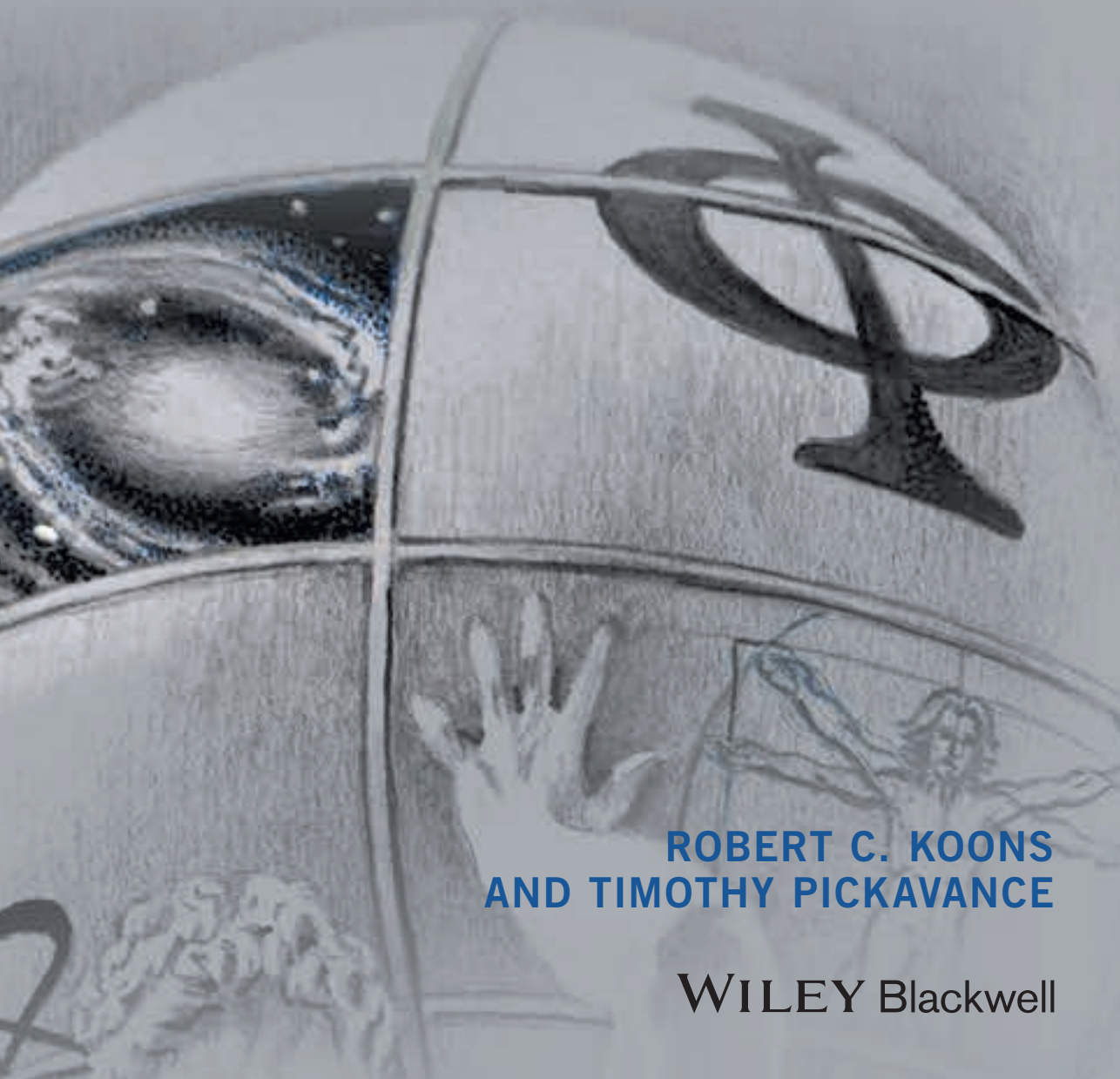


The Atlas of **REALITY**

A Comprehensive Guide to **METAPHYSICS**



**ROBERT C. KOONS
AND TIMOTHY PICKAVANCE**

WILEY Blackwell

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Robert C. Koons and Timothy H. Pickavance

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To our children, Emily, Betsy, and Ben Koons, and Lyle
and Gretchen Pickavance.

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Part I

Foundations

Introduction

Metaphysics, or first philosophy, is that branch of philosophy concerned with the nature of reality in its most fundamental aspects: existence, the part/whole relation, space, time, causality, possibility and necessity, similarity and dissimilarity. It includes ontology, the study of what exists, as well as the investigation of the most general features of reality. Metaphysicians seek to understand the real structure and the unity of the world and to catalog the ways in which its parts relate to each other.

In this chapter, we begin with a short history of metaphysics (1.1), followed by a discussion of some reasons why metaphysics matters (1.2). We conclude with some guidance about how best to use this book (1.3).

1.1 A Brief History of Metaphysics

Metaphysics is the oldest branch of philosophy. The early, pre-Socratic philosophers of Ionia (off the coast of Turkey) and southern Italy proposed theories about the universal nature of things and about change and the explanations of change. Many of the early philosophers, including Empedocles (c. 490–430 BC) and Democritus (c. 460–370 BC), approached these questions from a materialistic point of view, assuming that wisdom comes primarily from understanding what things are made of. In the fourth century BC, the great Greek philosopher Plato (428/427 or 424/423–348/347 BC) developed a theory of “forms” as a deep explanation for what makes things of a kind similar to each other, as an alternative to the earlier materialism. Plato’s student, Aristotle (384–322 BC), built upon the work of all of his predecessors in creating the first comprehensive and systematic metaphysical theory in a work that acquired (for the first time) the title *Metaphysics*. Aristotle describes his subject as “primary” or “first” philosophy and as the study of being as such. Aristotle examined the nature of change and of powers to change, and he built

a theory of categories to use in classifying all of the constituents of reality. Like Plato, Aristotle rejected simple materialism and emphasized the qualitative and holistic features of the world, especially of living organisms.

Both Plato and Aristotle founded schools of philosophy, and their students and their students' students extended their philosophical work over many generations. During the Hellenistic period (between the conquests of Alexander and the rise of Rome), three additional major schools of philosophy appeared—the Stoics, the Epicureans, and the Skeptics. Both the Stoics and Epicureans revived a more materialistic approach to understanding life and human action. During the Hellenistic and Roman periods, such metaphysical investigations continued, but gradually attention turned to ethics, politics, and the theory of knowledge (epistemology). The problem of defending the very possibility of knowledge against the challenge of the Skeptics became a major preoccupation, and Plato's Academy began to defend (at least in public) a moderate form of skepticism.

In Late Antiquity and the Middle Ages, philosophical work in the Mediterranean basin and in Europe fell predominantly into the hands of Christians, Jews, and Muslims, and during this period philosophers returned to metaphysics as their central focus. Aristotle's influence grew, as more of his work was translated and commented upon in both Arabic and Latin. The resulting philosophical movement, known as 'scholasticism,' achieved the status of being the consensus view for many hundreds of years.

This consensus began to dissolve in the seventeenth and eighteenth centuries, as a result of the success of modern science, which returned in important respects to the materialism of Democritus and the Epicureans. At the same time, the French philosopher René Descartes (1596–1650) re-introduced a fixation on the problem of refuting the skeptics. Descartes recommended answering the skeptics by turning inward, building the foundations of science and philosophy firmly upon the indubitable contents of one's own mind and experience. This inward or subjective turn profoundly affected the course of metaphysics for hundreds of years, leading to the dominance of various forms of *idealism*, according to which all of reality is fundamentally mental or experiential in character.

In the early twentieth century, a number of philosophers began turning away from idealism and from any attempt to build an indubitable foundation for knowledge that would be immune to the challenge of the skeptic. The British philosopher G.E. Moore (1873–1958) argued that our ordinary knowledge of the world is rationally more secure than any skeptical challenge. Ludwig Wittgenstein (1889–1951), an Austrian who made his career in England, pointed out that doubt stands in no less need of justification than does belief. Wittgenstein concluded that skeptical doubts lacked adequate justification. Many philosophers, in Britain, the United States, and continental Europe, argued that science requires no foundation other than that provided by ordinary observations, which embody knowledge about our physical environment. Thus, philosophy began to turn outward again, in a way that supported the revival of more traditional approaches to metaphysics—materialistic, Platonic, and Aristotelian or scholastic.

For a brief period at the end of the nineteenth century and beginning of the twentieth century, metaphysics fell out of favor among philosophers. Some (such as Friedrich Nietzsche (1844–1900), Karl Marx (1818–1883), William James (1842–1910), and Søren Kierkegaard (1813–1855)), because of theories in psychology and cultural studies, raised

doubts about the ability of the metaphysician to escape the prejudices and interests of one's class and time or the idiosyncratic influence of one's personal constitution. Others (such as those in the Vienna Circle and Ludwig Wittgenstein) embraced an extreme empiricism, arguing that all meaningful assertions must be directly verifiable or falsifiable by the senses, a standard which relegated metaphysical theory to the category of the nonsensical. Yet another group limited the task of the philosopher to analyzing the underlying grammar and logic of ordinary language.

But the middle of the twentieth century witnessed one of the most remarkable rebirths in Western philosophy: a dramatic renaissance of interest in pure metaphysical theory. The impetus for this revival came in part from circles that had once been hostile to the metaphysical enterprise and in part from philosophers working within older traditions that had survived despite that hostility. Some philosophers of physics found themselves inquiring into the structure of space, time, and causation in ways that revived ancient debates. Some who had studied the logical structure of ordinary language found that they could not avoid questions about ontology—questions about which sorts of things really exist. Others returned to the Aristotelian and scholastic traditions that had survived. Significant circles of metaphysical research began in the 1940s in Australia, at Oxford and Cambridge, and at Harvard. Logical research that had dominated philosophy in the early twentieth century matured naturally into metaphysical investigations into the nature of possibility and necessity and of time. By the early twenty-first century, metaphysics had reclaimed its place at the very center of philosophy.

1.2 Why Do Metaphysics?

The practice of metaphysics is controversial within philosophy itself. This controversy stems from two primary sources: skepticism and pragmatism. Anti-metaphysical skeptics question whether it is possible to reach knowledge or even reasonable opinion about metaphysical questions. Our response to the skeptic is simply that the proof is in the pudding. The best rebuttal of those who claim that metaphysics is impossible is simply to do it.

The pragmatic challenge to metaphysics is perhaps even more widespread. Even if metaphysics is possible, the pragmatist asks, why is it important? There are many more urgent philosophical questions, questions about ethics and politics (the good and the right), and questions of epistemology (what do we know, and how do we know it?).

Our response to the pragmatist is twofold. First, we would argue, with Aristotle, that philosophy begins with a sense of wonder and curiosity about the world, a wonder and a curiosity that inevitably led to puzzling over the metaphysical questions: what sorts of things really exist, and how do these things relate to one another? Much of what we do in science and scholarship generally is motivated by pure curiosity about our selves and our world. Not everything can be evaluated in terms of cash value.

Second, metaphysical questions are relevant to other questions, both in value theory and in epistemology and philosophy of science, as we will argue in this chapter. Even when philosophy is primarily engaged in ethical or epistemological reflection, the issues of metaphysics cannot be avoided.

1.2.1 Fatalism and alternative possibilities

The making of decisions is a characteristic feature of human life. Much of our time is consumed in considering and deliberating about what to do, and our emotions are much engaged with questions of the correctness of our past, present, and future choices. The practice of making choices seems to presuppose that the future could take any one of many alternative courses, and that which course it takes is to some extent up to each of us. This presupposition is metaphysical in nature. Suppose that we inhabit the one and only one possible world—that is, suppose that nothing has happened in the past or could happen in the future other than the one way in which things must, of necessity, unfold. On such a fatalistic picture, human decision-making would seem to be pointless and devoid of significance.

If the future is indeed open, this fact would raise further metaphysical questions. How and why is the future open in a way that the past is not? Why does it make sense to deliberate about what to do in the future, but not to deliberate about what to have done in the past? What does the direction of time consist in, and how do we know which direction is which? What does it mean to say that something is possible, impossible or necessary? Are there merely possible things that do not actually exist, but might have existed? These are questions in the area of metaphysics known as *modality*. The underpinnings of modality, dispositions and powers, are discussed in Part II, on dispositions (Chapters 4–6). We turn to the questions of modality proper in Part V, Chapters 14–16.

1.2.2 Causation: rights, responsibilities, and knowledge

The practices of deliberation and decision-making also seem to presuppose that we have some kind of influence over future events: that we can, in some cases, cause things to happen or prevent their occurrence. If there were no such causation, then, even if the future were open to many alternatives, much of our deliberating would be pointless, since none of our actions would have consequences. Perhaps things just happen, for no reason whatsoever. Is the impression we have that some things cause other things a mere illusion?

If none of our actions or decisions had consequences, this would have radical implications for our understanding of our moral responsibility. We generally take care to ensure that our actions do not impinge, without adequate justification, on the rights and welfare of others. Whenever we do harm others, we think of ourselves as being under burdens of guilt, remorse, and the obligation to make amends and to compensate our victims. Conversely, we believe that choosing to benefit others creates some reciprocal responsibilities of gratitude and thanksgiving. Without cause and effect, all of these practices would be rendered unintelligible. The nitty-gritty details of causation matter morally. For example, are we morally responsible for the consequences of our omissions? Can omissions have consequences?

Since Edmund Gettier's famous paper (Gettier 1963), most philosophers have accepted that there is a difference between knowledge and justified or reasonably held true belief—knowledge involves some real and non-accidental connection between the act of knowledge and the thing known. In most cases, this connection seems to involve causation:

our sense experience, for example, must be influenced by the features of the object being sensed if it is to constitute perceptual knowledge.

We deal with causation in Part VIII, Chapters 26–28.

1.2.3 The foundations of science: laws, space, and time

Some prominent scientists have expressed skepticism about the value and the very possibility of metaphysics, in light of the robust success of the natural sciences. Given the coherent and well-supported account of the world provided by modern physics and cosmology, what is the point of indulging in the archaic practice of metaphysical speculation and argumentation, a practice which provides little evidence of secure forward progress?

However, the very success of modern science itself presses forward certain metaphysical questions. What are the laws of nature that play so prominent a role in modern physics? Are those laws of nature necessary or contingent? Can they themselves be explained by more fundamental facts or are they the rock bottom? David Armstrong (1983, 1993) and Fred Dretske (1977) have argued that an adequate understanding of the laws of nature must consider them to involve objective relations between *universals* (natural properties like mass and charge). Others (Ramsey 1928/1978, Lewis 1973a), following in the tradition of Scottish philosopher David Hume (1711–1776), argue to the contrary that laws consist merely in certain kinds of regularities among particular facts. We consider various theories about the laws of nature in Chapters 4 and 5.

Moreover, the description of reality current in physics is often incomplete or indeterminate with respect to certain unavoidable questions. Are space and time infinitely divisible or are they made up of very small, indivisible units? Are there absolutely fundamental units of matter (electrons, quarks, or whatever) or is every kind of material thing decomposable into still smaller units? Does time itself have an absolute beginning or end? Could the universe be infinite in extent? Are the distinctions between past, present, and future of absolute significance or do they have meaning only in relation to a particular location in space and time or a particular relative velocity? Scientific theories do not typically entail answers to these questions, and yet it seems that, if the world is as science describes it, such questions must have answers. It is the vocation of the metaphysician to tackle such questions as these. We consider these foundational questions about space and time in Part VI, Chapters 17–21.

