relation like type identity, token-but-not-type identity, functional realization, the classical mereological part-whole relation, the causal composition relation, the set membership relation, or the determinable-determinate relation, among others.⁴⁰ This kind of definition offers a principled alternative account of grounding which is consistent with Divergence. However, as I’ll argue in this section, it is difficult to imagine how such an account may deny the connection between grounding and explanation which is alleged by TC.

³⁹Sometimes, this view is referred to as “pluralism” or “small-g pluralism”. See Richardson (2020: 197–198)

⁴⁰This list comes from Wilson (2014: 539), the influential defender of what I’m calling grounding_D.

Consider, for comparison, other disjunctive accounts in philosophy. “Objective-list” theories of well-being are one example. According to these theories, a person is well-off insofar as they have access to a proportion of goods on a kind of list – usually, lists include health, purpose, relationships, and so on. These theories contrast with hedonist or subjectivist views, which judge whether anything in particular makes one well-off based on a fully general definition of well-being as, for example, maximal pleasure or getting what one wants. Objective-list theorists move in the opposite direction. They begin with the particular good-making things and describe the general features of well-being by appeal to the assorted particular goods. Or, consider views which avoid a fully general definition of Virtue (perhaps written with a Big-V) in favor of describing the various particular (small-v) virtues like courage, generosity, humility, and so on. On this view, the particular virtues are conceptually and logically prior to Virtue itself. Whatever is true of Virtue in general, they claim, is true because it is true of each of the individual virtues in particular.

Grounding (perhaps written with a Big-G) may be defined by its various species: different kinds of grounding with a small-g. Whatever is true of Grounding (Big-G) is true in virtue of being true of the small-g grounding relations. A specific kind of disjunctive definition may offer hope for vindicating Divergence without succumbing to the esotericism of grounding_I.

Grounding_D:= A genus covering a range of species of “small-g” grounding relations: type identity, token-but-not-type identity, functional realization, the classical mereological part-whole relation, the causal composition relation, and others.

Although grounding_D is internally consistent and relatively egalitarian, I will now argue that it cannot motivate Divergence, and, thereby, cannot block the argument for TC. Here’s roughly how I’ll proceed. Grounding_D certainly cannot motivate Divergence if it includes

explanation among the disjunction of “small-g” grounding relations. Given that explanation is widely considered to be in the conceptual vicinity of these other relations, its exclusion prompts charges of *ad hoc*ery or conceptual gerrymandering. To avoid these charges, the defender of Divergence must identify a principled difference between explanation and small-g relations like it. No difference seems particularly compelling. So, I conclude, it is unclear why explanation should be excluded from any disjunctive characterization of grounding, and, therefore, not clear how such a characterization could motivate a Divergence thesis to undermine TC.

Suppose that explanation is among the small-g relations which characterize (big-G) grounding_D . Indeed, many disjunctive characterizations include explanation among the disjuncts. For example, Wilson maintains that one of the common features among the small-g relations is the fact that they “characterize diverse forms of metaphysical dependence in a *genuinely explanatory and illuminating way*.”⁴¹ In that case, x $\text{grounds}_D y$ if x explains y , or if x stands to y in some other (small-g) relation. In other words, the presence of an explanatory relation between two facts is a sufficient, but not a necessary, condition for the presence of a grounding relation between those facts. But then, it turns out that the worldly distribution of explanations does, indeed, track the worldly distribution of grounding relations. In other words, it turns out that what explains what is an accurate guide to what grounds what. Note that, on this view, the presence of an explanation is a sufficient, but not a necessary condition for the presence of a grounding_D relation. Therefore, explanation turns out to be a good guide to only part of the total distribution of grounding relations, since many are not tracked by explanations, but by some other small-g grounding relation. But, nonetheless, even if explanations are sufficient, but not necessary, for grounding, there are valid inferences moving from premises about the distribution or instantiation pattern of explanations to conclusions about the distribution or instantiation pattern of grounding_D (although not *vice versa*). But that’s just the Target Claim.

⁴¹Wilson (2014: 539). Emphasis added.

So, if grounding_D is to motivate Divergence, explanation must be excluded from among the various species of small-g relations.

It would be arbitrary to exclude explanation from among the small-g relations for no reason at all. In a way, of course, an element of arbitrariness is built into any disjunctive account. These accounts explicitly avoid overarching concepts – of well-being or of virtue or of Big-G Ground – which might justify the inclusion or exclusion of specific disjuncts. With no prior reason why any disjunct belongs or does not belong on the list, the list might be considered arbitrary in a certain benign respect.⁴² However, the arbitrariness issue is especially pronounced when a concept’s boundaries seem unnatural or discontinuous. For example, courage, generosity, and humility seem to be non-accidentally, genuinely adjacent to each other in our imagination. They constitute a natural, continuous conceptual cluster. They bear a certain brute similarity to each other, which seems to require no further explanation or justification. It appears non-arbitrary to fail to justify selecting those particular character traits, and not others, as the traits which are constitutive of virtue. On the other hand, the choice of the disjunction-motivated Divergence-theorist does call out for justification. It calls out for justification because the collection of concepts which excludes explanation is discontinuous.

So, what reason may the defender of Divergence have for excluding explanation from her definition of grounding_D ? It would be *ad hoc* to cite seeking to undermine TC as the reason. The goal was to figure out a plausible, well-motivated view which would entail Divergence, rather than a view existing only to justify Divergence. The reason for excluding explanation from among the small-g grounding relations must be motivated by some

⁴²A classic response to disjunctive accounts is to argue that their proponents have actually misidentified the common feature which does account for the fact that they belong to the disjunction mentioned. For example, an Aristotelian about virtue may claim that there is a perfectly clear reason why courage, generosity, and humility are believed by the disjunctive theorist to be among the various small-v virtue: each is a human excellence which takes the form of a mean between excess and deficiency! In a similar way, one might argue cynically here that the reason why the proponent of grounding_D selects some particular set of relations, but not others, to be among the disjuncts just has to do with the implicit recognition of the true nature of that relation.

salient difference between it and them.

One might try to locate such a salient difference in the fact that, unlike small-g grounding relations like composition, realization, or parthood, explanation isn't a strict partial order (at least not straightforwardly so). Recall that a relation forms an SPO if it is well-founded, irreflexive, and transitive. Consider the relation of realization: a mental state like pain is realized by a physical state like C-fiber firing. If we know what it is for one state to realize another, we know, too, the second state cannot also realize the first. That same knowledge of what realizing is will also prompt us to think that there must be a "prime realizer", some state which is not realized by any further state. Similar conclusions, some more controversial than others, suggest that other standard cases of small-g relations, too, are SPO's. Explanation, on the other hand (and as I'll proceed to argue soon) is not – at least not obviously – a SPO. It seems far more plausible that there exist self-explanatory things, or mutually explanatory things, or non-terminating sequences of explanations, than that there exist self-realizing things, or mutually realizing things, or non-terminating sequences of realizers. So, the suggestion goes, the principled reason for excluding explanation from a characterization of grounding_D which motivates the Divergence thesis (and, by the same token, undermines TC), is that explanations do not fit the orthodox conception of ground as strict partial order.

I have two responses to this argument. First, it seems circular. This dissertation is concerned with what I've called the Question of Overall Structure. I am interested in what shape the sum total of grounding relations has. In particular, I am interested in whether the relation does, indeed, form a strict partial order. In the imagined response, the defender of Divergence is presupposing an affirmative answer to that question (an answer which, I've argued in Chapter 1, we have little reason to endorse). This is at least a little circular. Second, it is far from clear whether the features do indeed play out as the argument presupposes. It is controversial whether all of the small-g grounding relations

do indeed form strict partial orders. The relation of type-identity, for example is symmetric: if A is type-identical to B, B is type-identical to A. According to some, the mereological parthood relation has no foundations. So, it's not obvious that, on any disjunctive account, all of the small-g grounding relations (except for explanation) are SPO's. As such, the status as SPO falls out of the running as a plausible vindicator of Divergence-motivating disjunctive grounding.

Perhaps I haven't wholly refuted grounding_D , or shown it to be untenable, in this section. It may represent a reasonable way to characterize grounding, but only after certain background assumptions have been defended. But I didn't intend to offer a wholesale critique of the disjunctive approach. Instead, I was interested merely in that approach's role in motivating the thesis which I've called Divergence. I've argued that it seems difficult for the account to achieve that task. I've shown also that I see no good (non-*ad hoc*, non-circular, non-arbitrary) reason to endorse the pro-Divergence disjunctive picture. I understand that, for some, that picture might be appealing. I don't see its appeal. As such, I don't see it as a major threat to my Target Claim.

2.4 Upshot: Symmetric Grounding

I've argued for TC: one may reason from facts about the pattern of instantiation of explanations to facts about the pattern of instantiation of grounding relations. In other words, discerning what explains what is a legitimate guide to what grounds what. In Section 2.2, I've shown how TC is well-established, even given a wide disagreement about the nature of the connection between grounding and metaphysical explanation. In Section 2.3, I've argued that attempts to block TC by appeal to the Divergence thesis will create insurmountable difficulties for the associated account of grounding. Now, I turn to an upshot of TC: it entails that there are instances in which things ground each other.

Recall the Question of Overall Structure: what shape would the entire collection of grounding relations have, were it to be arranged before us? In Chapter 1 of this dissertation, my goals were negative. I argued that there are no compelling arguments in favor of foundationalism, the orthodox answer to that question. Now, I turn to positive goals. I will argue that there are compelling reasons in favor of non-foundationalist views. In Section 1.4, I refuted arguments for the Asymmetry Thesis, which states that if x grounds y , y does not ground x . In this section, I provide positive reasons to believe that this thesis is false: I argue for the existence of mutual grounding. In Section 1.2, I refuted arguments for the Foundations Thesis, which states that there are foundations: there is some x such that nothing grounds x . In Chapter 3, I will provide positive reasons to believe that this thesis is false: I argue that there are no ungrounded things.⁴³

Note that TC is consistent with the total sum of grounding relations having any conceivable structure – the possible arrangements of that structure are constrained only by the possible arrangement of explanations. In a sense, TC delegates that task to considerations about explanation. Now, I’ll argue that TC has an interesting consequence: given the fact that, occasionally, things explain each other, there are also situations in which things ground each other.⁴⁴

The touchstones for the inferences licensed by TC have been (i)-(vi):

- (i) A&B is true because A is true and B is true.

- (ii) {Socrates} exists because Socrates exists.

⁴³I’ve done some of this work already in Chapter 1. In Section 1.3, I suggested that the Foundations Thesis is, on its own, implausible, because a compelling metaphysical principle – the Principle of Sufficient Reason – contradicts that thesis. However, my argument for non-foundationalist coherentism does not presuppose the PSR. The considerations related to it were merely a way of showing how the justifications for foundationalism weren’t entirely self-evident. The PSR is but one way to raise suspicions about them. The argument from understanding in Chapter 3 is another.

⁴⁴This position is unpopular, but not unprecedented. See, for example, Rodriguez-Pereyra (2015), Thompson (2016), Barnes (2018), or Bliss (2014).

- (iii) I experience pain at time t because my C-fibers are firing at t .
- (iv) Torture is wrong because it inflicts unnecessary suffering.
- (v) *The Winged Victory of Samothrace* is beautiful because of its shape, color, texture, and other physical features.
- (vi) My sweater is red because it is ochre-red.

I've called (i)-(vi) metaphysical explanations for two reasons. First, in each case, the fact referred to by the right-hand side illuminates and genuinely improves our understanding of the fact referred to by the left-hand side. Second, each pertains to an issue traditionally identified as metaphysical. Based on TC, each of (i)-(vi) should be taken to imply the existence of a worldly relation obtaining between a certain pair of facts.

But now, compare (i)-(vi) with the following explanations.

- (vii) An object W has parts $p_1, p_2, p_3, \dots p_n$. W is the way it is because p_1 - p_n are the way that they are.
- (viii) An electron has a disposition to attract things with positive charge because it has negative charge.
- (ix) A quantity of H₂O has a density of $997kg/m^3$ because it has a mass of $997kg$ and a volume of $1m^3$.

Earlier, we called (i)-(vi) explanations. Given that fact, as far as I can tell, there is *prima facie* no reason to deny that (vii)-(ix) are explanations. Each of (vii)-(ix) bears all the marks of a successful explanation: the *explanandum* is illuminated, made comprehensible or intelligible by the *explanans*. As earlier, we don't expect that this is an accident: we expect some reason why the explanation succeeds – something which accounts for their

ability to explain. Again, the best candidates are metaphysical relations: parts ground a whole, negative charge grounds the disposition to attract positively charged things, and so on.

But now, consider the following explanations:

- (x) An object W has parts $p_1, p_2, p_3, \dots p_n$. p_1-p_n are the way that they are because W is the way that it is.
- (xi) An electron has a negative charge because it has a disposition to attract things with a positive charge.
- (xii) A quantity of H₂O has a volume of $1m^3$ because it has a density of $997kg/m^3$ and a mass of $997kg$.
- (xiii) A quantity of H₂O has a mass of $997kg$ because it has a volume of $1m^3$ and a density of $997kg/m^3$.

In this Section, I'll argue that these sentences, too, are explanations – at least to the same extent as each of (i)-(ix) are. They, too, are successful. They, too, improve our epistemic standing with respect to *explananda* by way of *explanantia*. They, too, demand metaphysical underpinnings. But note that each of (x)-(xiii) is a mirror-image of one of (vii)-(xi). That is, the same pairs of facts are referred to by (vii) and (x) and by (viii) and (xi), and the same trio of facts by (ix), (xii), and (xiii). The explanations differ only insofar as the direction of explanation is different. That is, they represent situations in which two (or three) facts explain each other. So, the two pairs and triple which constitute (vii)-(xiii) are demonstrable examples of mutual explanations. Further, they're examples of mutual explanations which can only be accounted for or made sense of given a posit that a metaphysical connection exists between the (referent of) the *explanans* and the (referent of)

the *explanandum*. So, a range of cases suggests that there is mutual grounding: situations where x grounds y and *vice versa*.⁴⁵

I'll now briefly consider each pair in turn. In each case, my strategy will be similar. First, I'll show how both directions of explanation work: both provide illumination or better understanding of the subject at issue and both have found supporters. Next, I'll argue that, unless we presuppose that, in all cases, explanations must run in one and the same direction, it is arbitrary to prefer one direction of explanation over the other as the uniquely "metaphysical" explanation. But that programmatic presupposition, I'll argue, must always be secondary to determinations of what explains what in a specific case. In other words, I urge us to begin with the examples, and to figure out which explanations hold in each case, and only on that basis to decide whether, in general, explanations may or may not be mutual. In each case, the most plausible interpretation is simple: two things explain each other. Given TC, then, in each case, two things ground each other.

2.4.1 Symmetric Grounding - Parts and Wholes

(vii) An object W has parts $p_1, p_2, p_3, \dots p_n$. W is the way that it is because p_1 – p_n are the way that they are.

(x) An object W has parts $p_1, p_2, p_3, \dots p_n$. p_1 – p_n are the way that they are because W is the way that it is.

If TC is true, it follows that W grounds p_1 – p_n , and that p_1 – p_n ground W .

That the parts of concrete material objects ground those material wholes is typically

⁴⁵Barnes (2018) surveys a list of cases of mutual dependence. She argues that the following represent plausible instances of mutual grounding: immanent universals and essences, states of affairs, events, tropes in a "property bundle", and entities in a mathematical structure.

cited as a paradigm case of grounding.⁴⁶ In many situations, things get explained, illuminated, and clarified by what they're made of. A composite whole like a bicycle is the way it is – perhaps exceptionally fast or lightweight – because of its parts – perhaps they're exceptionally suited for speed or made of lightweight material. You are the way you are – you have your specific eye color or height – because of your parts – your genetic code, or the collective length of all of your limbs in a particular arrangement. These distinctively metaphysical explanations suggest that, at least sometimes, the parts p_1 – p_n ground W .

But some reverse the direction of grounding relative to the mereological order: according to monists, the Cosmos, the greatest possible whole of which all else is a part, is the ultimate grounds of everything else.⁴⁷ Others maintain the grounding of wholes by their parts exists at a more local level. According to Aristotle, a primary substance “is that which is neither said of a subject nor in a subject, e.g. the individual man or the individual horse.”⁴⁸ In the *Categories*, Aristotle argues that

All the other things are either said of the primary [i.e., individual] substances as subjects or present in them as subjects. . . [C]olor is present in body and therefore also present in an individual body; for were it not present in some individual body it would not be present in the body at all. . . So if the primary substances did not exist it would be impossible for any of the other things to exist.⁴⁹

⁴⁶Correia and Schnieder (2012a: 1), Rosen (2010: 112), Fine (2001: 269–270), or Koslicki (2013: 31), among others.

