TRUTHMAKER ONTOLOGY

Mark Fiddaman
Linacre College, Oxford
Department of Philosophy

A dissertation submitted for the degree of DPhil in Philosophy
Trinity Term, 2019

Abstract

Truthmaker Ontology is the metaontological thesis that ontology should be framed as a search for *truthmakers*: the things in the world *in virtue of which* true representations are true. This dissertation develops Truthmaker Ontology in new ways, arguing that it offers an attractive mode of thinking about the subject matter and method of ontological inquiry. I begin by arguing that, if ontology is to live up to its aspirations to be a serious enterprise, we must abandon the orthodox view that ontology concerns *what there is*. The remaining chapters develop Truthmaker Ontology as an alternative. First, I clarify the two central notions on which my version of the approach rests: the *truthmaking* relation between truths and their truthmakers, and the *grounding* relation between truths and other truths. I then use these two notions to develop a heterodox view of the subject matter of ontology, whereby ontological status comes apart from what it's true to say there is. Briefly, what has ontological status is just what makes a contribution as a *fundamental truthmaker*. Since not everything that can truly be said to exist is a fundamental truthmaker, the question of whether 'There are *F*s' is true doesn't settle the ontological question about *F*s. Next I turn to questions of method, starting with the methodologically important notion of *ontological commitment*: the ontological commitments of a theory, I claim, are the entities its holders *rationally ought* to admit as truthmakers. I then discuss the implications of Truthmaker Ontology for the measure of *ontological parsimony*, which I compare favourably to the recent view that parsimony only measures a theory's requirements on what is *ontologically basic*. I close by consolidating the case for Truthmaker Ontology, arguing that it avoids the pitfalls of orthodoxy and has attractive consequences for some perennial ontological debates.

Acknowledgements

I am deeply grateful to Gonzalo Rodriguez-Pereyra for his generous and patient supervision. For their encouragement and advice, philosophical and otherwise, I thank Carine Carson, Marina Frasca-Spada, James Warren and, especially, Kathryn Wilkinson. Thanks also to my examiners, Alexander Kaiserman and Ross Cameron, for their very helpful comments. For brightening my days while I completed my thesis, I give love and thanks to Neil Burridge, Steven Fiddaman, David Foster, Alastair Leitch, Asa Madsen, Lisa Madsen, James Moran, Simon Thomas and, especially, Talitha Slabbert. No words could express how grateful I am to Freyja Madsen— for everything you do and are. Finally, I thank my wonderful parents, Elaine and Paul. I dedicate this work to them.

Contents

INTRODUCTION 5

1 CAN ORTHODOX ONTOLOGY BE SERIOUS? 13

2 TRUTHMAKING AND GROUNDING 51

3 ON WHAT THERE REALLY IS 91

4 FUNDAMENTAL TRUTHMAKERS 130

5 TRUTHMAKER COMMITMENTS AND RATIONAL NORMS 165

6 COUNTING COSTS 198

7 THE CASE FOR TRUTHMAKER ONTOLOGY 230

BIBLIOGRAPHY 259

Introduction

What ultimately makes up the world? Does the world consist of nothing more than atoms in the void, or does it also host complex objects—tables, organisms, planets—made up of those atoms? Is the world wholly material, or does it host abstract objects, such as numbers? Are moral values and aesthetic properties part of the fabric of reality, or are they merely projected onto it by us? Questions like these—*ontological* questions, questions about the world's basic make-up— are among the most interesting and important in philosophy. But this dissertation does not aim to settle any particular ontological questions. My topic is *meta*ontology: what exactly *are* ontological questions and by what methods might they be answered?

'Ontology' derives from the Greek *ὄντος*: being, that which is. Quine had etymology on his side, then, when he famously declared that the 'ontological problem' can be put in three monosyllables: 'What is there?' (1948: 21). For Quine and his many followers, ontological questions are *quantificational* questions: ‘Are there any numbers?’, ‘Are there any complex objects?’, and so on; to find the answers, we must determine the quantificational consequences of the sentences we ought to accept as true. This Quine-inspired approach grew to become so dominant, in the words of one commentator, ‘as to have become almost invisible as a methodological choice’ (Thomasson 2015: 3). But a growing number of philosophers have come to see that it *is* a choice, and perhaps the wrong one. Consequently, there have recently emerged several heterodox views of the nature of the ontologist’s task. It has been argued, for instance, that ontology concerns what there *fundamentally* is, what there *really* is,

what grounds what, what there is in the most *metaphysically natural* sense of 'There is', and the list goes on.[1]

So it's an exciting time for metaontology: the old order is increasingly being called into question, as philosophers explore new ways to frame the task of discovering what makes up the world. The question of this dissertation is therefore a timely and important one. However, the diminishing consensus about the task of ontology presents a challenge. We face a 'meta-metaontological' question: how should we choose between rival accounts of the nature of ontological questions? Here, I'm going to make an assumption from the outset: we should aim for an account of ontological questions that vindicates what I shall call the *serious* conception of ontology—'Serious Ontology', for short.[2]

Serious Ontology is a broad, somewhat primitive perspective on the purpose and character of ontological inquiry. It says, in a nutshell, that ontology aims to answer *deep* and *substantive* questions about *what is real*. By 'real' I mean, crudely, what is *out there* in the *world as it is in itself*, as opposed to the world as we *represent* it in thought, language and experience. By a 'deep' question, I mean one whose answer is sensitive to objective facts about reality, as opposed to the language and concepts we happen to employ. And by a 'substantive' question, I mean one with a determinate and non-trivial answer, which can be discovered only through hard theoretical work.

This is intended to be as neutral as possible between more specific metaontological positions. Perhaps deep and substantive questions about what is real are equivalent to questions about what there is, what is fundamental, what (in some quasi-technical sense) *really* exists, or something else. However, I take Serious Ontology to

[1] See e.g. Cameron (2008a, 2010a), Dorr (2005), Horgan and Potrč (2008), Fine (2001, 2009), Schaffer (2009), Sider (2011), Williams (2010, 2012).

[2] Thomasson (2009) uses this term in a similar way.

capture— albeit roughly— what most of us think we're up to when we're grappling with ontological questions and why we take such questions to matter. We know that we *talk* and *think* about complex objects, minds, moral values and all the rest; but we turn to ontology to tell us if such things really are part of the world itself, or mere figments of our thought and language. If the questions ontologists are setting themselves turn out to be trivial or shallow, many of us would feel that the discipline is failing. So to refine my question, what I want to know is this: is there an account of the task and method of ontology that would vindicate the serious conception?

This is a pressing matter, since not everyone believes that Serious Ontology is . A particularly virulent strain of criticism traces back to Carnap (1956), who argued that ontological questions are either meaningless or are trivially settled by the rules of the linguistic framework in which they are posed. In a similar spirit, philosophers such as Hirsch (2002, 2009, 2011) and Thomasson (2007, 2009, 2015) have argued that Serious Ontologists are deeply mistaken about the character of ontological inquiry. Hirsch contends that ontological debates are typically more sensitive to our linguistic practices than to what is real, with the disputants often simply talking past each other; Thomasson maintains that ontological questions are easily settled via conceptual analysis and ordinary empirical methods, with no need for any heavy-duty metaphysics.

I won't directly engage with these neo-Carnapian sceptics. Indeed, there is a point up to which I agree with them. *If* ontology is a question of what there is— as the orthodox view dictates— then it is not a serious enterprise: quantificational questions are not equivalent to deep and substantive questions about what is real. I give arguments for this claim in Chapter 1. For one thing, the orthodox view struggles to account for prima facie cases of *unloaded* quantification, where true-seeming sentences quantify over unreal-seeming entities. For another, questions about what

there is and questions about what is real differ significantly in character: the former are easily answered whereas the latter are not. For a third, the answers to quantificational questions are disconcertingly sensitive to linguistic convention: even if *F*s are unreal, we might be speaking a *metasemantically tolerant* language in which sentences quantifying over *F*s are true. I conclude that ontology is not a serious enterprise, if construed as a question of what there is.

You might think this spells doom for Serious Ontology. That would be to assume, however, that there is nothing ontological questions *could* be other than questions about what there is. I reject that assumption. If questions about what there is turn out to be shallow or trivial, we can and should seek an alternative account of the nature of ontological questions— one that fits better with the Serious Ontologist's aims. According to my preferred alternative, ontological questions are questions about *truthmakers*.

Briefly, a truthmaker is a portion of reality in virtue of which some true representation is true— on which its truth *depends* and which thus *accounts* for its being true. *Truthmaker Ontology* is the metaontological view that ontology should be framed as a search for truthmakers: in broad strokes, we are to decide what is real by finding the theory of truthmakers that best accounts for the truths we accept. This is by no means an original approach.[3] But I believe that extant versions of Truthmaker Ontology can be improved or expanded upon in certain key respects. My aim is to take the project forward, clarifying and developing Truthmaker Ontology with a view to showing that it offers an attractive mode of thinking about the nature and method of ontology.

[3] Philosophers sympathetic to some version of Truthmaker Ontology include Armstrong (2004), Baron (2013a), Cameron (2008a, 2010a), Dyke (2007), Heil (2003, 2012), Melia (2005), Newstead and Franklin (2012), Rettler (2016) and Tallant (2011).

An important initial task is to elucidate the notion of *truthmaking*: the relation that holds between true propositions and the portions of reality in virtue of which they are true— their truthmakers. But truthmaking is not the only 'in virtue of' relation I'll be appealing to. As will emerge at several points in the dissertation, I think Truthmaker Ontology benefits from incorporating a distinct relation of *(truth-)grounding*. Whereas truthmaking holds *cross-categorially* between true representations and portions of extra-representational reality, grounding is an inter-representational relation: it takes us from a truth *P* to one or more further truths in virtue of which *P* holds. In Chapter 2, I introduce and motivate truthmaking and grounding, explain what distinguishes and relates them, and argue for some 'connecting principles' governing their interplay.

I turn to Truthmaker Ontology in earnest in Chapter 3. There, following the likes of Cameron (2008a, 2010b) and Rettler (2016), I argue that Truthmaker Ontology supports a coherent distinction between what has ontological status and what can truly be said to exist. I do so by appealing to two key theses. The first is the *Truthmaker Criterion of Ontological Status*: what counts as real, in the sense of serious ontological interest, are all and only those things that make a truthmaking contribution. (As I'll explain, this is not the same as a truthmaker criterion of ontological *commitment*, which some Truthmaker Ontologists place at the centre of their accounts.) The second is the *Divergence Thesis*: what makes a statement true can differ from what is said or implied to exist by that statement. Given these two theses, a statement proclaiming the existence of *F*s might be made true even if *F*s make no truthmaking contribution and therefore lack ontological status. What has ontological status thus diverges from what can truly be said to exist: following Cameron (2008a, 2010a), we can articulate this as a distinction between what *really* exists (i.e. what makes a truthmaking contribution) and what *merely* exists (i.e. what

can truly be said to exist but makes no truthmaking contribution). Thus, for the Truthmaker Ontologist, ontology is a question of what *really* exists, which might be a proper subset of what it's *true to say* exists.

Because it distinguishes ontological status from existential truth, Truthmaker Ontology has some prima facie advantages over the orthodox framework. Notably, it allows us to coherently exclude certain entities from our ontology without rejecting or revising statements implying their existence. This is an attractive prospect for those concerned that, under the orthodox regime, 'serious ontological questions are being decided by linguistic facts' (Cameron 2008a: 5): ontological debates needn't turn on whether certain sentences are true at face-value or are amenable to paraphrase. It will also appeal to those drawn to a sparse ontology, free of such bugbears as complex objects and abstracta, but who are reluctant to deny ordinary truisms about what there is. Last but not least, Truthmaker Ontology gives us a response to the critics of Serious Ontology: we can concede that questions about what there is are often shallow or trivial, while claiming that questions about what there *really* is— i.e. what makes a truthmaking contribution— are deep and substantive.

But while this is all well and good, it would be useful to have a clearer idea of where to draw the line between what makes a truthmaking contribution, and what can truly be said to exist but makes none. Thus, in Chapter 4, I explore a way to refine the notion of what makes a truthmaking contribution, in the course of propounding a theory of *fundamentality*. I first distinguish between fundamental and non-fundamental *truths* in terms of the grounding relation. I then introduce the notion of a *fundamental truthmaker*— roughly, part of a collection of entities that provides a minimally complete truthmaking base for the fundamental truths. I argue, *inter alia*, that the fundamental truthmakers are all it takes to provide a minimally complete truthmaking base for *all* truths. This leads to a more refined picture of what it takes

to answer the ontological question, as Truthmaker Ontologists construe it: the fundamental truthmakers are all we must take to make a truthmaking contribution, hence to really exist.

The next two chapters concern questions of ontological method: specifically, how should Truthmaker Ontologists understand the methodologically important notions of *ontological commitment* and *ontological parsimony*? In Chapter 5, I propose a novel *Normative Truthmaker View of Ontological Commitment*. Briefly, the Normative Truthmaker View says that the ontological commitments of a theory are the entities one *rationally ought* to admit as truthmakers, given that one accepts the theory. I argue that the Normative Truthmaker View avoids problems that afflict some other truthmaker views, such as the view that theories are ontologically committed to the entities that are *entailed* to be among their truthmakers. I also sketch a methodological procedure, based on the Normative Truthmaker View, for deciding what ontology to accept.

I discuss ontological parsimony in Chapter 6. According to the Truthmaker Ontologist, not everything that exists according to a theory counts against it by the measure of parsimony: Ockham's Razor only applies to our theories' requirements on what really exists, i.e. on what makes a truthmaking contribution. This seems like good news for those concerned to minimise their ontological costs. However, the Truthmaker Ontologist's position resembles one that has come under recent criticism, according to which parsimony considerations only apply to a theory's requirements on what is *ontologically basic*.[4] But I argue that, due to salient metaontological differences, this proposal faces problems that the Truthmaker Ontologist can avoid.

[4] See e.g. Schaffer (2015), Bennett (2017).

At this point, having clarified its conceptual and methodological foundations, I hope to have shown that Truthmaker Ontology is a viable metaontological framework. Chapter 7 consolidates the case for the claim that it is also an attractive one, focusing on two broad benefits. First, Truthmaker Ontology keeps ontology serious, avoiding the problems raised for the orthodox view in Chapter 1. Second, Truthmaker Ontology has attractive implications for first-order ontological debate, stemming primarily from its ability to reconcile the benefits of sparse ontological views with a non-revisionary appraisal of ordinary talk.

If ontology is to be a serious enterprise, we need an alternative to the post-Quinean orthodoxy. I shall conclude that we have one: the task of discovering what ultimately makes up the world can successfully be framed as a search for truthmakers.

1 Can Orthodox Ontology Be Serious?

Serious Ontology is the broad metaontological view that ontology concerns *deep* and *substantive* questions about what is *real*. *Orthodox Ontology* is the more specific view that ontological questions are *quantificational* questions: questions about what there is. The two views are not obviously inconsistent: perhaps questions about what there is are equivalent to deep, substantive questions about what is real. But I will argue otherwise. The two sorts of questions are not equivalent, and so Serious Ontology and Orthodox Ontology are in tension. Serious Ontologists should therefore part ways with orthodoxy.

In §1.1, I will outline Serious Ontology and Orthodox Ontology in more detail. In the rest of the chapter, I present three challenges to the conjunction of the two views, a position I'll call (SOX), which says that deep and substantive questions about what is real are equivalent to questions about what there is. First, (SOX) struggles to account for prima facie cases of 'unloaded' quantification: true sentences that quantify over unreal entities (§1.2). Second, (SOX) inconsistently implies that ontological questions are both very hard and very easy to answer (§1.3). Third, (SOX) faces problems arising from the possibility that we are speaking a *metasemantically tolerant* language, in which what can truly be said to exist does not perspicuously reflect what is real (§1.4). The failure of (SOX) means that if ontology is a question of what there is, it can't be a serious enterprise. Hence, Serious Ontologists should part ways with orthodoxy.

1.1 Preliminaries

In this section, I will further clarify Serious Ontology, Orthodox Ontology and the consequences of conjoining them.

1.1.1 Serious Ontology

Metaontologists are increasingly divided over what exactly it is to ask an ontological question. For many, ontological questions are questions about what there is, or what exists. For some, they are questions about what is *fundamental*, what *really* exists, what exists in a maximally *joint-carving* sense of 'exists'; and the list goes on.[5] Abstracting away from these differences, however, there is a broad contemporary consensus about the general *purpose* and *character* of ontological inquiry. I call this crude metaontological outlook *Serious Ontology*. The following passage gives a sense of what I have in mind:

> Most contemporary metaphysicians think of themselves as concerned, not primarily with the representations of language and thoughts, but with the reality that is represented. In the case of ontology, there are deep and non-trivial—but still tractable—questions about numbers, sums, events, and regions of space, as well as about ordinary objects like turkeys and teacups. (Manley 2009: 3).

Let's unpack this. Serious Ontologists are, in the first instance, *metaphysical realists*: they believe in a 'ready-made world'[6], populated by entities that exist independently of what we think and say. The way we represent the world is one thing, says the Serious Ontologist; the world that is *out there*, *underlying* our representations, is

[5] See fn.1.

[6] Goodman (1978).

another. For the Serious Ontologist, the purpose of ontological inquiry is to discover what sorts of things ultimately make up the extra-representational world.

To fix terms, I will refer to the extra-representational world envisaged by Serious Ontologists as *reality* and to the entities it hosts as *real*. The aim of Serious Ontology, then, is to *discover what is real*. I offer no precise analysis of 'real'. Nor do I make any assumptions about the extension of 'real' that would preclude any specific metaontological view from counting as serious: what is real might be equivalent to what there is, or to what exists. Or it might be equivalent to what is fundamental, what (in some quasi-technical sense) *really* exists, or something else. I do assume, however, that we have some intuitive grasp on the relevant sense of 'real'. Consider the following statements:[7]

> We *think* and *talk* about numbers. But the question remains as to whether numbers are *real*.
>
> There *appears* to be a table in front of me. But the question remains as to whether there is *really* a table, or just a table-shaped scattering of particles.

I think these statements are intelligible, and bring out something close to the sense of 'real' that I take to be at issue for Serious Ontologists. Crudely, what is real is what's *out there* in the *world in itself*, as opposed to the world as we *represent* it in language, thought and experience. Real entities are what populate the 'ready-made world' envisaged by metaphysical realists. Admittedly, this is not optimally precise; but I take it that we have enough grip on the relevant sense of 'real' to work with.

[7] Cf. Raven (2009: Ch. 1).

Alongside this picture of ontology's subject matter, Serious Ontologists hold certain views about its *character*. First, they see ontological questions as *deep*: the answers are taken to depend on objective facts about what reality is like, not on how we happen to describe, conceptualise or experience reality. Second, they see ontological questions as *substantive*: the questions have determinate but non-trivial answers, which can only be discovered through difficult philosophical theorising. Relatedly, some would add that serious ontological questions are *epistemically metaphysical* (Sider 2011: 137). Conceptual or linguistic analysis alone cannot tell us what is real, nor can straightforward empirical methods; only 'heavy-duty' metaphysical theorising is up to the task. The 'preferred methodology' (Manley 2009: 3), involves a quasi-scientific comparison of the virtues of rival theories of what is real. Sider sums this up as follows (2009: 385):

> [Serious ontologists] treat competing positions as tentative hypotheses about the world, and assess them with a loose battery of criteria for theory choice. Match with ordinary usage and belief sometimes plays a role in this assessment, but typically not a dominant one. Theoretical insight, considerations of simplicity, integration with other domains (for instance science, logic, and philosophy of language), and so on, play important roles. (Sider 2009: 385).

Most contemporary ontologists aspire to be Serious Ontologists, and rightly so. As I said in the introduction, I believe that Serious Ontology captures, albeit crudely, what most of us take ontological questions to be and why they matter: we look to ontology to tell us about *the world*, as opposed to how we *speak* or *think* about the world. Thus, as we seek a more refined account of the nature of ontological questions, I assume that our aim is to vindicate the serious conception. For example, on the orthodox view to be outlined shortly, ontological questions are questions about what there is. If, as I'll claim, questions about what there is aren't equivalent to deep and substantive

questions about what is real, then we should look for alternatives to the orthodox view.

1.1.2 Orthodox Ontology

Orthodox Ontology has its origins in Quine (1948), who declared that the 'ontological problem' can be put in three monosyllables: 'What is there?'. Thus, on the orthodox picture, ontology concerns questions like 'Are there any numbers?', 'Are there any complex objects?', 'Are there any moral values?', and so on. The Orthodox Ontologist's ultimate goal is to provide a complete inventory of all the kinds of things there are.

Three main theses underpin the Orthodox Ontologist's notion of what there is (cf. van Inwagen 1998, 2009). First:

(i) To be is the same as to exist.

Thus, contrary to *neo-Meinongianism*, Orthodox Ontologists deny that there is any difference between asking whether *there are F*s and asking whether *F*s *exist* (cf. Routley 1980, Priest 2005).[8] Second:

(ii) For any *F*s whatsoever, there is exactly one sense in which there can be, or exist, *F*s.

[8] I won't question this assumption and will, throughout the dissertation, treat '*F*s exist' and 'There are *F*s' as equivalent.

Thus, contrary to what some call *ontological pluralism*, Orthodox Ontologists deny that there are different 'ways' or 'modes' of being associated with entities of different kinds (cf. McDaniel 2009, Turner 2010). Finally:

> (i) The single sense of being/existence is captured by the objectual existential quantifier, '∃', of first-order logic.

Roughly, the sentence '∃*xFx*' is true on the objectual reading just in case at least one object in the associated domain satisfies the open formula '*Fx*'. Orthodox Ontologists take this to perspicuously capture the claim that there is at least one thing that is an *F*, or more succinctly, that there are *F*s. Thus, the Orthodox Ontologist's question about *F*s— whether there are, or exist, any *F*s— is equivalent to the question of whether '∃*xFx*' is true. Orthodox Ontologists hold, in a slogan, that *ontological questions are quantificational questions* (cf. Fine 2009: 158).

The orthodox *method* of ontology involves deciding which quantified sentences we ought to accept as true. The procedure is roughly as follows. We first render the sentences we want to affirm into a form that makes their quantificational implications explicit. If the regimented sentences includes or implies the sentence '∃*xFx*', then we are committed to accepting *F*s into our ontology— *ontologically committed* to *F*s, as the standard jargon has it.[9] If we want to avoid this commitment, we must either retract the original sentence or find a non-committal *paraphrase*: roughly, a sentence that (in some sense) comes to the same thing as the original but does not quantify over *F*s.

This methodology is employed in different ways. Sometimes, the claim is that we *must* accept certain entities into our ontology because quantification over them is

[9] More on ontological commitment in Chapter 5.

unavoidable. For example, van Inwagen (2004) argues that we must accept *properties* into our ontology, since the apt rendering of true sentences like 'Spiders share some of the anatomical features of insects' quantifies over them (and no 'nominalistically acceptable' paraphrase is available). At other times, the claim is that we *should* accept certain entities into our ontology, since quantifying over them somehow makes our theories go better. For example, Davidson (1967) defends an ontology of *events*, on the grounds that quantifying over them is the best way to account for certain inferences involving action sentences; Lewis (1986) defends an ontology of *possible worlds* on the grounds that quantifying over them brings a range of theoretical benefits, including a neat semantic treatment of modals ('Possibly *P*' becomes '$\exists x$(*x* is a possible world & *P* is true at *x*'). And sometimes, the claim is that we *shouldn't* accept certain entities into our ontology because quantifying over them somehow impairs our theories. Perhaps the entities in question are somehow problematic. Or perhaps we simply don't *need* to quantify over them and can simplify our theories by not doing so; mathematical nominalists such as Field (1980), for example, argue against an ontology of numbers, on the grounds that our scientific theories can be adequately paraphrased in a way that eschews quantification over them.

1.1.3 (SOX)

The question before us is whether Orthodox Ontology can be serious. I can now clarify what I mean by this: if ontological questions are treated as quantificational questions, is this consistent with the aims and assumptions of Serious Ontology? That

is, by answering the question 'Are there *F*s?', are we thereby answering the deep and substantive question of whether *F*s are *real*?

To fix ideas, I will focus on a position I'll call (SOX), which results from conjoining Serious and Orthodox ontology. According to (SOX), existential quantification is *ontologically loaded* in the following sense: '$\exists xFx$' (or, equivalently, 'There are *F*s' or '*F*s exist') is true just in case at least one *F* is real in the sense of serious ontological interest.[10] So, for example, to settle the truth-value of 'There are numbers' is to answer the deep, substantive question of whether numbers are part of extra-representational reality. To *decide* whether *F*s are real, we must determine whether '$\exists xFx$' is among the implications of the (aptly regimented) sentences we ought to accept as true.

Perhaps no-one has explicitly defended (SOX) as stated. But the position is, I think, widely assumed. Orthodox Ontologists, such as van Inwagen and Lewis, seem to see themselves as engaged with substantive questions about the contents of reality, rather than shallow or trivial questions about our language or concepts. Or consider again the debate over mathematical platonism, which Linnebo (2018) describes as 'the metaphysical view that there are abstract mathematical objects whose existence is independent of us and our language, thought, and practices'. This sounds like the sort of claim a Serious Ontologist might make. Yet the recent debate between platonists and nominalists is steeped in orthodox assumptions, having turned to a large extent on whether quantification over mathematical objects is avoidable.

[10] I'll explain below why I take (SOX) to be committed to both natural and formal language quantification being ontologically loaded.

In what follows, I will present what I take to be three of the main challenges to (SOX).[11] If successful, the challenges will show that Orthodox Ontology and Serious Ontology are not co-tenable: questions about what there is are not equivalent to deep and substantive questions about what is real.

1.2 Unloaded Quantification and Paraphrase

The first challenge to (SOX) goes roughly as follows. Prima facie, it is often the case that 'There are *F*s' is true but *F*s are not real. If quantification is ontologically loaded, as (SOX) maintains, there is a conflict of intuitions here: either 'There are *F*s' is true and *F*s are real, or 'There are *F*s' is false and *F*s are unreal. Friends of (SOX) should be prepared to explain, or explain away, this apparent tension. The classic response is to claim that the offending sentences can be shown to be ontologically innocent via the method of *paraphrase*. But I will argue that this response is problematic.

1.2.1 Quantification in Natural and Formal Language

First, a preliminary is in order. Orthodox Ontologists sometimes acknowledge that ordinary language is an unreliable guide to ontology. For example, Quine says that '[m]any of our casual remarks in the "there are" form would want dusting up when our thoughts turn seriously ontological' (1969: 100). Indeed, Quine sometimes suggests that ontological questions only properly arise when we leave ordinary English behind and regiment our discourse in terms of the ∃ of first-order logic (see e.g. Quine 1969: 106). Let me begin, then, by saying why I think (SOX) is committed

[11] I do not claim that any of the three challenges are original: my aim in what follows is to clarify and bolster, not to break new ground.

to quantification in natural language— not just first-order logic— being ontologically loaded.[12]

When discussing the ontological significance of ∃, Orthodox Ontologists tend to have one of two accounts of quantification in mind. On the *natural language* account, ∃ is explained as a formal abbreviation for certain natural language expressions. Quine, for example, says that '[t]he artificial notation "∃*x*" of existential quantification is explained merely as a symbolic rendering of the words "there is something *x* such that"' (1992: 26-27).[13] Similarly, van Inwagen (1998, 2009) explicates '∃*xFx*' as an abbreviation of the semi-formal 'It is true of at least one thing that it is such that it is *F*', which, he thinks, is just a prolix way of saying 'There is an *F*'. Thus, according to van Inwagen, 'the meaning of the quantifiers is given by the phrases of English—or of some other natural language— that they abbreviate' (1998: 240).

Drawing on the natural language account, one might argue that ∃ is ontologically loaded because it inherits this feature from the natural language expressions it abbreviates:

(i) '∃*xFx*' straightforwardly abbreviates 'There is an *F*'.

(ii) 'There is an *F*' is true iff at least one *F* is real.

(iii) Therefore, '∃*xFx*' is true iff at least one *F* is real.

[12] What follows draws heavily on Azzouni (2004: Ch. 3).

[13] See also Quine (1960: 241, 1969: 94, 1972: 111-112).

Clearly this argument, in its second premise, assumes that the natural language 'There is' is ontologically loaded.

On the *model-theoretic* account, the semantics of ∃ are specified via a *model*: an ordered pair consisting of a *domain* (a non-empty set or plurality of objects) and an *interpretation function* mapping names to individuals and predicates to sets of tuples from the domain. Intuitively, the semantic role of the quantifier is to impose conditions on the *quantity* of domain-members that fall under the extension of a given predicate. Where D is the domain (of some model of some language) the semantic condition for ∃ is this:

$$\text{`}\exists x \phi x\text{' is true iff } \{x : x \in D \wedge \phi x\} \neq \varnothing$$

That is, '$\exists x \phi x$' is true (in the model) iff there is at least one member of D in the extension of ϕ.

Drawing on the model-theoretic account, one might argue that ∃ is ontologically loaded in virtue of its model-theoretic semantics, together with a certain metaphysical assumption about *domains*:

(i) '$\exists xFx$' is true iff there is at least one member of the domain in the extension of F.

(ii) A domain is a collection of *real objects*.

(iii) Therefore, '$\exists xFx$' is true iff at least one real object is in the extension of F, i.e., iff at least one F is real.

Less obviously than the first, this argument also assumes that the natural language 'There is' is ontologically loaded. For as several have observed, nothing in the model-theoretic semantics per se ensures that ∃ ranges over a domain of real objects; this

only follows on the further assumption that the metalanguage 'There is' used to *state* the semantic condition for ∃ ('∃*xFx*' is true iff *there is* at least one member of the domain in the extension of *F*) is itself ontologically loaded (Azzouni 2004: 54-55, Brogaard 2008: 38-40, Crane 2013: 37). As Azzouni explains (2004: 55):

> Objectual quantifiers have 'objects' to range over only relative to a body of claims in a metalanguage that itself gains access to those 'objects', if at all, via what its own quantifiers range over. And if *those* (metalanguage) quantifiers do *not* [range over a collection of real objects], then neither do the objectual quantifiers that the metalanguage quantifiers help provide objectual semantics for.[14]

In other words, the model-theoretic semantics for ∃ licenses the loaded interpretation only on the assumption that the natural language quantifiers used to specify the domain is itself given a loaded interpretation. So again, the loadedness of ∃ stands or falls with the loadedness of 'There is'.

1.2.2 The Challenge and the Paraphrase Response

So, is 'There is' ontologically loaded? If so, the truth of sentences of the form 'There are *F*s' should suffice for the reality of *F*s. But there is reason to doubt that this is the case: there are abundant examples of true-seeming English sentences that quantify over prima facie unreal entities. Here are just a few:

(1) There is a fictional space explorer called Picard.

(2) There is a monster I dream about every night.

(3) There is a staff shortage in the NHS.[15]

[14] Here and throughout the dissertation, all quoted italics are in the original unless otherwise stated.

[15] Similar examples are sometimes used to support the claim that 'There are *F*s' doesn't imply the *existence* of *F*s (see e.g. Azzouni 2010, Priest 2010). But I'm happy to grant the orthodox

Intuitively, these sentences are true— at least, in readily conceivable circumstances. But, intuitively, extra-representational reality does not host such things as fictional space explorers, dream monsters or staff shortages. Given (SOX), these intuitions conflict. For if 'There is' is ontologically loaded, it seems that either (1)-(3) must be false or the entities they quantify over must be real.[16] Friends of (SOX) should be prepared to explain, or explain away, this apparent tension.

The classic response to this challenge is the *paraphrase gambit*. The guiding thought is that we can disavow the apparent ontological commitments of a quantified sentence by finding a paraphrase: a sentence that in some sense 'comes to the same thing' as the original but lacks the offending quantification. This is supposed to let us affirm the original sentence as true without having to accept its prima facie ontological implications.[17] For example, consider the following sentence:

(Hole) There is a hole in my sock.

assumption that 'There are *F*s' is equivalent to '*F*s exist'. My question is whether claims of either sort imply that *F*s are real, in the sense of serious ontological interest.

[16] Some innocuous-sounding sentences are *incoherent* on a loaded reading of the quantifiers, e.g. 'There are things I wish were real but aren't, like spaceships capable of warp travel'; 'The planet Qo'noS is not real, so at least one thing is not real'.

[17] Actually, not every version of the paraphrase gambit takes paraphrase to be truth-preserving. On what some call the *revisionary* (as opposed to *reconciling*) model of paraphrase, the goal of paraphrase is to replace a *false* sentence with a *true* sentence 'in the same neighbourhood' (Keller 2015: 90; cf. von Solodkoff 2014). Thus, if *S** is a revisionary paraphrase of *S*, then *S* is false (albeit in some sense 'good enough' to utter in circumstances where *S** is true). I claim, however, that our intuition about sentences like (1)-(3) is that they're *true*, not just 'nearly as good as true' (Merricks 2001: 171-185). If I'm right, the revisionary paraphrase gambit is not a response to the above challenge so much as a concession.

On a loaded reading of 'There is', (Hole) seems to imply the reality of holes. The claim, however, is that we can avoid this apparent commitment by offering a paraphrase like the following (cf. Lewis and Lewis 1970):

(Hole*) My sock is perforated.

Since (Hole) has a paraphrase that doesn't quantify over holes, we can (supposedly) affirm it as true it without committing to the reality of holes. For we have shown that the 'seeming reference' to holes was an 'avoidable manner of speaking' (Quine 1948: 32). Accordingly, friends of (SOX) might argue that sentences like (1)-(3) do not commit us to the reality of fictional space explorers, dream monsters, etc., since they can be paraphrased in terms of sentences that lack the offending quantification.

But what exactly does paraphrase involve, such that paraphrasing a sentence lets us disavow its apparent ontological implications? One might think that the relation between (Hole) and its paraphrase (to stick with our example) is simply that the sentences have the same *meaning* and/or *truth-conditions*. But a well-known problem is that, since synonymy and truth-conditional equivalence are symmetric, this would make (Hole*) a paraphrase of (Hole) *and vice versa* (Alston 1958). So what entitles us to treat (Hole*) as an 'ontologically innocent' paraphrase of (Hole) when we could just as well treat (Hole) as an 'ontologically *guilty*' paraphrase of (Hole*)? The onus is on the paraphraser to give us a *relevant asymmetry* between (Hole) and its paraphrase that explains why we only need to take (Hole*)'s apparent ontological implications seriously.[18]

The paraphraser's most natural option is to claim that (Hole) is only *loosely* true, whereas (Hole*) is *strictly* true. The thought is that (Hole) has a misleading surface

[18] See von Solodkoff (2014: 573), from whom I borrow the phrase 'relevant asymmetry'.

form: it seems to imply that there are holes, whereas really there aren't any (von Solodkoff 2014: 574). But in fact, (Hole) is just a non-perspicuous way of describing the same metaphysical situation that (Hole*) describes in more perspicuous terms. Both sentences are *true*, since they both express the true proposition that a certain sock is perforated. But while it is perfectly correct to assert (Hole) in the 'ordinary business of life' (van Inwagen 1990) it has an ontologically misleading surface form, and we should restrict ourselves to its strictly true paraphrase when ontological clarity is at stake.

The paraphraser now has a relevant asymmetry between (Hole) and (Hole*). As Keller puts it (2018: 371), 'while the *paraphrase of* relation is symmetrical, the *perspicuous paraphrase of* relation is not' (2018: 371). Thus, in response to the challenge above, friends of (SOX) might claim that sentences like (1)-(3) are true even though the entities they quantify over are unreal. For the sentences are only *loosely* true: they have surface forms that mislead with respect to their *real, underlying* ontological implications. To bring these implications to light, we must offer *strictly* true, *ontologically perspicuous* paraphrases.

There are several reasons to dislike this paraphrase gambit. For one thing, as several have argued, they are unmotivated and *ad hoc*.[19] There just isn't any compelling evidence to suggest that we speak loosely when uttering sentences like (Hole), or 'There is a shortage of staff in the NHS'. Indeed, there is reason to suspect the contrary. As Korman points out (2009: 247), speakers are usually prepared to disavow the strict content of sentences put forward as loosely true. Consider the reaction you'd expect if you asked someone if they *really* meant to say that the sun has moved below the horizon. ('Of course not, don't be pedantic.') Compare the

[19] See e.g. Burgess and Rosen (2005), Fine (2009), Korman (2009), Kripke (1982).

reaction you'd expect if you asked someone if they *really* meant to say that there's a hole in their sock, or a staff shortage in the NHS. ('Well… yes!'). The burden is on the paraphraser to persuade us that a loose reading is warranted in these cases, despite the apparent lack of independent motivation.

Another concern is that the paraphrase gambit threatens to introduce a circularity into (SOX)'s ontological method. The assumption underlying the paraphrase gambit is that 'There are *F*s' commits us to the reality of *F*s, *unless* the sentence is put forward only as *loosely* true, in which case we need an ontologically perspicuous paraphrase to show us our genuine commitments. But the problem, as Varzi puts it, is that 'the very issue of *which* sentences must be paraphrased— let alone *how* they ought to be paraphrased— can only be addressed against the background of one's own ontological inclinations' (2007: 277). Consider (Hole) again. The paraphraser claims that (Hole) should be given loose reading because it ostensibly implies that there are holes, whereas really there aren't any. (Hole*), in contrast, is supposed to perspicuously report the ontological facts: that a certain sock is perforated. But suppose there really *are* holes. Then (Hole) is at least as ontologically perspicuous as (Hole*), and we can rest content with the strict reading of (Hole). Circularity threatens: we are supposed to be able to decide whether holes are real by determining whether quantified sentences like (Hole) are strictly true or whether they require paraphrase; but to decide whether (Hole) should be read as strictly true or whether it requires paraphrase, it seems we must first decide whether holes are real.

Perhaps most seriously, the paraphrase gambit doesn't answer the challenge it's supposed to resolve. To recap: cases like (1)-(3) present prima facie counterexamples to the assumption that 'There is' is ontologically loaded. The paraphraser tells us that we needn't take the apparent ontological implications of such sentences seriously, since they are only *loosely* true: their *real* ontological implications are rendered

explicit by their strictly true paraphrases. But far from answering the challenge, the paraphrase gambit amounts to *conceding* that 'There is' is not systematically ontologically loaded: the truth of 'There are *F*s' does not always suffice for the reality of *F*s. This points the way to a dilemma. If friends of (SOX) want to maintain that 'There is' is always ontologically loaded, they can't deal with sentences like (1)-(3) by appealing to the paraphrase gambit: they must either say that the sentences are false or that the entities they quantify over are real, thus biting one of two bullets. On the other hand, if they do appeal to the paraphrase gambit, they thereby concede that 'There is' isn't systematically ontologically loaded. And this undercuts the motivation for the loaded reading of ∃. For as we saw above, the two main arguments for the loaded reading of ∃ assume a loaded reading of 'There is'. If 'There is' is only sporadically ontologically loaded, then the most these arguments can show is that ∃ is only sporadically ontologically loaded as well. If that's the case, it seems that we can't reliably determine whether *F*s are real by deciding whether '∃*xFx*' is true.

1.2.3 Loaded vs. Unloaded Quantification

Rather than appeal to paraphrase, friends of (SOX) might argue that there is a principled distinction between loaded and *un*loaded uses of 'There is'. In this vein, Hofweber (2005) argues that there is an unloaded *inferential role* reading of the quantifier, on which 'the inference from "*F*(*t*)" to "*F*(Something)" is always and trivially valid, regardless of whether '*t*' refers to a real object (2005: 274). For example, the inferential role reading lets us trivially and validly move from 'Picard is a fictional space explorer' to 'There is a fictional space explorer', without thereby presupposing that Picard is real. Hofweber contrasts this with the *domain conditions* reading, on which the quantifier imposes a condition on a domain of worldly objects and is therefore (he thinks) ontologically loaded. The example given is the sentence

'Something fell on my head', which Hofweber says is true 'if there exists an object out there in reality that is such that it fell on my head' (2005: 271).

Following Hofweber, friends of (SOX) might argue that sentences like (1)-(3) can be true even if the entities they quantify over are unreal. For perhaps the unloaded inferential role reading of the quantifier is in play. Thus, one might argue that 'There is a fictional space explorer called Picard' is true, not because there really is a fictional space explorer, but because the sentence trivially and validly follows from 'Picard is a fictional space explorer'; what matters for serious ontological purposes, however, is whether 'There is a fictional space explorer called Picard' is true on the loaded *domain conditions* reading, which is another matter.

The idea that ordinary language quantifiers can be ambiguous between the inferential role and domain conditions readings has some odd implications. It implies, for example, that 'There are *F*s' may be true on the inferential role reading of the quantifier, but false on the domain conditions reading. In that case, we should be able to hear 'There are *F*s but there are no *F*s' as a coherent sentence, which we seemingly cannot. But in any case, the Hofweber-style response just seems to shift the bump under the carpet. As I said before, the fact that a quantifier is associated with a domain does not guarantee that it is ontologically loaded— this only follows on the further assumption that the associated domain is a collection of real objects, which the model-theoretic semantics for ∃ does not ensure by itself. So we're still left without a firm reason to think the quantifier is loaded on the domain conditions reading. Moreover, I doubt that there is a principled way for friends of (SOX) to distinguish unloaded inferential role quantifier-uses from loaded domain conditions uses. Why shouldn't we think that the (allegedly) loaded domain conditions reading is at work in 'There is a fictional space explorer called Picard'? For all I can tell, the only apparent justification is that we have a prior intuition that fictional space explorers aren't real.

But it strikes me as ad hoc to insist that the inferential role reading must be in play just because we doubt the reality of what's being quantified over.

1.3 Easy Ontology

The second challenge to (SOX) is that it misconstrues the *character* of ontological questions, as Serious Ontologists construe them. The point is familiar: for just about any philosophically controversial *F*s, the claim that *there are F*s seems to follow trivially from some uncontroversial commonsense truism. For example:

(1) There are prime numbers greater than 10; so there are numbers.

(2) There is a table in front of me; so there are tables.

(3) There are properties domestic cats share with lions; so there are properties.

These arguments look sound. The premises seem obviously true and the inferences obviously valid. Similar arguments can be marshalled for a host of claims about what there is. So it seems that many questions about what there is are *easy*. The answer is often a trivial 'Yes', and can be found without doing any heavy-duty metaphysics: we need only notice what obviously follows from the truisms of other disciplines or of plain common sense. But if (SOX) is true, arguments like the above threaten to show that questions about what is *real* are easy to answer. Serious Ontologists should demur. By their lights, questions about what is real are substantive, deep and epistemically metaphysical: we surely can't discover what it out there in extra-representational reality just by inspecting plain, non-philosophical English truisms. But according to (SOX), the serious ontological question of what is real is equivalent

to the question of what there is. This gives rise to an inconsistent triad (cf. Cameron forthcoming(a): 9):

(i) Questions about what is real are equivalent to questions about what there is.

(ii) Questions about what is real are not easy.

(iii) Questions about what there is are easy.

One of these claims must be rejected. But to reject (i) would be to abandon (SOX)'s central claim about the nature of serious ontological questions. To reject (ii) would be to abandon the serious conception of the character of ontological questions. Friends of (SOX) therefore have no choice but to reject (iii). But (iii) is not the claim to give up. Rather, I think we should reject (i) and (SOX) along with it.[20]

1.3.1 Why Existence Questions Are Easy

Apart from the prima facie soundness of arguments like (1)-(3), how else might we support the claim that existence questions have easy answers? A prominent strategy is to argue that existence claims can be easily established on *Moorean* grounds (cf. Fine 2001, 2009; Schaffer 2009). Roughly, the thought is that the sort of commonsense truisms that occur as premises in arguments like (1)-(3) are *Moorean facts*: they have a stronger claim to our acceptance than any revisionary philosophical

[20] For versions of this challenge, see Cameron (2010b, 2019), Fine (2001, 2009), Schaffer (2009), Williams (2012). Some (e.g. Thomasson 2015) take the easiness of existence questions to entail the easiness of *ontological* questions, hence that ontology is not a serious enterprise. But I reject the assumption that there's nothing ontological questions could be other than existence questions.

argument could muster. Thus, consider Schaffer's oft-cited 'proof' of the existence of numbers (2009: 357):

> 1. There are prime numbers.
> 2. Therefore there are numbers.
>
> 1 is a mathematical truism. It commands *Moorean certainty*, as being more credible than any philosopher's argument to the contrary. Any metaphysician who would deny it has *ipso facto* produced a *reductio* for her premises. And 2 follows immediately, by a standard adjective-drop inference. Thus numbers exist. End of story.

Schaffer's thought is that the existence of numbers is just not up for serious philosophical debate: no philosopher's argument could ever cast it into serious doubt. Nor do we need to do any heavy-duty metaphysics to establish the existence of numbers: we need only notice what trivially follows from plain mathematical truisms. More generally, Schaffer thinks, the answers to existence questions are typically right under our noses: they are easy to find because they trivially follow from claims that no-one could reasonably deny.

But what is it about so-called Moorean facts that makes them to immune to revision on philosophical grounds? Why should we accept that common sense has the final word on what there is? Those who argue for the easiness of existence questions on Moorean grounds don't always answer these questions.[21] But not everyone is convinced that the Moorean gambit is justified (see, e.g., Daly and Liggins 2010, 2014). The thought seems to be that commonsense truisms are somehow inherently *better justified* than any philosophical claim to the contrary. But what gives them this status? According to Daly and Liggins, the Moorean's most natural option is to appeal

[21] Fine (2001, 2009) and Schaffer (2009), for example, both endorse a Moorean stance towards existence questions, but offer little by way of clarification or support. See Daly and Liggins (2014) for criticism.

to a principle of *epistemic conservatism*, according to which 'a person is to some degree justified in retaining a given belief just because that person has that belief' (Daly and Liggins 2010: 223).[22] But as they point out, whatever justification this might be is surely highly defeasible: if I form a belief without particularly strong evidence, for example, I should revise it if stronger evidence to the contrary emerges. Perhaps claims like 'There are prime numbers' and 'There is a table in front of me' *are* based on good evidence and are accordingly well justified. But unless there's some reason to think that the justification for these claims is *indefeasible*—on philosophical grounds, at least— a revisionist philosopher might claim to have found arguments strong enough to undermine them. For the Moorean to bluntly insist that no such argument will ever be produced just seems chauvinistic.

Let me explain, then, what I think the Moorean gambit involves.[23] Consider a simplistic argument for the claim that there are no mathematical objects:

(P1) If there are mathematical objects, they are abstract.

(P2) If something it abstract, it lacks causal powers.

(P3) There are no things that lack causal powers.

(C) Therefore, there are no mathematical objects.

The argument is clearly valid and (let's allow) the premises are individually plausible. Despite this, the Moorean wants to persuade us to reject the conclusion. How? The Moorean might start by pointing out that the following is a corollary of (C) (Lycan 2001, 2005):

[22] Cf. Daly and Liggins (2014: 462).

[23] My view on this is inspired by Kelly (2005, 2008), Lycan (2001, 2005) and, especially, Williams (2012).

(C*) ¬(There are prime numbers greater than 10).

We're now confronted with a choice: accept (C*) along with the argument's premises or reject a premise along with (C*). The Moorean says we should take the second option, even if we can't say exactly what's wrong with the rejected premise. Why should we do that? Because the claim that there are prime numbers greater than 10 is somehow inherently better justified than any of the premises? Not necessarily. The Moorean might go on to point out that (C*) is not in fact the *only* relevant implication of (C), for (C) implies the falsehood of *every* statement that implies the existence of a mathematical object. So the relevant corollary is actually more like this:

(C**) ¬(There are prime numbers greater than 10, the number of my hands is two, there are 242 miles between Oxford and Durham, the empty set is a subset of every set, the ratio of atoms in water is 2:1, the atomic number of caesium is 55, …).

And so on for every belief anyone's ever held about numbers, sets, functions, vectors, trajectories, lengths, points, temperatures, and all the rest. Again, we face a choice: accept (P1)-(P3) along with the negation of a *vast number* of our current beliefs, or retain those beliefs and reject one of the premises. So, matters of relative justification aside, the question the Moorean might press is: '*under what circumstances is it rational for me to change my beliefs to this drastic extent*?' (Williams 2012: 167). In particular, when confronted with an argument like the above, what is the more rational option: revise all our current beliefs about mathematical objects in one fell swoop, or withhold belief in the conjunction of the argument's premises? The Moorean says it's the latter. Why might this be? Why is it irrational to give up a vast number of current

beliefs when confronted with a seemingly compelling argument that entails their falsehood? Here are two arguments the Moorean might give:[24]

(i) (P1)-(P3) are general philosophical principles, whereas the claims negated in (C**) are judgements about particular cases. And it seems irrational to give significantly more credence to general principles than to case judgements when the two conflict. A single case judgement is sometimes enough to undermine a general philosophical principle: when we first encounter a Gettier case, for example, most of us give up the general principle that knowledge is justified true belief, rather than our judgement that the subject in the case doesn't count as knowing. So if a general philosophical principle conflicts with a *vast number* of case judgements, it is plausibly more rational to give up the general principle than the case judgements. Hence, it is plausibly more rational to give up one of the general principles encoded in (P1)-(P3) than the vast number of case judgements negated in (C**).

(ii) According to the *total evidence requirement*, it is irrational for us to bracket portions of our total evidence when deciding what to believe. Suppose a detective has some evidence indicating that Colonel Mustard murdered Dr. Black and other evidence implicating Professor Plum (Kelly 2008: 64). Suppose that the evidence implicating Plum would, on its own, make it rational for the detective to conclude that Plum did it. The total evidence requirement tells us that it still wouldn't be rational for the detective to accuse Plum without considering all the

[24] These arguments are drawn from Kelly (2005) and Kelly (2008) respectively. I'm compressing a lot of the detail.

> evidence, including that which implicates Mustard. (Perhaps Mustard and Plum were co-conspirators, or Mustard did it after all.) Now, (P1)-(P3) jointly entail the falsehood of a *vast* number of claims that we are plausibly entitled to count among our total evidence: 'statements about the positions of pointers on readers, statements about how experiments were conducted, and […] numerical records of experimental data' (Williams 2012: 167). Coming to believe (C**) on the basis of the above argument seems to require us to bracket this evidence, contrary to the total evidence requirement.

There are grounds for thinking, then, that when a philosophical argument purports to undermine large swathes of our current beliefs, it is more rational to doubt the cogency of the argument than to abandon the beliefs. Plausibly, this applies generally to arguments against the existence of mathematical objects, complex objects, properties, and more besides. This provides some justification for the claim that questions about whether such entities exist have easy answers. It is highly unlikely that a philosophical argument could ever rationally compel us to stop believing in their existence; so when a philosopher raises the question of whether they exist, it is a sensible policy to answer with a trivial 'Yes'.

Another motivation for the claim that existence questions are easy is broadly linguistic. Thomasson (2010, 2014) argues that the question of 'Do *F*s exist' reduces to the question of whether the *application conditions* associated with the sortal term '*F*' are satisfied— these being 'basic rules of use that are among those that are meaning-constituting for the term' (Thomasson 2014: 89). Such questions are easy to answer, Thomasson thinks, in that they can be settled without engaging in any heavy-duty, distinctly metaphysical theorising: linguistic analysis reveals the application

conditions of a sortal term, and straightforward conceptual or empirical methods reveal whether the conditions are fulfilled, hence whether the entities falling under that sortal exist. For example, do knives exist? Well, as anyone competent with the term 'knife' knows (at least implicitly), a knife is an object falling within a certain size range, which consists of a handle and a blade and is typically used for cutting. Are these conditions satisfied? Yes: just look in your kitchen drawer. Thus, knives exist. And we didn't need to use any heavy-duty, distinctively metaphysical methods to figure this out: just plain old conceptual analysis and ordinary observation.

Let's now return to our inconsistent triad:

(i) Questions about what is real are equivalent to questions about what there is.

(ii) Questions about what is real are not easy.

(iii) Questions about what there is are easy.

As I've said, the only option for friends of (SOX) is to deny (iii). While I don't claim to have established (iii) conclusively, I think the above considerations are enough to shift the burden of proof onto (SOX). There is reason to think it very unlikely that a philosophical argument could ever rationally compel us to abandon our beliefs in the existence of complex objects, abstracta, and so on; such beliefs therefore seem too epistemically secure to be worth seriously troubling about on philosophical grounds. Thomasson's linguistic account supports this verdict by providing a further explanation as to *why* these beliefs seem so secure: *all it takes* for a belief in the existence of *F*s to be true is for the associated application conditions to be satisfied, which can readily be confirmed by straightforward conceptual and empirical methods. Until this burden of proof is shifted, it's provisionally reasonable for Serious Ontologists to accept (iii); and they can't, *qua* Serious Ontologists, give up (ii). I

submit, then, that the Serious Ontologist's best response to the inconsistent triad is to give up (i) and (SOX) along with it.

1.4 Metasemantic Tolerance

Further problems for (SOX) arise from the possibility that we are speaking a *metasemantically tolerant* language; that is, even if *F*s are unreal, our linguistic conventions might be such that 'There are *F*s' is true on the correct semantic interpretation of our language.

