Coming to Understanding

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Part 1: Categories

Chapter 1

Explanation and Monism

Is there any substantive knowledge of the nature of things that transcends but nevertheless puts in an intelligible form the detailed knowledge provided by the natural sciences? Near the end of the *Tractatus*, Ludwig Wittgenstein wrote, "We feel that after all the results of natural science are in, the real questions still remain to be answered." Yet his despairing conviction was that the sense of the world and the contents of ethical demands are strictly inexpressible and so will never have the status of knowledge. Wittgenstein's conviction has a revealing history. His view that the fundamental structure of our language prevents us from giving sense to the questions that transcend empirical science recapitulates Immanuel Kant's claim that the most general categories of our thought—the foundational categories of substance, causation, and necessity with which we are tempted to frame world pictures—only have legitimate application within sensory experience.

Wittgenstein's *Tractatus* in its turn inspired Rudolf Carnap and the Vienna Circle. These self-styled Logical Positivists streamlined and demystified Wittgenstein's outlook by insisting that the only "cognitively meaningful" statements, besides stipulative or merely conventional definitions, were the verifiable or falsifiable statements that constituted the domain of empirical knowledge. No substantive knowledge of the world was available *a priori*, i.e. independently of the operation of the senses. Traditional philosophy therefore had no ground to occupy, and metaphysics, in particular, was seen as a subject devoid of a subject matter.

Linguistic philosophers in the last half of the twentieth century raised related questions about the legitimacy of the metaphysical enterprise—often from the point of view of a study of ordinary language—and drew the conclusion that traditional metaphysical distinctions were either idle or mere reflections of linguistic conventions. No wonder that much of the best work in the latter part of the century consisted of attempts to escape from the stultifying atmosphere imposed by positivism and linguistic philosophy.

From where we stand now, at the beginning of the twenty-first century, it is already clear that the rumors of the death of metaphysics have been greatly exaggerated. This should come as no surprise, for the very understanding provided

by the natural sciences invites metaphysical questions. The defining focus of the natural sciences is the explanation of events in terms of antecedent events coupled with very general non-accidental regularities or laws of nature. But it is nevertheless quite reasonable to wonder why this sort of explanation works at all. Is it that the laws of nature represent the real structure of the world, which we come to grasp in more detail as natural science develops? And if so, is this structure of natural law absolutely necessary in the sense of its being incapable of being otherwise, or is it something contingent that in turn requires an explanation for why it is the way it is? Such questions thrust us into the midst of metaphysics, the quest for a more global understanding of reality than science attempts to provide.

The appeal to antecedent events and their laws is powerless to explain why the most fundamental laws take the particular form they do, why things are intelligible at all, or whether there is any large-scale purpose embodied in the details revealed by science. These questions reach beneath anything that can be accounted for by the trajectories of events unfolding in law-like patterns, yet they are manifestly real questions. Such questions do not ask for a causal explanation or a statistical reckoning of a particular event or series of events. They concern reality as a whole and its purpose, if any. They fall in the province traditionally assigned to metaphysics.

The investigation of the broader significance of reality as a whole is clearly not the topic of this or that special science. Each science is focused on the individual items peculiar to its domain and seeks to find an explanatory structure that holds quite generally throughout that domain. But how is it that there are such intelligible domains at all? That is not a question to be found on the agenda of any special science. So we should not expect a scientific answer to questions like What is the structure of reality? Why is the world intelligible? What is the nature and scope of explanation? Many wrongly conclude that no answers to these questions are to be had, just because there are no answers forthcoming from natural science.