⁴⁷This is the view famously defended in contemporary times by Schaffer (2009), (2010), (2012), who associates it with historical antecedents including Plotinus, Marcus Aurelius, or Spinoza. Note that, unless we take for granted the assumption that mutual grounding is impossible, Schaffer-style ultimate dependence of everything on the cosmos seems consistent with local dependence of wholes on parts. That is, one may assert that the parts of an organism depend immediately on that organism, as the Aristotle of the *Categories* seems to suggest, while maintaining, simultaneously, with Schaffer, that both organism and parts depend on the Cosmos mediately.

⁴⁸2a11–19. Quoted by Corkum (2013: 71)

⁴⁹2a34–b7. Quoted by Corkum (2013: 71)

According to certain interpreters, Aristotle here alleges that the direction of explanation moves from the human individual – clearly consisting of organic parts – towards those very parts.⁵⁰ Indeed, it seems plausible that, occasionally, the explanation of what it is to be a certain part of a functioning organism, like a heart or a liver, to invoke as *explanans* the organism itself. Certain metaphysical explanations in other contexts seem to play by similar rules. Plausible explanations of the several parts of a bicycle will refer to the whole bicycle. Wheels, tires, spokes, and so on, don't occur naturally: each part is made the way it is to play a specific role in the complex whole, and its features are to be explained by reference to the features of the whole of which it is a part. These explanations, in contrast, suggest that, sometimes, the whole W grounds the parts p_1 – p_n . Others still maintain that neither the very smallest parts, nor the very largest whole are at the end of the grounding sequence. Instead, the fundamental level of grounds – the level which grounds all others – is a “middle” level.⁵¹ Although explanation-related considerations don't usually motivate monists or “middle-ists”, whole-to-part explanations are perfectly appropriate in many cases.⁵²

Thinking about mereological relations more broadly reveals more plausible instances of mutual metaphysical explanations between parts and wholes. Not all mereological relations obtain between material objects. Events, too, for example, may stand to each other in relations of part and whole. Just as concrete physical objects of greater spatial extension have, as parts, objects of lesser spatial extension, so, too, events of greater temporal extension have, as their parts, events of lesser temporal extension. Among event-parts and event-wholes, explanations more clearly move in both directions. Barnes describes the evacuation of Dunkirk, a part of World War II. According to Barnes, “WWII just

⁵⁰For more on this Aristotelian position in the *Categories*, see Koslicki (2013: 35–37) and Corkum (2008)

⁵¹See Bernstein (2021)

⁵²There are parallels between this holistic account of metaphysical explanation and holistic accounts of scientific explanation defended famously by Friedman (1974) or Kitcher (1989). For discussion, see also Thompson (2016) and Brenner, Maurin, Skiles, Stenwall, and Thompson (2021).

wouldn't have been the same event without the evacuation at Dunkirk [and] part of what it is to be the evacuation at Dunkirk is to be part of WWII.”⁵³ Clearly, in this case, the part partially grounds the whole, and the whole partially grounds the part.

Consider, too, complex states of affairs (in Armstrong's sense). A complex state of affairs consists of further states of affairs. For example, the state of affairs that a certain molecule is methane is a complex. It has, as its constituents, a conjunction of other states of affairs, concerning the properties of certain things' being hydrogen or carbon, and the relations of chemical bonding among those things.⁵⁴ A complex state of affairs, Armstrong maintains, “behaves in a mereological manner.”⁵⁵ But, he alleges, the relation between the state-part and the state-whole is a symmetric one. He maintains that it “seems obviously true that a conjunction of states of affairs supervenes upon the totality of its conjuncts and that the conjuncts supervene upon the conjunction.”⁵⁶ Indeed, this seems true. But it seems true, further, that there's an explanatory connection, in addition to one of supervenience, here. That four hydrogen atoms and a carbon atom are arranged in a specific way explains why a certain molecule is a methane molecule. But, equally, that a certain molecule is a methane molecule explains why its constituent hydrogen and carbon atoms are arranged in a specific way. Since Armstrongian states of affairs stand in part-whole relations, this instance of mutual determination may be understood as a further plausible kind of mutual grounding.

Different particular instances seem to suggest that part-to-whole and whole-to-part explanations are equally plausible. Both kinds of explanations offer some novel and original insight into the nature of something through something else. Of course, some readers will approach this question seeking a universal answer which is true across the board. By

⁵³Barnes (2018: 60). I discuss a similar case in Section 3.3, where I maintain that only such mutual explanations will offer *understanding* of the interconnected events.

⁵⁴Armstrong (1997: 34)

⁵⁵Armstrong (1997: 35)

⁵⁶Armstrong (1997: 35). Emphasis added.

this, I mean that they will be inclined to think that there is but one direction in which explanation flows – always from parts to wholes, or from wholes to parts. But I can discern little motivation for treating this as the right approach across the board. As far as I can tell, it is at least equally plausible for us to begin with the particular examples of explanation, and, only on their basis, construct a general theory of the overall direction of explanations. Before we have such a theory in hand, we should treat the examples like those canvassed so far – human beings, bicycles, or molecules – in a kind of theoretical wilderness, in isolation from any broader theory which might impose on them unnatural readings. Of course, the examples will demand alternative interpretations if one approaches them with the presupposition that explanations always flow in one direction along the mereological ordering. But, I’m urging, such a presupposition is unfounded.

So, explanations (vii) and (x) seem precisely analogous. There is no *prima facie* reason to think that, while one of the directions of explanation incurs a commitment to a metaphysical relation of grounding, the other does not. So, if TC is true, this example commits us to mutual grounding. Conversely, to maintain that all grounding relations are asymmetric, one must reject TC.

At this point, one repulsed by mutual grounding may invoke TC’s more conservative cousin, which I’ll call “TC-Backtracking.”⁵⁷ This principle is motivated by the thought that, although, as I’ve argued, we have abductive reasons to believe in worldly metaphysical relations underpinning metaphysical explanations, these are no reasons to believe that those relations are directed in any particular way, because grounding relations can account for the success of explanations running in two opposite directions. That is, if x grounds y (but not *vice versa*), that relation doesn’t only account for the success of the explanation “ y because x .” It also accounts for the success of the explanation “ x because y .” Metaphorically, explanations don’t just track grounding relations, moving from grounds

⁵⁷I’m not aware of anyone who holds a view like the one described here, although it is certainly a view in the logical space. It is certainly a natural restrictive version of TC.

to grounded things, as goes the traditional story discussed in Section 2.2. Explanations also *backtrack* along grounding connections, occasionally moving from grounded things to grounds. From premises about explanations, TC allows us to infer conclusions about the presence and direction of a grounding relation. From the same premises, TC-Backtracking allows us to infer conclusions about the presence, but not the direction of a grounding relation (because that direction depends on whether the explanation tracks or backtracks, something which we may have no way of telling). Hence, I call TC-Backtracking TC's conservative cousin.

The fan of orthodox grounding who (a) denies mutual grounding, but (b) grants that examples (vii)-(xiii) are indeed mutual explanations, and (c) finds the abductive argument for TC broadly appealing, may retreat to TC-Backtracking. But an account of grounding with Backtracking is unadvisable for two reasons. First, it is strongly epistemically abstruse. For the backtracker, there is no way to tell which explanation is the “upwards” and which the “downwards”. The pair (vii) and (x) seem to work in precisely the same way. Were there a way to settle which were the grounds, and which the grounded things, independently of what explains what, the choice would be non-arbitrary. But there seems to be no such criteria: without relying on explanation as our conceptual touchstone, we lose our grip on what grounds what. Indeed, it becomes unclear how we can know anything about the Backtracker's bidirectional relation at all. Second, and perhaps more importantly, TC-Backtracking rejects a subject of near-universal agreement: that it is grounds which explain grounded things, and not the other way around. It is controversial to claim, as I am doing, along with anyone who endorses TC, that mutual explanations are evidence of mutual grounding. But it is far more controversial to claim that such mutual explanations may be accommodated by just a single grounding connection (rather than two), as the Backtracker maintains. An explanation of grounds by grounded things seems wholesale antithetical to the concept of grounding itself, in a way in which the implication that there are occasionally more grounding connections than one might think there to have been in

the beginning is not.

So, given that the only plausible recourse for maintaining there to be but one direction of grounding in every case, we must choose one of (vii) or (x) to be the genuine grounding explanation. But, as I've urged, we have apparently no reason at all to make that choice. That's too much arbitrariness for comfort. The most plausible position is simple: accept that both of the apparently explanatory connections are underwritten by distinct grounding relations.

2.4.2 Symmetric Grounding - Properties and Dispositions

(viii) An electron has a disposition to attract things with positive charge because it has negative charge.

(xi) An electron has negative charge because it has a disposition to attract things with positive charge.

If TC is true, it follows that the fact that an electron has the property of negative charge grounds the fact that it has the disposition to attract things with positive charge, and, *vice versa*, that the fact that the electron has the disposition to attract things with positive charge grounds the fact that it has the property of negative charge. So, if TC is true, two facts ground each other.

x is disposed to F if x will F (of its own accord, or by its own power), given certain background conditions. There's a particularly close connection between dispositions and certain properties. For example, the property "fragility" might be cashed out as a pure disposition: the disposition to break if dropped or struck. A person's disposition to become angry might instead be described as the property – or personality trait – of "irascibility".

An electron serves as a problem case: both the property and the disposition have some claim to explain or ground the other. We learn about what it is to be the disposition to attract positively charged things by seeing that it is the result of the negative charge property. But we also learn about what it is to be a certain property – negative charge – by seeing the dispositions associated with that property – like the disposition to attract positively charged things. Both are successful metaphysical explanations. Both require an underlying grounding relation to account for their success. To call only one of these the true metaphysical explanation is arbitrary. So, I conclude that an electron’s negative charge grounds its disposition to attract things with positive charge, and its disposition to attract things with positive charge grounds its being negatively charged.

To my ears, both explanations – of a disposition by a property, and of a property by a disposition – are perfectly apt. Both kinds of explanations have their supporters. Some maintain that the nature or essence of (many or all) properties is just what an object having the given property would be disposed to do, or, equivalently, what it has the power to do. Call this view “dispositionalism.” On the other hand, according to a traditional, broadly Humean understanding of properties, any property’s essence is independent of what things instantiating that property are disposed to do – the connection between negative charge and the disposition to attract is merely contingent. The essence or nature of a property is exhausted by internal features of what it is, its “*whatness*” or “quiddity.” Call this view “quidditism.”⁵⁸

In Section 2.4.1, I urged us to look at the supposed explanatory sentences to develop a general theory about the direction of explanations relative to the mereological ordering, rather than moving from a general theory to judgments about particular cases. I urged this because I feared that antecedent assumptions about the possibility of mutual explanations, which I am skeptical of, would cloud our judgments about the cases (vii) and (x).

⁵⁸Famous defenders of quidditism about properties include Armstrong (1989), (1997) and Lewis (2009).

Now, again, I suggest that the best approach to deciding whether we should consider both of (viii) and (xi) to be appropriate explanations is to consider them “in the wilderness”, independently of our antecedent commitments to dispositionalism and quidditism.

Indeed, it seems plausible to describe the respective draws of dispositionalism and quidditism as beliefs about what kinds of explanations are appropriate. Dispositionalists are generally averse to brute, extra-sensory posits, maintaining that a property is unintelligible if it is to be accounted for by a quiddity. They demand to know and understand what a quiddity even is, alleging that it insufficiently illuminates the property. On the other hand, for quidditists, it is dispositions which want explaining, and which have to be accounted for by something intrinsic to the substance. In either case, it seems like the general starting-points of the theories are conflicting judgments about cases like (viii) and (xi). If that’s the case, and if, as I am arguing, both cases present approximately plausible explanations, we should treat that fact as compelling evidence of the existence of mutual explanations. The existence of mutual explanations, together with TC, entails the existence of mutual grounding.

This example and the previous may be accused of over-ecumenism. According to the objection, to declare one of the opposite directions of explanations the correct one isn’t arbitrary. Rather, it is just adopting a substantive position on the issue, because the theses represent different metaphysical views, and one must choose, for instance, whether to endorse dispositionalism or not. Even if the rival positions seem equally plausible, nobody would maintain both simultaneously. I treat the pair (vii) and (x) and the pair (viii) and (xi) as data points which a best theory must account for. But, the over-ecumenism objection alleges, they represent different viewpoints, asserted by different groups of people with different background convictions. To claim that both are right is as absurd as claiming that, due to a disagreement in the jury room, the defendant is both innocent and guilty. In both cases, the objection alleges, it’s more accurate to claim that “the jury’s still out!”

By trying to be too ecumenical, and trying to please everyone, we end up at an absurd view.

The over-ecumenism objection isn't as compelling against the case of parts and wholes. As I've argued, certain philosophers do hold the ecumenical position, accepting both directions of explanation. But, even in the case of properties and dispositions, I consider the ecumenical approach to be plausible. If we approach sentences (viii) and (xi) without metaphysical prejudice – that is, without assuming that one must come before the other – I see no reason why it should be taken to be necessary that just one of them is the correct explanation.

As I've maintained, it is not necessarily the case that, in presenting reasons in favor of one of the views, one has, by the same token, presented reasons against the other view. The reason for this thinking is simply that the views seem to have independent motivations. But is there anything to these motivations which also provides a strong reason to believe that each of them rules out the other? I believe that there is not. I believe that we only are predisposed to think that one, but not both of the directions of the explanation is good because of the prejudice in favor of discovering the fundamental, basic way that things are. As I've argued, there's not much reason to think that that is a prejudice founded in reality.

Given that both offer some explanation, illumination, or clarity, I see no reason to assume that only one direction of explanation is the true one.⁵⁹ On its own, TC says nothing about how the metaphysical underpinnings of explanation must be related to each other, only that the distribution of grounds can be read off of the distribution of explanations.

As far as I can tell, the force behind the over-ecumenism objection comes from the as-

⁵⁹This seems to me to be especially so given the arguments against the Asymmetry Thesis from Chapter 1. Of course, this contradicts those who, like Tahko and Lowe (2020), maintain that there can be no mutual explanations because there can be no circular explanations.

sumption that there is but one correct direction of explanation. I have already stated my methodological preference against judging what explains what on the basis of antecedent metaphysical commitments – to dispositionalism or to quidditism – rather than treating the particular cases of explanation as the points around which our commitments initially coalesce. These views are themselves justified largely by recognizing what explains what. For that reason, I treat the fact that – at least to some extent – explanations are taken (by some) to run in either direction at face value. Therefore, I accept the ecumenical approach, and grant that the explanations running from dispositions to properties and *vice versa* imply analogous mutual grounding relations.

Note that only the strongest versions of what I’ve called dispositionalism and quidditism are universal, in that they purport to describe the nature of any property whatsoever. But, as Choi and Fara note, these views “are two extremes of a large spectrum of possible positions on the essences of properties.”⁶⁰ According to many philosophers, the world contains properties of both dispositional and quidditistic kinds.⁶¹ On such a reasonably variegated view, decisions about metaphysical priority must be made on a case-by-case basis, considering the specific features of each property instance, rather than based on programmatic choices about the abstract metaphysical order of essences and dispositions in general. Moderate ecumenism – permitting local instances of either direction of grounding – is widely accepted. Even if no moderate explicitly defends the mutual grounding I’ve described, this fact has two weakening effects on the over-ecumenism objection. First, the posited mutual grounding need not obtain of every property. If we maintain, as I urge, that the negative charge property and the disposition to attract positively charged things ground each other, we may still maintain that properties of mass, extension, or consciousness have a categorical quiddity, while others, like fragility or irascibility, are reducible to dispositions. This is consistent with this section’s goal: I am interested in establishing the

⁶⁰Choi and Fara (2018: Section 3)

⁶¹For example, Swoyer (1982), Ellis and Lierse (1994), Ellis (1999) (2001), and Molnar (1999).

existence, rather than the ubiquity, of mutual grounding.⁶²

Second, by suggesting that judgments about the direction of grounding between properties and essences are determined by the specific features of a given situation, moderate ecumenism reinforces my call to consider the two proposed directions of explanation (viii) and (xi) independently, in isolation of broader theoretical commitments. The over-ecumenism objection turned on the allegation that, by endorsing dispositionalism, we *ipso facto* reject quidditism, and, so, any instance of mutual grounding between quiddity and disposition is at least unappealing and probably contradictory. Moderate dispositionalists, who endorse dispositionalism about certain properties, and quidditism about others, serve as a counter-example to that allegation. For them, as for me, the success of one kind of explanation doesn't wholesale rule out the success of the other kind.