1.4.1 Assumptions

I will assume a broadly *interpretationist* view of metasemantics.[25] Here is a brief sketch of the basic idea. Suppose that Ida is an ideally rational being, who has been observing a community of speakers throughout its history. Ida is omniscient with respect to *N*: the set of all non-semantic facts about the world. *N* includes all the facts about the speakers' worldly surroundings, as well as the worldly conditions in which they are disposed to assent to and dissent from certain utterances. Ida knows, for example, that the speakers are typically disposed to assent to 'The cat is on the mat' when the world is such that ϕ and to dissent from it otherwise. Ida's task is to determine *S*: the set of all semantic facts about the speakers' language— the truth-conditions of its sentences, the referents of its terms, and so on. According to interpretationists, Ida will be able to determine *S* based on her knowledge of *N*, together with certain constraints on successful interpretation. In general, the semantic facts about some language are those postulated by the *best overall interpretation* of

[25] See e.g. Lewis (1974), Davidson (1974) and, for a useful overview, Williams (2007).

that language: the assignment of semantic properties that a being in Ida's position would settle upon.

A central constraint on successful interpretation is the *principle of charity*, which I understand as follows:

> (Charity) With respect to some language *L*, if candidate interpretation I_1 makes more sentences come out true on typical occasions of assent than candidate interpretation I_2 then, all else equal, I_1 is a better interpretation of *L* than I_2.

A simple way to motivate Charity is to note that competent interpreters would in fact adhere to it in conceivable real-world scenarios. Suppose you encounter an alien community who speak much like we do, except they invariably say 'Tree' in circumstances where we would say 'Cat'. Thus, in the presence of cats, the aliens say things like 'The tree is on the mat', 'The tree has caught a mouse', and so on. The aliens' word 'Tree' *might* mean *tree*. In that case, the aliens persistently use 'Tree' to express false (and bizarre) beliefs. But unless you have reason to think that the aliens are deluded or deceitful, you would be naturally inclined to interpret 'Tree' to mean *cat* in the aliens' language. That is, you would prefer the more *charitable* interpretation, on which the truth-conditions of the aliens' sentences are more often satisfied on typical occasions of assent. Just as competent real-world interpreters would adhere to Charity, so, plausibly, would an interpreter in the idealised position of Ida. Thus, all else equal, the best overall interpretation of a language will be one that maximises the truth of assented sentences.

A final assumption before turning to the challenge to (SOX). Some philosophers distinguish between *linguistic* and *metaphysical* truth-conditions (cf. Leslie 2008,

Keller 2015, Sider 2011, Williams 2012). Linguistic truth-conditions, which are mainly of interest to natural language semanticists, are the sort of conditionals competent speakers implicitly grasp when they understand the meaning of a sentence. Metaphysical truth-conditions are the metaphysically interesting conditions that *reality* must meet in order for a given sentence to be true. To illustrate, consider the French sentence 'Il y a des nombres premiers'. You might grasp the *linguistic* meaning of this sentence by virtue of knowing that it is true iff there are prime numbers. Yet you might still be at least partially ignorant of the metaphysically interesting condition that *reality* must meet for this sentence to be true, for example, whether it must contain mind-independent mathematical abstracta.[26] My assumption is that, if these two kinds of truth-conditions do come apart, interpretationist principles govern the correct assignment of *metaphysical* truth-conditions, and not just linguistic ones: the metaphysical truth-conditions of sentences are those that an ideally rational interpreter, omniscient of all the non-semantic facts about reality, would assign. Accordingly, the correct assignment of metaphysical truth-conditions is constrained by Charity. Suppose Ida knows that abstract objects are unreal. But the speakers she's observing routinely utter sentences like 'There are prime numbers' and 'The empty set is a subset of every set'. When Ida comes to interpret these speakers, she *might* assign metaphysical truth-conditions to these sentences that require the reality of abstract objects. But on this interpretation, the speakers persistently utter falsehoods. So I take it that, all else equal, Ida would prefer to assign metaphysical truth-conditions that don't require the reality of abstracta (whatever these might be).[27]

[26] I adapt this example from Keller (2015: 117).

[27] Cf. Cameron (2010b: 12-13), Williams (2010: 130).

1.4.2 Two Problems for (SOX)

Consider the following scenarios:

(Nihilism) In reality, no collection of objects ever composes a further object. Thus, reality hosts no complex objects such as tables or rocks; only simple particles arranged thus-and-so. Conventions of English use are such that speakers systematically assent to (e.g.) 'There is a table' iff, in reality, there are some simples arranged table-wise.[28]

(Universalism) In reality, every collection of objects composes a further object. Whenever reality hosts a collection of simples arranged table-wise, it also hosts a complex object—a table— composed of those simples. Conventions of English use are such that speakers systematically assent to (e.g.) 'There is a table' iff, in reality, there is some complex object that is a table.

I take it that both these scenarios are epistemically possible, and that both are consistent with our actual experience and linguistic behaviour. Consider, then, two

[28] The 'simples arranged *X*-wise' locution, which I'll employ fairly often, originates with van Inwagen (1990). I regard this locution as a convenient shorthand for what might be a far more complicated description of the spatiotemporal locations of, and spatial relations between, the simple entities.

candidate interpretations of English. On the *demanding* interpretation, 'There is a table' expresses a truth iff reality hosts a complex table (and so on *mutatis mutandis* for similar sentences). On the *tolerant* interpretation, 'There is a table' expresses a truth iff reality hosts some simples arranged table-wise (and so on *mutatis mutandis* for similar sentences).

Suppose Universalism obtains. Then the demanding interpretation is charitable enough: reality is such that the truth-conditions of sentences like 'There is a table' are satisfied on typical occasions of utterance. And since the demanding interpretation involves a somewhat simpler assignment of truth-conditions, it will plausibly prevail over the tolerant interpretation (cf. Williams 2010). But suppose Nihilism obtains. Then the demanding interpretation is highly *un*charitable: the truth-conditions of sentences like 'There is a table' are never met, and we speak falsely most of the time. So given Nihilism, there would be strong pressure on an interpreter in Ida's position to select the tolerant interpretation. If there are no countervailing pressures, the tolerant interpretation will be the best overall. Thus, even if tables are unreal, it might be the case that 'There is a table' is a true sentence of English.

Metasemantic tolerance poses at least two potential problems for (SOX). According to (SOX)'s prescribed ontological method, we can determine whether *F*s are real by deciding whether 'There are *F*s' must be accepted as true. But suppose that Nihilism obtains, and the tolerant interpretation prevails. In that case, (SOX)'s ontological method is vitiated: it would be an error to infer the reality of *F*s from the truth of 'There are *F*s'. Moreover, it looks like the only way to *find out* whether (SOX)'s ontological method is viable would be to discover what ontology is like via some other method. Whether the demanding or the tolerant interpretation prevails depends, to a large extent, on whether complex objects are real. So it seems we must decide whether complex objects are real *in order* to decide whether true quantification

over them suffices for their reality, hence whether (SOX)'s ontological method is viable. Clearly, in these circumstances, we couldn't decide whether complex objects are real by deciding whether sentences quantifying over them must be accepted as true. It therefore seems that we need an independent way to determine our ontology in order to decide whether (SOX)'s method for determining our ontology is viable.

The second problem is based on a line of argument from Hirsch (2011).[29] Suppose some English-speaking Orthodox Ontologists are arguing about the existence of tables. Both sides agree that there are simple particles arranged table-wise. But the *Tablists* affirm, while the *Anti-Tablists* deny, that these particles ever compose a further complex table. Thus, the Tablists and the Anti-Tablists disagree about the truth-value of the following English sentence:

(T) Tables exist.

The ontologists think their debate concerns a serious ontological question, whose answer is sensitive to what reality is like. But are they? Consider four potential situations:

(UD) Universalism obtains and the demanding interpretation prevails.

(UT) Universalism obtains and the tolerant interpretation prevails

(ND) Nihilism obtains and the demanding interpretation prevails.

(NT) Nihilism obtains and the tolerant interpretation prevails.

[29] Hirsch thinks, however, that if the question of whether there are *F*s is shallow, the *ontological* question about *F*s is therefore shallow. Again, I reject the assumption that ontological questions *must* be construed as questions about what there is.

Given (UD), the Tablists are right: (T) is true in English iff tables are real, and they are. Given (UT), the Tablists are right again: (T) is true in English iff simples arranged table-wise are real, and they are. Given (NT), the Tablists are right *yet again*: the tolerant interpretation ensures that (T) is a true sentence of English, even though tables are unreal. The only situation in which the Anti-Tablists are right is (ND): (T) is true in English iff tables are real and, since they're not, (T) is false. So the answer to whether (T) is true is *not* sensitive to what reality is like— the truth of (T) is consistent with tables being real or unreal. Whether (T) is true does not hinge on the reality of tables, then, but on whether conventions of English use are such as to warrant the demanding or the tolerant interpretation. So, given (SOX), the ontological question about tables hinges on facts about conventions of language-use. Hence, the ontological question is not a deep one about the contents of reality, but a shallow one about the workings of language.

Another possibility is that the Tablists and the Anti-Tablists should not be interpreted as speaking the same language. Perhaps the Anti-Tablists deny (T) so frequently and fervently that they should be interpreted as speaking a version of English in which (T) is false. And perhaps the Tablists affirm (T) so frequently and fervently that they should be interpreted as speaking a version of English in which (T) is true. If so, it seems that the debate over (T) is *merely verbal* (cf. Hirsch 2009): the Tablists and the Anti-Tablists are talking past each other, both sides speaking truly in their own idiolects. Again, the debate over (T) turns out not to be ontologically serious.

1.4.3 Eligibility

A potential response to the above concerns is to insist that Charity is not the only constraint on successful interpretation; there is also an *eligibility* constraint:

> (Eligibility) With respect to some language *L*, if candidate interpretation I_1 assigns relatively more *natural* meanings than candidate interpretation I_2 then, all else equal, I_1 is a better interpretation of *L* than I_2.

The notion of *naturalness* is familiar from Lewis (1983, 1984). For Lewis, some properties are more *natural* than others in that (*inter alia*) they correspond to classes of objectively similar objects. Thus, *electron* is a more natural property than *electron-or-cow*, since the electrons are in reality of a kind, whereas the electron-or-cows are a gerrymandered miscellany. Naturalness is *reference magnetic*, Lewis thinks, in that more natural properties are intrinsically more eligible than less natural properties to serve as the semantic values of predicates. Interpretationists can appeal to this eligibility constraint in cases where Charity alone leaves predicate-reference indeterminate. Perhaps Charity alone won't tell us whether some speakers are using 'Red' to mean *red* or *red and inside the Milky Way or blue and outside the Milky Way*. Eligibility, however, pressures interpreters to assign the more natural candidate meaning.

Sider (2009, 2011) argues that Eligibility constrains the assignment of meanings to *all* parts of language, not just predicates. In particular, Sider holds that there is a perfectly natural candidate meaning for the *existential quantifier*, which carves closer to the joints of reality's objective *quantificational* structure better than any other. This forms the basis of Sider's well-known response to Hirsch's doctrine of *quantifier variantism*: the view that there are multiple candidate meanings for the existential

quantifier (and related expressions), none of which are uniquely best suited for describing reality. Recall the debate between the Tablists and the Anti-Tablists. The two sides, I said, might be interpreted as speaking different variants of English, such that 'Tables exist' is true in one and false in the other. For Hirsch, this is due to a difference in the meaning of 'exist': in the Tablist language, the meaning of 'exist' is such that 'Tables exist' is true and in the Anti-Tablist language, the meaning of 'exist' is such that 'Tables exist' is false. The quantifier variantist says that neither of these possible languages is metaphysically privileged over the other: we could, in principle, describe reality equally well using a language where 'Tables exist' is true as one in which it's false. So in this and many other debates about what exists, nothing substantive is at issue beyond the language being spoken. Sider's response is to accept the multiplicity of candidate quantifier meanings while insisting that one of them—the perfectly natural quantifier— is uniquely metaphysically privileged. So even if the truth-value of 'Tables exist' varies depending on which meaning of 'exist' is in play, there is still a metaphysically substantive question to answer about tables: can tables truly be said to exist, in the joint-carving sense of 'exist'?

Might friends of (SOX) appeal to Eligibility to avoid the concerns outlined above? I think not. I accept that Eligibility constrains interpretation as well as Charity. But on the interpretationist framework I'm assuming, the semantic facts about some language are those postulated by the best *overall* interpretation of that language. And the best overall interpretation of *English* might be relatively ineligible if this makes for a significantly better fit with use. Suppose again that Nihilism actually obtains. Then, in the joint-carving sense of 'exist', only simple objects exist. But given that English speakers routinely quantify over non-simples, interpreting the English 'exists' to have the joint-carving meaning would be grossly uncharitable. So the possibility remains that the best overall interpretation of English is a tolerant one on which

Charity trumps Eligibility, and '*F*s exist' doesn't suffice for the reality of *F*s. As Cameron says (2010b: 17), '[*i*]*t may be* the case that in English 'exists' means the most natural of its candidate meanings […]. But we've got no guarantee that that's the case. It will only be the case if our usage of 'exists' doesn't deviate too much from how it should if we were only concerned to describe the quantificational structure of the world'. Even when we factor in Eligibility, then, the possibility remains that we are speaking a metasemantically tolerant language. And this is all that's needed to make trouble for (SOX). It *might* be that '*F*s exist' doesn't suffice for the reality of *F*s; to determine whether this is the case, we'd need some capacity for determining whether the tolerant interpretation of English prevails over more eligible alternatives, which presupposes a capacity for determining whether *F*s is real that is independent of our ability to determine whether sentences quantifying over them are true. And the debate between the Tablists and the Anti-Tablists, for example, might still turn out to be shallow. If both sides are speaking the same version of English, the Tablists might still be right about the truth-value of 'Tables exist', even if tables are unreal; if the two sides are speaking different versions of English, they are still talking past each other.

Sider has a 'plan B' which we can implement if the English 'There is' turns out to have an unnatural candidate meaning (2011: 74). Ontologists, he says, can simply *stipulate* that their quantificational claims are to be understood in the perfectly natural sense of the quantifier (Sider 2009: 412):

> We hereby stipulate that '∃' is to express an austere relative of the ordinary English notion of existence. We hereby stipulate that although the meaning of '∃' is to obey the core inferential role of English quantifiers, ordinary, casual use of disputed sentences involving 'there exists' (such as 'Tables exist') are not to affect at all what we mean by '∃'. We hereby stipulate that if there is a highly natural meaning that satisfies these constraints, then that is what we

> mean by '∃'. Perhaps the resulting '∃' has no synonym in English. Fine— we hereby dub our new language *Ontologese*.

To make this move, however, is to leave Orthodox Ontology behind. The thought is that ontology is not a question of what there is *per se*, but in the perfectly natural sense of 'There is'. But since it might be that the English 'There is' has an unnatural meaning, it would be a mistake to treat ontological questions as questions about what there is (see Cameron 2010b). As Cameron puts it, if we want to 'carve reality at its joints we can't do so by asking what exists, because finding out what exists, given that 'exists' means one of the unnatural candidate meanings, is not to find out about the quantificational structure of reality' (2010b: 16). It would be a mistake, for example, to try to settle the ontological question about numbers, tables or properties by asking whether English sentences quantifying over them are strictly and literally true, or whether they can be paraphrased one way or another. Ontologists would have to distinguish between what can truly be said to exist in English from what can truly be said to exist in the ontologically relevant, joint-carving sense. We might do this by specifying that they're attempting to speak in Ontologese, or by introducing a technical term such as *really exists*, which is stipulated to take the perfectly natural meaning of the quantifier (Cameron 2010b: 17; see Ch.3). Either way, we would be venturing into heterodox metaontological territory.

Conclusion

According to Serious Ontology, ontological questions are deep and substantive questions about what is real. According to Orthodox Ontology, ontological questions are questions about what there is. Combining the two yields (SOX): what is real, in the sense of serious ontological interest, is equivalent to what there is. In this chapter,

I have presented and supported three prominent challenges to (SOX): (SOX) struggles to deal with prima facie counterexamples to the claim that quantification is ontologically loaded, with the apparent ease of settling existence questions compared to questions about what is real, and with the possibility that we are speaking a metasemantically tolerant language. I think these challenges add up to a strong case for rejecting (SOX): questions about what there is are not equivalent to deep and substantive questions about what is real. Now, some might claim that there's nothing ontological questions *could* be other than questions about what there is. In that case, the failure of (SOX) entails the failure of Serious Ontology. But my view is that Serious Ontologists can and should seek an alternative account of ontological questions. On my preferred alternative, *Truthmaker Ontology*, ontological questions are questions about truthmakers.

2 Truthmaking and Grounding

Before turning to Truthmaker Ontology proper, some groundwork is in order. The framework I'll develop involves two key relations. One is the *truthmaking* relation, which relates true propositions to the portions of reality in virtue of which they are true— their truthmakers. The other is a (truth-)*grounding* relation, which relates truths to further truths in virtue of which they hold. My aim here is to clarify my understanding of these two relations and the connections between them.

I begin, in §2.1, with the general notion of an *in-virtue-of* relation: a hyperintensional relation of non-causal metaphysical dependence. I introduce and motivate truthmaking and grounding, both of which are relations of this kind. Some philosophers believe in just one in-virtue-of relation, usually taken to be some form of grounding. However, as I argue in §2.2, truthmaking can neither be reduced to or eliminated in favour of any of the mainstream notions of grounding. Truthmaking and grounding (specifically *truth*-grounding) should therefore be treated as distinct. In §2.3, I set out some assumptions concerning the key logical and metaphysical principles governing truthmaking and grounding. In §2.4, I motivate some 'connecting principles' governing the interaction between truthmaking and grounding, which will play important roles in the chapters to follow.

2.1 Truthmaking, Grounding and 'In Virtue Of'

In this section, I will motivate my view that there are at least two hyperintensional relations of non-causal metaphysical dependence (or *in-virtue-of* relations): truthmaking and (truth-)grounding.

2.1.1 In-Virtue-Of Relations

The phrase *in virtue of* is useful for expressing a certain kind of philosophically interesting claim:

(1) Complex objects exist in virtue of their simple parts.

(2) *S* is in pain in virtue of the fact that *S*'s C-fibres are firing.

(3) {Socrates} exists in virtue of Socrates.

(4) Torture is morally wrong in virtue of the fact that it decreases overall utility.

(5) Something is a person in virtue of being self-conscious.

(6) *Guernica* is an artwork in virtue of being an object designed to elicit an aesthetic response.

(7) ⟨Grass is green⟩ is true in virtue of the fact that grass is green.[30]

These claims all purport to *explain* something: each would be a felicitous answer to a question of the form 'Why *P*?' or 'What makes it the case that *P*?'. The explanations may or may not be *correct*, but they are prima facie intelligible and clearly relevant to a range of central philosophical issues. 'In virtue of' has similar uses outside of philosophy too. For example:

(8) A person has certain legal rights in virtue of being a citizen.

(9) Bitumen is viscous in virtue of having molecular structure *M*.

[30] ⟨*P*⟩ = the proposition that *P*. I will usually omit the angle brackets, unless clarity is at stake.

These claims are also prima facie intelligible and appear to be of a kind with those above. Thus, the notion of one thing holding in virtue of another is not only philosophically important, but also seems to figure in our ordinary thinking.

There is more than a superficial resemblance between these 'in virtue of' claims. First, each claim posits the *dependence* of a certain phenomenon on another; for example, (1) is naturally taken to imply that the existence of complex objects depends on, and can thus be explained in terms of, the existence of their simple parts. Second, the dependence posited in each case is of a *non-causal*, *metaphysical* sort; for example (2) doesn't tell us that *S*'s pain is an effect of which *S*'s C-fibres firing is the cause. We are rather dealing with a *synchronic* sort of dependence, whereby a certain phenomenon *arises from* something *metaphysically prior*, or *more fundamental*. Third, the dependence in question is *hyperintensional*, in the broad sense that it involves more than mere modal covariation.[31] For example, (3) is not equivalent to the claim that, necessarily, {Socrates} exists if Socrates does.[32] For one thing, it's presumably also necessary that Socrates exists if {Socrates} does; but intuitively, {Socrates} exists in virtue of Socrates and not vice versa. For another, it's presumably necessary that the number 7 exists if Socrates does; but intuitively, the number 7 doesn't exist in virtue of Socrates.[33]

Like many others, I believe that claims like (1)-(9) are (if true) underwritten by a certain kind of distinctively metaphysical *relation*. One way to motivate this is to appeal to *explanatory realism*: the view that correct explanations track objective, non-

[31] This use of 'hyperintensional' is common in the grounding/truthmaking literature, though Duncan et. al. (2017) point out that it is somewhat idiosyncratic.

[32] See Fine (1994).

[33] I'm not suggesting that all ordinary uses of 'in virtue of' imply non-causal metaphysical dependence. Nor am I suggesting that 'in virtue of' is the *only* means of conveying a non-causal metaphysical dependence claim: 'because', 'depends on', 'due to', etc. can be used to similar effect.

explanatory relations (cf. Audi 2012b, Rodriguez-Pereyra 2005). As Ruben puts it, '[e]xplanations work, when they do, only in virtue of underlying determinative or dependency structural relations in the world' (Ruben 1990: 210; cf. Kim 2010). If explanatory realism is true, and if some 'in virtue of' explanations of the above sort are correct, then there is plausibly at least one non-causal, hyperintensional metaphysical dependence relation underlying their correctness. Call a relation with these features an *in-virtue-of* relation.

How many in-virtue-of relations are there? Several philosophers think there is just one, generally known as *grounding*. I, however, think there are at least *two* in-virtue-of relations. As well as a grounding relation, we also need the distinct relation of *truthmaking*.

2.1.2 Truthmaking Introduced

Truthmaker theory is founded on the intuition that what is true depends on what is real:[34]

> If a certain proposition is true, then it owes its truth to something else; its truth is not a primitive, brute, ultimate fact. The truth of a proposition […] depends on what reality, and in particular its subject matter, is like. What reality is like is anterior to the truth of the proposition, it gives rise to the truth of the proposition and thereby accounts for it. (Rodriguez-Pereyra 2005: 21).

Those with broadly realist sympathies will be inclined to agree. We don't want to say that truth 'floats free' from reality, neither depending on the other. As Bennett wryly puts it, this is 'the kind of thought that leads to berets, and a job in a bad Comp Lit department' (2001: 187). Nor do we want to adopt a 'radical semantic idealism', on

[34] For more detailed overviews of truthmaker theory, see MacBride (2013), Rami (2009) and Rodriguez-Pereyra (2006).

which the nature of reality depends on what representations of it are true (Rodriguez-Pereyra 2005: 22). The most palatable alternative is to agree with the truthmaker theorist: whether a representation of reality is true depends on what extra-representational reality is like, and not vice versa.

More controversially, truthmaker theorists understand the dependence of truth on reality in terms of a certain relation: *truthmaking*. The truthmaking relation holds between true representations (truth*bearers*) and the portions of reality on which their truth depends (truth*makers*). I assume that the primary truthbearers are *propositions* (though a proposition's truthmakers may also be said to make true the *sentence* it expresses). And I assume that truthmakers can, in principle, belong to any ontological category: particulars, properties, relations, events, facts, states of affairs, tropes, and other entities might all conceivably play the truthmaking role. Truthmaking is thus a *cross-categorial* relation, in that it can hold between true propositions and non-propositions (Armstrong 2004: 5, Rodriguez-Pereyra 2006: 188). This crucial feature is what allows the truthmaking relation to serve as a metaphysically robust conduit between representational truth and extra-representational reality.

So much for the relata; what about the relation itself? Truthmaking is, I've said, a relation of *dependence*: the dependence of the truth of true propositions on worldly things. And this seems clearly to be a non-causal sort of dependence, whereby the truth of true representations is determined synchronically by something metaphysically prior, i.e. the reality of certain entities. Moreover, the dependence at issue resists analysis in purely modal terms. The early *necessitation* account of truthmaking ('*x* makes *P* true iff *x* exists and it is metaphysically necessary that *P* is true if *x* exists'[35]) has rightly fallen out of favour, since it fails to ensure the

[35] Cf. Fox (1987), Bigelow (1988).

explanatory relevance of truthmakers to what they make true: your coffee mug (or any other contingent existent) would count as a truthmaker for ⟨2 + 2 = 4⟩ (or any other necessary truth) (cf. Restall 1996). Truthmaking is therefore a hyperintensional relation of non-causal metaphysical dependence: an in-virtue-of relation. Indeed, 'in virtue of' is a favourite expression of truthmaker theorists: Armstrong, for instance, says that '[t]he idea of a truthmaker for a particular truth […] is just some existent, some portion of reality, in virtue of which that truth is true' (2004: 5; cf. Rodriguez-Pereyra 2005).

Why believe in the truthmaking relation? One motivation, which I adapt from Rodriguez-Pereyra (2005), centres on the compelling intuition that what is true depends on what is real. It is natural to construe this dependence in relational terms, especially if we think that (i) truth depends on reality in such a way that what is true can be *explained* in terms of what is real, and (ii) correct explanations are underwritten by objective determinative relations, as per explanatory realism (cf. Rodriguez-Pereyra 2005: 29; see above). Now, as Rodriguez-Pereyra says, *relations link entities*: '[s]urely if a relation is instantiated, if it links anything to anything, then there are some things that it links, and so it links entities' (2005: 26). It is therefore natural to think of the dependence of truth on reality as a relation between certain entities— specifically, truthbearing entities and the entities in the world on which their truth depends. It is natural, in other words, to believe in the truthmaking relation.[36]

[36] The most frequent reply to this argument is to claim that we don't need a substantive relation between truthbearers and truthmakers to account for the dependence of what is true on what is real; we need only appeal to the asymmetric schema '*P* is true because *P* (and not vice versa)', or to the semantic notions of reference and satisfaction. See Dodd (2002, 2007), Hornsby (2005) and MacBride (2014) for arguments along these lines. I refer the reader to Asay and Baron (2020) for a reply to such 'deflationist' critics of truthmaker theory.

Another way to motivate truthmaking is to claim that it is extrinsically justified by its theoretical utility. There are different ideas about what theoretical roles truthmaking might play; but my own view is that truthmaking is useful primarily as a tool for regimenting ontological inquiry. Here's the rough idea. Ontology aims to discover what is real. A truthmaker for a given truth is a portion of reality on which that truth depends, and which accounts for its truth. So one way to decide our ontology is to find the best theory of truthmakers for the truths we accept: this is the basic idea underlying the approach which will be our focus in later chapters: *Truthmaker Ontology*. Whether Truthmaker Ontology is attractive remains to be seen; but if I'm right that it is, this is a motivation to believe in the truthmaking relation on which the approach rests.

2.1.3 Grounding Introduced

Grounding is typically characterised as a hyperintensional relation of non-causal metaphysical dependence, which holds between something more fundamental (the *ground*) and something less fundamental (the *grounded*). Grounding, then, is an in-virtue-of relation.[37] Further to the features mentioned, grounding is generally thought to be a strict partial order. That is, it is irreflexive (nothing grounds itself), asymmetric (nothing both grounds and is grounded by something else), and transitive (if one thing grounds another, it grounds whatever the grounded thing grounds).

The relata of grounding is a controversial issue, dividing grounding theorists into four main camps. *Fact-grounders* take grounding to relate *facts*, construed as worldly states of affairs consisting of objects instantiating properties and standing in relations (see e.g. Audi 2012a, 2012b; Rosen 2010). For example, perhaps the fact that bitumen

[37] For more detailed overviews of grounding theory, see the introduction to Correia and Schnieder (2012) and Bliss and Trogdon (2014).

has molecular structure *M* fact-grounds the fact that bitumen is viscous. *Truth-grounders* take grounding to relate *true propositions* (see e.g. Cameron 2018, Fine 2001, Rosen 2010). For example, perhaps the true proposition that *S*'s C-fibres are firing truth-grounds the true proposition that *S* is in pain. *Entity-grounders* hold that grounding can relate entities of arbitrary ontological category (see Schaffer 2009). For example, perhaps Socrates entity-grounds {Socrates}. *Operator-grounders* do not, strictly speaking, take grounding to be a relation at all. They rather hold that grounding claims should be expressed using a 'because' operator connecting sentences to other sentences, as in 'Torture is morally wrong *because* it decreases overall utility' (see e.g. Correia 2011; Fine 2001, 2012; Schnieder 2010).

Why believe in grounding? A common motivational strategy is to point to explanatory claims like (1)-(9), claiming that grounding is the common factor underlying the correctness of such claims and their shared features: thus, if (1) is correct, this is because the existence of complex objects is grounded in that of their simple parts; if (9) is correct, this is because bitumen's viscosity is grounded in its having molecular structure *M*; and so on for the rest of the claims on the list. Accordingly, grounding is often vaunted as a highly pervasive and important phenomenon: Schaffer (2009: 364) calls it 'the primitive structuring conception of metaphysics', while Fine (2012: 40) says that grounding 'stands to philosophy as cause stands to science', and is the primary notion through which philosophical questions about 'what accounts for what' are to be pursued.

I agree with this motivation up to a point. I believe that grounding (specifically truth-grounding) is useful for capturing an important class of cases of non-causal dependence (specifically, cases involving truths holding in virtue of other truths). As I'll argue below, however, none of the mainstream notions of grounding can capture *all* interesting cases of non-causal dependence: when it comes to the non-causal

dependence of what is true on what is real, we need the distinct relation of truthmaking.

Another common motivation for grounding is that it makes sense of a certain intuitive picture, on which the world is structured as a *layered hierarchy* of dependence and determination: for example, economic phenomena plausibly depend on psychological phenomena, which plausibly depend on biological phenomena, and so on down until we reach a terminus in the microphysical, on which all the rest ultimately depends. The dependence relation at issue seems to be non-causal, explanatory, and to have the features of a strict partial order. (For example, if the psychological depends on the biological, the biological doesn't depend on the psychological; if the psychological depends on the biological, and the biological on the chemical, then the psychological depends on the chemical.) It is thus tempting to think that the relation between the 'layers' in the hierarchy is none other than grounding.[38]

Note, however, that different views of grounding lend themselves to different ways of thinking about the nature of this layered hierarchy. For some grounding theorists, usually entity-grounders and fact-grounders, grounding imposes structure on *reality*. For example, Schaffer characterises entity-grounding as 'the metaphysical notion on which one entity depends on another for its nature and existence' (Schaffer 2010b: 345), and takes its relata to be 'full-blown, "heavyweight" entries on the roster of entities' (2009: 360). Similarly, with respect to fact-grounding, Audi insists that 'grounded facts and ungrounded facts are equally real, and grounded facts are an "addition of being" over and above the facts in which they are grounded' (2012b: 101-102). On such views, grounding generates an *ontological* hierarchy, consisting of

[38] More on this in §4.1.

more and less fundamental levels of *reality*.[39] But for other grounding theorists, specifically operator-grounders and truth-grounders, grounding imposes structure on *representations* of reality: operator-grounding moves from true sentence to true sentence, truth-grounding from true proposition to true proposition, both in such a way that '[i]f the truth that *P* is grounded in other truths, then they *account* for its truth; *P*'s being the case holds *in virtue of* the other truths being the case' (Fine 2001: 15). Grounding, thus construed, generates an *alethic* hierarchy consisting of more and less fundamental levels of *truth*— levels which may or may correspond to *sui generis* levels of reality.

I prefer the second of these two pictures, specifically as construed in terms of the truth-grounding relation. I will later argue that truth-grounding, in conjunction with truthmaking, supports an attractive picture on which an abundant hierarchy of fundamental and non-fundamental truths is founded on a sparse ontology of fundamental truthmakers (see Ch.4). In contrast, the idea that grounding generates a hierarchy of *ontological* levels incurs theoretical costs, which proponents have failed in their attempts to mitigate (see Ch.6). The layered hierarchy, in my view, should be construed as an *alethic* hierarchy, and truth-grounding is the tool we need to underwrite it. We will later encounter other ways in which truth-grounding does useful work alongside truthmaking in the context of Truthmaker Ontology.[40] If the overall approach turns out to be attractive, as I'll maintain, this is a further motivation to believe in truth-grounding.

[39] This conception of grounding pairs naturally with what I'll later call *inflationary Stratified Ontology.* See §3.1.2.

[40] See especially §3.2, §4.2 and §5.4.

2.2 Can There Be Only One?

I have given some reasons to believe in two in-virtue-of relations: truthmaking and grounding (specifically *truth*-grounding). But grounding, in one form or another, is widely thought to be the *one and only* in-virtue-of relation. If we grant this assumption, we have two options: (i) *assimilate* truthmaking into grounding (see §2.2.1) or (ii) *eliminate* truthmaking in favour of grounding (see §2.2.2). But I will argue that, as fair as the mainstream conceptions of grounding go, neither option is appealing.

2.2.1 Assimilation

If we take grounding to be the sole in-virtue-of relation, it doesn't immediately follow that there's no such in-virtue-of relation as truthmaking. For perhaps truthmaking can be *assimilated* into grounding; that is, perhaps truthmaking *just is* a special case of the single, all-encompassing grounding relation.

Following Griffith (2014), I will consider four potential *reductive definitions* of truthmaking in terms of grounding (corresponding to the four mainstream notions of grounding distinguished above): these are statements of the form '*x* makes *P* true =df. …', with an instance of the relevant notion of grounding serving as *definiens*. At a minimum, such a definition should provide an informative exceptionless necessary and sufficient condition for truthmaking in terms of grounding. But as Griffith notes (2014: 200), the definitions can also be given a stronger 'metaphysical' reading, as telling us that truthmaking *just is* the form of grounding specified in the *definiens*. This stronger reading is what interests us here. I hold that truthmaking is distinct from grounding and must therefore deny that truthmaking *just is* a special case of some all-

encompassing grounding relation. But I need not (and in fact *do* not)[41] deny that there might be an *exceptionless correlation* between truthmaking and grounding, i.e., that the truthmaking relation obtains just in case some grounding relation *also* obtains— that is consistent with my view that the relations are distinct.[42] With this in mind, I will now consider the four definitions, briefly explaining why I reject each of them on the strong reading— that is, as attempts to reductively *identify* instances of truthmaking with instances of grounding.

Let's start with my preferred view of grounding: the *truth-grounding* view, on which grounding is a relation between true propositions. The most natural definition of truthmaking in terms of truth-grounding is as follows:[43]

(TMTG) x makes P true $=_{df.}$ ⟨x exists⟩ grounds ⟨P is true⟩.

On the relevant reading, (TMTG) tells us that the truthmaking relation is just the special case of the truth-grounding relation that holds between true propositions of the form ⟨x exists⟩ and ⟨P is true⟩. This violates what I take to be an important feature of truthmaking. The central intuition of truthmaker theory is that true representations depend for their truth on extra-representational reality— this motivates the idea that truthmaking is a *cross-categorial* relation, capable of holding between propositions

[41] See §2.4.

[42] This clarification is necessary, since reductively *defining* relation *R1* in terms of relation *R2* doesn't always mean reductively *identifying R1* with *R2*. For instance, one might reductively define *causation* in terms of an entailment relation between certain propositions as follows: *c* causes *e* =df. (⟨*c* occurs⟩ & ⟨The laws of nature are $L1 \ldots Ln$⟩) → ⟨*e* occurs⟩. We needn't read this definition as telling us that causation *just is* an entailment relation, or that its relata are propositions rather than events. Rather, the definition aims to elucidate the notion of causation by positing an informative exceptionless correlation between instances of causation and instances of another relation of which we have some prior understanding, i.e. the entailment relation. On the strong reading of the definitions to follow, however, the aim *is* to reductively identify instances of truthmaking with instance of grounding. Thanks to Ross Cameron and Alexander Kaiserman for pressing me to clarify this point.

[43] Cf. Griffith (2014: 202), Cameron (2018: 334).

and non-propositions. Now, it *might* be the case that the truthmaking relation holds between *x* and *P just in case* the truth-grounding relation holds between ⟨*x* exists⟩ and ⟨*P* is true⟩ (cf. Griffith 2014: 202). In fact, I think it *is* the case (see §2.4). But the claim that truthmaking *just is* a truth-grounding relation renders truthmaking incapable of relating representational and non-representational entities— a feature I regard as crucial.

According to the *operator-grounding* view, grounding claims are properly regimented using a 'because' operator connecting sentences to other sentences. One might define truthmaking in terms of operator-grounding as follows:[44]

(TMOG) *x* makes *P* true =df. *P* is true because *x* exists.

There are two concerns with (TMOG). First, operator-grounding is a sentence-connector, always moving from one sentence to another via the 'because' operator; according to (TMOG), truthmaking is just the special case of operator-grounding where the connected sentences are of the form '*P* is true' and '*x* exists'. Again, this seems to undermine the ability of truthmaking to provide a *cross-categorial* link between the representational and the non-representational.[45] Moreover, operator-grounding is construed as a *non-relational* sentence-connector: it supposedly lets us make grounding claims without assuming that there is a grounding *relation*, or that 'a ground is some fact or entity in the world' (Fine 2001: 16; cf. Correia 2010: 254). But in my view, truthmaking *is* a relation between true representations and worldly entities: I think that the dependence of truth on reality is best construed in relational terms, and that we incur ontological commitments to the entities we designate as truthmakers. (TMOG) seems a poor fit with this conception of truthmaking, since it

[44] Cf. Correia (2011), Griffith (2014: 200-201), Schnieder (2006).
[45] Cf. Asay (2017: 457-458).

is consistent with there being no truthmaking *relation* at all (cf. Griffith 2014: 201; Liggins 2012: 267-268).

Fact-grounders take grounding to relate worldly facts, consisting of objects instantiating properties and standing in relations. Truthmaking might be defined in terms of fact-grounding as follows:[46]

(TMFG) *x* makes *P* true =df. [*x* exists] grounds [*P* is true].[47]

According to (TMFG), truthmaking is just the special case of fact-grounding that holds between facts of the form [*x* exists] and [*P* is true]. Again, this conflicts with the cross-categoriality of truthmaking, which is here construed as a relation between *non*-representational entities, i.e. worldly facts. (TMFG) also comes with some contentious ontological baggage. Since the relata of fact-grounding are construed as 'heavyweight' denizens of reality (Audi 2012b: 101-102), (TMFG) commits truthmaker theorists from the outset to the reality of facts. It also commits us to the reality of the property of *existence*, which is a constituent of facts of the form [*x* exists]— but many, including some fact-grounders, doubt that existence is a real property (Audi 2012b: 103). According to Griffith, these controversial features are not decisive against (TMFG), because 'if they are objectionable, it is for general metaphysical reasons and not because they are obviously incompatible with truthmaking' (2014: 203-204). But I think they *are* in tension with what I see as the main *theoretical role* of truthmaking: to guide ontological decision-making. I hold that we should decide what is real by identifying the best candidate truthmakers for the truths we accept. *If* facts, or the property of existence, turn out to be among the best candidate truthmakers, we might decide on that basis to accept them as real. But

[46] Griffith (2014: 202-203)

[47] [*P*] = the fact that *P*.

(TMFG) makes the decision for us, foisting these contentious ontological choices on us from the get-go. For my purposes, I would prefer a more ontologically neutral view of truthmaking.

On the *entity-grounding* view, grounding can relate entities of arbitrary ontological category. One could define truthmaking in terms of entity-grounding as follows:

(TMEG) *x* makes *P* true =df. *x* grounds [*P* is true].

According to (TMEG), truthmaking is just the special case of the entity-grounding relation where the grounded entity is a 'truth-fact'. Since truth-facts might be entity-grounded by non-truth-facts, (TMEG) is consistent with the cross-categoriality of truthmaking (though we still have a fact where the truthmaker theorist would normally expect a true proposition). My concern, however, is that (TMEG) misconstrues the nature of the questions truthmaker theory seeks to answer. Entity-grounding is characterised as something like an *ontological dependence* relation: it is 'the metaphysical notion on which one entity depends on another for its nature and existence' (Schaffer 2010b: 345). Thus, consider the question, 'What makes ⟨Socrates is wise⟩ true?'. Given (TMEG), this roughly amounts to the entity-grounding question, 'What does the fact, [⟨Socrates is wise⟩ is true], depend on for its nature and existence?'. If you think that facts depend for their nature and existence on their constituents, for example, your answer to the entity-grounding question might be something like: 'The proposition ⟨Socrates is wise⟩ and the property *being true'*. But that's *not* the sort of answer truthmaker theorists want when they ask what makes ⟨Socrates is wise⟩ true. (They expect an answer more like, 'The state of affairs of Socrates instantiating the universal *wisdom*', or 'Socrates's wisdom-trope'.) Generally, questions about the entity-grounds of truth-facts are not the same as the questions that animate truthmaker theorists: the former concern the ontological basis

for the existence and nature of certain entities, while the latter concern the ontological basis for the truth of true representations. (TMEG) leaves us unable to distinguish the two.

I have now considered the four main candidate reductive definitions of truthmaking in terms of grounding. I have not argued against the weaker reading of the definitions, on which they posit an *informative exceptionless correlation* between instances of truthmaking and instances of grounding. But I have argued that the definitions fail when construed as attempts at reductive *identification*; that is, as telling us that truthmaking *just is* a special case of grounding. And this is all I need to support my claim that, as far as the mainstream views of grounding are concerned, the truthmaking relation cannot be *assimilated* into an all-encompassing grounding relation.

2.2.2 Elimination

If grounding is the sole in-virtue-of relation, and truthmaking can't be assimilated into grounding, our other alternative is to *eliminate* truthmaking in favour of grounding. Fine (2012) makes a spirited case for this option. He describes truthmaking and grounding as 'close cousins', both of which are 'bound up with the general phenomenon of what accounts for what' (2012: 43). But Fine thinks that truthmaking is a poor guide to this general phenomenon and that we should work with grounding instead.

Fine's direct objections to truthmaker theory target a strawman: the necessitation account, according to which *x* makes *P* true if the existence of *x* necessitates the truth of *P*. Fine brings up the well-worn complaint that, on this account, necessary truths are made true by any contingent existent. He also argues that, on certain 'quite plausible' metaphysical views, the project of finding truthmakers is trivial: you might

think that the world is necessarily the way it is, for example, in which case you could trivially cite the world as a truthmaker for any truth you like (Fine 2012: 45-46). But the necessitation account has been out of favour since well before Fine's critique. These objections have no force against those of us who think of truthmaking as a hyperintensional in-virtue-of relation, and who therefore deny that being a truth-necessitator suffices for being a truthmaker.

In the more interesting parts of his critique, Fine aims to show that truthmaking is inferior to grounding as a means of investigating 'the general phenomenon of what accounts for what'. One of his claims is that truthmaker theorists have an 'unduly restricted conception of what is grounded': the truth of true representations is not the only phenomenon that needs accounting for, says Fine, since 'whenever we consider the question of what makes the representation that *P* true, there will also arise the question of what, if anything, makes it the case that *P*' (2012: 43). Fine also points out that truthmaking has the wrong structural features to underwrite the 'layered hierarchy' picture (see §2.1.3). The grounding theorist can, for example, 'ground the normative in the natural […], then the natural in the physical, and then the physical in the microphysical, thereby establishing that the normative was grounded in the microphysical' (Fine 2012: 44). Truthmaking can't be 'chained' in this way, however, since it generally moves from truthbearers to non-truthbearers, which cannot themselves be made true.

These objections trade on an unwarranted assumption: that truthmaker theory aims to provide a comprehensive account of the 'general phenomenon of what accounts for what' (cf. Asay 2017: 446, Rodriguez-Pereyra 2015: 519). On the contrary, truthmaker theory is concerned with the more specific phenomenon of how what is real accounts for what is true. So if we need something other than truthmaking to account for other kinds of non-causal dependence, or to vindicate the 'layered

hierarchy' picture, this doesn't vitiate truthmaker theory; Fine neglects the possibility that truthmaking and grounding might work in tandem, playing different roles in our overall account of non-causal 'accounting for'.

What would be troubling, however, is if grounding could do the work of truthmaking but not vice versa, rendering truthmaking superfluous. But I don't think it can. As I've previously indicated, mainstream grounding theories are geared towards either: (i) the dependence of what is true on what *else* is true, or (ii) the dependence of what is real on what else is real (see §2.1.3). Entity-grounding and fact-grounding move from one 'full-blown, heavyweight' denizen of reality (a fact or other entity) to another, but never from truth to reality. If we're told, for example, that a certain *x* entity-grounds a certain *y*, we might have learned something about what *else* we must take to be real, to account for the reality of *y*. But there is no scope for addressing questions about what we must take to be real, given what we take to be true. In contrast, operator-grounding and truth-grounding only move between true representations (sentences or propositions). Neither can do the work of truthmaking, since neither can move from true representation to extra-representational reality. Asay puts it as follows (2017: 457):

> Suppose we are offered a completed exhaustive chart of all the infinitely many truths and how they stand in various grounding relations to one another. What we would have is a comprehensive 'book of the world' that showed how all the truths about the world related to one another vis à vis what is fundamental and derivative. What we wouldn't have is an ontology. […] Grounding theory always moves from what is true to what is true. Hence, what [it] ultimately offers is an alethic structure into which truths are placed. To move from those truths to the ontology underlying them, however, is to engage in truthmaker theory.

If we're told, for example, that ⟨*a* is *F*⟩ is grounded by ⟨*b* is *G*⟩, we might have learned something about what *else* we must take to be true, to account for the truth of ⟨*a* is *F*⟩. But what must we take to be real? *a*? *b*? Both? Neither? A state of affairs? A trope? A resemblance fact? The bare grounding claim doesn't tell us. In contrast, this is just the sort of question truthmaker theory aims to address: what should we take to be real to account for what we take to be true?

2.2.3 Pluralism

I conclude from the above that grounding is not the only in-virtue-of relation. If it were, we should be able to reductively identify truthmaking with, or eliminate it in favour of grounding; but we can't do either. However, I agree with Fine that truthmaking can't give us everything we want from a comprehensive account of non-causal dependence. For one thing, truthmaking questions are not the only interesting questions of non-causal dependence: the question of what in reality makes the representation that *P* true is one thing, the question of what (if anything) makes *P* the case is another (Fine 2012: 43). For another, truthmaking lacks the features needed to generate a hierarchical ordering of non-causal dependence, whereby (for example) the biological depends on the chemical and the chemical on the microphysical, and hence the biological depends on the microphysical. There is therefore pressure to adopt a *pluralist* view, on which there are at least two distinct, but importantly unified, in-virtue-of relations. As well as truthmaking, the other relation I'm going to work with is truth-grounding: the relation that holds between true propositions, such that '[i]f the truth that *P* is grounded in other truths, then they *account* for its truth; *P*'s being the case holds *in virtue of* the other truths being the case' (Fine 2001: 15).

Although distinct, truthmaking and truth-grounding are indeed 'close cousins' (Fine 2012: 43). What should we say about the connection between them? One option, to

which I'm quite partial, is to say that truthmaking and truth-grounding are *both* definable in terms of a more fundamental piece of ideology: *in virtue of*. Here's a suggestion. Following Rodriguez-Pereyra (2015: 519), consider the generic *φ is F in virtue of ψ* relation. We will take 'in virtue of' as primitive. But we'll hold it fixed that any specification of *φ is F in virtue of ψ* is non-causal, hyperintensional, and implies the metaphysical dependence of *φ*'s being *F* on *ψ*, in such a way that ψ can be cited as the *explanation* of why *φ* is *F*. In-virtue-of relations can now be distinguished according to the feature that goes in for *F* and the sort of relata that go in for *φ* and *ψ*.[48] In the case of truthmaking and truth-grounding, the relevant feature is *truth*. In the case of truth-grounding, the relata on both sides are true propositions, while in the case of truthmaking, the first relatum is a true proposition and the second is an entity of arbitrary ontological category. Thus, where *x* is an entity and *P* and *Q* are true propositions, truthmaking and truth-grounding might be defined as follows:

(Truthmaking) *x* makes *P* true iff$_{df.}$ *P* is true in virtue of *x*.[49]

(Truth-Grounding) *P* truth-grounds *Q* iff$_{df.}$ *Q* is true in virtue of *P*.

Truthmaking and truth-grounding are 'close cousins', then, because they are both specifications of the generic *φ* is *F* in virtue of ψ relation, and are therefore non-causal, hyperintensional metaphysical dependence relations. They differ, however, in

[48] For Rodriguez-Pereyra (2015: 519) many specifications of the generic *being F (non-causally) in virtue of* relation correspond to distinct in-virtue-of relations. So as well as highly encompassing relations like *being true in virtue of* and *existing in virtue of*, there are also more specific relations like *being blue in virtue of* and *being right in virtue of*. I'm not convinced we need to distinguish this many *sui generis* in-virtue-of relations and prefer to restrict attention to highly general features like truth and existence.

[49] Cf. Rodriguez-Pereyra (2002, 2005).

that truth-grounding always moves between true propositions, whereas truthmaking moves cross-categorially from a true proposition to a portion of reality. We can thus allow the two notions to play their respective roles without attempting to define one in terms of the other: truth-grounding pertains to the non-causal dependence of what is true on what is true, whereas truthmaking pertains to the non-causal dependence of what is true on what is real. Their relationship is, as Asay puts it (2017: 459),

> one of cooperation. Grounding theory provides us with the 'alethic structure' of the world, revealing how true propositions stand to one another vis à vis fundamentality. Truthmaker theory provides the ontological story to supplement the alethic story: truthmaker theory tells us what [is real], whereas grounding theory tells us which subject matters are most fundamental. (Asay 2017: 459).

Perhaps other in-virtue-of relations could be defined in a similar manner. One might think, for example, that we need something like an entity-grounding relation, pertaining to the non-causal dependence of what is real on what is real: *x* entity-grounds *y* iff$_{df.}$ *y* exists and has its features in virtue of *x,* or something along those lines (cf. Schaffer 2010b: 345). I will leave this open, however. Henceforth, I will restrict attention to truthmaking and truth-grounding.

Is my working primitive, 'in virtue of', clear enough to be of use? I believe so. As stated above, the notion of one thing holding in virtue of another seems prima facie intelligible and figures in both our philosophical and non-philosophical thinking. Claims like (1)-(9) provide an initial grasp on the sense of 'in virtue of' at work in the definitions above. Moreover, we can further refine our understanding of the notion by specifying the logical and other features of truthmaking and truth-grounding, as I'll do in the next section.

2.3 Truthmaking and Grounding Principles

I will now set out some key principles governing truthmaking and truth-grounding (which, henceforth, I'll simply call 'grounding'). For reasons of space, I'll keep this section fairly brisk: I will mostly limit attention to claims I'll rely on in later chapters, or which help to clarify the truthmaking and grounding relations.

2.3.1 Truthmaking Principles

I take the logical form of truthmaking claims to be as follows:

$$X \vDash P$$

'X' is a list of one or more entities, 'P' is a true proposition, and '$\vDash$' symbolises the truthmaking relation. '$a \vDash P$' can be read as 'a makes P true' or 'P is true in virtue of a'. The first argument place is plural because several entities might jointly comprise a truthmaker for a truth: for example, perhaps ⟨Socrates and Plato exist⟩ is made true by Socrates and Plato together. (But for stylistic reasons, I will often restrict attention to one-one cases of truthmaking, as in '$x \vDash P$', where x is a single entity.)

Truthmaking is *many-many*. One entity can be a truthmaker for several different truths. For example, perhaps Socrates makes true both ⟨Socrates exists⟩ and ⟨A philosopher exists⟩. And one truth can have several different truthmakers. For example, perhaps Socrates and Plato are both truthmakers for ⟨A philosopher exists⟩.

It is useful to distinguish between *full* and *partial* truthmakers. Suppose Socrates and Plato together make true ⟨Socrates and Plato exist⟩. Then Socrates and Plato jointly comprise the *full* truthmaker for ⟨Socrates and Plato exist⟩, whereas Socrates is only a *partial* truthmaker. We may define partial truthmaking in terms of full truthmaking as follows:

(Partial Truthmaking) x is a partial truthmaker for P iff$_{df.}$ $\exists X(X \vDash P \,\&\, x \in X)$.

Note that, on this definition, any full truthmaker for P is also a partial truthmaker for P but not vice versa. 'Truthmaking' shall refer to full truthmaking unless otherwise specified.

Truthmaking is an *explanation-backing* relation: if x makes P true, this supports the correctness of the explanatory claim that P is true *because* x exists. Accordingly, truthmaking is hyperintensional in both argument places:

(Hyperintensionality$_{TM}$) (i) If $x \vDash P$ and y exists at every possible world where x exists, it does not follow that $y \vDash P$; (ii) If $x \vDash P$ and Q is true at every possible world where P is true, it does not follow that $x \vDash Q$.

It is also *non-monotonic*:

(Non-Monotonicity$_{TM}$) If $x \vDash P$, it does not follow that $\forall y(x, y \vDash P)$.

Thus, if Socrates is a truthmaker for ⟨Socrates exists⟩, it doesn't follow that Socrates and your coffee mug comprise a truthmaker for ⟨Socrates exists⟩.