This methodological divide, between the approach taken in this work and the approach of philosophers of a more skeptical temperament, is worth making explicit. Some philosophers believe that some questions cannot be answered—not even in principle. They believe, in other words, that there are "brute contingent facts," facts that can never be explained, even in principle. We reject the existence of brute contingent facts. In our defense, we note that this divide is more fundamental than it looks: to do metaphysics at all is in part to presuppose that the nature of things is intelligible, that is, that the nature of things is in principle accessible to our epistemic tools. The hallmark of intelligibility, in turn, is explanation, and so we adopt as a methodological presupposition that brute (unexplainable) contingent facts do not exist. We have suggested that this is a

natural presupposition of metaphysical studies, but in fact it is an equally natural assumption of the sciences as well. Scientific theorizing does not rest easily with brute contingent facts: *prima facie* inexplicable events are precisely the ones young scientists home in on in their attempts to make a mark on the field.

It is also worth noting that one reason some philosophers believe in the possibility of brute contingent facts is that they often have an inappropriate standard for explanatory adequacy: the explanation must suffice for the existence of the item explained. But this peculiarly strong view of explanation has long been deserted in the sciences, where probabilistic explanations are routine—something Carl Hempel noted around a half-century ago. Therefore, absent the standard reason for believing in brute contingent facts, we shall adhere to this methodological principle.

To explain reality as a whole in the most general and comprehensive way is to say what it is, to articulate its form or nature, and to extract its purpose. That is to discharge the fundamental tasks of metaphysics. A useful division in metaphysics is that between speculative cosmology and analytic ontology. Speculative cosmology is the focus of the enterprise in which this book is engaged, namely, the provision of a large-scale account of reality, its origin, purpose(s), and how it is structured. Analytic ontology is most famously exemplified by Aristotle's Categories, arguably an account of the fundamental divisions of reality, where these fundamental divisions or categories are best understood as the basic ways things can be. One fundamental methodological insight shaping the present work is that analytic ontology is the key to speculative cosmology. This is because the structure of reality as a whole is informed by the structure of the categories themselves. Therefore, to the extent that we can chart the structure of the categories and their interrelations, we can gain insight into the structure of reality and its purpose, if any. With the notable exception of Hegel, the flaccid, arbitrary, list-like quality of the theories of the categories proffered by the tradition has obscured the pivotal importance of the theory of categories for an account of the structure of reality and so of the nature and purpose of reality as a whole.

In particular, no account of categories has attempted to address the second-order question of ostensible categorical relations among those categories nor the broader question of how we are to conceive the relation between the categories and the reality they categorize. When we comprehend the nature of the categories and the fundamental relations among them, the nature and purpose of reality as a whole will be laid bare. That is the conviction inspiring the present work.

As well as its emphasis on the revelatory power of categorical structure, the present work expresses a fundamentally monistic point of view. The general monistic idea is found in the systems of many great philosophers, notably Plato, Spinoza, and Hegel. It is the idea that reality as a whole is the highest paradigm of

unity, explanatory coherence, and independence. By contrast, the domain of changing individuals is not unified, and the particulars of that domain cannot be explained in their own terms alone. Rather, changing particulars are dependent on realities that they do not directly reveal. The thesis of monism highlights the importance of this contrast between "becoming" and "being" (as it is sometimes put) and then asserts that changing individuals can only be adequately understood by continual reference to the structure of the whole.

From antiquity to the present day, the development of metaphysics has been dominated to a considerable extent by the previously described contrast and more specifically by worries about the nature of change: How, that is, is it that items can come to be, change, and pass away? The doctrine of hylomorphism—wherein all concrete objects are composed of matter and form in an inseparable unity—is Aristotle's solution to the problem of change. Hylomorphism has matter playing a dual role, first as the possibly variable constitutor of the changing object and second as the potentiality to take on different forms through the process of coming to be and passing away. In this second role, matter is the subject of radical change, that which remains through the process of acquiring and losing a structuring form. Form, by contrast, is understood as that structuring factor which has being only in the succession of its material embodiments.

Although Aristotle's solution is appealing, he ties it to the problem of change to a pluralistic substance ontology, an ontology in which middle-sized concrete things, such as "the individual man or horse" are treated as substances or ontologically self-contained beings existing in their own right, and not as dependent aspects of some more fundamental underlying reality. As we have already hinted, we reject his pluralistic substance ontology. Nonetheless, hylomorphism, purged of this pluralism, will loom very large in the system disclosed below. Indeed, a fundamental premise of the present system involves generalizing Aristotle's hylomorphism even to the case of unchanging items, such as categories.