But those still concerned with the over-ecumenism objection in this case may consider another example in the vicinity. Consider again the dispositionalist's explanation of negative charge, (xi): an electron has negative charge because it has a disposition to attract things with positive charge. Assume, for now, that dispositionalism is at least possibly true, and that this is an appropriate metaphysical explanation of negative charge. Note that the *explanans* mentions positive charge: it is the property of things which our negatively charged electron will be disposed to attract. But how will the dispositionalist explain positive charge? Unless their dispositionalism is bizarrely localized, the explanation will be analogous: an entity (perhaps a proton) has positive charge because it has a disposition to attract things with negative charge. If we're assuming that dispositionalism is true, this, too, is an appropriate explanation of the charge property, or of what it is to be positively charged.

So, dispositionalism posits a pair of explanations, each contributing to the other: to

⁶²In Chapter 4 of this dissertation, I will defend a version of coherentism on which mutual grounding is ubiquitous. However, I will argue that this radical view is not the only plausible version of metaphysical coherentism.

explain negative charge, we invoke positive charge, and to explain positive charge, we invoke negative charge. Positive charge partially explains negative charge. Negative charge partially explains positive charge. Then, if TC is true, the facts about these properties partially ground each other as well.

This example invokes explanations from within a single view, without presupposing an ecumenical attitude towards purportedly opposing views, thereby avoiding the over-ecumenism objection. Whereas the original pair of explanations (viii) and (xi) suggested a pair of exclusively mutually grounding facts, the present example suggests merely partial mutual grounding. Of course, it also rests on the somewhat controversial assumption that (even if dispositionalism is false), negative charge may indeed be explained by the disposition to attract positively charged things (and *vice versa*). But, as we'll soon see, other examples of mutual grounding make no such assumptions.

To sum up: I've argued that (viii) and (xi) are equally appropriate explanations, and that they may be believed simultaneously. Given TC, this entails that there is at least one case of mutual grounding. I've responded to an objection which maintained that, by endorsing (viii), one rejects (xi) (and *vice versa*). Finally, I've argued that even endorsing (xi) on its own commits us to some mutual grounding.

2.4.3 Symmetric Grounding - Quantitative Properties

- (ix) A quantity of H₂O has a density of $997\text{kg}/\text{m}^3$ because it has a mass of 997kg and a volume of 1m^3 .
- (xii) A quantity of H₂O has a volume of 1m^3 because it has a density of $997\text{kg}/\text{m}^3$ and a mass of 997kg .
- (xiii) A quantity of H₂O has a mass of 997kg because it has a volume of 1m^3 and a den-

sity of $997\text{kg}/\text{m}^3$.

If TC is true, it follows that the liquid's mass and volume together ground its density, its density and mass together ground its volume, and its volume and density together ground its mass.

Given any two of the quantity's quantitative properties, the third can be derived. Any two wholly determine, account for, and explain the third. Which of the properties, then, is grounded in the others? Other sets of quantitative properties stand in analogous relations. In each case, the explanations of quantitative properties are perfectly analogous and symmetric, working in precisely the same way.

In this case, Fine insists that it is "implausible, for example, that what grounds facts about volume are facts about density and mass."⁶³ It is unclear what exactly is supposed to be implausible here – the direction, or the relata? The relata are perfectly apt for grounding claims in general. Although the basic notation of the units of density (mass per volume) might incline us towards thinking that that property is the odd one out, to do so will certainly be to mistake conceptual for metaphysical priority.⁶⁴

Contrary to Fine's interpretation, as in the case of possibilities and necessities, it's arbitrary to pick one of the quantities as the derived one, and the others as non-derived. As Thompson argues, "there appears to be no principled reason for taking any one of the three parameters as derivative of the other two."⁶⁵ The connections between volume, mass, and density form a network in which none stands apart from the others. In terms of explanation, it's clear that the water's density can be explained by its mass and volume to-

⁶³Fine (2001: 22)

⁶⁴See also Hofweber (2009: 269–270). I grant that density might be conceptually derivative, in terms of the way that our concepts are constructed. But this is clearly to be attributed to the contingencies of our scientific practices – in which volume and mass are easier to measure, and, so, in clearer conceptual focus – rather than any features of reality itself.

⁶⁵Thompson (2016: 47)

gether, and that there are parallel explanations in the other cases as well.⁶⁶

It is unclear how to avoid mutual grounding in this case. Unlike the part-whole and disposition-property pairs, neither direction of explanation could be alleged to correspond exclusively to the grounding relation with any remote degree of plausibility.

2.5 Conclusion

In this chapter, I've argued that explanations are a reliable guide to grounding. More specifically, I've argued that the pattern of the distribution of explanations is isomorphic to the pattern of the distribution of grounding relations. In other words, I've argued that where there are explanations, there is grounding, or that inferences from premises about what explains what to conclusions about what grounds what are valid. I've called this my "Target Claim", or "TC".

My main argument for TC was broadly abductive. In Section 2.2, I argued that, unless certain kinds of metaphysical explanations track objective features of reality – or grounding relations between worldly facts – the success of those explanations cannot be accounted for. Abductive arguments like this one, I argued, are widespread, both within the grounding literature and in other areas of metaphysics. The success of certain explanations is, itself, best explained by a metaphysical relation between *explanans* and *explanandum*.

Next, I defended TC against an objection, based on a thesis which I called "Divergence". That thesis alleged grounding is not related conceptually to explanation as I've maintained, and, therefore, that TC is false. But, I argued, it is difficult to motivate Divergence in a non-*ad hoc* way. In particular, it is difficult to articulate a substantive characterization of grounding from which Divergence follows – a characterization which explic-

⁶⁶In Section 3.3, I'll suggest that this is an example of a metaphysical explanation which offers understanding, like any good explanation should.

itly eschews references to explanation. I considered two such characterizations – intuitive grounding_I and disjunctive grounding_D – which, I’ve argued, are unappealing for various reasons. So, I concluded that TC can effectively resist an apparently pressing objection.

Finally, I explored an upshot of TC. In Section 2.4, I argued that TC gives us compelling reasons to believe, against the grounding orthodoxy, in symmetric grounding. That is, if TC is true, there are situations in which one thing grounds another and *vice versa*, because there are pairs (or triples) of explanations which connect distinct facts in opposite ways. Specifically, I considered mutual grounding between parts and wholes, properties and dispositions, and inter-definable quantitative properties.

Section 4 represents a shift in the overall structure of this dissertation. Chapter 1 consisted of negative arguments, undermining positions but not defending any. The first three sections of Chapter 2 provided an abstract account of the relationship between grounding and explanation. In Section 2.4, for the first time, I’ve defended a substantive position: there is mutual grounding. This thesis is one half of what I’ll call the “coherentist canon”. Here it is:

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

The examples from Section 2.4 represent true instances of the existential claim made by part (ii) of the Canon. I elaborate on the Canon, and why it represents the integral features of the coherentist view, in Chapter 4. However, even though both foundationalists and infinitists deny that there is mutual grounding, mutual grounding on its own doesn’t establish that coherentism is true.⁶⁷

⁶⁷As I’ll argue in Chapter 4, this conciliatory “coherentism-lite” is less appealing than more thoroughgoing versions of coherentism.

The Canon's other clause – that everything is grounded in something distinct from itself, and that nothing is ungrounded – is the substantive position defended in Chapter 3. There, I will build further on the connection between explanation and grounding which is vindicated by TC. I will argue that coherentism is true because of the connection between grounding, explaining, and understanding. Understanding, I will argue, is characterized by recognizing interrelations among discrete parts of complex systems. Further, explanations characteristically offer understanding, making it possible for us to so “put things together”. Since explanations are guides to coherentist structures, grounding, too, will have a coherentist structure, since grounding is most often closely related to (perhaps distinctively metaphysical) explanation.

Chapter 3

Grounding, Explanation, and Understanding

Abstract

Many identify grounding as explanation. But even though explanation has been associated with understanding, we have little consideration of the question: how does grounding contribute to understanding? This is the question I address in this chapter. I propose that discerning the grounding structure contributes to understanding by revealing the interrelations among that which fits into a “bigger picture”. I argue that this conclusion suggests a re-evaluation of orthodox foundationalism about grounds.

3.1 Introduction

Just over a decade ago, metaphysicians converged on a concept gleaming with intuitive appeal: *grounding*. We knew that our judgments about the paradigm cases signalled a fea-

ture of reality of which we had an undeniable, primitive sense. Demands for rigor prompted a proliferation of regimentations, formalizations, and specifications of grounding. But these built certain substantive background assumptions into the core of the definition of grounding. The price of the “grounding orthodoxy” was that it obscured the fascinating dimension of the relation which drew many early proponents: grounding’s beating heart as *explanation*. When we discover what grounds what, we are struck by the sense of having an explanation of reality – a revelation, illumination, or a bringing to light.

In this chapter, I build on the work of Chapter 2, where I defended the validity of arguments from the distribution of explanation relations to the distribution of grounding relations. I argue that grounding, like any explanation, must offer understanding. Understanding is characterized by a recognition of interdependence, coherence, and fitting things together in a system. This carries an interesting upshot for the overall structure of grounding. *Metaphysical coherentism* is the view that things participate in a foundationless network or web of grounding each other. Compared to its more widely-endorsed rivals, coherentism offers us an understanding of reality which is richer, more profound, and more engaging. Experience suggest that we possess such understanding. So, we have reason to believe that coherentism is true.

Here is how I’ll get there. I begin with a two-step analysis of metaphysical explanation. In Section 3.1, I argue that explanations characteristically offer understanding. In Section 3.2, I argue that understanding consists of recognizing interdependence and internal coherence. In Section 3.3, I argue that linear accounts of the metaphysical structure – foundationalism and infinitism – provide a more impoverished species of metaphysical understanding than non-linear, coherentist alternatives.

3.2 Explanation and Understanding

Audi describes the relationship between explanation and grounding like this:

To be sure, stipulating that grounding may be called ‘metaphysical explanation’ does no work at all. But one might insist that grounding deserves this name because of an antecedent connection it bears to the idea of explanation. If we already understand explanation, then to some extent at least we already understand grounding.¹

Rosen strikes a similar tone:

We say that one class of facts *depends upon* or is *grounded in* another. We say that a thing possesses one property *in virtue of* possessing another, or that one proposition *makes* another true. These idioms are common, as we shall see, but they are not part of anyone’s official vocabulary. The general tendency is to admit them for heuristic purposes, where the aim is to point the reader’s nose in the direction of some philosophical thesis, but then to suppress them in favor of other, allegedly more hygienic formulations when the time comes to say *exactly* what we mean.²

Rosen’s paper is a master class of “more hygienic formulations” of grounding. He presents formal properties for the relation and its cognates which have been widely adopted as the standard definition.

Schaffer opens his “Grounding in the Image of Causation” in a similar spirit. He says that he wishes to “communicate a concept”. He claims that this is a difficult task, because

¹Audi (2012a: 119)

²Rosen (2010: 109). Original emphasis.

definitions “are virtually never available, and [...] almost all of our concepts are in fact grasped by us in some other way.”³

I, too, wish to communicate a concept, and one which I believe we grasp independently of its definitions. Perhaps it is the same concept as those of Audi, Rosen, and Schaffer. If it is not, it is certainly its neighbor. But I will point the reader’s nose in a somewhat different direction than they. My starting point won’t be the usual set of formal features supported by a handful of supposed paradigm cases. Instead, I’ll treat seriously Audi’s aforementioned “antecedent connection”, and consider grounding as a kind of explanation. This move shouldn’t be controversial. Just about any characterization of the grounding relation identifies it as, somehow or other, explanatory.⁴

I will also assume that, unless explicitly stated otherwise, words do not change their meanings when used by metaphysicians. I hope that isn’t controversial either. I am assuming, for example, that, when offered a description of two indistinguishable black spheres located two metres apart, we should take “two”, “indistinguishable”, “black”, and so on, to mean (more or less) what they do in other contexts. The same is true of (quasi-)metaphorical uses. For example, I consider a “time-slice” to be something like an ordinary slice, “governing laws” to do something a lot like ordinary governing, or a “mental image” to be a kind of image. Although nobody thinks that perduring things can be literally sliced along their temporal dimension – perhaps with a serrated knife – it would certainly be uncharitable to assume that, in this context, the expression “slice” means something completely different than it does in ordinary circumstances. Such is the nature of metaphors: they helpfully point our minds towards ideas which (at least at first) elude strict definition.

They presuppose a relative stability of meanings.

³Schaffer (2016: 51)

⁴Just to name a few: Fine (2001: 15–16), Rosen (2010: 116), Audi (2012a: 102), Schaffer (2016: 53). For an overview of the relation between grounding and explaining, see Bliss and Trogdon (2016), Maurin (2019), or Glazier (2020).

This basic assumption compels me to believe that when I hear grounding described as “metaphysical explanation”, or that “the grounds explain the grounded things” or that grounding relations are characterized by an “explanatory component”, these words mean nothing drastically different from what they usually mean. Whatever explanation is offered by grounding, if it is a genuine explanation, cannot differ drastically from ordinary explanation. Thus, I am committed to a principle which I’ll call “Genuine Metaphysical Explanation”:

GME: Grounding shares at least the core features of ordinary explanation.

Recall the Target Claim of Chapter 2: there are valid arguments from the distribution of explanation relations to conclusions about the distribution of grounding relations. GME, suggested by the clear explanatory characterization of the grounding relation, together with TC, serve to justify my argument.

On the view I am proposing, the *relata* of grounding and explanation alike are facts.⁵ However, I will occasionally describe explaining and grounding non-facts, like things, events, or people. Expressions like these should be taken as shorthand for facts *about* the things or people in question. For example, to “explain the winter solstice” is to explain a body of *facts* related to the winter solstice.

Many today distinguish between two general attitudes towards the relation between grounding and explanation.⁶ “Unionists” assert, and “separatists” deny, that grounding *just is* metaphysical explanation. For separatists, grounding isn’t identical to metaphysical explanation, but nonetheless *backs* it. GME asserts there to be certain shared features between grounding and explanation. But endorsing GME doesn’t require assuming that

⁵Some, like Cameron (2008: 5) or Schaffer (2009: 375–376), prefer unrestricted grounding, permitting things of any ontological category (properties, substances, states of affairs, etc.) to stand in grounding relations. Cf. Tahko (2018a: Section 1)

⁶Raven (2015: 326)

unionism is true. So long as the separatist doesn't deny that there are certain explanation-related features to grounding, they, too, may freely assert GME.⁷

So, thinking about explanation will guide our thinking about grounding. What, then, is an explanation? Following Guigon, one might distinguish between a general and a special question.⁸ Whereas the special explanation question asks for the particular conditions under which explanations succeed, the general explanation question asks: "what is explanation?". The extensive debate about the special question is beyond the scope of this dissertation.⁹

However, at least one partial answer to the general explanation question enjoys widespread endorsement: explanations afford the opportunity to enlarge and deepen understanding. "We seek out explanations of various phenomena," Grimm argues,

because we want to understand those phenomena. But then presumably explanations that fail to generate understanding are in some way lacking; they are not doing their job, so to speak. As a first pass, it is therefore tempting to think that we can evaluate the quality of an explanation based on whether it manages to yield understanding.¹⁰

This sounds right. Clearly, we consider an explanation which fails to generate understanding a failure, if an explanation at all.¹¹ It is a failure in precisely the same way in which a hair dryer which doesn't dry hair, or an umbrella which doesn't protect from rain, are

⁷Conversely, neither unionists nor separatists should be comfortable denying GME. A unionist who denies GME believes that metaphysical explanation is identical to a certain metaphysical relation which has nothing in common with explanation. A separatist who denies GME believes that metaphysical explanation is backed by a certain metaphysical relation which has nothing in common with explanation.

⁸Guigon (2015: 1–2)

⁹According to some prominent accounts, to successfully explain some fact or event, one must, for example, describe its causal history (Lewis (1986a)), derive it deductively from a set of initial conditions and statement of general laws (Hempel (1965)), present it in such a way as to unify many other facts or events (Friedman (1974) or Kitcher (1989)), or fulfill some pragmatic requirements (Van Fraassen (1980))

¹⁰Grimm (2018: 5–6)

¹¹I use expressions like "bad explanation" and "no explanation at all" interchangeably.

failures. To offer understanding is just what an explanation is supposed to do.