1.2.4 Mind and body

Modern physics has been apparently quite successful in telling us about the fundamental building blocks of matter: electrons, photons, quarks, and all of the associated fields and forces (nuclear, electromagnetic, and gravitational). Human beings and the most characteristic features of our experience and action—conscious experience, feelings and emotions, our sense of free will and agency, the normative standards of reasonableness and morality—play no role in the physicist’s “complete” description of the world. This raises a host of questions about the relationship between what the American philosopher Wilfrid Sellars (1912–1989) called the “manifest image of the world” and its “scientific

image". (Sellars 1962). Do the personal states of conscious experience, thought, decision, and intention pull any weight in explaining the actual course of events or are they all merely *epiphenomena*, a colorful decoration of a reality that is fully determined (insofar as it is determined at all) by the micro-physical facts? Do the special properties of consciousness somehow "emerge" from the underlying physical facts, introducing some genuine novelty, some "addition of being"? The relation between mind and body arises in two contexts in this book: in Chapter 13 (on idealism and the nature of perception), and in Chapters 22 and 25, on composite things (like persons and sentient organisms).

Many of these questions fall within the scope of the philosophy of mind, but answers to these questions often depend upon prior answers to purely metaphysical questions. If certain events can be accurately described in human terms (psychological and social—normative and rational), what must reality be like in its most fundamental aspects to make these higher level descriptions true? What does it take for complex entities to exist and to have real properties or features? What are properties and features, and what is it for something to *have* them? Is this merely a linguistic matter, a matter of how we describe things or how they appear to us or is the having of properties part of the fundamental constitution of things? The nature of properties is the subject of Chapters 7 and 8.

1.2.5 Personal identity and persistence

Are there large, complex, and enduring things or is everything microscopic and fleeting in existence? This classical question of metaphysics has great import in our everyday lives since we ourselves, we human beings, are, if we exist at all, large, complex, and enduring things. If the world consists only of subatomic particles or instantaneous events, then we are all mere fictions or illusions. This of course raises the question: if we are illusions, who is deluded? Are we human beings dreams dreamt by protons and electrons? The ancient African thinker Augustine of Hippo (354–430) and Descartes argued that it is impossible for each of us to be deceived in thinking that he or she exists, since, in order to be deceived, we must first exist.

Further, the unreality of human persons would have profound implications for our lives, since much of what we value in life consists in the qualities of our relationships to other persons. We care about the endurance and maturing of our friendships over time, but this concern would have no real object if human persons themselves never endure beyond a single instant, if what we popularly call a 'person' is merely a chain of ephemeral entities.

The foundations for an account of persons and personal identity are laid, first of all, in Chapter 8 on particulars. Since persons and other organisms are apparently complex things, with many material parts, Chapters 22 and 23 (on Composition) are essential to understanding how such composite things can exist. The question of personal identity through time is a special case of persistence, the subject of Chapter 25.

The set of fundamental truths provides us with a complete description of the world in terms of the most basic, irreducible facts. Derived truths can be derived from the set of fundamental truths by means of logic and ontological definitions, definitions specifying in terms of the arrangements of fundamental entities what the existence of derived entities consists in. For example, suppose that tables are not fundamental entities. Then all

truths about tables would be derivable from the fundamental truths—say, truths about the arrangements of bits of wood—given a suitable definition of what it is for some bits of wood to constitute a table. A fundamental thing is something mentioned or referred to in some fundamental truths; derived things show up only in connection to derived truths. We examine the nature of grounding and fundamentality in Chapter 3.

1.3 How to Use the Book

THE TABLE OF METAPHYSICAL THESES AND ANTITHESES We intend in this book to explore, as completely as possible, the “logical space” of metaphysics: to say at least something about every possible theory on the important questions in metaphysics. We try to present the best arguments for and against each position, as fairly and impartially as we can. Undoubtedly, the careful reader will be able to detect that our own sympathies lie in a broadly Aristotelian region, but we hope that those with more Humean or Platonic sympathies will find little or no grounds for complaint.

We’ve used a unique method of labeling our theses and antitheses in order to represent perspicuously this ongoing ambition. We have listed all of the theses and antitheses of the book (along with the necessary definitions of technical terms) in Appendix A. The theses are numbered first by chapter: so, thesis 3.1T is the first thesis to be considered in Chapter 3. The negation of 3.1T is labeled ‘3.1A,’ with the letter ‘A’ indicating that it is the antithesis of the thesis 3.1T. Thesis 3.2T is the second major thesis considered in Chapter 3, and 3.2A is its antithesis.

Metaphysical theories that adopt a particular position on one of the theses or antitheses can often be usefully subdivided, depending upon the stance that they take on some subsidiary issue. So, for example, the antithesis 13.3A, perceptual realism, is divided into two sub-theories: indirect realism (13.3A.1T) and its antithesis, direct realism (13.3A.1A). Direct realism is further subdivided into perceptual dualism (13.3A.1A.1T) and unitary direct realism (13.3A.1A.1A):

13.3A Perceptual Realism.

13.3A.1T Indirect Realism.

13.3A.1A Direct Realism.

13.3A.1A.1T Perceptual Dualism.

13.3A.1A.1A Unitary Direct Realism.

In other cases, the metaphysical theories that share a common commitment cannot be simply divided in a binary way, based on their position on some one subsidiary issue. Instead, there may be three or more different ways of making a given position more determinate. In those cases, we follow the name of a thesis with a period and a numeral (1, 2, 3, or 4), without adding any additional T’s or A’s. For example, we break down Reductive Nominalism (8.1T) into four sub-theories:

8.1T.1 Predicate Nominalism

8.1T.2 Concept Nominalism

8.1T.3 Class Nominalism

8.1T.4 Resemblance Nominalism

THE TABLE OF METAPHYSICAL PRINCIPLES A second ambition that we have for the book is to keep track with great care the metaphysical first principles that we appeal to in developing arguments for or against a particular position. We have listed all of the metaphysical principles that appear in more than one section of the book in Appendix B. The principles are divided into six major categories: principles of methodology (PMeth 1 through 4), principles of knowledge or epistemology (PEpist 1 through 5), principles of truth (PTruth 1 and 2), principles of metaphysics (PMeta 1 through 6), principles of natural philosophy (PNatPhil 1 and 2), and axioms of mereology, the formal theory of parts and wholes (MA 1 through 6), for a grand total of 25 principles. Some of the principles take more than one form or are associated with a number of corollaries. The first principle of methodology, Ockham's Razor, has six corollaries (and one addendum), while the second principle, scientific realism, takes two distinct forms, objectivity (PMeth 2.1) and reliability (PMeth 2.2).

There are also a number of other first principles that occur only once in the text: these are always given a name (distinguished by boldface type). Chapter 29, the final chapter, includes a table in which the principles appealed to by each of four philosophical "packages" are listed. The four packages, Aristotelian, Ludovician (for David Lewis), Fortibrachian (for David Armstrong), and Flatlander (for Quine, Chisholm, Plantinga, and van Inwagen), represent bundles of philosophical theses and antitheses that cohere together naturally in terms of their rationales and methodological commitments, as the table helps to reveal.

THE ORGANIZATION OF THE BOOK This book is divided into eight parts, with a total of 29 chapters. The first three chapters, including this one, are introductory in character. Chapters 2 and 3 introduce the two notions of *truthmaking* and of *grounding*, ideas that lie at the heart of a significant number of metaphysical projects. They can be skipped by those who are willing to plunge into the project of positive metaphysics, armed only with an intuitive grasp of such notions as something's making a proposition true, or of one truth holding in virtue of or wholly grounded by another. The chapters provide useful details about the methodological foundations of much of the rest of the text.

Part II comprises three chapters, each developing an account of dispositions: conditionals (Chapter 4), laws of nature (Chapter 5), and intrinsic powers (Chapter 6). This part is really foundational for the rest of the book and cannot be omitted.

After completing Chapter 6, the reader can take a number of different paths. Part III, on universals and particulars, is largely independent of the rest of the book, as is Part IV, on the scope of existence and the question of idealism. Parts V and VI, on modality (possibility and necessity) and space and time, are highly interdependent and should ideally be read as a unity. The final two parts, VII (on the unity of things) and VIII (on causation), depend on much of what has gone before them and should be read at the end, as should the conclusion, Chapter 29.

We have also written a much shorter introduction to metaphysics, *Metaphysics: The Fundamentals* (Wiley-Blackwell 2015), which could serve very well as an introduction and orientation to this volume. In almost every case where there is overlap between the two volumes, we go into more detail and consider more theoretical alternatives in this volume. Our discussions in Part IV and of the structure of space and the nature of causation are almost entirely without precedent in the earlier work. *Metaphysics: The*

Fundamentals contains a final chapter (“The Concluding Unmetaphysical Postscript”) in which we defend metaphysics against various skeptical challenges. We assume, in this volume, that our reader has already exorcised such skeptical demons.

To return to the organization of this volume, in Part III, we turn to four chapters on the ancient problems of universals and particulars. Chapter 7 includes our treatment of the arguments for and against the existence of *universals*—things that are common to things that are similar to one another. Chapter 8 examines the alternative view of Nominalism, according to which everything real is particular and unshareable, including the form of Nominalism that posits individualized properties or *tropes*. In Chapter 9, we consider the internal constitution of ordinary things and the ways in which they can be distinguished from one another. We take up the special case of relational and quantitative properties in Chapter 10.

Part IV includes three chapters in which we consider theories about the nature of reality as a whole. We look first (in Chapter 11) to the question of how many things exist: none, one or more than one? Then, we consider (in Chapter 12) the place in reality of the non-existent, the merely possible, and the impossible. Finally, we examine (in Chapter 13) the case for supposing that all of reality is fundamentally mental or *ideal* by looking carefully at the structure of human sense perception.

In Part V, we take up the questions of *modality*: necessity, possibility, contingency, and actuality. Chapter 14 contains our treatment of David Lewis’s theory of possible worlds as concrete, material universes. In Chapter 15, we examine the opposing view, according to which possible worlds are abstract representations, properties or states of affairs. Chapter 16 concerns the problems of *de re* possibility, the realm of possibility that concerns the potentialities of particular things rather than of the whole world, and of our knowledge of modality.

We deal in Part VI with the nature of space and time, with two chapters devoted to space and three to time. In Chapter 17, we consider whether space is a thing in its own right or whether it consists merely in the holding of spatial relations between bodies. We look in Chapter 18 at the structure of space: whether it consists fundamentally in dimensionless points or in extended regions. In Chapter 19, we ask similar questions about the structure of time: does it consist primarily of durationless instants or in extended periods? Chapters 20 and 21 concern two competing theories about the flow or passage of time, the A and B Theories. According to the A Theory, the differences between past, present, and future are absolute and fundamental, while for the B Theory the differences consist entirely in differences in one’s perspective from within time.

In Part VII, we take up the question of the unity of things, both at one time and through time. Chapters 22 and 23 concern the unity of composite things, things made up at a single time of many distinct parts. When do things make up a single whole (Chapter 22), and what is it for them to do so (Chapter 23)? The next two chapters concern the unity of things that persist through change and time. We take up the nature of change in Chapter 24 and the nature of those things that persist through change in Chapter 25.

The final part, Part VIII, concerns the metaphysical problems of causation. In Chapter 26, we consider the question of whether causation exists at all. Assuming there is such a thing as causation, we must then consider what things does causation relate: truths or concrete events? Is it a relation between existing things or merely a logical relation between truths (Chapter 27)? Finally, we examine the relations between causation and

time in Chapter 28. How do earlier events influence later ones: by a direct connection across time, or by being part of a single, temporally extended process?

The book concludes with Chapter 29, in which we describe the four competing philosophical packages that have emerged in the course of the rest of the work.

Importantly, the reader should be aware that the divisions in the book are not meant to demarcate disconnected sub-fields of metaphysics, but are rather helpful divisions that make the metaphysical task a bit more manageable. One's views in one area can impact one's views in another; we do our best to make those connections clear when they are especially important. Further, and maybe more importantly, there are rarely if ever deductive arguments with unassailable premises for or against a metaphysical position. What one is faced with, rather, is a stock of evidence that one must weigh in order to form a considered opinion. Therefore, one must not only think about the evidence for and against a particular system but also make comparative judgments about which system does best on the evidence taken together. This is very difficult to do well, especially in light of the explosion of activity in metaphysics in recent years, and the interconnectiveness of the various regions in that sprawl.

There are two important consequences of this picture of metaphysics. First, the reader who has yet to form views in one or another area would do well to abstain from forming an opinion in that area until she has fully digested the connections to other areas and the strengths and weaknesses of views there. And second, despite the length of this book, we have been unable to carry every dispute to its furthest boundaries. We truncate the journey, sometimes by a good deal, in almost every direction. For those readers committed to a view that is underexplored or shortchanged, we ask your forgiveness.

Truthmakers

2.1 Introduction

Metaphysics is at least an attempt to build a theory that makes sense of many of the more abstract and general features of reality. Metaphysicians try to understand which things are fundamental, those things' natures, and the fundamental ways those things relate to one another. But where does one start such an endeavor?

There is no generally accepted answer to that question, and so we start with a mundane yet fruitful observation: we say and write lots of *truth-evaluable* things. That is, we say and write things that have a truth-value, usually if not always either True or False. We can and regularly *do* say all sorts of true things. We also can and regularly do say all sorts of false things. Putting these two together, we can note that 'Grass is green', 'Some trees are over one hundred feet tall', 'Two plus two is five', 'Kicking puppies for no reason at all is morally good', and 'Either the Triune God of Christianity exists or he doesn't' are all either true or false.

We can take this mundane observation, however, and put it to work. Philosophers have long argued about how to understand the nature of truth; that is, they have argued about how it is that a sentence comes out true or false. Here is how Aristotle put it in his *Metaphysics*:

[Thus] we define what the true and the false are. To say of what is that it is not, or of what is not that it is, is false, while to say of what is that it is, and of what is not that it is not, is true.
Metaphysics 1011b25–8 (Aristotle 1984: 1597)

Aristotle might naturally be taken to be suggesting that a sentence is true whenever the world is the way that the sentence says it is. The sentence 'Grass is green' is true, according to this suggestion, if and only if grass really is green. Any view of truth that incorporates this suggestion as a central feature is a *Correspondence Theory of Truth*. A

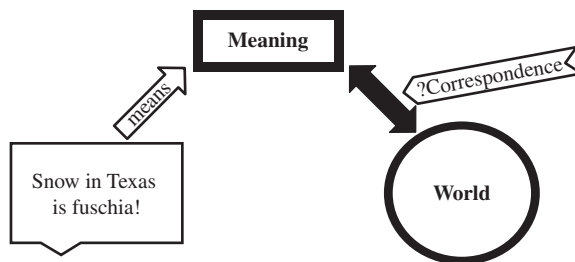


Figure 2.1 The Correspondence Relation

Correspondence Theory is one that claims a sentence is true if and only there is a match, a correspondence, between what a sentence says and the world. Different Correspondence Theories are distinguished by their respective takes on what “matching” or “correspondence” consists in.

There are two sides to this simple correspondence story. We can picture the view as in Figure 2.1.

The first side of the correspondence story involves the sentence and what it says about the world. The second side is the world itself. We’ll say a bit about the first side and then turn to a more sustained discussion of the second. In both cases, the task is to say something more careful and deep about the natures of the items on either side of such a correspondence relation.

2.1.1 Propositions

The first way that a discussion of truth gets one going in metaphysics is via its connection to *propositions*. Propositions, according to standard philosophical lore, are the meanings of (many, most, or all) assertoric (indicative) sentences and are the objects of belief and knowledge (and maybe other mental attitudes like desire). The idea is that a sentence token, say a token utterance of ‘Texas is super-duper’ expresses a proposition, that Texas is super-duper.¹ This proposition represents the world as being a certain way. (More on representation below.)

If the world is as the proposition represents the world as being, if Texas really is super-duper, then the proposition is true and, thereby, so is the sentence token that expressed it. The truth or falsity of a sentence token, on this view, is derivative of the truth or falsity of the proposition it expresses. Similarly, a token belief is a relation to a proposition that functions as the content of that belief, and again, that proposition represents the world as being a certain way. One might, for example, believe that Texas is super-duper or believe that Southern California is overcrowded. These beliefs are relations to the propositions that Texas is super-duper and that Southern California is overcrowded, respectively. As with sentences, beliefs are derivatively true or false in virtue of the truth or falsity of the propositions that are their contents.