Let us briefly explain why this extension of Aristotle's hylomorphism is cogent. In the *Metaphysics*, we find this crucial passage:

> We call a cause (*aitia*) (1) that from which (as immanent material) a thing comes into being, e.g., the bronze of the statue and the silver of the saucer, and the classes which include these. (2) The form or pattern, i.e., the formula of the essence, and the classes which include this (e.g., the ratio 2:1 and the number in general are causes of the octave) and the parts of the formula. (3) That from which the change or freedom from change first begins, e.g. the man who has deliberated is a cause, and the father a cause of the child, and in general the maker

a cause of the thing made and the change producing of the changing.
(4) The end, i.e., that for the sake of which a thing is …

Consider how each of these four causes, or explanatory factors, is present in Aristotle's favorite case of an artisan who shapes bronze into a statue. Bronze is the matter of the statue; all the parts of the statue are, at the relevant level, bronze. The form of the statue is its structure or shape—the way that it is. What makes this the right or proper way is that the formal organization of matter serves some good purpose. In this case we might suppose that purpose to be to produce a certain kind of aesthetic delight. In citing this purpose we give further evidence that we are dealing with a genuine entity rather than with a mere plurality of parts. For the existence of a genuine entity has a point in the way that the existence of a mere plurality, e.g. the stones in some backyard, does not. When we have cited these three explanatory factors—matter, form, and finality—we are on the way to representing the statue as a genuine entity rather than merely some bronze or a mere sum of pieces of bronze.

We still lack an account of what makes the statue this entity as opposed to another entity of the very same kind, i.e., with the same matter, form, and final end. For a series of distinct statues—a first, then a second, and then a third—could be made from the same bronze, according to the same form and for the same end of producing a certain kind of aesthetic delight. It is here that originating efficient causation comes in to complete the account of the particularity of a thing. What makes this statue the particular statue that it is—say the third statue rather than the first or the second statue—is that it was brought into being by those particular acts of this artisan. (Those particular acts will in their turn have matter, form, and finality and will themselves be distinguished by their place in an efficient causal structure.)

The doctrine of the four causes has been immensely fecund in the history of philosophy; what has just been given is an interpretation of that doctrine as an account of the unity and the particularity of a composite entity. This interpretation is driven by a basic question that is seldom asked, let alone answered: What do Aristotle's four causes or explanatory factors actually explain? Because this question is not addressed, the four causes look to be a primitive form of science, a simple-minded attempt to explain what happens in the world.

Instead we should see the four causes or explanatory factors as each aspects of an answer to a specific metaphysical question, namely: What makes this particular thing the one thing it is and not some other thing or a mere collection of some parts? Here is a basic metaphysical obsession: the quest for an explanation of what makes this or that particular the particular that it is. The four causes are best seen as a sophisticated response to that profound question and not as a primitive

attempt at empirical science.

But seen in this way, as responsive to a basic metaphysical concern, the four causes are not essentially tied to concrete particulars. They will apply to anything that is a genuine unity or particular; and so we shall use the notions in this work.

We have revealed ourselves to be quite sympathetic to Aristotle's notion of explanation and willing to expand its scope beyond where Aristotle appears to have applied it. When it comes to the specific topic of "substance," however, the present work sides with Spinoza rather than Aristotle. In Part I of the *Ethics*, Spinoza defines substance as that "which is in itself and conceived through itself." By this he means that anything properly called substance would have to be ontologically independent ("in itself") and not explained through appeal to something beyond it ("conceived though itself"). Spinoza draws the conclusion that the only thing that is ontologically independent and self-explaining is the world as a whole, which he calls *Deus sive Natura*—the God that is not distinguishable from Nature. The argument depends ultimately on Spinoza's theory of understanding. For Spinoza, as with Aristotle, to understand anything, to have knowledge of what it is, is to know its full cause or explanation. For Spinoza, the full understanding of a dependent particular requires an explanation of all of its relations of dependence to other particulars and hence ultimately to the world as a whole.