It is initially plausible to suppose that truthmaking is irreflexive and asymmetric. But some argue that there are recalcitrant cases involving propositions serving as truthmakers for themselves and other propositions (see e.g. David 2005, Rodriguez Pereyra 2015). For example, one might think that ⟨This proposition exists⟩ is made true by the entity whose existence it affirms, i.e. itself, presenting a reflexive case of

truthmaking. And one might think that ⟨A proposition exists⟩ makes true ⟨A proposition about a proposition exists⟩ and vice versa, presenting an asymmetric case of truthmaking. In a similar way, we might also generate both transitive and non-transitive cases of truthmaking. A transitive case might be: (i) ⟨Socrates exists⟩ ⊨ ⟨A proposition about Socrates exists⟩; (ii) ⟨A proposition about Socrates exists⟩ ⊨ ⟨A proposition exists⟩; (iii) ⟨Socrates exists⟩ ⊨ ⟨A proposition exists⟩. A non-transitive case might be: (i) Socrates ⊨ ⟨Socrates exists⟩; (ii) ⟨Socrates exists⟩ ⊨ ⟨A proposition exists⟩; (iii) ¬(Socrates ⊨ ⟨A proposition exists⟩) (Griffith 2014: 205, Rodriguez-Pereyra 2015: 523).

A possible response to these recalcitrant cases is to deny that propositions are fit to be truthmakers. For example, one might argue that only *fundamental* entities can serve as truthmakers and that propositions aren't fundamental entities (cf. Cameron 2008a, Schaffer 2010b, Rettler 2016). But perhaps it is best not to rule out propositions as truthmakers a priori, in which case we should say that truthmaking is merely non-reflexive, non-symmetric and non-transitive. One might worry that conceding the asymmetry and irreflexivity of truthmaking isn't an option for truthmaker theorists, given their guiding intuition that truth depends on reality and not vice versa. But in cases like the above— assuming they are genuine cases of truthmaking— we still have the *truth* of a true representation depending on the *reality* of a certain entity; it just happens that the entity is also a true representation.

Here, briefly, are some further assumptions about the logic of truthmaking. The following principles concerning disjunction and conjunction all appear plausible:

(v-Intro$_{TM}$) If $X \vDash P$ or $X \vDash Q$, then $X \vDash \langle P \text{ v } Q \rangle$.

(v-Elim$_{TM}$) If $X \vDash \langle P \text{ v } Q \rangle$, then $X \vDash P$ or $X \vDash Q$.

(∧-Introᴛᴍ) If $X \vDash P$ and $X \vDash Q$, then $X \vDash \langle P \wedge Q \rangle$.

However, I join Rodriguez-Pereyra (2006) in rejecting the following:

(∧-Elimᴛᴍ) If $X \vDash \langle P \wedge Q \rangle$, then $X \vDash P$ and $X \vDash Q$.

You might think, for example, that

Socrates, Plato ⊨ ⟨Socrates exists and Plato exists⟩.

But you shouldn't then infer that

Socrates, Plato ⊨ ⟨Socrates exists⟩,

since Plato is irrelevant to the truth of ⟨Socrates exists⟩, and thus shouldn't be considered part of the truthmaker; ⟨Socrates exists⟩ might be true in virtue of Socrates but isn't true in virtue of Socrates and Plato.

What about existential truths? I'm happy to go along with the general consensus that the truthmakers for existential generalisations are the truthmakers for their true instances. The following '∃-introduction' rule also has some plausibility (cf. Correia 2011: §3):

(∃−Introductionᴛᴍ) If $X \vDash \langle a \text{ is } F \rangle$, then $X \vDash \langle \exists x Fx \rangle$.

One popular claim I reject, however, is that existence claims are always made true by their subjects (see e.g. Armstrong 2003; Mulligan et. al. 1984; Rodriguez-Pereyra 2002, 2006b). For instance, I deny that *a* is always a truthmaker for ⟨*a* exists⟩ and

then *F*s are always among the truthmakers for ⟨*F*s exist⟩. I will return to this in Chapter 3.

Finally, consider the following *truth-elimination* and *truth-introduction* principles (cf. Correia 2011):

(Truth-Elim$_{TM}$) If $x \vDash \langle P \text{ is true} \rangle$ then $x \vDash P$.

(Truth-Intro$_{TM}$) If $x \vDash P$ then $x \vDash \langle P \text{ is true} \rangle$.

I can't see any obvious reason to deny either of these principles.[50]

Let's now turn to two somewhat contentious 'metaphysical' principles of truthmaking: *Truthmaker Maximalism and Truthmaker Necessitarianism*. According to Truthmaker Maximalism, every truth has a truthmaker:

(Truthmaker Maximalism) $\forall P(P \rightarrow x(x \vDash P)$

Truthmaker Maximalism is controversial because certain truths— paradigmatically negative existentials— seem to lack truthmakers. Intuitively, ⟨Dragons do not exist⟩ is not true because the world *contains* certain entities but precisely because it *lacks* certain entities (cf. Melia 2005: 69). And what could make it true that dragons do not exist? Suggestions include an *absence* of dragons (Martin 1996), the *totality fact* that the non-dragons exhaust the existents (Armstrong 2004), and *the world itself* (Cameron 2008e, Schaffer 2010). If you're unhappy with these options, you might prefer to deny that negative existentials *need* truthmakers, thus abandoning Maximalism. But this strikes some as ad hoc: why should we allow exceptions to the general rule that truths depend on worldly entities?[51] Indeed, it is sometimes assumed

[50] Officially, however, I only need (Truth-Elim$_{TM}$), which makes an appearance in §4.3.
[51] Cf. Cameron (2008c: 411), Dodd (2007: 394), Saenz (2014: 84).

that to be a truthmaker theorist *just is* to be a Truthmaker Maximalist; according to Milne, for example, '[t]ruthmaker theory maintains that for every truth there is something, some thing, some entity that makes it true' (2005: 221; cf. Dodd 2007, Merricks 2007). If that's so, the failure of Truthmaker Maximalism entails the failure of truthmaker theory itself.

Must truthmaker theorists be Truthmaker Maximalists? It depends on what we want truthmaker theory to *do*. For example, some see truthmaker theory as an account of *what it is* for a truth to be true, in the mould of the correspondence theory of truth: to be true is to correspond to reality, and to correspond to reality is to have a truthmaker (cf. Armstrong 1997: 14). This makes Truthmaker Maximalism compulsory: if some truths lack truthmakers, then having a truthmaker can't be part of what it is for a truth to be true. But in contrast, Truthmaker Maximalism is not compulsory for those of us who see truthmaker theory as a guide to ontology. By our lights, the way to determine what is real is to find the best theory of truthmakers for the truths we accept. This project is not vitiated if there turn out to be truthmakerless truths. Such truths, as Cameron puts it, are just ones 'whose truth makes demands on the world other than ontological demands: i.e., a demand other than that such-and-such exists' (2010b: 251-252). Even if Truthmaker Maximalism fails, then, truthmaker theory can still serve its purpose: we can still answer the ontological question by specifying truthmakers for all the truths that need them.

That said, I'm drawn to what Asay (2011: 58) calls *methodological maximalism*: we should proceed on the assumption that any given truth has a truthmaker unless we find compelling reason to think otherwise, in which case we should explain what makes that truth an exception. The motivation for this is that we stand to gain certain

theoretical benefits if Truthmaker Maximalism proves correct. One benefit is that Maximalism affords a simple, uniform account of the relation between what is true and what is real: every truth is made true by some portion of reality (cf. Griffith 2013: §1.3). Another, according to Cameron (2018), is that Truthmaker Maximalism minimises the kinds of facts that must be taken as *explanatorily brute*: all the facts about what is true ultimately depends on facts concerning the existence of entities. I'm therefore inclined to adopt Truthmaker Maximalism *pro tanto*, on the grounds that it is 'beneficial if true' (Cameron 2018: 350). But since Truthmaker Ontology—the view that ontology should be framed as a search for truthmakers— is compatible with the failure of Truthmaker Maximalism, I can afford to remain officially neutral on the issue.

According to *Truthmaker Necessitarianism*, truthmakers metaphysically necessitate what they make true:

(Truthmaker Necessitarianism) $\forall x \forall P(x \vDash P \longrightarrow \Box(x \text{ exists} \longrightarrow P \text{ is true}))$.

The best-known argument for Truthmaker Necessitarianism is due to Armstrong (1997: 116) and runs as follows. Suppose it is claimed that x is the truthmaker for P. But suppose there is some possible world, w, where x exists and P is false. Then, says Armstrong, 'we will surely think that the alleged truthmaker was insufficient by itself and requires to be supplemented in some way' (1997: 116). That is, some y must actually exist that doesn't exist at w, such that x and y jointly comprise the actual truthmaker for P. Armstrong concludes that x can't be the full truthmaker for P if x's existence doesn't necessitate P's truth. But Armstrong seems to be begging the question: if I don't already think that truthmakers must necessitate their truths, why

should I take the possibility that *x* exists and *P* is false to imply that *x* is not an adequate truthmaker for *P*?[52]

Perhaps we can fix Armstrong's argument by finding an independent reason to think that *x* can't be an adequate truthmaker for *P* unless *x*'s existence necessitates *P*'s truth. Here's a suggestion: *x* is an adequate truthmaker for *P* only if *x*'s existence is an adequate *explanation* for the truth of *P*. And for reasons independent of Truthmaker Necessitarianism, *x*'s existence is not an adequate explanation for the truth of *P* unless it necessitates the truth of *P*.

In a different context, deRosset (2010) argues that a mark of adequate explanations is that they lack *confounding cases*. Roughly, where *E* is an explanatory claim of the form '*φ* because ψ', a confounding case for *E* is a situation where ψ is satisfied but *φ* is not. For example, suppose *E* says that *bitumen is viscous because it has molecular structure M*. And suppose some substance, *X*, has molecular structure *M* but isn't viscous. This presents a confounding case for *E*, which shows *E* to be *at best incomplete* (deRosset 2010: 80): *E* either needs to be supplemented or is off the mark altogether.

As stated above, truthmaking is an explanation-backing relation: if *x* makes *P* true, this implies the correctness of the following explanatory claim:

(*E**) *P* is true because *x* exists.

Now suppose that, at possible world *w*, *x* exists but *P* is false. This seems to present a confounding case for *E**: *x*'s existence at a given world is an at-best-incomplete explanation for the truth of *P* at that world. So in particular, *x*'s existence at the actual world is an at-best-incomplete explanation for the truth of *P*, in which case *x* isn't an

[52] Cameron (2018: 339-340), MacBride (2013: §1.2).

adequate truthmaker for *P*. Generally, *x* is not an adequate truthmaker for *P* unless there is no possible world at which *x* exists and *P* is false— as per Truthmaker Necessitarianism.

You might point out that there is an important difference between *E* and *E**. *E* is inadequate because it has an *actual* confounding case: substance *X* has molecular structure *M* but is not viscous. But I claimed that *E** is inadequate because it has a *possible* confounding case: there is a possible world at which *x* exists but *P* is false. So the above argument assumes that fully adequate truthmaker-explanations must lack *possible* confounding cases, not merely actual ones. But this is a principled assumption. When checking an explanatory claim for confounding cases, we hold fixed the putative *explanans* and vary the circumstances to see if the *explanandum* is still satisfied. But the circumstances we need to vary to find a relevant confounding case depend on the nature of the explanatory proposal. We can check *E* for confounding cases by looking for actual cases where a substance has molecular structure *M* but isn't viscous, since the same possible world can host two substances that share one property but fail to share another. But we can't check *E** for confounding cases by looking for actual cases where *x* exists but *P* is false, since *P* can't be true and false at the same world. So the requirement that fully adequate truthmaker-explanations must lack *possible* confounding cases seems principled, given what such explanations purport to explain; that is, how reality accounts for the truth of a given proposition.

2.3.2 Grounding Principles

I take the logical form of grounding claims to be as follows:

$$\Gamma \Rightarrow P$$

'Γ' is a list of one or more true propositions, '*P*' is a single true proposition and '⇒' symbolises the grounding relation: '$P \Rightarrow Q$' can be read as '*P* grounds *Q*' or '*Q* is true in virtue of *P*'. As with truthmaking, the first argument place is plural because the ground for some truth might consist of several different truths.

If *P* is all it takes to ground *Q*, then *P fully* grounds *Q*. But if, for example, ⟨*a* exists⟩ and ⟨*b* exists⟩ jointly comprise the full ground for ⟨*a* and *b* exists⟩, then ⟨*a* exists⟩ is a *partial* ground for ⟨*a* and *b* exists⟩. Partial grounding may be defined in terms of full grounding as follows:

(Partial Grounding) *P* is a *partial ground* for *Q* iff$_{df.}$ $\exists\Gamma(\Gamma \Rightarrow Q \,\&\, P \in \Gamma)$.

Like truthmaking, I take grounding to be an explanation-backing relation: if *P* grounds *Q*, this implies the correctness of the explanatory claim that *P* is the case *because Q* is the case. Accordingly, grounding is hyperintensional (in both argument places) and monotonic:

(Hyperintensionality$_G$) (i) If $P \Rightarrow Q$ and *R* is true in every possible world where *P* is true, it does not follow that $R \Rightarrow Q$; (ii) If $P \Rightarrow Q$ and *R* is true in every possible world where *Q* is true, it does not follow that $P \Rightarrow Q$.

(Non-Monotonicity$_G$) If $P \Rightarrow Q$, it does not follow that $\forall R(P, R \Rightarrow Q)$.

As is standard, I take grounding to be irreflexive, asymmetric and transitive:[53]

(IrreflexivityG) $\forall P \neg(P \Rightarrow P)$.

(AsymmetryG) $\forall P \forall Q \neg(P \Rightarrow Q \,\&\, Q \Rightarrow P)$.

(TransitivityG) $\forall P \forall Q \forall R$(If $P \Rightarrow Q \,\&\, Q \Rightarrow R$ then $P \Rightarrow R$).

And here are some further assumptions concerning the logic of grounding. I take all of the following to be plausible:

(v-IntroG) If $\Gamma \Rightarrow P$ or $\Gamma \Rightarrow Q$, then $\Gamma \Rightarrow \langle P \text{ v } Q \rangle$.

(v-ElimG) If $\Gamma \Rightarrow \langle P \text{ v } Q \rangle$, then $\Gamma \Rightarrow P$ or $\Gamma \Rightarrow Q$.

(∧-IntroG) If $\Gamma \Rightarrow P \,\&\, \Gamma \Rightarrow Q$, then $\Gamma \Rightarrow \langle P \wedge Q \rangle$.

But like (∧-EliminationTM), the following is questionable:

(∧-ElimG) If $\Gamma \Rightarrow \langle P \wedge Q \rangle$, then $\Gamma \Rightarrow P \,\&\, \Gamma \Rightarrow Q$.

You might think, for example, that

⟨Socrates exists⟩, ⟨Plato exists⟩ ⇒ ⟨Socrates exists and Plato exists⟩.

But you shouldn't then infer that

[53] This is not uncontroversial. For instance, Jenkins (2011) offers a counterexample to the IrreflexivityG (which, if successful, would also counterexemplify AsymmetryG), while Schaffer (2012) offers counterexamples to TransitivityG. I will not discuss these here, however, as I believe adequate replies are available elsewhere: see Litland (2013) and Raven (2013).

⟨Socrates exists⟩, ⟨Plato exists⟩ ⇒ ⟨Socrates exists⟩.

The truth that Plato exists is irrelevant to the truth that ⟨Socrates exists⟩, and so shouldn't be considered part of the ground.

The following existential introduction principle seems plausible:

(∃-Intro$_G$) If $\Gamma \Rightarrow \langle a \text{ is } F \rangle$, then $\Gamma \Rightarrow \langle \exists x Fx \rangle$.

Nor can I see any obvious reason to deny the following truth-introduction and elimination principles (cf. Correia 2011: §4):

(Truth-Intro$_G$) If $P \Rightarrow Q$, then $\langle P \text{ is true} \rangle \Rightarrow \langle Q \text{ is true} \rangle$.

(Truth-Elim$_G$) If $\langle P \text{ is true} \rangle \Rightarrow \langle Q \text{ is true} \rangle$, then $P \Rightarrow Q$.[54]

2.4 Connecting Principles

I will now discuss three 'connecting principles' governing the interplay between truthmaking and grounding.

2.4.1 Interaction

The principle of *Interaction* is as follows:

(Interaction) $x \vDash P$ iff $\langle x \text{ exists} \rangle \Rightarrow \langle P \text{ is true} \rangle$

Interaction should not be taken as an attempt to *reductively identify* truthmaking with grounding. It is just an exceptionless biconditional, telling us that whenever the truthmaking relation holds between x and P, the distinct grounding relation holds

[54] Officially, however, I only need (Truth-Intro$_G$), which features in an argument in the next section.

between the propositions ⟨*x* exists⟩ and ⟨*P* is true⟩. This seems plausible. I can't see how one could intelligibly affirm that *P* is true in virtue of *x* while denying that ⟨*P* is true⟩ is true in virtue of ⟨*x* exists⟩, or vice versa. A potential explanation for this is that for *x* to make *P* true *just is* for ⟨*x* exists⟩ to ground ⟨*P* is true⟩, but I have argued against this: the truthmaking relation and the grounding relation are distinct. The nearest non-reductive alternative to Interaction is as follows:

$x \vDash P$ iff $\langle x \text{ exists} \rangle \Rightarrow P$.

But this entails that if $a \vDash \langle a \text{ exists} \rangle$ then $\langle a \text{ exists} \rangle \Rightarrow \langle a \text{ exists} \rangle$, violating (Asymmetry$_G$).

2.4.2 Quasi-Asymmetry

Grounding is asymmetric, whereas truthmaking is non-symmetric. But there is a plausible 'asymmetry-like' connecting principle, which I'll call *Quasi-Asymmetry*:

(Quasi-Asymmetry) $\forall x \forall P((x \vDash P) \rightarrow \neg (P \Rightarrow \langle x \text{ exists} \rangle))$

Informally, Quasi-Asymmetry tells us that a truth cannot explain the existence of its own truthmaker and that a truthmaker can't make true the explanation of its own existence. This principle is analogous to (Asymmetry$_G$) and is plausible for similar reasons. To see this, consider some violations of Quasi-Asymmetry. First:

(Socrates $\vDash$ ⟨Socrates exists⟩) & (⟨Socrates exists⟩ $\Rightarrow$ ⟨Socrates exists⟩)

The second conjunct is false, since it violates (Asymmetry$_G$). Second:

(Socrates, Plato ⊨ ⟨Socrates and Plato exist⟩) & (⟨Socrates and Plato exist⟩ ⇒ ⟨Socrates exists⟩, ⟨Plato exists⟩)

This time, the second conjunct seems false because conjunctions are grounded in their conjuncts, not the other way around. Third:

(⟨Socrates exists⟩ ⇒ ⟨{Socrates} exists⟩) & ({Socrates} ⊨ ⟨Socrates exists⟩)

Again, the second conjunct seems false: Socrates might make it true that {Socrates} exists, but {Socrates} does not plausibly make it true that Socrates exists. Finally:

(⟨Simples arranged Socrates-wise exist⟩ ⇒ ⟨Socrates exists⟩) & (Socrates ⊨ ⟨Simples arranged Socrates-wise exist⟩)

Again, the second conjunct seems dubious: surely, if anything, simples arranged Socrates-wise make it true that Socrates exists, not the other way around.

So Quasi-Asymmetry is initially plausible. However, there is a specific sort of case where violations of Quasi-Asymmetry are not clearly false. These arise when a truthmaking claim designates a truthmaker using a logically complex singular term, such as 'the fact that *a* is *F*' or '*a*'s *F*-ness'. Consider the following:

([Socrates is wise] ⊨ ⟨Socrates is wise⟩) & (⟨Socrates is wise⟩ ⇒ ⟨[Socrates is wise] exists⟩)

(Socrates' wisdom ⊨ ⟨Socrates is wise⟩) & ⟨Socrates is wise⟩ ⇒ ⟨Socrates's wisdom exists⟩).

Some truthmaker theorists find claims like those in the first conjuncts plausible. And it is not obvious that the second conjuncts are false (cf. Schnieder 2006, Correia and Schnieder 2012). Couldn't it be that Socrates's wisdom, or the fact that Socrates is wise, exist because Socrates is wise?

I suspect, however, that these grounding claims are bogus. Note first that the claims don't seem particularly explanatory. 'Socrates's wisdom exists' and 'The fact that Socrates is wise exists' just seem like oddly laboured ways of saying that Socrates is wise. And we might expect that what grounds truths about the existence of facts and tropes should tell us something informative about the nature or constitution of facts and tropes. For example, on an Armstrongian metaphysics of facts, a more informative grounding explanation for the existence of [Socrates exists] might cite the existence of the fact's non-mereological constituents, the particular Socrates standing in the instantiation relation to the universal *wisdom* (Armstrong 1997).

Furthermore, Liggins (2012) offers a plausible account of why it might seem reasonable to say things like 'Socrates's wisdom exists because Socrates is wise' even if the 'because' doesn't indicate a genuine grounding relation. Consider the following (Liggins 2012: 262):

> Someone has taken the diamonds, because they're not where I left them.

The 'because' doesn't indicate the presence of a grounding relation here, but rather functions as an *inference-marker*. The sentence is a truncated statement of the following inference:

> If the diamonds are not where I left them, somebody has taken them.
>
> They are not where I left them.
>
> Someone has taken them.

Similarly, 'Socrates' wisdom exists because Socrates is wise' is plausibly a truncated statement of the following inference:

> If Socrates is wise, then Socrates' wisdom exists.
>
> Socrates is wise.
>
> So Socrates' wisdom exists.

This would explain why claims like 'Socrates' wisdom exists because Socrates is wise' seem true, but not particularly explanatory: they truncate formally valid inferences, but do not involve genuine grounding claims.

2.4.3 The Grounding Principle

Perhaps the most interesting connecting principle is the *Grounding Principle*:

(Grounding Principle) If $x \vDash P$ and $P \Rightarrow Q$ then $x \vDash Q$.[55]

The Grounding Principle is an analogue of Armstrong's *Entailment Principle* (2004:10):

(Entailment Principle) If $x \vDash P$ and $P \rightarrow Q$ then $x \vDash Q$.

The Entailment Principle has some initial plausibility. Its obvious appeal is that it promises a significant ontological economy: given a truthmaker for *P*, there is no need to posit additional 'bespoke' truthmakers for whatever *P* entails. Unfortunately, the Entailment Principle faces some well-known difficulties. For one thing, since conjunctions entail their conjuncts, the Entailment Principle implies the false (∧-

[55] Correia (2011) suggests that a similar principle can be motivated if truthmaking is defined in terms of operator-grounding.

ElimTM) principle (Rodriguez-Pereyra 2006; see above). It also implies that any truthmaker for any true *P* is a truthmaker for all necessary truths, which are trivially entailed by everything. Even worse, in conjunction with (v-ElimTM), the Entailment Principle implies that every truthmaker is a truthmaker for every truth *simpliciter* (Restall 1996, Rodriguez-Pereyra 2006: 963). Let *Q* be an arbitrary truth. Suppose *x* makes true some other truth, *P*. By the Entailment Principle, *x* makes true ⟨*Q* v ¬*Q*⟩ (which is trivially entailed by everything). So by (v-ElimTM), *x* makes true *Q* or *x* makes true ¬*Q*. Since *Q* is true, ¬*Q* is false and therefore has no truthmaker. So *x* makes true *Q*. Thus, any truthmaker for any *P* is also a truthmaker for any true *Q*.

The Grounding Principle is at least as initially plausible and appealing as the Entailment Principle: if *x* is 'ontology enough' to make *P* true, and *P* grounds *Q*, *x* is plausibly ontology enough to make *Q* true as well, thus obviating the need to posit a bespoke truthmaker for *Q*. But the Grounding Principle avoids the problems that afflict the Entailment Principle. Conjunctions entail, but do not *ground*, their conjuncts; so unlike the Entailment Principle, the Grounding Principle does not imply (∧-ElimTM). Every truth entails, but does not *ground*, every necessary truth. So unlike the Entailment Principle, the Grounding Principle does not imply that every truthmaker is a truthmaker for every necessary truth. And for the same reason, the Grounding Principle does not combine with (v-ElimTM) to imply that every truthmaker is a truthmaker for every truth *simpliciter*; it is not the case that any *P* *grounds* ⟨*Q* v ¬*Q*⟩ for arbitrary *Q*.

Furthermore, the Grounding Principle can be derived from three of the principles endorsed above:

(TransitivityG) $\forall P \forall Q \forall R$(If $P \Rightarrow Q$ & $Q \Rightarrow R$ then $P \Rightarrow R$).

(Truth-IntroG) If $P \Rightarrow Q$ then ⟨*P* is true⟩ $\Rightarrow$ ⟨*Q* is true⟩

(Interaction) $x \vDash P$ iff $\langle x \text{ exists} \rangle \Rightarrow \langle P \text{ is true} \rangle$.

The argument is as follows:

(1)	$x \vDash P \,\&\, P \Rightarrow Q$	[Assumption]
(2)	$\langle x \text{ exists} \rangle \Rightarrow \langle P \text{ is true} \rangle$	[Interaction, (1)]
(3)	$\langle P \text{ is true} \rangle \Rightarrow \langle Q \text{ is true} \rangle$	[Truth-Intro$_G$, (1)]
(4)	$\langle x \text{ exists} \rangle \Rightarrow \langle Q \text{ is true} \rangle$	[Transitivity$_G$, (2), (3)]
(5)	$x \vDash Q$	[Interaction, (4)]
(6)	$((x \vDash P \,\&\, P \Rightarrow Q) \rightarrow x \vDash Q$	[$\rightarrow$-Introduction, (1), (4)]

Given the Grounding Principle, we can distinguish two ways in which a truthmaker can make a given truth true: it can do so *indirectly* via one or more intermediate grounding relations, or *directly* without any such intermediary. More precisely:

(Direct Truthmaking) x *directly* makes P true iff$_{df.}$ $x \vDash P \,\&\, \neg\exists Q(x \vDash Q \,\&\, Q \Rightarrow P)$.

(Indirect Truthmaking) x *indirectly* makes P true iff$_{df.}$ $x \vDash P \,\&\, \exists Q(x \vDash Q \,\&\, Q \Rightarrow P)$.

This distinction will come in handy later on (see especially §3.3 and §4.3).[56]

Conclusion

Truthmaker theory investigates the dependence of what is true on what is real, which it construes in terms of the truthmaking relation. Truthmaker Ontology uses the idea of truthmaking as the basis for a distinctive approach to ontological inquiry. But as will later emerge, I think that Truthmaker Ontology benefits in several ways if it supplements truthmaking with a distinct relation of (truth-)grounding. Thus, one of my aims in this chapter was to clarify my understanding of truthmaking, grounding and the connections between them. The other was to provide some independent motivation for seeing two different relations here, where some would see only one. But the real proof will be in the testing: as I aim to show in the following chapters, truthmaking and grounding do useful work in tandem as the linchpins of an attractive account of the nature and method of ontology. If so, this is reason to think that both relations deserve a place in the metaphysician's toolkit.

[56] Cameron (2018: 337) draws a comparable distinction between direct and indirect *truth-grounding*: *P* directly grounds *Q* iff *P* grounds *Q* and there is no *R* such that *P* grounds *Q* and *Q* grounds *R*. He notes that this definition rules out cases where *P* stands in an unmediated grounding relation to *Q* and *also* grounds *Q* by grounding some *R* that grounds *Q* (2018: 337, n.8). If we want to allow for such cases, Cameron says, we should only talk about whether a *particular instance* of grounding is direct or indirect: 'a particular instance of <p> grounding <q> will be direct iff *that instance* of grounding isn't mediated via some <r> which grounds <q> and is grounded by <p>' (ibid.). Similarly, we may want to allow for cases where *x* makes *Q* true directly and *also* does so by making true some *P* that grounds *Q*. If so, we should only talk about whether a particular instance of truthmaking is direct or indirect. I'll gloss over this nicety, however.

3 On What There Really Is

I now turn in earnest to Truthmaker Ontology. I argued earlier that if ontology is to be a serious enterprise, ontological questions must be distinguished from questions about what there is. My aim here is to show that Truthmaker Ontology offers a viable alternative, on which ontological status comes apart from existential truth. Specifically, I shall join Cameron (2008a) in claiming that Truthmaker Ontology supports a coherent distinction between what merely exists and what *really* exists, where only the latter is of ontological concern (cf. Fine 2001). This distinction, as I understand it, arises from two theses. According to the *Truthmaker Criterion of Ontological Status*, what counts as real, in the sense of serious ontological interest, are all and only those things that make a truthmaking contribution. According to the *Divergence Thesis*, the truthmakers for a claim can differ from what is said or implied to exist by that claim. Together, these theses allow that ⟨There are *F*s⟩ might be made true even if *F*s make no truthmaking contribution, and therefore lack ontological status. We should therefore distinguish between what *really exists* (i.e. what makes a truthmaking contribution) and what *merely exists* (i.e. what can truly be said to exist but makes no truthmaking contribution). Thus, for Truthmaker Ontologists, ontology is not a question of what there is, but of what there *really* is.

In §3.1, I provide some background and motivation for the idea that truthmaking lets us distinguish ontological status from existential truth. I argue (*pace* Cameron and others) that it's a mistake to base this distinction on a truthmaker criterion of ontological *commitment*. Instead, the Truthmaker Ontologist should appeal to a criterion of ontological *status*, which I discuss in §3.2. In §3.3, I defend the Divergence Thesis, offering an account of it based on the *Grounding Principle* (see

§2.4). In §3.4, I articulate the distinction between mere and real existence and defend its coherence.

3.1 Truthmaker Ontology and Stratified Ontology

I will start by introducing Truthmaker Ontology and placing it in the broader context of what I call *Stratified Ontology*.

3.1.1 Truthmaker Ontology

Ontology aims to provide a complete inventory of the contents of reality. A truthmaker is a portion of reality in virtue of which some true proposition is true. So, prima facie, truthmaker theory offers a way of regimenting ontological inquiry: we can decide what is real by finding the theory of truthmakers that best accounts for the truths we accept. This is the basic idea underlying Truthmaker Ontology.

In one form or another, Truthmaker Ontology has been around for a while.[57] In recent years, the approach has enjoyed a modest resurgence of interest, as several have come to see it as an attractive alternative to Orthodox Ontology.[58] But there are different views about where the two approaches diverge. For Armstrong (2004), the main advantage of Truthmaker Ontology is that it does ontological justice to the predicate. Armstrong thinks that, by taking bound variables as the sole vehicles of ontological commitment, Orthodox Ontologists illicitly 'stack the ontological deck' in favour of nominalism. In contrast, 'when we look to truthmakers for truths, subject and predicate start out as equals, and we can consider the ontological implications of both in an unbiased way' (Armstrong 2004: 23-24). But Armstrong never explicitly

[57] Historical antecedents of Truthmaker Ontology have been detected in the work of Aristotle (Fox 1987), Leibniz (Hillman 2009), and several early modern Scholastics (Embry 2015).
[58] See *inter alia* Armstrong (2004), Cameron (2008a, 2010a), Dyke (2007), Heil (2003), Melia (2005), Rettler (2016).

questions the basic orthodox tenet that ontology concerns *what there is* (cf. Lewis 1992: 203). He seems to see Truthmaker Ontology as a more property-friendly way of *deciding* what there is.

For others, the appeal of Truthmaker Ontology lies precisely in its ability to *separate* ontological questions from questions about what there is. A key premise here is what I call the *Divergence Thesis*, according to which the truthmakers for existence claims need not involve the entities being claimed to exist.[59] The thought is roughly that, given the Divergence Thesis, the truth of the sentence 'There are *F*s' doesn't settle the ontological question concerning *F*s, since it might not take an ontology containing *F*s to *make* this sentence true. Thus, as Melia puts it (2005: 77):

> [The] truthmaking project gives us a way of accounting for [quantified sentences] without dismissing them as false or meaningless, without having to find a paraphrase, and without having to accept the entities that the sentence apparently quantifies over and refers to into our ontology.

It's an attractive prospect. If Melia is right, the ontological question about *F*s is not bound up with the question of whether sentences quantifying over them are true. Excluding *F*s from our ontology does not compel us to deny the truth of such sentences, or advance revisionary claims about their meaning or underlying logical form. This is an attractive prospect for those concerned that, under the orthodox regime, 'serious ontological questions are being decided by linguistic facts' (Cameron 2008a: 5).[60] It also opens the appealing possibility of endorsing a sparse ontology, free of such bugbears as complex objects and abstracta, without rejecting commonsense truisms about what there is.[61] Last but not least, it suggests a line of

[59] See Cameron (2008a: 4), Dyke (2007: 4), Heil (2003: 55), Melia (2005: 77).

[60] Cf. Dyke (2007: 1-13), Heil (2003: 5-7), Rettler (2016: 1414).

[61] Cf. Cameron (2010a: 249-250), Rettler (2016: 1413)

reply to the critics of Serious Ontology. It might be conceded that questions about the truth of existence claims are shallow or trivial; but the Truthmaker Ontologist can insist that deep and substantive questions remain about what, if anything, *makes* such claims true.[62]

But what does Melia mean by 'ontology' in the above passage? If 'our ontology' is what we think there is, it seems flatly inconsistent to claim that 'There are *F*s' is literally true while denying that *F*s are part of our ontology. Not that we *should* equate 'ontology' with 'what there is'— I've argued to the contrary. But to ensure consistency, it seems that Truthmaker Ontologists must articulate a non-standard notion of 'ontology'. Unfortunately, not all of them are clear about what this might be.

Cameron (2008a, 2010a) and Rettler (2016) are notable exceptions. Their approach is to construe Truthmaker Ontology as a version of what I'll call *Stratified Ontology.*

3.1.2 Stratified Ontology

Fine (2001) influentially distinguishes between what exists and what *really* exists.[63] Thus, it might be that tables exist but do not really exist; perhaps all that really exist are simple particles arranged thus-and-so. The distinction is designed to drive a wedge between existential and ontological questions, so that the question of whether something exists needn't be taken to settle the ontologically interesting question of whether it *really* exists. There has since emerged a minor industry of metaontological views based on functionally similar distinctions, sometimes articulated as a

[62] I'll expand on these advantages in Chapter 7.

[63] Actually, this is a specific instance of Fine's more general distinction between what is merely and what is really *the case*.

distinction between what *fundamentally* exists and what *derivatively* exists: these are the views I group under the broad heading of 'Stratified Ontology'.[64]

It is easy to see why Stratified Ontology appeals to serious ontologists disillusioned with the orthodox framework. Stratified Ontologists can agree with the Moorean that common sense and science have the final say over what exists. And they can concede to the neo-Carnapian that debates over what exists are shallow or trivial. They can insist, however, that there are still deep, substantive, philosophical questions about what *really* or *fundamentally* exists, and that these questions are the proper focus of ontology. But while Stratified Ontologists tend to have broadly similar motivations, they have very different views about the nature of the distinction between what exists and what really, or fundamentally, exists. Following von Solodkoff and Woodward (2013), we can roughly divide Stratified Ontologists into two camps: *inflationary* and *deflationary*.

On the inflationary picture, *reality* is stratified into layers. The 'bottom' layer consists of fundamental (ungrounded, ontologically independent) entities, while the 'upper' layers consist of non-fundamental (grounded, ontologically dependent) entities. Non-fundamental entities are seen as 'heavyweight' additions to ontology, no less real than their fundamental grounds[65]. Thus, since they take both fundamental and non-fundamental existents to have full-blown ontological status, inflationists accept the orthodox view that ontology comprises everything that exists. They deny, however, that merely listing the existents *suffices* for answering the ontological question: we must also say where all the existents fit into the 'great chain of being' (Schaffer 2009: 367). Inflationists hold that most existence questions are easily

[64] For views in the vicinity, see Bennett (2017), Cameron (2008a, 2010a, 2010b), Dorr (2005), Fine (2001, 2009), Horgan and Potrč (2008), Schaffer (2009), Sider (2011), Williams (2010, 2012).

[65] See Audi (2012b: 101-102), Bennett (2017: Ch.8) and Schaffer (2009: 360, 2017: 2456).

settled by common sense, and that we should therefore take a *permissive* attitude to what exists (see esp. Schaffer 2009). But given that *F*s exist, the interesting question is whether *F*s are *fundamental* or, if not, how they are *grounded* in the fundamental.

Deflationists do not see reality as stratified so much as our *representations* of it. The basic idea is that it might be true to *represent* the existence of *F*s in thought and language, even if reality hosts no *F*s. Thus, the sentence 'Tables exist' might be literally true, even if reality hosts no tables; perhaps all it takes for this sentence to be true is for reality to host simples arranged thus-and-so. If so, then tables exist— it is literally true to say so— yet lack ontological status. The deflationist articulates this by saying that tables exist but don't fundamentally, or really, exist. But the claim here is not that tables occupy a certain stratum in a 'great chain of being' comprising different layers of reality. The claim is that tables *are not part of reality at all*, but we can still truly *represent* our table-less reality using sentences like 'Tables exist'. Thus, whereas inflationists take the fundamental existents to be a *proper subset* of what has ontological status, deflationists take the fundamental, or real, existents to *exhaust* what has ontological status.

So although inflationists and deflationists make similar-sounding claims, they have very different ideas about what Stratified Ontology involves. They also face different explanatory burdens. Inflationists must explain what allows us to be so permissive about what exists non-fundamentally, given that non-fundamental existents are heavyweight ontological additions— I will argue in Chapter 6 that inflationists have failed to discharge this burden. Deflationists, on the other hand, must offer an account of how an *F*-less ontology could support the literal—albeit non-fundamental— truth of representations concerning the existence of *F*s. The main appeal of Truthmaker Ontology, as I see it, is that it offers such an account, making sense of the deflationary distinction between mere and real existence. Here I follow in the footsteps of

Cameron (2008a). As I'll now explain, however, I don't quite agree with Cameron about how Truthmaker Ontologists should draw this distinction.

3.1.3 Cameron on Truthmaker Commitments and Real Existence

Cameron's (2008a) account centres on a *truthmaker criterion of ontological commitment*, which he proposes as a replacement for Quine's quantifier criterion: 'the ontological commitments of a theory are just those things that must exist to *make true* the sentences of that theory' (Cameron 2008a: 4). Alongside this, Cameron endorses the Divergence Thesis, which allows that '⟨*x* exists⟩ might be made true by something other than *x*, and hence that "*a* exists" might be true according to some theory without *a* being an ontological commitment of that theory' (Cameron 2008a: 4). Thus, if ⟨The sum of *a* and *b* exists⟩ might be made true by just *a* and *b*, then one can affirm that the sum exists without incurring an ontological commitment to sums (Cameron 2008a: 5). Generalising, Cameron's truthmaker criterion of ontological commitment makes it consistent to affirm that something exists without accepting it into your ontology. This prompts Cameron to draw the following distinction (2008a: 6):

> Let us say that *a* really (or, equivalently, fundamentally) exists iff we are ontologically committed to *a*, and that *a* exists, but doesn't really exist (or, equivalently, that *a* exists derivatively), iff ⟨*a* exists⟩ is true but is made true by something other than *a*.

By Cameron's lights, ontology is exhausted by what *really* exists, i.e., what 'does some truthmaking' (2008a: 7). The distinction between mere and real existence is a device that lets us separate true existential *representations* from what, out there in reality, *accounts* for their truth. Cameron thinks ontologists should only be concerned with the latter— that is, with what really exists. This seems to offer a coherent sense in which ontology can come apart from what can truly be said to exist, and a cogent

version of deflationary Stratified Ontology. Where I disagree with Cameron is that I don't think the Truthmaker Ontologist should draw the distinction between mere and real existence in terms of *ontological commitment*.

On my understanding, the ontological commitments of a theory are the *requirements* that the theory's truth imposes on ontology; roughly, what ontology must include if the theory is to be true. Thus, if ontology consists of what there is, ontological commitments are requirements on what there is; if ontology consists of what is fundamental, ontological commitments are requirements on what is fundamental, and so on. A *criterion* of ontological commitment is a principle by which to determine a theory's requirements on ontology. And in my view, we're in no position to decide whether to accept a given criterion of ontological commitment before we've decided on the scope of *ontology*— that which requirements on ontology are requirements *on*. Cameron, however, argues *from* the truthmaker criterion of ontological commitment *to* a claim about the scope of ontology. His argument is roughly this (Cameron 2008a: 6-7):

(1) The ontological commitments of a theory are the things needed to make that theory true.

(2) If a theory affirms 'There are *F*s', it does not follow that *F*s are needed to make that theory true.

(3) So it is consistent to affirm that there are *F*s while denying that *F*s are among the ontology one accepts.

(4) So ontology is not a question of what there is. (It only concerns the *subset* of what there is that does some truthmaking, or what there *really* is.)

This is a bit like a Quinean arguing as follows:

(1) The ontological commitments of a theory are the things that theory's quantifiers must range over if the theory is to be true.

(2) If a theory affirms 'There are *F*s', that theory's quantifiers must range over *F*s.

(3) So it is inconsistent to affirm that there are *F*s while denying that *F*s are among the ontology one accepts.

(4) So ontology is a question of what there is.

This argument seems odd. The reason for this, I think, is that we're in no position to evaluate the first premise prior to accepting the conclusion. Suppose we assume that ontology consists of what there is, and hence that ontological commitments are *requirements* on what there is. We're then in a position to judge whether the quantifier criterion captures, or fails to capture, the ontological requirements of theories. We might decide, for example, that the quantifier criterion *neglects* certain requirements on ontology, construed as requirements on what there is. (Example: the sentence 'Everything the Bible says is true' does not quantify over God, but its truth plausibly requires that *there is* a God.[66]) But if we *haven't* already assumed that ontology is a question of what there is, it's not clear how we could evaluate the quantifier criterion: how could we decide whether the criterion captures a theory's ontological requirements without some idea of what such requirements are meant to be *on*? It

[66] This example is adapted from Peacock (2011: 81). See §5.1.1.

would be odd for a Quinean to argue as above, then, because the acceptability of the first premise depends on the truth of the conclusion.

It is similarly inappropriate to argue *from* a truthmaker criterion of ontological commitment *to* the claim that ontology comes apart from what there is. The truthmaker criterion is adequate insofar as it captures the ontological requirements of theories. Perhaps it does that, *if* ontology comes apart from what there is. But if ontology *doesn't* come apart from what there is, the truthmaker criterion will be inadequate, since it doesn't count every requirement on what there is as an ontological commitment. So it seems to me that we're not in a position to accept Cameron's truthmaker criterion unless we've already accepted his conclusion about the scope of ontology. The claim that ontology comes apart from what there is must be seen as a *precondition* for, not a *consequence* of, adopting truthmaker criterion of ontological commitment.

Like Cameron and others, I think the main appeal of Truthmaker Ontology is that it can support a coherent distinction between what is in the ontologist's purview and what can truly be said to exist. But ontological *commitment* is a red herring here. I suggest that Truthmaker Ontologists should start with the claim that all and only the truthmakers are *real*, in the sense of serious ontological interest. That is, they should start with what I'll call a truthmaker criterion of ontological *status* (see below). Combined with the Divergence Thesis, this will give us the desired distinction between what has ontological status and what can truly be said to exist.

No doubt my disagreement with Cameron is partly terminological. As Cameron points out (2010a: 250), 'ontological commitment' is a technical term, and we are free to define it in whatever way proves most useful, even if our definition is at odds with the term's past associations. Perhaps Cameron wants to use 'criterion of ontological

commitment' in the way I would use 'criterion of ontological status'.[67] But I think this muddies the water. The question of the *scope* of ontology and the question of what theories *require* of ontology are distinct, and matter for different reasons: the former pertains to what ontological inquiry is all about in the first place, the latter to how we decide what ontology to accept based on what theories we accept as true, and how we assess theories based on their 'ontological pre-conditions' (Peacock 2011).[68]

3.2 The Truthmaker Criterion of Ontological Status

Serious Ontology aims to discover *what is real*. I've assumed that we have some intuitive grasp of what this means: what is real is what is *out there* in the *ready-made world* envisaged by metaphysical realism, as opposed to the world as we represent it in language, thought and experience (see §1.1.1). But I haven't tried to give any precise analysis of 'real'— perhaps no such analysis is available. Even so, we can still try to clarify our task by finding an informative *necessary and sufficient condition* on what *counts* as real in the sense of serious ontological interest. Call such a condition a *criterion of ontological status.*

I take the central tenet of Truthmaker Ontology to be the *Truthmaker* Criterion of Ontological Status, or (TOS):

(TOS) *x* is real iff *x* makes a truthmaking contribution.

[67] Some of Cameron's remarks suggest a conflation between ontological commitment and ontological status, for example: '*a* really (or fundamentally) exists iff we are ontologically committed to *a*' (2008a: 6); 'the ontological commitments of a theory have real being' (2010a: 250). (Cf. Rettler (2016: 1412): 'we are ontologically committed to the fundamental and all and only the truthmakers are fundamental'.) Taken at face-value, these remarks suggest that the truthmakers 'we are ontologically committed to' *in fact* really/fundamentally exist, as opposed to their real/fundamental existence being a *pre-condition* of the truth of the theories we accept. Cameron (2019) has recently clarified his position, however. See §5.2.3 for discussion.

[68] More on the methodological importance of the notion of ontological commitment in §5.1.1.

(TOS) is deliberately broad in two respects. First, making a 'truthmaking contribution' needn't mean being a *full* truthmaker for some truth, but also applies to *partial* truthmakers. Some may also wish to include *components* of truthmakers, such as a mereological part of a complex truthmaking object, or a non-mereological constituent of a truthmaking state of affairs. Second, there are different ways we might refine the notion of making a truthmaking contribution. For example, some may wish to restrict (TOS) to what makes an *indispensable* or a *minimal* truthmaking contribution.[69] I will discuss my preferred way of refining (TOS) in the next chapter, where I suggest that the criterion should be restricted to what makes a *fundamental* truthmaking contribution. For present purposes, however, we can set this matter to one side.

(TOS) is not a criterion of ontological commitment. It doesn't pertain to the *requirements* theories impose on ontology, but to that which requirements on ontology are requirements *on*.[70] In other words, (TOS) is a claim about the *scope of ontology*. It tells us that a complete and correct answer to the ontological question would take the form of a list of everything that makes a truthmaking contribution; whatever doesn't make a truthmaking contribution lacks ontological status and is outside the ontologist's purview. Making a truthmaking contribution is what marks the boundary between what is real, in the sense of serious ontological interest, and what is not.

[69] For discussion of minimal truthmakers, see Armstrong (2004: 19-20), O'Conaill and Tahko (2016). MacBride (2013: §2.1.4.2) takes Armstrong to hold that 'to be a genuine addition to being is to be a net (indispensable) contributor to the schedule of truthmakers'.

[70] *Given* (TOS), we will need some sort of truthmaker criterion of ontological commitment. For if all and only the truthmakers have ontological status, then requirements on ontology are requirements on truthmakers. So if we accept (TOS), the question is not *whether* we need a truthmaker criterion of ontological commitment, but *what kind.* As we'll see in Chapter 5, spelling out the relevant notion of *requirement* is not a straightforward matter.

Without attempting an analysis, is there more we can say about this notion of being 'real in the sense of serious ontological interest', which (TOS) is supposed to elucidate? I think the Truthmaker Ontologist has a couple of options here. The first is broadly *Finean*.[71] This involves claiming that 'real' is an unavoidably primitive notion, albeit one on which we can get a decent intuitive and working grasp (Fine 2009: 175-176). For example, I suggested in §1.1 that the ontologically relevant sense of 'real' is brought out by claims such as: 'We think and talk about numbers, but the question remains as to whether numbers are *real*'. Fine points to claims such as: 'Democritus thought that there was nothing more to the world than atoms in the void' (2009: 175); that is, Democritus thought that nothing but atoms in the void were *real*. But perhaps we ultimately cannot 'define the concept of reality in essentially different terms' (Fine 2009: 175). (TOS) might offer its services here, not as an *analysis* of 'real', but as an informative necessary and sufficient condition on what we should *count* as real in the targeted sense. Construing the real as what makes a truthmaking contribution might guide us towards a clearer understanding of how to approach the question of what is real, even if 'real' itself resists analysis.[72]

A second option, which I'll look at in more detail, is broadly *Siderean.*[73] This involves claiming that there is an *elite candidate meaning for the existential quantifier* and that what is real, in the ontologically relevant sense, is what can truly be said to exist using that quantifier. Against this background, (TOS) might be interpreted as the claim that what can truly be said to exist using the elite quantifier are just those things that make a truthmaking contribution (cf. Cameron 2010a, 2010b; Rettler

[71] Cf. Fine (2001, 2009).

[72] 'This search for a criterion for the real must be understood as a criterion for us to count something as real; it will be a principle to apply in determining whether to accord that status, given our current stage of epistemic development. There need not be, and probably cannot be, any criterial mark of the real itself: the real is what is, period'. (Campbell 1994: 28).

[73] Cf. Sider (2009, 2011).

2016). But what is it for there to be an elite 'quantifier meaning'? And why think that what can truly be said to exist using the elite quantifier are just the things that make a truthmaking contribution?

For Sider, the elite meaning for the quantifier is the most *eligible* of its candidate meanings, in the sense at issue in the *Eligibility* constraint on adequate interpretation (see §1.4):

> (Eligibility) With respect to some language *L*, if candidate interpretation I_1 assigns relatively more *natural* meanings than candidate interpretation I_2 then, all else equal, I_1 is a better interpretation of *L* than I_2.

For Lewis (1983, 1984), Eligibility primarily constrains interpreters to assign more natural, 'joint-carving' extensions to predicates. But Sider, recall, argues that it extends to other parts of language, including logical terms like conjunction, negation and quantification. He holds that reality has a distinguished *logical structure*— including a *quantificational* structure— that exerts a reference-magnetic force on such terms. The elite meaning for the quantifier, for Sider, is that which carves reality's objective quantificational structure perfectly at the joints. By his lights, the question of serious ontological interest is 'What exists, in the perfectly natural sense of "exists"?'.

I confess to finding the notion of 'worldly' logical structure a bit mysterious.[74] I see how certain meanings for names and predicates might be especially natural, in virtue of the way reality is objectively 'carved' into objects and those objects into property-classes. But I'm less sold on the idea that there is some kind of 'worldly

[74] For similar concerns, see Contessa (2013), Hirsch (2013), Goldwater (2014), Schaffer (MS).

preference' for *logical* terms to have certain meanings.[75] What is there, in reality, for terms like 'And', 'Or' and 'There is' to latch onto? This is admittedly a blank stare rather than an objection. Still, I prefer a different account of what elite quantification involves.

On my preferred view, the claim that there is an elite 'meaning' for the existential quantifier simply amounts to the claim that there is an elite *domain of quantification* (cf. Brons 2014, Brouwer 2012, Schaffer MS). By way of illustration, consider quantifier variantism (Hirsch 2011). On this view, there are multiple, unrestricted 'logically ∃-like' quantifier-meanings, such that '∃*xFx*' can have different truth-values depending on which meaning of '∃' is in play. Moreover, since none of these quantifier-meanings is metaphysically elite, debates about whether *F*s exist are often shallow; for in many cases, we could describe reality equally well using a language in which '*F*s exist' is true or one in which it's false. (Sider's well-known response to quantifier variantism is to accept the multiplicity of quantifier-meanings while insisting that one of them—the perfectly natural quantifier— is metaphysically elite.)

But what is it for there to be multiple 'quantifier-meanings', in the sense at issue? I assume a model-theoretic definition of '∃' whereby, in a model with domain *D*,

‘$\exists x \phi x$’ is true iff $\{x : \phi x \wedge x \in D\} \neq \varnothing$

That is, '$\exists x \phi x$' is true iff ϕ has a non-empty extension in *D*. Now let 'Universalese' be a language whose quantifier is $\exists_U$ and let 'Nihilese' be a language whose quantifier is $\exists_N$. $\exists_U$ and $\exists_N$ are both 'logically ∃-like', obeying the standard introduction and elimination rules for ∃. Yet $\exists_U$ and $\exists_N$ somehow differ in 'meaning' such that '$\exists_U$(Table(x)' is true but '$\exists_N x$(Table(x)' is false (with no shift in the meaning of 'Table').

[75] So is Schaffer (MS), from whom I borrow this phrase.

What explains this difference? On the above definition of '∃', it seems the only possible explanation is that $\exists_U$ and $\exists_N$ have different domains, such that 'Table' has a non-empty extension in the domain of $\exists_U$ and an empty extension in the domain of $\exists_N$. Given that $\exists_U$ and $\exists_N$ are logically ∃-like, there just doesn't seem to be anything else that could differ. The quantifier variantist doesn't want to say that the difference in quantifier-meanings results from domain *restriction*. So it looks like the difference between $\exists_U$ and $\exists_N$ must be a difference between two distinct 'absolute' domains of quantification.[76]

So I'm inclined to think that the claim that there are multiple candidate 'quantifier-meanings' really boils down to the claim that there are multiple candidate domains.

---

[76] You might argue that this is uncharitably hostile to quantifier variantism. (see Schaffer MS: 14). Consider the following argument (Sider 2009: 393-394; cf. Hawthorne 2006, Eklund 2009b). Suppose Quentin is a quantifier variantist and a native speaker of Nihilese. As a speaker of Nihilese, Quentin wants to say:

(1) Tables do not exist.