Propositions are standardly taken to be both *non-linguistic* and *representational*. Indeed, these two features are crucial to propositions playing their characteristic roles in language and thought.

To motivate the idea that propositions must be *non-linguistic*, consider the possibility of not introducing propositions at all. You might think that sentences can do anything that propositions can do, like being the contents of language and thought and being the fundamental bearers of truth-value. If so, one could simply cut out the propositional middle man. However, there are two reasons why philosophers have thought it necessary to posit propositions in addition to sentences, and crucially, both reasons plausibly demand a non-linguistic object to serve as the content of language and thought. First, sentences in different languages can mean the same thing, and second, native speakers of different languages can share belief contents. Two people who speak different languages can express the same idea. For example, 'Grass is green' means in English just what 'L'herbe est verte' means in French. These two sentences express the same proposition. If this is the case in general, then sentences cannot themselves function as meanings because sentences are language-bound but meanings appear not to be. Similarly, two people who natively speak different languages can have thoughts with the same content. Consider a native English speaker who has a thought she would express with the sentence 'Grass is green' and a native French speaker who has a thought he would express with the sentence 'L'herbe est verte'. These two thoughts have the same content, the same meaning. For the same reason, therefore, sentences cannot function as the meanings of these thoughts because sentences are language-bound but contents appear not to be. In light of the inability of sentences to serve as meanings for sentences and contents for thoughts, philosophers often postulate propositions.

We can turn these two observations into reasons to think that propositions must be non-linguistic. Suppose that propositions, like sentences, were language-bound objects. If so, the English sentence 'Grass is green' would express an English-proposition, and the French sentence 'L'herbe est verte' would express a French-proposition. But that can't be right, for the same reason that sentences cannot function as meanings: these two sentences express the same proposition! Thus, for propositions to function as meanings, they must be non-linguistic.

In addition to being non-linguistic, propositions must *represent* the world. This is necessary in order to explain, for example, how it is that we have true and false beliefs and how it is that we say true and false things. Propositions have representational properties in virtue of which they can be accurate or inaccurate. These representational features are something like the representational features of a realist painting, drawing, or sculpture or like the representational features of a photograph. Insofar as an artist is attempting to mirror the features of the world in his or her art, the resulting piece can be evaluated for its accuracy. In a similar way, beliefs and sentences represent the world in virtue of their relationships to propositions. Beliefs are true or false because they have propositions as their content, propositions that represent the world accurately or not; the sentences we use are true or false because they express propositions that represent the world accurately or not. See Figures 2.2 and 2.3.

The representational features of propositions are plausibly different from the representational features of realist artwork and photographs, however, in at least two ways: (i) propositions represent what they do independently of the intentions of conscious agents, and (ii) propositions do not represent by being similar to that which is represented. One important metaphysical question that arises at this stage, then, is just how it is that propositions represent what they do. Another metaphysical question arises as well:

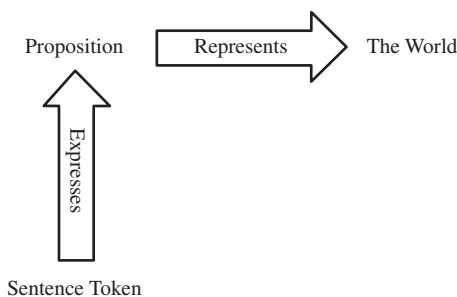


Figure 2.2 Propositions as Contents of Sentence Tokens

what, exactly, *are* propositions? So far, we have identified two features of propositions that constrain what sort of thing a proposition could be. They must be non-linguistic and representational. Further, we have given propositions two roles to play, namely, being the meanings of (at least many) assertoric sentences and the contents of belief (and other mental attitudes).² But this leaves open the question of what sort of non-linguistic, representational thing propositions are. These two questions are importantly interrelated. By answering the second one may find that one has arrived at, or anyway constrained the possibilities regarding an answer to the first.

Philosophers have taken a number of views about the true nature of propositions. Some claim they are fundamental abstract objects. Among those who take this view, some maintain that propositions have no internal structure and have primitive representational features, while others maintain that propositions have some sort of quasi-linguistic structure and represent what they do because of this structure. Others claim that propositions are certain sorts of fact in the world, like facts about which objects have which features or which objects are related to which other objects or facts about objects and features of objects in combination with facts about some language or other. Still others claim that propositions are just arbitrary classes of “possible worlds.” (We discuss possible worlds in Chapters 14–16.) There are pluses and minuses to each of these views of propositions, and unfortunately we do not have the space to discuss them in detail here. Happily, which view of propositions one takes will not have a substantial impact on how our discussion proceeds from this point forward; we simply want to flag these issues and suggest that the interested reader take up these interesting questions for him- or herself.

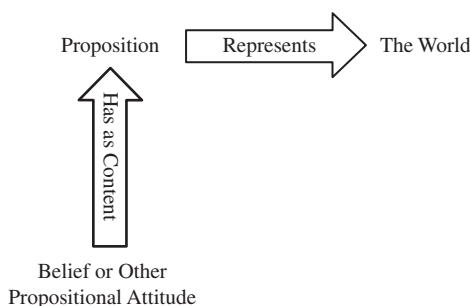


Figure 2.3 Propositions as Contents of Attitude States

To wrap things up, we can articulate a simple and basic theory of propositions. Propositions are:

- 1 Abstract (immaterial, not located in space or time).
- 2 Capable of being true or false.
- 3 Capable of being believed, doubted, considered or assumed.
- 4 Capable of being expressed by simple indicative statements.
- 5 Things that stand in various logical or quasi-syntactic relations to other propositions: e.g., each proposition has a unique negation; two propositions have a conjunction, etc.
- 6 Things that contain one or more *concepts*, either individual or general, where concepts are also abstract things that stand in some sort of intentional relation (a relation of representation or *aboutness*) to some particular thing, general property or class of things.

This theory leaves much about the exact nature of propositions up for grabs, but articulates certain crucial features of propositions that any adequate theory must accommodate.

2.1.2 Truthmakers

What can we say about the world side of the correspondence story? The central question concerns what propositions must correspond to in order to be true. It seems fairly clear that we shouldn't say that a proposition must correspond to the *whole* of the world in order to be true. Consider the proposition that grass is green. It shouldn't take the whole world for that proposition to come out true!

There was a tradition in metaphysics during the nineteenth century, however, that would claim that in an important sense every truth was necessarily connected to every truth. These British Idealists and Hegelians believed the world was a single, interconnected, inseparable whole. That is, these philosophers were *holists*. Holists maintain that the interconnection of the world is so pervasive that if one truly understands one part of reality, one thereby understands the whole of reality. Because of this interconnectedness, any sentence must correspond to the whole world in order to be true.

The early part of the twentieth century saw a strong reaction against holism, led prominently by Bertrand Russell and Ludwig Wittgenstein. These philosophers argued that holism failed to conform to common sense and to our best scientific practices and that there must be a set of fundamental, logically independent facts, the "logical atoms." Two facts *a* and *b* are logically independent if and only if all four of the following are possible: (i) *a* and *b* both exist, (ii) neither *a* nor *b* exists, (iii) *a* exists but *b* doesn't, and (iv) *b* exists but *a* doesn't. Logical atoms, according to logical atomists, were the proper parts of the world to which propositions must correspond in order to be true. Supposing, for example, that grass's being green is a logical atom, the proposition that grass is green is true because it corresponds to the logical atom of grass's being green. Further, and unlike holists, logical atomists would say that the fact that grass is green is utterly independent and distinct from the fact that the sky is blue, and thus that the proposition that the sky is blue need not correspond to the fact that grass is green in order to be true.

Logical atomists like Russell and Wittgenstein, as well as other philosophers like G.E. Moore, further developed the Correspondence Theory of Truth by asserting that facts are what *make* propositions true. In so doing, they built on an idea first expressed by Aristotle in his *Categories*:

[I]f there is a man, the statement whereby we say that there is a man is true, and reciprocally—since if the statement whereby we say that there is a man is true, there is a man. And whereas the true statement is in no way the cause of the actual thing's existence, the actual thing does seem in some way the cause of the statement's being true: it is because the actual thing exists or does not that the statement is called true or false." (Aristotle, *Categories* 14b15–22; 1984: 22)³

Because the fact that grass is green is what makes the proposition that grass is green true, the fact that grass is green is a *truthmaker* for the proposition that grass is green.

Definition (Def) D2.1 Classical Truthmaker. A thing x is a (classical) *truthmaker* for proposition p if and only if (i) necessarily, if x exists, then p is true and (ii) necessarily, if x exists and p is true, then p is true at least in part in virtue of x 's existence.

The fact that grass is green seems to satisfy these constraints for being a truthmaker of the proposition that grass is green. It's necessarily the case that if the fact that grass is green exists, then the proposition that grass is green is true; thus (i) is satisfied. And it's necessarily true that the proposition that grass is green is true, at least in part, in virtue of the existence of the fact that grass is green; thus (ii) is satisfied. Similarly, the proposition that the University of Texas is the largest university in Texas is true whenever the fact that UT is the largest university in Texas exists, and it is true in virtue of the existence of that fact. (What, exactly, are facts? Good question. We take it up in Chapter 9.)

This truthmaking story is plausible as a way of working out the Correspondence Theory of Truth. Though we aren't interested at this point in the tug-of-war between holism and atomism that initiated the philosophical discussion of truthmakers, we are interested in truthmakers themselves. The remainder of this chapter is devoted to whether we ought to go in for truthmaker theory, how we ought to formulate truthmaker theory if we do go in for it, and what truthmakers might be.

Any view that believes there are things satisfying Def 2.1, that is, any view that believes in (classical) truthmakers, is a 'Classical Truthmaker Theory'.

2.1T Classical Truthmaker Theory. There are classical truthmakers for all truths or for some very large sub-classes of truths.

2.1A No Classical Truthmakers. There are few, if any, truths with classical truthmakers.

There are a number of varieties of Classical Truthmaker Theory, and we consider them below (Sections 2.4 and 2.5). Before we do that, we consider why we should believe in Classical Truthmaker Theory in the first place (Section 2.2), as well as a fundamental challenge to the very foundation of truthmaker theory: the *deflationary* theory of truth (Section 2.3).

If at the end of Section 2.3, you find Classical Truthmaker Theory convincing, or if you find the whole idea of truthmakers mysterious and unhelpful, then you need not consider the variations in Sections 2.4 and 2.5. If, in contrast, you find the basic motivation for truthmakers to be compelling but are unsatisfied with the Classical picture, then Sections 2.4 and 2.5 offer some useful alternatives. There is *Atomic Truthmaker Theory*, in which the truthmaker principle is applied only to the simplest truths, those that lack negation or any other logical connective. We also consider two more radical departures from Classical Truthmaker Theory: *Spectral Truthmaker Theory* and *Truth Supervenes on Being*. Spectral Truthmaker Theory is based on the observation that reality does not seem to be uniformly *binary* in character—namely, that truthmakers simply exist or do not—as Classical Truthmaker Theory supposes. Truth Supervenes on Being tries to capture some of the leading motivations for truthmaker theory while dispensing with truthmakers altogether.

2.2 Five Arguments for Classical Truthmaker Theory

Why should we believe that there are truthmakers? Here are five arguments for truthmakers.

1. The Correspondence Theory of Truth leads naturally to truthmakers. This is something we've already seen, but the point can be turned into an argument for truthmaker theory. First point, one that's already been made: the Correspondence Theory of Truth is initially highly plausible. It seems to make sense of our usual ways of thinking about most, if not all, truths. It also explains why it is that we investigate the world in order to ascertain whether a claim is true or not. We seem to take our knowledge of the meaning of a sentence whose truth is in question and compare it to what we find in the world; if there is a match, we think the sentence is true, and if not, then it's false. This is precisely what we would expect if the Correspondence Theory were correct. So suppose the Correspondence Theory of Truth is in fact correct.⁴

Second point: The chunk of the world to which a proposition must correspond in order to be true satisfies clause (i) of the definition of a truthmaker. The proposition that grass is green simply *cannot* fail to be true if grass is in fact green!⁵

Third point: There seems to be an asymmetric dependence of the truth of a proposition on the chunk of the world to which that proposition must correspond. In other words, it is *because* grass is green that the proposition that grass is green is true. It is difficult to argue for this, but it is even more difficult to deny! Compare: it is because the proposition that grass is green is true that grass is green in fact. That seems wrong. But then, the proposition that grass is green is true in virtue of the existence of the fact that grass is green. Thus, the chunk of the world to which a proposition must correspond in order to be true satisfies clause (ii) of the definition of a truthmaker.

Let's approach this question from another tack. The Correspondence Theory proposes that truth consists in a certain kind of relation, call it 'truthful correspondence', between a proposition and some real thing or things. What kind of relation is truthful correspondence?

One question we can ask is this: is truthful correspondence an internal relation? G.E. Moore articulated a distinction between internal and non-internal relations according to which an *internal* relation is a relation R which is such that, whether it holds of two entities, x and y , depends only on the intrinsic characters of x and y , considered individually.

Def D2.2 Internal Relation. R is an *internal relation* if and only if, necessarily, for every x and y , whether R holds between x and y depends only on the intrinsic properties of x and of y .

Relations are non-internal if and only if they are not internal. Of course, to understand this definition, one must understand what it takes for a property to be intrinsic. An object's intrinsic character is determined by its intrinsic properties, where a property is intrinsic to an object if that object has the property because of the way it is or its parts are, rather than in relation to something that is not itself or its parts.⁶

Def D2.3 Intrinsicity. x is *intrinsically* F if and only if nothing that is not x or a part of x is part of the ground of x 's being F .

The class of internal relations includes the relation of *being the same size as*, that of *being twice as tall as*, *being smarter than*, *contains more parts than*, etc. Consider the relation of *being smaller than*. To tell if one thing is smaller than another, all we need to know are the sizes of each of the two things, and size is an intrinsic property of a thing. Relations that are not internal include those of *being at least a meter apart from*, *being to the north of*, *is moving away from*, etc. If a relation is not internal, we have to know something beyond the intrinsic characters of the two things to know if the relation holds.

Truthful correspondence seems to be an internal relation. If we know everything there is to know about the intrinsic character of a proposition (including its content), and if we know everything there is to know about the intrinsic character of the part of the world that the proposition is about (its *worldly correlate*), we should be able to tell whether the proposition is true or false. Moreover, the intrinsic character of the proposition is eternal and essential to it: propositions don't vary intrinsically from one time or one situation to another. So, the truth of the proposition must depend on the character of its worldly correlate. This is exactly the asymmetric dependency of the truth on the world that Aristotle mentions in the *Categories*, and it is why we find it natural to speak of 'truthmakers'.

Therefore, the Correspondence Theory is a theory about what truth consists in. For a proposition to be true is for that proposition to be in the truthful correspondence relation to some part of the world, its worldly correlate. So, we should be able to say something like this:

- (1) For p to be true is for p to stand in the truthful correspondence relation to the worldly correlate of p .

Since the truthful correspondence relation is an internal relation, for some proposition p to stand in this relation to something is just for that thing to have the right kind of

intrinsic character. For each proposition p , we should be able to say the following, where X stands for this intrinsic character or property:

- (2) For p to be true is for the worldly correlate of p to be X .

If truth is a real property in the world, then truthful correspondence must also be a real relation. By ‘real relation,’ we mean a relation that corresponds to some real, intrinsic similarity between different cases. A real relation has some unifying theme that ties together all of its instances. An unreal or merely nominal relation occurs in a highly variegated, gerrymandered set of instances. So, *being spatially next to* seems to be a real relation. Any two cases of one thing’s being in contact with another are very similar to each other. On the other hand, being next to something in an arbitrary list, like a laundry or grocery list, is merely nominal.