In contrast to Aristotle, Spinoza takes the world as a whole as the one and only fundamentally real thing. His monism, therefore, takes a particularly simple form. Our monism, because of the incorporation of hylomorphism, is more "layered." We agree with Spinoza that the whole of reality (we shall hereafter refer to this as "The One") is the only independent concrete particular; all other things are dependent on it. But in addition, we find imposed on The One the hylomorphism that was first discovered by Aristotle: The only independent concrete particular has both form and matter, and its fundamental nature or form structures this whole reality.

This structure is a structure of categories. But these categories are to be understood in a distinctive way: not as kinds, nor as universals in rebus, in the fashion of Aristotle, nor as universals that can exist without being instantiated, as in what is sometimes taken to be Plato's view. Rather our categories will be most like Platonic "ideas" or "forms" (although this latter way of referring to a Platonic *eidos* is somewhat misleading in a hylomorphic context in which some "forms" turn out to be formal and others material).

In order to properly introduce this distinctive idea of categories we should briefly review some highlights from the history of category theory from the time of Plato to the present.

Chapter 2

Category Theory in Greek Philosophy

Plato's teacher, Socrates, inaugurated a new era by displacing the reductive physical and cosmological speculations of his predecessors from the center of philosophical understanding. Whereas they asked after the basic constituents of changing items and the large scale structure of the world, Socrates inquired into the real definitions of things, the accounts of what it is to be this, that, or the other kind of thing, and into the nature of the good life.

For Socrates the desire to understand could not be sated by physics or by cosmology but only by a reasoned account of how to live a life of quasi-transcendent significance in the face of the manifest defects of the human condition. But Plato represents Socrates as claiming that this special ethical knowledge consists in acquaintance with transcendent realities, the so-called ideals or forms. These forms are also the items that terminate the chains of definitions that Socrates studied. So at the very beginning of Western metaphysics a profound nexus is forged between understanding the realities that must be invoked in the account of what things are and having the right kind of ethical knowledge.

Arguably, this nexus was quickly snapped by Aristotle's formal theory of categories as predicables, a theory that he seems to have deliberately offered as an alternative to Plato's theory of forms. The present work opposes this strategy of Aristotle's and aims to reinstate the fundamental nexus between having the right kind of ethical knowledge and understanding the realities that must be invoked in the account of what things really are. In that sense, our approach is deeply Neo-Platonic. As we shall see at the end of our review of the history of category theory, something like Plato's theory of forms is the correct starting point for any fundamental account of reality.

What was Plato's theory, and how was it displaced by a theory of categories of the Aristotelian sort? Plato's account of reality is strongly dualistic. The world of sense experience is constantly fluctuating; it can only be the object of mere opinion, never knowledge. Thus, living only in the world of sense experience is a form of epistemic bondage. Those who take the Heraclitean hell of sense experience to be the only reality are like prisoners, as Socrates famously says in *The Republic*, "living in an underground cave," able only to see the shadows of what is real. In contrast to this ordinary world of sense experience, there is a world of intelligible reality disclosed only to the intellect, a world of preexisting paradigms or forms, items not only intelligible in themselves but such that understanding them makes other things, even to some degree the world of sense

experience, intelligible.

For Plato, this intelligible world consists of *eide*, ideas or forms. Plato's doctrine of forms is nowhere fully stated but must be reconstructed from different dialogues, most centrally his *Phaedo*, *Parmenides*, and *The Republic*.

In his *Phaedo*, the forms are described as unchangeable, eternal, available not to sense experience but to the intellect, fundamental explanatory factors, and most interestingly, as perfectly and truly that to which their instances can only approximate by imitation or participation. So sensible things have their reality by participating in the forms, but the forms are independent and completely what they are.