The connection between explanation and understanding is widely remarked-upon. For instance, a standard way of objecting against some particular answer to the special explanation question x is showing that instances of x fail to provide any new understanding of the *explanandum*.¹² Hempel defends the success of his account of explanation by claiming that, by showing why an event was to be expected, “the explanation enables us to *understand why* the phenomenon occurred.”¹³ Achinstein clarifies his pragmatic account of explanation by pointing out that “explaining q has been defined as uttering something with the intention of rendering q understandable.”¹⁴ Kim takes the connection to be so obvious and close-knit to prompt the claim that “explanation *that is, understanding*, should be among the central concerns of general epistemology.”¹⁵ To call something explanatory but deny that it produces understanding sounds confused, if not contradictory.

Offering understanding might be neither a sufficient, nor a distinguishing feature of explanation. Perhaps explanations must meet other conditions, like non-triviality, or non-vacuity, or finitude, for example. Or perhaps understanding may also arise through other conceptual routes, like clarifications, demonstrations, or divine inspiration.¹⁶ But, in Ruben’s words, “that we should come to understand why things happen” is “part of the point and purpose of explanation,” and any explanation “surely must serve at least this function.”¹⁷ If GME is true, a metaphysical explanation, like any explanation, must offer understanding.¹⁸ In Section 3.2, I’ll also specify that the understanding at issue should have a distinc-

¹²For example, Friedman (1974: 190), or Woodward (2017: Section 2.6). Skow (2018: 210) claims that understanding as a condition on successful explanation “has been, and continues to be, widely accepted”, but argues against it.

¹³Hempel (1965: 337). Original emphasis.

¹⁴Achinstein (1983: 23)

¹⁵Kim (1994: 53–54). Emphasis added. See also Zagzebski (1996: 237), Jenkins (2008: 67), or Lynch (2016: 167, 182) for other characterizations of explanation as bound closely to understanding.

¹⁶Jenkins (2008: 61)

¹⁷Ruben (1992: 14)

¹⁸Lowe (2011: 99, 108) associates understanding with the primary goal of metaphysics, and the influential Correia and Schnieder (2012b) is subtitled “Understanding the Structure of Reality”.

tively metaphysical flavor.

But first, I'll address a lurking objection. One may object that understanding, unlike explanation, is agent-relative. Explanations can be found out in the world: in textbooks, proofs, or conversations. Understanding occurs in minds. Whether an explanation contributes to any individual's understanding, or, more colloquially, whether it is grasped, depends on features external to it: whether a particular person has the right background knowledge, cognitive abilities, epistemic virtues, amount of sleep, and so on. For example, the behavior of a certain subatomic particle is properly explained by a complicated series of equations. Since I have no background in particle physics, when I encounter this explanation, my understanding does not improve. The equations – perfectly clear to people with the right background – are gibberish to me. Yet, it seems that they *are* the correct explanation, even though, in many cases, they produce no understanding. Similar examples abound. Whether something is an explanation can't depend on features external to it. So, it can't depend on whether it produces understanding. So, there may be explanations which produce no understanding, and an analysis of understanding is no guide to explanation. Or so the objection alleges.¹⁹

This objection rests on an uncomfortable distinction between agent-relative understanding and non-agent-relative explanation. To claim that explanation is not agent-relative, as this objection does, contradicts an extensive tradition of pragmatism and contextualism about explanation. Many have argued that nothing can be considered an explanation when we ignore the background conditions in which it obtains.²⁰ Of course, fans of metaphysical explanation have a prior commitment to objective explanations: we discover what grounds what by investigating the way that the world is, not the way that we are, after all! But this commitment, coupled with agent-relativism about understanding, and given the clear conceptual bond between explanation and understanding, rings *ad hoc*. After all,

¹⁹Thanks to Kris McDaniel, Michael Rieppel, and Ben Cook for pressing me on this issue.

²⁰For example, Van Fraassen (1980)

similar examples may support an argument proving that whether something *is an explanation* depends on features external to it, like some individual's attention span or interest. In other words, the objection hinges on dividing the agent-relative and the non-agent-relative in an unnatural way, such that near-cognate notions like understanding and explanation fall on different sides of that divide. The same examples which may be said to serve as explanations without understanding may, just as naturally, work as examples of things which are not explanations at all.

But suppose that the objector stands their ground. Or, better, suppose that they offer some principled reason to think that understanding, but not explaining, is agent-relative. Does this, on its own, preempt any proposed characterization of explanations by appeal to understanding? No, so long as my account is permitted a reasonable degree of agent idealization. Consider: we are happy to grant that certain choices, desires, or courses of action are *rational*, even though rationality is, strictly speaking, a feature of minds. When we refer to a "rational choice", we don't mean a choice made by rational agents *no matter what*. Rather, we mean that a rational choice would be the one made by an approximately ideal rational agent with the right background knowledge, abilities, intentions, and so on. In the same way, nobody expects a successful explanation to generate understanding *no matter what* – even if written in Ancient Sumerian at the bottom of the Pacific Ocean, for example. No: a successful explanation is distinguished by its capacity to generate understanding in a – perhaps ideal – thinker with the right background conditions, like knowledge, abilities, intentions, and so on.

Identifying the right background conditions which an ideal agent must meet in order to grasp explanations is a difficult task. I will not attempt it here. But I see no reason to think that there are none - although I am not one such agent in the previous example, a competent particle physicist might be. In fact, I take the existence of such approximately ideal agents to be well-evidenced by our experiences of understanding generated by suc-

cessful explanations.²¹ There doesn't seem to be anything wrong with idealization, and no reason to believe that there *cannot* be some specification of appropriate conditions for grasping an explanation. Once we have articulated the features of this idealized “understander”, explanatory success is no longer perniciously subjective: it is a perfectly objective fact whether an ideal agent will have understood on the basis of the explanation, and, so perfectly objective whether or not the explanation is any good.

For these reasons, I will refer to explanations *offering* understanding. I've characterized explanations by their intrinsic capacity to produce, generate, or give rise to understanding. But I've also acknowledged that this capacity may not be realized. An explanation ignored, misunderstood, or otherwise un-grasped produces no actual understanding. But it is an explanation nonetheless because it *could have* gotten an idealized agent to understand. In the same way, an offer - of help, or of a refill - remains an offer, even if ignored, unnoticed, or otherwise not taken up. If an explanation is grasped, it has *produced* understanding. But, even if un-grasped, an explanation nonetheless *offers* understanding, despite not *producing* it.

3.3 Understanding and Coherence

I've argued that explanations offer understanding, and that explanation is some guide to grounding. In this section, I'll argue that understanding is best characterized as a recognition of the interrelations between facts. Therefore, a successful explanation is one which, in some way, identifies or points out such interrelations.

Responding to an objection in the previous section, I argued, following Grimm, that the experience of understanding is evidence of the fact that we *do*, at least occasionally, understand. In the same way, we might treat our introspective sense of what it's like to

²¹Cf. Grimm (2018: 5–6)

understand as good evidence for theses about what understanding is like. What it is like to understand serves as observational data for determining the nature of understanding.²²

So, what is it like to understand? Kvanvig’s influential definition is based on the intuition that “understanding has value beyond that of its subparts.”²³ More precisely:

The central feature of understanding, it seems to me, is in the neighborhood of what internalist coherence theories say about justification. Understanding requires the grasping of explanatory and other coherence-making relationships in a large and comprehensive body of information. One can know many unrelated pieces of information, but understanding is achieved only when informational items are pieced together by the subject in question.²⁴

Later, Kvanvig describes how “understanding requires, and knowledge does not, an internal grasping or appreciation of how the various elements in a body of information are related to each other in terms of explanatory, logical, probabilistic, and other kinds of relations that coherentists have thought constitutive of justification.”²⁵ Others have characterized understanding in a similar vein, as seeing “the way things fit together,”²⁶ or recognizing “something about the *structure* of the whole,”²⁷ or becoming aware of “arguments that fit a phenomenon into a broader theoretical framework.”²⁸

Here’s an example to motivate this view of understanding.²⁹ What do we mean when we say something like: “although Paul knows the New York City subway system, he doesn’t

²²Although see Trout (2002), Trout (2007), or Skow (2018) for arguments against understanding (or at least certain of its phenomenological components) as a condition on explanation.

²³Kvanvig (2003: 188). Similar descriptions are given by Zagzebski (1996: 49–50), (2001: 242), and Baumberger, Beisbart, and Brun (2017: 2)

²⁴Kvanvig (2003: 192)

²⁵Kvanvig (2003: 193)

²⁶Riggs (2007: 218)

²⁷Lynch (2018: 196). Original emphasis.

²⁸De Regt (2009: 26)

²⁹Grimm (2011: 85). The example is attributed to an unpublished manuscript by Brogaard, and I’ve substituted talk of the “subway system” for the placeholder “X”.

understand it the way that Mary does”? What does Mary have which Paul does not? According to Grimm, we don’t intend to deny to Paul *any* kind of acquaintance with the system. Rather, “what we are claiming is that while [Paul] may know a lot about [the system], nonetheless he doesn’t really know how [it] works. That is to say, he doesn’t really know how the different parts or elements of [the system] are related to, and depend upon, one another.”³⁰ This lack of understanding on Paul’s part, Grimm continues, can also be taken to be a failure to appropriately engage with “a structure or system of some kind; at any rate, the sort of thing with ‘moving parts’ - that is, parts or elements that are open to taking on different values and hence of being worked.”³¹ Mary’s understanding of the system, we might say, hinges on her recognition of the system as what it is: an interconnected system of parts.

Here’s a second example. According to Strevens, to “know that water is made up of H₂O, or that mercury is a metal” is insufficient “for understanding the chemical properties of water or mercury.” Rather, Strevens claims,

understanding most of the properties of H₂O requires an appreciation of the relation between the hydrogen and oxygen atoms in an H₂O molecule. Someone for whom ‘H₂O’ is just a symbol for some kind of molecule, they know not what, can know facts about H₂O in the same way that someone who cannot distinguish elms and beeches can know facts about elms, but their acquaintance with such facts is not close enough to constitute the right kind of grasping.³²

There is a marked difference between, on the one hand, taking “H₂O” to be a mere “symbol for some kind of molecule”, a meaningless tag, and, on the other, seeing it as a repre-

³⁰Grimm (2011: 85).

³¹Grimm (2011: 86)

³²Strevens (2013: 511)

sentation - however simplistic - of the internal structure of the molecule. Only the latter attitude provides us with a deeper, richer sense of the nature of that molecule. Clearly, it is impossible to understand what water is without an awareness of the relations between hydrogen, oxygen, and the more general facts about how chemistry goes. Unless it coheres with a broader framework, "H₂O" is a meaningless tag. Only in the context of a wider theory does knowledge flourish into understanding.

All this suggests a characterization of understanding as coherence: we gain understanding as we recognize the coherence and interrelations among facts. We seem to have a basic, intuitive sense of what it is for a system to be coherent: a coherent system must be at least logically consistent, and perhaps embody certain other features. Although the precise nature of these additional features is more controversial, epistemologists interested in coherent sets of beliefs generally associate coherence with the capacity of beliefs to lend credence to all the others within the set. But many proposed specific coherence criteria – like the presence and strength of inferential or probabilistic connections – won't apply to coherent systems in non-epistemic contexts. Some plausible conditions shared between coherent sets of epistemic entities – beliefs connected by inferential relations – and metaphysical ones – facts connected by grounding relations – is widespread, mutual interrelatedness. So, I'll consider a metaphysical structure to be more coherent insofar as the proportion of mutual grounding relations to facts in that structure increases. I'll consider a metaphysical structure to be less coherent insofar as the number of facts not bound to others by mutual grounding relations increases.³³

This accounts for the cases above. Mary would not understand the subway system (at least not as well) were she to be unaware that it operates after 3 pm, or believe that, east of the East River, it is powered by magic. Characterizing understanding as coherence justifies these judgments about understanding. In each of the cases just mentioned, Mary's

³³Here, I am roughly following the characterization of epistemic coherence offered by Bonjour (1985: 97–99) and Olsson (2011: 260–261).

beliefs about the subway system would feature less coherence than they would were it not for these lacunae. Likewise, somebody whose knowledge of the nature of hydrogen only covers its behaviors as part of an H₂O molecule would not understand the nature of water as well as someone who knew about hydrogen in other contexts as well. Again, the coherence characterization of understanding makes sense of this verdict: someone who knows nothing about hydrogen, but a lot about H₂O, has a less coherent system of beliefs than someone whose knowledge covers both.³⁴

I am moved by these arguments. Understanding does seem to be about fitting things together. Genuine explanations do seem to be about locating things in a bigger picture. In Section 3.1, I argued that a metaphysical explanation, like any explanation, must offer understanding. Now, in Section 3.2, I've shown that understanding amounts to recognizing interrelatedness. I conclude that grounding relations must offer understanding by revealing interrelations among facts.³⁵

This thesis wants specification. Not every instance of understanding is attributable to ground, and not every explanation will be a *metaphysical* explanation. I mentioned earlier in this section that we expect a metaphysical explanation to offer a particular kind of understanding. That sense seems to be an understanding of *what it is to be a certain thing*.³⁶ This seems to be at issue in most cases in which we expect a distinctively metaphysical explanations, including explanations which appeal to essences or intrinsic natures, for example.

³⁴Some will disagree with this characterization of understanding. Cf. Baumberger, Beisbart, and Brun (2017: 13–15) Here, once again, I must bracket controversies about whether understanding is factive, experiential, pragmatic, or ability-based. I am assuming only that, in many instances, understanding improves with explanations which reveal interdependence.

³⁵Earlier, I specified that the relata of explanation – grounding or otherwise – are facts. Understanding is a relation between facts and thinkers. Just as is the case with explanation, I will occasionally refer to understanding non-facts. These expressions should be taken to refer to understanding a body of facts about that thing. So, to “understand the winter solstice” is to understand a body of facts about the winter solstice.

³⁶In the terminology of Richardson (2020: 201), this is an instance of “what-grounding”.

Thus, we arrive at the “Understanding Principle”:

UP: For any x , facts about x are grounded by facts which offer understanding of what it is to be x ; the grounds offer understanding by revealing how facts about x are interrelated with a broader structure of facts.

In other words, UP states that by investigating grounds, we (or appropriately idealized agents) understand what it is to be a certain thing, and that this understanding is characteristically achieved by locating things within a systematic, coherent structure. Only if they constitute such a structure can grounds lead us to understand what it is to be a certain thing, thereby counting as a genuine metaphysical explanation. I have shown this principle to follow from reasonable assumptions about ground, explanation, and understanding. This principle, I maintain, should be at the heart of our account of grounding.

3.4 Grounding and Coherentism

In this section, I consider UP’s implications for the Question of Overall Structure. Recall that this question is often framed as a version of Agrippa’s Trilemma: we must decide whether the sum total of grounding relations has a foundationalist, infinitist, or coherentist structure.³⁷ In Chapter 1, I offered reasons to think that foundationalism, the default view, isn’t supported by any compelling arguments.³⁸ Further, in Sections 1.4 and 2.4, I showed that the thesis of asymmetry, shared by both foundationalism and infinitism, is also suspect.³⁹ Now, I will argue that UP suggests that, contrary to both foundationalism

³⁷For example, by Schaffer (2009: 37), Morganti (2014: 223) (2015: 557), and Westerhoff (2020: 165). For an overview of this debate, see Ó Conaill and Tahko (2018: 5–6), Tahko (2018a: Section 1.3), Dixon (2020), or the papers in Bliss and Priest (2018b).

³⁸Some prominent defenses of grounding foundationalism are Cameron (2008), Schaffer (2009), Schaffer (2010), Bennett (2011), Bennett (2017), Dasgupta (2016), or (in modified form) Tahko (2018b) and Raven (2016).