For truthful correspondence to be such a real relation, the character X should be the same character for every proposition p . For it to be true that the Moon is cubical is for something to be X , and for blood to be red is for something to be X —the same X in both cases. Classical Truthmaker Theory provides just such an account. The worldly correlate of a proposition is some possible fact or state of affairs, and the X factor is existence or actuality. Thus, the worldly correlate of the proposition that blood is red is the possible fact of blood’s being red, and for that proposition to be true is for that fact to exist. Similarly, the correlate of the proposition that the Moon is cubical is the possible fact of the Moon’s being cubical, and for that proposition to be true is for that fact to exist. Since that fact does not exist (the Moon isn’t cubical), the proposition is not true.

Is there any other X that could work as well as existence? Propositions can be about anything, and they can predicate any sort of property. This is why X cannot be a feature that is specific or limited to a particular topic or set of questions. For example, X couldn’t be redness. Redness might work as an account of the truth of the proposition that blood is red. We could suppose that the correlate of the proposition is simply blood, and that for that proposition to be true is just for blood to be red. But then what could we do with the proposition that grass is green? There isn’t anything z in the world such that for it to be true that grass is green is for z to be red. Nothing’s being red can make it true that grass is green. For similar reasons, the X factor can’t be any specific shape, size, or material composition. A feature like existence can work because it is generic and universal. Every proposition can be correlated with some possible fact, and it makes sense to suppose that what it is for that proposition to be true is for the possible fact to exist.

Are there any other alternatives to existence as the X factor? Are there other features that are equally generic and universal in scope? We might consider the relation of *exemplification* or *instantiation* (which we will discuss in more detail in Chapter 7). This is the relation that holds between a thing and a property when that thing has the property. So, we might suppose that the proposition that the Moon is round has two things as its correlate, the Moon and the property of roundness, and we might then hypothesize that what it is for the proposition that the Moon is round to be true is for one of the correlates (the Moon) to instantiate the other (the property of roundness). However, this account will only work for simple or *atomic* propositions. It doesn’t tell us what to do with logically complex propositions, like negations or disjunctions. In addition, it requires us to assume that all atomic propositions have a subject-predicate or individual-property structure,

and this might be disputed. Classical Truthmaker Theory doesn't have to make any such assumptions about the internal structure of propositions.

If the Correspondence Theory of Truth is correct, and if it holds for all propositions, and if the correspondence relation is a real relation that unifies all the cases of truth, then Classical Truthmaker Theory seems inescapable. However, many defenders of truthmaker theory argue that the theory has nothing to do with truth! (For example, see Horwich 1998 and Lewis 2001.) As the following four points will make clear, there are arguments for something like truthmaker theory that do not depend on the Correspondence Theory of Truth. In addition, there is a sixth argument for a specific type of Classical Truthmaker Theory, namely, *Atomic Truthmaker Theory*. Atomic Truthmaker Theory can provide a grounding for the distinction between fundamental and non-fundamental truths.

2. Without truthmakers we would be unable to discern whether theories differ with respect to what they say about the world. Theories describe at least part of the world. We can understand the claim that theories describe the world by noting that a theory is true if and only if the world is a certain way, that is, if and only if certain things exist, have certain intrinsic features, and stand in certain relations to other things. Clearly, different theories can describe the world differently. But equally, different theories can describe the world similarly by using different sets of fundamental terminology. Theories can be formulated, not just in two different languages, but by means of two different sets of propositions, with two different sets of fundamental concepts. For example, geometry can be formulated in terms of fundamental points, but equivalently by taking spheres or other solids as fundamental. This is a sort of cognitive or notional difference between the theories, as the two theories describe the world in equivalent ways. Though this may seem insubstantial, we can describe cases that don't seem quite so trivial.

Truthmakers offer a way to understand the difference between pairs of theories that describe the world similarly and pairs of theories that describe the world differently. Two theories are *ontologically* distinct when they describe the world differently, and two theories are merely *ideologically* distinct when they describe the world similarly using different terminology. Using truthmakers, we can give a clear analysis of these notions. Two theories are ontologically distinct if and only if there is a set of possible truthmakers that would make one theory true and the other false. Two theories are merely ideologically distinct if and only if any set of possible truthmakers that would make one theory true also would make the other true.

Suppose one theory uses the concept *bachelor* as one of its fundamental notions, and the other contains only the complex concept *unmarried male adult*. The first theory might entail that there are bachelors, while the second theory could not have any such implication (although it might imply that there are unmarried male adults). If every truthmaker for the proposition that there are unmarried male adults were also a truthmaker for the proposition that there are bachelors, then the two theories would differ only ideologically, not ontologically.

To take another example, suppose that one theory includes the implication that there are crowds, while a second refers only to people and their spatial relationships. Is this difference ontological or merely ideological? The correct answer to the question would depend on whether a truthmaker for the proposition that there is a crowd in the plaza

must include some single entity corresponding to the crowd or could the truthmaker merely consist of a large number of individual people in close proximity in the plaza.

Is there any way to tell whether two theories differ ontologically without appealing to truthmakers? We might think that we could do this by simply asking whether it is possible for one of the theories to be false while the other is true. If we can construct a possible scenario in which one theory would be true while the other would be false, then we would know that the two theories were ontologically distinct, while if we could not construct such a scenario, we might reasonably conclude that the difference is merely ideological or verbal. This is the *modal method* of testing for ontological difference. It seems that we can employ the modal method without making any reference to truthmakers.

Suppose that theory *A* says that Austin is a part of Texas and that Texas is a part of the United States. Theory *B* says only that Austin is a part of the United States; theory *B* says nothing about the state in which Austin is located. We can easily show that there is an ontological difference between the two. Theory *A* has more information about the world than theory *B* because we can imagine a possible situation in which everyone would agree that theory *B* is true while theory *A* is false, like a situation in which Austin is made part of Oklahoma.

However, the modal method will not always give the right answer. For example, it won't work if we are considering two ontologically distinct theories about mathematical entities like numbers. Numbers do not and cannot change, so it makes no sense to talk about different possible scenarios involving them. The numbers 3 and 2 exist in every scenario, and 3 is greater than 2 in every scenario. Nonetheless, philosophers have proposed what seem to be clearly ontologically different theories about the numbers. For example, one might propose that numbers are really sets: the number zero is the empty set, and the number 1 is the set containing just the empty set, and so on. Another philosopher might disagree, arguing that numbers are not sets but are a quite disjoint class of mathematical objects. This is clearly an ontological difference, since the two theories disagree about what the numbers are. But there are no possible, alternative scenarios involving the numbers that we could use to show that the two theories carry different information about the world. If the number zero is identical to the empty set, then it would be so in every possible situation, and if it isn't identical to that set, it would be non-identical to it in every situation. So, each theory is (by the lights of its proponents) true in every possible situation. Thus, the modal method fails.

In contrast, truthmakers can be used to show that the two theories of the numbers are ontologically different. What is the truthmaker for the proposition that zero exists? The first theory entails that the truthmaker is the empty set, while the proponent of the second theory will deny this.

Another case in which the modal method will fail involves theories about *supervenient* facts. G.E. Moore (1903a) proposed that moral goodness is a special, non-natural quality. To say that a person or an action has this quality is to assert the existence of a moral fact, and such moral facts are distinct from all *natural* or non-moral facts (like facts about psychology or physiology). Nonetheless, Moore believed that moral qualities like goodness supervene on non-moral qualities, in such a way that it is impossible for two situations to differ morally without some non-moral difference. Now consider two possible theories, *M* and *N*. *M* is a theory about all of the moral and non-moral facts in the world. *N* contains exactly the same non-moral facts as *M*, but it contains absolutely

nothing about moral facts. It seems clear that there is an ontological difference between the two theories. According to *M*, the ontology of the world is richer than it is according to *N*. However, given Moore's claim that moral facts supervene on non-moral facts, there is no possible situation in which *N* is true but *M* is not, and obviously there is no possible situation in which *M* is true and *N* is not (since *M* contains *N*). Thus, the modal method fails.

In contrast, Truthmaker Theory can be used to demonstrate the ontological difference between *M* and *N*. For *M* to be true, there must be some moral truthmakers, containing moral qualities, while no such moral truthmakers are needed to make *N* true.

It is difficult to mark the difference between ontologically distinct theories and theories that differ only ideologically without appealing to truthmakers. This gives us some reason to think that there are truthmakers, since it is clear that we *can* tell whether theories are ontologically distinct or are merely ideologically distinct.

3. Truthmaker Theory is needed to rule out metaphysical "cheaters." Some philosophers have argued that without truthmakers we have no way to combat theories which help themselves to putative truths without wanting to say anything metaphysically serious about the bits of the world to which those truths correspond.

(See Armstrong (1968: 85), and Sider (2001). For discussion, see Merricks (2007).) Metaphysical "cheaters" are people who appeal to such theories, theories that appear to capture some truth or class of truths without a serious metaphysical undergirding.

Here is an example of putative metaphysical cheating from the metaphysics of time (see Chapters 19–21 for more): Presentism (20.2T.4) is (roughly) the view that there are no objects that do not exist at the present moment. Eternalism (20.2A.1T), on the other hand, is (again, roughly) the view that there is nothing ontologically special about the present moment; all moments in time are equally real, and objects that exist only in the past or future really do exist. Presentists and Eternalists agree, for example, that dinosaurs don't exist *now*, but they disagree about whether dinosaurs exist. Eternalists think they do. Presentists think they don't.

A notorious problem for Presentists is making sense of the truth of ordinary, uncontroversially true sentences like 'Dinosaurs existed in the past'. This sentence seems to require the existence of some things—namely, the dinosaurs—that exist only in the past. But if there are these things, the dinosaurs, then dinosaurs exist (even if not in the present)! Some Presentists, in the face of this sort of problem, make something like this speech:

The best way to understand the sentence in question is to say that there are irreducible tense operators in English. To say, "Dinosaurs existed in the past" is just to say, "PAST(Dinosaurs exist)," where PAST(*p*) is true if and only if it was the case that *p*. But the thing about the PAST operator is that one is not ontologically committed to the existence of things that fall under its scope. It's like a belief operator in this way. If one allows that a person can believe that the Fountain of Youth exists, it doesn't thereby follow that one must believe there is this thing, the Fountain of Youth! Likewise, PAST (Dinosaurs exist) doesn't commit one to the existence of dinosaurs.

Suppose, however, that we're committed to the Correspondence Theory of Truth. Presentists have told us nothing about how it is that the sentence, 'Dinosaurs existed in the

past', corresponds to reality. And it's hard to see how they could, given that there is no dinosaur and no past to correspond to if Presentism is true. Some argue, on this basis, that unless Presentists supply a truthmaker for this claim, a really existent thing that grounds the truth of the claim, then they are simply cheating. Truthmaker Theory gives us a way to catch metaphysical cheaters by demanding that theorists specify the truthmakers for claims they are committed to the truth of.

4. Truthmaker Theory can provide an explanation of possible truth. Ludwig Wittgenstein, in his *Tractatus Logico-Philosophicus* (Wittgenstein 1921/1974), employed truthmakers (in the form of *states of affairs*) as a way of explaining what it is for propositions to be possibly true. Suppose that each of the truthmakers is utterly separate and independent from the others. If so, it would seem natural to think that the existence or non-existence of each truthmaker has nothing to do with the existence or non-existence of the others. We could assign the values 'Exists' or 'Does not exist' to each possible truthmaker without reference to the assignment of these same values to the others. Consequently, every permutation of such values would represent a real possibility. This Tractarian account of possibility is sometimes called 'Combinatorialism' (15.3T), since each combination of logical atoms constitutes a real possibility (see Section 15.2.1.1).

5. Truthmakers as causes and effects. Some truths causally explain other truths. For example, that there were sectional differences in the United States over slavery is a cause of the truth that the Civil War occurred in the 1860s. Causation seems to be non-circular: facts don't causally explain themselves. One account of causation takes it to be a relation of a certain kind between truthmakers. When the truthmaker of the proposition that *p* causes the truthmaker of the proposition that *q*, then the truth of *p* is a causal explanation of the truth that *q*. We'll look at this account of causation in Chapter 27, on the relation of causation.

2.3 The Challenge of Deflationism

One of the fundamental motivations for truthmaker theory of any form is, as we have seen, the Correspondence Theory of Truth. But it is not clear that we really need the Correspondence Theory of Truth. Many philosophers defend a *minimal* or *deflationary* conception of truth, in which the predicate "is true" is explicated entirely in terms of Tarski's truth-schema (see **Principle of Truth 2**), first developed by the Polish logician, Alfred Tarski (1901–1983):

- (3) 'Snow is white' is true if and only if snow is white.
- (4) 'Grass is green' is true if and only if grass is green.

According to such deflationary accounts (see Ramsey 1927, Grover 1992, Horwich 1998), to say that some sentence *S* is true is simply to assert *S* itself indirectly, or by proxy. For example, we might say that everything Einstein said about relativity was true. To do so is not to ascribe some sort of property to Einstein's statements or to claim that these

statements *correspond* somehow to reality or the facts. It is simply to endorse those statements, to commit oneself as if one had asserted those very things.

Importantly, deflationists are anti-realists only about one thing: the existence of a real property of truth. Deflationists can be as realist as one might like about other things, like the past, unobservable physical entities, consciousness, moral facts, and so on. Equally, deflationists can be anti-realist about any of those things. A commitment to deflationism involves only a commitment to the unreality of a metaphysically special property of truth and of metaphysically fundamental facts involving the truth of propositions. Typically, deflationists embrace classical logic, including the Law of Excluded Middle (for all p , either p or not- p). Thus, deflationists can accept that reality outruns our understanding or knowledge of it. They simply deny that we should flesh out our “robust sense of reality” in terms of a special property of truth.

The specter of deflationism is clearly a serious worry for advocates of Truthmaker Theory, given that the Correspondence Theory of Truth is such a crucial motivation for believing in truthmakers. Is there reason to conclude that deflationism is false?

The form of deflationism that is relevant to truthmaker theory is a metaphysical thesis: the thesis that there is no real property of truth (or of falsity). For deflationists, true propositions have nothing in common with one another.⁷ They are as dissimilar to one another as the various parts of reality are. The truth that snow is white is as dissimilar to the truth that black holes are massive as the whiteness of snow is dissimilar to the massiveness of black holes. Deflationists deny that true propositions bear *any* resemblance to one another just by being true. Each truth is true in its own unique and incomparable way. The only thing that true propositions have in common is that they all bear the name “true” by virtue of the relevant pair of instances of the Tarski schema. Consequently, deflationists must deny that there is any property of truth (or relation of truthmaking) in any metaphysically robust sense. To use David Lewis’s (1983) term, deflationists deny that truth is a *natural* property. The thinness of deflationist truth disqualifies truth from playing certain kinds of explanatory roles. Truth as such cannot figure (for deflationists) in any causal or metaphysical explanation, nor can it appear in a causal law or other law of nature.

There have been five major objections to deflationism in this metaphysical sense.

1. The methodology of science requires truth as a natural property. In science and other forms of inquiry, we are always trying to find methods, practices, and authorities that are reliable sources of information. For example, we have come to accept that many of the methods of established science are reliable in the sense that they have a high probability of generating true results (or, at the very least, a probability of doing so that is greater than mere chance). We take our past experience with such methods as providing good grounds for expecting future applications of the method to be similarly reliable in generating truths. We take our experience with science to provide us with “projectible” generalizations, to use the term introduced by Nelson Goodman (1954).

A projectible generalization must, as Goodman pointed out, make use of projectible predicates. We can make inferences about the future using predicates like “green” but not bizarrely gerrymandered predicates like Goodman’s “grue” (a thing is “grue” if it has or will have been first observed before 2100 AD and is green, or will not be observed until 2100 AD and is blue). Lewis (1983) has argued that projectible predicates are those that

signify natural properties. Since deflationists deny that truth is natural, they must deny that we can make projectible generalizations about truth, including generalizations about the relative reliability of various sources and methods.