But as a quantifier variantist, Quentin wants to say:

(2) 'Tables exist' is a true sentence of Universalese.

But it doesn't look like he can say both. For (2) to be true in Nihilese, the following would also have to be true in Nihilese:

(3) 'Table' has a non-empty extension in the domain of $\exists_U$.

But then it would have to be true, in Nihilese, that there is a domain of $\exists_U$ and that some member of that domain falls under the extension of 'Table'. Thus, 'Tables exist' would have to be true in Nihilese, contradicting (1)

But I don't see why Quentin should have to express his quantifier variantist claim *in Nihilese*. As Schaffer points out (MS: 14), 'quantifier variantism involves semantic claims about these object languages [i.e. Universalese and Nihilese], and in orthodox model-theoretic semantics we are careful to couch semantic claims about object languages in the metalanguage'. So Quentin should express his nihilism in Nihilese, but his quantifier variantism in a metalanguage with a more encompassing domain, in which he can consistently say:

The claim that there is no elite 'quantifier-meaning' amounts to the claim that there is no metaphysically elite choice of domain. And the claim that there *is* an elite 'quantifier-meaning' amounts to the claim that there *is* a metaphysically elite domain. Schaffer (MS: 11) calls the latter claim *Domain Realism*.

Whether you're amenable to Domain Realism depends, basically, on the strength of your realist convictions. If you think that reality comes 'pre-carved into objects' (Cameron 2010b: 17), you'll be inclined to think that there is an elite domain containing just those objects. This domain will make for 'loaded' quantification, in that *F*s can truly be said to exist, using a quantifier with the elite domain, just in case *F*s really are out there among the pre-carved objects. Beyond this, however, there are different constraints Domain Realists might appeal to in order to *characterise* the elite domain.

As I said back in §1.2, I don't think that existential quantification is *inherently* loaded in virtue of its semantics. The loadedness or otherwise of a quantifier is fixed by how the domain is specified in the metalanguage, and not all specifiable domains make for loaded quantification. There is no logical obstacle to defining a domain *D* such that $D =_{df.} \{x : x \text{ is imaginary}\}$, but this presumably won't make for loaded quantification. Nor, in my view, will the *maximally encompassing* domain, containing absolutely everything that can be quantified over. As I see it, this will just be the superset of all specifiable domains, including the domain of imaginary objects, the domain of impossible objects, and so on.

---

(4) 'Table' has a non-empty extension in the domain of $\exists_U$ and an empty extension in the domain of $\exists_N$.

See Schaffer (MS) for further discussion.

But there are more discerning constraints we might use to characterise the elite domain. For example, we might think that the elite domain will comprise just those things that are indispensable to our best overall theory of the world (cf. Sider 2011). This does not tell us in advance what the specific contents of the elite domain will be (e.g. whether it will contain only spacetime points and sets). It is more like a methodological recommendation: finding out what is indispensable to our best theory is the way to *determine* the contents of the elite domain, hence the range of the elite quantifier.

In this spirit, we might think of (TOS) as the claim that the metaphysically elite domain comprises just those things that make a truthmaking contribution. Again, this does not tell us whether the elite domain contains particular entities, like spacetime points or sets. But it offers relatively tractable guidance as to how to determine the contents of the elite domain—hence how to answer the ontological question. The suggestion is that what is real, in the sense of ontological interest, is what can truly be said to exist using the metaphysically elite quantifier, which has that status in virtue of ranging over the metaphysically elite domain; and we should think of the elite domain as containing just those things that make a truthmaking contribution. This is one way to make sense of (TOS)'s claim that *x* is real iff *x* makes a truthmaking contribution.

But why should we accept (TOS)? Why should we think that what is real in the sense of ontological interest (or what makes up the metaphysically elite domain) is just what makes a truthmaking contribution? I doubt that this is the sort of claim that could be established via deductive argument. It is a posit— one to be accepted or rejected based on whether it makes for an attractive picture of ontological inquiry. For example, we take the aim of ontology to be to discover what makes a truthmaking contribution, does this tally with the idea that ontological questions are substantive

and deep, rather than trivial or shallow? Is there a viable methodology for settling ontological questions, construed as questions about truthmakers? What implications does (TOS) have for first-order ontological debate? We won't be in a position to answer these questions until we have a fuller picture of Truthmaker Ontology, which will unfold over the chapters to follow.

(TOS) should seem at least initially plausible, however— at least to those sympathetic to the notion of truthmaking. *Ex hypothesi*, a truthmaker is a part of extra-representational reality—something *out there* in the world— that accounts for the truth of some truthbearer. Given this, it is natural to think that if *x* makes a truthmaking contribution then *x* is real. Conversely, if *x* is real, it is natural to think that *x* makes a truthmaking contribution. For if *x* is real, there will presumably be truths that wouldn't otherwise hold, and for which *x* is responsible— the truth that *x* exists, for one.[77] So, intuitively, whatever makes a truthmaking contribution is real and vice versa.

Furthermore, it is initially plausible to think that if (TOS) is true, ontological questions have the character ascribed to them by the serious conception of ontology. The founding intuition of truthmaker theory is the idea that representational truth depends, cross-categorially, on extra-representational reality. So the search for truthmakers is, by design, an attempt to get beyond our representations of the world to the reality that underlies them. This resonates, prima facie, with the aims of Serious Ontology. Serious Ontologists, as Williams puts it (2010: 107), 'are not just interested in what the true sentences or propositions are: we are interested in the way reality is, in the objects and properties and their arrangements that *support* the truth of the propositions. Truthmaker theory is, basically, just a way of trying to understand the

[77] I take it that if *x* is real then ⟨*x* exists⟩ is true, but I will deny the converse.

relevant notion of 'support'. And as will shortly emerge, when (TOS) is combined with the *Divergence Thesis*, we have a coherent way to distinguish what has ontological status from what can truly be said to exist— a distinction which is crucial, I have argued, if ontology is to be a serious enterprise.

I argued above that Truthmaker Ontology should be founded on a truthmaker criterion of ontological status, (TOS), rather than a criterion of ontological commitment. I have now sketched a way to clarify (TOS) and have given some reasons to think it initially plausible. I end this section, however, on a promissory note. (TOS) is an axiom, which is ultimately to be assessed based on whether the approach based upon it offers a useful way to think about the subject matter and method of ontology— this has yet to be established.

3.3 The Divergence Thesis

My overall aim in this chapter is to explain how Truthmaker Ontology supports a coherent what is real, in the sense of ontological interest, and what can truly be said to exist. (TOS) doesn't let us do this by itself. For perhaps everything that can truly be said to exist must be taken to make a truthmaking contribution. To get the desired distinction, we have to combine (TOS) with the *Divergence Thesis*.

Roughly, the Divergence Thesis says that that the truthmakers for a claim need not involve the entities said or implied to exist by that claim. Truthmaker Ontologists express the Divergence Thesis in different ways, for example: 'Truthmakers may or may not involve the existence of entities apparently referred to by terms in the sentence' (Dyke 2007: 4); 'If "*a* is *F*" is true, this need not be because there is some entity corresponding to *a*, some property corresponding to *F*, and the entity, *a*, possesses the property *F*' (Heil 2003: 55); and 'the truthmakers for certain sentences […] do not involve the entities which the sentence apparently refers to or quantifies

over' (Melia 2005: 77). I will focus on the Divergence Thesis as it applies to existential propositions (cf. Cameron 2008a: 5):

> (Divergence Thesis) If ⟨*x* exists⟩ is made true, it does not follow that *x* is a truthmaker for ⟨*x* exists⟩.

(Likewise, if a general existence proposition of the form ⟨*F*s exist⟩ is made true, it does not follow that *F*s are among the truthmakers. The same goes, *mutatis mutandis*, for propositions of the form ⟨There is an *x*⟩ and ⟨There are *F*s⟩. Since I take the truthmakers for a *sentence* to be the truthmakers for the proposition that sentence expresses, we can also say that *x* need not be a truthmaker for '*x* exists', *F*s need not be among the truthmakers for 'There are *F*s', and so on.)

The Divergence Thesis is controversial. While it is generally agreed that truths can have several truthmakers, truthmaker theorists often assume that ⟨*x* exists⟩ always has *x* as at least *one* of its truthmakers (e.g. Armstrong 2003, Rodriguez-Pereyra 2002). The Divergence Thesis implies that they are wrong: *x* need not make *any* truthmaking contribution to ⟨*x* exists⟩. Friends of the Divergence Thesis should explain why these other truthmaker theorists are mistaken. Moreover, the Divergence Thesis faces at least two potential objections:

> *Aboutness*. Truthmakers are supposed to *explain* the truth of truthbearers. And some argue that an adequate truthmaker-explanation for *P* must appeal, at least in part, to what *P* is *about*. Call this the *Aboutness Constraint* (cf. Baron 2013b, Baron et. al 2019, Merricks 2007, Schipper 2019). But the Divergence Thesis permits violations of the Aboutness Constraint; it implies, for example, that the truthmaker-

explanation for ⟨*x* exists⟩ need not appeal to *x* at all. Thus, one might worry that the Divergence Thesis permits inadequate truthmaker-explanations.

Identification. Truthmaker Ontologists tell us to decide our ontology by asking what it takes to make true the truths we accept. Given the Divergence Thesis, existence claims may or may not be made true by what is claimed to exist. But how are we supposed to *tell* whether, for example, it takes *X*s to make true ⟨*X*s exist⟩, or if something else would do? Without some guidance as to when and why the alleged divergence occurs, it's not clear how we're supposed to decide what ontology we need to make true the existential truths we accept. Thus, one might worry that the Divergence Thesis leaves Truthmaker Ontologists without a workable ontological method (cf. Hale and Wright 2009: 186, Thomasson MS).

But despite its controversial status, proponents of the Divergence Thesis rarely argue for it in detail. In what follows, I will offer an explanation of why the Divergence Thesis holds and argue that the account meets the objections above.

3.3.1 Simple and Substantial Truthmaking Claims

Schulte (2011a, 2011b) distinguishes between *simple* and *substantial* truthmaking claims. In a simple truthmaking claim, the terms used to express the truthbearer reoccur in the description of the truthmaker, as in:

(Sim) Socrates makes true ⟨Socrates exists⟩.

(Sim) seems fairly uninformative. Consider the corresponding explanatory claim: '⟨Socrates exists⟩ is true in virtue of Socrates'. As Schulte points out (2011b: 418), the predicate 'is true' is all that prevents this claim being outright trivial: 'Socrates exists in virtue of Socrates' is not a genuine explanation at all.

In a substantial truthmaking claim, the terms used to express the truthbearer differ from those used to describe to truthmaker, as in:

(Sub) Simples arranged Socrates-wise make true ⟨Socrates exists⟩.

(Sub) seems more informative than (Sim). The corresponding explanatory claim, '⟨Socrates exists⟩ is true in virtue of simples arranged Socrates-wise', remains explanatory when the truth-predicate is eliminated.

Since truthmaker theorists sometimes appeal to substantial truthmaking claims, the difference between substantial and simple truthmaking claims is of independent interest. My interest, however, is in how an account of substantial truthmaking claims might shed light on the Divergence Thesis. For it *might* be the case that whenever a truth has a 'substantial' truthmaker it also has a 'simple' truthmaker. If (Sub) is true, for example, perhaps (Sim) must also be true. However, if we can explain why existence claims can have substantial truthmakers *without* the need for bespoke simple truthmakers, we will have explained why the Divergence Thesis holds. We could claim, for example, that ⟨Socrates exists⟩ is made true by simples arranged Socrates-wise but *not* by Socrates. Is there an account of substantial truthmaking claims that allows this?

Schulte's interesting proposal is that substantial truthmaking claims involve two distinct explanatory components. The first is a truthmaking claim connecting a truth to a simple truthmaker. The second is a *reductive explanation* of the existence of this

truthmaker in terms of the existence of something else (Schulte 2011b: 419). For example, on Schulte's view, (Sub) is really a truncated version of the following:

(SubRE)

(i) Socrates makes true ⟨Socrates exists⟩.

(ii) The existence of simples arranged Socrates-wise reductively explains the existence of Socrates.

Schulte thus seems to be appealing to the following *Reduction Principle*:

(Reduction Principle) If $y \vDash P$, and the existence of x reductively explains the existence of y, then $x \vDash P$.

Given the Reduction Principle, (SubRE) implies (Sub). By Schulte's lights, it is the presence of the additional reductive explanation that makes (Sub) more informative than (Sim).

I like the shape of this proposal, but it doesn't give friends of the Divergence Thesis what they want. Schulte is not clear whether he thinks that reductive explanation yields *identity* (i.e., whether 'the existence of x reductively explains the existence of y' entails that $x = y$). But suppose, first, that it doesn't. Then substantial truthmaking claims require us to posit *both* a substantial truthmaker and a distinct simple truthmaker. For example, by (SubRE), we'd need Socrates as a bespoke simple truthmaker for ⟨Socrates exists⟩ as well as the simples explicitly cited in (Sub). This is what the Divergence Thesis is supposed to avoid. Suppose, on the other hand, that

reductive explanation *does* yield identity. Then substantial truthmaking claims will commit us to some contentious metaphysics. For example, the claim that simples arranged Socrates-wise make true ⟨Socrates exists⟩ will commit us to composition-as-identity; the claim that Socrates's being in neural state *N* makes true ⟨Socrates is in pain⟩ will commit us to an identity theory of mind. My Truthmaker Ontologist would rather avoid this sort of baggage.

Another potential account, with a similar shape to Schulte's, is based on Armstrong's (2004: 10) *Entailment Principle*:

(Entailment Principle) If $x \vDash P$ and $P \rightarrow Q$ then $x \vDash Q$.

Given the Entailment Principle, we might take (Sub) to be a truncated version of the following:

(SubEP)

(i) Simples arranged Socrates-wise make true ⟨Simples arranged Socrates-wise exist⟩.

(ii) ⟨Simples arranged Socrates-wise exist⟩ entails ⟨Socrates exists⟩.

By the Entailment Principle, (SubEP) implies that simples arranged Socrates-wise make true ⟨Socrates exists⟩. But this time, there is no need to posit Socrates as a bespoke simple truthmaker: the simples by themselves do all the truthmaking needed, and so are 'ontology enough' to account for the truth of ⟨Socrates exists⟩. However, this account has a major disadvantage: it fails to ensure the explanatory relevance of substantial truthmakers to what they make true (see §3.4). For example, if simples

arranged Socrates-wise make true ⟨Socrates exists⟩ they will also make true ⟨Everything is self-identical⟩.

So the entailment account gives us too little explanatory relevance, while the reductive explanation account gives us too much ontology (or commits us to some contentious metaphysics). But a third account, with the same general shape, gives us the best of both worlds. This account is based on the *Grounding Principle*, and the associated distinction between *direct* and *indirect* truthmaking (see §2.4):

(Grounding Principle) If $x \vDash P$ and $P \Rightarrow Q$ then $x \vDash Q$.

(Direct Truthmaking) x directly makes P true iff$_{df.}$ $x \vDash P$ & $\neg\exists Q(x \vDash Q \,\&\, Q \Rightarrow P)$.

(Indirect Truthmaking) x indirectly makes P true iff$_{df.}$ $x \vDash P$ & $\exists Q(x \vDash Q \,\&\, Q \Rightarrow P)$.

Given the Grounding Principle, we might take (Sub) to be a truncated version of the following:

(Sub$_{GP}$)

(i) Simples arranged Socrates-wise make true ⟨Simples arranged Socrates-wise exist⟩.

(ii) ⟨Simples arranged Socrates-wise exist⟩ grounds ⟨Socrates exists⟩.

By the Grounding Principle, (Sub$_{GP}$) implies that simples arranged Socrates-wise indirectly make true ⟨Socrates exists⟩. In general, I submit that *substantial*

truthmaking is *indirect* truthmaking: truths are connected to their substantial truthmakers via intermediate grounding relations. In contrast, simple truthmaking is *direct* truthmaking: truths are connected to their simple truthmakers directly, without any intermediate grounding relations. So the reason substantial truthmaking claims seem more informative than simple truthmaking claims is that the former involve an extra explanatory component, i.e., one or more intermediate grounding relations. This has the same advantage as the entailment account. We can say, for example, that simples arranged Socrates-wise are all it takes to make ⟨Socrates exists⟩ true, without the need for Socrates as a bespoke simple truthmaker. But it also ensures the explanatory relevance of substantial truthmakers to what they make true. For example, if simples arranged Socrates-wise make true ⟨Socrates exists⟩, it does not follow that they make true ⟨Everything is self-identical⟩, which is entailed, but not grounded, by ⟨Socrates exists⟩.

Let's now apply this account of substantial truthmaking to the Divergence Thesis:

(Divergence Thesis) If ⟨x exists⟩ is made true, it does not follow that x is a truthmaker for ⟨x exists⟩.

First, consider the following claim: if x indirectly makes true ⟨y exists⟩, then $x \neq y$. This follows from *Quasi-Asymmetry*, which I have previously defended (§3.4):

(Quasi-Asymmetry) $\forall x \forall P((x \vDash P) \rightarrow \neg(P \Rightarrow \langle x \text{ exists} \rangle))$

Suppose ⟨a exists⟩ is indirectly made true by some x. Then there is some P such that $x \vDash P$ & $P \Rightarrow$ ⟨a exists⟩. Now suppose that $x = a$. Then $a \vDash P$ & $P \Rightarrow$ ⟨a exists⟩. But,

by Quasi-Asymmetry, $\neg(a \vDash P \ \& \ P \Rightarrow \langle a \text{ exists}\rangle)$. Contradiction. So any indirect truthmaker for $\langle x \text{ exists}\rangle$ must be something other than x.

(In contrast, I think that if x *directly* makes true $\langle y \text{ exists}\rangle$, then $x = y$. I have no direct argument for this claim, but I find it very plausible. If x makes true $\langle y \text{ exists}\rangle$ and $x \neq y$, it is natural to think that there must be some grounding connection between the truths $\langle x \text{ exists}\rangle$ and $\langle y \text{ exists}\rangle$. Otherwise, it just seems to be a brute fact that $\langle y$ exists$\rangle$ is true in virtue of something that bears no immediate connection to its content.)

Now, suppose that $\langle x \text{ exists}\rangle$ is indirectly made true by some y. By the previous argument, $x \neq y$. Thus, $\langle x \text{ exists}\rangle$ is made true by something other than x. Now since a truth can have several truthmakers, it might *also* be the case that $\langle x \text{ exists}\rangle$ is directly made true by x. But since y itself is a sufficient truthmaker for $\langle x \text{ exists}\rangle$, $\langle x \text{ exists}\rangle$ might be made true without help of x. And that's all the Divergence Thesis requires: if $\langle x \text{ exists}\rangle$ is made true, it does not follow that x is a truthmaker for $\langle x \text{ exists}\rangle$, because it might be that $\langle x \text{ exists}\rangle$ is indirectly made true but is not directly made true. In sum, the Grounding Principle offers a natural and attractive explanation as to how existence claims need not be made true by what is claimed to exist. (And the account can be generalised beyond existence claims. For example, the predication ⟨Socrates is in pain⟩ might be indirectly made true as follows: (i) [Socrates is in neural state N] $\vDash$ ⟨Socrates is in neural state N⟩; (ii) ⟨Socrates is in neural state N⟩ $\Rightarrow$ ⟨Socrates is in pain⟩. If so, then the fact that Socrates is in neural state N might be all it takes to make true ⟨Socrates is in pain⟩, without the need to posit the fact that Socrates is in pain as a bespoke simple truthmaker.)

3.3.2 Replies to Objections

According to the Aboutness Objection, the Divergence Thesis permits violations of the Aboutness Constraint, which says that an adequate truthmaker-explanation for *P* must at least partly appeal to what *P* is about. To see the Aboutness Constraint in action, consider *presentism*: the view that everything that exists exists presently. Presentism is thought to face the challenge of finding presently existing truthmakers for truths about the past, such as ⟨Shakespeare existed⟩. One strategy is to posit *tensed facts*, such as the fact that the world is such that it once contained Shakespeare (Bigelow 1996). But some object to this on the grounds that it violates the Aboutness Constraint (Baron 2013b, Merricks 2007). Intuitively, ⟨Shakespeare existed⟩ is about *Shakespeare*, rather than the world's instantiating a certain tensed property. Hence, the objectors argue, the presentist's truthmaker-explanation doesn't pass muster.

But by my lights, there is no obstacle (in principle) to the presentist's truthmaker-explanation being correct. For perhaps ⟨Shakespeare existed⟩ is not directly made true by anything involving Shakespeare himself, but is indirectly made true as follows:

(i) [The world is such that it once contained Shakespeare] ⊨ ⟨The world is such that it once contained Shakespeare⟩.

(ii) ⟨The world is such that it once contained Shakespeare⟩ ⇒ ⟨Shakespeare existed⟩.

That is, perhaps [The world is such that it once contained Shakespeare] indirectly makes true ⟨Shakespeare existed⟩, and so the truthmaker-explanation for ⟨Shakespeare existed⟩ might not appeal to Shakespeare. So, given the Aboutness

Constraint, it looks like the Divergence Thesis permits explanatorily inadequate truthmaker-explanations.

I accept that the Divergence Thesis permits violations of the Aboutness Constraint. But I reply that, on my account of how these violations occur, retaining the Aboutness Constraint is unmotivated. The main motivation for the Aboutness Constraint is that we can't otherwise ensure the explanatory relevance of truthmakers to what they make true. Thus, Merricks (2007: 22-34) and Schipper (2019) claim that we need the Aboutness Constraint to avoid the awkward consequences of the view that truthmaking is nothing more than necessitation, e.g. that your coffee mug is a truthmaker for ⟨2 + 2 = 4⟩. Baron (2013b: 550) argues that rejecting the Aboutness Constraint leads to a kind of 'permanent epistemic chaos'. For example, suppose I know some true *P* about the mating habits of pandas. If the Aboutness Constraint is false, Baron claims, then for all I know *P* might be true in virtue of something completely irrelevant, such as your coffee mug.

But it doesn't follow from the falsehood of the Aboutness Constraint that truthmaker might be explanatorily irrelevant to what they make true. Explanatory relevance is ensured as long as the truthmakers are appropriately connected to what their truths are about (cf. Baron 2013b: 555). And by my lights, violations of the Aboutness Constraint occur in cases of indirect truthmaking, where truths are connected to truthmakers via one or more intermediate grounding relations; and truths must be explanatorily relevant to what they ground. Perhaps *P*, the truth about the mating habits of pandas, is grounded by certain physiological truths, which are themselves grounded by certain chemical truths, and so on until we ultimately reach certain truths about the existence and features of subatomic particles. Then we might think that *P* is indirectly made true by facts involving the existence and features of these subatomic particles. This violates the Aboutness Constraint, since *P* is not about

subatomic particles. But intuitively, our indirect truthmakers are relevant to the truth of *P*, since they are appropriately connected to *P* via a series of explanatorily relevant grounding relations. In contrast, your coffee mug will not be an indirect truthmaker for *P*, or for ⟨2 + 2 = 4⟩: any truths your coffee mug directly makes true (⟨Your coffee mug exists⟩, perhaps) are not plausibly connected by grounding to these truths. So although my account permits violations of the Aboutness Constraint, it still ensures the explanatory relevance of truthmakers to what they make true.

According to the Identification objection, the Divergence Thesis threatens to leave Truthmaker Ontologists without a workable ontological method. This is because there is no clear procedure for telling whether an existence claim must be made true by what it says there is, or whether something else would suffice. Must we admit tables into our ontology, for example? According to Truthmaker Ontologists, this question largely hinges on whether sentences like 'Tables exist' express propositions that require tables as truthmakers; if simples arranged table-wise are all it takes to make these sentences true then we can get by without tables in our ontology. But given the Divergence Thesis, we can't tell whether this is so just by examining the table-involving truths we accept. So how *are* we supposed to tell whether we need tables as truthmakers, hence whether we need them in our ontology?

Talk of what's *needed* to make sentences true takes us into the arena of ontological commitment. Given that ontology consists of all and only the truthmakers, the ontological commitments of a theory are its requirements on truthmakers. The objection is asking, effectively, how are we supposed to tell which truthmakers a theory requires, given that existence claims may or may not be made true by what is claimed to exist. I won't fully address this challenge until Chapter 5, where I go into detail about how Truthmaker Ontologists should understand and identify the ontological commitments of theories. Here, I'll just say something about Thomasson's

demand that Truthmaker Ontologists provide what she calls a *negative methodological principle* (MS: 4-5):

> [E]ven if truthmaker theorists don't give us a recipe for determining what we *are* committed to, they must at least provide a criterion that will tell us when we *aren't committed to* entities of a kind apparently referred to in a given sentence or theory. Under what conditions can we say that an entity *isn't needed* as a truthmaker and so deny the apparent commitment?

Here's my suggestion. Recall that, given Quasi-Asymmetry, any *indirect* truthmaker for ⟨*a* exists⟩ must be something other than *a*. And ⟨*a* exists⟩ will have an indirect truthmaker as long as it is grounded by some *P* such that *P* has a truthmaker (the latter clause being redundant, of course, if Truthmaker Maximalism is assumed). So the question of whether *a* is needed as a truthmaker for ⟨*a* exists⟩ reduces to the question of whether ⟨*a* exists⟩ is grounded by some truth (with a truthmaker). If it is, then whatever makes true the truth that grounds ⟨*a* exists⟩ will suffice to make true ⟨*a* exists⟩. It doesn't follow that *a does not* make true ⟨*a* exists⟩. But it does follow that *a need not* make true ⟨*a* exists⟩, since the indirect truthmaker would suffice by itself. Thus, the negative methodological principle I'd suggest is as follows: if ⟨*a* exists⟩ is plausibly *grounded* by some other truth(s), then *a* plausibly needn't be among the truthmakers for ⟨*a* exists⟩. Of course, developing a positive account what *is* required to make a given claim true is another matter— I'll postpone this until Chapter 5.

3.4 Mere and Real Existence

I will now clarify and defend the distinction between what *merely* and what *really* exists.

3.4.1 The Distinction

By the Divergence Thesis, *x* need not be among the truthmakers for ⟨*x* exists⟩. Hence, ⟨*x* exists⟩ might be made true even if *x* doesn't do any truthmaking. By (TOS), *x* counts as real— as having ontological status— just in case *x* makes a truthmaking contribution. So ⟨*x* exists⟩ might be made true (hence true *simpliciter*) even if *x* lacks ontological status. Thus, existential truth and ontological status come apart: what is real, in the sense of ontological interest, might be a proper subset of what can truly be said to exist. Following Cameron (2008a), we might articulate this by introducing a pair of technical terms: *merely exists* and *really exists*:

(Real Existence) *x really exists* iff$_{df.}$ *x* makes a truthmaking contribution.

(Mere Existence) *x merely exists* iff$_{df.}$ ⟨*x* exists⟩ is true but *x* does not make a truthmaking contribution.

The view, then, is that ontology does not concern what exists but the subset thereof that *really* exists, i.e. makes a truthmaking contribution.

It's crucial to be clear about the nature of this distinction. Earlier, I distinguished between inflationary and deflationary forms of Stratified Ontology— the broad family of metaontological views that some sort of distinction between what exists and what really, or fundamentally, exists. The distinction above is intended in a deflationary spirit. The thought is not that reality divides into the 'elite' entities that

make a truthmaking contribution and the 'non-elite' entities that don't. The thought is that, if ⟨*F*s exist⟩ is true, but *F*s don't do any truthmaking, then *Fs aren't part of reality at all*— out there in the world, there are really no such things. Yet *representations* concerning the existence of *F*s can still be *made* true by an *F*-less reality. Given this, ontologists need an *expressive device* to distinguish what can truly be said to exist from what has ontological status (cf. Williams 2010): that is the function of the technical term *really exists*. To quote Cameron (2008a: 7):

> Do not think of the distinction as dividing the entities in the world into the privileged real existents and the impoverished unreal existents. *All there is* in the world are the real existents: once you've said what there really is, you have answered the ontological question. The distinction between mere existence and real existence is just a way of talking.

3.4.2 Is the Distinction Coherent?

If I'm labouring the point, it's because I'm anxious to avoid the sort of misunderstanding on display in a recent paper by Schipper (2019). Schipper distinguishes between deflationary and inflationary forms of Truthmaker Ontology. His deflationary Truthmaker Ontologist thinks that 'reality is exhausted by *fundamental* reality', which consists of all and only the truthmakers (2019: §3, my emphasis). His inflationary Truthmaker Ontologists 'takes reality not to be exhausted by fundamental reality (rather, it consists of both fundamental and non-fundamental reality)', but insists that only fundamental entities do any truthmaking (ibid.). My view resembles that of Schipper's deflationary Truthmaker Ontologist (though I prefer to talk in terms of real existence, rather than fundamentality). But according to Schipper, both views face serious difficulties. Briefly, his objection to the inflationary view is that there is no principled basis on which to rule out real, albeit non-fundamental, entities as truthmakers. His objection to the deflationary view is that it

falls into contradiction. For according to Schipper, deflationary Truthmaker Ontologists are 'nihilists about what is not fundamental', endorsing the following schema (2019: §4):

(S) ¬(In fundamental reality, ϕ) $\rightarrow$ ¬ϕ.

Yet Schipper's deflationist also wants to say that (for example) 'Tables exist' is true, albeit made true by a table-less 'fundamental reality'. But if 'Tables exist' is true, then tables exist. And if ¬(In fundamental reality, tables exist), it follows by (S) that ¬(Tables exist). Hence, Schipper concludes, deflationary Truthmaker Ontology is incoherent.

Schipper's assumption that deflationary Truthmaker Ontologists are committed to (S) rests on a general confusion about the distinction between inflationary and deflationary forms of Stratified Ontology. 'Inflationists', he says, 'think that reality is layered or has levels; everything that is part of fundamental reality is at one level, but there is at least one other level […] containing everything non-fundamental' (2019: §3). So far so good. But he continues (op. cit.):

> By contrast, according to the deflationist, reality is not layered and consists only of fundamental reality […]. [E]verything which deflationists might call 'derivative' is not, as the inflationist would construe it, '*merely* existing', but just *not* existing at all.

Schipper is assuming here that *whatever exists must be part of reality*. Given this, the deflationist's claim that 'reality […] consists only of fundamental reality' entails the non-existence of the non-fundamental. This would explain why Schipper thinks deflationary Truthmaker Ontologists are committed to (S), leading to self-contradiction. But to assume that whatever exists (or perhaps better: can truly be *said* to exist) must be part of reality just begs the deflationist's question. The whole crux

of deflationary Stratified Ontology is that an *F*-less reality can support the literal truth of representations like '*F*s exist'; hence the need to distinguish what can truly be said to exist from what really (or fundamentally) exists. Truthmaker Ontology, as I've presented it, offers a specific account of how this distinction works: given that reality is exhausted by the things that make a truthmaking contribution, and ⟨*F*s exist⟩ can be made true indirectly by non-*F*s, it is perfectly consistent to think that *F*s can truly be said to exist yet aren't part of reality. By lumbering deflationary Truthmaker Ontologists with schema (S), Schipper ignores all this, simply assuming that what is real and what can truly be said to exist can't be intelligibly distinguished.

But perhaps there are independent grounds for denying that the distinction is intelligible. One might argue that the truth of '*P*' implies that reality is such that *P*. So it can't be true that *x* exists unless reality is such that *x* exists, which seems equivalent to *x*'s being real. Given this, the claim that *x* might truly be said to exist despite being unreal sounds incoherent (cf. Eklund 2009a: 316).

But there is reason to doubt that true representations mirror reality as closely as this objection assumes. Consider Sider's (2013a) story of Nihilo, a god who creates a world made up solely of simple particles:

> On the first day Nihilo creates some particles and arranges them in beautiful but lifeless patterns. He becomes lonely, so on the second day he creates some minions (or rather, particles arranged minion-wise). On the third day he tries to teach his minions so speak. But this goes badly. The dim-witted minions struggle to understand Nihilo's talk of subatomic particles and their physical states. So on the fourth day he teaches them an easier way to speak. Whenever an electron is bonded (in a certain way) to a proton, he teaches them to say 'there is a hydrogen atom'; whenever some subatomic particles are arranged chair-wise he teaches them to say 'there is a chair', and so on. (Pretend that electrons and protons have no proper parts.) (Sider 2013a: 248-249).

Intuitively, chairs and other complex objects are unreal in the scenario described: all Nihilo created when he created the world were simple particles. But when the minions utter sentences like 'There is a chair', I think they plausibly speak the truth. For it is reasonable to suppose that the minions are best interpreted as speaking a *metasemantically tolerant* language, in which 'There is a chair' expresses a truth just in case reality hosts some simples arranged chair-wise (see §1.4). It thus seems at least coherent to think that chairs can truly be said to exist in the minions' language despite being unreal. Indeed, it is conceivable that conventions of English use are such that 'There is a chair' might be true in *our* language, even if we inhabit a chair-less reality. If this is a coherent possibility, as I think it is, then there is an intelligible sense in which what is real can come apart from what can truly be said to exist.

Alternatively, consider sentences like 'There is a fictional space explorer called Picard' and 'There is a shortage of staff in the NHS' (see §1.2). I submit that the three following claims are highly plausible: (i) These sentences are both true; (ii) When speakers typically utter these sentences, they are not speaking non-strictly, or non-literally; (iii) Reality does not host such things as fictional space explorers or shortages or staff. If the strict and literal truth of 'There are *F*s' implies the reality of *F*s, one of these plausible assumptions must be given up. Isn't it at least somewhat reasonable to conclude that, instead of giving up (i)-(iii), we should instead revise our assumptions about the relation between reality and existential truth?

Here's Williams (2012: 171) with a nice description of the sort of alternative picture deflationary Stratified Ontology allows for:

> Mind-independent reality is thus-and-so (perhaps an ontology of concreta spread through space-time, characterised by the instantiation of various natural properties). The relation between this reality and *representations of it*—including the sentences of natural language and the language of thought— is complex and demands

> analysis. When the dust settles, some of these representations will turn out to be *true*. But—for example— all that may be required of reality for the representation 'there are tables' to be true, is that certain simple particles stand in certain arrangements.

The Truthmaker Ontologist adds that the relevant connection between reality and true representations of it is the truthmaking relation A table-less ontology might support the truth of 'There are tables' because the proposition expressed might be *indirectly* made true by simples arranged thus-and-so. If so, then the simples have genuine ontological status and are thus said to really exist. Tables can truly be *said* to exist but have no ontological status, and therefore *merely* exist. We could tell a similar story about sentences like 'There is a fictional space explorer called Picard' or 'There is a chair', as spoken by Nihilo's minions. Such sentences are true; but perhaps reality doesn't need to host fictional space explorers or chairs in order to adequately *account* for their truth. I see no good reason to think this picture incoherent or unintelligible.

Conclusion

If ontology is to be a serious enterprise, we need a way to coherently distinguish ontological questions from questions about what there is. I have argued that Truthmaker Ontology offers one. Since all and only the truthmakers have ontological status, and since *F*s need not be among truthmakers for ⟨There are *F*s⟩, an *F*-less ontology can support the truth of ⟨There are *F*s⟩. Truthmaker Ontology thus emerges as a deflationary form of *Stratified* Ontology, on which ontological status comes apart from what can truly be said to exist. We can articulate this by distinguishing what really exists (i.e. what makes a truthmaking contribution) and what merely exists (i.e. what can truly be said to exist but makes no truthmaking contribution). The claim,

then, is that ontology only concerns what really exists; and we've already begun to see why this might appeal to Serious Ontologists.

4 Fundamental Truthmakers

We now have a general idea of what Truthmaker Ontology is and how it diverges from Orthodox Ontology. The key claim is that the task of ontology is to determine what makes a truthmaking contribution— what *really* exists— which might be a proper subset of what can truly be said to exist. Here I suggest a way to refine this proposal. I will do so in the course of propounding a *theory of fundamentality*: an account of what is fundamental and how the fundamental relates to the non-fundamental. Briefly, on the theory proposed, a collection of *fundamental truthmakers* provides the ontological foundation for an abundant, layered hierarchy of fundamental and non-fundamental *truths*. I claim that this theory offers an independently attractive way to think about the contentious notion of fundamentality. But moreover, it guides Truthmaker Ontologists towards a clearer understanding of what it takes to answer the ontological question. For the fundamental truthmakers, I'll suggest, are the only things we need to take to make a truthmaking contribution; hence they are all we need to admit to our ontology.

In §4.1, I outline some general aims and desiderata of a theory of fundamentality. I also consider some of the benefits and drawbacks of accounting for fundamentality in terms of truthmaking and/or grounding (broadly construed). I then set about developing a theory of fundamentality, based on the distinct relations of truthmaking and (truth-)grounding. First, in §4.2, I use grounding to define what I take to be the core properties of fundamental *truth—basicness* and *integrality*— and to elucidate the interaction between them. Then, in §4.3, I introduce the notion of a fundamental *truthmaker*: roughly, a member of a collection of entities that provides a non-redundant truthmaking base for the fundamental truths. I argue, *inter alia*, that the fundamental truthmakers can provide a non-redundant truthmaking base for *all* truths

and are therefore all we need to take to make a truthmaking contribution. In §4.4, I consolidate the foregoing results into a theory of fundamentality and explain its relevance to Truthmaker Ontology.

4.1 Fundamentality

In broad terms, a *theory of fundamentality* is an account of (i) what is fundamental and (ii) how the fundamental relates to the non-fundamental.[78] Not all theories of fundamentality, however, target quite the same phenomenon.

Some theories are primarily concerned with *ontological* fundamentality. Such theories treat 'fundamental' and 'non-fundamental' as predicates of non-representational, 'worldly' entities (e.g. quarks, cities, sets). Roughly speaking, theories of ontological fundamentality aim to capture the idea that there are certain ontologically basic 'building blocks' on which the rest of reality ultimately depends. Schaffer (2009), for example, distinguishes between fundamental and non-fundamental entities in terms of the *entity-grounding* relation (see §2.1): *x* is a non-fundamental entity iff something entity-grounds *x*, and a fundamental entity iff nothing does.

Other theories are primarily concerned with *alethic* fundamentality. On such theories, 'fundamental' and 'nonfundamental' are seen as predicates of representational entities (e.g. true sentences, true propositions, sub-sentential terms). Roughly speaking, such theories aim to capture the idea that there are certain explanatorily basic or metaphysically perspicuous *truths*, in virtue of which all others hold. Some distinguish between fundamental and non-fundamental truths in terms of truth-grounding: non-fundamental truths are grounded by fundamental truths, which

[78] See Fisher (2016: 449), Sider (2011: 105, 2013b: 760).

are not grounded by any further truths (cf. Cameron 2018). For Sider (2011), fundamental truths are those formulated in fundamental ('joint-carving') *terms* and relate to non-fundamental truths via what he calls 'metaphysical semantics'.

I take there to be two core concepts associated with the notion of fundamentality (whether ontological or alethic).[79] The first is *basicness*. Intuitively, the fundamental is in some sense the 'ground floor': it does not depend on or derive from anything else. Basicness is perhaps the most natural way to think about fundamentality, underlying the widespread idea that fundamental entities/truths are those that don't exist/hold in virtue of any *other* entities/truths (cf. Bennett 2017: Ch.8). The second core concept is *integrality*. Intuitively, fixing what is fundamental is 'all God would have to do' in order to fix everything. There are two aspects of the concept of integrality. One is *completeness*: the fundamental must in some sense be responsible for everything *else* (cf. Schaffer 2010: 39, Sider 2011: 105). The other is *non-redundancy*: not only does the fundamental account for everything else, but nothing *less* than the fundamental suffices to do so. If basicness is the most natural way to characterise fundamentality, integrality is perhaps the most philosophically interesting. It underlies one of the main reasons for regarding fundamentality as metaphysically important: to give an account of what is fundamental, *qua* integral, is to give a minimally complete account of everything (cf. Sider 2011: 105, Tahko 2018: §1.3).

Another reason for interest in fundamentality comes from the previously mentioned idea that the world is structured as a *layered hierarchy,* whereby (e.g.) the economic depends on the psychological, the psychological on the biological, and so on (see §2.1.3). It is natural to think of this layered hierarchy as corresponding to a notion of *relative fundamentality*: biological phenomena are *more fundamental than*

[79] See Bennett (2017: Ch.8) and Tahko (2018).

psychological phenomena but *less fundamental than* chemical phenomena, for example. And perhaps the hierarchy terminates in a set of *absolutely* fundamental phenomena, which do not depend on anything else but on which everything else ultimately depends. I will assume, in what follows, that as well as elucidating the notions of basicness and integrality, a theory of fundamentality should also make sense of this layered picture.

4.1.1 Grounding, Truthmaking and Fundamentality

The intuitive appeal of the layered conception perhaps explains why several find it congenial to characterise fundamentality in terms of some form of *grounding* relation.[80] Grounding is generally construed as a relation of non-causal dependence, closely related to explanation. It thus seems well-suited to capture the sense in which the less fundamental depends on the more fundamental. And, like grounding, relative fundamentality seems to be a strict partial order. If chemistry is more fundamental than biology, biology is not also more fundamental than chemistry; so *more fundamental than* is plausibly asymmetric (hence irreflexive). If physics is more fundamental than chemistry, and chemistry more fundamental than biology, then physics is more fundamental than biology; so *more fundamental than* is plausibly transitive. Prima facie, then, grounding has the right features to make sense of the notion of relative fundamentality corresponding to the layered hierarchy.[81] But as I mentioned in §2.1.3, there are different ways to think about the hierarchical picture;

[80] See e.g. Cameron (2018), Rosen (2010), Schaffer (2009). Note that I'm using 'grounding' broadly here and am not specifically referring to *truth*-grounding.

[81] But see Rabin (2018).

in particular, there is a question as to whether to think of it as an *alethic* or an *ontological* hierarchy.

Recall the *inflationary* conception of Stratified Ontology, on which reality divides into layers of fundamental and non-fundamental entities (§3.1.2). Inflationists tend to think of hierarchical fundamentality as an ontological hierarchy, structured by a grounding relation whose relata are construed as elements of extra-representational reality. They might appeal to *entity-grounding* to distinguish between fundamental (ungrounded) and non-fundamental (grounded) entities, both construed as 'full-blown "heavyweight"' denizens of reality (Schaffer 2009: 360). Or they might appeal to *fact*-grounding to distinguish fundamental from non-fundamental facts, insisting that 'grounded facts and ungrounded facts are equally real, and grounded facts are an "addition of being" over and above the facts in which they are grounded' (Audi 2012b: 101-102). The hierarchy, with economics and psychology towards the 'top' and physics towards the 'bottom', is thus supported by an abundant ontology of more and less fundamental 'levels of being'.

You may have guessed that I'm not a fan of this inflationary picture. One reason for this has to do with parsimony. Ockham's Razor tells us to avoid an abundant ontology if we can get by with a sparser one. And given that the fundamental is supposed to somehow explain everything else, there is a concern that the inflationist's abundant non-fundamental ontology is redundant. Some hope to avert this worry by arguing that, although grounded and ungrounded entities are equally real, Ockham's Razor only cares about the ungrounded (Schaffer 2015, Bennett 2017). But as I'll argue in a later chapter, I don't think this works (see Ch.6).

One might instead think of the hierarchy as an *alethic* hierarchy. One might, for instance, distinguish between fundamental and non-fundamental *truths* in terms of a grounding relation between true propositions (cf. Cameron 2018). This could provide

for an abundant, structured hierarchy of fundamental and non-fundamental *truths*— the less fundamental holding in virtue of the more fundamental— without the need for a correspondingly abundant ontological hierarchy. Perhaps, for example, the truths of psychology are derivative and dependent on the truths of biology, even if reality hosts no *sui generis* psychological or biological entities. But the question arises: how *does* this alethic hierarchy relate to extra-representational reality? As a truthmaker theorist, I think the alethic needs *some* foundation in the ontological— albeit, perhaps, in a sparser ontology then we get on the inflationary entity-grounding picture. Moreover, I think this foundation must involve a *cross-categorial* relation of non-causal dependence, connecting representational truth to extra-representational reality (see Ch.2). A grounding relation that only obtains between true representations doesn't seem to allow for this on its own.

Perhaps, instead of grounding, fundamentality could be characterised in terms of truthmaking. An interesting possibility here is that, because truthmaking is cross-categorial, a truthmaker theory of fundamentality could speak to both alethic and ontological fundamentality. Fisher (2016: 449) outlines the basic idea as follows:

> A truthmaker theory of fundamentality […] posits a relation of truthmaking in order to specify which truths are fundamental, how they are related to the world, and how they are related to nonfundamental truths. On the truthmaking approach, entity-fundamentality and truth-fundamentality are combined to give a theory about the world's structure in terms of a set of fundamental truthmakers and a fundamental description that is made up of a set of fundamental truths.

Here's a rough picture of how this might go. We have a sparse set of fundamental entities— say, microphysical entities—serving as the ultimate truthmakers for all the truths. Fundamental truths might be defined in relation to these entities; perhaps they are simply truths that proclaim the existence of the microphysical truthmakers. Non-

fundamental truths stand in some less immediate relation to the fundamental truthmakers but are still made true by the same sparse microphysical ontology. So (as per the truth-grounding approach) there might be psychological and biological *truths* without the need to admit *sui generis* psychological or biological entities into our ontology (as per the entity-grounding approach). But we also have a story to tell about how these truths depend on ontology, in terms of their relation to the fundamental truthmakers. As deRosset puts it, '[t]ruthmaking has the right features to explain the rich panoply of truths while keeping the ontology […] sparse and flat' (2017: 543).

But as deRosset goes on to point out (2017: 544-545), truthmaking seems to have the wrong features to underwrite the hierarchical picture. On the truth-grounding approach, truths about the microphysical might provide the ultimate grounds for all non-fundamental truths; but there will also be grounding relations among the non-fundamental truths, the less fundamental holding in virtue of the more fundamental. On the truthmaker approach, microphysical entities might be the ultimate truthmakers for all truths. But since truthmaking is cross-categorial, there will be no truthmaking relations between, for example, the truths of biology and the truths of psychology. So while the notion of truthmaking may shed light on how fundamental and non-fundamental truths relate to fundamental ontology, it 'lacks the right formal and material features to capture the rich layered structure of theories' (deRosset 2017: 545).

Let's take stock. A theory of fundamentality aims to say (i) what is fundamental and (ii) how the fundamental relates to the non-fundamental. A theory of fundamentality might primarily concern *alethic* or *ontological* fundamentality or, in the case of truthmaker theories, elements of both. In either case, we would like a theory of fundamentality that makes sense of the two core concepts of *basicness* and *integrality*. We would also like one that makes sense of the compelling hierarchical

picture. Grounding-based approaches seem particularly well-suited to the latter. But 'worldly' conceptions of grounding, on which grounding is a relation between 'full-blown, heavyweight' denizens of reality, give us too much ontology for my liking. Representational conceptions, on the other hand, give us too little and do not speak to the truthmaker theorist's guiding intuition that the alethic depends cross-categorially on the ontological. Truthmaker approaches, meanwhile, have the potential to give us the best of both worlds, but seem ill-equipped to make sense of the layered conception. To quote deRosset again (2017: 545): 'We would like some way to stitch together ground and truthmaking so that the result has the formal and material features of ground, but relies only on a sparse and flat ontology'.

4.1.2 Hybrid Theories

Perhaps the way forward is to adopt some sort of *hybrid* truthmaker theory of fundamentality, appealing to other notions alongside truthmaking. Cameron (2018) and Fisher (2016) might be read as endorsing theories of this sort.

Cameron (2018) outlines a theory of fundamentality in the course of an attempt to assimilate truthmaking into truth-grounding. Let a *fundamental truth* be a true proposition that is not grounded by (does not hold in virtue of) any further truth. Let a *pure existence claim* be a proposition whose sole content is that some *x* or *X*s exist(s). Cameron uses these notions to define truthmaking as follows (2018: 338):

> [A] proposition is made true by some things, the Xs, if and only if it is the fundamentally true pure existence claim that the Xs exist or it is true in virtue of the fundamentally true pure existence claim that the Xs exist.[82]

[82] I have substituted 'fundamentally' for Cameron's 'brutely'.

Essentially, then, Cameron holds a *grounding* theory of alethic fundamentality. On his view, fundamental and non-fundamental truths are connected by the (irreflexive, asymmetric and transitive) grounding relation whose relata are true propositions; the fundamental truths are those which are not grounded by further truths. Truthmaker theory, as Cameron sees it, is just a special version of this grounding theory on which the only fundamental truths are *existential* truths, which serve as the ultimate grounds for all other truths. This is how Cameron understands 'the characteristic claim of truthmaker theory: the claim that every truth is made true by some thing(s)' (2018: 338).

Cameron's account gives us an abundant, structured alethic hierarchy without the need for a correspondingly abundant ontological hierarchy. It also *sounds* like Cameron has the resources to relate this alethic hierarchy to a sparse ontology of fundamental truthmakers. But because Cameron assimilates truthmaking into truth-grounding, his theory jettisons the truthmaker theorist's usual contention that this is a *cross-categorial* relation.[83] Suppose that, out in reality, there is a certain electron *e*. And suppose that ⟨*e* exists⟩ is a fundamental truth. It follows from Cameron's definition of truthmaking that ⟨*e* exists⟩ is made true by *e*. But the relation between *e* and ⟨*e* exists⟩ apparently can't be a cross-categorial truthmaking relation. The grounding relation in terms of which Cameron defines truthmaking only obtains between true propositions, and *e* is not a true proposition but an electron. So if there is a cross-categorial relation between *e* and ⟨*e* exists⟩, truthmaking isn't it.

[83] Cf. Asay (2017: 459-460). I am assuming here that Cameron's reductive definition of truthmaking is an attempt to reductively *identify* the truthmaking relation with certain instances of the truth-grounding relation (see §2.2.1). In the context, this seems to be what he intends. But perhaps Cameron has a weaker claim about the connection between truthmaking and truth-grounding in mind, in which case the above concern about cross-categoriality may not apply.

Fisher (2016) offers a truthmaker theory of fundamentality that preserves the cross-categoriality of truthmaking. His key move is to deny Truthmaker Maximalism. This allows him to define the fundamental truths as those with truthmakers, which (given non-maximalism) are a proper subset of all the truths (Fisher 2016: 460). To account for the relation between fundamental and non-fundamental truths, Fisher appeals to Sider's (2011) notion of *metaphysical semantics.* Briefly, the thought is that non-fundamental truths relate to fundamental truths via conditionals of the form '*S* is true in *L* iff ϕ', where *L* is a 'fundamental language' whose true sentences are just those with truthmakers (Fisher 2016: 461-462). Thus, on Fisher's theory, non-fundamental truths relate to fundamental truths via metaphysical semantics, and the fundamental truths are all and only the truths with truthmakers.

I find all this rather *ad hoc*. Fisher's only discernible motivation for rejecting Truthmaker Maximalism is that it lets him stipulate that the fundamental truths are just the ones with truthmakers. (And his only discernible motivation for wheeling in metaphysical semantics is that this stipulation prevents him from characterising non-fundamental truths in terms of their relations to truthmakers.) But there is no obvious independent reason to think that having a truthmaker is what makes a truth fundamental. Consider an intuitively non-fundamental truth: ⟨The London Symphony Orchestra exists⟩. What would Fisher say to someone who insisted that this truth has a truthmaker, and so should count as fundamental by his lights? I can't think of much he could say without relying on prior ideas about what makes a truth fundamental, which is what the notion of having a truthmaker is supposed to illuminate. It would be no good to say, for instance, that because ⟨The London Symphony Orchestra exists⟩ is plausibly non-basic, or non-integral, we shouldn't take it to be a fundamental truth, i.e. one with a truthmaker. This would be to appeal to prior ideas about what makes a truth fundamental in order to decide which truths have truthmakers, and

hence which ones are (for Fisher) fundamental. (Cameron, in contrast, could say that ⟨The London Symphony Orchestra exists⟩ is plausibly non-fundamental because it is plausibly grounded by other truths, and so isn't basic.)

4.1.3 Next Steps

In Chapter 2, I gave my view that truthmaking and (truth-)grounding are distinct relations, though both are definable in terms of the primitive *in virtue of*. Over the next two sections, I will offer a theory of fundamentality which incorporates both truthmaking and grounding, construed as distinct relations— I'll call it (TGF) ('T' for truthmaking, 'G' for grounding, 'F' for fundamentality).

In outline, my approach will be as follows. I will start by using the grounding relation to define the core properties of fundamental *truth*. I will then discuss the connection between fundamental truths and truthmakers. It will emerge that whatever (minimally) suffices to make true the fundamental truths (minimally) suffices to make true *all* the truths. These are the *fundamental truthmakers*. On the resulting picture, the fundamental truthmakers provide a sparse ontological foundation for an abundant, structured hierarchy of fundamental and non-fundamental truths— an alethic rainforest in an ontological desert. (TGF) offers what I think is an independently attractive way to think about fundamentality, and of how reality and our representations of it are structured. But I'll go on to claim that (TGF) also offers Truthmaker Ontologists a more refined conception of what makes a truthmaking contribution, and therefore has ontological status.