³⁹Some prominent defenses of grounding infinitism are Markosian (2007), Bohn (2009), Cotnoir (2013), Morganti (2014), Morganti (2015).

and infinitism, reality has the coherentist's preferred non-linear, web-like structure.⁴⁰ Here is how I've formalized the main tenets of coherentism:

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

Only this structure, I will argue, can offer the rich kind of understanding of reality which we occasionally experience by discerning the metaphysical facts about what grounds what.⁴¹

Before turning to how metaphysical explanation offers understanding by locating things in a grounding structure, let's consider how we understand events by locating them in a causal structure. This will help guide our thinking about grounding going forward. As I will argue, identifying causal antecedents in a linear sequence of causes contributes little to our understanding of events – at least in comparison to other ways in which we can understand them. Consider the event “E”: a smoke alarm has gone off in your kitchen. “–Oh no! What's going on?” We can understand E in a cursory way by recognizing its immediate causes: you've just taken a burnt casserole out of the oven, there isn't much ventilation in the kitchen, and the smoke drifted up to the detector, setting off the alarm. Mystery solved! With this information, E is no longer a random, mystifying occurrence: at least in a basic way, it has been explained, and it is understood.

But we've gotten no more than the most basic understanding of E. Once the fire is out, we could inquire further. Where shall we look to better understand E? Perhaps we should look backwards and investigate the antecedent causes behind the proximate cause which we've already identified - the smoky oven. This would lead us on a journey through

⁴⁰Coherentism - or at least certain of its key features - has received favorable treatments from Thompson (2016), Thompson (2018), Nolan (2018), Bliss (2014), Bliss (2013), Rodriguez-Pereyra (2015), Barnes (2018), Morganti (2019a), and Calosi and Morganti (2021)

⁴¹I am grateful to Robert Van Gulick for excellent discussion on some of the ideas in this section.

the history of a bit of consumer electronics hanging off your ceiling today, and certain other parallel histories, among them that of some vegetables and cheese, leading up to their unfortunate, burnt fate. Unearthing layer after layer of causal antecedents – traversing the linear ordering of events backwards through time – improves our understanding of E. But it doesn't feel like the kind of understanding which we would really be after, the kind which would slake a more serious curiosity. It's just an accumulation of trivia about distribution networks, production lines, farms, factories, and so on.

As I see it, we achieve a *better* understanding by wholly different, non-linear investigations. In trying to understand E better, we might, instead of trying to figure out what came *before* E, try to figure out how a smoke detector works – when smoke interferes with an electrical current passing between two electrodes. Or we might think about smoke – how it's produced by the partial combustion of things like casseroles, or how it travels through poorly-ventilated kitchens – or how such an innocuous bit of plastic can produce such an infernal noise. If we're really trying to understand E, we would also be interested in what the smoke alarm is for, what purpose it is meant to serve, and why it's good to have one, and what might happen if you just decide to pull it off the ceiling and toss out the battery so it would just give you peace.

Discovering all of these processes and mechanisms improves our understanding of E. Descriptions of the underlying principles – electrical currents being disrupted, fluid dynamics, the dangers of kitchen fires and how smoke alarms can prevent them – and a sense of how they all conspired to trigger the fire alarm today contribute far more to explaining E than the sequence of its antecedent causes.

Perhaps, contrary to what I am urging, a simple ordering of causes suffices for understanding a simple event like E. That is, perhaps E is so uncomplicated that the causal history already offers all the understanding that we might want. But we can understand things far more complicated than E. Our understanding of them can be far richer and

more sophisticated precisely because it is not simply a question of arranging linear orderings. Consider how we understand a historic event like the Cuban Missile Crisis. Understanding the Cuban Missile Crisis involves more than being able to identify its causes. If we take October 16th, 1960 to be the first day of the Crisis, knowing about the events of October 15th, or the events of the previous week, or even the events of that summer, don't get us much understanding. We understand the Crisis no better by becoming familiar with its immediate antecedents. To know about them only is to leave most important questions have unanswered. In terms of UP, facts about the events of October 15th, 1960, contribute very little to locating facts about the Cuban Missile Crisis into a broader, coherent system of facts. In other words, they give us practically no sense of *what it was*. On the contrary, we take understanding history to turn crucially on recognizing the way that events like the Cuban Missile Crisis fit into a bigger picture, as a flashpoint in the escalating tensions between Cold War powers, how it shaped the 1960's, and how it has influenced international relations and geopolitics since. Only once the event is integrated into the broader historical, social, and cultural picture do we begin to understand what it was.⁴²

In these examples, our understanding is improved by appreciating the extended causal story of which events are part. That understanding has little, if anything, to do with unravelling the sequence indefinitely in any temporal direction. On the contrary, understanding seems to increase as our awareness of the causal story gains *density*, rather than length. The contrast between the contributions linear and non-linear explanations make to our understanding is like the contrast between the kind of understanding we gain from reading a series of directions and reading a map.

Imagine yourself trying to get the lay of the land in a new city. Where would you seek this understanding? If you were to ask for directions, you'd obtain specific instructions, with a beginning and an ending. Hopefully, these instructions wouldn't lead you in a circle

⁴²Compare this example to Barnes (2018)'s example of mutual dependence between a short-term and a long-term event, discussed in Section 2.4.1.

– hopefully, they’d be a perfectly linear explanation. Following directions would enable a certain success: arriving where you wanted to go. But one wouldn’t ask for directions to understand one’s place. Following directions will get you where you want to go, but it won’t facilitate understanding the place any better.

Suppose that, instead of asking directions, you were to consult a map. You get a lot more out of a map than out of a list of directions. A map explains where things are relative to each other: the main square is a mile north of where you’re standing, the bus station is half a mile east of the square (and, so, just over a mile northeast of you), and so on. This serves as an explanation of the layout of the city. By looking at a map, you begin to understand a place much better than you would by following directions. But a map has neither beginning, ending, nor direction. It is a perfectly ordinary, successful explanation, whose excellence comes from its non-linear representation of a network of interrelations. Understanding radiates outward, from focal points, rather than getting passed along a line.

If the overall structure of grounding relations is linear – that is, if it is either foundationalist or infinitist – metaphysical explanations can only provide us with understanding which is of a kind with the understanding afforded by the causal history of a smoke detector, or the understanding of a city through which one navigates with the help of clear directions. But we have the sense that metaphysical explanations which appeal only to grounding do offer the more satisfying, richer kind of non-linear understanding. Consider ordinary objects. They consist of subatomic particles, of which we know almost nothing. If foundationalism or infinitism are true, the complete metaphysical explanation of facts about ordinary objects must invoke or mention these subatomic particles. So, our understanding of tables, chairs, mountains, or molehills is woefully incomplete, since we know nothing of these subatomic particles. But that seems false. We seem to understand ordinary objects quite well! Although not understanding their subatomic makeup is some loss, it doesn’t seem like the particles make a substantial contribution to what it is to be any

given ordinary object. After all, to better understand facts having to do with tables, we would much sooner turn to a carpenter, an engineer, or perhaps an interior designer, than a particle physicist! What's more, we can remain firmly agnostic about whether there even are any fundamental constituents in the first place, but we are confident that our understanding of ordinary objects improves despite that agnosticism.⁴³ That's because understanding ordinary objects demands grasping how they behave, how their properties bear on each other, and perhaps the most coarse-grained descriptions of their parts. As with understanding an area represented on a map, understanding material objects is grasping how different facts both ground, and are grounded by, other facts.

The rich, satisfying kind of understanding which we might have of complicated historical events, or of an area which we've studied with the aid of a map, requires that certain groups of things explain each other – each contributes to our understanding of the others. If UP is true, there may be symmetric grounding. Again, the analogy to understanding complex historical events is instructive. Understanding the Cuban Missile Crisis requires some understanding of the Cold War – without it, the behaviors of the actors in the crisis are beyond baffling! But, one wouldn't have a very deep understanding of the Cold War without an understanding of the Cuban Missile Crisis. The conflict culminated in this standoff and was shaped by it. The two events – one lasting a few weeks, the other, a few decades – explain each other, because neither can be understood without the other.

Let's return to our understanding of what it is to be a table. To understand a table is to understand, at least, its parts and its uses. In the most basic sense, it is a flat surface supported by some legs, designed to hold things like laptops, dinner plates, or sleep-

⁴³Fans of monism may run a parallel sequence of reasoning in the opposite direction, arriving at a similar result. According to monists, facts about a table are metaphysically explained by facts about the largest whole of which it is a part: the cosmos. Given this account of explanations, so long as we remain in the dark about the cosmos, our understanding of the human-sized things is woefully incomplete. But we seem to understand human-sized things quite well, despite knowing practically nothing about the cosmos! To better understand facts having to do with tables, we would much sooner turn to a carpenter, an engineer, or perhaps an interior designer, than a cosmologist! We can remain firmly agnostic about whether there even is any largest thing, all the while improving our understanding of ordinary objects.

ing cats. But our understanding would, here, be incomplete if it ran in only one direction. We need to refer to tables to understand what a table-leg or a table-top is – they are both the sorts of things which can form parts of this piece of furniture. Likewise, to be a dinner plate is, also, to be the sort of thing which is made to be placed on a table, which must be understood in order to understand a table.

Although tables and dinner-plates are artifacts, the same reasoning extends to non-artifacts as well. Recall Strevens' example of an H₂O molecule.⁴⁴ Each of the molecule's constituent atoms is, in turn, made up of electrons, protons, and neutrons.⁴⁵ Now, consider something at the “middle” level: a single hydrogen atom. Call it “H”. What is H, and what would it take to understand what it is to be H? We may get some understanding of what it is to be H by turning our attention to its constituents. But, just as we gained a richer understanding of the fire-alarm E by looking beyond its causal antecedents, we can gain a richer understanding of the H atom by considering features of H which go beyond its constituents. There is far more to being H than just being made up of a proton and an electron.⁴⁶ For example, to be H is also to be something which can – and often does – bond with one other hydrogen atom and an oxygen atom to form a molecule which is exceptionally prevalent on Earth. Understanding H₂O is integral to understanding H, while H is also integral to understanding H₂O.

Similar examples abound. Things are often such that a genuine metaphysical explanation of one involves the other, and vice versa. One thing cannot be understood without the other, and, so, one explains the other.

There is at least one possible precedent for this kind of argument. Recall Thompson (2016)'s example, from Section 2.4.3, of a liquid's volume, mass, and density properties.

⁴⁴Strevens (2013: 511)

⁴⁵Set aside the fact that each subatomic particle is, itself, made up of further parts, and (possibly) so on *ad infinitum*.

⁴⁶Thank you to an anonymous reviewer for reminding me of the chemical properties of hydrogen.

These, Thompson argues, are all grounded in each other, because this “is the best fit with our understanding of the relations between these quantities.”⁴⁷ On at least one reading, Thompson is claiming that understanding what volume, mass, and density are amounts to recognizing their mutual inter-definability – how density is just a function of mass and volume, mass a function of volume and density, and volume of mass and density. To understand the quantities is to grasp how they all constitute a single, internally coherent and interdependent network. This fact is taken by Thompson to justify a metaphysical claim: the volume, mass, and density ground each other.

If Thompson is right, there are at least three properties which we understand through a genuine metaphysical explanation: mass, volume, and density. If there are two or more things which are understood in the way that UP describes, these things ground each other, and they are not grounded by any ungrounded things.

So far, I haven’t argued that foundationalism and infinitism are false, or that grounds don’t constitute a linear ordering. Those possibilities are consistent with UP. If reality does consist of such an ordering, metaphysical understanding is achieved by recognizing where each fact fits among the hierarchy – how it is grounded by another, and a third, and so on. To understand what it is to be a certain thing – say, a table – we must locate it with respect to what grounds it. That is, we need to know what the table is made of, and what those things are made of, and so on. But understanding by fitting things into a linear ordering seems limited, simplistic, and impoverished, at least compared to what could be otherwise. Of course, we can acquire understanding by seeing how things fit into a linear ordering. But that kind of understanding is limited in the same way as the understanding delivered by an intimate knowledge of the causal history of a certain smoke detector.

Our understanding of the world seems – at least in the ideal, or of those parts of it

⁴⁷Thompson (2016: 47). The example is slightly amended from Fine (2001: 11)

with which we are familiar – much richer. At least we can hope it to be richer. Coherentism makes better sense of our experience of understanding. If the world were to have a coherent, rather than a foundational structure, our sense of understanding would be far richer, more interesting, and more rewarding.

I expect that some may agree that my argument suggests that the world has a coherent structure, but also deny that this is a structure of *grounding* specifically. After all, they will claim, I've identified many different relations, including causal, teleological, mereological, and other relations. Of these, some may be associated with ground. But that doesn't show that *all* of the relations which somehow improve our understanding of what it is to be a certain thing are relations of ground. We might even grant that all of these relations taken together make up a coherent structure which offers understanding of the kind I'm interested in. But, the objection continues, it is incorrect to say that it is through grounding, and grounding alone, that this feat is achieved. So, although there is a coherent structure somewhere out there, I have not shown it to be a structure of ground.⁴⁸

I believe that my disagreement with this objection is largely semantic. According to the objector, "grounding" is a term for just one among many different metaphysical relations which together explain and offer understanding of the world. I consider "grounding" to be the more general term for a relation which contributes to that same task of explaining and offering understanding. My rationale for this use of the term is just GME: grounding is a genuine explanation. If some relation genuinely explains reality, and seems to do so more completely and deeply than all the others, I will call it "grounding". Even if it is maintained that objector's sense of the term is closer to that of the contemporary mainstream, that doesn't disprove the existence of a GME-inspired type of grounding, nor of the fact that it seems to have a coherentist structure.

I want to make the structure of my argument abundantly clear. I'm not claiming that

⁴⁸Thanks to Michael Rieppel for raising this issue

metaphysical facts – what grounds what – are somehow set or determined by (broadly) epistemic facts – how we understand. I don't deny that our epistemic practices – what we consider a valid argument, a justified belief, or a virtuous epistemic practice – are produced by how the world is, not vice versa. I don't deny that the world is not up to us and would have gone on just the same without our cognitive or noetic practices. I am claiming that certain experiences can be good evidence for certain metaphysical facts. Specifically, the experience of improving our understanding of what it is to be certain things by identifying their coherent interrelations with other things is good evidence for the fact that the world has a coherentist structure.

My argument parallels a species of argument in the free will literature. Many people endorse claims of the form: we are free *insofar* as the world is thus-and-so. Many take such conditionals to license *modus ponens* inferences to metaphysical claims, together with the premise: we have free will. There are many different justifications for this premise. For some, it is justified pragmatically: for the sake of better moral theorizing, we had better accept that we have free will. For others, it is justified by experience: if I know anything, it's that I have free will.

The conditional claims about free will are analogous to UP. It, too, is the product of the *a priori* analysis of a certain concept. It, too, claims that the instantiation of that concept suggests a certain metaphysical structure. The premises “we are free” and “we can have a rich understanding of the world” are, likewise, analogous. They may be rationally denied, because they are supported only by how our experience seems to us, or, perhaps, what the best kind of world to live in would be. I hope for a coherentist world of complexity over a linear world of simplicity. I hope that metaphysics may afford us a rich kind of understanding. More importantly, I think that it does.

3.5 Conclusion

I've argued for re-framing the concept of “grounding” or “metaphysical explanation”, motivated by the connection between explaining and understanding. If we are to take grounding theorists at their word, and they are really interested in explanation, they should also be interested in understanding. If that's right, the foundational picture of ground does not seem to adequately reflect our experience of metaphysical understanding.

Chapter 4

Varieties of Metaphysical Coherentism

Abstract

According to metaphysical coherentism, grounding relations form an interconnected system in which things ground each other and nothing is ungrounded. This potentially viable view's logical territory remains largely unexplored. In this chapter, I describe and explore four varieties of metaphysical coherentism.

4.1 Coherentism

So far, I have defended my answer to the question “what is the overall structure of grounding relations?” The structure, I've argued, is a non-linear one, in which facts ground each

other, and nothing is ungrounded.¹

Having considered arguments for coherentism, in the previous chapters, in this chapter, I'll frame an intramural debate among the varieties of coherentism, and evaluate the apparent strengths and weaknesses of each.² The views I'll discuss may be considered variations on a single theme because of their shared feature: coherence. In the abstract, I understand this to be “a harmonious connection of the several parts, so that the whole ‘hangs together.’”³ Occasionally, philosophers describe a set of propositions as coherent when it contains no contradictions. The structures described by foundationalists in epistemology and metaphysics, on which fundamental beliefs or facts asymmetrically justify or ground all the others, count as coherent in this basic sense, so long as they contain no contradictions. But metaphysical coherentists - like their epistemic counterparts - understand coherence as more than mere non-contradiction. They emphasize the second part of the abstract definition, harmonious *hanging together*, as the distinguishing feature of coherent structures. In this latter sense, a set of propositions is coherent to some degree or other, depending on the degree to which its elements are connected to each other. A structure is coherent in this stronger sense if its elements support each other (through relations of justification or ground).