2. The pursuit of truth is *constitutive* of belief and inquiry. Many philosophers have recognized that the pursuit of the truth is a *norm* for certain kinds of cognition and uses of language (Williams 1973, Dummett 1980). We are *supposed to* aim at truth when we make assertions, form beliefs or decide upon methods of inquiry. Deflationism is consistent with recognizing the normative character of truth, since it isn't obvious that a norm must make use only of natural properties. However, it seems that the pursuit of truth is a special kind of norm: a constitutive or essential norm. It is of the very essence of assertion and belief that they aim at truth. Acts of belief that have nothing to do with pursuit of truth seem to be a metaphysical impossibility. It seems that the property of truth is partly constitutive of our powers to believe and to assert things. In other words, the property of pursuing the truth is a part or constituent of the power of believing, and the property of truth is a constituent of the pursuit of the truth.

Deflationists may reply that social practices can be constituted by norms that make use of non-natural properties, like truth. There is no limit to how complex socially constructed norms can be. Consider, for example, fantastically complicated games like cricket or baseball. Why couldn't belief and assertion also be constituted by such complex norms, norms that apply each instance of the Tarski schema to our practices?

Truthmaker Theorists can reply that belief and assertion are themselves fundamental and natural functions, not wholly created by arbitrary conventions. Conventions can vary widely from one social context to another, but we would expect to find belief and assertion in a wide range of actual and counterfactual situations, even situations involving non-human species. It seems reasonable to suppose that such natural functions are constituted by natural norms, norms involving simple, real properties, not grue-like constructions.

3. The property of truth is needed to account for *truth-value gaps*. Some apparent assertions fail to be either true or false. Such assertions suffer from *truth-value gaps*. Some examples of truth-value gaps involve failures of presuppositions of various kinds:

- (5) The present king of Texas is bald.
- (6) It is taboo to step on the emperor's shadow.
- (7) It is noon on the surface of the sun.

Since there is no present king of Texas, it is neither true nor false to say of him that he is bald. If the supposed property of *being taboo* doesn't really exist, then it is neither true nor false to say that it characterizes some action. Statements about the hour of the day presuppose that the statement is being made within some time zone on the Earth's surface.

Some philosophers have argued that statements involving vague predicates or referring to vague entities are neither truth nor false:

- (8) Robert Duvall is bald.
- (9) Austin is a large city.

Deflationists have trouble accounting for truth-value gaps. It is natural for deflationists to explain the use of the word 'false' in a way parallel to their account of 'true':

- (10) 'Snow is white' is false if and only if snow is not white.
- (11) 'Snow is green' is false if and only if snow is not green.

If deflationists accept the laws of classical logic, including the Law of Excluded Middle, they will be forced to endorse every instance of the following argument:

- 1 Either p or not- p (the Law of Excluded Middle).
- 2 S is true if and only if p . (Tarski's schema, where ' S ' is the name for ' p ')
- 3 S is false if and only if not- p . (the falsity counterpart to Tarski's schema.)
- 4 Either S is true or S is false.

In order to avoid this argument, deflationists have to restrict the application of Tarski's schema to those sentences that succeed in *expressing a proposition*. Then they could attribute truth-value gaps to (5) through (9) by denying that those sentences succeed in expressing propositions. However, deflationists would then owe some account of what a proposition is. It would seem to be part of the very essence or nature of a proposition that it be true or false, and such a metaphysical account of propositions would again require truth to be a natural property.

4. A property of truth is required for the contextualist solution to the Paradox of the Liar. Finally, we turn to the ancient Paradox of the Liar (first discussed by the Greek philosopher Epimenides). Consider (12):

- (12) Statement (12) is not true.

If we assume that (12) is true, then we quickly find ourselves in the contradiction that (12) is both true and not true. However, it is equally difficult to affirm that (12) is not true (for whatever reason), since the non-truth of (12) seems to be exactly what (12) is affirming. If (12) is not true, then things are as (12) states them to be, so (12) is true after all. Tarski proved this result formally:

- 1 'Statement (12) is not true' is true if and only if statement (12) is not true. (T-schema)
- 2 'Statement (12) is not true' = statement (12). (Stipulated identity of 'statement (12)')
- 3 Statement (12) is true if and only if statement (12) is not true. (1, 2, the substitution of identicals)

Introducing truth-value gaps won't resolve this problem. Suppose we say that (12) fails to express a proposition. If (12) doesn't express a proposition, then it isn't true. But this is just what (12) says—so it seems to express a proposition, in fact a true one, after all.

There have been many attempts to solve this paradox, but there is no consensus about which is correct. Most approaches to the Liar are consistent with deflationism, but there is one popular approach that is not: the context-sensitive solution of Burge (1979), Barwise and Etchemendy (1987), Koons (1992), Simmons (1993), and Glanzberg (2001, 2004).

On the context-sensitive approach, when we assert that some assertion is true, we are claiming that it corresponds to some *part* of the world. Which part of the world we can refer to shifts from one context to another. Thus, we must interpret statement (12) as tacitly asserting something of this form:

- (12_s) Statement (12_s) does not correspond to any part of *S*.
 (Where *S* is some contextually indicated part of the world.)

We can now recognize that statement (12_s) is true because it corresponds to some part *S'* of the world outside of *S*. *S'* is a part of the world that includes (as *S* does not) the fact that no part of *S* corresponds to (12_s). This solution requires the existence of truthful correspondence as a real relation between statements (or propositions) and parts of the world and is therefore inconsistent with deflationism.

5. The theory of truth is not a conservative extension of truth-free theories. Stewart Shapiro (1998) points out that reasoning by means of truth “non-conservatively extends” theories that do not involve truth. That is, we are able to reach novel conclusions by deploying obvious facts about truth. For example, the mathematician Kurt Gödel proved that no consistent mathematical system (like Peano arithmetic) can prove its own consistency. However, we can use truth to do so:

- 1 All of the axioms of Peano arithmetic are true.
- 2 Every set of truths is mutually consistent (in the sense that no contradiction can be proved formally from them).
- 3 Therefore, Peano arithmetic is consistent.

Deflationists can account for the truth of premise 1: asserting 1 is simply to assert once again the axioms of arithmetic themselves. However, premise 2 is a problem for deflationists. It is a mathematical assertion about a class of sets of sentences. The axioms of Peano arithmetic are complicated enough that it is by no means obvious that one couldn't derive a contradiction from them, assuming that one sets aside the facts expressed by premises 1 and 2. Hence, the property of truth provides us with real insight into mathematics in a way that deflationists cannot explain.

Deflationists could respond to this argument (as have Field 2001 and Azzouni 2008) by claiming that the device of using the word ‘true’ enables us to express more than we could express without it, even though there is no real property of truth. Consider especially premise 2 of the argument above. Deflationists should claim that we can assert premise 2, even though the content of premise 2 goes beyond our present mathematical knowledge, because we know in advance that however knowledgeable we become about mathematics in the future, we will never assert two contradictory claims about the numbers. We are in effect committing ourselves (and all future mathematicians) to a certain general policy: never to assert both of a pair of contradictory statements.

The problem for deflationists is explaining how it is *reasonable* for us to commit ourselves in advance to such an open-ended policy. Shouldn't we have to consider each contradictory pair on a case-by-case basis, if deflationism is true? This raises an even more fundamental problem for deflationists of explaining how we know the fundamental laws

of logic, like the law of non-contradiction. The logical pioneer Gottlob Frege classified these fundamental laws as “laws of truth,” and with apparently good reason. It is because we grasp something about the property of truth (and falsity) that we can say with confidence that no proposition whatsoever could be both truth and false. In light of that confidence, we can sensibly affirm the law of non-contradiction as a general law without ever having to consider the specific cases to which we apply it. Deflationists lack any similar story about what grounds our knowledge of the absolute generality of classical logic. They can always posit that such knowledge is simply constitutive of rationality, but such a stipulation counts against the simplicity of their theory.

We can appeal here to a principle known as ‘Ockham’s Razor’, after the English scholastic philosopher William of Ockham. Ockham’s Razor directs us to prefer the simplest theory consistent with the known facts. One way in which a theory can be simpler is in positing fewer basic postulates of reason. This is the first corollary of Ockham’s Razor:

Principle of Methodology (PMeth) 1 Ockham’s Razor. Other things being equal, adopt the simplest theory.

PMeth 1.1 First Corollary of Ockham’s Razor: Minimizing Rational Postulates. Other things being equal, prefer the theory that posits the fewest primitive, underivable postulates of reason.

2.4 Truthmaker Maximalism

We have seen some reason to believe that there are truthmakers, so let’s suppose that there are truthmakers. (We worry about the reasons, and consider an alternative to classical truthmakers, in Section 2.4.1.) The simplest, most natural understanding of Truthmaker Theory is the view that every truth has a truthmaker. This is ‘Truthmaker Maximalism’ (sometimes just ‘Maximalism’):

2.1T.1 Truthmaker Maximalism. Every truth has a classical truthmaker.

Truthmaker Maximalism possesses some impressive theoretical virtues. In particular, it has great simplicity and explanatory power. Given Maximalism, no question arises about how it is that any truth is true, and Maximalism accounts for each truth in a uniform, straightforward manner. We will need to keep these virtues in mind as we consider alternatives to Maximalism.

2.4.1 Fundamentality and logically complex propositions

The first worry for Maximalism stems from the intuition that there must be a set of fundamental truths upon which all other truths depend. Take, for example, the sentence ‘The cat is on the mat, and THP is sitting’. According to Maximalism, we must believe there is a truthmaker for this sentence *over and above* the truthmakers for ‘The cat is on the mat’ and ‘THP is sitting’. This is counter-intuitive. Shouldn’t the existence of the truthmakers

for ‘The cat is on the mat’ and ‘THP is sitting’ be enough? The conjunctive truth just seems less fundamental than the two simpler, subject-predicate truths, a seeming that is emphasized when we realize that we don’t seem to need another truthmaker for it. Why go in for the extra truthmaker, when the two we had are already sufficient?

However, there is a relatively simple change to Truthmaker Maximalism that will take care of this problem: require that, for every true proposition, there is either one thing that makes it true or there are *some* things that *jointly* make it true. In the case of a conjunction like ‘The cat is on the mat, and THP is sitting’, we can suppose that there are two facts that jointly make the conjunction true without having to suppose that there is a single, fundamental conjunctive fact.

What about negations? Suppose that Fido is not a cat or is not gray. What would the truthmakers for (13) or (14) have to be like?

(13) Fido is not a cat.

(14) Fido is not gray.

Given Maximalism, even of the modified variety, one would apparently need metaphysically fundamental *negative* truthmakers. Raphael Demos (1917) suggested that these could be made true by positive facts about Fido, facts that are incompatible with Fido’s being a cat or being gray. Fido’s being a dog or Fido’s being white seem to fit the bill nicely. However, there are two problems with this suggestion. First, as Bertrand Russell pointed out (Russell 1918–1919, 213–215), it is not clear that we can make sense of the incompatibility relation without making use of purely negative truthmakers. Second, there are some negative predications that seem to be pure privations, in the sense that they don’t require the thing to have any positive property at all. Consider, for example, (15) and (16):

(15) John is not thinking of anything right now.

(16) Mary does not remember Paris.

John does not have to be doing anything in order not to be thinking. Similarly, there doesn’t have to be any relevant, positive state of affairs involving Mary’s mind for it to be true that she simply doesn’t remember Paris. Thus, negative propositions seem to require special, negative truthmakers. This is a serious enough problem to deserve its own section, which we will move to next.

2.4.2 The problem of negative existentials

Negative existentials, such as ‘There are no unicorns’ or ‘There are no golden mountains’, are an especially serious version of the negativity problem for Truthmaker Maximalism. (This problem involves as well universal statements, like ‘Obama is the only president of the United States’. This sentence is equivalent to, ‘There does not exist any president of the United States other than Obama.’) A truthmaker for such a sentence must be something that, by its very nature, excluded the possibility of adding a unicorn (or a golden mountain) to the world. In addition, it would have to be something that, as a matter of metaphysical necessity, had to exist whenever there are no unicorns (or golden

mountains). Positing such truthmakers involves populating our theory with a large number of brute metaphysical necessities connecting separate things. The existence of the truthmaker for ‘unicorns do not exist’ somehow excludes the existence of any unicorn, and the absence of truthmakers for the existence of unicorns somehow entails the existence of the truthmaker of the negative existential claim. But Ockham’s Razor demands that, other things being equal, we should minimize the class of brute necessities that we posit; this is the second corollary of Ockham’s Razor:

PMeth 1.2 Second Corollary of Ockham’s Razor. Other things being equal, adopt the theory with the fewest brute, inexplicable impossibilities and necessities.

Truthmaker Maximalism requires many such brute, inexplicable impossibilities and necessities in order to account for the truth of negative existentials. These necessary connections between positive and negative truthmakers are the sort of things that a simple and elegant metaphysical theory must minimize.

Further, Maximalism entails that at least one contingent thing exists. For each possible but non-actual contingent being, there must exist a truthmaker for the claim that *that* being does not exist. Here is an example. Let ‘Winnie’ name a particular unicorn that might have existed. The sentence ‘Winnie doesn’t exist’ is true, since Winnie doesn’t exist. According to Maximalism, there exists a truthmaker that makes this sentence true. Call this truthmaker, ‘Un-Winnie’. Un-Winnie is a contingent thing. If Winnie had existed, the sentence ‘Winnie does not exist’ would have been false. But that sentence can’t be false if Un-Winnie exists, since Un-Winnie necessitates the truth of that sentence, since Un-Winnie is that sentence’s truthmaker. Thus it is possible that Un-Winnie fails to exist, and this is because Winnie might have existed. So Un-Winnie is a contingent being. It follows, then, that for every contingent being that fails to exist, there exists a truthmaker for the claim that that very contingent being fails to exist. These truthmakers are themselves contingent. Thus, at least one contingent being must exist. If Winnie doesn’t exist, then Un-Winnie does, and vice versa. Even God couldn’t create a world devoid of contingent beings, on the assumption that Maximalism is true.

On Maximalism, one cannot create a new possibility simply by thinning down an old one. If one deletes an entity, one must simultaneously add a truthmaker that makes it true that the deleted entity doesn’t exist. This seems implausible. It should be possible to thin out the population of entities without being forced to introduce new ones in the process. Putting these together, Truthmaker Maximalism entails that there is some number N such that the number of contingent beings that exists is necessarily N . Implausible, indeed.

Another worry is that Maximalism requires a truthmaker for every universal generalization. Consider (17):

(17) Every living organism is terrestrial.

Suppose that (17) is true and that every living organism lives on the Earth. What would the truthmaker for (17) have to be like? At the very least, the truthmaker for (17) would have to include a part that is a truthmaker for proposition (17_x) , for every existing thing x :

(17_x) Either x is not a living organism, or x is terrestrial (or both).

However, even this massive truthmaker (call it 'Max') is not sufficient to be a truthmaker for (17). The existence of Max is consistent with the existence of a new entity, one that does not in fact exist at all (call it ET), and that is both alive and non-terrestrial. Max determines that all the things that actually exist are either terrestrial or not alive, but it does not exclude the existence of additional entities, entities that could but do not in fact exist. Since Max does not exclude such "new" entities, it is compatible with a world that is just like this one, except that some new entities exist that are living extra-terrestrials.

Thus, we have to add to Max what David Armstrong calls "the totality fact," a truthmaker that guarantees that nothing exists except the things that actually exist. Suppose the set *T* contains every actually existing thing. Then the totality fact is the fact that nothing exists except what is in *T*. The totality fact "says," in effect, "That's all, folks. Nothing but the members of *T*." However, the totality fact is quite a strange entity. As we've seen with negative facts, to believe in the totality fact we would have to believe in brute necessities. The existence of totality would have to be metaphysically incompatible with the existence of anything outside of *T*.