4.2 Grounding and Fundamental Truth

The two core concepts associated with fundamentality are *basicness* and *integrality*. In this section, I will use the grounding relation to define basicness and integrality

with respect to truth. I will then argue that any basic truth is an integral truth and vice versa. The set of *fundamental* truths, as I will understand them, is the set of basic and integral truths.

4.2.1 Basic Truths

Intuitively, the basic truths are those at the 'ground floor' of the alethic hierarchy; they are explanatorily basic and do not derive from or depend on any further truths. I will define *basic truth*, in a familiar way, in terms of *ungroundedness*:

(Basic Truth) P is a *basic truth* iff$_{df.}$ P is true and $\neg\exists Q(Q \Rightarrow P)$.

That is, P is a basic truth just in case there are no other truths in virtue of which P is true. As far as the non-causal explanatory dependence of truth on truth goes, P is at the ground floor.

Are there any basic truths? I'm going to assume so. Moreover, I'm going to assume that *every* truth is either basic or is grounded in some basic truth(s), as per *Foundations*:[84]

(Foundations) $\forall P(P$ is a basic truth $\vee\ \exists Q(Q$ is a basic truth $\&\ Q \Rightarrow P))$.[85]

I find Foundations intuitively compelling. As Fine says (2010: 105), 'given a truth that stands in need of explanation, one naturally supposes that it should have a

[84] Cameron (2018: 338) endorses a similar principle under the name 'Universal Grounding'. The quantifiers in Foundations range over true propositions.

[85] For simplicity, I'm ignoring the fact that P might be jointly grounded by several basic truths— I take it that (Foundations) could be amended to allow for this.

"completely satisfactory" explanation, one that does not involve cycles and terminates in truths that do not stand in need of explanation'. But there are those who endorse *infinitism*, on which some grounding chains never terminate in basic truths, and *coherentism*, on which some grounding chains involve cycles.[86] I lack the space to rebut these views in detail. Briefly, however, I think the best reason to assume Foundations is that it is *theoretically beneficial* to do so— here I follow Cameron (2008d). 'If we seek to explain some phenomena', writes Cameron (2008d: 12), 'then, other things being equal, it is better to give the same explanation of each phenomenon than to give separate explanations of each phenomenon'. But if some grounding chains never terminate or involve cycles, 'there is no explanation of everything that needs explaining. That is, it is true for every [non-basic truth *P*] that [the truth of *P*] is explained by [some prior truth], but there is no collection of [truths] that explains the [truth] of every [non-basic *P*]' (ibid.).[87] Assuming Foundations, however, all truths that require grounding explanations are ultimately accounted for in terms of a set of truths that require no grounding-explanations; we can thus give a common, unified explanation of every non-basic truth. This is a theoretical benefit, giving us some motivation for assuming Foundations instead of the alternatives.[88]

[86] For recent discussion, see the relevant papers in Bliss and Priest (2018).

[87] Cameron's focus is on ontological fundamentality, but I think the point carries over to alethic fundamentality.

[88] As Cameron points out, this line of argument can't establish that Foundations is *necessarily* true: its status is rather 'like that enjoyed by Ockham's razor: we should accept it because if it is true the theories we arrive at give a better explanation of the phenomena to be explained, and hence are more likely to be true. But such principles of theory-choice do not appear necessary; it is not as if the world is necessarily such that the simplest explanation is the right one—we just hope that our world is like this' (2008d: 13). In keeping with this, I won't assume that Foundations holds necessarily; only that we should think it holds at *our* world.

4.2.2 Integral Truths

Intuitively, an integral truth is a member of an elite collection of truths that forms a complete and non-redundant grounding base for all other truths. To make this more precise, I will define the notion of *minimal completeness with respect to grounding*, or 'minimal G-completeness':

(MC$_G$) (i) A set of true propositions T is *minimally G-complete* with respect to a set of true propositions T^* iff$_{df}$. T contains a full ground for every member of T^* and no proper subset of T contains a full ground for every member of T^*.

(ii) A set of true propositions T is minimally G-complete *simpliciter*, iff$_{df}$. T is minimally G-complete with respect to all other truths.

(*T contains* a full ground for *P* just in case one of *T*'s members fully grounds *P* or several of *T*'s members jointly comprise a full ground for *P*. 'Minimally G-complete' shall mean 'minimally G-complete *simpliciter*', unless otherwise specified.) I now define 'integral truth' in terms of minimal G-completeness as follows:

(Integral Truth) *P* is an *integral truth* iff$_{df}$. $P \in T$, where T is the unique minimally G-complete set of truths.[89]

By (MC$_G$), if T is minimally G-complete, T contains a full ground for every other truth. The integral truths thus provide a *complete* grounding base for the truths about

[89] More on *uniqueness* below.

the world. And, if P is a member of T, then there is some true Q such that (i) T contains a full ground for Q but (ii) the proper subset of T consisting of all its members apart from P does not contain a full ground for Q. The integral truths thus provide a *non-redundant* grounding base for all the truths about the world. (In future, I will write '$T\backslash P$' for 'the proper subset of T consisting of all its members apart from P'. Note also that P itself need not be a *full* ground for any Q; it might only be *part* of a full ground for some Q that involves other members of T.)

4.2.3 The Parity Thesis

The relation between the basic and integral truths is captured by the *Parity Thesis*:

(Parity Thesis) $\forall P$(P is a basic truth iff P is an integral truth).

Let's start by assuming that there is exactly one minimally G-complete set of truths, T. We can show that, given this assumption, any basic truth is an integral truth and vice versa.[90]

If P is a basic truth, then P is an integral truth. Assume, for *reductio*, that some true P is basic but isn't integral. Since T is minimally G-complete, it follows from (MCG) that either $P \in T$ or T contains a full ground for P. Since P is not integral, $P \notin T$. Hence, T contains a full ground for P. So, contrary to our assumption, P is not basic. Any basic truth is therefore an integral truth.

[90] The following argument is inspired by Bennett (2017: §5.4) (who characterises fundamentality in terms of what she calls 'building'). A minor difference is that Bennett is concerned with ontological fundamentality, not alethic fundamentality. Another is that the claim she defends is conditional: *if* building is transitive, *then* the 'unbuilt' entities coincide with the entities that completely and non-redundantly 'build' all others. I hold that grounding *is* transitive, and that the ungrounded truths therefore coincide with the truths that completely and non-redundantly ground all others.

If P is an integral truth, then P is a basic truth. Assume, for *reductio*, that some true Q is integral but isn't basic. Since T is minimally G-complete, every grounded truth is fully grounded by some member(s) of T. Since Q is non-basic, it's grounded. Thus, T contains a full ground for Q; call it P. Since Q is integral, $Q \in T$. By (MC$_G$), there is some true R such that T contains a full ground for R, but $T\backslash Q$ doesn't contain a full ground for R. There are two possibilities here.

First, it might be that Q itself fully grounds R. Then, (by Transitivity$_G$), since P grounds Q and Q grounds R, P grounds R. Therefore, $T\backslash Q$ *does* contain a full ground for R, namely P. So, contrary to our assumption, Q is not integral.

Second, it might be that Q is a *part* of a full ground for R that involves other members of T. Let Q^* be another member of T such that Q and Q^* jointly comprise a full ground for R (though neither does so individually). Thus, we have:

(i) $P \Rightarrow Q$

(ii) $Q, Q^* \Rightarrow R$.

I take it to follow that:

(iii) $P, Q^* \Rightarrow R$.

The general principle I'm appealing to is this: if (i) P is a ground for Q and (ii) Q, Γ is a ground for R, then (iii) P, Γ is also a ground for R.[91] I won't argue for this in detail. But for a plausible instance, assume the following:

(i*) ⟨Simples arranged Socrates-wise exist⟩ ⇒ ⟨Socrates exists⟩

(ii*) ⟨Socrates exists⟩, ⟨Plato exists⟩ ⇒ ⟨Socrates and Plato exist⟩.

[91] 'Γ' here is a collection of one or more truths.

Given (i*) and (ii*), it plausibly follows that:

(iii*) ⟨Simples arranged Socrates-wise exist⟩, ⟨Plato exists⟩ ⇒ ⟨Socrates and Plato exist⟩.

Resuming the argument, we again have that $T\backslash Q$ contains a full ground for R, namely $\{P, Q^*\}$. So again, contrary to our assumption, Q is not integral. Any integral truth must therefore be a basic truth.

I've shown that the Parity Thesis is true, *assuming* that there is exactly one minimally G-complete set of truths. But is there? An argument adapted from Bennett (2017: 117-118) shows that the answer is yes, as long as *Foundations* is assumed:

(Foundations) $\forall P(P$ is a basic truth $\vee \exists Q(Q$ is a basic truth & $Q \Rightarrow P))$.

Given Foundations, there is a non-empty set— call it B— containing all and only the basic truths. Moreover, any true P is either (i) a member of B or (ii) is grounded by some member(s) of B. B therefore contains a full ground for every other truth. Does any *proper subset* of B contain a full ground for every other truth? No. For let Q be an arbitrary member of B. $B\backslash Q$ doesn't contain a full ground for every other truth because it doesn't contain a full ground for Q, which is ungrounded. So B is minimally G-complete. Is B the *only* minimally G-complete set of truths? Yes. For the argument above shows that, if there's a minimally G-complete set of truths, no non-basic truth can belong to that set. So, since B contains all and only the basic truths, no *non*-member of B can belong to any minimally G-complete set. And by definition of 'minimal G-completeness', no proper subset of B is minimally G-complete. Thus, given Foundations, there is exactly one set of integral truths: the set of all and only

the basic truths.

I take basicness and integrality to be the two core properties of fundamental truths, and I have shown how to construe these properties in terms of grounding. I have also argued that basicness and integrality coincide, given Foundations (which I assume). Hence, I endorse the following:

(Fundamental Truth) (i) *P* is a fundamental truth iff *P* is a basic truth iff *P* is an integral truth.

(ii) *P* is a non-fundamental truth iff *P* is true and not fundamental.

We now have the necessary components of a theory of *alethic* fundamentality: fundamental and non-fundamental truths are connected by the grounding relation, and the fundamental truths are those which are *basic* (i.e. ungrounded) and *integral* (i.e. minimally complete with respect to grounding). As a non-causal explanatory dependence relation, grounding seems well-suited for capturing the sense in which less fundamental truths derive from more fundamental truths. And as a strict partial order, grounding has the right features to capture the hierarchical conception of relative alethic fundamentality.[92]

4.3 Fundamental Truthmakers

The truths about the world are hierarchically structured by the grounding relation, with a collection of basic and integral truths at the ground floor. This alethic hierarchy

[92] I have not attempted to explicitly define relative fundamentality, however. See Bennett (2017: Ch.6) for a useful discussion of some of the issues involved in this.

now needs an ontological foundation. I will argue that the only foundation it needs is a (potentially sparse) set of *fundamental truthmakers*.

4.3.1 Definitions

I define *minimal completeness with respect to truthmaking*, or 'minimal TM-completeness', as follows:

(MC$_{TM}$) (i) A set of entities E is *minimally TM-complete* with respect to a set of true propositions T iff$_{df.}$ E contains a full truthmaker for every member of T and no proper subset of E contains a full truthmaker for every member of T.

(ii) A set of entities E is minimally TM-complete *simpliciter* iff$_{df.}$ E is minimally TM-complete with respect to the set of all true propositions.

(*E contains* a full truthmaker for P just in case one of E's members fully makes P true or several of E's members jointly comprise a full truthmaker for P.) If E is minimally TM-complete with respect to a set of truths T, then E contains a full truthmaker for every truth in T. E thus provides a *complete* truthmaking base for the truths in T. And for any $x \in E$, there is some $P \in T$ such that (i) E contains a full truthmaker for P, but (ii) the proper subset of E containing all of E's members apart from a (written '$E\backslash a$') does not contain a full truthmaker for P. E thus provides a *non-redundant* truthmaking base for the truths in T.

Note that a might be a member of E without itself being a *full* truthmaker for any truth in T. It might be a *part* of a full truthmaker for some truth in T, which involves

other members of *E*. Note also that *E*'s being minimally TM-complete with respect to *T* does not mean that *E* contains a *minimal* truthmaker for every truth in *T* (where *x* is a minimal truthmaker for *P* just in case *x* makes *P* true and no proper part of *x* does so; see Armstrong 2004: 19-20). Let *T* be a set of truths concerning the existence of electrons and suppose that ⟨Infinitely many electrons exist⟩ is a member of *T*. Let *E* be a set of entities containing an infinite number of electrons, which together comprise a full truthmaker for ⟨Infinitely many electrons exist⟩. Subtract one of these electrons (or every second electron, every third electron, …), and *E* still contains a full truthmaker for ⟨Infinitely many electrons exist⟩. So *E* doesn't contain a *minimal* truthmaker for this truth. But *E* might still be minimally TM-complete with respect to *T* as long as subtracting the electron(s) leaves *some* truth in *T* without a full truthmaker in *E*. For example, perhaps subtracting electron *e* leaves a full truthmaker for ⟨Infinitely many electrons exist⟩, but not for ⟨*e* exists⟩. *E*'s job, as it were, is to contain the minimum number of entities needed to make true *all* the truths in *T*, but not necessarily *each individual* truth in *T*.

I now define *fundamental truthmaker* as follows:

(Fundamental Truthmaker) *a* is a *fundamental truthmaker* iff$_{df.}$ $a \in E$, where *E* is the unique set of entities that is minimally TM-complete with respect to the set of fundamental truths.[93]

[93] The term is perhaps a bit misleading: for reasons mentioned above, an entity could in principle be a 'fundamental truthmaker' by virtue of being a *partial* truthmaker.

That is, the fundamental truthmakers jointly comprise a complete and non-redundant truthmaking base for the fundamental truths, i.e. the unique set containing all and only the basic and integral truths.

What justifies the assumption that there *is* a set of fundamental truthmakers? As with Foundations, I think the most compelling rationale is methodological. I will shortly argue that, if there is a set of fundamental truthmakers, they are not only minimally TM-complete with respect to the fundamental truths but with respect to *all* truths. Consequently, an inventory of fundamental truthmakers would amount to an optimally *comprehensive*, *parsimonious* and *unified* account of what ontology is needed to account for the truths about the world: comprehensive because the fundamental truthmakers would account for *all* the truths; parsimonious because the fundamental truthmakers would *non-redundantly* account for all the truths; and unified because the fundamental truthmakers would provide the sparsest possible ontological foundation for the broadest possible array of truths. There is thus a *pro tanto* case for the assumption that there is a set of fundamental truthmakers, resembling the case for Foundations outlined above: in the words of Cameron (2008d: 13), 'we should accept it because if it is true the theories we arrive at give a better explanation of the phenomena to be explained, and hence are more likely to be true'.

I will now argue for three claims about fundamental truthmakers, and their relation to fundamental and non-fundamental truths.

4.3.2 Thrift

The first and perhaps most significant claim is what I'll call *Thrift*:

(Thrift) The fundamental truthmakers are minimally TM-complete *simpliciter*.

In other words, given a set of entities that's minimally TM-complete with respect to the fundamental truths, that set is minimally TM-complete with respect to *all* truths. The argument for Thrift assumes the *Grounding Principle* (§2.4.3):

(Grounding Principle) If $x \vDash P$ and $P \Rightarrow Q$ then $x \vDash Q$.

Let T be the set of fundamental truths, let E be minimally TM-complete with respect to T, and let Q be an arbitrary true proposition. Since T is minimally G-complete, either $Q \in T$ or T contains a full ground for Q. Suppose first that $Q \in T$. Then, since E is minimally TM-complete with respect to T, E contains a full truthmaker for Q. Suppose next that $Q \notin T$ and so T contains a full ground for Q; call it P. Since $P \in T$, E contains a full truthmaker for P; call it a. So $a \vDash P$ and $P \Rightarrow Q$. By the Grounding Principle, $a \vDash P$. So whether or not $Q \in T$, E contains a full truthmaker for Q. Since Q was arbitrary, we can infer that E contains a full truthmaker for every truth. Moreover, no proper subset of E contains a full truthmaker for every truth since, *ex hypothesi*, no proper subset of E contains a full truthmaker for every truth in T. Therefore, if E is minimally TM-complete with respect to the set of fundamental truths, E is minimally TM-complete *simpliciter*.

Given Thrift, the fundamental truthmakers provide a complete and non-redundant truthmaking base for *all* truths. There is thus a natural sense in which the fundamental truthmakers are *integral*: they are 'all God would have to create' in order to make the true overall theory of the world true. Consequently, Thrift shows us how an abundant structured hierarchy of fundamental and non-fundamental truths can be supported by a sparse ontological foundation.

4.3.3 Matching

The second claim, *Matching*, concerns the status of truths about the existence of fundamental truthmakers:

(Matching) If x is a fundamental truthmaker, then $\langle x$ exists$\rangle$ is a fundamental truth.

The argument for Matching assumes the Grounding Principle, along with three other principles from Chapter 2:

(Interaction) $x \vDash P$ iff $\langle x$ exists$\rangle \Rightarrow \langle P$ is true$\rangle$

(Quasi-Asymmetry) $\forall x \forall P((x \vDash P) \rightarrow \neg(P \Rightarrow \langle x$ exists$\rangle))$

(Truth-ElimTM) If $x \vDash \langle P$ is true$\rangle$ then $x \vDash P$.

I'll proceed in two stages. First, we need the following *Lemma*:

(Lemma) If x is a fundamental truthmaker, then x makes true $\langle x$ exists$\rangle$ and no fundamental truthmaker other than x makes true $\langle x$ exists$\rangle$.

Let E be the set of fundamental truthmakers and suppose that $a \in E$. Since a exists, $\langle a$ exists$\rangle$ is true. Since E is minimally TM-complete (*simpliciter*), E contains a full truthmaker for $\langle a$ exists$\rangle$; suppose it's x. Thus:

(1) $x \vDash \langle a$ exists$\rangle$.

Since $a \in E$, there is some true P such that E contains a full truthmaker for P but $E\backslash a$ does not contain a full truthmaker for P. For simplicity, we'll assume that a itself is a full truthmaker for P (as opposed to a *part* of a full truthmaker for P). Thus:

(2) $a \vDash P$.

It follows via Interaction that:

(3) $\langle a \text{ exists} \rangle \Rightarrow P$ is true.

From (1), (3) and the Grounding Principle, it follows that:

(4) $x \vDash \langle P \text{ is true} \rangle$.

Hence, by Truth-Elim^{TM}:

(5) $x \vDash P$.

Now, x and a are both members of E. And either $x = a$ or $x \neq a$. If $x \neq a$, then $E\backslash a$ contains a full truthmaker for P, namely x. But as we've seen, our assumptions entail that $E\backslash a$ does not contain a full truthmaker for P. Therefore, $x = a$. So by substitution into (1):

(6) $a \vDash \langle a \text{ exists} \rangle$.

Thus, if a is a fundamental truthmaker, then any fundamental truthmaker that makes true $\langle a \text{ exists} \rangle$ is identical to a.

Having established Lemma, the rest of the argument for Matching is as follows. Again, let E be minimally TM-complete, and let F be the set of fundamental truths (i.e., $P \in F$ iff P is a basic truth iff P is an integral truth). And assume, for *reductio*,

that there is some a such that a is a fundamental truthmaker but $\langle a$ exists$\rangle$ is a non-fundamental truth (i.e., $a \in E$ but $\langle a$ exists$\rangle$ is true but not in F). Since F is minimally G-complete, F contains a full ground for $\langle a$ exists$\rangle$; call it P. Since E is minimally TM-complete, E contains a full truthmaker for P; call it x. Thus:

(7) $x \vDash P$ and $P \Rrightarrow \langle a$ exists$\rangle$.

By the Grounding Principle:

(8) $x \vDash \langle a$ exists$\rangle$.

Since $a \in E$, it follows from Lemma that:

(9) $\forall x((x \in E \,\&\, x \vDash \langle a$ exists$\rangle) \rightarrow x = a)$.

So, from (8) and (9):

(10) $x = a$.

And from (7) and (10):

(11) $a \vDash P$ and $P \Rrightarrow \langle a$ exists$\rangle$.

But by Quasi-Asymmetry:

(12) $\neg(a \vDash P$ and $P \Rrightarrow \langle a$ exists$\rangle)$

Contradiction. So our assumption that *a* is a fundamental truthmaker but ⟨*a* exists⟩ is not a fundamental truth is false. Therefore, if *a* is a fundamental truthmaker, ⟨*a* exists⟩ is a fundamental truth.

Given Thrift, there's a natural sense in which the existence of fundamental truthmakers is integral. Given Matching, there's also a natural sense in which the existence of fundamental truthmakers is *basic*: if *x* is a fundamental truthmaker, then the truth that *x* exists does not hold in virtue of any further truths.

4.3.4 FT-Truth

The third claim, *FT-Truth*, concerns the nature of the truthmaking relations between fundamental truthmakers, and fundamental and non-fundamental truths respectively. First, recall the distinction between *direct* and *indirect* truthmaking (§2.3):

(Direct Truthmaking) x directly makes P true iff$_{df.}$ $x \vDash P$ & $\neg\exists Q(x \vDash Q \,\&\, Q \Rightarrow P)$.

(Indirect Truthmaking) x indirectly makes P true iff$_{df.}$ $x \vDash P$ & $\exists Q(x \vDash Q \,\&\, Q \Rightarrow P)$.

FT-Truth can be stated as follows:

(FT-Truth) (i) P is a fundamental truth iff P is directly made true by some fundamental truthmaker(s) and P is not indirectly made true by any fundamental truthmaker(s).

(ii) *P* is a non-fundamental truth iff *P* is indirectly made true by some fundamental truthmaker(s).

Start with the second clause. Let *E* be the set of fundamental truthmakers. Since *E* is minimally TM-complete (*simpliciter*), every true *P* has a full truthmaker among the members of *E*. Since every instance of truthmaking is either direct or indirect, every true *P* is made true directly or indirectly by some member(s) of *E*. If *P* is a non-fundamental truth, then *P* is grounded by some fundamental truth(s). In that case, *P* is indirectly made true by whatever members of *E* make true its fundamental grounds. And if *P* is indirectly made true by some members of *E* then *P* is grounded, since only grounded truths can be indirectly made true, and is therefore non-fundamental. Hence, *P* is a non-fundamental truth if and only if *P* is indirectly made true by some fundamental truthmaker(s).

Now for the first clause. Again, let *E* be the set of fundamental truthmakers. Thus, every true *P* is made true directly or indirectly by some member(s) of *E*. If *P* is a fundamental truth, then *P* is ungrounded. Since ungrounded truths can't be indirectly made true, *P* is *directly* made true by some member(s) of *E*. However, if *P* is directly made true by some member(s) of *E*, it doesn't immediately follow that *P* is a fundamental truth. One truth can have several truthmakers and, in principle, *P* might be made true both directly by some member(s) of *E* and indirectly by others. But as we've seen, *P* is made true indirectly by some member(s) of *E* if and only if *P* is a non-fundamental truth. So if *every* instance of truthmaking between *P* and the members of *E* is direct, then *P* is a fundamental truth. Thus, *P* is a fundamental truth if and only if *P* is directly made true by some fundamental truthmaker(s) and *P* is not indirectly made true by any fundamental truthmaker(s).

4.4 A Theory of Fundamentality

I will now outline and motivate the theory of fundamentality based on the foregoing results: (TGF).

4.4.1 (TGF)

A theory of fundamentality aims to say (i) what is fundamental and (ii) how the fundamental relates to the non-fundamental. 'Fundamental' might be treated either as a predicate of non-representational 'worldly' entities (*ontological* fundamentality) or of true representations (*alethic* fundamentality). In either case, there are two core ideas a theory of fundamentality should aim to capture: the idea that the fundamental entities/truths are in some sense *basic* and the idea that they are in some sense *integral*. A further desideratum of a theory of fundamentality is that it should make sense of the idea that the 'facts' about the world fall into a *hierarchical structure* of explanatory dependence, wherein the less fundamental derives from and depends on the more fundamental.

(TGF) brings alethic and ontological fundamentality together to yield a picture of how the true representations of the world are structured and how they relate to extra-representational reality. Fundamental and non-fundamental truths are related to each other by the grounding relation. The fundamental truths are *basic* in that they are ungrounded, and *integral* in that they form a complete and non-redundant grounding base for all other truths. The fundamental *entities* are the fundamental *truthmakers*. The fundamental truthmakers are *integral* in that they provide a complete and non-redundant truthmaking base for all the truths. They are *basic* in the sense that truths proclaiming the existence of fundamental truthmakers are fundamental, hence ungrounded, truths. As well as the grounding relations they bear to each other,

fundamental and non-fundamental truths can also be characterised in terms of their relations to the fundamental truthmakers: non-fundamental truths are made true indirectly by the fundamental truthmakers, while fundamental truths are (only) made true directly by the fundamental truthmakers.

(TGF) thus makes sense of the idea that the fundamental entities and truths are integral and basic. It also offers a prima facie attractive way to think about the hierarchical picture. Since grounding is a relation of non-causal explanatory dependence, it is well-suited for capturing the sense in which less fundamental truths depend on and derive from more fundamental truths. Since grounding is asymmetric, irreflexive and transitive, it is well-suited for capturing the structure of the alethic hierarchy, which is plausibly a strict partial order. In this respect, (TGF) contrasts favourably with the 'pure' truthmaking approach, which gives no account of how more and less fundamental truths relate to each other. Unlike the inflationary entity-grounding approach, there is no need to think that the alethic hierarchy corresponds to an abundant *ontological* hierarchy: on (TGF), the true representations of the world are stratified, but the ontology is sparse and flat. Unlike the 'pure' truth- grounding approach, (TGF) tells us not just how fundamental and non-fundamental truths relate to each other but also how they relate, via the cross-categorial truthmaking relation, to extra-representational reality.

Unlike Cameron's (2018) truthmaker theory of fundamentality, (TGF) does not involve any attempt to assimilate truthmaking into truth-grounding, allowing us to retain the cross-categoriality of truthmaking. Unlike Fisher's (2016) theory, (TGF) characterises fundamentality in a non-*ad hoc* and independently plausible way. For example, why is ⟨The London Symphony Orchestra exists⟩ plausibly a non-fundamental truth? The only answer available on Fisher's account is: 'Because it doesn't have a truthmaker'. On (TGF), in contrast, we could explain why this truth is

non-fundamental by pointing out that it is plausibly non-integral and non-basic. Nor does (TGF) compel us to abandon Truthmaker Maximalism merely for the sake of having a coherent truthmaker theory of fundamentality. Indeed, (TGF) makes Truthmaker Maximalism easier to satisfy; for given Thrift, we can provide truthmakers for *all* the truths by providing truthmakers for all the *fundamental* truths.

(TGF) involves two distinct notions— grounding and truthmaking— where other theories of fundamentality only involve one. One might worry that this is ideologically unparsimonious. In fact, this is the concern that prompts Cameron (2018: 335) to identify truthmaking with truth-grounding, rather than treating them as distinct: 'It would be uneconomical if we had to have two primitive notions here, so we should try and define one of *makes true* and [*grounds*] in terms of the other'. I would first point out, however, that I don't regard truthmaking and grounding as distinct *primitive* notions. Rather, I think they're both definable in terms of a single primitive: *in virtue of* (see §2.1). So it's not immediately clear that (TGF) is less ideologically parsimonious than a theory of fundamentality where either truthmaking or grounding is treated as the sole primitive. But even if I were committed to treating truthmaking and grounding as distinct primitives, it doesn't immediately follow that (TGF) would be ideologically *uneconomical*. Ideological economy is not just a measure of the number of primitive concepts a theory invokes, but of how useful those concepts are. And as I've said, there are several benefits to building distinct truthmaking and grounding relations into our theory of fundamentality.

4.4.2 Sider's Objection

Sider (2011) objects that truthmaker theories of fundamentality result in an explanatorily impoverished conception of fundamental truth. According to truthmaker theories, as Sider construes them, the only fundamental truths are bare

existence claims of the form '*x* exists', where *x* is a truthmaker (cf. Cameron 2018). But Sider argues that a list of bare existence claims can't do what we want fundamental truths to do, namely, to provide satisfactory ultimate explanations for everything *else*. Ultimate explanations that always terminate in a list of entities can't do this, Sider thinks, since they 'cannot be systematised with detailed general laws, patterns or mechanisms' (2011: 160):

> Think of the point this way. Suppose God hands you a collection of entities: Alexander, Buffy, Cordelia, Dawn, …, and asks you to work out the rest. Are there helium molecules? Are there cities? Why did *Buffy the Vampire Slayer* end after season seven? You wouldn't have any idea how to respond.

Suppose Sider is right: truthmaker theories of fundamentality imply that the only fundamental truths are bare existence claims about truthmakers. It's not clear to me that the fundamental truths, so construed, would be explanatorily inadequate. Explanation is intensional, and the extent to which we find a claim explanatory depends on how the *explanantia* are described. Consider the following causal explanatory claim:

> The most reported news event of May 1915 caused the US to enter the First World War.

Whether you hear this as an adequate explanation depends on whether you know that 'the most reported news event of May 1915' refers to the sinking of the *Lusitania*.[94] Something similar applies to truthmaker explanations.[95] Consider the following:

> ⟨Helium atom *h* exists⟩ is true because Buffy exists.

[94] Cf. Davidson (2001: Chs. 7&11) on the distinction between causation and explanation.
[95] The following point is due to Cameron (2015: 122-123).

This will sound unexplanatory if we don't know what 'Buffy' refers to. It will seem more explanatory, however, if we know that 'Buffy' refers to (say) *the fact that electrons e1 and e2 are orbiting nucleus n*. It's not obvious, then, that fundamental explanations terminating in the citation of entities would be explanatorily unsatisfactory.

Sider thinks this is cheating (2011: 157-159). The truthmaker theory of fundamentality he targets is supposed to give us fundamental truths involving only the notion of existence. But in the example above, the truthmaker theorist has used a 'canonical name' involving predication ('orbiting') to describe the truthmaker for ⟨Helium atom *h* exists⟩ (Sider 2011: 157). For Sider, this amounts to 'smuggling in' non-existential ideology into the fundamental truths. But this rejoinder rests on Sider's own theory of fundamentality, on which 'fundamental' is primarily a predicate of the concepts picked out by sub-sentential terms (cf. Cameron 2015: 122-123). By Sider's lights, there are fundamental predicational truths if there are fundamental truths formulated using predicates. This is not something the truthmaker theorist need accept.

But in any case, (TGF) does not commit us to taking all fundamental truths to be bare existence claims about truthmakers. Perhaps ⟨*a* is *F*⟩ is a fundamental truth, for example. Given FT-Truth, this would mean that ⟨*a* is *F*⟩ is made true directly by some fundamental truthmaker(s). Suppose the truthmaker is a trope: *a*'s *F*-ness. Given Matching, ⟨*a*'s *F*-ness exists⟩ must also be a fundamental truth, made true directly by some fundamental truthmaker(s). Since existence claims are directly made true (if at all) by what they claim to exist (see §3.3), ⟨*a*'s *F*-ness exists⟩ is also made true by *a*'s *F*-ness. But this doesn't imply that ⟨*a* is *F*⟩ can't be a fundamental truth; it rather implies that ⟨*a* is *F*⟩ and ⟨*a*'s *F*-ness exists⟩ are *both* fundamental truths, made true

directly by *a*'s *F*-ness. So if there is a worry about taking the only fundamental truths to be bare existence claims, I am happy to allow that there might be non-existential fundamental truths— as long as they can be construed to have direct fundamental truthmakers, and as long as the truths proclaiming the existence of these truthmakers can be construed as fundamental.

4.4.3 Refining the Truthmaker Criterion of Ontological Status

In the last chapter, I argued that Truthmaker Ontology supports a coherent distinction between what merely and what really exists. Since all and only the things that make a truthmaking contribution have ontological status, and since *F*s need not be among the truthmakers for ⟨*F*s exist⟩, it is possible for an *F*-less ontology to support the truth of ⟨*F*s exist⟩. What can truly be said to exist thus comes apart from what has ontological status, and we can articulate this by distinguishing what really exists (i.e. what makes a truthmaking contribution) from what merely exists (i.e. can truly be said to exist but makes no truthmaking contribution). Truthmaker Ontology, thus construed, is a deflationary form of *Stratified Ontology* (see §3.1.2).

Some Stratified Ontologists prefer to distinguish between the fundamental and the non-fundamental, instead of what really and what merely exists. This is particular germane on the inflationary approach, which takes everything that exists to have heavyweight ontological status: the inflationist wants to say that reality divides into fundamental and non-fundamental entities, but not that non-fundamental entities are unreal. But deflationists also go in for fundamentality-talk, sometimes treating 'fundamentally exists' and 'really exists' as synonyms (e.g. Cameron 2008a, Williams 2010). Here is Cameron, for example, with a deflationary take on the fundamental/non-fundamental distinction (2008c: 303):

> When I say that statues are not fundamental I do not mean to say that they have being but are kind of less important than the things that both have being and are fundamental. I mean to deny that statues are elements of our ontology. […] When I say that it is true that statues exist but that statues do not fundamentally exist, I mean that **there are no such things as statues**, but nevertheless the English sentence 'statues exist' is true.

I, however, don't regard 'really exists' and 'fundamentally exists' as synonyms. The role of 'really exists' is to let us express the distinction between what has ontological status and what can truly be said to exist: if ⟨*x* exists⟩ is made true but *x* makes no truthmaking contribution, we can express this by saying that *x* exists but doesn't really exist. But as I see it, the role of fundamentality is to refine our understanding of *what* makes a truthmaking contribution, and hence what really exists. Recall the truthmaker criterion of ontological status:

(TOS) *x* is real iff *x* makes a truthmaking contribution.

(TOS) tells us that a complete and correct answer to the ontological question would take the form of a list of all and only the things that make a truthmaking contribution. I now want to suggest a way to refine that claim: what makes a truthmaking contribution are just the *fundamental* truthmakers, i.e., the things that comprise a complete and non-redundant truthmaking base for the fundamental truths. So what is real, in the sense of ontological interest, are the fundamental truthmakers.

The case for this claim is intuitively compelling. Given Thrift, the fundamental truthmakers provide a complete and non-redundant truthmaking base for all the truths. Thus, if *a* is a fundamental truthmaker, then *a* is indispensable to a complete and correct account of what reality has to be like to account for the overall true theory of the world; no account of what reality determines what is true could be complete and correct unless it counted *a* among the real entities. On the other hand, if ⟨*a* exists⟩

is true but *a* is *not* a fundamental truthmaker, then an account of how reality determines what is true *could* be complete and correct without counting *a* among the real entities. Since all the requisite truthmaking work can be done without help of *a*, there is no need to take *a* to make a truthmaking contribution. There is thus an intuitive sense in which *a* should not be counted as real.

Furthermore, there is a methodological case for taking fundamental truthmakers to be the target of ontological inquiry. As I said above, a complete inventory of fundamental truthmakers would amount to a maximally comprehensive, parsimonious and unified account of what ontology must be like in order to account for the truths about the world. In at least these respects, an optimally *virtuous* account of what is real coincides with what is real according to the revised (TOS).

Conclusion

(TGF) offers an attractive picture of the alethic and ontological structure of the world: we have an abundant, layered hierarchy of fundamental and non-fundamental truths, with a (perhaps sparse) ontological foundation consisting of fundamental truthmakers. But beyond its independent merits, (TGF) provides Truthmaker Ontologists with a more refined view of what it takes to discover what really exists. The fundamental truthmakers are all we have to take to make a truthmaking contribution— they are 'all God would have to create' to make the true description of the world true. Thus, to decide on a set of fundamental truthmakers is to answer the ontological question.

5 Truthmaker Commitments and Rational Norms

Over the last two chapters, I have articulated and refined a heterodox view of the *scope* of ontology; that is, a view of what counts as having ontological status and is therefore the focus of ontological inquiry. The next two chapters focus on issues concerning ontological *method*. Specifically, I aim to clarify how Truthmaker Ontologists should understand the methodologically important notions of *ontological commitment* and *ontological parsimony*. I begin, in this chapter, with ontological commitment.

The ontological commitments of a theory are the *requirements* that the theory's truth imposes on ontology— roughly, the things that must have ontological status if the theory is true. Since I take all and only the truthmakers to have ontological status, I accordingly think of ontological commitments as *requirements* on truthmakers.[96] I therefore hold what some call a *truthmaker view of ontological commitment*.[97] As we'll see, however, not all truthmaker views of ontological commitment are equal. For even if we grant that ontological commitments are requirements on truthmakers, difficult questions remain as to how to construe the relevant notion of *requirement*. I shall therefore advance a novel view I call the *Normative Truthmaker View* of ontological commitment. Briefly, the Normative Truthmaker View says that a theory's ontological commitments are the entities one *rationally ought* to admit as truthmakers, given that one accepts that theory.

[96] Or more precisely, on what makes a truthmaking *contribution*. I'll be a little fast and loose about this distinction in what follows, where clarity is not at issue.

[97] Cf. Rettler (2016).

In §5.1, I discuss some preliminaries concerning the notion of ontological commitment and its role within Truthmaker Ontology. In §5.2, I consider some previous efforts to account for ontological commitment in terms of truthmaking, highlighting problems where they arise. In §5.3, I present and motivate the Normative Truthmaker View, explaining how it avoids the problems that afflict other accounts. Finally, in §5.4, I sketch a methodological procedure involving the Normative Truthmaker View for deciding on the ontology we ought to accept.

5.1 Ontological Commitment and Truthmaker Ontology

I begin with some preliminaries concerning the nature and import of the notion of ontological commitment. I will then briefly comment on the role of the notion of ontological commitment in the context of Truthmaker Ontology.

5.1.1 Preliminaries

In broad and general terms, the ontological commitments of a theory[98] are the *requirements* that the theory's truth imposes on ontology. If theory *T* is ontologically committed to *F*s, then *F*s are required to be among the contents of ontology if *T* is to be true. Accepting *T* thus commits you to an ontology containing *F*s; conversely, *excluding F*s from your ontology commits you to rejecting or revising *T*.

This is a neutral characterisation of ontological commitment, insofar as it doesn't assume any particular view of the scope of ontology. If ontology consists of what there is, ontological commitments are *requirements* on what there is; if ontology consists of what is fundamental, then ontological commitments are *requirements* on

[98] A theory, in this context, is just a set of one or more interpreted sentences. It is sometimes convenient to speak of *persons* having certain ontological commitments, by dint of the theories they accept, or the sentences they affirm.

what is fundamental, and so on. So as I see it, one's understanding of ontological commitment depends on one's underlying metaontological outlook: to understand requirements on ontology, we must first decide what it is that such requirements are *on* (see §3.1.3).

That said, you don't need a settled view of the scope of ontology to see why it is methodologically important to be able to determine the ontological requirements of a theory. If you know that a highly credible theory is ontologically committed to *F*s, then you have reason to accept *F*s into your ontology; you might accept an ontology of numbers, for instance, because you think that our best scientific theories are ontologically committed to them. Conversely, if you know that a theory is ontologically committed to something dubious, you have reason to reject or revise the theory; you might reject Cartesian dualism, for instance, because you think it requires a naturalistically unacceptable ontology of immaterial substances. Thirdly, if you know that one theory has *fewer* ontological commitments than a rival, this might lead you to prefer the more parsimonious theory. For instance, if a theory committed to simples and composites is explanatorily on a par with a theory committed only to simples, the latter is more choice-worthy for making fewer demands on the world.[99] In at least these ways, ontological commitment is a useful tool of theory choice and ontic decision-making. Understanding it should be high on the metaontologist's agenda, whatever the scope of ontology might be.

The main task for a theory of ontological commitment is to clarify the notion of a *requirement* on ontology. (Clarifying the scope of *ontology* is, as I've said, a distinct and prior task.) This task breaks down into two questions. The *substantive* question

[99] More on ontological parsimony in the next chapter.

is: *what is it* for a theory's truth to impose requirements on ontology? The *procedural* question is: *how do we tell* what a theory's requirements on ontology are?

Consider Quine, whose background metaontological assumption is that ontology consists of what there is (1948: 21). On this assumption, the substantive question of ontological commitment is: what is it for a theory's truth to impose requirements on what there is? And Quine's answer seems to understand requirements on what there in terms of *entailment* (most likely *logical* entailment):

> To show that a theory assumes a given object, or objects of a given class, we have to show that the theory would be false if that object did not exist, or if that class were empty; hence that the theory requires that object, or members of that class, in order to be true. How are such requirements revealed? (Quine 1969: 93).

With the last sentence ('How are such requirements revealed?'), Quine shifts focus to the *procedural* question of ontological commitment. His answer to this is well-known:

> A theory is committed to those and only those entities to which the bound variables of the theory must be capable of referring in order for the affirmations made in the theory be true. (Quine 1948: 33).

Quine isn't telling us here that *what it is* for a theory to require certain entities is for it to have them in the range of its bound variables. He's telling us that looking at a theory's bound variables is the only reliable way to *identify* its requirements on (i.e. its logical entailments concerning) what there is.

Not every Orthodox Ontologist accepts both the substantive and procedural components of Quine's account. Some, for instance, would agree that for a theory to require that there are *F*s is for it to logically entail that there are *F*s, yet deny that only first-order quantification reliably conveys such requirements; they might think

second-order quantification also does so, for instance. Others would reject Quine's view of what ontological requirement consists in; for instance, instead of *logical* entailment, one might think of requirements on what there is in terms of *metaphysical* entailment (Jackson 1989, Peacock 2011). They might agree that a theory's including the sentence '$\exists xFx$' suffices for its being committed to *F*s, though for a different underlying reason: the theory isn't ontologically committed because it logically entails that there are *F*s, but because it's false at every possible world where there are no *F*s.

This brings us to the distinction between *explicit* and *implicit* ontological commitment. Following Krämer (2014: 2149), an orthodox ontologist might draw this distinction as follows:

> *T* is *explicitly* ontologically committed to *F*s iff$_{df.}$ *T* includes some sentence that means *there are Fs*. *T* is *implicitly* ontologically committed to *F*s iff$_{df.}$ *T* is ontologically committed to *F*s & *T* is not explicitly ontologically committed to *F*s.[100]

Our answer to the substantive question of what ontological requirement consists in will shape our understanding of implicit commitment. Suppose the orthodox ontologist sees ontological commitments as what theories *logically* entail that there is. Then it would seem that the sentence 'Everything the Bible says is true' isn't even implicitly ontologically committed to God (cf. Peacock 2011: 81). Yet intuitively there must be a God for everything the Bible says to be true. Such concerns about implicit commitment motivate some Orthodox Ontologists to prefer views based on *metaphysical*, rather than logical, entailment.

---

[100] More neutrally, we might say that *T* is explicitly ontologically committed to *F*s iff *T* includes some sentence that means *F*s ___, where what fills the blank depends on what we take the scope of ontology to be. *T* would be implicitly committed to *F*s iff *T* doesn't include a sentence meaning that *F*s ___, but still requires that *F*s ___.

5.1.2 The Truthmaker Criterion

This is all by way of introduction— I won't discuss here the relative merits of different accounts of requirements on *what there is*. For, to repeat, I *don't think* that ontology consists of what there is; I think it consists of the subset thereof that makes a truthmaking contribution, or what there *really* is. So by my lights, ontological commitments are requirements on truthmakers. Hence, the substantive question I'm interested in is: what is it for a theory to *require* certain truthmakers? And the procedural question I'm interested in is: how do we *tell* what truthmakers a theory requires?

My position commits me to what some call a *truthmaker criterion* (or 'view'[101]) of ontological commitment. Cameron sums up the basic idea as follows (2008a: 4):

> What are the ontological commitments of a theory? For Quine, it is those things that must be said to lie within the domain of the quantifiers if the sentences of the theory are to be true. I am a truthmaker theorist: I hold that the ontological commitments of a theory are just those things that must exist to *make true* the sentences of that theory.

While several philosophers sympathise with some form of truthmaker criterion, only two offer a detailed defence: Cameron and Rettler.[102] But on their accounts, the truthmaker criterion of ontological commitment is what supports the distinction between what has ontological status and what can truly be said to exist. As I've said previously (§3.1.3), I think this is dialectically back to front: it's inappropriate to argue from a claim about which view of ontological *commitment* is correct to a claim

[101] Rettler (2016).

[102] See Cameron (2008a, 2010a, forthcoming(a)), Rettler (2016). Other sympathisers include Armstrong (2004) and Heil (2003), but neither offer many details.

about the scope of *ontology*. It is rather the truthmaker criterion of ontological *status* that, in tandem with the Divergence Thesis, supports the claim about the scope of ontology Cameron and Rettler want to defend. Formulating a truthmaker criterion of ontological *commitment* is a secondary, *methodological* concern, albeit an important one: given that ontology consists of truthmakers, we'd like to know how to understand and identify the requirements theories impose on what truthmakers there are. And this is by no means a *fait accompli*: hard questions arise about how to understand the notion of *requirement*. For example, should we construe requirements on truthmakers in terms of entailment? If so, what kind of entailment? If not, what? How do a theory's truthmaker-requirements relate to the language it employs? How might they be identified? In what follows, I'll attempt to shed light on some of these questions.

5.2 In Search of a Truthmaker Criterion

First, however, I will look at some extant truthmaker views of ontological commitment.

5.2.1 The General Truthmaker View

Rettler (2016) distinguishes between two truthmaker views of ontological commitment. On the 'Specific Truthmaker View', which Rettler rejects, affirming a sentence ontologically commits you to whatever *in fact* makes that sentence true. On the 'General Truthmaker View', which Rettler endorses, affirming a sentence only ontologically commits you to there being *some truthmaker(s) or other* for the sentence. Here's his illustration (Rettler 2016: 1419):

> [B]y saying 'tables exist', we're not ontologically committed to the truthmakers; we're just ontologically committed to there being truthmakers. Namely, we're committed to the sentence being true and having a truthmaker (or several).

The Specific Truthmaker View seems an obvious non-starter. It entails that only true theories have ontological commitments, and that any ontological commitment is to something that really exists. This makes ontological commitment useless as a tool of theory choice and ontological decision-making: we couldn't evaluate a theory's ontological commitments prior to accepting the theory as true and its commitments as real. Rettler is therefore quite right to reject the Specific Truthmaker View.

But Rettler's General Truthmaker View is hardly more useful. All the General Truthmaker View tells us is that affirming a sentence incurs some sort of ontological commitment to truthmakers— we know not what. This doesn't seem to leave much scope for assessing and comparing the ontological commitments of different theories, or for deciding what to admit to our ontology based on what we accept as true.

Anticipating this objection, Rettler replies that we never should have expected to be able to determine ontological commitments just by looking at what sentences say— this is Orthodox Ontology's mistake (2016: 1423). I agree. But just because we can't read off ontological commitments *directly* from sentences doesn't mean there's nothing more informative to say about what they commit us to. The truth of 'Tables exist' might not require an ontology containing tables (or so Truthmaker Ontologists think); but one would hope to be able to say more about what it *does* require than just 'some truthmakers'.

In any case, I'm not sure that the General Truthmaker View amounts to a view of *ontological commitment* at all. It sounds more like a roundabout way of affirming Truthmaker Maximalism: every true sentence must be *made* true by some bit of ontology, so affirming a sentence commits you to there being some bit of ontology that makes it true. But couldn’t you accept this without thinking that truthmaking has anything to do with ontological commitment as such? Consider the view that a

sentence is ontologically committed to the things whose existence it entails. Given Truthmaker Maximalism, every sentence entails that there is something (or other) that makes that sentence true. Combining the two, it seems to follow that every sentence is ontologically committed to there being something or other that makes that sentence true. This sounds like Rettler's General Truthmaker View. But it's a stretch to call this a *truthmaker* view of ontological commitment: it's just a standard entailment-based view combined with Truthmaker Maximalism.

5.2.2 The Metaphysical Entailment View

It's natural to think of a theory's requirements on ontology in terms of its *entailments* concerning ontology. Indeed, as we saw earlier, those who construe ontological commitments as requirements on what there is often cash this out in terms of some kind of entailment. So perhaps we should think of a theory's requirements on truthmakers in terms of its *entailments* concerning truthmakers. This seems to fit with certain ways of articulating the truthmaker criterion, such as 'the ontological commitments of a theory are just those things that *must* exist to make true the sentences of that theory' (Cameron 2008a: 4, my emphasis. But see below). It also seems to let us ascribe ontological commitments without assuming the truth of the committed theories, or the reality of what they commit to (unlike the so-called Specific Truthmaker View).

But what, specifically, would an entailment-based truthmaker look like? We are unlikely to be able to capture truthmaker-commitments in terms of *logical* entailment. This would make ontological commitment too bound up with logical form for most Truthmaker Ontologists. The likeliest candidate seems to be *metaphysical* entailment. Bricker (2014: §3.1), for example, construes the truthmaker criterion as follows:

(TOCM) (i) *T* is ontologically committed to *a* iff, necessarily, if *T* is true then *a* is a truthmaker for *T*.

(ii) *T* is ontologically committed to *F*s iff, necessarily, if *T* is true then *F*s are among the truthmakers for *T*.

An objection to (TOCM), due to Bricker (2014: §3), is that it seems to *undergenerate* ontological commitments. Assume Truthmaker Necessitarianism, and consider the following cases:

(C1) Let *a* and *b* be mutually contingent existents. Suppose that, necessarily: (i) if '*a* and *b* exists' is true, it is made true by *a* and *b*; (ii) if '*a* exists' is true, it is made true by *a*. Plausibly, *a* doesn't necessitate, hence cannot make true, '*a* and *b* exists'. So (TOCM) has the implausible consequence that '*a* exists' is ontologically committed to *a* but '*a* and *b* exist' is not.

(C2) Let *c* be a complex object which essentially has *c** as a proper part. Suppose that, necessarily, if '*c* exists' is true, it is made true by *c*. Plausibly, *c** doesn't necessitate, hence cannot make true, '*c* exists'. So (TOCM) has the somewhat implausible consequence that '*c* exists' is ontologically committed to *c* but not to its essential proper part, *c**.

(C3) Let '*a* is *F*' be an inessential predication. Suppose that, necessarily, if '*a* is *F*' is true, it is made true by the fact [*a* is *F*]. Plausibly, *a* doesn't necessitate, hence cannot make true '*a* is *F*'. So (TOCM) has the somewhat implausible consequence that '*a* is *F*' is

ontologically committed to the fact that *a* is *F* but not to its constituent, *a*.

This objection isn't as devastating as Bricker suggests (2014: §3.4), but it does motivate a more careful formulation of (TOCM). Let's stipulate that *a* is an *element* of a truthmaker for *P* iff either (i) *a* is a partial truthmaker for *P*[103], (ii) *a* is a *mereological part* of a truthmaker for *P*, or (iii) *a* is a *non-mereological constituent* of a fact, or state of affairs, that is a truthmaker for *P* (cf. Armstrong 1997). Now consider the following revision to (TOCM):

(TOCM*) (i) *T* is ontologically committed to *a* iff, necessarily, if *T* is true then *a* is a truthmaker for *T* or an element of one.

(ii) *T* is ontologically committed to *F*s iff, necessarily, if *T* is true then *F*s are among the truthmakers for *T* or their elements.

(TOCM*) avoids the problems above. Suppose that, necessarily, if '*a* and *b* exists' is true, it is made true by *a* and *b*. Then, since *a* is required as a *partial* truthmaker, (TOCM*) implies that '*a* and *b* exists is ontologically committed to *a*, even though *a* doesn't necessitate the truth of '*a* and *b* exist'. Suppose that, necessarily, if '*c* exists' is true, it is made true by *c*, which essentially has *c** as a proper part. Then, since *c** is required as a *mereological part* of the truthmaker, (TOCM*) implies that '*c* exists' is ontologically committed to *c**, even if *c** doesn't necessitate the truth of '*c* exists'. Suppose that, necessarily, if '*a* is *F*' is true, it is made true by [*a* is *F*]. Then, since *a*

[103] I.e. $\exists X(X \vDash P \,\&\, a \in X)$. See §2.3.1.

is required as a *non-mereological constituent* of the truthmaker, (TOCM*) implies that '*a* is *F*' is ontologically committed to *a*, even if *a* doesn't necessitate the truth of '*a* is *F*'.

But although (TOCM*) is an improvement, there remain serious problems with construing truthmaker-commitments in terms of metaphysical entailment. Suppose that *T* is necessarily false. The following is a theorem in the weakest system of modal logic: $\Box\neg P \rightarrow \Box(P \rightarrow Q)$. It follows that for any *P*, $\Box(T \rightarrow P)$. So the right bijunct of (TOCM*) is vacuously satisfied: for any *F*s whatsoever, *T* is ontologically committed to *F*s. Thus, (TOCM*) has the strange consequence that impossible theories are ontologically committed to everything.

The same problem arises on the following familiar view of ontological commitment (cf. Jackson 1989, Peacock 2011):

> (EOCM) *T* is ontologically committed to *F*s iff, necessarily, if *T* is true then *F*s exist.