I'll consider as a variety of coherentism any view on which nothing is ungrounded, but there is mutual grounding. Recall the “coherentist canon”:

¹I assume, here and throughout, that the *relata* of grounding are facts, *contra* Cameron (2008: 5), Schaffer (2009: 375–376), and others. If occasionally I fall back on expressions suggesting grounding between non-facts, these should be taken to refer elliptically to some corresponding fact. Also, here and throughout, coherentism is understood in terms of partial grounding. When I refer to “grounding” without qualifying it as full or partial, I should be taken to mean the latter.

²One debate which I bracket concerns the formal properties of coherentist grounding. Often, grounding is assumed to be a strict partial order: irreflexive, transitive, and asymmetric. Coherentists must reject asymmetry, and, since asymmetry is implied by the combination of irreflexivity and transitivity, one of the latter two as well. I understand grounding primarily as explanation, so I reject transitivity, but retain irreflexivity: nothing grounds itself (because nothing can explain itself), although it doesn't follow that anytime one thing grounds another, and that other a third, that the first grounds the third (because the same seems true of explanation). I grant that certain coherentists will be drawn to reject asymmetry by rejecting irreflexivity and retaining transitivity.

³See Oxford English Dictionary Online entry “coherence, n.”

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

Coherentism is not monolithic: interesting facets and nuances, consistent with the coherentist canon, remain unexplored. I will consider four, progressing from most to least revisionary. I will call them *holism*, *insularism*, *hierarchism*, and *rebarism*. The diversity and variety of metaphysical views coherentism affords counts in its favor.⁴

4.2 Holism

In their survey of views about the structure of grounding, Bliss and Priest use “coherentism” to mean a view on which “everything depends on everything else”.⁵ Others also characterize coherentism as positing an absolute ubiquity of grounding relations.⁶ Call this “holism”.

Holism: For any x and any y , x grounds y and y grounds x .

Here’s a diagram of a simple holist structure WH.⁷ Each circle represents a distinct fact. Each arrow points from the grounds to that which is grounded. Each arrow represents only partial, not full, grounds. An arrow with two points indicates mutual partial

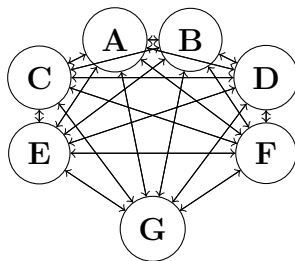
⁴I don’t mean to deny that coherentism’s rivals aren’t analogously diverse: it is a desirable feature for any view that it can be modified in response to objections.

⁵Bliss and Priest (2018a)

⁶For example, Thompson (2018: 123), Tahko (2018a), Bliss (2019: 337). Morganti (2018: 269) suggests that any view which rejects the absolute ubiquity of grounding - that is, any of the views discussed here other than holism - isn’t coherentism, but a “hybrid”. Although I call the views explored in this chapter varieties of coherentism, not hybrids, nothing hangs on this terminology.

⁷Strictly speaking, WH is only *part* of a holist world. No holist world can, like WH, contain only seven facts. The facts represented here imply an infinite number of conjunctive facts like [A & B], [A & C], [A & [A & B]], and so on. So, WH represents only a *section* or *part* of a holist world. Thanks to Byron Simmons and Hille Paakkunainen for discussion.

grounding.



A holist world WH

In WH, each fact both partially grounds and is partially grounded by each other fact: a double arrow connects any two among A-G.⁸

I believe that the best arguments for coherentism are based on the connection between coherence and explanation: explanations which reveal coherence are the ones through which we may understand things as they are, whereas explanations which don't invoke coherence - linear explanations - offer no understanding. Insofar as understanding increases along with increased coherence of systems of beliefs or of facts, these arguments might suggest that the best view of grounding will *maximize* coherence (because, in so doing, it will maximize the potential for understanding). If a system *gains* coherence as it increases in size, a maximally coherent system will include *absolutely everything*. So, holism, on which absolutely everything participates in one system, is the most coherent, and, therefore, the most explanatory and best grounding structure.

Holism is hard to believe. It implies *many* more grounding relations than we typically countenance. Among them, for example, is: the fact that I am conscious is par-

⁸According to a certain strain of thought in the Mahayana Buddhist tradition, everything ontologically depends on everything else, suggesting a metaphysical view akin to holism. An evocative image likens the world to a many-jewelled net, with a jewel suspended wherever two lines intersect. Each jewel shines with the reflections of the other jewels which surrounds it. For a description of the Indra's Net metaphor, see Cook (1977: 2). For descriptions of *Pratityasamutpada*, the doctrine of universal dependence, in the language of 21st century analytic metaphysics, see Kang (2017) and Priest (2018). Although dependence is distinct from grounding, it seems plausible that grounding relations run alongside dependence relations. If the Mahayana's universal dependence is true, it suggests that grounding holism is true as well. Thanks to Li Kang for bringing this to my attention.

tially grounded by the fact that the Eiffel Tower is in Paris. That the location of the Eiffel Tower would contribute to the metaphysical explanation of my consciousness - and, perhaps more impressively, the other way around - is incredible. Of course, mere incredulity - in form of stare or otherwise - is no decisive objection.⁹ That many “respectable” metaphysical views - four-dimensionalism, mereological universalism or nihilism, and so on - strain credulity is not considered decisive evidence against them. Revisionary metaphysics aims to revise our thinking about apparently familiar concepts like time or causation or parthood, motivated by the more rationally complete picture of reality that revision affords. That it prompts an incredible revision of ordinary thinking is not, on its own, a decisive reason to reject holism.¹⁰

Another problem for holism may be described as “contamination”. Intuitively, certain classes of facts just can’t mix: certain kinds of facts cannot, by their nature, be metaphysically explained by certain other kinds of facts. Consider, for example, what it is for a fact to be objective, rather than subjective. An objective fact is in no way settled or made the way it is by what any subject thinks, prefers, or values. In other words, an objective fact cannot have any subjective facts among its grounds.¹¹ Conversely, any fact grounded by a subjective fact will, itself, be partially subjective. The property of subjectivity, then, might be said to “contaminate” facts from grounds to what is grounded. Holism cannot

⁹See, for example, Lewis (1986b: 134–135).

¹⁰Perhaps holism’s incredulity problem is slightly different than the same problem for views like four-dimensionalism or modal realism. Whereas the latter demand a radical revision of relatively ordinary notions like time or possibility, holism posits a revision of an at least partly technical notion of grounding. If holism is true, it is not the “person in the street”, but a 21st century metaphysician who intuits grounding relations among individuals and singletons or brains and minds, who is badly misguided.

¹¹There are certain rare situations in which objective facts may be grounded by subjective facts. For example, one might think that the fact that the price of lumber is increasing is partially grounded by the fact individuals consider lumber valuable. Facts about prices are objective, while facts about what people consider valuable are subjective. So, it seems like at least one objective fact may be grounded by a subjective fact. I suspect that some would argue that there really is another non-subjective fact in the vicinity which is really the grounds for the objective fact in these instances. After all, perhaps it’s the objective fact about how much someone is willing to pay for lumber - rather than the subjective fact about how much they value it - which truly explains facts about the cost. But even if certain objective facts do have subjective facts among their grounds, it is not likely that all objective facts do. But that’s precisely what holism seems to be committed to.

stop such contamination from spreading across all that there is. If holism is true, every fact is grounded by every other fact. So, if there is even one subjective fact, all facts will be grounded by it. Therefore, by the contaminating property of subjectivity, all facts will be subjective. Conversely, there will be no objective facts. The contaminating property of subjectivity leaves the holist in an uncomfortable position: she must deny either that there are any subjective, or any objective facts.¹²

Subjective facts are just one among many classes of facts which appear to have the contaminating property. Consider conventional and non-conventional facts. If ϕ is a conventional fact - or, more colloquially, if it is just a matter of convention that ϕ - and ϕ grounds ψ , it must be the case that ψ , too, is conventional. If any fact grounded by a fact belonging to a contaminating kind will itself be of that kind, the following sound like plausible kinds of contaminating facts: *social, conventional, mental, phenomenal, freely chosen, fictional, ineffable*, and so on. For each kind of contaminating fact, the holist faces an all-or-nothing dilemma: either every fact belongs to that class, or none do.¹³ Certain contamination dilemmas may have plausible, not unprecedented answers. Nor must all be solved in the same way. The holist may argue, for instance, that there are *no* facts which are the products of free choices (hard determinism), but that *all* facts are mental (idealism). But, in response to each kind of contamination, the radical answer the holist must accept will likely not be without theoretical cost. So, we have a further reason to reject holism.

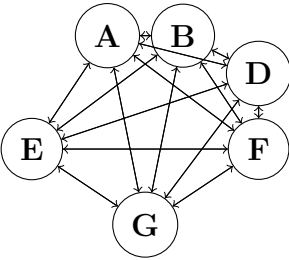
A related problem is the surprising fragility of holist worlds. If holism is true, any fact's failure to obtain will ripple through the whole world, erasing every other fact.¹⁴ To illustrate the problem, recall the simple holist structure WH. Could the facts in WH ob-

¹²I am assuming that all facts are either objective or subjective. I suspect that the holist's response, in this case, is to reject the distinction altogether. Perhaps this move is plausible with respect to this feature, although other classes of contaminating facts seem to present more difficult challenges.

¹³I grant that this list is controversial. For example, it may be the case that facts about the nature of God are ineffable, and also that those facts ground all other facts (which are not ineffable). I'm not trying to show that any one of these particular facts are, indeed, contaminating. My claim is only that, insofar as there are any contaminating facts of the kind I'm describing, those facts create a problem for holism.

¹⁴Thanks to Ricki Bliss and Nathan Wildman for discussion on this point.

tain without each other? Call a fact’s “modal profile” the set of worlds at which it obtains. Two facts which obtain at precisely the same set of worlds may be said to share a modal profile. If holism is true, it will turn out that all of the facts in WH have precisely the same modal profile: each obtains in all and only the same possible worlds as all the others. To see how, suppose, for *reductio*, that WH’s C had failed to obtain, while all the other facts obtained. Then, there is a possible world containing WH2, which is just like WH, except C is missing.¹⁵ Here’s WH2.



Another holist world “WH2”

Whereas, in WH, A was grounded by six other facts, it is grounded by only five facts in WH2 (the same is true for the other facts as well). Now, if B, D, E, F, and G jointly suffice for grounding A in WH2, they should also suffice in WH.¹⁶ What could C contribute to the metaphysical explanation of A in WH, if WH2 features an (apparently) perfectly legitimate metaphysical explanation of A in which C does not figure?

If A can go on just as it did in WH when deprived of C in WH2, C must not have been contributing to grounding A in WH after all. But this is contrary to the holist as-

¹⁵Recall that neither WH nor WH2 are representations of complete worlds, since each would also contain innumerable conjunctive facts constructed out of the facts represented here. See footnote 7.

¹⁶Recall that I characterized holism, WH, and WH2 in terms of *partial*, rather than *full* grounding. That is, in WH, B-G are A’s *partial* grounds individually, and A’s *full* grounds collectively. The fragility problem arises precisely because, when C is taken away in WH2, A’s full grounds aren’t so “full” any longer, and A seems, somehow, not grounded enough. Holism phrased in terms of full grounding avoids fragility, but faces the opposite problem. If each of B-G are A’s full grounds, A can get along just fine without C, for it has plenty of grounds apart from it. But holism with full grounds faces another threat: any fact with more than one full grounds seems problematically overdetermined (although it is far from clear whether metaphysical overdetermination is itself a problem, see Bliss MS). Thanks to Ricki Bliss and Nathan Wildman for excellent discussion on this point.

sumption that everything grounds everything. On the other hand, if C had been genuinely grounding A (and all the others) in WH, WH2 would be impossible: each of the facts would be missing part of its metaphysical explanation. So, on holism, if WH is possible, WH2 is *not*: C's absence would have erased all the other facts. Conversely, if WH2 is possible, WH is *not*: C is not contributing to grounding anything in WH2, so it cannot genuinely contribute so in WH! So, there can be no difference in modal profile between C and the other facts. All facts stand and fall together, and no fact can survive the loss of any other fact. If ours is a holist world, then, it seems to be far more fragile than comfort permits.

Holists may, again, bite the bullet concerning the fragility problem. To make this task easier, they may point to situations in which a fact has more than one full ground. Consider, for example, disjunctive facts. $[P \vee Q]$ is fully grounded by $[P]$ and fully grounded by $[Q]$. If just one of $[P]$ or $[Q]$ were to fail to obtain, $[P \vee Q]$ would still obtain. Or, consider generic dependence, rather than rigid dependence. If a ship generically (not rigidly) existentially depends on its parts, the ship will continue to exist whenever *some parts or others* (not necessarily those parts of which it is actually composed) exist. Neither disjunctions nor ships are exceedingly fragile: the former (occasionally) obtain despite the loss of a disjunct, the latter (occasionally) exist despite the loss of parts. In both situations, other grounds - replacement parts, or other disjuncts - step in to fill the gap left by those which are missing. A holist concerned about her world's fragility may remedy the problem by likening the grounding relations among facts to such situations. She may claim that each fact, like a disjunction, has redundant full grounds. Or, she may claim that each fact, like a generically dependent entity, has other possible grounds (distinct from its actual grounds). These additional commitments take holism further afield from standard assumptions about ground. But both offer a means for holist worlds to dodge fragility.

Overall, holism is strongly revisionary. Holists endorse surprising theses, among them

our own metaphysical contribution to the existence of the Eiffel Tower, the integralness of each fact to all else, and either the total subjectivity or non-subjectivity of all facts. Perhaps these - individually or collectively - are compelling evidence against the view. But even if they are, they aren't evidence against metaphysical coherentism. The coherentist canon may be retained in a more restricted form by more conservative varieties of coherentism.

4.3 Insularism

If holism were the only form of coherentism, the contamination and fragility problems would be here to stay. Luckily for the coherentist, it isn't, and they aren't. The worst consequences of holism disappear when coherence among grounds and grounded things is widespread, but not absolutely ubiquitous - not everything grounds everything else. On another version of coherentism, there is more than one network of coherent grounding.¹⁷ There is no grounding between different classes of facts, but maximal coherence within each class. Call this view "Insularism".

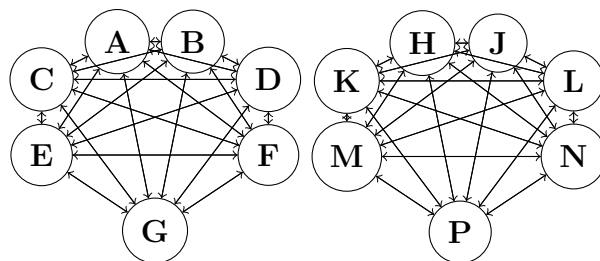
Insularism: For any x , there is some y such that y grounds x (and $x \neq y$) and some z such that x does not ground z (and $x \neq z$). For any w and any s such that w grounds s , s grounds w .¹⁸

Here's a diagram of an insularist structure WI. As before, circles and arrows represent facts and partial grounding relations, respectively.¹⁹

¹⁷According to some, a view without absolute ubiquity is really a "hybrid" between coherentism and some other view. See footnote 6.

¹⁸To clarify: the variables w and s range over the same facts as do x and y . The second sentence of this definition only states that all grounding relations are symmetric.

¹⁹As was the case for holism, there will be far more than fourteen facts in an insularist world, so WI must represent only a part of an insularist world. See footnote 7. As we'll soon see, this explosive feature of facts creates a unique problem for insularism.



An insularist world “WI”

In WI, each fact both grounds and is grounded by six other facts - but not *all* other facts. A is grounded by each of B-G (and they by it), but there are no grounding connections between the insular A-G and H-P. Call each of the interconnected structures which collectively make up an insularist world an “island”. If insularism is true, any fact participates in grounding each other fact with which it shares an island, but does not participate in grounding any facts from other islands.

Insularism has the resources to avoid the contamination problem. An insularist may deny grounding between contaminating facts and those facts which they should be kept from contaminating. For example, if all the subjective facts constitute one island, and the objective facts constitute another, discontinuous with it, not all facts are subjective.

Insularist worlds are not fragile like holist worlds. Although (given the standard assumptions about ground) each island may accommodate only facts of the same modal profile, it’s not the case that the entire world couldn’t get along without any single fact. Within any island, any individual fact depends on all the other facts. But each island is independent of the others. For example, if, in WI, C were to fail to obtain, A-G would be threatened, but H-P would not. Depending on how the different islands are separated from each other, this kind of fragility precisely respects widely-endorsed intuitions.