In addition, (as Armstrong admits) it is hard to see how we could ever come to know the totality fact in any detail. Only an omniscient being (like God) could possibly know the set *T*, the set containing exactly the things that exist. However, if we do not know the totality fact, how could we know any universal generalization, even one as simple and everyday as (18)?

(18) All ravens are black.

The truthmaker for (18) will also include the totality fact, which is needed to exclude the existence of any "new" entities that are non-black ravens. If we can't know the totality fact, we can't know the truthmaker of (18), which seems a problematic result. We could put the problem in the form of a dilemma: either there is just One Big Totality Fact for all of reality, or there are many, merely local totality facts, like the fact that *S* contains every raven, or that *S'* contains every mammal in this building. If there were only *One Big Totality Fact*, then every bit of knowledge that we have of negative existential facts would have to involve some familiarity with this Big Fact, which seems wildly implausible. On the other horn of the dilemma, if we suppose that there are many localized totality facts, then knowledge of negativities is unproblematic, but we must posit a huge number of brute necessary connections between the different totality facts. For example, if there is the fact that *S* contains every raven, and another fact that *T* contains every existing thing, then it is necessary that *S* be a subset of *T*. Moreover, if *E* is an atomic fact, for example, the fact that some particular raven, Edgar, is a raven, then *E* must (of necessity) be a part of *S* (the actual totality fact for ravens). Other things being equal, we should try to minimize the class of necessary connections (**PMeth 1.2**). Finally, as Merricks has pointed out, truths like (18) do not seem to be *about* the positive character of the whole universe. (18) is not about how many quasars there are, for example. Yet the totality fact would include every detail about every part of the universe.

There is, however, at least one way around these difficulties. We could suppose that all facts are totality facts, and that each totality fact is associated with some fundamental property (the sort of thing that we will identify as a "universal" in Chapter 7). Thus, every fact will have the following form:

The instances of *U* are (exactly): the *x*'s.

Or, equivalently:

The instances of U are exactly the members of class C .

So, if being a raven and being black are two fundamental properties, there will be totality facts for ravens and for black things. However, there need be no totality fact for the whole universe, or for complicated, non-fundamental properties (like being a black raven). In addition, there need be no atomic facts at all. If Edgar is a particular raven, then the totality fact for ravens will be a truthmaker for the proposition that Edgar is a raven (and similarly for all other atomic predications of ravenhood), since Edgar will be a member of the class of ravens. Now, we won't have any necessary connections between distinct truthmakers. Each totality fact will be logically independent of all the other totality facts. Totality facts will be truthmakers both for positive predications (like 'Edgar is a raven') and for negative ones (like 'Fido is not a raven'). More precisely, the truthmaker for the proposition that Fido is not a raven will consist of the totality fact for ravenhood along with Fido itself. A truthmaker for the proposition that some things are not ravens will be the totality fact for ravenhood, together with one or more particular things that aren't ravens.

There is now only one necessary connection left: each universal must have only one totality fact. There cannot be two different sets each of which includes all of a universal's instances. However, this isn't a brute necessity, since we could suppose that it is something to do with the nature of universals that explains why no universal can have two different totality facts.⁸

We have arrived to a version of Truthmaker Maximalism: Totality Fact Maximalism.

Def D2.4 Totality Fact. A *totality fact* is a connection between a fundamental property (or universal) U and a class of entities C that is a strict truthmaker for the proposition that the class C contains all of the instances of U .

2.1T.3 Totality Fact Maximalism. Every true proposition has a truthmaker, which includes one or more totality facts, possibly together with one or more ordinary existing things. Each universal is associated with at most one totality fact.

What do we do with the problem of negative existentials? The true proposition that there is no golden mountain isn't a problem: it will be made true (jointly) by the totality fact for mountains and the totality fact for golden things (assuming that these are both fundamental properties). Similarly, the true proposition that all ravens are black will be made true jointly by the totality facts for ravens and for black things. What about a simple negative existential, like the proposition that there are no unicorns? If we assume that being a unicorn is a fundamental property, this could be a problem. The totality fact for unicorns will "say": the instance of unicornity are: _____. What can we use to fill in this blank? There are no unicorns to put there!

There are at least six options here, none of which is entirely satisfactory:

- 1 The totality fact for an uninstantiated universal connects the universal to the empty set. This would mean that all totality facts are fundamentally about sets, which are abstract, mathematical objects. This doesn't seem right: the proposition that all ravens

are black shouldn't require positing a set, so neither should the proposition that no unicorns exist.

- 2 We could assume that each universal is self-instantiating. So, the universal UNICORN is a unicorn. But this seems to give the wrong answer to the question, How many unicorns are there? (There would be one, rather than zero.)
- 3 There are special negative facts, in addition to totality facts, one negative fact for each uninstantiated universal. These special facts would have to have necessary connections with other totality facts, in the sense that when a universal has an associated negative fact, it cannot have a totality fact (and vice versa).
- 4 There are no uninstantiated universals. So, UNICORN doesn't really exist (as a fundamental, natural property), and so there is no true proposition of the form 'there are no unicorns'. Many philosophers, following a popular interpretation of Aristotle's theory of properties, have embraced this view. However, it produces some inconveniences, as we shall see when we consider non-existent things in Chapters 12 and 15.
- 5 We could hypothesize that there is an *uninstantiated-universal totality fact*. This involves treating the property of *being a first-order universal with no particular instances* as having its own, higher-order universal U^* .⁹ This uninstantiated-universal universal will have its own totality fact of the form: These are all the uninstantiated first-order¹⁰ universals: $U_1, U_2, \dots$. If T^* is this totality fact, then it will be a truthmaker for the non-existence of unicorns, since UNICORN will be among the universals contained in T^* . This seems to be a viable solution, although it requires us to complicate our story by adding at least one higher-order universal (a universal with other universals, and not particulars, as its instances) to our theory. In addition, there would have to be necessary connections between the totality facts for second- and first-order universals.
- 6 We could make an exception Maximalism for true propositions asserting that a universal is uninstantiated. These true propositions have no truthmaker at all. Fortunately, these propositions are relatively rare. All ordinary true propositions will still have truthmakers. Still, making an exception undermines the claim that truth is absolutely natural and unified.

So far, we have been focusing on a special case of negative existentials: those that simply deny that anything in the world has a certain natural property (or universal). Let's look briefly at a more general case, that of universal generalization. To say that everything is Φ , where Φ is some complex property, is equivalent to saying that nothing is not- Φ . However, we can't dodge this problem, as we did in option 4 above, by simply supposing that there is no not- Φ universal, since the proposition that everything is Φ will still exist, even though there is no not- Φ universal. For example, suppose it is true that everything is material or spiritual. This means that nothing is neither material nor spiritual. Since the universals MATERIAL and SPIRITUAL exist, this true proposition exists and requires a truthmaker.

Similarly, option 3 (special negative facts for uninstantiated universals) won't work in this case, unless we are willing to add special negative facts for every uninstantiated property, no matter how complex. This would result both in a large number of fundamental facts and a very large number of necessary connections between distinct facts, the very things we are trying to avoid.

Consider a relatively simple universal generalization, such as the truth that all ravens are black. This truth is made true by the combination of the totality fact for ravens and the totality fact for black things (assuming that RAVEN and BLACK correspond to simple universals), since the totality of black things includes the totality of ravens. In fact, for any true generalization of the form ‘all ravens are Φ ’, the corresponding truthmaker will consist of the totality fact for RAVEN, plus a truthmaker for each proposition of the form ‘ x is Φ ’, where x is a raven. More generally, any true universal generalization whose antecedent clause is a conjunction or disjunction of universals will have a truthmaker of the same kind. We can call these the *positively bounded generalizations*.

Thus, the only difficult cases are those without antecedents (such as ‘everything is concrete or abstract’) and those whose antecedents that are not positively bounded, such as ‘all non-ravens are beautiful’. Here again, we will have to resort either to the uninstantiated-universal totality fact (option 5), or to the supposition that there are no uninstantiated universals (option 4), or else make an exception to the truthmaker principle for such cases (option 6).

If we take a variant of option 5, we will need to add still one more totality fact: the Universal Totality Fact, one that lists all of the universals. We can now assemble a global totality fact G , consisting of the totality of all universals, the totality of all uninstantiated universals, and the totality facts for each of the instantiated universals. The union of all of the particulars showing up in the totality facts for instantiated universals will be the complete set of all actual particulars.

Alternatively, if we suppose that there cannot be any uninstantiated universals (just as there cannot be any particulars that do not instantiate anything), then we could instead make do with a first-order universal totality: a totality fact that includes all of the first-order universals. This universal totality, together with all of the totality facts for the first-order universals themselves, would define for us a universal domain of particular objects. Every particular will belong to at least one totality fact, and the universal totality fact ensures that every universal has been surveyed.

If we were to take option 6 instead, we could say that unbounded universal generalizations are true, not by having a truthmaker, but by virtue of the non-existence of a fact that would make them false. However, it seems that most of the universal truths in which we are interested in science and ordinary life are positively bounded generalizations. Thus, we could still maintain that all “ordinary” truths have truthmakers.

2.5 Alternatives to Truthmaker Maximalism

Given the difficulties with Truthmaker Maximalism, philosophers have proposed three alternative truthmaker theories that do not require classical truthmakers for every truth:

- 1 Atomic Truthmaker Theory. Only logically atomic or simple propositions have (classical) truthmakers.
- 2 Spectral Truthmaker Theory. Logically atomic propositions have *spectral* truthmakers: entities that make the atomic truth true, not by simply existing, but by existing and having an intrinsic character of a certain kind. (Josh Parsons 1999).
- 3 Truth Supervenes on Being. The truths of the world are fixed by fixing which things exist, and what natural properties and relations those things have (Lewis 2001).

2.5.1 Atomic Truthmaker Theory

The two worries we discussed in the last section (concerning logically complex truths and negative existentials) motivate the idea that we ought to restrict our truthmaker theory in a way that upsets Maximalism. Maximalism demands that every truth, even ones that seem to be far from fundamental, have a unique classical truthmaker. Both of the worries above suggest that this is wrong. One might, in response to these worries, simply restrict Maximalism in the most minimal ways possible. For example, you might keep Maximalism except for denying that negative existentials have unique truthmakers. This would accommodate the second worry. You might keep Maximalism except for denying that non-fundamental truths have unique truthmakers. This would accommodate the first worry. In the face of other worries along similar lines, one can just keep restricting one's Maximalism in the most minimal ways possible to avoid the worries.

If we were to make all these restrictions, the result would plausibly be Atomic Truthmaker Theory.

2.1T.4 Atomic Truthmaker Theory. Every atomic (simple, positive) truth has a (classical) truthmaker.

If only atomic truths have truthmakers, how can we account for the truth of complex propositions? Conjunctions (propositions involving 'and') and disjunctions (propositions involving 'or') pose no real problem. If p and q are simple truths, then we can explain why the conjunction ' p and q ' is true: it is true by virtue of each conjunct's having a truthmaker. Similarly, the disjunction ' p or q ', if it is true, is true by virtue of one or the other of its disjuncts having a truthmaker.

What about negations? If p is a simple proposition, and Not- p is true, what account can we give of its truth? It won't be true by virtue of having a truthmaker. If Not- p is true, then p is false, and so p does not have a truthmaker. This gives us our answer: the ground of the truth of Not- p is to be found in the *absence* of a truthmaker for p . Not- p is true, not because it has a truthmaker, but because it doesn't have a falsity-maker.

One interesting fact that follows from Atomic Truthmaker Theory is that the set consisting of the property of being a true complex proposition *weakly supervenes* on the set consisting of the property of being a true atomic proposition.¹¹

Def D2.4 Weak Supervenience. A set of properties A *weakly supervenes* on a set of properties B if and only if it is impossible for any two worlds to agree on which things have which B -properties but to disagree about which things have which A -properties. That is, two situations that are indiscernible in respect of the B -properties must also be indiscernible in respect of the A -properties.

An important special case of weak supervenience is that in which a set containing a single property, say $\{F\}$, supervenes on a set containing another single property, $\{G\}$. In that case, we shall say, for simplicity's sake, that F supervenes on G . This means that whether anything is F or not- F is determined by the set of things that are G and the set of things that are not- G .

For example, you might think that the extension of the property of *being a true proposition about clouds* is completely determined by the extension of the property of *being a true proposition about the location of water molecules in the atmosphere*. It is plausible that one couldn't get a difference in truths about clouds without a difference in truths about the location of water molecules in the atmosphere. Once you've settled the truths about the water molecules, you've settled the truths about clouds. Similarly, if one thought that one couldn't get a mental difference without a brain difference, then one thinks that mental properties weakly supervene on brain properties.

If we know what the set of truthmakers for positive atomic truths is, then we know what the set of positive atomic truths is. Once we know what the set of positive atomic truths is, we know what the set of negative truths is (and similarly for the sets of all the logically complex truths). A negated proposition *Not- p* belongs to the set of negative truths just in case its positive counterpart *p* does *not* belong to the set of positive truths. You can't have a difference in the set of negative truths without a corresponding difference in the set of positive truths, and you can't have a difference in the set of positive truths without a difference in the set of truthmakers. Thus, the property of *being a negative truth* weakly supervenes on the property of *being an existing truthmaker*. Once we know which possible truthmakers exist, we know all there is to know about which negative propositions are true.

If we move from Truthmaker Maximalism to Atomic Truthmaker Theory, do the five arguments for truthmakers still apply?

1. **Catching cheaters.** Trenton Merricks (2007) argues that Atomic Truthmaker Theory cannot be used as a weapon against metaphysical cheaters. Atomic Truthmaker Theorists admit that some truths lack truthmakers: all complex truths, including especially negative truths. Thus, Atomic Truthmaker Theorists are themselves guilty of cheating metaphysically. How can they complain when, for example, Presentists deny that past-tensed truths have truthmakers?

Here is a possible response to Merricks. According to the Atomic Truthmaker Theory, the extension of the property of *being a complex truth* (*being a true negation, conjunction, disjunction*, and so on) is completely determined by the extension of the property of *being an existing truthmaker* (even though only positive, atomic truths have truthmakers). Once you have the information about which possible truthmakers exist, you can determine which propositions (including negative ones) are true. In contrast, assuming Presentism (see Section 20.4), there is little or no reason for thinking that the set of past-tensed truths is determined in this way by the set of truths about what truthmakers exist now. This lack of supervenience of the properties of past- or future-tensed truth on the actual properties of what really exists seems more problematic than the mere absence of truthmakers for every truth. Thus, Presentism seems guilty of somewhat worse cheating than Atomic Truthmaker Theory.

However, this difference doesn't seem so impressive once we realize that the definition of supervenience has built into it the assumption that negative facts are unproblematic: the set of negative truths is determined by the facts about which atomic positive propositions are *and are not* true. By the same token, Presentists can point out that the set of past truths is determined by the set of facts about which propositions are *and were and will be* true. There doesn't seem to be any difference here. Just as Atomic Truthmaker

Theorists help themselves to negation, Presentists can help themselves to the past and future tenses. Ultimately, Atomic Truthmaker Theorists likely cannot appeal to the catching cheaters argument.

2. Distinguishing ontological and ideological differences. Atomic Truthmaker Theorists can claim that this argument still works, despite the restriction to atomic truths. Two theories differ ontologically if they differ in what truthmakers do and *do not* exist.

3. Correspondence Theory. Atomic Truthmaker Theorists must give up, to some extent, their commitment to the Correspondence Theory of Truth, at least in the form we initially described. It is no longer the case that every truth corresponds to some truthmaker. Instead, we could say that every positive atomic truth corresponds to reality, and that the class of all other truths weakly supervenes on the class of atomic truths. This means that truth is a disjunctive or complex property, made up of two or more quite different components. This would come close to supporting deflationism.