Arguably, however, the problem is even worse for (TOCM*) than it is for (EOCM). When we plug impossible theories into (EOCM), we get vacuous satisfactions of the right bijunct like the following: necessarily, if 'Round squares exist' is true, then unicorns exist. This sounds odd, but we're used to such quirks of entailment. But when we plug the same theory into (TOCM*), we get this: necessarily, if 'Round squares exist' is true, then unicorns are among the (elements of the) things *in virtue of which* it is true. To me, this sounds outright false. If (*per impossibile*) 'Round squares exist' were true, the *explanation* for its truth might have something to do with round squares, but certainly nothing to do with unicorns. So friends of (TOCM*) can't dismiss the

above problem as a technical oddity; it has results that conflict with our intuitions about truthmaking.[104]

Another aspect of the problem concerns theory choice (cf. Jackson 1989, Krämer 2014, Michael 2008). Following Krämer (2014: 2150*ff.*), consider the following pair of theories:

> T_N At least two objects exist and, necessarily, no two objects compose a further object.
>
> T_U At least two objects exist and, necessarily, any two objects compose a further object.

Suppose we want to use (TOCM*) to compare the ontological commitments of T_N and T_U for parsimony. To do this, we must make certain assumptions about their modal status (Krämer 2014: 2151). If both theories are necessarily false, then they are equally and maximally unparsimonious, since both are ontologically committed to everything. So if we're to count one of the theories more parsimonious than the other, we need to assume that one of them is possibly true, hence that the other is necessarily false. But it then seems that we can't count one of the theories more parsimonious than the other without begging the question against one of them (Krämer: op. cit..). To assume that T_N is possibly true is to assume that it isn't necessary that any two objects compose a further object, hence that T_U is false; to assume that T_U is possibly true is to assume that it isn't necessary that no two objects compose a further object, hence that T_N is false.

[104] There is, however, another familiar problem for (EOCM) which (TOCM*) avoids. On (EOCM), any theory whatsoever is ontologically committed to every necessary existent. Not so on (TOCM*). If *F*s necessarily exist, and therefore exist at every world where *T* is true, it doesn't follow that *T* is true *in virtue of F*s at those worlds.

5.2.3 The Potential Grounds View

In earlier papers, it wasn't too clear what Cameron (2008a, 2010a) meant by the claim that theories are ontologically committed to what *must* exist to make them true.[105] Some took him to hold a version of the Metaphysical Entailment View (Bricker 2014: §3.1, Brogaard 2008), others the non-starter that is the Specific Truthmaker View (Rettler 2016). Recently, however, Cameron (2019) has clarified his view of ontological commitment, which turns out to be more nuanced than his interpreters realised. I'll call it the 'Potential Grounds View'.

Consider the question: what conditions must reality meet in order for the claim 'Ball is red' to be true? The answer, according to Cameron, is that there must be adequate *grounds* for the claim. But there are different potential ways the world might furnish such grounds. Following Cameron (2019: 357-358), consider three potential ways of grounding 'Ball is red':

(1) The grounds of 'Ball is red' are (i) That Ball exists, and (ii) That Ball is red.

(2) The grounds of 'Ball is red' are (i) That Ball exists, (ii) That Redness exists, and (ii) That Ball instantiates Redness.

(3) The grounds of 'Ball is red' are (i) That Ball exists, (ii) That Redness exists, and (iii) That the state of affairs of Ball's instantiating Redness exists.

Assume that (1)-(3) exhaust the potential ways grounding 'Ball is red'. Then, the thought goes, the truth of 'Ball is red' requires the world to furnish *one of* these three

[105] A point he has now acknowledged (Cameron 2019: 352, fn. 43).

sets of potential grounds. So affirming 'Ball is red' commits us to the world being such that *either*: (1) Ball exists and Ball is red, (2) Ball exists, Redness exists, and Ball instantiates Redness, or (3) Ball exists, Redness exists, and the state of affairs of Ball's instantiating Redness exists.

Now for Cameron, truthmaking is a special case of truth-grounding (2018: 338, 2019: 354). What it is for *a* to make *P* true, he thinks, is for *P* to be grounded by the true proposition that *a* exists. So the range of potential grounds for a claim encompasses its *potential truthmakers*; these are given by those among the claim's potential grounds that concern the existence of entities (Cameron 2019: 354). Thus, if (1) is true, then the truthmaker for 'Ball is red' is Ball; if (3) is true, then the truthmakers are Ball, Redness, and the state of affairs of Ball's instantiating Redness.[106] 'The truthmaker criterion of ontological commitment', says Cameron, 'tells us that we are committed to there being *some or other* of the potential truthmakers for the claims we take to be true' (2019: 351-352).

For example, still assuming that (1)-(3) are exhaustive, our *ontological* commitment in affirming 'Ball is red' is to the world's being such that either: (1) Ball exists, (2) Ball and Redness exist, or (3) Ball, Redness, and the state of affairs of Ball's instantiating Redness exist. In this case, Cameron would say that 'Ball is red' is ontologically committed to *Ball*, since 'Ball exists' is on all its lists of potential grounds (2019: 355). But now suppose there's a fourth potential way to ground 'Ball is red':

> (4) The grounds of 'Ball is red' are (i) That simples arranged Ball-wise exist, and (ii) That these simples are arranged red-wise.

[106] As Cameron explains (2019: 358), 'Ball is red' has *necessitating* truthmakers in the latter case but not the former.

In this case, 'Ball is red' incurs a *disjunctive* ontological commitment: the world must be such that *either* Ball exists *or* simples arranged Ball-wise exist (Cameron 2019: 356). Now consider a fifth potential way to ground 'Ball is red':

(5) The grounds of 'Ball is red' are (i) That it is Ball-and-red-ing.

In this case, Cameron would say that 'Ball is red' has *no* ontological commitments, since there's a potential way of grounding it that doesn't involve the existence of entities at all (2019: 357).

Cameron is clear that he's not thinking of 'potential grounds' in modal terms (2019: 355): the thought is *not* that, in every possible world where *P* is true, it is grounded either thus-and-so, or so-and-thus, or … . Rather, Cameron seems to take 'potential grounds' as primitive: 'we simply have to take claims— whether they be truths, contingent falsehoods, or impossibilities— to generate, by virtue of what they say about the world, these lists of potential grounds' (2019: 355). If we're happy with this, Cameron's Potential Grounds View looks quite attractive. Because 'potential grounds' needn't be *actual* grounds, we can assign ontological commitments without assuming the truth of the committed theories, or the reality of what they commit to. Because 'potential grounds' is (by stipulation) a non-modal notion, we can avoid the sort of problems that afflict the Metaphysical Entailment View. And although the Potential Grounds View sometimes makes ontological commitments disjunctive, it offers greater precision than Rettler's General Truthmaker View, on which the answer to 'What are the ontological commitments of a theory?' is always just 'Some truthmakers'.

The view I will outline below resembles the Potential Grounds View in some respects.[107] It too rests on a non-modal notion of a theory's potential— or as I prefer, *candidate*— truthmakers. But there are at least two differences. First, as I've said before, I don't think that truthmaking can be assimilated into grounding— my view won't assume otherwise.[108] Second, I aim to say more about what potential, or candidate, truthmakers for a theory are, and how these might be determined.

5.3 Towards a Normative Truthmaker View

I will now propose a new truthmaker view of ontological commitment. I call it the *Normative Truthmaker View*.

5.3.1 Normative Commitments

Suppose I promise to mow your lawn every week, but rarely turn up. Am I *committed* to mowing your lawn? In one sense, I'm not: a truly *committed* lawn-mower would show up without fail. But in another sense, I am: I *ought* to mow your lawn weekly, because I promised I would. 'Commitment' thus seems to have both *descriptive* and *normative* senses: I have my descriptive commitments in virtue of what I actually do, and my normative commitments in virtue of certain constraints on what I *ought* to do (Dieveney 2008). I want to suggest that we think of *ontological* commitment in the broadly normative sense. The basic idea is this: for *T* to be ontologically committed to *F*s is for *T* to be such that one *rationally ought* to admit *F*s into one's ontology, given that one accepts *T*.

[107] The views were developed independently, however— I came across the manuscript for Cameron's paper after the bulk of this chapter was written.

[108] See §2.2.1. Again, I'm assuming that Cameron thinks that truthmaking *just is* a case of truth-grounding (cf. p.138 fn.83).

It is hardly novel to think that ontological commitment is connected to rational obligation. Many would agree that we rationally ought to endorse the ontological commitments of the theories we accept. But we tend to think that this obligation *arises from* prior facts about ontological commitment. You might think that *T*'s ontological commitment to *F*s consists in its logically entailing that there are *F*s, and that you rationally ought to believe what logically follows from your beliefs. In that case, it's natural to say that believing *T* rationally obliges you to admit *F*s to your ontology *because T* is ontologically committed to *F*s. What I'm suggesting, however, is that if *T* is ontologically committed to *F*s, this is *because* believing *T* rationally obliges you to admit *F*s to your ontology. Imposing such rational obligations is what ontological commitment *consists in*. (You might think that entailment is *a way* for theories to create such obligations, but it needn't be the *only* way.)

My view is that ontology consists of all and only the things that make a truthmaking contribution. Hence, I take a theory's ontological commitments to be the things one rationally ought to take to make a truthmaking contribution, given that one accepts the theory. This is the substantive claim underlying what I call the Normative Truthmaker View of ontological commitment. The pressing question in the development of such a view is what truthmaking-contributors a theory rationally obliges its holders to posit. I will now sketch an answer to this question.

5.3.2 The Normative Truthmaker View Outlined

I take it that one way for a theory to rationally oblige its holders to admit certain entities as truthmakers is to *explicitly designate* those entities as truthmakers. This suggests the following truthmaker criterion of *explicit ontological commitment (*see §5.1.1):

(TOCEX) *T* is *explicitly* ontologically committed to *F*s iff$_{df}$. *T* contains a sentence designating *F*s as truthmakers, or as elements of truthmakers.

I don't claim that there's some 'canonical language' that's uniquely best for designating entities as truthmakers. All that matters for my purposes is that there is *some* language we can use to designate truthmakers clearly enough for our liking. But to fix ideas, I'll assume that we can explicitly designate truthmakers using sentences like '$\exists x(x = a \ \& \ x \vDash P)$' and '$\exists x(Fx \ \& \ x \vDash P)$'. These sentences are explicitly ontologically committed to *a* and *F*s respectively, because they designate them as truthmakers. The sentence '$\exists X(X \vDash P \ \& \ b \in X)$' is explicitly ontologically committed to *b* (along with the rest of *X*), because it designates *b* as a *partial* truthmaker. And recall that, on my view, truthmaking can be either *direct* or *indirect* (see §2.4): *x directly* makes *P* true iff '$x \vDash P \ \& \ \neg\exists Q(x \vDash Q \ \& \ Q \Rightarrow P)$'; *x indirectly* makes *P* true iff '$x \vDash P \ \& \ \exists Q(x \vDash Q \ \& \ Q \Rightarrow P)$'. So, for instance, '$\exists x(x = c \ \& \ x \vDash P \ \& \ P \Rightarrow Q)$' is explicitly ontologically committed to *c*, which it designates as a truthmaker for *P* and as an *indirect* truthmaker for *Q*. I take it that, if a theory contains sentences like these, then its holders are rationally obliged to admit the truthmakers designated— that's what the ontological commitment consists in.

Of course, most theories don't explicitly designate truthmakers. So most theories lack explicit ontological commitments. But we can render any theory explicitly ontologically committal by means of what I call a *TM-extension*. A TM-extension enriches a theory with sentences designating truthmakers for the propositions the theory expresses. It also fully specifies all intermediate grounding claims when the designated truthmakers are indirect. To ensure the latter, I'll stipulate that '$\vDash$' always

indicates direct truthmaking and '$\Rightarrow$' direct grounding[109] when they occur in a TM-extension. This means that a TM-extension must articulate any indirect truthmaking claims by starting with a direct truthmaking claim and progressing via a chain of direct grounding claims to the part of the theory that is indirectly made true.

To illustrate, consider a two-sentence theory:

T $\quad$ {'P', 'Q'}

One way to construct a TM-extension for T is simply to designate direct truthmakers for P and Q. For example:

$T^{+}1$ $\quad$ {'P', 'Q', '$\exists x(x = a \,\&\, x \vDash P)$', '$\exists x \exists y(x = b \,\&\, y = c \,\&\, x, y \vDash Q)$'}

But another way is to find direct grounds for P and Q, direct grounds for those grounds, and so on, until we reach indirect truthmakers for P and Q. We might end up with something like this:

$T^{+}2$ $\quad$ {'P', 'Q', '$\exists x(x = a \,\&\, \exists R(x \vDash R \,\&\, R \Rightarrow P))$', '$\exists y(y = b \,\&\, \exists S1 \exists S2((y \vDash S1) \,\&\, (S1 \Rightarrow S2) \,\&\, (S2 \Rightarrow Q)))$'.[110]

Now, as it stands, TM-extensions don't tell us much about what theory-holders rationally ought to admit as truthmakers. The only constraints on them are syntactic; there are no restrictions on *what* truthmakers or grounds a TM-extension can assign.

[109] An instance of grounding between P and R is *direct* iff P grounds R and there is no Q such that P grounds Q and Q grounds R.

[110] A TM-extension might also posit direct truthmakers for some parts of the theory and indirect truthmakers for others.

A TM-extension might say that the number 7 makes true ⟨Socrates exists⟩, for instance, or that ⟨Snow is white⟩ grounds ⟨Grass is green⟩.

The way forward is to find constraints on what counts as an *admissible* TM-extension of a theory. The aim is to ensure that the truthmakers posited by an admissible TM-extension are rationally acceptable *candidates* for making the extended theory true— rationally acceptable, that is, *by that theory's lights*. We're not looking for constraints on what truthmakers it is rational to admit *simpliciter*, but on what truthmakers it is rational to admit *given that* one accepts a certain theory. For instance, it may be irrational from a theory-external perspective to admit ghosts as truthmakers, but not from the perspective of a theory about ghosts. With this in mind, I will now suggest some constraints on admissible TM-extensions that are primarily based on (i) what a theory says, and (ii) what follows from the nature of truthmaking and grounding (as opposed to prior assumptions about what truthmakers or grounds are independently plausible).

(1) Admissible TM-extensions are subject to the logical and structural principles governing truthmaking and grounding. For example, a TM-extension will be inadmissible if it involves symmetric or reflexive cases of grounding or truthmaking[111]. They are also subject to principles governing the *interplay* between truthmaking and grounding (see §2.4). For example, given *Quasi-Asymmetry*, an admissible TM-extension cannot verify both '$a \vDash P$' and '$P \Rightarrow \langle a$ exists$\rangle$'. Given the *Grounding Principle*, an admissible TM-extension cannot verify '$a \vDash P$' and '$P \Rightarrow Q$' while falsifying '$a \vDash Q$'. Admissible TM-extensions are also subject to constraints on what

[111] Save, perhaps, for certain exceptional cases involving propositions serving as truthmakers for truths about propositions. See §2.3.1.

makes true or grounds truths of certain logical forms. For example, an admissible TM-extension will ground conjunctions in their conjuncts and existential generalisations in their instances, and not vice versa.

(2) Any claims of the form '$x \vDash P$' in a TM-extension indicate *direct* truthmaking, which I take to be subject to a version of the *Aboutness Constraint* (see §3.3.1). That is, where direct truthmaking is concerned, the terms that occur in the truthbearer also occur in the description of the truthmaker. Thus, *a* could directly make true ⟨*a* exists⟩, but *b* couldn't. The fact that *a* is *F*, or *a*'s *F*-ness trope, could directly make true ⟨*a* is *F*⟩, but the fact that *b* is *G* or *c*'s *H*-ness trope couldn't. So, for example, a TM-extension will be inadmissible if it posits the number 7 as the direct truthmaker for ⟨Socrates exists⟩. Where *indirect* truthmaking is concerned, the terms that occur in the truthbearer need not occur in the description of the truthmaker (see §3.3). But in such cases, a TM-extension must display how the subject matter of the indirectly made true proposition is connected, via a chain of direct grounding claims, to its indirect truthmaker.

(3) Admissible TM-extensions can only feature truthmaking and grounding claims that meet a basic threshold of intuitive explanatory adequacy. If *a* makes *P* true, this implies the correctness of the explanatory proposal, '*P* is true because *a* exists'; and if *P* grounds *Q*, this implies the correctness of the explanatory proposal, '*Q* because *P*' *Q*' (see §2.3). My crude suggestion is that a TM-extension is inadmissible if it features a truthmaking or grounding claim such that the corresponding explanatory proposal, 'ϕ because ψ', is *inherently inapt*. Very roughly, an inherently inapt

explanatory proposal is one where the content of the putative *explanans* precludes it from having any explanatory bearing on the *explanandum*. For example, I take it that 'Grass is green because snow is white' is an inherently inapt explanatory proposal, and so a TM-extension will be inadmissible if it features the grounding claim '⟨Snow is white⟩ ⇒ ⟨Grass is green⟩'.

Clearly, the notion of an explanatory proposal being inherently inapt needs fleshing out. Here, I'll limit myself to sketching a rough and ready test (inspired by Joyce 2001: 3). Imagine yourself in the position of a radical interpreter, observing an alien community whose language is homophonically indistinguishable from English. You are satisfied that the alien's word 'because' has the same meaning as its homophonic English counterpart. You notice, however, that the aliens are disposed to sincerely assert the sentence 'ϕ because ψ'. If, *qua* charitable interpreter, you would take this as evidence that either 'ϕ' or 'ψ' *cannot* have the same meaning as its homophonic English counterpart, this indicates that the English claim 'ϕ because ψ' is inherently inapt. For example, if the aliens sincerely asserted 'Grass is green because snow is white' and meant what we mean by it, this would be a sign of conceptual incompetence— given that 'because' has its English meaning, a charitable interpreter would be inclined to judge that at least one of the alien's sentences, 'Grass is green' and 'Snow is white', does not have its English meaning. This indicates that the English claim 'Grass is green because snow is white' is inherently inapt, and so the grounding claim, '⟨Snow is white⟩ ⇒ ⟨Grass is green⟩' can't feature on an admissible TM-extension.

However, consider the following explanatory proposals: (i) Ghosts exist because disembodied souls exist; (ii) It is true that disembodied souls exist because disembodied souls exist. Dubious as these claims might be, I submit that the above test would *not* indicate that they are inherently inapt. So an admissible TM-extension of 'Ghosts exist' might include the claims: (i) ⟨Disembodied souls exist⟩ ⇒ ⟨Ghosts exist⟩, and (ii) Disembodied souls ⊨ ⟨Disembodied souls exist⟩. This is as it should be. The truthmakers and grounds featured on an admissible TM-extension should be rationally acceptable *given what the theory says* but need *not* be so from a theory-external perspective.

(4) Admissible TM-extensions should consistently designate entities of a particular ontological category as truthmakers for a particular kind of truth. To illustrate, suppose that *T* consists of two atomic predications: '*a* is *F*' and '*b* is *G*'. An admissible TM-extension of *T* might designate the facts [*a* is *F*] and [*b* is *G*], or the tropes *a*'s *F*-ness and *b*'s *G*-ness as direct truthmakers for these claims. But a TM-extension of *T* will be inadmissible if it designates the fact [*a* is *F*] as the direct truthmaker for ⟨*a* is *F*⟩ and *b*'s *G*-ness trope as the direct truthmaker for ⟨*b* is *G*⟩. For plausibly, whatever entities serve as truthmakers for atomic predications, they are uniform across *all* atomic predications.

I don't claim that these constraints are exhaustive, and some of the above will need ironing out on another occasion. But I've tried to indicate that, based on what a theory says and what follows from the nature of truthmaking and grounding, there are plausible constraints on what theory-holders *might* rationally admit as truthmakers.

This puts us in a position to see how TM-extensions bear on the truthmakers theory-holders rationally *ought* to admit. If *T* has an admissible TM-extension T^{+}, then the truthmakers designated by T^{+} are rationally acceptable candidate truthmakers for *T*. Thus, suppose *T* has exactly three admissible TM-extensions: $T^{+}1$ designates the *X*s as truthmakers for *T*, $T^{+}2$ designates the *Y*s, and $T^{+}3$ designates the *Z*s. Then the things you rationally *ought* to admit as truthmakers if you accept *T* are either the *X*s or the *Y*s or the *Z*s. Now suppose that *every* admissible TM-extension of *T* designates *F*s as truthmakers. Then someone who accepts *T* rationally ought to admit *F*s as truthmakers. So, given that a theory's ontological commitments are the things its holders rationally ought to admit as truthmakers, this suggests the following view of ontological commitment:

(TOCN) (i) For any theory *T*, with admissible TM-extensions $T^{+}1$, $T^{+}2$, …, $T^{+}n$, *T* is ontologically committed to there being either the things to which $T^{+}1$ is explicitly ontologically committed, or the things to which $T^{+}2$ is explicitly ontologically committed, …, or the things to which $T^{+}n$ is explicitly ontologically committed.

(ii) *T* is ontologically committed to *a*/*F*s iff every admissible TM-extension of *T* is explicitly ontologically committed to *a*/*F*s.

As I've said, the Normative Truthmaker View has some aspects in common with Cameron's Potential Grounds View. To borrow Cameron's toy example, let *B* be the single-sentence theory, 'Ball is red'. Suppose *B* has exactly two admissible TM-

extensions, which incur the following explicit commitments (as measured by (TOCEX)):

B^+1	Ball; Redness; The state of affairs of Ball's instantiating Redness.
B^+2	Ball; Ball's redness trope.

In this case, like Cameron, I say that *B* is ontologically committed to Ball: if every admissible TM-extension of *B* designates Ball as a truthmaker (or an element of one), then you rationally ought to admit Ball as a truthmaker (or an element of one), given that you accept *B*. Now suppose there is a third admissible TM-extension of *B*, whose explicit commitments are as follows:

B^+3	Simples *b1, ..., bn*; The fact that *b1, ..., bn* are arranged Ball-wise and Redness-wise.

In this case, like Cameron, I say that the ontological commitment of *B* is to there being *either* Ball or *b1, ..., bn*: given that you accept *B*, you rationally ought to think that either Ball or *b1, ..., bn* make a truthmaking contribution to *B*. Thus, the Normative Truthmaker View might be seen as a cousin of the Potential Grounds View— albeit one that doesn't define truthmaking in terms of grounding, and which attempts to shed more light on what a (non-modal) notion of potential/candidate truthmakers might be.

5.3.3 In Favour of the Normative Truthmaker View

I will now outline some of the benefits of the Normative Truthmaker View and reply

to recurrent objection to truthmaker views of ontological commitment.

First, as a reminder, the notion of ontological commitment plays a different role in my overall account than it does for other Truthmaker Ontologists, and the motivations for the Normative Truthmaker View are accordingly different. By my lights, the benefits arising from the ability to distinguish ontology proper from what can truly be said to exist are not, properly speaking, benefits of a truthmaker criterion of ontological *commitment*. They rather arise from the truthmaker criterion of ontological *status*, in conjunction with the Divergence Thesis. Given the assumptions I began with in this chapter— that ontological commitments are requirements on ontology, and that ontology consists of the truthmakers— the question is not *whether* to adopt a truthmaker view of ontological commitment but *which one*. Accordingly, the motivations for the Normative Truthmaker View are primarily reasons for preferring it over other candidate truthmaker views.

Unlike what Rettler calls the Specific Truthmaker View, the Normative Truthmaker View lets us ascribe ontological commitments without assuming the truth of the committed theories or the reality of what they commit to. That *T* rationally obliges its holders to admit *F*s as truthmakers does not imply that *T* is true or that *F*s actually do any truthmaking. This is in keeping with the idea that ontological commitment is an important tool of theory choice and ontic decision-making. If *T* is ontologically committed to *F*s, i.e. rationally obliges its holders to admit *F*s as truthmakers, then *if* you have reasons to accept *T*, you have reason to admit *F*s to your ontology. But conversely, if you have reason to believe that *F*s are dubious, you have reason to reject or revise *T*.

The Normative Truthmaker View also differs from Rettler's General Truthmaker View. On the Normative Truthmaker View, the answer to 'What is *T* ontologically committed to?' might be '*F*s', or it might be '*F*s or *G*s or *H*s'. Such answers are more

informative than the answer we get on the General Truthmaker View, which is always just 'Some truthmakers'.

Unlike the Metaphysical Entailment View, the Normative Truthmaker View does not imply that impossible theories are ontologically committed to everything. It might be that 'Round squares exist' is ontologically committed to round squares, if round squares are on every admissible TM-extension of 'Round squares exist'. But it will not be ontologically committed to unicorns, which won't be candidate truthmakers given the sort of constraints on admissibility suggested above.

Cameron's Potential Grounds View promises similar advantages over these other views, and I won't argue that the Normative Truthmaker View is superior. You may find the Normative Truthmaker View more congenial, however, if you think that truthmaking is distinct from truth-grounding, or want more details than Cameron offers on what the notion of 'potential' truthmakers amounts to.

A recurrent objection to truthmaker views of ontological commitment is that they presuppose the standard Quinean quantifier criterion (Asay 2011, Mantegani 2014, Schaffer 2008). The thought is that, in order to designate certain entities as truthmakers, we'll have to use sentences like '*There is* an *F*, such that *F* is a truthmaker'. Indeed, I have explicitly said that we can incur explicit ontological commitments to truthmakers by using quantified sentences such as '$\exists x(x = a \ \& \ x \vDash P)$'. Because of this, the objectors would claim, I'm unwittingly assuming the familiar quantifier view: '$\exists$' is still doing the work. As Schaffer puts it (2008: 16), 'truthmaker commitments are parasitic upon quantifier commitments, and so the truthmaker view cannot possibly replace the quantifier view'.

This objection rests on a confusion about what a 'view' of ontological commitment involves. Suppose Moe thinks that theories are ontologically committed to what they *metaphysically* entail there is, Larry thinks that theories are committed to what they

logically entail there is, and Curly thinks that theories are committed to what they *conceptually* entail there is. All three agree that if a theory includes the sentence '$\exists xFx$', it is ontologically committed to *F*s. Do Moe, Larry and Curly have the same view of ontological commitment? No. While they agree that sentences of the form '$\exists xFx$' *convey* ontological commitment, they hold substantially different views about ontological commitment consists in.

I think that a theory's being ontologically committed to *F*s consists in its rationally obliging its holders to admit *F*s as truthmakers. And I've suggested that if a theory includes the sentence '$\exists x(x = a \,\&\, x \vDash P)$', then it is ontologically committed to *a*. But this doesn't mean I'm unwittingly assuming a 'quantifier view' of ontological commitment. The above sentence isn't ontologically committed to *a because* it quantifies over *a*; it is ontologically committed to *a* because it rationally obliges someone who affirms it to admit *a* as a truthmaker— the use of quantification just makes this commitment manifest. More generally, just because two philosophers think that ontological commitment can sometimes be conveyed by the same linguistic means doesn't mean they have the same underlying account of ontological commitment. I have given an account of what ontological commitment (and indeed *ontology*) consists in that differs significantly from the standard Quinean approach. The fact that certain (highly circumscribed) uses of quantification might be used to convey ontological commitments, as I construe them, in no way undermines this.

5.4 Determining an Ontology of Truthmakers

I will now sketch a (somewhat idealised) procedure for determining an ontology of truthmakers. In a nutshell, I suggest that our aim should be to find the *best* TM-extension for the truths we have best reason to accept. This is the TM-extension that

is both (i) admissible, and (ii) scores higher than any other admissible TM-extension by the measure of overall theoretical virtue. I'll break the procedure into three stages.

(Stage One) Determine the Truths

The first stage involves deciding on an initial body of claims that we have good reason to accept as true. I have in mind something like what Armstrong (2004: 26) calls our 'epistemic base': a collection of truths— or what we take to be truths— that serves as our starting point in the search for truthmakers. I think this collection will include 'Moorean' commonsense truisms: 'There are tables', 'I have hands', 'Snow is white', and so on (Armstrong 2004: 26-30, 2006). It will also include the well-established claims of science, in a broad sense that includes natural science, social science, and mathematics. Criteria internal to these disciplines will determine what we're to include in our initial stock of truths.

We shouldn't think of the truths included in the initial stock as inviolable. For one thing, we might have to reject or revise certain claims from our initial stock, if we find that they make unacceptable demands on ontology. For another, we may find apparent inconsistencies among our initial stock— between certain scientific claims and certain commonsense claims, for example— that we'd need to resolve one way or another (see §7.3.3). Finding a plausible and consistent stock of truths, and the best theory of truthmakers for those truths, is likely to require some reflective equilibrium. As Armstrong puts it (2004: 26):

> We take certain things to be true, and then ask what truthmakers these truths demand. It may be that at times we will think that we must have certain truthmakers, and as a result add to what we take to be our stock of truths. Or we might find ourselves unwilling to postulate certain truthmakers and therefore having to reject what we had previously taken to be truths.

(Stage Two) Determine What Grounds What

The next stage involves questions of grounding: what is the best account of the grounding relations among the truths we accept, and of the fundamental truths in which they are ultimately grounded? As Fine says (2012: 44), 'the attempt to determine what grounds what naturally proceeds in stages— one first determines the relatively immediate grounds for the truths in question, then the relatively immediate grounds of those grounds, and so on until one reaches the ultimate grounds'. As well as abiding by the sort of constraints on admissibility described earlier, we should seek the most *virtuous* system of grounds available, as measured in terms of familiar theory-choice criteria. Here's Fine again (2001: 22):

> [A] system of grounds may be appraised, in much the same way as any other explanatory scheme, on the basis of such considerations as simplicity, breadth, coherence, or non-circularity. Perhaps the most important virtue in this regard is explanatory strength, the capacity to explain that which stands in need of explanation and would otherwise be left unexplained.

What sort of principles might guide our choice between different candidate grounds? One candidate is a principle of economy: all else equal, it is preferable to ground a given truth in as few truths as possible. Another is a principle of unification: all else equal, it is preferable to find common grounds for different kinds of truth than to posit bespoke grounds for each. A third is a principle of explanatory completeness: all else equal, it is preferable to minimise the number of ungrounded truths. Intuitive, scientific and logical considerations will also plausibly play a role.

A pressing question at this stage is where to *stop* positing further grounds and take certain truths as fundamental. Plausibly, given the sort of principles just suggested, the aim is to arrive at a *minimally complete* set of grounds, in the sense discussed in Chapter 4. By definition, this would be a maximally parsimonious and explanatorily

complete set of fundamental truths in terms of which all others are ultimately explained. But there are, of course, difficult questions about what truths will turn out to be fundamental. Perhaps we'll be able to ground all other truths in truths about the microphysical, but perhaps not. Perhaps, for example, certain truths about minds or moral properties can't be accounted for in terms of anything more basic and should be treated as fundamental.

(Stage Three) Determine the Truthmakers

By now, we have an 'alethic hierarchy' of fundamental and non-fundamental truths, structured by grounding relations (see §4.1). The last stage of our idealised procedure involves designating truthmakers, thus providing the *ontological* foundation for our alethic hierarchy. Again, we want the most theoretically virtuous account of truthmakers available, guided by principles of parsimony, unification, explanatory completeness, and so on. Plausibly, our aim should be to find the most plausible set of *fundamental* truthmakers for the theory we started with (see §4.2). This would involve finding the most plausible candidate set of truthmakers that is minimally complete with respect to the fundamental truths, as determined at Stage Two. These entities would then provide a complete and non-redundant truthmaking base for *all* the truths in our alethic hierarchy.

At this point, we have constructed the best candidate TM-extension for our overall theory of the world. The entities designated as truthmakers at Stage Three are the best candidate direct truthmakers for the best candidate fundamental grounds of our initial stock of truths (and hence *indirectly* make true the non-fundamental truths). I suggest that these truthmakers exhaustively comprise the ontology we ought to accept.

As I've said, this is an idealised procedure. In practice, difficult philosophical questions will arise at every stage, and it will take hard work to achieve reflective

equilibrium between our accounts of what is true, what grounds what, and what the truthmakers are. But I hope to have given some sense of what an approach to the question of ontology might look like from the perspective of Truthmaker Ontology, even if the answer would be extremely hard to find. To quote Armstrong again (2004: 23):

> [T]he hunt for truthmakers is as controversial and difficult as the enterprise of metaphysics. I think that proceeding by looking for truthmakers is an illuminating and useful regimentation of the metaphysical enterprise, or at least the enterprise of a realist metaphysics. But it is no easy and automatic road to the truth in such matters.

Conclusion

It is important to be able to determine a theory's requirements on ontology— its ontological commitments. I hold that ontology consists of what makes a truthmaking contribution, and hence that ontological commitments are requirements on truthmakers. It proves difficult, however, to spell out the relevant notion of *requirement*. I have suggested that we think of 'requirements on truthmakers' as *rational* requirements on what theory-holders *ought to admit* as truthmakers, given what their theory says. I also offered a way to flesh this out, based on the technical notion of an admissible TM-extension. The Normative Truthmaker View avoids the major difficulties that afflict some previous efforts to account for ontological commitment in terms of truthmaking. It also forms the basis of a (somewhat idealised) procedure for deciding on an ontology of truthmakers: we attempt to find the *best* TM-extension of the claims we accept as true. The entities designated as truthmakers by this TM-extension comprise the ontology we ought to accept.

6 Counting Costs

I now turn to another methodologically important notion: *ontological parsimony*. Truthmaker Ontology, I've said, is a form of *Stratified Ontology* (§3.1); and Stratified Ontologists often claim that, in light of their views, we must revise our ideas about how ontological parsimony is to be measured. *Ockham's Razor*— 'Do not multiply entities without necessity'— is usually taken to imply that theories are generally more choice-worthy if they imply the existence of fewer entities. But according to several Stratified Ontologists, parsimony considerations only apply to claims about what *fundamentally* or *really* exists. Hence, on their view, theories are not necessarily less choice-worthy for multiplying entities. These 'Razor Revisers', as Baron and Tallant (2018) call them, have come in for some recent criticism. What the critics often ignore, however, is that Razor revision amounts to very different things depending on whether *inflationary* or *deflationary* Stratified Ontology is in play. I'm going to argue that the most prominent inflationary attempt at Razor revision—endorsed by Schaffer (2009), Bennett (2017), and others—doesn't succeed. But matters are different, I'll argue, in the deflationary context of Truthmaker Ontology. This chapter, then, has two main aims: (i) to explain how the methodologically important notion of ontological parsimony works in the context of Truthmaker Ontology, and (ii) to make trouble for one of Truthmaker Ontology's major rivals.

In §6.1, I introduce ontological parsimony in general terms and clarify the distinction between inflationary and deflationary forms of Razor revision. In §6.2, I demotivate and criticise the most prominent inflationary attempt to revise the Razor: *Schaffer's Laser*. In §6.3, I outline a view of how Truthmaker Ontologists should measure the ontological parsimony of theories, based on the view of ontological

commitment defended in the previous chapter. In §6.4, I argue that this view is better motivated than Schaffer's Laser and doesn't suffer from the same problems.

6.1 Ontological Parsimony and Stratified Ontology

I'll begin by introducing the notion of ontological parsimony in general terms. I will then distinguish between two forms of 'Razor revision', based on inflationary and deflationary versions of Stratified Ontology.

6.1.1 Ockham's Razor and Theory Choice

Ockham's Razor is the following familiar maxim:

> (Ockham's Razor) Do not multiply entities without necessity.

Typically, Ockham's Razor is interpreted as a comparative principle of theory choice: all else equal, it is rational to prefer a more *ontologically parsimonious* theory over a less ontologically parsimonious rival. Ontological parsimony is usually understood in terms of ontological *commitment*, along the following lines:[112]

> (Ontological Parsimony) Theory *T1* is more ontologically parsimonious than a rival theory *T2* iff *T1* has fewer ontological commitments than *T2*.

(If *T1* is ontologically committed to fewer *token* entities than *T2*, *T1* is said to be more *quantitatively* ontologically parsimonious than *T2*. If *T1* is ontologically committed to fewer *kinds* of entity than *T2*, *T1* is said to be more *qualitatively* ontologically parsimonious than *T2*. It is widely agreed that qualitative parsimony is a theoretical

[112] See e.g. Baker (2007: 196-197).

virtue, though there is some disagreement over the importance of quantitative parsimony. I will skirt over this issue in what follows, but see Baker 2003, Nolan 1997 and Lewis 1973: 87 for relevant discussion.)

I assume that ontological parsimony is an *epistemic* virtue of theories (rather than, say, a pragmatic or an aesthetic virtue). That is, all else equal, a more ontologically parsimonious theory is *more likely to be true* than a less parsimonious rival. The exact justification for this is a contentious issue.[113] But the basic rationale is that choosing more ontologically parsimonious theories 'diminishes your risk of error', as Russell puts it (1919: 379). A theory's ontological commitments are the requirements its truth imposes on ontology (see §5.1). And the more requirements a theory imposes on ontology, the greater the risk that ontology will fail to comply, hence that the theory will be false. We might put the point in terms of basic probability (cf. Brenner 2017: 2690, Rodriguez-Pereyra 2002: 205-207). The probability of a conjunction whose conjuncts are mutually independent is less than the probability of either conjunct alone. Hence, if *O1* and *O2* are mutually independent ontological claims, *O1* is more probable than *O1&O2*. Thus, all else equal, theories are more likely to be true if they rely on fewer independent ontological claims.

6.1.2 Stratified Ontologists as 'Razor Revisers'

Our understanding of ontological parsimony depends on our understanding of ontological *commitment*, which depends in turn on our understanding of what has ontological *status* (see §5.1). Orthodox Ontologists think that ontology concerns what exists, and hence that ontological commitments are *requirements* on what exists. So by their lights, the claim that *T1* is more ontologically parsimonious than *T2* means roughly that *T1* requires the existence of fewer entities than *T2*. But according to a

[113] See Baker (2004) for an overview.

number of *Stratified Ontologists*, we need a more discerning measure of ontological parsimony— one that only measures a theory's requirements on what *really* or *fundamentally* exists (see §3.1). Thus, Sider (2013: 240) says that parsimony considerations 'should be restricted to theories about the fundamental nature of the world'; Cameron (2010a: 262) says that 'the correct formulation of Ockham's Razor […] must tell us to judge theories by what entities they admit to their fundamental ontology'; Bennett (2017: 222) says that 'nonfundamentalia do not count against the ontological simplicity of a theory […]; Ockham's Razor does not even "see" the nonfundamentalia'; and Schaffer (2015) argues at length that 'the Razor' should be replaced by a more discerning maxim he calls *the Laser*: 'Do not multiply *fundamental* entities without necessity'. Baron and Tallant (2018) dub these philosophers 'Razor Revisers'.

It is easy to see why a Stratified Ontologist would want to be a Razor Reviser. A common motivation for Stratified Ontology is that it lets us reap the theoretical benefits of sparse ontological views (compositional nihilism, mathematical nominalism, etc.) while avoiding the usually associated error theories. For Stratified Ontology gives us the option of affirming the existence of, e.g., composite objects or numbers while denying that they fundamentally/really, exist. If parsimony only cares about fundamental/real existence, this would seem to yield the parsimony benefits of standard nihilism and nominalism without the revisionary consequences.

However, *pace* Baron and Tallant, it's a mistake to lump all Razor Revisers into the same category. To do so is to neglect relevant differences between inflationary and deflationary versions of Stratified Ontology. To briefly recap: deflationists hold that reality is *exhausted* by what fundamentally/really exists. If a deflationist says that tables do not fundamentally really exist, they mean that reality hosts no tables but that we can still truly *represent* our table-less reality using sentences like 'Tables exist'.

Inflationists hold that reality consists of both fundamental and non-fundamental 'layers'. If an inflationist says that tables are non-fundamental, they mean that tables are full-blown—albeit *dependent*— denizens of reality. Razor Revisers on both sides of the inflationary/deflationary divide might claim that parsimony considerations are only relevant where fundamental existence is concerned. But this means different things, depending on whether 'fundamental existence' is given an inflationary or a deflationary reading. To appreciate the difference, consider these two familiar claims:

> (OC) The ontological commitments of a theory are its requirements on what exists.

> (OP) *T1* is more ontologically parsimonious than *T2* iff *T1* has fewer ontological commitments than *T2*.

Inflationist Razor Revisers accept (OC) but reject (OP). For the distinction between fundamental and non-fundamental existents is exhaustive and, according to the inflationist, both kinds of existent have full-blown ontological status. So by their lights, all requirements on what exists are requirements on ontology; hence, they accept the standard view that ontological commitments are requirements on what exists. But contrary to (OP), inflationist Razor Revisers hold that only a *proper subset* of a theory's ontological commitments count against it by the measure of parsimony. Thus, inflationist Razor Revisers say things like: 'Nonfundamentalia are no addition to *fundamental* being, which is all parsimony cares about. But they are an addition to being full stop' (Bennett 2017: 222); '[D]erivative entities are an "ontological free lunch", in the sense that they are genuinely new and distinct entities [and] additional commitments but they cost nothing' (Schaffer 2015: 647-648). As one sympathiser puts it:

> The basic idea is to distinguish between the ontological *commitments* of a theory and its *costs*, i.e. between the entities that must exist if a theory is true and the entities that count against the theory when we just it for ontological parsimony. For […] some existence claims of a theory *T* are *unproblematic* in the sense that these claims do not count as a disadvantage when we compare *T* with rival theories. (Schulte 2011a: 253-254)

Deflationist Razor Revisers, in contrast, accept (OP) while rejecting (OC). On their view, ontology consists of *only* what fundamentally/really exists; so contrary to (OC), a theory's ontological commitments are just its requirements on fundamental reality. But given this, the claim that parsimony is only relevant to claims about fundamental existence is consistent with (OP): *all* a theory's ontological commitments are relevant to the measure of parsimony, but only requirements on the fundamental count as ontological commitments. Perhaps, for instance, the truth of 'There are tables' requires that fundamental reality host certain simples, but no tables. Then, for the deflationist Razor Reviser, the ontological cost of affirming 'There are tables' is just the cost of the simples. This is not because tables are somehow a 'commitment without a cost' (Schulte 2011a: 253), but because we were never ontologically committed to tables in the first place: positing tables doesn't decrease ontological parsimony because a table-free ontology can support the truth of 'There are tables' (cf. Cameron 2010a: 263-264).

In short, 'Razor revision' amounts to quite different things depending on the metaontological context. For deflationary Stratified Ontologists, ontological parsimony doesn't concern the non-fundamental because non-fundamental entities lack ontological status— they *don't really exist*. But for inflationary Stratified Ontologists, ontological parsimony doesn't concern the non-fundamental, *even though* non-fundamental entities are genuine additions to ontology— they *really do*

exist, but Ockham's Razor is somehow blunt against them. The inflationary and deflationary strategies therefore can and should be evaluated separately. In the next section, I will look at the most prominent version of the inflationary strategy, arguing that it doesn't succeed.

6.2 Schaffer's Laser

Schaffer (2009, 2015, 2017) is the clearest example of an inflationary Stratified Ontologist (see §3.4). He believes that reality divides into fundamental (or ungrounded) and derivative (or grounded) existents, and sees both as 'full-blown "heavyweight"' entries on the roster of entities' (2009: 360).[114] Moreover, Schaffer takes a *permissive* attitude to questions of existence: the question is not whether numbers, tables, properties, …, exist—*of course* they do—, but whether they are fundamental (2009: 347). So Schafferian reality is highly abundant, in a way that might seem to fall afoul of Ockham's Razor (Schaffer 2009: 361). But Schaffer (2015) argues that 'the Razor' is the wrong measure of ontological parsimony, and should be replaced by the more discerning 'Laser':

(The Laser) Do not multiply *fundamental* entities without necessity.

As Schaffer says (2015: 647): 'The Razor measures the ontological economy of a theory by the entities it posits, while the Laser measures the ontological economy of a theory by the fundamental entities it posits'.[115] And since the Laser is supposed to

[114] For Schaffer, grounding is *entity*-grounding (see §2.1). I'll stick with this use of the term while discussing the Laser.

[115] It's somewhat unclear what Schaffer means when he refers to the fundamental entities 'posited' by a theory. He sometimes seems to mean 'entities that are fundamental *according to the theory*'. But at other times, he seems to mean 'entities posited by the theory that are *in fact* fundamental' (or at least, whose status as fundamental posits is somehow independent of what the theory says). I'll gloss over this in what follows.

replace the Razor, it follows that *only* fundamental posits matter for parsimony: '[t]here is no problem with the multiplication of derivative entities' (Schaffer 2009: 36). Thus, Schaffer's Laser comes as a package with what Baron and Tallant call the thesis of *Free Derivatives* (2018: 598, minor changes):

> (Free Derivatives) For any two theories, *T1* and *T2*, the preferability of *T1* over *T2* (or vice versa) on parsimony grounds is unaffected by any differences in the number of derivative entities posited by the two theories.

Note that Schaffer doesn't tie the Laser to any particular way of drawing the distinction between fundamental and derivative entities (Schaffer 2015: 647). He does, however, assume an inflationary reading of the distinction, whereby the derivative posits of theories are genuine— albeit cost-free— ontological commitments:

> By the lights of *The Laser*, derivative entities are an 'ontological free lunch', in the sense that they are genuinely new and distinct entities but they cost nothing by the measure of economy. *The Laser* thus incorporates an implicit distinction between *the commitments* of a theory, and *the cost* of such commitments. By the lights of *The Laser*, derivative entities are additional commitments, but they cost nothing. (Schaffer 2015: 647-648).

6.2.1 The Case for the Laser

Schaffer (2015) gives three arguments for replacing the Razor with the Laser, with Bennett (2017) adding a fourth. I will briefly outline each argument and say why I find them unpersuasive.[116]

[116] I will keep the objections fairly brisk, as I have criticised the Laser (in collaboration) elsewhere; see Fiddaman and Rodriguez-Pereyra (2018). For further criticisms of the Laser, see Baron and Tallant (2018) and Turner (2016).

Feng and Esther

Schaffer (2015: 648) argues that the Laser fits better than the Razor with plausible intuitions about parsimony-driven theory choice (cf. Bennett 2017: 221-222). He illustrates with the following case:

> Esther posits a fundamental theory with 100 types of fundamental particle. Her theory is predictively excellent and is adapted by the scientific community. Then Feng comes along and—in a moment of genius— builds on Esther's work to discover a deeper fundamental theory with 10 types of fundamental string, which in varying combinations make up Esther's 100 types of particle. This is intended to be a paradigm case of scientific progress in which a deeper, more unified and more elegant theory ought to replace a shallower, less unified, and less elegant theory. Feng's theory is evidently better in every methodological respect. (Schaffer 2015: 648).

The Razor favours Esther's theory, since it posits fewer entities overall. The Laser favours Feng's theory, since it posits fewer fundamental entities. Since Feng's theory is 'evidently better', Schaffer claims that the Laser's verdict is correct. He concludes that 'what should be compared for economy are Esther's 100 types of fundamental particle with Feng's 10 types of string. That is, what should be compared for economy are the fundamental entities' (2015: 648-649).

There are at least two problems with this argument.[117] One problem is that not all else is equal between the two theories. Feng's theory is said to be better in several methodological respects, including depth, unification and elegance. So even if Feng's theory is better than Esther's overall, it doesn't follow that it is better with respect to ontological parsimony. It might be that Feng's theory is worse with respect to

[117] Cf. Fiddaman and Rodriguez-Pereyra (2018: 342-344).

parsimony, as the Razor predicts, but makes up for it by being better in other respects. We don't need the Laser to explain why Feng's is the better theory.

A second problem is that the argument does nothing to support the claim that the Laser should *replace* the Razor. At most, it shows that theories are more choice-worthy if they posit fewer fundamental entities. But it is fallacious to move from the premise that *theories are better off for positing fewer fundamental entities* to the conclusion that *theories are no worse off for positing derivative entities*. It might be the case that, if *T1* and *T2* posit the same fundamental entities but *T1* posits more derivative entities, *T1* is less choice-worthy for that reason. So even if Schaffer's argument shows that positing fewer fundamental entities is preferable, it doesn't support the conclusion that derivative entities are cost-free.

Analogy With Conceptual Parsimony

Schaffer (2015: 648-651) argues that the Laser is supported by an analogy between ontological and *conceptual* parsimony. He writes:

> Primitive concepts are to ideology what fundamental entities are to ontology, and defined concepts are to ideology what derivative entities are to ontology. In both the ontological and conceptual domains, one finds a division between *the basis* (fundamental entities, primitive concepts) and *the superstructure* (derivative entities, defined concepts)' (Schaffer 2015: 649).

When measuring conceptual parsimony, we tend to think that only primitive (undefined) concepts count. To use Schaffer's example (2015: 649), suppose Georg develops a regimentation of set theory, defining 40 set-theoretic concepts from 10 primitives; Hamsa then discovers that 99 set-theoretic concepts, including all 40 of Georg's, can be defined using a single primitive. Schaffer claims that Hamsa's extra defined concepts are evidently no mark against her theory, illustrating the point that

defined concepts incur no further cost to conceptual parsimony, relative to the cost the primitives). As he puts it, we should measure conceptual parsimony with the 'Conceptual Laser' ('Do not invoke *primitive* concepts without necessity'), rather than the 'Conceptual Razor' ('Do not invoke concepts without necessity') (2015: 649). On the strength of the analogy above, Schaffer infers that derivative entities incur no further cost to *ontological* parsimony, relative to the cost of the fundamentals. That is, we should measure ontological parsimony with the Laser rather than the Razor.

I will add just one objection to this argument to those discussed elsewhere:[118] Schaffer's argument from analogy should not persuade anyone who doesn't already think that the Laser supplants the Razor.

First, why are theories no worse off for multiplying defined concepts? I submit that part of the reason is that multiplying defined concepts incurs no further *ontological* costs. The basic rationale behind the preference for ontological parsimony is this: the more requirements a theory imposes on reality, the greater the risk that reality won't comply, hence that the theory is false. But multiplying defined concepts doesn't increase the risk of falsehood in this way. Suppose we already have the concepts *female* and *fox* and go on to define the concept *vixen*. Then, by our lights, claims about female foxes and claims about vixens impose the same requirements ontology. If vixen-hood and female fox-hood are one and the same, it surely takes no more ontology to ensure the truth of 'There are vixens' true than it takes to ensure the truth of 'There are female foxes'. Plausibly, then, the defined concept doesn't increase our risk of error at least partly because it doesn't increase the risk that reality won't comply with our theory's requirements.

[118] See references in fn. 57.

Now we've seen that in Schaffer's inflationary framework, derivative entities are 'genuinely new and distinct entities'— full-blooded ontological additions to their fundamental grounds (Schaffer 2015: 647). Given this, there is a relevant *disanalogy* between multiplying derivative entities and multiplying defined concepts: the former imposes additional requirements on ontology, but the latter does not. We might agree that theories are no less likely to be true for multiplying defined concepts. But since multiplying defined concepts does not impose additional requirements on ontology, why should this persuade us that theories are no less likely to be true for multiplying derivative entities? It will only do so, it seems to me, if we've already accepted that the Laser replaces the Razor. If you're not already convinced that multiplying requirements on non-fundamental ontology doesn't increase a theory's risk of falsehood, the analogy with conceptual parsimony shouldn't convince you otherwise.

Bang for the Buck

Schaffer (2015: 651-653) gives another argument based on the analogy between conceptual and ontological parsimony. He points out that having a small stock of primitive concepts is not a theoretical virtue in itself. Rather, we value theories that *use* a relatively small stock of primitives to define a relatively large number of further concepts. Hamsa's axiomatisation of set theory, for example, is impressive because it *uses* a single primitive to define 99 further concepts, not simply because it has a single primitive (Schaffer 2015: 651). Schaffer takes this to motivate the following principle, integrating the virtues of conceptual parsimony and *fruitfulness* (2015: 652):

> (Conceptual Bang for the Buck) Optimally balance minimisation of primitive concepts with maximisation of defined concepts (especially useful ones).

On the strength of the analogy between defined concepts and derivative entities, Schaffer proposes an analogous principle integrating *ontological* parsimony and fruitfulness:

> (Ontological Bang for the Buck) Optimally balance minimisation of fundamental entities with maximisation of derivative entities (especially useful ones).

Schaffer then argues that, if Ontological Bang for the Buck is the underlying principle underlying the integration of ontological economy and fruitfulness, it underlies the Laser and not the Razor (2015: 653):

> Ontological Bang for the Buck pressures one to minimise fundamental entities (that's the buck), and thus supports a specific methodological injunction not to multiply such fundamental entities where possible. It supports no methodological injunction against derivative entities, but actually *favours* the generation of derivative entities (that's the bang).

The 'especially useful ones' clause in Ontological Bang for the Buck bears a lot of weight in this argument— why not *only* useful ones? (cf. Fiddaman and Rodriguez-Pereyra 2018: 348). Schaffer says that, much as defined concepts show that a stock of primitive concepts is fruitful, '[d]erivative entities are part of what makes a package of fundamental entities fruitful. They show that these fundamental entities can be used to produce something' (2015: 652). But merely producing 'something' is surely not what makes a theory fruitful; what is produced should do some explanatory work. Given this, one might think, the principle integrating ontological parsimony and fruitfulness is actually this:

> (Ontological Bang for the Buck*) Optimally balance minimisation of fundamental entities with maximisation of *useful* derivative entities.