A world with small insular islands reduces the incredible number of grounding relations posited by holism. An insularist might carve her world in many plausible ways. She

might prefer maximal interdependence among all and only the facts about *concreta*, and, likewise, among all and only the facts about *abstracta*, yielding a bifurcated world like WI. Or, to give her world a distinctively Early Modern flavor, she might group together all the mind-independent facts, and add additional separate islands for mind-dependent facts associated with each individual mind. At the limit, insularism carves reality into a multitude of mutually grounding pairs - perhaps pairs of existential facts about quantities of matter and forms.²⁰

But neither insularism nor holism can accommodate widely-endorsed paradigm cases of grounding. For many, grounding is appealing because it solves metaphysical problems through characteristically asymmetric relations. But these asymmetric relations are inconsistent with both holism and insularism.

An appealing moderate naturalism in ethics, aesthetics, or philosophy of mind strives for balance. Non-natural values, virtues, intentions, and their ilk, are treated with an empirically-minded suspicion, but not wholesale eliminativism. The balance is achieved with a metaphysical thesis: what is natural produces, gives rise to, or generates what is non-natural. This same thesis accounts for uniquely metaphysical explanations of the non-natural by the natural.²¹ All this is neatly bound up in the claim: the natural grounds the non-natural (and *not vice versa*). Moderate naturalist views are, for many, the principal advantage of positing a grounding relation.

But moderate naturalism is inconsistent with both holism and insularism. Neither view can assert the interesting natural/non-natural asymmetry. If holism is true, natural facts ground non-natural facts, but non-natural facts also ground natural facts. If insularism is true, there are two possible relations between natural and non-natural. If both obtain within the same island, the insularist's analysis will be the same as the holist's: the

²⁰Morganti (2019b: 16–19) suggests parallels between hylomorphism and coherentism.

²¹Kim (1994) is a classic case of cashing out moderate naturalism about the mind in terms of explanation. Cf. Dasgupta (2014)

interesting asymmetries do not obtain. If they obtain within different islands, the natural doesn't ground the non-natural. Holists and insularists may try to accommodate moderate naturalist intuitions by cashing out the latter view without grounding.²² But moderate naturalism is a clear paradigm instance of grounding, and the ability to articulate it counts as a reason to buy into the grounding framework. Holism and insularism both require a surprising revision of the notion of metaphysical explanation which some may find unappealing.

Since insularism avoids some of holism's stranger consequences - incredulity, contamination, and fragility - and is no worse off with respect to the asymmetry problem, are there reasons for the coherentist to prefer holism to insularism?

In short: yes. Insularism is threatened with collapse into holism. Note (as I have in footnotes 7 and 19) that any one fact implies an explosion of other facts. For example, if [A], [B], [J], and [K] are facts, then so are [A ∧ B], [J ∨ Q], [A ∧ [J ∨ Q]] and so on. These, in turn, produce more facts *ad infinitum*. Any fact-ontology - coherentist or not - will contain multitudes. An ontology which includes grounding relations among facts will include an exploding multitude of these, as well. On its own, explosion leaves neither variety of coherentism any worse off than other fact-ontologies. But it makes insularism untenable, because the view cannot accommodate compound facts whose constituents participate in different islands.

Consider a hypothetical insularist world consisting of two islands - one for *concreta*, the other for *abstracta*. The world contains the fact [Biden is the US President], which both grounds and is grounded by all the other concrete facts, and none of the abstract facts. It also contains the fact [2+2=4], grounded and grounding all and only the abstract

²²That is, a holist or insularist might claim that, although natural facts don't asymmetrically ground, they nonetheless cause, build, or otherwise produce non-natural facts. Wilson (2018) calls grounding a species of causation, and both Schaffer (2016) (2017) and Bennett (2017) allege significant parallels between the two relations. For an overview, see Wang (2020).

facts. But the world must also contain the conjunction: [Biden is the US President and $2+2=4$]. That conjunction is doomed to do the impossible: to straddle the abstract-concrete divide. Like any conjunction, it must be grounded by its several conjuncts. But each conjunct is part of a different island. On which island, then, does the conjunction sit? It cannot be grounded by one, but not the other of its conjuncts - and rightly so, because it seems like it is neither wholly abstract, nor wholly concrete. Nor can it be grounded by *neither*, constituting its own, separate island. If the conjunction is permitted “one foot on each island”, so, too, must connections of mutual grounding across islands be permitted. But, then, given the first thesis of insularism - that anytime x grounds y , y will ground x - together with the transitivity of grounding, islands will merge together across any “bridge”. Since there may be conjunctions of any pair of facts, any pair of islands may be linked by a bridge. Since any bridge-linked islands are actually one island, there is just one single island, not many, in any insularist world, after all. But, if that’s the case, the second criterion of insularism is false. Instead, holism is true: everything participates in grounding everything else.

Responses are available, but costly. First, the insularist may reject the fact ontology in favor of the thing ontology. Barring certain controversial views on composition, there isn’t a further thing for any two things or more.²³ Unlike facts, things don’t explode: there are no “conjunctive entities” composed of things which participate in different islands, and a thing-ontology might avoid the insularist’s collapse problem.²⁴ Second, she may restrict

²³Universalists about composition will disagree - they will claim that there is a further thing for any two things or more.

²⁴As is probably clear by now, I don’t consider this answer promising because I think that the best arguments for coherentism (and against foundationalism) about ground have to do with the way grounding is supposed to explain, and how explanations tend to have coherent, symmetric, or mutually-supporting structural features. But the natural *relata* of explanations are facts. To say that one thing explains another sounds like a category mistake, and, so, the way I understand grounding is inconsistent with things grounding each other (although facts about things certainly may do so). One may, of course, arrive at coherentism through a different route, which doesn’t presuppose a close connection between grounding and explaining, and, therefore, is consistent with grounding among things. In that case, claiming that the *relata* of grounding are things only - or, at least, such that, unlike facts, they cannot be easily multiplied - might be a way to save insularism. Thanks to Byron Simmons for discussion on this point.

her view to atomic facts. That is, she may claim that only facts which are neither disjunctions nor conjunctions constitute an insularist structure. If disjunctions and conjunctions are *not* grounded by their respective constituents, explosion is again averted. Third, she may allege that non-atomic facts are only *asymmetrically* grounded by atomic facts, and do not, themselves, participate in any system of mutual grounding. Insularism is true only of facts at the lowest level of a grounding hierarchy. Asymmetric grounding allows the coherentist to avoid the asymmetry problem as well. But permitting it also amounts to abandoning insularism for a different variety of coherentism to which I now turn.

4.4 Hierarchism

As I've argued, holism and insularism cannot solve the asymmetry problem, in that they cannot preserve a range of intuitive judgments about asymmetric grounding relations. But these relations may be preserved while remaining true to the coherentist canon.²⁵ One possible way forward is to claim that there is only *some* mutual grounding, but that it doesn't obtain in the intuitive instances. Might a coherentist claim merely that there is *some* mutual grounding? Call a view committed to this claim alone "coherentism-lite":²⁶

Coherentism-Lite: There is some x and some y such that x grounds y and y grounds x (and $x \neq y$).

Coherentism-lite faces no asymmetry problem. Since it posits only that *some* things ground each other, it permits one-way grounding as well. However, coherentism-lite is consistent

²⁵As was the case with insularism, some will be inclined to call the views described here coherentist hybrids, rather than pure coherentism. See footnotes 6 and 17.

²⁶Bliss (2011: 187–188) calls this view "weak coherence". It is contrasted with "strong coherence" (2011: 188–189), which is equivalent to holism. Of course, holism and insularism both entail (and are consistent with) coherentism-lite - if everything grounds everything, some pair of things grounds each other!

with its supposed rivals - foundationalism or infinitism. I call this view only coherentism-*lite* because, on its own, it does not answer our guiding question: it doesn't specify the overall structure of grounding relations. *Some* mutual grounding - all that coherentism-lite is committed to - is consistent with either foundations or infinite descent. A foundationalist might, for example, be a coherentist-lite, by positing mutual grounding among purely derivative things. Coherentism would be most appealing if it were to provide an original account of the whole of reality to rival the others. So, a kind of coherentism which can solve the asymmetry problem must commit to more than merely asserting some local interdependence, as coherentism-lite does. It must assert that mutual grounding obtains, somehow, *where it counts*, or that, *at bottom*, there are no ungrounded things.

The coherentist seems trapped. Genuine (non-lite) coherentism can only accommodate local asymmetries if there is a way to distinguish derivative from fundamental facts. But, as we have seen, many consider fundamentality and grounding two sides of one conceptual coin. To be fundamental just is to be ungrounded. Coherentism rejects any ungrounded things. So, how can it distinguish fundamental from derivative?²⁷

The popular definition analyzes fundamentality as ungroundedness. Call this “fundamentality-u”.²⁸

Fundamental-u: a fact x is fundamental-u if, and only if, x is ungrounded.

But another plausible definition describes the fundamental things not necessarily as ungrounded, but as indispensable.²⁹ Regardless of our particular views on ground, we widely agree on a general, intuitive sense of the fundamental facts as those facts which frame how

²⁷Thompson (2020: 268) considers coherentism's inability to account for the concept of fundamentality a “fairly severe cost”. But, in fn.18, she suggests that coherentist structures with many equally fundamental elements might offer a way out.

²⁸For example, Fine (2001), Schaffer (2010), or Bennett (2017).

²⁹A view like this one is defended by Raven (2016). This definition seems more in line with the Oxford English Dictionary's definition of fundamental as “serving as a basis or foundation; (hence) forming an essential or indispensable part”. Thanks to Byron Simmons for this pointer.

the world hangs together. Or, as those facts which are the bare minimum which God must have created. Any complete story of the world must include the fundamental, but may omit the derivative. None of this suggests that each individual fundamental thing is entirely independent of all others or entirely ungrounded. Certain things may be indispensable to each other. Our intuitive sense of fundamentality in no way rules out any fundamental thing requiring certain other fundamental things. So, that sense does not rule out fundamental things grounded by other fundamental things. Call this “fundamentality-i”.

Fundamental-i: a fact x is fundamental-i if, and only if, for any y such that y is among x 's partial grounds, x is among y 's partial grounds.

In other words, even if x is not ungrounded, it is fundamental so long as it is *itself* among the grounds of whatever grounds it. Anything which is among the grounds of *its own* partial grounds cannot be omitted from a complete story of the world. It is indispensable to all else.

Everything fundamental-u is also fundamental-i. But not everything fundamental-i is fundamental-u. Consider your favorite (candidate) ungrounded fact and call it “F”. Suppose that F is ungrounded: there is absolutely nothing in virtue of which F obtains, and no metaphysical explanation for F. By that token, F is fundamental-u. But F is also fundamental-i. Since F has exactly no partial grounds, it is true that F is a partial grounds for any y which is F's partial ground. This is also in line with the intuitive sense of fundamentality-i: no complete account of the world may omit F.

Now, consider your favorite pair of mutually grounding facts (which are not grounded by anything apart from each other) and call them “G” and “H”. Neither G nor H is fundamental-u. But both are fundamental-i: G is itself a partial grounds for its own partial ground (H), and vice versa. In other words, G and H are both indispensable for telling the complete

grounding story of the world.³⁰

Fundamentality-i is plausible and consistent with coherentism. It allows the coherentist to account for relative fundamentality among facts in terms of what grounds what. Facts are fundamental-i if they are indispensable, and derivative-i if they are asymmetrically grounded by the fundamental-i facts. A fact *x* is relatively more fundamental-i than another fact *y* if *x* is grounded more proximately by the fundamental-i things than *y* is. So, genuine coherentism with local asymmetry can be distinguished from coherentism-lite as follows: genuine coherentism places webs of mutual grounding at the fundamental level, while coherentism-lite is consistent with such webs obtaining only at derivative levels.³¹ This means that, by the lights of fundamentality-i, both holism and separatism claim that absolutely everything is fundamental. This is somewhat surprising, but probably not unwelcome for holists and insularists. Both views are extensively revisionary: they posit massive and unexpected interdependence and reject paradigm cases of asymmetric grounding. Both are motivated by a wholesale rejection of the traditional layered metaphysical picture. It is only fitting that both claim that everything is equally fundamental.³²

Fundamentality-i permits us to define a variety of coherentism which avoids the asymmetry problem. It posits asymmetric grounding *between* different “levels” of reality, and retains extensive mutual grounding *within* levels. If we imagine the insularist world, and add that the islands asymmetrically ground each other, we arrive at the view I’ll call “hierarchyism”. Insularist worlds were made up of “islands”: sets of facts which are maximally mutually interconnected, but not at all connected to other sets. Hierarchist worlds are

³⁰This discussion suggests that fundamentality-i, not fundamentality-u, tracks the core concept of “fundamentality”, once that concept is stripped of the assumption that certain things are ungrounded. Fundamentality-u describes that same concept, given the assumption that there are ungrounded things.

³¹Calosi and Morganti (2021: 8) also characterize genuine coherentism as more than mere mutual grounding. According to them, a coherentist posits mutual grounding among the “essential” facts.

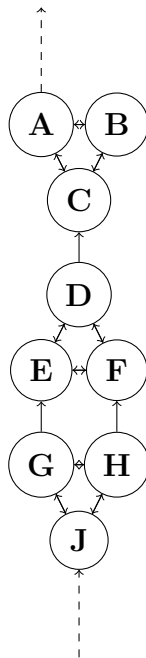
³²A certain brand of holist might be opposed to the characterization of her view as including *any* fundamental entities - let alone universal fundamentality! I sympathize with this worry, and suggest that the robust kind of fundamentality turns really on the fact that some things are *non*-fundamental. So, sure, everything in the holist world is fundamental. But only in a really trivial sense. Thanks to Ricki Bliss for pressing me on this point.

made up of what I'll call "levels": sets of facts which are maximally mutually interconnected, but which are only asymmetrically grounded by other levels. This view retains the familiar layered conception of reality. However, it maintains widespread mutual grounding.

Hierarchism: For any x , there are some y 's such that each of the y 's grounds x and x grounds each of the y 's, and *either* (i) there are some z 's (distinct from the y 's) such that each of the z 's grounds all the other z 's, and the z 's ground the y 's, *or* (ii) there are some w 's (distinct from the y 's) such that each of the w 's grounds all the other w 's, and the y 's ground the w 's.

In other words, any fact is part of a web of mutual grounding with some other facts - a level. According to the basic form of hierarchism defined above, any level has got either (i) a level *below it* or (ii) a level *above it*.³³

Here's a diagram of nine facts which constitute part of a simple hierarchist world.



³³Of course, unless there are but two levels, this disjunction is not exclusive.

In *WE*, there are (at least) three distinct, three-membered levels: ABC, DEF, and GHJ. Within each level, there is universal mutual grounding, as is the case for each island in the insularist *WI*. However, *WE* differs from *WI* because of the asymmetric connections between levels. Here, for instance, although C stands in symmetric grounding relations to A and B, it is asymmetrically grounded by D. In this sense, it is clear that D, E, and F are more fundamental than A, B, and C. D, E, and F are indispensable for telling the complete story of A, B, and C. The reverse is not true: D, E, and F can get along just as well without A, B, and C. In turn, D, E, and F are grounded asymmetrically by G, H, and J - so these latter three are more fundamental than the former.

As indicated by the two dotted lines pointing “up” from A and to J, hierarchism is consistent with a hierarchy of levels open on both ends. Those who prefer hierarchism with built-in infinite descent may turn to:

Hierarchism-i: For any x , there are some y 's such that each of the y 's grounds x and x grounds each of the y 's, and *both* (i) there are some z 's (distinct from the y 's) such that each of the z 's grounds all the other z 's, and the z 's ground the y 's, *and* (ii) there are some w 's (distinct from the y 's and the z 's) such that each of the w 's grounds all the other w 's, and the y 's ground the w 's.

WE above represents hierarchism-i so long as both dotted lines indeed connect to further levels. Hierarchism-i features a doubly open infinite sequence – infinite descent and ascent of levels in the grounding hierarchy.³⁵ However, by combining infinite descent of levels with mutual grounding within levels, hierarchism-i seems to capture two features which

³⁴Certain grounding relations have been omitted to make *WE* more legible. Technically, each of DEF grounds each of ABC, and each of GHJ grounds each of DEF.