4. Accounting for possibility. As we will see in Chapter 15, Atomic Truthmaker Theory is quite compatible with Logical Atomism's account of possibility.

5. Causation. If we adopt Atomic Truthmaker Theory, and we suppose that it is truthmakers (and only truthmakers) that can serve as causes and effects, this will have significant effect upon our conception of causation. In particular, it will entail that all causation is fundamentally positive. This will create a difficulty, as we shall see in Chapter 27, in accounting for *negative causation*, such as prevention or causation by omission.

6. Accounting for fundamental truths. It is natural to think, as we saw above, that some truths are more fundamental than others. For example, conjunctions usually depend for their truth on the truth of their parts (or *conjuncts*). Atomic Truthmaker Theory provides a simple account of which truths are fundamental: each fundamental truth corresponds to the existence of a single possible truthmaker. In other words, if a truth is fundamental, then it is made true by just one thing in the actual world, and, moreover, it is made true by the existence of that same thing in every world in which it is true. Suppose, for example, that we have a fundamental truth of the form '*b* is *F*'. According to Atomic Truthmaker Theory, this is made true by a single, simple truthmaker: *b*'s *F*-ness or the fact that *b* is *F*. Moreover, this truth can be made true only by the existence of this same truthmaker. There is no possibility in which '*b* is *F*' is true but *b*'s *F*-ness does not exist. We can call any proposition that could be made true only by one possible truthmaker a *fundamental proposition*.

Next, we have those truths that are negations of fundamental propositions. Suppose that *b* is not in fact *F*, but that '*b* is *F*' would be a fundamental truth if it were true at all. In that case, the proposition '*b* is not *F*' is true by virtue of the non-existence of the appropriate truthmaker for the more basic proposition that *b* is *F*.

Finally, all other truths derive their truth from the fundamental truths and from the true negations of fundamental propositions. For example, a disjunction of two more fundamental propositions *p* and *q* would be true by deriving its truth from that of *p* or of *q* or both. Such disjunctive truths would not be fundamental, since there is no one possible

truthmaker that must exist in order for such propositions to be true: it is enough if one of a range of possible truthmakers exists. Similarly, if the predicate ‘*F*’ is definable as ‘*G* and *H*’, then the proposition that ‘*b* is *F*’ would, if true, derive its truth from the two more fundamental truths (viz., that *b* is *G* and *H*). We take up this idea of fundamentality in more detail in the next chapter.

2.5.2 Spectral Truthmaker Theory

We are now in a position to see a serious problem for an important motivation we had for believing in truthmakers. Recall the first argument for truthmakers, from the Correspondence Theory of Truth. That argument implicitly assumed that the things to which propositions correspond are facts.¹² This is how we guaranteed that clause (i) of Def D2.1 (the definition of a truthmaker) was satisfied by the things to which propositions correspond. How could, we asked rhetorically, the fact that grass is green exist without the proposition that grass is green’s being true? What this assumes is that *facts* (in this sense) are among the metaphysically fundamental bits of the world. But we have seen no reason to think this is true!

Suppose, for example, that it’s just *the grass* that’s among the metaphysically fundamental things. At rock bottom, metaphysically, you’ve just got the grass with its features. In that case, the fundamental things of the world might not satisfy clause (i) of the definition of a truthmaker. Grass might not have been green, so the sheer existence of the grass is not sufficient to make true the proposition that grass is green. There is another requirement: the grass must also be a certain way.

2.1A.1T Non-Classical Truthmaker Theory. Propositions are made true by the way things are in the world, but there are no classical truthmakers.

2.1A.1A No Truthmakers. Truths have no truthmakers, classical or otherwise.

If we give up the idea that is just the existence or non-existence of certain things that make propositions true and false—an assumption we might call Binariness—but we want to hold on to as much of Truthmaker Theory as possible, we end up with something we call ‘Spectral Truthmaker Theory’. This name is meant to denote the fact that the fundamental parameters form a spectrum of possible values, not simply a binary choice between existence or non-existence. A theory of this kind has been proposed by Josh Parsons (1999). Parsons argues that the mere existence of a truthmaker is not sufficient to entail the truth of the corresponding proposition. Instead, we should think of a proposition’s truthmaker as an entity of such a kind that its being intrinsically the way it is, is sufficient for the truth of the proposition. That is, it is both the existence and the actual intrinsic character of the fundamental thing that, taken together, ground the truth of the proposition.

2.1A.1T.1 Spectral Truthmaker Theory. Every fundamental atomic truth is made true by something’s existing *and being a certain way intrinsically*.

It is the italicized phrase that distinguishes Spectral Truthmaker Theory from Classical Truthmaker Theory. A classical truthmaker makes a proposition true simply by existing. In contrast, a spectral truthmaker makes a proposition true both by existing and by having a certain intrinsic character. So, for example, a blade *B* of grass cannot be a classical truthmaker for the proposition *that B is green*, since *B* could exist without being green (it could be brown, for example). However, blade *B* could be a spectral truthmaker for this same proposition, since whether *B* is green or not is intrinsic to *B*.

We can illustrate the advantage of Spectral Truthmaker Theory over Classical Truthmaker Theory by considering the phenomenon of *determinates* and *determinables*. Determinable properties are properties that come in different kinds, and those different kinds are a determinable's determinates. For example, the property of *being a certain temperature* is a determinable property, with determinates like the properties of *being 10° Celcius*, of *being 30° Celcius*, and so on. Similarly, the property of *being red* is a determinable property, with determinates like the properties of *being scarlet*, of *being burgundy*, and so on. If an entity has a determinable property (e.g., temperature), then it must have exactly one corresponding determinate (a specific value of the temperature variable, like 10° C). It cannot have two determinate temperatures or none at all. On Classical Truthmaker Theory, the independence of temperature from other parameters or determinables is explained by the existence of a separate truthmaker for a thing's temperature, an accident or trope of temperature. However, Classical Truthmaker Theory predicts that each specific temperature is independent of every other. If body *B* has a truthmaker for its having a temperature of 10°, it should be possible for it to have simultaneously a truthmaker for the determinate temperature of 15°. The impossibility of having two determinate temperatures at the same time is, relative to Classical Truthmaker Theory, a brute or unexplained necessity.

In contrast, Spectral Truthmaker Theory does not over-generate interdependencies, since it doesn't posit distinct and separate truthmakers for each determinate property. Instead, it entails the existence of just one possible truthmaker for each parameter of each entity, with the specific or determinate property corresponding to some *internal state* of that truthmaker (not simply to its existence). This gives us no reason to expect it to be possible for one thing to have two determinate temperatures at once, since there is no reason to think that the internal state of one truthmaker could correspond to two different temperatures.

The main disadvantage for Spectral Truthmaker Theory, as compared with Classical Truthmaker Theory, is that it does not provide a unified definition of the correspondence relation. Consequently, it isn't clear that correspondence is a real relation on Spectral Truthmaker Theory, a relation corresponding to a real similarity between distinct cases of truth. Consider the propositions that blade *B* is green and that the Moon is round. The spectral truthmaker of the first proposition is the blade *B*, and the spectral truthmaker of the second is the Moon. What it is for the first proposition to be true is for its truthmaker to be green, and what it is for the second to be true is for its truthmaker to be round. Thus, truth for the first proposition is something entirely different from truth for the second proposition. This would seem to support a deflationist view of truth.

If we accept Spectral Truthmaker Theory, we can ask how many truthmakers we need, given a set of fundamental truths. Could there be just one Big Truthmaker that is responsible for making true all of the truths of the world? This possibility runs contrary to

the underlying spirit of all truthmaker theory, which is to ground truths in relevant parts of reality. At the very least, it seems that if there are two different, equally fundamental properties being predicated in two truths, those truths ought to have distinct truthmakers:

Principle of Truth (PTruth) 1 One Truthmaker per Fundamental Property. If p is the true predication of a fundamental property P to x_1 through x_n , and q is the true predication of a different fundamental property Q to the same things x_1 through x_n , then p and q have distinct truthmakers.

(One Truthmaker per Fundamental Property will become important in later chapters.)

2.5.3 Truth Supervenes on Being

There is another, more radical way of replacing individual truthmaking with plural or joint truthmaking. This view drops the truthmaking relation entirely and makes use instead of the idea of weak supervenience introduced above. Truth Supervenes on Being (TSB) is such a view. TSB claims that there is a special class of ultimately real or fundamental entities E and a special class of perfectly natural or fundamental properties *and relations* N , and that the fundamental propositions are those atomic predications involving only fundamental entities and natural relations.

2.1A.1A.1T Truth Supervenes on Being (TSB). The property of *being true* weakly supervenes on the property of being a truth about what things exist (and don't exist) and about exactly which natural properties they have and which natural relations they stand in.

2.1A.1A.1A Truth does not supervene on being.

The main difference between Spectral Truthmaker Theory and TSB is that Spectral Truthmaker Theory is committed to One Truthmaker per Fundamental Property while TSB is not. Suppose that the various shapes and colors are natural properties and that we have a ball that is spherical and red. For Spectral Truthmaker Theory, there must be two entities, which we can call the ball's 'shape' and its 'color', one of which is a spectral truthmaker for the ball's being circular and the second of which is a spectral truthmaker for the ball's being red. TSB has no such commitment. The ball's being red and its being circular must both supervene on how things are, but there is no implication that the things involved include such finely individuated things as the ball's shape and its color. TSB theorists can simply suppose that the things involved include only the ball itself, which, by being a certain way, ensures that both propositions are true.

We've seen what TSB permits. What sort of things does it forbid? TSB prohibits any fundamental truth that does not involve actually existing things. Consider, for example, Bucephalus, the horse owned by Alexander the Great. Bucephalus no longer exists, having long since died. If we suppose that the only things that exist are things that exist

now, that is, assuming Presentism, then we would have to say that nothing is Alexander's horse. Consider now (19):

(19) Bucephalus was fierce.

If Bucephalus does not exist, TSB theorists must deny that (19) is a fundamental truth. They must say one of two things about (19). Either it is in fact true that Bucephalus exists (even though it is not now alive)—a denial of Presentism—or the truth of (19) must consist in facts about other existing things, such as memories, records, or other traces of Bucephalus. The truth of (19) cannot simply float free of all the facts about existing things and their natural properties and relations. Since the second option is implausible (it is hard to believe that a fact like (19) is really made true by facts about remains and records), TSB is often taken to be incompatible with Presentism (an issue we will take up again when we consider theories of time in Chapters 19–21).

Here's another illustration of what TSB forbids, taken from Gilbert Ryle's theory of behavioral dispositions (Ryle 1949). According to Ryle, behavioral dispositions correspond to conditionals such as (20):

(20) If Roy is frustrated, he will curse loudly.

According to Ryle, conditionals like (20) can be true, even though there is nothing further to be said about why they are true or what makes them true. That is, there might be nothing about Roy's mind, body, or brain that could be expressed categorically (without making use of conditional statements) that is sufficient to guarantee the truth of (20): nothing about Roy's current memories, moods, feelings, thoughts, or neurochemistry. Assuming that conditional dispositions do not count as natural properties, then Ryle's theory entails that (20) can be true even though its truth does not supervene on any natural properties of Roy or any other things in Roy's environment. This violates the constraints of TSB.

The bite of TSB depends on the content of the idea of natural properties and relations. If just any relation is natural, then TSB ceases to be a substantive doctrine. Suppose, for example, that there were some truth p that intuitively doesn't supervene or depend upon being. If we were to count the property denoted by 'being an x such that p ' as natural, then any proposition p whatsoever could easily satisfy the constraints of TSB: in every world in which p is true, if at least one thing exists in that world, then that thing has this property of being something such that p is true (or, in other words, being something that coexists with the truth of p). In the case of (20), suppose we thought that the property of *being such that Bucephalus once was fierce* was a natural property of presently existing things, like the Moon or the Eiffel Tower. On that assumption, TSB and Presentism would be compatible, after all. The same result would ensue if we treated as natural such properties as 'are some atoms that once composed a fierce horse known as "Bucephalus"'. If that relation among atoms is natural, then the truth of (20) supervenes on this relation's holding between some currently existing atoms. So, a serious defender of TSB should not count such bizarre properties as natural.

Let's go back one more time to the six arguments for truthmaker theory and see which of them provides some support for TSB (as we did above for Atomic Truthmaker Theory).

1. **Catching metaphysical cheaters.** Catching metaphysical cheaters is the principal motivation for TSB. As we've seen, some supposed "cheaters" violate TSB. However, as we saw in the discussion of Atomic Truthmaker Theory, it is unclear that either the Atomic Truthmaker Theorist or TSB theorists can consistently apply the TSB standard, given that both allow negative truths to be ungrounded by any existent thing.

2. **The Correspondence Theory of Truth.** TSB Theorists can claim, with some plausibility, that TSB captures something of our common sense intuition that truths "correspond" to reality. TSB theorists cash out this correspondence in terms of difference-making: in order for a true proposition to be false, or a false proposition to be true, different things would have to exist, or existing things would have to stand in different natural relations to one another. A true proposition is one that corresponds with how things in general are.

3. **Distinguishing ontological and ideological differences between theories.** On TSB, two theories will be merely ideologically different when there is no difference between the theories with respect to what exists and what natural properties those things have and what natural relations they stand in. Thus, TSB can be used to distinguish ontological and ideological differences between theories.

4. **Accounting for possibility.**

5. **Accounting for the relata of causation.**

6. **Accounting for fundamental truths.** We'll lump the final three arguments together, since TSB theorists cannot appeal to any of them. Without truthmakers, they have no basis for a combinatorial theory of possibility. Without truthmakers, they have no special account to provide for the relata of causation nor can they account for the difference between fundamental and derived truths.

Thus, TSB theorists must rely on one motivation, a sense that the TSB constraint is needed to take seriously the intuition that truths "correspond" to reality.

2.6 Conclusion and Preview

Recall that there were five initial arguments for truthmaker theory: (1) the appeal to the idea of correspondence, (2) distinguishing between ideological and ontological differences, (3) catching metaphysical "cheaters," (4) accounting for metaphysical possibility, and (5) providing the relata for the causal relation. Along the way, we added a problem for

Table 2.1 Comparing Truthmaker Theories

<i>Advantages</i>	<i>Truthmaker Maximalism</i>	<i>Atomic Truthmaker Theory</i>	<i>Spectral Truthmaker Theory</i>	<i>Truth Supervenes on Being</i>
1. Correspondence Theory of Truth	Yes	Yes, but only for atomic truths	Yes, for atomic sentences, given instantiation	Yes, but only in terms of difference-making
2. Distinguishing theories	Yes	Yes	Yes	Yes
3. Catching “cheaters”	Yes	Arguably by supervenience	Arguably, by supervenience	Arguably, by supervenience
4. Simple Combinatorial Theory of Possibility	Yes	Yes	Yes	No
5. Causal relata	Yes	Only for positive causation	No	No
6. Identifying fundamental truths	No	Yes	Yes	No

Maximalism that motivated Atomic Truthmaker Theory, namely, identifying the fundamental truths. We’ve considered four versions of truthmaker theory: Truthmaker Maximalism, Atomic Truthmaker Theory, Spectral Truthmaker Theory, and Truth Supervenes on Being. Table 2.1 summarizes our results.

We have postponed a discussion of some issues directly relevant to various truthmaker theories until later portions of the book (e.g., the nature of the causal relation, the issue of so-called ‘natural’ properties and relations, the question of just what facts might be). And issues about truthmaking will continue to crop up throughout later chapters. In particular, Part II takes up one area where truthmaking looms large: conditional statements, powers, and laws.

In the next chapter (Chapter 3), we will look at a way of extending the idea of fundamentality beyond the relation between propositions into the world itself, through the idea of metaphysical *grounding* or *explanation*.