Now, the Razor has no issue with *useful* derivative posits: if a derivative posit is needed to do some explanatory work, then it isn't posited without necessity. So it seems that one could adopt the revised Ontological Bang for the Buck* without adopting the Laser. Schaffer's argument therefore hinges on our accepting the unmodified principle— with its '*especially* useful ones' clause— rather than the modified version. But we can't do this unless we already think that the Laser supplants the Razor. For we'd need to assume that it is permissible— indeed, to some extent *virtuous*— to derive further entities from our fundamental posits, even if the derivative entities aren't useful. And if we assume this, we're assuming that we can permissibly multiply derivative entities without necessity. So Schaffer's argument, like the last one, implicitly assumes that the Laser supplants the Razor.

Necessitation

Bennett (2017: 223) argues that derivative entities incur no additional costs relative to their fundamental grounds, because the existence of the fundamental entities *necessitates* that of the derivatives. Suppose theories *T*- and *T*+ both posit the same fundamental entities: the *F*s. But according to *T*+, there are also some derivative entities, the *D*s, grounded by the *F*s; according to *T*-, there are no such *D*s. By *T*+'s lights, assuming that fundamental entities necessitate the existence of what they ground, the existence of the *F*s entails the existence of the *D*s. And the following is a theorem of basic probability theory:

If $A \rightarrow B$, then $P(A) = P(A\&B)$.

So by *T*+'s lights, Bennett argues, the probability that the *F*s exist is equal to the probability that both the *F*s and the *D*s exist. She concludes that '*T*+ is exactly as likely as *T*-. Its extra ontology does not make it less likely to be true' (2017: 223).

There's something fishy about this. Suppose you and I agree that there are bats. I say that there are also vampires, since any bat is necessarily a disguised vampire; you say that there are no such things as vampires. By Bennett's reasoning, my theory is exactly as likely as yours. For by my lights, the existence of bats *entails* the existence of vampires. The probability that there are *both* bats and vampires is thus equal to the probability that there are only bats, and so my theory's extra posits—vampires— 'do not tell against its simplicity in a way that makes it less likely to be true' (Bennett 2017: 223).

Here's the problem. The claim that's supposed to make vampires cost-free on my theory— that any bat is necessarily a disguised vampire— is itself part of my theory. You should only infer that my theory is no less likely to be true for positing vampires if you accept what my theory entails about its own probability: *if* any bat is necessarily a disguised vampire, *then* the probability that there are bats and vampires is equal to the probability that there are bats. But a third party comparing our theories can't grant that any bat is necessarily a disguised vampire without begging the question in my favour. That would be to assume that, even if our shared claim that there are bats is true, your claim that there are no vampires is false. Compare the case of *T*- and *T*+. On the assumption that the existence of the *F*s necessitates that of the *D*s, the probability that both the *F*s and the *D*s exist is indeed equal to the probability that the *F*s exist. But to make that assumption would be to rule out *T*-, since *T*- says that the *F*s exist but the *D*s do not. So if we want to fairly compare *T*- and *T*+ for parsimony, we can't grant the necessitation claim that supposedly makes the *D*s cost-free on *T*+.

Given Bennett's argument, we can only deem derivative posits cost-free by stacking the deck in favour of the theories that posit them.[119]

6.2.2 Objections to the Laser

Having rebutted the main arguments for the Laser, I will now outline two objections to it: the *Special Sciences* objection and the *Overgeneration* objection.[120]

Special Sciences

Parsimony seems to constrain theory choice in the special sciences. It has been argued, for example, that considerations of parsimony played a role in Avogadro's theory of the molecular composition of gases (Nolan 1997) and in the nineteenth-century debate between rival theories of biogeographical dispersal (Baker 2007).[121] But disciplines like chemistry and biogeography deal with paradigmatically non-fundamental entities, raising the concern that the Laser offers no guidance in the special sciences. Not only does this seem revisionary, it arguably undermines a major reason for philosophers to care about parsimony in the first place: the idea that parsimony is a general constraint on scientific methodology, which philosophers should strive to emulate.

A potential reply, ventured by Schaffer (2015: 661) and Bennett (2017: 229), is that parsimony *isn't* really a going concern in the special sciences. The thought is that, when chemists and biologists sound like they're appealing to parsimony, they're really appealing to a kind of 'inference to the simplest explanation *but not one involving*

[119] Note that Schaffer (2010b) rejects grounding necessitarianism and is therefore unlikely to endorse this argument for the Laser.

[120] This sub-section draws on Fiddaman and Rodriguez-Pereyra (2018). See there for further details.

[121] See Baron and Tallant (2018) for discussion of these cases in relation to the Laser.

concerns about the multiplication of entities' (Schaffer 2015: 661). Here's Bennett (2017: 228):

> The psychologist and biologist whose theory has fewer memory systems or species might say that her theory is simpler. But what she means is that her theory has simpler explanations, not that it has a smaller ontology. The problem with her opponents' views […] isn't about ontology at all. It's about complexity of explanation.

Unfortunately, Schaffer and Bennett don't argue for these speculations; nor do they engage with any of the actual cases, like the two mentioned above, that some claim to show the relevance of parsimony in the special sciences.

A more promising reply is to claim that multiplying non-fundamental entities, such as chemicals or organisms, multiplies *implicit* costs at the fundamental level. Thus, Schaffer says that 'derivative entities impose an indirect cost, in terms of whatever fundamental entities serve as their grounds'; for example, the Laser might penalise a theory for positing telekinetic powers on the grounds that this would require novel fundamental physical forces (Schaffer 2015: 662). Similarly, Bennett points out that 'a world just like ours but also containing the Loch Ness monster has more fundamental bits too: it has whatever composes, constitutes, or otherwise builds the monster' (Bennett 2017: 227).

This reply might work, but we'd need to know more about how theories incur implicit fundamental commitments via their non-fundamental posits. Neither Schaffer nor Bennett say much about this. Schaffer's wording—'derivative entities impose an indirect cost, in terms of whatever fundamental entities serve as their grounds'— suggests that the implicit costs of derivative posits are those imposed by their *actual* fundamental grounds. Apart from only letting us ascribe implicit costs to true theories, this suggestion further undermines Schaffer's Feng and Esther

argument. For suppose Feng's theory is true, and so Esther's 100 particles are in fact grounded in Feng's 10 strings. Then if derivative posits incur indirect costs in terms of their actual fundamental grounds, the Laser tells us that Esther's theory was just as parsimonious as Feng's all along, since her implicit ontological costs are just those imposed by the strings that in fact ground her particles. Bennett's wording suggests something like an entailment-based account of implicit commitment: positing the Loch Ness monster incurs an implicit cost in terms of certain fundamental *F*s because, necessarily, *if* the Loch Ness monster exists, it is grounded by the *F*s. But entailment-based accounts of implicit commitment face familiar difficulties, which would carry over to this analysis of implicit cost— for example, metaphysically impossible theories will be maximally parsimonious (see Fiddaman and Rodriguez-Pereyra 2018: 353-354; cf. §5.2). Until friends of the Laser offer a convincing account of how implicit costs are incurred, the Special Sciences objection will still be a concern.

Overgeneration

If the Laser supplants the Razor, then any difference in the number of derivative entities posited by rival theories shouldn't affect whether either theory is preferable on grounds of parsimony. An apparent consequence of this is that theories can't be penalised for spuriously overgenerating derivative entities, making it hard to say what's wrong with certain dubious-sounding theories. To use Schaffer's example, consider *doubled mereology* (2015: 656-657). Doubled mereology is a non-extensional rival to classical mereology with a 'mirroring' function: for any plurality of simples, *s1*, …, *sn*, there are two numerically distinct composite objects, *c* and *mirror-c*, with *s1*, …, *sn* as proper parts. Doubled mereology sounds like a bad theory— one we should be able to criticise on parsimony grounds. But if the Laser

supplants the Razor, it looks like doubled mereology is just as parsimonious as classical mereology, since both have the same fundamental simples.

Schaffer's reply is to stress that his Bang for the Buck principle tells us to maximise derivative entities, *especially useful ones*, pointing out that the doubled mereologist's mirror sums haven't been put to any use (2015: 657). But this doesn't seem to get to the heart of what's wrong with doubled mereology. Schaffer's Bang for the Buck principle implies that the extra mirror sums are not just harmless, but are to some extent a *virtue* of doubled mereology— it would be *better* if mirror sums were useful, but they still give us more bang for the same buck. Intuitively, however, doubled mereology is a *bad theory* for positing these useless extra sums; it's not a good theory that would be even better if the sums were useful. Schaffer's Bang for the Buck principle gets this wrong. But doubled mereology *could* be criticised for flouting the modified Bang for the Buck principle, which tells us to maximise derivative entities *only insofar as* they're useful. As we saw, however, the modified Bang for the Buck principle is consistent with the vanilla Razor.[122]

6.3 The Truthmaker Razor

For Truthmaker Ontologists, ontology doesn't consist of what can truly be said to exist, but only the proper subset thereof that makes a truthmaking contribution— what *really* exists. Accordingly, the ontological commitments of a theory are its requirements on truthmakers. And ontological *parsimony* is a measure of the number of truthmakers a theory requires. Given this, Truthmaker Ontologists can accept

[122] Schaffer has a back-up reply, which is to claim that doubled mereology has other, non-parsimony-based defects, namely, that it would require an inelegant axiomatisation (2015: 657). But see Turner (2016: 383-384) for doubts about this.

(something close to) the standard view that the more ontological commitments a theory has, the less ontologically parsimonious it is:

(OP) *T1* is more ontologically parsimonious than *T2* iff *T1* has fewer ontological commitments than *T2*.

But given that ontological commitments are requirements on truthmakers, (OP) has non-standard implications. It tells us that ontological parsimony only concerns the truthmakers required by theories; and since not every existence claim must be made true by what is claimed to exist, not every entity posited by a theory increases its ontological costs. The appropriate rule for assessing ontological parsimony, then, is what I'll call the *Truthmaker Razor*:

(Truthmaker Razor) Do not multiply truthmakers without necessity.

Now for some details. In the last chapter, I suggested that a theory's ontological commitments (i.e., its requirements on truthmakers) are the entities one *rationally ought* to admit as truthmakers, given that one accepts the theory. This is the substantive claim underlying what I called the *Normative Truthmaker View* of ontological commitment (§5.3):

(TOCN) (i) For any *T*, with admissible TM-extensions $T^{+}1$, $T^{+}2$, …, $T^{+}n$, *T* is ontologically committed to there being either the things to which $T^{+}1$ is explicitly ontologically committed, or the things to which $T^{+}2$ is explicitly ontologically committed, …, or the things to which $T^{+}n$ is explicitly ontologically committed.

(ii) *T* is ontologically committed to *a*/*F*s iff every admissible TM-extension of *T* is explicitly ontologically committed to *a*/*F*s.

(To briefly recap: *T* is *explicitly ontologically committed to* *F*s iff *T* contains a sentence designating *F*s as truthmakers or as elements of truthmakers. A *TM-extension* is an enriched version of theory containing sentences explicitly designating entities as truthmakers for the theory and specifying any intermediate grounding relations where the designated truthmakers are indirect. An *admissible* TM-extension is a TM-extension on which the designated truthmakers are rationally acceptable candidates for making the extended theory true, in light of what the theory says and certain constraints stemming from the nature of truthmaking and grounding. See §5.3 for details.)

Given that (TOCN) is our view of ontological commitment, how should we understand ontological parsimony? I suggest the following:

(TOP) *T1* is more ontologically parsimonious than *T2* iff every admissible TM-extension of *T1* has fewer explicit ontological commitments than every admissible TM-extension of *T2*.[123]

If T^+ is an admissible TM-extension of *T*, then the explicit ontological commitments of T^+ are candidate truthmakers for the propositions *T* expresses. So what (TOP) tells

[123] We may wish to distinguish between *quantitative* and *qualitative* versions of (TOP): *T1* is more quantitatively ontologically parsimonious than *T2* iff every admissible TM-extension of *T1* is explicitly committed to fewer individuals than every admissible TM-extension of *T2*; *T1* is more qualitatively ontologically parsimonious than *T2* if every admissible TM-extension of *T1* is explicitly committed to fewer kinds than every admissible TM-extension of *T2*.

us is that *T1* is more ontologically parsimonious than *T2* iff every candidate way of making *T1* true involves fewer truthmakers than every candidate way of making *T2* true.

Here's a toy illustration (cf. Cameron 2019; §5.3). Consider the following pair of theories:

B	{'Ball is red'}
BC	{'Ball is red', 'Cube is blue'}

Suppose *B* has exactly two admissible TM-extensions, $B^{+}1$ and $B^{+}2$, which incur the following sets of explicit ontological commitments:

$B^{+}1$	{Ball, Redness, The state of affairs of Ball's instantiating Redness}
$B^{+}2$	{Ball, Ball's redness trope}

Suppose *BC* also has exactly two admissible TM-extensions, $BC^{+}1$ and $BC^{+}2$, which incur the following sets of explicit ontological commitments:

$BC^{+}1$	{Ball, Redness, The state of affairs of Ball's instantiating Redness, Cube, Blueness, The state of affairs of Cube's instantiating Blueness}
$BC^{+}2$	{Ball, Ball's redness trope, Cube, Cube's blueness trope}

By (TOP), *B* is more ontologically parsimonious than *BC*: every candidate way of making *B* true involves fewer truthmakers than every candidate way of making *BC* true.

What does this tell us about how likely *B* and *BC* are to be true? We can put it in terms of basic probability. In a nutshell, the probability that *B* is made true is the probability that *either* the truthmakers of $B^{+}1$ *or* the truthmakers of $B^{+}2$ exist; the probability that *BC* is made true is the probability that *either* the truthmakers of $BC^{+}1$ *or* the truthmakers of $BC^{+}2$ exist. Now, not all the truthmakers on the lists above are probabilistically independent. For instance, the existence of Ball's redness trope plausible entails the existence of Ball. If so:

> *P*(Ball exists & Ball's redness trope exists) = *P*(Ball's redness trope exists)

(And the same goes, *mutatis mutandis*, for Cube and Cube's blueness trope.) Likewise, the existence of the state of affairs of Cube's instantiating Blueness plausibly entails the existence of Cube and Blueness. If so:

> *P*(Cube exists & Blueness exists & The state of affairs of Cube's instantiating Blueness exists) = *P*(The state of affairs of Cube's instantiating Blueness exists)

(And the same goes, *mutatis mutandis*, for Ball, Redness, and the state of affairs of Ball's instantiating Redness.) But I take it that the candidate truthmakers for ⟨Ball is red⟩ are probabilistically independent of the candidate truthmakers for ⟨Cube is blue⟩, since one might be made true without the other. For example, the existence of Ball's

redness trope and the existence of Cube's blueness trope are mutually independent. On these assumptions:

> *P*(*B* is made true) = *P*(The state of affairs of Ball's instantiating Redness exists or Ball's redness trope exists)

And the probability that *BC* is made true is equal to:

> *P*(*BC* is made true) = *P*([The state of affairs of Ball's instantiating Redness exists & The state of affairs of Cube's instantiating Blueness exists] or [Ball's redness trope exists & Cube's blueness trope exists])

Now, given that *A* and *B* are mutually independent, $P(A) > P(A\&B)$. And $P(A \text{ or } B) > P([A \ \& \ C] \text{ or } [B \ \& \ D])$. Hence, all else being equal, *B* is more likely to be made true than *BC*. More generally, if every candidate way of making theory *T1* true involves fewer mutually independent truthmakers than every candidate way of making theory *T2* true, then (all else equal) *T1* is more likely to be made true than *T2*.

(TOP) therefore tallies with the basic rationale behind ontological parsimony given at the outset: the more requirements a theory imposes on ontology, the less likely ontology is to comply, and so choosing more ontologically parsimonious theories diminishes our risk of error. The main difference is that 'ontology' is taken to consist solely of what makes a truthmaking contribution, so the risk we're trying to diminish is imposing demands on truthmakers that aren't met.

6.4 Contrast with the Laser

Like the Laser, the Truthmaker Razor allows us to say that not everything a theory claims to exist counts against it by the measure of ontological parsimony. But the reasons underlying this are quite different. The Laser's inflationist proponents want to drive a wedge between the ontological commitments of a theory and the costs of those commitments. They see requirements on the non-fundamental as full-blooded requirements on ontology but claim that multiplying such requirements is somehow innocuous. In contrast, the Truthmaker Razor involves no distinction between commitments and costs: *all* ontological commitments are ontological costs, but not all existence claims incur ontological commitment to what is said to exist. If a theory affirms '*F*s exist', but *F*s aren't needed to make '*F*s exist' true, then *F*s don't count towards the theory's ontological costs; the costs are just those incurred by whatever it takes to make '*F*s exist' true. *F*s are not, in this case, a 'commitment without a cost', but aren't ontological commitments at all: the theory is no less *ontologically parsimonious* for positing *F*s, because ontology needn't contain any *F*s for the theory to be true.

So the Truthmaker Razor rests on an unfamiliar picture of ontology and ontological commitment; but I've argued in previous chapters that this picture is coherent. And once we understand this picture, I think the Truthmaker Razor offers a better motivated form of 'Razor revision' than the inflationary Laser.

Following Turner (2016)— a critic of the Laser— consider Argle, the protagonist of Lewis and Lewis (1970). On Turner's reading, Argle thinks that there are no holes, but that the sentence 'There is a hole in my cheese' is true; 'That's because Argle endorses a fancy semantics according to which, when "a hole" is attached to "there is", it doesn't act like a quantifier but instead a predicate which means "is perforated"'

(Turner 2016: 378). Now, friends of the Laser say that the 'grounded' parts of theories don't count by the measure of ontological parsimony. Turner thinks this has some plausibility, if '*F*s ground *G*s' means something like what Argle means when he claims that 'hole-free' states account for the truth of hole-talk:

> When we calculate Argle's ontology, we don't include holes. And we do this for the obvious reason that, in some very real sense Argle thinks there *aren't* holes— even though he assents to 'there is a hole in my cheese'. Hole talk is, for Argle, just talk; and its being just talk shows up in the way existential claims about holes are grounded in entirely hole-free states. (Turner 2016: 381).

But this sense of 'grounding' is not what the Laser's inflationist proponents have in mind. By their lights, the sort of 'grounding' that's supposed to mitigate the costs of non-fundamental posits is a kind of ontological dependence relation between 'full-blown "heavyweight"' denizens of reality (Schaffer 2009: 360). So if a friend of the Laser tells us that holes are grounded in hole-free states, we *do* have to include holes when we calculate their ontology. Their task is to persuade us that, despite being genuine ontological additions, 'grounded' holes are irrelevant to ontological parsimony; as we've seen, the have so far failed to do this.

But Truthmaker Ontology offers something *like* an Argle-style attitude towards hole-talk. The main difference is that the Truthmaker Ontologist doesn't appeal to any 'fancy semantics'. It might be that the 'There is a hole in my cheese' is true— literally and without qualification— even if reality is hole-free. Given this, we should exclude holes from the Truthmaker Ontologist's ontology for the same reason Turner thinks we should exclude them from Argle's ontology: in a very real sense, the Truthmaker Ontologist thinks there *aren't* holes and that hole-talk is *just talk*. Because it doesn't take an ontology of holes to make hole-talk true, we can truly *represent* the existence of holes without admitting them to our ontology. There is thus a clear and natural

sense in which holes shouldn't count when we're assessing the Truthmaker Ontologist's view for ontological parsimony.

Another way to bring out the difference between the Laser and the Truthmaker Razor is to consider Schaffer's argument from the analogy with conceptual parsimony. Schaffer is right to say that we don't make a theory worse off by defining additional concepts from its primitives. But part of the reason for this, I said, is that multiplying defined concepts doesn't result in additional *ontological* requirements: if we use 'female fox' to define 'vixen' then we can affirm 'Vixens exist' as well as 'Female foxes' exist without imposing extra requirements on ontology. This is why the analogy fails to support the Laser. For by the inflationist's lights, we *do* impose extra requirements on ontology when we posit additional non-fundamentals. So the analogy between defined concepts and derivative entities won't persuade us to accept the Laser unless we're already convinced that derivative entities are cost-free.

The Truthmaker Razor, however, *is* supported by an analogy between multiplying defined concepts and multiplying 'derivative entities' (understood as entities posited by a theory but which are not among the truthmakers to which it is ontologically committed). Suppose the Truthmaker Ontologist says that simples arranged table-wise are all it takes to make it true that tables exist. Then what they're claiming is that the same portion of reality, the simples, is enough to make true the sentence 'Tables exist', as well as the sentence 'Simples arranged table-wise exist'. Whatever ontology is enough for one sentence to be true is ontology enough for both sentences to be true. In this respect, multiplying 'derivative entities' is analogous to multiplying defined concepts, in terms of the effect on parsimony: we're multiplying ways of truly *representing* the same portion of ontology, as it were, without multiplying the ontology itself. So if you agree that defined concepts don't make theories worse off

partly because they don't create new ontological demands, you should think the same about the Truthmaker Ontologist's 'derivative entities'.

6.3.3 The Objections Revisited

I will now argue that the Truthmaker Razor avoids the objections that afflict Schaffer's Laser.

According to the Special Sciences objection, the Laser offers no methodological guidance to disciplines such as biology and chemistry, which are concerned with paradigmatically non-fundamental entities. In reply, friends of the Laser suggest that non-fundamental posits incur implicit commitments, hence costs, at the fundamental level, but have yet to give a clear account of how this works.

The Truthmaker Razor is well-equipped to handle implicit commitments— the view of ontological commitment on which it rests construes *most* ontological commitments as implicit. Consider two theories of biological development. *G* posits a single kind of entity: genes. *GE* posits two kinds of entity: genes and *élan vital*. Thus, among other things, *G* and *GE* affirm the following:

G {'Genes exist'}

GE {'Genes exist', '*Elan vital* exists'}

Prima facie, *G* is more parsimonious than *GE*. The Truthmaker Razor confirms this. By (TOP), *G* is more parsimonious than *GE* if every admissible TM-extension of *G* posits fewer truthmakers than every admissible TM-extension of *GE*. Now presumably, ⟨Genes exist⟩ and ⟨*Elan vital* exists⟩ are *mutually independent*, in the sense that one could be made true but not the other. Thus, every admissible TM-extension of *G* will need to posit truthmakers for ⟨Genes exist⟩ and every admissible

TM-extension of *GE* will need to posit truthmakers for ⟨Genes exist⟩ *and* truthmakers for ⟨*Elan vital* exists⟩. Hence, by (TOP), *G* is more ontologically parsimonious than *GE*. In general, if *T1* includes the claims *P1, ..., Pn* and *T2* includes the claims *P1, ..., Pn* & *Q*, for some mutually independent *Q*, *T1* will be more ontologically parsimonious than *T2*, regardless of what the theories are about. In this way, there is no reason why the Truthmaker Razor couldn't guide theory choice in the special sciences or elsewhere.

What about the Overgeneration Objection? To return to the original example, consider a disagreement between a classical mereologist and a doubled mereologist. According to the classical mereologist, there is a composite object *c*. According to the doubled mereologist, there are two composite objects: *c* and mirror-*c*. Thus, the two mereologists affirm the following:

CM {'*c* exists'}

DM {'*c* exists', 'Mirror-*c* exists'}

According to (TOP), CM is more ontologically parsimonious than DM only if every admissible TM-extension of CM posits fewer truthmakers than every admissible TM-extension of DM. But it's plausible to think that truths about complex objects might be made true indirectly by their simple parts. And according to the doubled mereologist, *c* and mirror-*c* both have the same simple parts—*s1, ..., sn*— that *c* has according to the classical mereologist. So perhaps there's an admissible TM-extension of CM, CM^+, on which *s1, ..., sn* indirectly make true ⟨*c* exists⟩ and an admissible TM-extension of DM, CM^+, on which *s1, ..., sn* indirectly make true *both* ⟨*c* exists⟩ and ⟨Mirror-*c* exists⟩. CM^+ and DM^+ posit exactly the same truthmakers. Hence, if both are admissible TM-extensions of their respective theories, it is not the case that

every admissible TM-extension of CM posits fewer truthmakers than every admissible TM-extension of DM, so (TOP) tells us that they're equally ontologically parsimonious.

I think this is actually the right result. By my lights, CM and DM don't differ with respect to their requirements on ontology. It is therefore natural to think that they shouldn't differ with respect to ontological parsimony. (In contrast, friends of the Laser are committed to saying that CM and DM are equally ontologically parsimonious *despite* differing with respect to their ontological requirements.) But how can we then explain why DM seems like the worse theory? I submit that it's perfectly reasonable for the Truthmaker Ontologist to deem DM the worse theory because of its superfluous posits— it's just that these aren't *ontological* posits and so aren't relevant to *ontological* parsimony. Recall Schaffer's Ontological Bang for the Buck principle:

> (Ontological Bang for the Buck) Optimally balance minimisation of fundamental entities with maximisation of derivative entities (especially useful ones).

I argued above that Ontological Bang for the Buck presupposes the Laser rather than supports it, because the 'especially useful ones' clause implies that it's permissible to multiply useless derivative entities. Why shouldn't the relevant principle tell us to maximise *only* useful derivative entities, which seems consistent with the standard Razor? Truthmaker Ontologists, however, can adopt the following variant of the principle:

> (Truthmaker Bang for the Buck) Optimally balance minimisation of truthmakers with maximisation of useful truths.

This seems like a sensible policy: account for as many plausible or explanatorily useful truths as possible on the slenderest ontological basis possible. However, truths should not be multiplied without good reason. Here are some truisms: (i) There are cars; (ii) There are garages. Suppose a Truthmaker Ontologist claims that all it takes to make these truisms true are simples arranged car-wise and garage-wise respectively. Then another comes along and claims that, with only minor adjustments, we can get more 'bang for the buck' out of these truthmakers. For they could also be taken to make it true that there are *incars* (cars in a garage) and *outcars* (cars outside of a garage) (Hirsch 1982: 32). The second Truthmaker Ontologist might insist that there's no harm in positing these extra entities— after all, we're not making any extra demands on *ontology*. But one wonders: what's the point?'. Even if we're not adding to our ontology, why add the concepts *incar* and *outcar* to our ideology if we can get along well enough without them?

In this spirit, we could criticise DM for flouting the Truthmaker Bang for the Buck, even if it is on a par with CM with respect to ontological parsimony. The mirror-fusions of DM may not impose any additional requirements on ontology; but they do add to our ideology in needless and explanatorily irrelevant ways. DM is a bad theory, not because it makes extravagant demands on ontology, but because it uses that ontology to pointlessly generate useless truths proclaiming the existence of mirrored fusions. Inflationist friends of the Laser can’t draw the same distinction: by their lights, the mirrored fusions are an addition to the doubled mereologist’s ontology, yet somehow don’t diminish its parsimony. And, as we’ve seen, the arguments for that claim are inconclusive.

Conclusion

If we accept Truthmaker Ontology, we need to revise standard ideas about the measure of ontological parsimony: not everything that exists according to a theory increases its ontological costs. This has its benefits. It means that, for example, the Truthmaker Ontologist can claim the parsimony benefits of compositional nihilism without having to reject familiar truisms concerning the existence of tables, planets, organisms, and all the rest. Inflationary Stratified Ontologists claim similar benefits but do so in a different way. They hold that, even though derivative entities are genuine additions to ontology, they are somehow irrelevant to the measure of ontological parsimony. I've argued that the case for this claim is unconvincing. However, I've argued that Truthmaker Ontology does have a viable measure of ontological parsimony. The Truthmaker Razor can account for the relevance of ontological parsimony in the special sciences and doesn't permit us to spuriously overgenerate non-fundamental entities. However, it also gives us the desired result: not everything that exists according to a theory is an ontological cost.

7 The Case for Truthmaker Ontology

I began by arguing that, if ontology is to be a serious enterprise, we must part ways with the orthodox view that ontology concerns what there is. I then set about developing Truthmaker Ontology as an alternative, which offers a cogent heterodox picture of the subject matter and method of ontology. In this chapter, I consolidate the case for Truthmaker Ontology, outlining its advantages over Orthodox Ontology and arguing that it has attractive implications for first-order ontological debate.

In §7.1, I summarise the approach I have developed, highlighting some differences with other versions of Truthmaker Ontology. I then outline and defend the main advantages of Truthmaker Ontology, which I group under two broad headings: *keeping ontology serious* (§7.2) and *reconciling modesty and sparsity* (§7.3). Finally, in §7.4, I defend Truthmaker Ontology against some remaining potential objections.

7.1 Ontology as a Search for Truthmakers

Truthmaker Ontology uses the notion of truthmaking as the basis of a metaontological approach on which ontological questions come apart from questions about what there is— a necessity, I've argued, if ontology is to be a serious enterprise. The idea that ontology should be construed as a search for truthmakers is not new and has several contemporary advocates. I hope, however, to have put Truthmaker Ontology on a firmer footing by clarifying and developing its conceptual and methodological foundations.

One of my aims was to clarify the basis of the crucial distinction between ontology and what can truly be said to exist. Some Truthmaker Ontologists draw this distinction by appealing to a truthmaker criterion of ontological *commitment*. But we should be careful not to conflate the notion of what theories are ontologically

committed to—i.e. what requirements their truth imposes on ontology— with the notion of what has ontological *status* in the first place. In my view, the latter notion takes priority, and I have therefore taken the central axiom of Truthmaker Ontology to be a truthmaker criterion of ontological *status*, (TOS): what counts as real, in the sense of serious ontological interest, are all and only those things that make a truthmaking contribution.

A second crucial claim is the Divergence Thesis, according to which the truthmakers for a statement can differ from what is said or implied to exist by that statement. Several Truthmaker Ontologists endorse the Divergence Thesis, but aren't always clear about when and why the alleged divergence occurs. I suggested that this is one of several areas in which it is useful to have, alongside truthmaking, a distinct relation of (truth-)grounding: given the Grounding Principle, ⟨*F*s exist⟩ might be made true by non-*F*s *indirectly* via intermediate grounding relations (see §3.3).

(TOS) and the Divergence Thesis combine to allow ontological status to come apart from existential truth. ⟨*F*s exist⟩ might be made true even if *F*s make no truthmaking contribution and hence lack ontological status; so an *F*-less ontology might support the literal truth of *representations* concerning the existence of *F*s. Truthmaker Ontology thus offers a coherent way to make sense of the distinction between what *merely* and what *really* exists. The real existents are the things out there in the world making a truthmaking contribution; the mere existents can truly be *said* to exist but have no ontological status— out there in the ready-made world, there are really no such things. So, contrary to orthodoxy, ontology is a question of what *really* exists; and this might be a proper subset of what can truly be said to exist.

Some Truthmaker Ontologists use the term *fundamentally exists* as I use *really exists*, or treat the two as synonyms (Cameron 2008a, Rettler 2016). I think it is useful to keep these two notions separate. 'Really exists' is an expressive device used to mark

off what has ontological status (i.e. makes a truthmaking contribution) from what can merely be truly said to exist. ‘Fundamental' pertains to entities and/or truths which are in some sense *basic* and *integral*. So in principle, fundamentality may or may not coincide with real existence. I've suggested that Truthmaker Ontologists can use the notion of fundamentality as a constraint on what must be taken to really exist. In Chapter 4, I proposed a theory of fundamentality on which an abundant, structured hierarchy of fundamental and non-fundamental truths is supported by a perhaps sparse foundation of fundamental truthmakers; the fundamental truthmakers are all the ontology needed to make the true description of the world true, completely and without redundancy. This leads to a more refined conception of what we must take to make a truthmaking contribution: one could give a complete, correct and non-redundant answer to the ontological question by specifying a minimally complete truthmaking base for the fundamental truths.

The notion of ontological commitment is not as central in my account as it is for other Truthmaker Ontologists, but nevertheless plays an important methodological role. On what I called the Normative Truthmaker View, the ontological commitments of a theory are the things one *rationally ought* to admit as truthmakers, given that one accepts the theory. The idea of an *admissible TM-extension* brings this into sharper focus. The truthmakers designated by an admissible TM-extension of a theory are rationally acceptable candidates for making that theory true, given what the theory says; a theory thus rationally obliges its holders to accept one or other of its sets of candidate truthmakers (and to accept any truthmakers that are common to all sets). The ontological *parsimony* of a theory can be understood as a measure of its truthmaker-commitments: if every candidate way of making theory *T1* true involves fewer truthmakers than every candidate way of making *T2* true, then *T1* is the more parsimonious.

The idea of a *best* TM-extension forms the basis of a (somewhat idealised) three-step procedure for determining the ontology we ought to accept. First, we decide what we ought to accept as true. Second, we decide on the most rational and plausible account of how these truths are structured with respect to grounding, and which should be construed as fundamental. Third, we decide on the most rational and plausible candidate truthmakers for the fundamental truths. The inventory of truthmakers thereby determined will be our answer to the ontological question.

So although Truthmaker Ontology is not a new idea, I have developed it in new ways. My hope is that the new developments prove useful, or at least breathe new life into the question of what ontology might look like through the lens of truthmaker theory. But while I have often disagreed with other Truthmaker Ontologists over details, my basic contention is the same: ontology is not a question of what there is, but of what makes a truthmaking contribution. The advantages I shall now claim for Truthmaker Ontology also resemble those often claimed by other advocates. I divide them into two broad categories: *keeping ontology serious* and *reconciling modesty and sparsity*.

7.2 Keeping Ontology Serious

Serious Ontologists hold that ontology concerns deep and substantive questions about what is real. Orthodox Ontologists hold that ontology concerns questions about what there is. I began by arguing that these two views are in tension and that Serious Ontologists therefore need a better alternative. I will revisit the three challenges raised in the first chapter to (SOX)— the view that serious ontological questions are equivalent to questions about what there is— and explain why they have no purchase on Truthmaker Ontology.

7.1.1 Unloaded Quantification

The first challenge to (SOX) was as follows (see §1.2). (SOX) assumes that objectual existential quantification is *ontologically loaded*, in the sense that '$\exists xFx$' is true iff at least one *F* is real. And on two widespread accounts of ∃— the *natural language* account and the *model theoretic* account— ∃ is ontologically loaded only if the English 'There is' is ontologically loaded. But that's questionable: there are many true-seeming English sentences that quantify over unreal-seeming entities ('There is a fictional space explorer called Picard', for example). To avoid biting a bullet, (SOX) gives us the option of claiming that the recalcitrant sentences are amenable to paraphrase. But to take the paraphrase gambit is to concede that 'There is' is intermittently ontologically loaded at best, thus undermining the case for the loaded reading of ∃.

Truthmaker Ontology avoids this challenge because it rejects the assumption that existential quantification is by nature ontologically loaded. The truth of 'There are *F*s' doesn't suffice for the reality of *F*s because it doesn't suffice for *F*s making a truthmaking contribution. Quantification over *F*s suffices for their reality only when the *F*s are being designated as truthmakers; and it is not quantification per se that's doing the work here, but the fact that the *F*s are said to play a truthmaking role (see §5.3). Thus, Truthmaker Ontology permits true quantification over unreal entities, preserving our intuitions about cases like 'There is a fictional space explorer called Picard'. The way to handle such sentences is to claim that the propositions they express are not made true by what is quantified over; for instance, ⟨There is a fictional space explorer called Picard⟩ is plausibly made true indirectly by a reality devoid of fictional space explorers. And there is no need to claim that the original sentence has a misleading surface form or isn't put forward literally true. We can say that the

sentence expresses the proposition it seems to express and is used to seriously assert that proposition— it's just that reality needn't host any fictional space explorers in order to account for that proposition's truth.

More generally, Truthmaker Ontology puts ontological questions at arm's length from questions about the semantics and pragmatics of English sentences— questions such as whether some sentence has a misleading surface form, or is typically put forward with an 'attitude of frivolity' (Quine 1961: 103), or is equivalent in meaning or functional role to some other sentence. We can leave such questions to the experts—linguists and philosophers of language— and put our own focus on the search for truthmakers. In contrast, Orthodox Ontology allows such linguistic questions to drive our ontological decision-making (cf. Cameron 2008a, 2010b; Rettler 2016). We find philosophers 'exam[ining] the meaning' of English sentences in order to read off ontological conclusions from their quantificational structure (van Inwagen 2004: 114). The prospects for prima facie revisionary views, like mathematical nominalism and compositional nihilism, are thought to hinge on whether sentences quantifying over tables or numbers can be successfully paraphrased into ones that don't.[124] (see e.g. Field 1980, Melia 1998, Uzquiano 2004, van Inwagen 1990). Serious Ontologists, whose aim is to discover the contents of extra-representational reality, should be sceptical about this state of play: 'serious ontological questions are being decided by linguistic facts' (Cameron 2008a: 5). Truthmaker Ontology discourages this practice, which is a general respect in which it helps to keep ontology serious. As Rettler puts it, we can 'resolve ontological questions by doing metaphysics, and not by investigating our use of language' (2016: 1414).

[124] See, for example, the exchanges between Field (1980) and Melia (1998), and van Inwagen (1990) and Uzquiano (2004).

Schaffer (2008: 9) objects that the attempt to divorce ontology from language is an unrealistic goal. After all, Truthmaker Ontologists are still in the business of determining the ontological implications of the sentences we accept, which must be 'at least in part a function of what these sentences mean'. But I don't deny this. We might have used the sentence 'Tables exist' so that it means what 'Chairs exist' actually means and vice versa. If so, then the actual truthmakers for Tables exist' would have been the truthmakers for 'Chairs exist' and vice versa (cf. Williams 2012: 178). So the ontological implications of these sentences *are* a function of their meaning. But the truthmakers in question might be simples arranged thus-and-so, rather than tables and chairs. What I deny is that the ontological implications of a sentence are tied to their surface form, so that '*F*s exist' can only be strictly and literally true if reality hosts *F*s. It is this assumption that drives ontologists towards an excessive preoccupation with language, but which Truthmaker Ontology rejects.

7.1.2 Easy Ontology

The second challenge to (SOX) was as follows (see §1.3). Questions about what is real are deep and substantive— they don't have easy answers but demand careful and difficult philosophical scrutiny. If (SOX) is true, the same should go for questions about what there is. But it doesn't. For one thing, beliefs in the existence of numbers, tables, (etc.) are highly epistemically secure, insofar as it's very unlikely that a philosophical argument could ever make it rational for us to give them up. Moreover, Thomasson (2015) offers a cogent explanation of *why* such beliefs seem so secure. *All it takes* for the belief that tables exist to be true is for the application conditions associated with the term 'Table' to be satisfied. And as long as you're conceptually competent with the term 'Table', you can tell that the relevant conditions are satisfied through straightforward observation. Plausibly, then, questions about whether tables

and other commonsense posits exist just aren't up for serious philosophical debate and should be answered with a trivial 'Yes'. If so, existence questions have a fundamentally different character to serious ontological questions about what is real.

Truthmaker Ontology allows us to say that existence questions often *are* easy, but that the corresponding ontological questions are not. Perhaps no philosopher's argument could ever rationally compel us to stop believing that tables exist; and perhaps all it takes to know that tables exist is to be competent with the term 'Table' and look in your dining room. But the question of serious ontological interest is not whether tables exist. It is whether they *really* exist, i.e. make a truthmaking contribution. And we can't infer that tables make a truthmaking contribution from the fact that 'Tables exist' is a true sentence. We can only find out by doing some metaphysics. On the methodology I've suggested, we determine what ontology we ought to accept by determining the best candidate set of fundamental truthmakers for the claims we accept as true (see §5.5). To find out whether tables really exist, we must decide whether they must number among these truthmakers— a decision that turns on considerations of what grounds what, what makes what true, and criteria of theoretical virtue. Thus, even if the existence of tables is a trivial matter, the ontological question about them remains, and requires distinctly metaphysical attention.

7.1.3 Metasemantic Tolerance

The third challenge to (SOX) was based on the possibility that we are speaking a *metasemantically tolerant* language (see §1.4). Here are two epistemically possible scenarios:

(Nihilism) Reality hosts no complex objects, only simples arranged thus-and-so. Speakers are disposed to

assent to (e.g.) 'There is a table' iff, in reality, there are some simples arranged table-wise.

(Universalism) Reality hosts simples arranged thus-and-so as well as complex objects composed of those simples. Speakers are disposed to assent to (e.g.) 'There is a table' iff, in reality, there is some complex object that is a table.

Whether Nihilism or Universalism obtains, 'There is a table' (and similar sentences) might be true on the best overall interpretation of English. Thus, consider two groups of Orthodox Ontologists: the *Tablists* say that 'There is a table' is true, while the *Anti-Tablists* say it's false. The Tablists might be right, *even if* complex objects are unreal. Generally, the truth of 'There are *F*s' does not reliably track whether *F*s are real, depending to a large extent on conventions of linguistic use.

Truthmaker Ontologists can agree that, owing to conventions of language use, 'There is a table' might be true whether Nihilism or Universalism obtains. They deny, however, that the ontological question about tables is equivalent to the question of whether 'There is a table' is true. The question is whether tables make a truthmaking contribution; and the answer to that question *is* appropriately sensitive to whether Nihilism or Universalism obtains. If Universalism obtains, it is natural to think that 'There is a table' expresses a proposition that's made true by a table; if Nihilism obtains, it is natural to think that 'There is a table' expresses a proposition that's made true by simples arranged table-wise (cf. Cameron 2010b: 12). So if we take the ontological question about tables to be whether they make a truthmaking contribution, the debate is not hostage to linguistic fortune. We can concede that questions about what can truly be said to exist hinge, to a large extent, on linguistic

use; but we can insist that substantive questions remain about what the truthmakers are.

7.3 Reconciling Modesty and Sparsity

The second broad advantage of Truthmaker Ontology is that it provides attractive new perspectives on a range of issues in first-order ontology. It does so, in a nutshell, because it offers a cogent way to reconcile the pressure towards ontological sparsity with the pressure towards a modest appraisal of ordinary discourse. I will briefly compare the Truthmaker Ontologist's approach to reconciling these pressures with some of the other main options, and then consider some specific applications. I will then discuss two neglected potential challenges to the Truthmaker Ontologist's reconciliation strategy: the *Problem of Consistency* and the *Problem of Fit*.

7.3.1 Reconciliation Strategies

Ontologists often find themselves caught between two powerful theoretical pressures. On the one hand, there is pressure towards *modesty*: most of us are reluctant to reject familiar truisms about numbers, tables, minds, moral values, and all the rest. On the other hand, there is pressure towards *sparsity*: excluding familiar entities from our ontology often seems the best way to avoid nagging philosophical problems and satisfies the more general Ockhamite urge to pare our ontology down where possible. It would be nice to have a *reconciliation strategy*, which allows one to 'have one's cake and eat it: endorse the attractive package of a radically minimal metaphysics, while endorsing the […] truth of the corpus of commonsense belief' (Williams 2010: 105).

But on orthodox ontological assumptions, this is a hard trick to pull off. If what has ontological status is equivalent to what there is, then excluding *F*s from our

ontology commits us to denying that there are any *F*s, hence that truisms quantifying over *F*s are true at face value. The aims of modesty and sparsity thus seem directly at odds, and it is difficult to resolve the tension in a satisfying way.

One option is to deny that *F*s have ontological status (i.e. that there are *F*s) while advancing a revisionary view of what ordinary talk of *F*s involves: sentences quantifying over *F*s mislead with respect to logical form, have non-obvious meanings, are not truth-apt, are typically used figuratively, and so on. The debate over *F*s thus descends into a debate about language. If one of these revisionary linguistic proposals succeeds, then perhaps we can have our cake and eat it; if not, and *F*-sentences must be taken at face value, we must choose between modesty and sparsity.

Another option is to grant that *F*s have ontological status (i.e. that there are *F*s) while downplaying the costs of doing so by claiming that *F*s are an *ontological free lunch*. But what does this mean? On one view, *F*s are an ontological free lunch if they are 'not ontologically additional' to something we've already admitted to our ontology. Armstrong, for instance, says that 'whatever *supervenes* is not something ontologically additional to the subvenient […]. What supervenes is no addition of being' (1997: 12, emphasis mine). But if there's no difference between ontological status and existence, this presents a puzzle[125]. For then, if *F*s and *G*s exist, both have ontological status. So either *F*s are identical to *G*s or they are ontologically distinct. But supervenience does not entail identity. So it seems that *F*s might supervene on *G*s and yet be ontologically distinct, making them 'something ontologically additional' in the only discernible sense[126]. On another view, ontological free lunches

[125] Cf. David (2005: 148), Oliver (1996: 31), Melia (2005: 74-75).

[126] A similar puzzle arises for Lewis's claim that mereological fusions are ontologically 'nothing over and above' the objects fused (1991: 81-82). Unless the objects are identical to their fusion— which Lewis denies, except in an analogical sense— the fusion is a distinct

are genuine ontological additions but incur no cost to ontological *parsimony*— this, we've seen, is popular among inflationary Stratified Ontologists. The thought is that, while both fundamental and non-fundamental entities have ontological status, parsimony considerations don't apply to the non-fundamental. Hence, non-fundamental entities are 'an "ontological free lunch", in the sense that they are genuinely new and distinct entities but they cost nothing by the measure of economy' (Schaffer 2015: 647; cf. Bennett 2017, Schulte 2011). I have argued, however, that there are problems with the claim that parsimony considerations don't apply to non-fundamental entities, as inflationists understand them.

In contrast to these proposals, Truthmaker Ontology offers a clear and cogent reconciliation strategy (cf. Cameron 2008a: 7, 2010a: 249; Melia 2005: 74; Rettler 2016: 1413). If ⟨*F*s exist⟩ is made true, then *F*s exist— it is literally true to say so. But consistently with that, *F*s might make no truthmaking contribution, in which case they lack ontological status. In that case, there is a natural sense in which *F*s are an 'ontological free lunch': it is true that *F*s exist, but ontology hosts no *F*s. The truth of familiar claims about *F*s is thus consistent with an *F*-less ontology. If we want to exclude *F*s from our ontology, then, there is no need to advance revisionary linguistic claims about what *F*-talk involves: we can say that true statements about *F*s mean what they seem to mean, have the logical forms they seem to have, etc., but are nonetheless accounted for by an *F*-less ontology. Nor do we need to cash out the claim that *F*s are 'not ontologically additional' to some other constituents of ontology: we can say that *F*s are not ontologically additional to *anything* because they have no

existent. So if whatever exists has ontological status, the fusion seems to be ontologically 'over and above' the fused objects in the only sense available.

Of course, some might claim that fusions are an ontological free lunch precisely because they *are* strictly identical to the objects fused (see e.g. Baxter 1998). But to quote Cameron (2008a: 7), 'if many-one identity is the price to pay, then it really does seem that there's no such thing as a free lunch'

ontological status. Nor do we need to claim that we can somehow add *F*s to our ontology without decreasing ontological parsimony: we can say that *all* additions to ontology decrease ontological parsimony but not everything that can truly be said to exist is an addition to ontology.

7.3.2 Applications

So compared to the standard alternatives, Truthmaker Ontology offers a cogent strategy for reconciling modesty and sparsity. The general recipe is to 'show that an ontology lacking in *X*s can nonetheless make true sentences proclaiming the existence of, or attributing features to, the *X*s' (Cameron 2010a: 250). This has potentially attractive implications for several live ontological debates.

The debate over complex objects is a good, if well-worn, case in point. Familiar truisms about tables, organisms, planets, and so on might be made true indirectly by simples standing in certain arrangements. If so, complex objects are an ontological free lunch. They can truly be said to exist, but don't *really* exist: they make no truthmaking contribution and therefore lack ontological status. Thus, without revising familiar truisms about complex objects, the Truthmaker Ontologist can claim the ontological benefits of compositional nihilism. Apart from the obvious parsimony benefits, we can give a straightforward and systematic answer to the Special Composition Question (van Inwagen 1990): in reality, there are *no* conditions under which some objects compose a further object. We also potentially have some attractive solutions to some thorny puzzles, such as the Statue and the Clay. This morning Clay was shaped into Statue. Since Statue and Clay now exactly coincide, it's natural to think they're identical. But since Statue and Clay have different properties (e.g. Clay would survive a hammer blow, but Statue would not), Leibniz's Law entails that they are not identical. What to say? *Constitution theorists* say that

Statue and Clay are non-identical despite exactly coinciding: Clay *constitutes* but is nonetheless distinct from Statue. *Perdurantists* say that Statue and Clay don't exactly coincide, since Statue is a proper *temporal part* of Clay. Nihilists, standardly, deny that Statue or Clay exist: all that exists are some simples which were once arranged Clay-wise and are now also arranged Statue-wise. Truthmaker Ontologists suggest a different perspective (see Heil 2003, Barnes and Cameron 2007). Our task is to say what truthmakers best account for the fact that 'Clay exists' and 'Statue exists' are both true today, whereas only 'Clay exists' was true yesterday. An attractive option is to say that, yesterday, some simples were arranged so as to make 'Clay exists' but not 'Statue exists' true; today, they are arranged so as to make 'Statue exists' true as well. All that really exists, then, are simples arranged thus-and-so; there is no need to admit distinct but exactly coinciding objects, temporal parts, or even Statue and Clay into our ontology. Nevertheless, we can affirm what seems obviously true: Statue and Clay exist.

Abstract objects might be given a similar treatment. Perhaps it doesn't take an ontology of mathematical abstracta to make it true that there are numbers, for example. Perhaps it doesn't take any ontology at all: you might agree with Cameron (2010c) that the truths of (pure) mathematics are necessary, and hence require no truthmakers since they hold no matter what is real. Or perhaps statements implying the existence of numbers might be made true by non-numbers: proofs, say, or certain concrete structures. Cameron (2008a) makes an interesting suggestion drawing on *neo-Fregeanism*, according to which the existence of numbers (along with all the truths of arithmetic) can be derived from the following abstraction principle: the number of *F*s is identical to the number of *G*s just in case there is a one-one correspondence between the *F*s and the *G*s. Thus, for any *F*s and *G*s standing in one-one correspondence, the number of *F*s is identical to the number of *G*s, from which

it follows that there is at least one number. By orthodox lights, this is enough to settle the ontological question about numbers in the affirmative (arguably somewhat suspiciously). But Truthmaker Ontologists, Cameron suggests, can treat it as an opportunity to claim numbers as an ontological free lunch (2008a: 12-13). Perhaps ⟨There is a one-one correspondence between the *F*s and the *G*s⟩ is made true by the *F*s, the *G*s and the fact that nothing else is an *F* or a *G*. In that case, given the abstraction principle, equinumerous collections of entities and 'That's all' facts are ontology enough to ensure the truth that there are numbers.

The metaphysics of mind is another potential area of application. Truthmaker Ontologists inclined towards a physicalist ontology might claim that truths about the mental have physical truthmakers. Perhaps, for example, what makes it true that I am in pain is the fact that I am in neural state *N*. On this view, we avoid the need for a dualistic ontology containing *sui generis* mental substances. But we can also claim some prima facie advantages over more familiar forms of physicalism. A reductive physicalist might claim that being in pain *just is* being in neural state *N*. This faces the familiar problem of *multiple realisability*: pain can't be identical to *N*, it seems, since an octopus might also be in pain but occupy a very different neural state, *N**.[127] The Truthmaker Ontologist can avoid this worry, pointing out that the same kind of mental property-ascription can have different truthmakers: perhaps what makes it true that I am in pain is the fact that I'm in neural state *N*, whereas what makes it true that the octopus is in pain is the fact that the octopus is in neural state *N**. A non-reductive physicalism might claim that mental states are irreducible to but in some sense *supervenient* on physical states. This leads to concerns about *causal exclusion*.[128] My pain seems to cause me to swear. But physicalism is thought to entail that every event

[127] See e.g. Putnam (1967).

[128] See e.g. Kim (1993).

has a sufficient physical cause. So unless my pain is identical to something physical after all, it seems that my pain is causally redundant with respect to my swearing. If we reject redundant causes, we are thus drawn to the unpalatable conclusion that the mental is causally inert[129]. The Truthmaker Ontologist might say something along the following lines. To preserve both commonsense intuitions and our physicalist scruples, we must uphold the literal truth of both these claims:

(i) ⟨My being in pain caused me to swear⟩

(ii) ⟨My being in neural state *N* caused me to swear⟩

But these claims might have the same truthmaker. Perhaps (ii) is made true by a fact involving physical events related by causation. Plausibly, then, (i) is made true *indirectly* be the same fact. If so, there is no objectionable causal redundancy: in reality, there is just the one causal relation holding between physical events. Nevertheless, it is literally true that my being in pain caused me to swear.