³⁵Some prominent defenses of grounding infinitism are Markosian (2007), Bohn (2009), Cotnoir (2013), Morganti (2014), Morganti (2015).

fans of grounding aim to avoid. The most natural route to infinitism, as far as I can tell, is an aversion to absolute foundations, but an even stronger aversion to loops. In other words, an infinitist demands a further explanation for any given fact, but also insists that such an explanation must always be new, and never permit any fact to contribute to its own metaphysical explanation. Since hierarchism-i has already given up on that second demand, it's not clear what advantage adding an infinite downward sequence of levels of ground adds. Since basic hierarchism already features some circularity, it is difficult to see why one would be moved to supplement it with an infinite descent of levels described by hierarchism-i.

Those who wish to specifically rule out infinite descent from their hierarchism may, instead, turn to a foundationalist-inspired hierarchism-f:

Hierarchism-f: For any x , there are some y 's such that each of the y 's grounds x and x grounds each of the y 's, and there are some z 's such that each of the z 's grounds all the other z 's, and the z 's ground the y 's (and x).

In other words, any fact is part of a web of mutual grounding (which constitutes a level in the hierarchy), and there is one level (the z 's) which grounds all the other levels.³⁶ One may imagine WE as the lowest portion of a hierarchist-f world if one ignores the dotted arrow pointing up to level GHJ. If J is only grounded by G and H (each of which J also itself grounds), G, H and J are the fundamental level: each is indispensable to the others.

Hierarchism, and hierarchism-f in particular, resembles traditional layered metaphysical views. These accounts arrange what there is from the more derivative to the more fundamental. Moderate naturalism is a simple layered view: the natural facts lie below the non-natural facts in the overall hierarchy. We retain the insularist's commitment to an extensively interconnected universe, nonetheless segmented into different realms – the con-

³⁶ x may, of course, be one of the fundamental z 's, in which case the y 's are identical to the z 's.

crete, the abstract, the natural, the non-natural, and so on.

Recall insularism's explosion and collapse problem: the view is threatened by compound facts - conjunctions or disjunctions - whose constituents hail from discrete islands. The hierarchist is free to say that compound facts are grounded asymmetrically by their constituents, and, so, faces no such problem. If $[A]$ and $[B]$ are facts from levels n and $n + 1$, respectively, the hierarchist may call $[A \wedge B]$ a more derivative fact, sitting at a level above $n + 1$ - perhaps in a symmetric grounding dyad with $[B \wedge A]$ - grounded by facts from both n and $n + 1$. Whereas an insularist can't find a home for mixed facts, the hierarchist has plenty of free real estate for them "up above"!

Hierarchism has an interesting advantage over the orthodox layered view. The advantage is that it accounts for the unity of discrete levels of reality. The special sciences are an example of the kind of layered conception of reality preserved by hierarchism: the facts about physics explain the facts about chemistry, which explain the facts about biology, and so on. Philosophers of science debate the unity of science: are all scientific projects part of a single enterprise to discover a relatively unified set of laws? Or, rather, do they explore disparate and unique corners of a "dappled" world? The disagreement stems from a need to capture the tension between the discreteness and isolation of different scientific projects on the one hand, with the overall similarity of the sciences taken together on the other.

Although the standard debate concerns the epistemic or conceptual tools and methods of science, a metaphysical view which describes a nested hierarchy of what there is analogous to the nested hierarchy of scientific pursuits will face a similar issue. Just as philosophers of science seek an account of what, if anything, makes for a discrete special science like chemistry, a metaphysician who posits an ontological "level" of chemistry will, likewise, have to provide a description of where the unity of the level comes from. Hierarchism provides a clear answer: a level is that group of things which exhibit a high degree

of mutual explicability or mutual grounding. So, not only does hierarchism leverage the notion of fundamentality as indispensability to retain the tenets of the coherentist canon, while retaining some of the basic intuitive judgments about asymmetric grounding which draw many to thinking about grounding in the first place. By permitting mutual grounding *within* a generally hierarchical picture of reality, it suggests a way to solve certain puzzles about how to divide reality's levels.

4.5 Rebarism

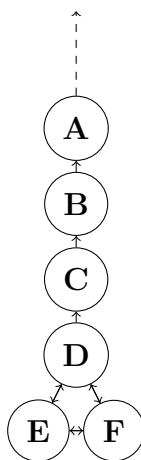
Our fourth variety of coherentism is closest to orthodox foundationalism. On this view, there is only *one* coherent level: the *fundamental* level. All else stands in asymmetric grounding relations, generating a familiar layered metaphysical picture.

A word on metaphors. Descartes wanted an epistemic edifice on stable bedrock. On the other hand, Neurath's ship and Quine's web both demanded *integrity*, not *stability* from a well-built set of beliefs. Both virtues are embodied by a wonder of modern engineering: the reinforcing steel bar, or rebar. A skyscraper's foundation can sustain millions of tons not just because it's solid and sturdy, but also because of the high tensile strength of the densely interwoven net of metal rebar embedded within. I turn to rebar to represent metaphysical coherentism which posits a web of mutual grounding at the fundamental level. The derivative things are supported asymmetrically by the fundamental things – as each floor of a building supports the one above it – but the fundamental things symmetrically support each other – as the interwoven rebar holds the foundation together. Hence the name.³⁷

³⁷Epistemic analogues to rebarism are described by Haack (1993) Hansson and Olsson (1999), and Hansson (2006). For Haack, “found-herentism” (which she calls a foundationalist-coherentist hybrid) is the only way to avoid problems associated with either traditional epistemic picture. Hansson argues that coherentists “have to accept a weak version of epistemic priority, that sorts out merely derived beliefs” (2006: 14). That is, the best version of epistemic coherentism posits mutual support among the non-derived beliefs only, but not among the beliefs which are derived from them. Hansson and Olsson's ar-

Rebarism: For any x , *either* (i) there are some y 's such that each of the y 's grounds x and x grounds each of the y 's, or (ii) there are some z 's such that each of the z 's grounds all the other z 's, and the z 's ground x .

In other words, any fact is either (i) part of a web of mutual grounding or (ii) grounded by such a web. Here's a simple rebarist structure.



A rebar world “WR”

In WR , there is exactly one, three-membered level in which mutual grounding obtains.³⁸ That level consists of D, E, and F. On the rest of the diagram, you see only asymmetric arrows: C grounds B, and B grounds A, but, in both cases, not *vice versa*. As indicated by the dotted arrow pointing “up” from A, a rebarist world may contain an infinite *ascent* of grounds. However, it cannot contain an infinite *descent* below D, E, and F. D, E, and

guments for coherentism about the non-derived beliefs have to do primarily with how beliefs are revised. Since coherentism of the metaphysical kind does not make provisions for changes, their arguments do not carry over to the present context, despite the similarity of their conclusion. Thanks to Max Tillotson for discussion.

³⁸One might distinguish between *monist* and *pluralist* rebarism as follows. According to the rebar-monist, there is *but one* interdependent web at the fundamental level, such that any fundamental thing partially grounds any other fundamental thing. According to the rebar-pluralist, there are *many* discrete fundamental interdependent webs, such that any fundamental thing partially grounds and is grounded by some, but not all, other fundamental things. Both views seem like viable forms of coherentism. I intend my remarks here to apply equally to both rebar-monism and rebar-pluralism.

F - and the mutual grounding relations in which they stand - support the hierarchy above them, but are not themselves supported from below.

Rebarism is the most conciliatory form of coherentism. Indeed, it permits just the minimal amount of coherence, without falling back into foundationalism. As such, rebarism won't satisfy vehement deniers of foundations, linearity, and hierarchy.

Like hierarchism, rebarism avoids the problems of incredulity, contamination, fragility, asymmetry, and mixed facts faced by holism and insularism. Rebarism has one advantage over hierarchism: it accounts for the uniqueness of the fundamental level. Hierarchism-f, the only form of hierarchism which posits something like a fundamental level, leaves one question unanswered. What intrinsic features of the fundamental level account for its fundamentality? As we saw in Section 1.3, foundationalism has no satisfying answer as to what makes the fundamental special. It would be arbitrary to claim that the sequence of grounds ends at any particular point, if nothing makes that point unique apart from the fact that it is fundamental. Nothing about the orthodox foundationalist's foundations make them seem like the desired "natural resting point for thought". But, unlike hierarchism and foundationalism, rebarism's fundamental level is unique, and one may appeal to its intrinsic features to explain why *it* is fundamental. The fundamental level is fundamental – or is the only one which can afford genuine metaphysical understanding – because it is the only one which features mutual grounding. Perhaps that mutual grounding network won't provide the natural resting *point* for thought - but it may certainly provide a *region* where thought may come to rest, or where the endless sequence of questions might run its natural course.

Conclusion

I've presented four varieties of metaphysical coherentism. All facts might make up an all-encompassing system of mutual grounding (holism), or they might be broken up into many discontinuous systems (insularism). Or coherent grounding might occur within a hierarchy of asymmetrically dependent levels (hierarchism), or just a single level (rebarism). I began with the most revisionary view. Then, I showed how one can avoid its most controversial commitments while retaining the coherentist canon: mutual grounding and no foundations. This chapter's survey demonstrates that doctrine's versatility. It shows how initial skepticism about radical coherentist commitments shouldn't deter us from articulating a more nuanced view. We need not throw out the baby with the bathwater.

From the outset of this chapter, I've bracketed discussing arguments for coherentism. I suspect that one's preference among these arguments will bear on one's preference for variety of coherentism. Those drawn to coherentism primarily through a belief in extensive, world-wide interdependence will tend towards holism. Coherentists skeptical of ontological hierarchies may prefer insularism. Those who find in coherentism the most plausible model for how metaphysical explanations produce understanding will have to respect certain intuitions about asymmetric explanations, and choose among hierarchism or rebarism. Those who like coherentism solely because of a distaste for foundations as described by orthodox foundationalism may be satisfied with rebarism.

Coherentism is also consistent with a range of other metaphysical views beyond those I've presented. For example, "insular rebarism" posits many discrete interdependent webs, exclusively at the fundamental level. Or, a kind of "super-hierarchism" might posit many interdependent webs at many different levels of reality. The possibilities for blending and cross-pollinating the varieties of coherentism are extensive.

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Curriculum Vitae

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Area of Specialization

Metaphysics

Area of Competence

Philosophy of Science, Ethics

Education

- 2022 **Syracuse University**
PhD, Philosophy.
Dissertation: *Metaphysical Coherentism*
Committee: Mark Heller (chair), Kris McDaniel, Ricki Bliss, Michael Rieppel,
Robert Van Gulick
- 2015 **Queen's University**
MA, Philosophy
MA Thesis: *'Stuff' and Substantial Change*
Committee: Henry Laycock (chair), Joshua Mozersky, D.L.C. Maclachlan
- 2014 **University of Ottawa**
BA (Hons.), Double Major in Philosophy and Theatre Studies

Presentations (*=refereed)

- 2021 *"Metaphysical Coherentism and Understanding," Canadian Philosophical
Association Conference [postponed due to COVID-19]
Runner-Up for Best Graduate Student Paper.
- 2021 Comments on Samuel Dishaw's "Puzzlement as a Guide to Understanding",
Syracuse University Graduate Student Philosophy Conference.
- 2021 "Varieties of Metaphysical Coherentism," ABD Workshop, Syracuse University.
- 2020 Comments on Tien-Chun Lo's "On a Novel Metaphysical Explanation of Identity",
Syracuse University Graduate Student Philosophy Conference.
- 2020 *"No Foundations without Unity: A Defense of Grounding Informatism," Eastern
APA, Philadelphia, PA.
Awarded APA Student Travel Stipend
- 2019 "Metaphysical Coherentism and Understanding," ABD Workshop, Syracuse
University.
- 2019 *"No Foundations without Unity: A Defence of Grounding Informatism," Philosophy
Graduate Students Association Conference, University of Waterloo. Waterloo,
Ontario.
- 2019 *"Do Good and Look Good Doing It: Aristotle's Account of Virtuous Actions as
Kalon", PhiloFest, University of Ottawa. Ottawa, Ontario.

- 2018 *"Essential Indexicality and Rationality," Central States Philosophical Association, Buffalo, New York.
- 2018 *"Varieties of Explanation in Defence of Humean Laws of Nature," Central European University – Summer University. Budapest, Hungary.
- 2018 *"Varieties of Explanation in Defence of Humean Laws of Nature," New Mexico-Texas Philosophical Society Annual Meeting. Houston, Texas.
Awarded Houghton Dalrymple Memorial Award (best paper by a graduate student)
- 2017 "Symmetric Dependence," Working Papers Workshop, Syracuse University
- 2017 *"Irresolvable and Tragic Dilemmas in Virtue Ethics." Felician Ethics Conference, Felician University. New Jersey.
- 2017 *"Stuff and Grounding." Northwest Student Philosophy Conference, Western Washington University. Bellingham, Washington.

Grants and Awards

- 2021 Syracuse University Outstanding TA Award
- 2017 Syracuse University Summer Research Grant
- 2014 Queen's University Admission Scholarship

Teaching Experience

As Instructor of Record, Syracuse University

- 2021 (Summer) Free Will (Online Asynchronous)
- 2021 (Spring) Philosophy of Science (Online Synchronous)
- 2020 (Fall) Honors Introduction to Philosophy (Online Synchronous)
- 2020 (Summer) Introduction to Moral Theory (Online Asynchronous)
- 2020 (Spring) Introduction to Moral Theory
- 2019 (Fall) Theories of Knowledge and Reality

As Teaching Assistant, Syracuse University (head instructor in parenthesis)

- 2019 (Spring) Human Nature (Kim Frost)
- 2018 (Fall) Political Philosophy (Glyn Morgan)
- 2018 (Spring) Theories of Knowledge and Reality (Mark Heller)
- 2017 (Fall) Logic (Michael Rieppel)
- 2017 (Spring) Human Nature (Neelam Sethi)
- 2016 (Fall) Theories of Knowledge and Reality (Robert Van Gulick)

As Teaching Assistant, University of Ottawa

- 2015 (Fall) Critical Thinking (Dean Lauer)

As Teaching Assistant, Queen's University

- 2015 (Spring) Introduction to Philosophy (Stephen Leighton)
- 2014 (Fall) Logic (Nancy Salay)

Service and Other

- 2020-2021 Curriculum Committee Member – College of Arts and Sciences, Syracuse University.
- 2020-2021 Teaching Materials Database Administrator – Philosophy Department, Syracuse University

- 2019-2020 President - Philosophy Graduate Students Association, Syracuse University
 2019 Submission Referee – New Mexico-Texas Philosophical Society Annual Meeting
 2019 Panelist - “The Physics and Philosophy of Time Travel”, Syracuse University
 2018-2019 Co-Organizer – Syracuse University Graduate Student Philosophy Conference
 2018 Summer Research Grant Committee Member – Syracuse University Philosophy Department.
 2017 – 2018 Invited Speakers Committee member – Syracuse University Graduate Student Philosophy Conference.
 2016 - 2017 Co-Organizer – Syracuse Philosophy Working Papers Group
 2016 – Submission Referee – Syracuse University Graduate Student Philosophy Conference.

Graduate Coursework (*≡ audit only)

Language, Epistemology, Metaphysics, Mind

2020	*Free Will	Mark Heller
2019	*Ordinary Objects	Kris McDaniel
2018	Mereology and Fundamentality (Independent)	Mark Heller
2018	Self-Reference and Self-Knowledge	Kim Frost, Michael Rieppel
2017	Laws of Nature	Mark Heller
2017	Language and Metaphysics	Kris McDaniel, Kevan Edwards
2017	Concepts	Kevan Edwards
2016	Essence and Potential	Kris McDaniel
2016	Logic and Language	Michael Rieppel
2015	Time and Ontology (Independent Study)	Joshua Mozersky
2015	Non-Singular Predication (Independent Study)	Henry Laycock
2014	Mass Terms and Stuff	Henry Laycock
2014	Virtue Epistemology	Mark Smith

History

2019	*Humanism after the Enlightenment	Gregg Lambert
2018	Medieval Arabic Philosophy	Kara Richardson
2017	Plotinus	Christopher Noble
2017	Ancient Moral Psychology	Christopher Noble
2016	History Proseminar	Frederick Beiser
2015	Ancient Philosophy and the Emotions	Stephen Leighton

Value Theory

2018	Subjectivism	David Sobel
2017	Ethics Proseminar	Hille Paakkunainen
2014	Ethics of Self-Defence	Kerah Gordon-Salmon

References

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