Notes

- 1 Philosophers distinguish between types and tokens. Standardly, tokens are time- and place-specific instances of some type of thing. For example, in the following list, there are two tokens of a single word type: BEN, BEN. An individual cat is a token of the type, CAT. And so on.
- 2 Some philosophers would question whether a single group of things, the *propositions*, really does play these two roles. David Lewis (1986a) famously did so, arguing that the roles were at cross-purposes.

- 3 It is important to note that Aristotle's use of 'cause' here is not limited to so-called 'efficient' causation, that type of causation involved when a baseball causes a window to break or when one billiard ball causes another to move.
- 4 We'll consider an alternative to the Correspondence Theory—the deflationary theory of truth—in Section 2.3 below. While there are alternatives to both the Correspondence and deflationary theories, notably the 'coherence' and 'pragmatic' theories, we believe the two we consider are the only theories with much hope for success at the end of the day. Thus we ignore their alternatives.
- 5 This argument assumes that if something is a truthmaker for a proposition, then it is essentially so. In other words, it assumes that if something x makes it true that grass is green in the actual world, then x makes it true that grass is green whenever x exists. As we shall see below, this is exactly the step that will be challenged by defenders of Spectral Truthmaker Theory.
- 6 See Section 9.3.1.1 for a further discussion of intrinsicity.
- 7 There is a possible intermediate position, in which there is no one property of truth, but rather a finite number of distinct kinds of truth (such as, perhaps, physical truth and historical truth). We will count such a position as a version of anti-deflationism. Thus, we will assume that the deflationist denies that there is either a single property of truth or a finite number of such properties. We'll simply ignore the view according to which there are an infinite number of fundamental properties of truth, since such a theory would involve an egregious violation of Ockham's Razor.
- 8 In fact, we might even consider the possibility that some universals do have more than one associated totality fact, resulting in a kind of ontological indeterminacy or even inconsistency, that could be useful as a model of vagueness (see Chapter 12.2.2). Perhaps the universals that are of most interest and use to us (especially in science) are the ones that tolerate no more than one totality fact.
- 9 A first-order universal is a universal instantiated by ordinary objects; higher-order universals are instantiated by other universals.
- 10 Why can we limit ourselves to first-order universals? What can we do about uninstantiated higher-order universals. It is plausible that there are no such uninstantiated higher-order universals to worry about. All universals have their properties essentially, and it is plausible to suppose that they all exist necessarily. If so, all higher-order universals will have their non-empty classes of instances essentially.
- 11 Why *weakly* supervenes? Philosophers have defined a family of supervenience relations. Jaegwon Kim (1993) was responsible for classifying them into weak and strong versions.
- 12 This assumption was not entirely unwarranted, since it is plausible to think that truthmakers will have a metaphysical structure that mirrors the syntactic structure of the truth it makes true.

Grounding, Ontological Dependence, and Fundamentality

Metaphysicians seek to understand the world, and a large part of that project is building an *ontology*: a theory of what exists, and of what those existing things are like. However, metaphysicians have traditionally sought more than this. They have also sought to uncover the fundamental structure of reality. This includes understanding what depends upon what, and how.

In addition, metaphysicians want to know, not just what exists, but what exists most *fundamentally* and *really*. These last two tasks may be closely related. It may be that what most fundamentally or really exists are those things that exist independently, and upon which all other things depend. At the very least, it seems clear that what exists fundamentally cannot depend for its existence on things that do not exist fundamentally. So, a theory of metaphysical dependence would greatly constrain our theory of what is fundamental.

Finally, as we have seen, an appeal to ontological parsimony or economy (PMeth 1) plays an important, perhaps indispensable, role in evaluating metaphysical theories. However, we want to minimize our ontological commitments to fundamental entities, not to derived ones. At the very least, economy with respect to fundamental entities seems to be of much greater importance than economy with respect to less fundamental ones:

PMeth 1.0 The Zeroth Corollary of Ockham's Razor. Other things being equal, prefer the theory that posits the smallest number of fundamental entities.

In recent years, many metaphysicians, following the lead of Kit Fine, have used the term 'grounding' to represent a relation of metaphysical dependency: if *x* is *grounded* in *y*, then *x* (in a certain sense) depends upon *y*, for its existence, or truth, or nature. We could identify fundamental entities or truths with those that are not grounded in other

entities or truths, either by being absolutely ungrounded or by being in some special way grounded without being grounded in or by anything.

Some new terminology will aid the present discussion. If x grounds y , call x the ‘fundans’ (plural: ‘fundantia’) and y the ‘fundatum’ (plural: ‘fundata’), from the Latin verb ‘fundare’, to found or ground.

There are a number of different theories about what the relation of grounding is like. They are not all pair-wise incompatible. Some of these theories may be combined, others cannot. We can identify at least three conceptions of grounding:

- (1) Grounding is a kind of explanation: the metaphysical explanation of some facts or truths in terms of others.
- (2) Grounding is a relation of dependency between entities that is generated by the essences or real natures of those entities: x depends on y just in case y occurs as a constituent within the definition of x ’s essence or real definition. We will call this relation ‘ontological dependence’.
- (3) Grounding is a relation of constitution or construction between entities: x depends on y just in case x is constructed from y , or y is an essential element in the constitution of x .

In this chapter, we focus primarily on the first conception of grounding, grounding as metaphysical explanation. We also discuss briefly (in Section 3.4) the relation of ontological dependency and its connections with grounding as explanation. We set aside the third conception, primarily because it presupposes an answer to a question that we examine critically in future chapters, namely, do wholes always depend on their parts, or are there cases where a part can depend upon some whole to which it belongs?

If grounding is a kind of explanation, what kind of explanation is it? Jon Litland (2013) suggests that it is a matter of explaining *how* something is the case. When p grounds q , that p is the case is a *way for* q to be the case. As we shall see, this talk of ‘what is the case’ can be understood in either of two ways: (i) in a conceptual or logical way, explaining the *truth* of one proposition in terms of the truth of other propositions, by reference to the essences of the conceptual components of the propositions involved, or (ii) in a purely ontological way, explaining the *existence* of one fact or the *actuality* of some state of affairs in terms of other facts or arrangements of things in the world. We investigate both conceptual and ontological grounding in Section 3.5.

We also explore (in Section 3.2) the relationship between grounding and truthmaking. Can one be defined in terms of the other? Do they form a kind of inter-definable circle? Is there any reason to prefer one over the other? We also consider various alternatives or competitors to grounding theory in Section 3.3.

Sections 3.6 through 3.8 take up several important questions about grounding:

- Can facts about grounding themselves be grounded? (3.6)
- Do grounds entail what they ground? (3.7)
- How is grounding different from causal explanation? (3.8)

We conclude in Section 3.9 by examining the connection between grounding, fundamentality, and Ockham’s Razor (PMeth 1). We also point to some recent literature on the formal properties of grounding (transitivity, asymmetry, and well-foundedness).

3.1 Is Grounding Real?

In this section, we consider whether there is any reason to think that there is such a thing as grounding or metaphysical explanation.

3.1T Real Grounding. There is a relation of *metaphysical grounding*.

There are several reasons for thinking so, which we take up presently.

3.1.1 Connections with natural language

The notion that some facts are grounded in others is a matter of common sense, well marked in the conventional features of natural language. In English, we express a relation of grounding by means of expressions like ‘by virtue of’, ‘in virtue of’, ‘thereby’, and ‘makes’ (in a certain sense).

- (1) Four is an even number *by virtue of* its divisibility by two.
- (2) The word ‘wounded’ is in the past tense *in virtue of* its ‘-ed’ ending.
- (3) Mary crossed the finish line first and *thereby* won the race.
- (4) Jamie’s valid election to the office *makes* her the president of this club.

Latin actually has a separate case, the ablative case, to capture just this sort of meaning. It is important to note that none of these cases seems to involve a cause-and-effect relationship between two events or conditions. Being divisible by two doesn’t *cause* four to be even. Two’s evenness just *consists in* it being divisible by two. Similarly, it would be odd to say that Mary’s crossing the finish line *caused* her to win the race. The causes of her winning must be separate, typically earlier events and conditions, like her rigorous training regimen or her well-regulated diet. To cross the finish line (in the right circumstances) just *is* to win the race.

3.1.2 Plausible examples of grounding

There are many actual cases that seem to be cases of grounding between facts or between other kinds of entities. Jonathan Schaffer (2009) gives some examples:

- 1 A singleton set, like $\{2\}$, the set containing just the number 2, is grounded in the existence of its member. The set exists, at least in part, because its member exists, but the member does not seem to exist because the set exists.
- 2 The shape or topological form of a piece of Swiss cheese is the ground for the existence, the number, and the arrangement of its holes. There is an obvious asymmetry here. Bits of Swiss cheese can exist and have a definite shape without any Swiss-cheese holes, but Swiss-cheese holes cannot exist in the absence of Swiss cheese. However, even if we consider *holey* Swiss cheese (which by definition cannot exist

without holes), it still seems clear that the holes depend on the location of the bits of cheese and not vice versa.¹

- 3 The existence and shape of a heap of sand depends on the existence and the location of each of the grains of sand that make it up. Even though it may be true that the location of some grains of sand can be causally explained by the locations of other grains, it would be very odd to think that the location of all the individual grains consists in or depends on the overall shape of the heap, instead of the other way around.
- 4 Consider the property of *being made of wood or aluminum*. The existence of this complex property presupposes (in some sense) the *prior* existence of the properties of *being made of wood* and of *being made of aluminum*. In addition, to have or instantiate the complex property just is to have one or the other of the simpler ones. All of the facts involving the instantiation of the complex properties can be derived from facts about the instantiation of the two simpler components.
- 5 We argued, in Chapter 2, that in some cases the truth of a proposition is grounded in the existence of a truthmaker. The truth of the proposition that atoms exist is explained by the existence of atoms, not vice versa.

Jaegwon Kim (1994) noted other cases involving determination without causal determination. Given the right social context and conventions, one's signing a check is a way of paying a debt that one owes another. One's signing the check does not cause the debt to be discharged, though in some sense, it *is* the discharging of the debt. And yet, there seem to be two facts here. First, there is the fact that one signed the check, and second, there is the fact that one paid the debt. One could have paid the debt in many other ways, but as things actually turned out, one paid the debt by signing the check. One's signing the check was the way in which one paid the debt. The relation between these two facts seems to be one of metaphysical grounding: the paying of the debt is grounded in the signing of the check.

3.1.3 Philosophical debates that turn on grounding claims

Debates about grounding are a recurring theme in the history of Western philosophy. This has been especially true in the field of moral philosophy or ethics. To take a famous example, let's consider Plato's dialogue, the *Euthyphro* (Plato 1997: 1–17). In this dialogue, Socrates and Euthyphro are seeking the definition or essence of piety. They agree that every holy (pious) act is loved by the gods, and that everything that is loved by the gods is holy. However, Socrates is not satisfied with this extensional coincidence: the fact that the same acts that can be called 'holy' are loved by the gods is not enough to make being loved by the gods the *definition* of holiness. He wouldn't be satisfied even if it turned out that the two properties are necessarily coincident (which logicians call *intensionally* equivalent). Instead, Socrates wants to know if an act is holy because it is loved by the gods, or if the gods love an act because it is holy. Plato seems to be investigating a question of grounding: is the holiness of an act grounded in the gods' love of it, or is the gods' love of it grounded in its holiness?

Much of Aristotle's metaphysical method also presupposes the existence of a grounding relation. He assumes in the *Metaphysics* (Aristotle 1984: 1552–1728) that when we

have discovered the definition of a species in terms of a genus and a differentia, then the fact that something belongs to that species is grounded in its belonging to the genus and its having the differentiating feature. This is true even when the membership in the species coincides exactly and necessarily with the class of things possessing the differentia. For example, if the correct definition of the class of mammals is hairy animal, then a dog's being a mammal is grounded in its being an animal and in its being hairy, even if being hairy and being a mammal coincide in extension. It would still be the case that being mammal is partly grounded in being hairy, and not vice versa.

The concept of grounding is also needed to make sense of debates in more contemporary philosophy. For example, moral philosophers ask whether *the right* is grounded in *the good*. Are reasons grounded in other normative truths, or vice versa? Are legal facts partly grounded in moral truths? Questions of grounding arise in epistemology as well. Is the fact that a belief is justified always partly grounded in other beliefs that one has, or can it be wholly grounded in one's experience, or can it be totally ungrounded?

3.1.4 Fruitfulness of grounding

As Schaffer (2009) points out, the notion of grounding can be very useful for defining other metaphysical notions. For example:

- x is fundamental = x is not grounded by anything
- x is derivative = x is grounded by something
- x is an integrated whole = x wholly grounds each of x 's proper parts
- x is a mere heap = x is wholly grounded by its proper parts

We could also define fundamental truths or facts as those that are ungrounded, or perhaps either ungrounded or "zero-grounded," as Kit Fine (2012a: 47–48) says, meaning grounded by the null or empty set of facts).

If we take the relation of grounding between facts or truths as fundamental, we could perhaps define a relation of grounding between other entities in something like the following way:

Def D3.1 Entitive Grounding. Entity x (*entitively*) grounds y if and only if y 's existence and all of the facts intrinsic to y are wholly grounded in the fact of x 's existence and all of the facts intrinsic to x .

We can also use grounding (as an explanatory relation between facts) to define which properties or facts are intrinsic to an entity, as we did in Chapter 2:

Def D2.3 Intrinsicity. x is *intrinsically* F if and only if nothing that is not x or a part of x is part of the ground of x 's being F .

Grounding as a relation between facts is normally taken to be *factive*: that is, if the fact that p grounds the fact that q , then both p and q are true. On this conception, if the shape S of the Swiss cheese grounds its having seven holes, then the cheese really does

have shape S and seven holes. We could also introduce a non-factive grounding relation between propositions or possible facts. Proposition p non-factively grounds proposition q if and only if it is possible that p (factively) grounds q . (Or, perhaps, it is necessarily true that if p and q are both true, then p factively grounds q . The two definitions are probably equivalent. See Section 3.7.) If we instead take non-factive grounding as primitive, we could define the factive grounding of p by q in this way: p and q (are both true), and q non-factively grounds p .

There is also a useful distinction between one fact's wholly grounding versus only partially grounding another. For example, one might think that the meaning of a word on a particular occasion is partly grounded in the intentions of the speaker, but not wholly grounded in those intentions, since the meaning also depends on current linguistic practices and conventions. Let's suppose that one fact can be wholly grounded (jointly) by a set of facts, and not just by one other fact taken alone. For example, the fact that the set $\{0,1\}$ has two members is wholly grounded in the fact that it has 0 as a member together with the fact that it has 1 as a member (and perhaps also by the fact that 0 and 1 are different). It is then easy to define partial grounding in terms of whole grounding:

Def D3.2 Partial Grounding. The fact that p is a *partial ground* for the fact that q if and only if there is a set Γ of facts containing the fact that p such that Γ (wholly) grounds the fact that q .

Fine (2012a) also defines a relation of weak grounding, a relation that is useful in defining the logic of grounding:

Def D3.3 Weak Grounding. That p is a *weak ground* for the fact that q if and only if either the fact that p grounds the fact that q or $p = q$.

3.1.5 Grounding is different from conceptual priority, reduction, and supervenience

Let's grant that we have pretty good reason to believe that there is metaphysical grounding. We still need to investigate whether this is an independent, indispensable notion, not definable in terms of other familiar relations.

3.1T.1T Indefinable Grounding. The grounding relation is unique and indefinable.

3.1T.1A Definable Grounding. The grounding relation is definable in terms of other relations.

We might think, for instance, that grounding either is or is definable in terms of conceptual analysis, reduction, or supervenience.

Consider conceptual analysis or conceptual priority first.

3.1T.1T.1 Conceptual Analysis and Indefinable Grounding. Grounding is not definable in terms of conceptual analysis.