In a similar vein, Truthmaker Ontology may allow us to reconcile a naturalistic ontology with a modest appraisal of moral discourse. Mackie (1977) rejects the existence of *sui generis* moral properties because he thinks (*inter alia*) that they have no place in a naturalistically respectable ontology; and since moral statements presuppose the instantiation of such properties, argues Mackie, they are systematically false. One might resist this error-theoretic conclusion by conceding that moral properties don't exist, while claiming that moral statements aren't truth-apt, or aren't used to make serious assertions about moral properties. Or one might

[129] '[I]f it isn't literally true that my wanting is causally responsible for my reaching, and my itching is causally responsible for my scratching, and my believing is causally responsible for my saying […], then practically everything I believe about anything is false and it's the end of the world'. (Fodor 1990: 156).

argue that moral properties *do* exist but are identical to certain natural properties. Truthmaker Ontology gives us another option. We can claim that moral discourse is truth-apt, assertoric, etc., that ontology doesn't host anything that is identical to a moral property, but that moral truths have non-moral truthmakers: perhaps causal facts about the non-moral consequences of actions (e.g. the fact that a certain action causes pain), psychological facts to the evaluative practices of agents, or some combination of the two.[130]

7.3.3 The Problem of Consistency

I will now discuss two potential concerns about the Truthmaker Ontologist's reconciliation strategy. The first concern is that we can't feasibly reconcile all the truths we want to accept with a sparse ontology, since the truths we want to accept are sometimes mutually inconsistent (cf. Lipman 2018).[131] To bring this out, let us return to the Statue and the Clay. The puzzle arises due to an apparent inconsistency between some individually plausible claims:

(1) Statue and Clay exist.

(2) Statue and Clay exactly coincide.

(3) Statue and Clay have different properties (e.g. Clay would survive a hammer blow, but Statue would not).

(4) Objects that exactly coincide are identical.

(5) Objects with different properties are not identical.

[130] See Asay (2013) for an interesting account of how Blackburn's (1984, 1993) quasi-realism might be understood in terms of truthmaking.

[131] For concerns along these lines, see Lipman (2018), Korman (2015).

The Truthmaker Ontologist's proposal above was that we can consistently affirm (1) while denying that Statue and Clay have ontological status; for all that must *really* exist to make (1) true are simples arranged thus-and-so. But an objector might say the following (cf. Korman 2015):

> So what? I'll grant that, by your lights, Statue and Clay can truly be said to exist, even though neither has ontological status. But (1) still can't be true together with (2)-(5). So the puzzle you promised to solve remains intact: we still have five individually plausible but mutually inconsistent claims, one of which must be given up. If you ignore this inconsistency, you can't claim to have solved the puzzle. But if you address the inconsistency by rejecting one of the claims, your solution is no advance on the standard alternatives which must also deny something plausible.

The first point to make is that Truthmaker Ontology makes no promise to be able to preserve *every* plausible-seeming truth. The aim is to find a theory of truthmakers that strikes the best balance between ontological plausibility and accounting for what is plausibly true. In pursuit of this aim, we will occasionally have to engage in some reflective equilibrium:

> We take certain things to be true, and then ask what truthmakers these truths demand. It may be that at times we will think that we must have certain truthmakers, and as a result add to what we take to be our stock of truths. Or we might find ourselves unwilling to postulate certain truthmakers and therefore having to reject what we had previously taken to be truths. (Armstrong 2004: 26).

We can expect the occasional conflict between the truthmakers we'd like to posit and the claims we'd like to make true. When such conflicts arise, we'll need to do some

cost-benefit analysis. Suppose the best or only candidate truthmakers for certain candidate truths seem problematic in some respect— perhaps admitting these truthmakers would make our ontology less unified, or less parsimonious than we'd like. If the candidate truths are especially plausible (e.g. Moorean truisms or secure results of science), then the least costly option might be to admit the candidate truthmakers as least provisionally. But if the candidate truths are only somewhat plausible, we might deem the cost of admitting the truthmakers too high and give up on the candidate truths instead.

Similar cost-benefit reasoning applies when conflicts arise between candidate truths, as with the five claims above: the task is to find the best candidate truthmakers for the most plausible claims, then decide what to say about the rest. Looking down the list (1) has the strongest claim to be a datum. So our priority is to find a truthmaker for (1): say we settle on the fact that simples *s1*, …, *sn* are in spatial configuration *C*. Next come (2) and (3). Plausibly, (2) is true because Statue and Clay both exactly occupy region *R*. So perhaps the fact that *s1*, …, *sn* exactly occupy *R* is enough to make it true that Statue and Clay exactly occupy *R*, hence that they exactly coincide. (3) is true partly because Clay would survive a hammer blow and Statue would not. Perhaps this is true in virtue of certain dispositional facts to do with the configuration of *s1*, …, *sn*: under such-and-such physical conditions, *s1*, …, *sn* would still be configured so as to make ⟨Clay exists⟩ true but would no longer be configured so as to make ⟨Statue exists⟩ true.

That leaves (4) and (5). The question to ask is whether we have a better candidate truthmaker for ⟨Statue and Clay are identical⟩ (which follows from (2) and (4)) or for ⟨Statue and Clay are distinct⟩ (which follows from (3) and (5)). Deciding one way or the other will resolve the inconsistency, at the expense of having to give up either (4) or (5). But contrary to the above objection, I think this way of resolving the

inconsistency is better than most of the standard options. We still have a sparse ontology of simples standing in certain arrangements, with no need for distinct coinciding objects, temporal parts, or complex objects. At the same time, we have preserved the truth of the most plausible claims on the list: (1)-(3). Compared to these benefits, giving up a somewhat plausible philosophical claim about identity seems a relatively small price to pay.

An alternative is to say that it's *indeterminate* whether we have a truthmaker for ⟨Statue and Clay are identical⟩ or for ⟨Statue and Clay are distinct⟩. There's perhaps some pressure to say that Statue and Clay are identical because it's true that they exactly coincide. And there's perhaps some pressure to say that Statue and Clay are distinct because it's true that they have different properties. This might lead us to conclude that it's indeterminate whether Statue and Clay are identical. But on the Truthmaker Ontologist's diagnosis, this indeterminacy only arises at the level of linguistic representation and need not carry over into our account of what really exists. Compare what Cameron says about indeterminate existence (2008a: 16):

> Grant, for the sake of argument, that indeterminate existence is to be avoided; this seems only to mandate that our *fundamental* ontology be precise. It doesn't seem at all worrying if it's indeterminate whether that precise fundamental ontology results in the truth of certain propositions concerning the existence of complex objects. After all, this wouldn't be a case of it being indeterminate whether there is some thing in our ontology. […] It doesn't seem worrying if the precise way things fundamentally are results in the indeterminacy of certain *claims* concerning what exists derivatively. That's just a case of indeterminacy in what makes what true— it's not *really* a case of indeterminate existence.

The same plausibly goes for indeterminate identity. The priority is to ensure that our account of what *really* exists does not involve cases of indeterminate identity. But perhaps due to semantic indecision, it might still be an indeterminate matter whether

'Statue is identical to Clay' expresses a true proposition. This seems tolerable, however, since the indeterminacy involved is linguistic rather than ontological; as Cameron says elsewhere, 'indeterminacy arising from linguistic or conceptual unsettledness is utterly unproblematic' (2010a: 263). As before, we still have an attractive response to the puzzle, which optimises the balance between ontological plausibility and preserving what is plausibly true.

7.2.4 The Problem of Fit

Here's another potential concern. If our aim is to preserve the truth of familiar claims about *F*s, there are plausibly limits on what truthmakers we can posit for those claims. You might argue that, if our aim is to preserve the truth of familiar claims about *F*s, it is not enough to cite just any truthmakers for those claims. The truthmakers cited must 'fit' with the way *F*s are ordinarily conceived. Suppose we were to claim that ⟨God exists⟩ is true, since it is made true by certain facts about the human imagination, or by the universe. Presumably this wouldn't move many atheists, who would likely reply that these truthmakers don't fit with the theistic conception of God as the all-powerful creator and sustainer of the universe. Or suppose we were to claim that the truthmakers for moral statements are the subjective mental attitudes of speakers. Presumably this wouldn't move a moral error theorist like Mackie (1977), who would likely reply that these truthmakers don't fit with the ordinary conception of moral values as objectively prescriptive.

In general, there seem to be constraints on what truthmakers we can appeal to if we want to preserve truths about *F*s as ordinarily conceived. And, according to Audi (2015), the Truthmaker Ontologist's reconciliation strategy struggles to meet these constraints. To use his example, consider the sentence 'There are cars'. The Truthmaker Ontologist might claim that the truth of this sentence is consistent with a

car-less ontology, since it could be made true by simples arranged car-wise. But, Audi argues, part of the ordinary concept of a car is that a car is a certain kind of *unit* (2015: 223). Hence, 'no swarm of non-cars can be a truthmaker for "There are cars". Certain swarms may convince us that "There are cars" is a harmless fiction, but harmless is one thing and truth is another' (Audi 2015: 224). Audi seems to think (but does not argue) that this generalises: you can't claim to have preserved the truth of statements about *F*s, as *F*s are ordinarily conceived, by citing non-*F*s as truthmakers (2015: 222).

Let's start by granting the assumption that our aim is to preserve truths about *F*s *as Fs are ordinarily conceived*. While I agree that there are constraints on what truthmakers we can then appeal to, I don't agree that the truthmakers must be *F*s. Suppose we want to find a truthmaker for the claim that a certain car ('Car') exists, which fits with the way cars are ordinarily conceived. And suppose Audi is right that cars are ordinarily conceived as units. Then it seems to me that our task is to find suitable truthmakers for *both* the claim that Car exists *and* the claim that Car is a unit. And it's not clear that these truthmakers couldn't be simples arranged thus-and-so. Suppose, for the sake of illustration, that cars are ordinarily conceived as units just because they seem to be objects with fairly well-demarcated boundaries. Thus, perhaps Car occupies a certain region *R*, and we think of Car as a single unit because the boundaries of *R* mark a clear division between where Car ends and everything else begins. In that case, perhaps the fact that certain simples are arranged Car-wise *and exactly occupy R* is enough to make it true both that Car exists *and* that Car is a unit. If so, perhaps this is enough to make it true that Car exists in a way that fits the (alleged) fact that cars are ordinarily conceived as units.

More generally, if we want to ensure that the truthmakers for *F*-claims fit with the way *F*s are ordinarily conceived, we needn't impose *a priori* constraints on what those truthmakers must be; we must rather focus on what those truthmakers would have to

make true if the ordinary conception of *F*-hood is to be vindicated. This will require a degree of conceptual analysis. To illustrate, suppose we want to know what it would take to make ⟨God exists⟩ true, given the way God is conceived within theistic discourse. We might approach by identifying the *core platitudes* associated with God within that discourse— perhaps 'God is all powerful', 'God is all-knowing', 'God is the creator and sustainer of the universe', etc.— and ask what truthmakers it would take for these platitudes to be satisfied.[132] This might lead us to conclude that, say, the universe itself isn't a suitable truthmaker for ⟨God exists⟩, because it isn't adequate with respect to the core God-platitudes.

So on the one hand, there are constraints on what truthmakers we can appeal to if we want to preserve truths about *F*s as ordinarily understood: the truthmakers, I'm suggesting, should be adequate with respect to the core platitudes associated with *F*-hood. This does not mean, however, that we can't preserve truths about *F*s as ordinarily understood by citing non-*F*s as truthmakers: as long as the relevant platitudes are upheld, I don't see what more it would take to vindicate the ordinary concept of *F*-hood.

Having said all that, it may not always be desirable to provide truthmakers for *F*-claims that leave the ordinary concept of *F*-hood perfectly intact, since the required truthmakers may be problematic. Suppose we want to know what it would take to make ⟨Murder is wrong⟩ true, given the way properties like *wrongness* are ordinarily conceived. When we reflect on the platitudes associated with wrongness, we find we

[132] Joyce (2001: 3) suggests a rough test for identifying the core platitudes of a discourse, which I adapted to a slightly different use in §5.3.2. To briefly illustrate, suppose we want to decide whether some claim, 'God is *F*', expresses a core platitude about God. We can do so, Joyce suggests, by imagining ourselves encountering some community who have a concept *God**, which seems to behave like our concept *God*, but who are not disposed to assent to 'God is *F*'. If this would lead us *not* to translate 'God*' as 'God', then 'God is *F*' is indeed a core God-platitude.

agree with Mackie that wrongness is conceived as an objectively prescriptive property. Suppose this leads us to conclude that leaving the ordinary concept of wrongness intact would force us to admit *sui generis* moral properties as truthmakers— an ontological cost we're reluctant to bear. In that case, we might decide it's better to posit truthmakers for ⟨Murder is wrong⟩ that are less costly, but which provide a less-than-perfect fit with the ordinary concept of wrongness, being adequate with respect to only some of the wrongness-platitudes. Again, this is a matter to be decided by cost-benefit analysis: do the benefits of leaving the wrongness-platitudes intact outweigh the costs of admitting problematic truthmakers to our ontology?

7.4 Defending Truthmaker Ontology

I will now reply to some remaining objections to Truthmaker Ontology.

Objection: Truthmaker Ontology Changes the Subject

The most likely objection is that Truthmaker Ontology isn't really an approach to *ontology* at all. One might insist that, *by definition*, ontology concerns what there is. So the alleged advantages of Truthmaker Ontology are the result of definitional sleight of hand: we can't change the scope of ontology by insisting that only truthmakers have ontological status any more than we can make dogs have five legs by counting tails as legs.

Reply

In my view, insisting that ontology can only be about what there is a bit like insisting that economics can only be about household management: it puts etymology before our ongoing theoretical concerns. I believe that most ontologists aspire to be Serious

Ontologists, addressing deep and substantive questions about the contents of reality. We should tailor our understanding of 'ontology' to suit this aspiration, even if it means departing from etymology or historical usage. And, I have argued, Serious Ontology is better served if we take ontology to address questions about truthmakers rather than about what there is. So although my view does involve a revisionary notion of 'ontology', I submit that it is a principled revision.

Objection: Truthmaker Ontology is Esoteric

I claim that ontology is a question of what *really exists*. What really exists is what makes a truthmaking contribution, and truthmaking is understood in terms of a metaphysical primitive: *in virtue of*. One might object, then, that Truthmaker Ontology is an example of what Hofweber calls *esoteric metaphysics*: 'one needs to understand distinctly metaphysical terms in order for one to understand what the questions are that metaphysics tries to answer. You have to be an insider to get in the door' (Hofweber 2009: 267). According to Hofweber, esoteric metaphysics should be rejected in favour of *egalitarian* metaphysics, whose questions 'are expressed in ordinary everyday terms, accessible to all […]. One does not need to understand special metaphysical terms to understand the questions that we are trying to ask' (2009: 266).

Reply

First, it's not clear to me that the questions Truthmaker Ontology addresses can't be ordinarily understood, even if they involve distinctly metaphysical terms. To understand the questions, the first notion we must grasp is the primitive *in virtue of*. We seem to have some ordinary understanding of this notion, as witnessed by the intelligibility of the sort of examples I used to introduce *in-virtue-of* relations (§2.1). Speaking personally, I have found that non-philosophers can easily get an initial grasp

on the use of 'in virtue of' as a way of talking about explanatory non-causal dependence. Matters get more complicated, of course, as we seek to develop a more refined philosophical account of in-virtue-of relations. But we also have some ordinary understanding of the notion of causation, which philosophers refine in sometimes complicated ways; but Hofweber does not see causation as an esoteric notion (2009: 268). The next idea we need to grasp is the distinction between what is real and what is merely represented. Again, we seem to have some ordinary understanding of this distinction, as witnessed by the intelligibility of statements like 'We *think* and *talk* about numbers, but the question remains as to whether numbers are *real*' (see §1.1). Putting the two together, we can plausibly have some ordinary understanding of the idea of a truth holding in virtue of a portion of reality, i.e., truthmaking. From there, it's not too far a leap to grasp the questions Truthmaker Ontology addresses: the term *really exists* is just a device for distinguishing the portions of reality in virtue of which truths hold and the things that can truly be represented to exist. So even if the questions of Truthmaker Ontology involve distinctly metaphysical terms, I'm not persuaded that they are inaccessible to non-metaphysicians.

Second, even if the questions of Truthmaker Ontology can't be ordinarily understood, it's not immediately clear what would be wrong with this. As Raven points out (2012: 695), 'counterfactuals, Chomskyan syntax, autism, quantum states and economic markets are all things we do not ordinarily understand. We do not reject them for that reason alone'. Moreover, if we insist that ontological questions must be 'expressed in ordinary, everyday terms, accessible to all' (Hofweber 2009: 266), we risk misunderstanding the questions. 'Are there numbers?' and 'Are there tables?' may be egalitarian questions. But as I've argued, they should not be mistaken for questions of serious ontological interest. Perhaps serious ontological questions can only be

adequately posed in distinctively metaphysical terms. As long as the terms are at least tolerably intelligible (as I've suggested they are), perhaps a degree of esotericism is not such a bad thing.

Objection: Truthmaker Ontology Doesn't Save the Phenomena

I claim that all that really exists is what makes a truthmaking contribution, which might be a small proper subset of what can truly be said to exist (see Ch. 4). So perhaps there are really no such things as tables, numbers, minds, moral values, …, even if it is true to *represent* their existence. But you might object that this doesn't save the phenomena. You might push this from a Moorean angle. It's a Moorean fact, you might insist, that tables really are out there in the world, not merely that we say true things about them. So when Truthmaker Ontologists claim to be able to exclude tables from their ontology without revising familiar truisms, you might worry that we're not getting our Moorean due. Alternatively, you might argue that Truthmaker Ontologists can't account for certain important features of the things they deem unreal. If complex objects don't really exist, for example, how can we account for the fact that cars, knives, rocks and electrical sockets seem to have causal powers? If mental states don't really exist, how can we account for the qualia of pain or anger?

Reply

As to the first point, I deny that claims about what really exists have the status of Moorean facts. Common sense just doesn't have the power to perspicuously reveal the character of extra-representational reality; it might tell us *what* is true, but it doesn't give us the full metaphysical story about *why* it's true. I think Moore himself might have agreed. He insisted that, while he was in no doubt as to the *truth* of many commonsense propositions, he was far from certain about how they should be

analysed (Moore 1959: 53). While I don't think that analysing propositions is the way to do metaphysics, I do endorse something in a similar spirit: we can perhaps be certain that 'There are tables' says something true, but we can't be certain about what, in reality, *makes* it true.

As for the second point, it's worth noting that Truthmaker Ontology doesn't rule out the reality of any particular entities *a priori*. Perhaps the best way to account for truths about qualia is to admit *sui generis* mental states as truthmakers; perhaps the best way to account for certain causal truths is to admit complex objects as truthmakers. Truthmaker Ontology *allows* us to exclude certain entities from our ontology without denying that they exist; but it doesn't *force* us to do so. But in any case, I don't see why Truthmaker Ontology can't account for the important features of entities deemed not to really exist. It seems that rocks have causal powers— they cause glass to shatter if thrown hard enough, and so on. But one might think that rocks would do no causal work that simples arranged rock-wise couldn't do by themselves. Some take this to be a reason to deny the existence of rocks (cf. Merricks 2001). I say it's a reason to consider whether truths about the existence and causal powers of rocks might be made true just by simples arranged rock-wise. We could then truly say that rocks exist and have certain causal powers. But—to borrow a phrase from Heil (2012)— the 'deep story' about *why* rocks exist and have their causal powers would be told in terms of simples.

Conclusion

Metaontology asks: what is the nature of ontological questions and by what methods might they be answered? I have joined the growing number of philosophers who think that, if ontology is to be a serious enterprise, we need an alternative to the orthodox view that ontological questions are questions about what there is. Of the several

heterodox approaches that have emerged in recent years, I believe that Truthmaker Ontology is the most promising. I have therefore sought to further the cause of Truthmaker Ontology by clarifying its conceptual and methodological foundations.

Along the way, I have tried to shed new light on the relation between truthmaking and grounding and their roles within Truthmaker Ontology, the distinction between what has ontological status and what can truly be said to exist, the notion of fundamentality and its metaontological relevance, and the way to measure the ontological commitments and costs of theories. Truthmaker Ontology undoubtedly requires further development. But I hope to have moved us a step closer towards understanding how ontology might be pursued as a search for truthmakers.

Bibliography

Alston, W. (1958) 'Ontological Commitments'. *Philosophical Studies* 9: 8-17.

Armstrong, D.M. (1978) *Universals and Scientific Realism*. Cambridge University Press.

Armstrong, D.M. (1997) *A World of States of Affairs*. Cambridge University Press.

Armstrong, D.M. (2004) *Truth and Truthmakers*. Cambridge University Press.

Armstrong, D.M. (2006) 'The Scope and Limits of Human Knowledge'. *Australasian Journal of Philosophy*, 84: 2: 159-166.

Asay, J. (2011) *Truthmaking, Truth and Realism: New Work for a Theory of Truthmakers.* Doctoral dissertation. Chapel Hill, NC: University of North Carolina.

Asay, J. (2012) 'A Truthmaking Account of Realism and Anti-Realism'. *Pacific Philosophical Quarterly*, 93: 373-394.

Asay, J. (2013) 'Truthmaking, Metaethics, and Creeping Minimalism'. *Philosophical Studies*, 163: 213-232.

Asay, J. (2016) 'Logic and/of Truthmaking'. In D. Deng, H. Lin, and S. Yang (eds.), *Structural Analysis of Non-Classical Logics*. Berlin: Springer-Verlag: 37-55.

Asay, J. (2017) 'Run Aground: Kit Fine's Critique of Truthmaker Theory'. *The Philosophical Quarterly*, 67 (268): 443-463.

Asay, J. and Baron, S. (2020) 'Deflating Deflationary Truthmaking'. *Philosophical Quarterly*, 70 (278): 1-21.

Audi, P. (2012a) 'Grounding: Toward a Theory of the *In-Virtue-Of* Relation'. *Journal of Philosophy*, 109: 685-711.

Audi, P. (2012b) 'A Clarification and Defense of the Notion of Grounding'. In F. Correia and B. Schnieder (eds.), *Metaphysical Grounding: Understanding the Structure of Reality*. Cambridge University Press: 101-121.

Audi, P. (2015) 'Explanation and Explication'. In C. Daly (ed.). *The Palgrave Handbook of Philosophical Methods.* Palgrave: 208-230.

Azzouni, J. (2004) *Deflating Existential Consequence: A Case for Nominalism*. Oxford University Press.

Azzouni, J. (2010) 'Ontology and the Word 'Exist': Uneasy Relations'. *Philosophia Mathematica*, 18(3): 74-101.

Baker, A. (2004) 'Simplicity'. In E. Zalta (ed.) *The Stanford Encyclopedia of Philosophy.*

Baker, A. (2007) 'Occam's Razor in Science: A Case Study from Biogeography'. *Biology and Philosophy*, 22: 193-215.

Barnes, E. and Cameron, R. (2007) 'A Critical Study of John Heil's *From an Ontological Point of View*'. *Philosophy of Mind Review*, 6: 22-30.

Baron, S. (2013a) 'A Truthmaker Indispensability Argument'. *Synthese*, 190: 2413-2427.

Baron, S. (2013b) 'Talking About the Past'. *Erkenntnis*, 78: 547-560.

Baron, S., Chua, R.M., Miller, K. and Norton, J. (2019) 'Much Ado About Aboutness'. *Inquiry*, DOI: 10.1080/0020174X.2019.1592705

Baron, S. and Tallant, J. (2018) 'Do Not Revise Ockham's Razor Without Necessity'. *Philosophy and Phenomenological Research*, 96(3): 596-619.

Baxter, D. (1988) 'Many-One Identity'. *Philosophical Papers*, 17: 193-216.

Beebee, H. and Dodd, J. (eds.) (2005) *Truthmakers: The Contemporary Debate*. Oxford University Press.

Bennett, K. (2011a) 'By Our Bootstraps'. *Philosophical Perspectives*, 25, Metaphysics: 27-41.

Bennett, K. (2011b) 'Truthmaking and Case-making'. *Philosophy and Phenomenological Research* 83: 187-195.

Bennett, K. (2011b) 'Construction Area (No Hard Hat Required)'. *Philosophical Studies*, 154: 79-104.

Bennett, K. (2017) *Making Things Up*. Oxford University Press.

Bigelow, J. (1988) *The Reality of Numbers: A Physicalist's Philosophy of*

Mathematics. Oxford University Press.

Bigelow, J. (1996) 'Presentism and Properties'. *Philosophical Perspectives*, 10: 35-52.

Blackburn, S. (1984) *Spreading the Word: Groundings in the Philosophy of Language.* Oxford: Clarendon Press.

Blackburn, S. (1993) *Essays in Quasi-Realism*. Oxford University Press.

Bliss, R. and Trogdon, K. (2014) 'Metaphysical Grounding'. In E. Zalta (ed.) *The Stanford Encyclopedia of Philosophy.*

Brenner, A. (2017) 'Simplicity as a Criterion of Theory Choice in Metaphysics'. *Philosophical Studies*, 174: 2867-2707.

Bricker, P. (2014) 'Ontological Commitment'. In E. Zalta (ed.) *The Stanford Encyclopaedia of Philosophy.*

Brogaard, B. (2008) 'Inscrutability and Ontological Commitment'. *Philosophical Studies*, 141: 21-42.

Brons, L. (2013) 'What Does It Mean for Something to Exist?'. *The Science of Mind*, 51: 53-74.

Brouwer, T. (2013) *The Metaphysical Commitments of Logic*. Doctoral dissertation, University of Leeds.

Burgess, J. and Rosen, G. (2005) 'Nominalism Reconsidered'. In S. Shapiro (ed.), *The Oxford Handbook of Philosophy of Mathematics and Logic.* Oxford University Press.

Cameron, R. (2008a) 'Truthmakers and Ontological Commitment: Or, How to Deal With Complex Objects and Mathematical Ontology Without Getting Into Trouble'. *Philosophical Studies*, 140(1): 1-18.

Cameron, R. (2008b) 'Truthmakers, Realism and Ontology'. *Philosophy* 83: 107-128.

Cameron, R. (2008c) 'There Are No Things That Are Musical Works'. *The British Journal of Aesthetics*, 48: 295-314.

Cameron, R. (2008d) 'Turtles All the Way Down'. *The Philosophical Quarterly*, 58(230): 1-14.

Cameron, R. (2008e) 'How to Be a Truthmaker Maximalist'. *Nous*, 42(3): 410-421.

Cameron, R. (2010a) ‘How to Have a Radically Minimal Ontology’. *Philosophical Studies* 151: 249-264.

Cameron, R. (2010b) ‘Quantification, Naturalness and Ontology’. In A. Hazlett (ed.), *New Waves in Metaphysics*. Basingstoke: Palgrave-Macmillan: 8-26.

Cameron, R. (2010c) 'Necessity and Triviality'. *The Australasian Journal of Philosophy* 88(3): 401-415.

Cameron, R. (2014) ‘Parts Generate the Whole, But They Are Not Identical to It’. In A. Cotnoir and D. Baxter (eds.), *Composition as Identity*. Oxford University Press.

Cameron, R. (2015) The Moving Spotlight: An Essay on Time and Ontology. Oxford University Press.

Cameron, R. (2018) ‘Truthmakers’. In M. Glanzberg (ed.), *The Oxford Handbook of Truth*. Oxford University Press.

Cameron, R. (2019) 'Truthmaking, Second-order Quantification, and Ontological Commitment'. *Analytic Philosophy*, 60(4): 336-360.

Cameron, R. (Forthcoming(a)). 'Truthmaking and Metametaphysics'. In R. Bliss and J. Norton (eds.) *The Routledge Handbook of Metametaphysics.*

Cameron, R. (Forthcoming(b)). ‘Easy Ontology, Two-Dimensionalism, and Truthmaking’. *Oxford Studies in Metaphysics*.

Campbell, K. (1994) ‘Selective Realism in the Philosophy of Physics’. *The Monist* 77: 27-46.

Carnap, R. (1950) 'Empiricism, Semantics and Ontology'. *Revue Internationale de Philosophie* 4: 20-40.

Contessa, G. (2013) 'Reading the Book of the World'. *Philosophical Studies* 172: 1051-1077.

Correia, F. (2010) ‘Grounding and Truth-Functions’. *Logique et Analyse,* 53(211): 251-279.

Correia, F. (2011) ‘From Grounding to Truth-Making: Some Thoughts’. In A. Reboul (ed.)*, Philosophical Papers Dedicated to Kevin Mulligan.* (Online publication,

available at http://www.philosophie.ch/kevin/festschrift/Correia-paper.pdf)

Correia, F. and Schnieder, B. (eds.) (2012) *Metaphysical Grounding: Understanding the Structure of Reality*. Cambridge University Press.

Crane, T. (2013) *The Objects of Thought.* Oxford University Press.

Daly, C. and Liggins, D. (2010) 'In Defence of Error Theory'. *Philosophical Studie*s, 149: 209-230.

Daly, C. and Liggins, D. (2014) 'In Defence of Existence Questions'. *The Monist*, 97(4): 460-478.

David, M. (2005) 'Armstrong on Truthmaking'. In H. Beebee and J. Dodd (eds.), *Truthmakers: The Contemporary Debate*. Oxford University Press: 141-59.

Davidson, D. (1967) 'The Logical Form of Action Sentences'. In N. Rescher (ed.), The *Logic of Decision and Action*. Pittsburgh: University of Pittsburgh Press.

Davidson, D. (2001) *Essays on Actions and Events.* Oxford University Press.

Davidson, D. (1974) 'Belief and the Basis of Meaning'. *Synthese*, 27: 309-323.

DeRosset, L (2010) 'Getting Priority Straight'. *Philosophical Studies,* 149(1): 73-97.

DeRosset, L. (2017) 'Grounding the Unreal'. *Philosophy and Phenomenological Research*, 95(3): 535-563.

Dieveney, P. (2008) 'Ontological Infidelity'. *Synthese*, 165: 1-12.

Dodd, J. (2002) 'Is Truth Supervenient on Being', *Proceeding of the Aristotelian Society* 102(1): 69-85.

Dodd, J. (2007) 'Negative Truths and Truthmaker Principles'. *Synthese* 156: 383-401.

Dorr, C. (2005) 'What We Disagree About When We Disagree About Ontology'. In M. Kalderon (ed.), *Fictionalism in Metaphysics*. Oxford University Press: 234-286.

Duncan, M., Miller, K. and Norton, J. (2017) 'Is Grounding a Hyperintensional Phenomenon?'. *Analytic Philosophy*, 58(4): 297-329.

Eklund, M. (2006) 'Metaontology'. *Philosophy Compass,* 1(3): 317-334.

Eklund, M. (2009a) 'On Some Recent Criticisms of the "Linguistic" Approach to Ontology'. *Dialectica*, 63(3): 313-323.

Eklund, M. (2009b) 'Carnap and Ontological Pluralism'. In D. Chalmers, D. Manley, and R. Wasserman (eds.), *Metametaphysics*. Oxford University Press: 130-156.

Eklund, M. (MS) 'Existence, Existence*, and Existence in Reality'.

Embry, B. (2015) 'Truth and Truthmakers in Early Modern Scholasticism'. *Journal of the American Philosophical Association,* 1(2): 196-216.

Fiddaman, M. and Rodriguez-Pereyra, G. (2018) 'The Razor and the Laser'. *Analytic Philosophy*, 59(3): 341-358.

Field, H. (1980) Science Without Numbers: A Defence of Nominalism. Oxford: Basil Blackwell.

Field, H. (1989) *Realism, Mathematics and Modality*. Oxford: Basil Blackwell.

Fine, K. (1994) ‘Essence and Modality’. *Philosophical Perspectives*, 8: 1-16.

Fine, K. (2011) ‘The Question of Realism’. *Philosophers Imprint*, 1(1): 1-30.

Fine, K. (2009) ‘The Question of Ontology’. In D. Chalmers, D. Manley, and R. Wasserman (eds.), *Metametaphysics*. Oxford University Press: 157-177.

Fine, K. (2010) ‘Some Puzzles of Ground’. *Notre Dame Journal of Formal Logic*, 51(1): 97-118.

Fine, K. (2012) ‘Guide to Ground’. In F. Correia and B. Schnieder (eds.), *Metaphysical Grounding: Understanding the Structure of Reality*. Cambridge University Press: 37-80.

Finn, S. (2017) 'The Role of Existential Quantification in Scientific Realism'. *Philosophy* 92: 351-367.

Fisher, A.R.J. (2016) 'Truthmaking and Fundamentality'. *Pacific Philosophy Quarterly* 97(4): 448-473.

Fodor, J. (1990) *A Theory of Content*. Cambridge, MA: MIT Press.

Fox, J. (1987) ‘Truthmaker’. *Australasian Journal of Philosoph*y, 65: 188-207.

Garner, R. (1990) ‘On the Genuine Queerness of Moral Properties and Facts’. *Australasian Journal of Philosophy*, 68(2): 137-146.

Goodman, N. (1978) *Ways of Worldmaking.* Indianapolis: Hackett.

Goldwater, J. (2014) 'Sider's Third Realm'. *Metaphysica* 15: 99-112.

Griffith, A. (2013) *Ways of Truthmaking: A Pluralist Theory of Truthmaking*. Doctoral dissertation. University of California, Irvine.

Griffith, A. (2014) ’Truthmaking and Grounding’. *Inquiry*, 57(2): 196-215.

Griffith, A. (2015) ’Towards a Pluralist Theory of Truthmaking’. *Erkenntnis*, 80: 1157-1173.

Hale, B. (2007) 'Neo-Fregeanism and Quantifier Variance'. *Proceedings of the Aristotelian Society* 107: 375-385.

Hale, B. and Wright, C. (2009) 'The Metaontology of Abstraction'. In D. Chalmers, D. Manley, and R. Wasserman (eds.), *Metametaphysics*. Oxford University Press: 178-212.

Hawley, K. (2015) 'Composition as Identity'. In A. J. Cotnoir and D.L.M Baxter (eds.) *Composition as Identity.* Oxford University Press.

Hawthorne, J. (2006) ‘Plenitude, Convention, and Ontology’. *Metaphysical Essays*. Oxford University Press: 53-70.

Hawthorne, J. (2009) 'Superficialism in Ontology'. In D. Chalmers, D. Manley, and R. Wasserman (eds.), *Metametaphysics*. Oxford University Press: 213-230.

Heil, J. (2003) *From an Ontological Point of View*. Oxford: Clarendon Press.

Heil, J. (2005) 'Real Tables'. *The Monist* 88: 493-509.

Heil, J. (2006) 'The Legacy of Linguisticism'. *The Australasian Journal of Philosophy* 84: 233-244.

Heil, J. (2012) *The Universe As We Find It*. Oxford University Press.

Hillman, T.A. (2009) 'Substantial Simplicity in Leibniz: Form, Predication & Truthmakers'. *The Review of Metaphysics* 63(1): 91-138.

Hirsch, E. (1982) *The Concept of Identity.* Oxford University Press.

Hirsch, E. (2002a) 'Quantifier Variance and Realism'. *Philosophical Issues* 12: 51-73.

Hirsch, E. (2002b) 'Against Revisionary Ontology'. *Philosophical Topics* 30(1): 103-127.

Hirsch, E. (2005) 'Physical-Object Ontology, Verbal Disputes, and Common Sense. *Philosophy and Phenomenological Research* 70: 67-97.

Hirsch, E. (2008) 'Language, Ontology, and Structure'. *Noûs* 42: 509-528.

Hirsch, E. (2009) 'Ontology and Alternative Languages'. In D. Chalmers, D. Manley, and R. Wasserman (eds.), *Metametaphysics*. Oxford University Press: 231-259.

Hirsch, E. (2011) *Quantifier Variance and Realism.* Oxford University Press.

Hirsch, E. (2013) 'The Metaphysically Best Language'. *Philosophy and Phenomenological Research* 87: 709-716.

Hofweber, T. (2009) 'Ambitious, Yet Modest, Metaphysics'. In D. Chalmers, D. Manley, and R. Wasserman (eds.), *Metametaphysics*. Oxford University Press: 260-289.

Hofweber, T. (2016) *Ontology and the Ambitions of Metaphysics*. Oxford University Press.

Horgan, T. and Potrč, M. (2008) *Austere Realism*. Cambridge, MA.: MIT Press.

Hornsby, J. 'Truth Without Truth-Making Entities'. In H. Beebee and J. Dodd (eds.), *Truthmakers: The Contemporary Debate*. Oxford University Press.

Jackson, F. (1980) 'Ontological Commitment and Paraphrase'. *Philosophy* 55: 303-315.

Jackson, F. (1989) 'A Puzzle About Ontological Commitment'. In J. Heil (ed.), *Cause, Mind and Reality.* Dordrecht: Kluwer: 191-200.

Jenkins, C.S. (2005) 'Realism and Independence'. *American Philosophical Quarterly* 42(3): 199-209.

Jenkins, C.S. (2010) 'What is Ontological Realism?'. *Philosophy Compass* 5(10): 880-890.

Jenkins, C.S. (2011) 'Is Metaphysical Dependence Irreflexive?'. *Monist* 94(2): 267-276.

Joyce, R. (2001) *The Myth of Morality.* Cambridge University Press.

Keller, J. A. (2015) 'Paraphrase, Semantics, and Ontology'. In *Oxford Studies in Metaphysics*, *Vol. 9*. Oxford University Press.

Keller, J. A. (2017) 'Paraphrase and the Symmetry Objection'. *Australasian Journal of Philosophy.* 95(2): 365-378.

Kelly, T. (2005) 'Moorean Facts and Belief Revision, or Can the Skeptic Win?'. *Philosophical Perspectives* 19: 179-209.

Kelly, T. (2008) 'Common Sense as Evidence: Against Revisionary Ontology and Skepticism'. *Midwest Studies in Philosophy* 32(1): 53-78.

Kelly, T. (2017) 'Paraphrase and the Symmetry Objection'. *Australasian Journal of Philosophy* 95(2): 365-378.

Kim, J. (1993) *Supervenience and Mind: Selected Philosophical Essays*. Cambridge University Press.

Kim, J. (2005) *Physicalism, or Something Near Enough*. Princeton University Press.

Kim, J. (2010) *Essays in the Metaphysics of Mind*. Oxford University Press.

Korman, D.Z. (2009) 'Eliminativism and the Challenge from Folk Belief. *Noûs* 43(2): 242-264.

Korman, D.Z. (2015) 'Fundamental Quantification and the Language of the Ontology Room'. *Noûs* 49(2): 298-321.

Koslicki, K. (2012) 'Varieties of Ontological Dependence'. In F. Correia and B. Schnieder (eds.), *Metaphysical Grounding: Understanding the Structure of Reality*. Cambridge University Press: 186-213.

Krämer, S. (2014) 'Implicit Commitment in Theory Choice'. *Synthese* 191(10): 2147-2165.

Leslie, S. (2007) 'Generics and the Structure of the Mind'. *Philosophical Perspectives* 21(1): 375-403.

Lewis, D. (1970) ‘How to Define Theoretical Terms’. *The Journal of Philosophy* 67(13): 427-446.

Lewis, D. (1974) ‘Radical Interpretation’. *Synthese* 23: 331-344.

Lewis, D. (1975) ‘Languages and Language’. In K. Gunderson (ed.), *Language, Mind and Knowledge. Minnesota Studies in the Philosophy of Science* (7). Minneapolis: University of Minnesota Press.

Lewis, D. (1983) ‘New Work for a Theory of Universals’. *Australasian Journal of Philosophy*, 61(4): 343-377.

Lewis, D. (1984) 'Putnam's Paradox'. *Australasian Journal of Philosophy* 62: 221-236.

Lewis, D. (1986) *On the Plurality of Worlds.* Oxford: Blackwell.

Lewis, D. (1991) *Parts of Classes*. Oxford: Blackwell.

Lewis, D. (1992) 'Critical Notice of D.M. Armstrong, *A Combinatorial Theory of Possibility*'. *Australian Journal of Philosophy*, 70(2): 211-224.

Lewis, D. and Lewis, S. (1970) 'Holes'. *Australasian Journal of Philosophy*, 48(2): 206-212.

Liggins, D. (2012) 'Truthmakers and Dependence'. In F. Correia and B. Schnieder (eds.), *Metaphysical Grounding: Understanding the Structure of Reality*. Cambridge University Press: 254-271.

Linnebo, Ø. (2018) 'Platonism in the Philosophy of Mathematics'. In E. Zalta (ed.), *The Stanford Encyclopaedia of Philosophy*.

Lipman, M. A. (2018) ‘Against Fundamentality-Based Metaphysics’. *Noûs* 52(3): 587-610.

Litland, J. E. (2013) 'On Some Counterexamples to the Transitivity of Grounding'. *Essays in Philosophy* 14(1), http://doi.org/10.7710/1526=0569.1453.

Lowe, E.J. and Rami, A. (2009) *Truth and Truth-Making.* Stocksfield: Acumen.

Lycan, W.G. (2001) 'Moore Against the New Skeptics'. *Philosophical Studies* 103: 35-53.

MacBride, F. (2013) ‘Truthmakers’. In E. Zalta (ed.) *The Stanford Encyclopedia of Philosophy.*

MacBride, F. (2014) ‘How Truth Depends upon Being’. *Analysis* 74(3): 370-378.

Mackie, J. (1977) *Ethics: Inventing Right and Wrong*. Harmondsworth: Penguin.

Manley, D. (2009) 'A Guided Tour of Metametaphysics'. In D. Chalmers, D. Manley, and R. Wasserman (eds.), *Metametaphysics*. Oxford University Press: 1-37.

Martin, C. B. (1996) ‘How It Is: Entities, Absences and Voids’. *Australasian Journal of Philosophy*, 74(1): 57-65.

McDaniel, K. (2009) 'Ways of Being'. In D. Chalmers, D. Manley, and R. Wasserman (eds.), *Metametaphysics*. Oxford University Press: 290-319.

Melia, J. (1998) 'Field's Programme: Some Interference'. *Analysis*, 58(2): 63-71.

Melia, J. (2005) ‘Truthmaking Without Truthmakers’. In H. Beebee, and J. Dodd (eds.), *Truthmakers: The Contemporary Debate*. Oxford University Press: 67-84.

Merricks, T. (2001) *Objects and Persons.* Oxford: Clarendon Press.

Merricks, T. (2007) *Truth and Ontology*. Oxford University Press.

Michael, M. (2008) 'Implicit Ontological Commitment'. *Philosophical Studies*, 141(1): 43-61.

Milne, P. (2005) ‘Not Every Truth Has a Truthmaker’. *Analysis* 65(3): 221-224.

Moore, G.E. (1959) *Philosophical Papers*. London: Allen & Unwin.

Mulligan, K., Simons, P. and Smith, B. (1984) 'Truth-Makers'. *Philosophy and Phenomenological Research*, 64: 287-321.

Newstead, A. and Franklin, J. (2012) 'On What Exists Mathematically'. In A. Bird, B. Ellis, and H. Sankey (eds.), *Properties, Powers and Structures: Issues in the Metaphysics of Realism.* New York: Routledge: 81-97.

O’Conaill, D. and Tahko, T. (2016) ‘Minimal Truthmakers’. *Pacific Philosophical Quarterly*, 97(2): 228-244.

Oliver, A. (1996) 'The Metaphysics of Properties'. *Mind*, 105: 1-80.

Peacock, H. (2011) 'Two Kinds of Ontological Commitment'. *The Philosophical Quarterly*, 61(242): 79-104.

Priest, G. (2005) *Towards Non-Being*. Oxford University Press.

Priest, G. (2008) 'The Closing of the Mind: How the Particular Quantifier Became Existentially Loaded Behind Our Backs'. *The Review of Symbolic Logic*, 1: 42-55.

Putnam, H. (1967) 'Mental Predicates'. In W.H. Capitan & D.D. Merrill (eds.) *Art, Mind, and Religion*. University of Pittsburgh Press.

Quine, W.V.O. (1948) 'On What There Is'. *The Review of Metaphysics*, 2(5): 21-38.

Quine, W.V.O. (1960) *Word and Object*. Cambridge, Mass.: MIT Press.

Quine, W.V.O. (1969) 'Existence and Quantification'. In W.V.O Quine, *Ontological Relativity and Other Essays*. New York, Columbia University Press: 91-113.

Quine, W.V.O. (1992) *Pursuit of Truth*. Harvard University Press.

Rabin, G. O. (2018) 'Grounding Orthodoxy and the Layered Conception'. In R. Bliss and G. Priest (eds.), *Reality and its Structure: Essays in Fundamentality*. Oxford University Press: 37-49.

Rami, A. (2009) 'Introduction: Truth and Truth-Making'. In E.J. Lowe & A. Rami (eds.) *Truth and Truth-Making*. Stocksfield: Acumen.

Raven, M. J. (2009) *Ontology, From a Fundamentalist Point of View*. Doctoral dissertation, New York University.

Raven, M. J. (2012) 'In Defence of Ground'. *Australasian Journal of Philosophy*, 90(4): 687-701.

Raven, M.J. (2013) 'Is Ground a Strict Partial Order?'. *American Philosophical Quarterly*, 50(2): 193-201.

Raven, M. J. (2015) 'Fundamentality Without Foundations'. *Philosophy and Phenomenological Research*, 93(3): 607-626.

Rayo, A. (2007) 'Ontological Commitment'. *Philosophy Compass*, 2(3): 428-444.

Read, S. (2000) 'Truthmaker and the Disjunction Thesis'. *Mind* 109: 67-79.

Restall, G. (1996) ‘Truthmakers, Entailment and Necessity’. *Australasian Journal of Philosophy*, 74: 331-340.

Rettler, B. (2016) 'The General Truthmaker View of Ontological Commitment'. *Philosophical Studies*, 173: 1405-1425.

Rettler, B. (2017) 'Grounds and "Grounds"'. *Canadian Journal of Philosophy*, 47(5): 631-655.

Rodriguez-Pereyra, G. (2002) Resemblance Nominalism: A Solution to the Problem of Universals. Oxford University Press.

Rodriguez-Pereyra, G. (2005) ‘Why Truthmakers’. In H. Beebee and J. Dodd (eds.), *Truthmakers: The Contemporary Debate*. Oxford University Press: 17-31.

Rodriguez-Pereyra, G. (2006a) 'Truthmaking, Entailment, and the Conjunction Thesis'. *Mind*, 115(460): 968-982.

Rodriguez-Pereyra, G. (2006b) 'Truthmakers'. *Philosophy Compass* 1/2: 186-200.

Rodriguez-Pereyra, G. (2015) 'Grounding is not a Strict Order'. *Journal of the American Philosophical Association*, 1(3): 517-534.

Rosen, G. (2010) 'Metaphysical Dependence: Grounding and Reduction'. In B. Hale and A. Hoffman (eds.), *Modality: Metaphysics, Logic, and Epistemology.* Oxford University Press: 109-136.

Ruben, D-H. (1990) *Explaining Explanation.* New York: Routledge.

Russell, B. (1919) 'The Philosophy of Logical Atomism'. *The Monist*, 29(3): 345-380.

Saenz, N. (2014) 'The World and Truth about What is Not'. *Philosophical Quarterly*, 64: 82-98.

Schaffer, J. (2003) ‘Is There a Fundamental Level?’. *Noûs*, 37(3): 498-517.

Schaffer, J. (2007) 'From Nihilism to Monism'. *Australasian Journal of Philosophy*, 85(2): 175-191.

Schaffer, J. (2008a) ‘Truthmaker Commitments’. *Philosophical Studies*, 141: 7-19.

Schaffer, J. (2008b) 'Truth and Fundamentality: On Merricks's *Truth and Ontology*'. *Philosophical Books*, 49(4): 302-316.

Schaffer, J. (2009) 'On What Grounds What'. In D. Chalmers, M. Manley and R. Wasserman (eds.), *Metametaphysics*. Oxford University Press: 347-383.

Schaffer, J. (2010a) 'Monism: The Priority of the Whole'. *Philosophical Review* 119(1): 31-76.

Schaffer, J. (2010b) 'The Least Discerning and Most Promiscuous Truthmaker'. *The Philosophical Quarterly* 60: 307-324.

Schaffer, J. (2012) 'Grounding, Transitivity, and Contrastivity'. In F. Correia and B. Schnieder (eds.), *Metaphysical Grounding: Understanding the Structure of Reality*. Cambridge University Press: 122-138.

Schaffer, J. (2017) 'Social Construction as Grounding'. *Philosophical Studies*, 174: 2449-2465.

Schaffer, J. (MS) 'Heavy Ontology, Light Ideology'.

Schipper, A. (2019) 'Fundamental Truthmakers and Non-Fundamental Truths'. Forthcoming in *Synthese.*

Schulte, P. (2011a) 'Can Truthmaker Theorists Claim Ontological Free Lunches?'. *European Journal of Philosophy* 22(2): 249-268.

Schulte, P. (2011b) 'Truthmakers: A Tale of Two Explanatory Projects'. *Synthese* 181: 413-431.

Schnieder, B. (2006) 'Truth-making Without Truth-makers'. *Synthese* 151(1): 21-46.

Schnieder, B. (2011) 'A Logic for "Because"'. *Review of Symbolic Logic* 4(3): 445-465.

Sider, T. (2001) Four-Dimensionalism: An Ontology of Persistence and Time. Oxford University Press.

Sider, T. (2007a) 'Neo-Fregeanism and Quantifier Variance'. *Proceedings of the Aristotelian Society* 81: 201-232.

Sider, T. (2007b) 'Parthood'. *The Philosophical Review* 116: 51-91.

Sider, T. (2009) ‘Ontological Realism’. In D. Chalmers, M. Manley and R. Wasserman (eds.), *Metametaphysics*. Oxford University Press: 384-423.

Sider, T. (2011) *Writing the Book of the World.* Oxford University Press.

Sider, T. (2013a) ‘Against Parthood’. In K. Bennett and D. Zimmerman (eds.), *Oxford Studies in Metaphysics, Volume 8*. Oxford University Press.

Sider, T. (2013b) 'Symposium on *Writing the Book of the World*'. *Analysis* 73(4): 751-770.

Sider, T. (2014) 'Hirsch's Attack on Ontologese'. *Noûs*, 48: 565-572.

Soames, S. (2009) 'Ontology, Analyticity, and Meaning: The Quine-Carnap Dispute'. In D. Chalmers, D. Manley, and R. Wasserman (eds.), *Metametaphysics*. Oxford University Press: 424-443.

Tahko, T. (2013) 'Truth-Grounding and Transitivity'. *Thought: A Journal of Philosophy* 2(4): 332-340.

Tahko, T. (2014) ‘Boring Infinite Descent’. *Metaphilosophy* 45(2): 257-269.

Tahko, T. (2018) 'Fundamentality'. In E. Zalta (ed.) *The Stanford Encyclopaedia of Philosophy.*

Tallant, J. (2011). *Metaphysics: An Introduction*. London: Continuum.

Thomasson, A. (2007) *Ordinary Objects.* Oxford University Press.

Thomasson, A. (2009) 'Answerable and Unanswerable Questions'. In D. Chalmers, M. Manley and R. Wasserman (eds.), *Metametaphysics*. Oxford University Press: 444-471.

Thomasson, A. (2015) *Ontology Made Easy.* Oxford University Press.

Thomasson, A. (MS) 'Truthmakers and the Project of Ontology'.

Trogdon, K. (2013) ‘An Introduction to Grounding’. In M. Hoeltje, B. Schnieder and A. Steinberg (eds.), *Varieties of Dependence: Grounding, Supervenience, Response-Dependence*. Munich: Philosophia-Verlag: 97-122.

Turner, J. (2010) 'Ontological Pluralism'. *The Journal of Philosophy* 107: 5-34.

Turner, J. (2016) 'Curbing Enthusiasm About Grounding'. *Philosophical Perspectives* 30(1): 366-396.

Uzquiano, G. (2004) 'Plurals and Simples'. *The Monist*, 87: 429-451.

Van Inwagen, P. (1990) *Material Beings*. Ithaca, New York: Cornell University Press.

Van Inwagen, P. (1998) 'Meta-Ontology'. *Erkenntnis*, 48: 233-250.

Van Inwagen, P. (2004) 'A Theory of Properties'. in D. Zimmerman (ed.), *Oxford Studies in Metaphysics*, *Vol. 1*. Oxford University Press: 107-138.

Van Inwagen, P. (2005) 'Existence, Ontological Commitment, and Fictional Entities'. In M. Loux and D. Zimmerman (eds.), *The Oxford Handbook of Metaphysics*. Oxford University Press: 131-158.

Van Inwagen, P. (2009) 'Being, Existence, and Ontological Commitment'. In D. Chalmers, M. Manley and R. Wasserman (eds.), *Metametaphysics*. Oxford University Press: 472-506.

Von Solodkoff, T. (2012) 'Straightening Priority Out'. *Philosophical Studies* 161(3): 391-401.

Von Solodkoff, T. (2014) 'Paraphrase Strategies in Metaphysics'. *Philosophy Compass* 9(8): 570-582.

Von Solodkoff, T. and Woodward, R. (2013) 'Noneism, Ontology, and Fundamentality'. *Philosophy and Phenomenological Research* 87(3): 558-583.

Williams, J.R.G. (2007) 'Eligibility and Inscrutability'. *The Philosophical Review* 116: 361-399.

Williams, J.R.G. (2010) ‘Fundamental and Derivative Truths’. *Mind*, 119: 103-141.

Williams, J.R.G. (2012) 'Requirements on Reality'. In F. Correia and B. Schnieder (eds.), *Metaphysical Grounding: Understanding the Structure of Reality*. Cambridge University Press: 165-185.