Aristotle, as we noted earlier, tried to tame this exciting view by way of a formal theory of categories as "predicables," that is, things that are said of or inhere in what he called primary substances.

The Greek term *kategoria* employed by Aristotle in his treatise *The Categories* was originally used to denote the accusations that might be brought against someone in a court of law. They are the things that could be said "against" or about a defendant. The idea of the categories as a list of things that could be in some sense said of other things is the idea of the categories as predicables, as the most general sorts of things that can be said of other things. Aristotle gives the following list of predicables as somehow basic:

substance (for example, *man*)
quantity (for example, *one cubit tall*)
quality (for example, *white*)
relation (for example, *half*)
place (for example, *in the marketplace*)
date (for example, *last year*)
posture (for example, *sitting*)
state (for example, *wearing armor*)
action (for example, *burning*)
passion (for example, *suffering torture*)

Now, the first issue that arises about this list concerns the presence there of substance. A substance in the sense of "the individual man or horse" is not predicated or said of anything. Rather these substances are the termini of chains of predication. Predicables can be predicated of them, but these substances—say, Socrates or Bucephalus—cannot be predicated of anything in turn. So it is natural to wonder why "substance" would appear in a list of predicables.

To answer this question is to reveal something important about Aristotle's system of categories. Aristotle takes substances to divide into two classes, which

he calls primary and secondary. The individual man or horse—say, Socrates or Bucephalus—is a primary substance, the basic ingredient of the world. Secondary substances are what we would call kinds—things like man or animal, the various species and genera. Clearly, it is the secondary substances that we predicate of things, as when we say that Socrates is a man or Bucephalus is an animal.

So primary substances are not properly taken to be *kategoria*, for they are not things predicated of other things. But Aristotle holds that the primary substances, the individual man and horse, are in some way ontologically basic. For he holds that all the categories are either said of the primary substances as subjects or are in them as subjects. Accordingly, he holds that if the primary substances did not exist, it would be impossible for any of the categories to exist. So Aristotle's categories are ontologically dependent on the primary substances, which—strictly speaking—do not themselves form a category.

In the tradition of commentary on Aristotle, there is one use of "universal" to mean something that can be predicated of many things. But others later added another distinction between universals understood as ontologically dependent on the things they are said of and universals that are ontologically prior to the things they might be said of. Aristotle clearly takes the former view, and so we may think of an Aristotelian theory of universals as an account of universals *in rebus*; his universals or predicables are ontologically dependent on primary substances.

But how then are we to think of Aristotle's categories—what metaphysical role are they to play? One common view is that they are the highest genera of predicables, the most abstract kinds of predicables. Yet Aristotle's theory of categories cannot be consistently interpreted as a system of the highest, or most abstract, kinds of predicables. For then the category of secondary substance or kind would have the other categories as its subcategories; for by hypothesis they are certain sorts of kinds, namely kinds of predicables.

Aristotle gives us no hint of any such internal connection between the category of secondary substance and the other categories. Indeed, in *Metaphysics* (998 b22-3), he says something that rules out treating the categories as kinds, namely that there cannot be a highest genus. For he holds that a species is to be defined in terms of its superordinate kind or genus, plus a differentia, something that distinguishes the species from others in the genus. Thus man (a species) is defined as an animal (genus) that is rational (differentia). As a result, if secondary substance, or kindhood, were the single overarching genus, there would be no place to find the differentia of the categories, understood as sub-categories of the highest genus of secondary substance, or kindhood.

Part of the difficulty in providing a consistent interpretation of *The Categories* lies in the fact that Aristotle gives us little guidance on the relations among the categories; as we have noted, they are presented as a mere list. This

makes it difficult to articulate the rationale of *The Categories* in the sense of determining what metaphysical status they are to have.

We see this difficulty operating in the history of commentary on *The Categories*. After Andronicus' edition of Aristotle's work in the first century B.C. there emerged a tradition of philosophical commentary on the categories which stretched from Alexander of Aphrodisias, Eudorus of Alexandria, Albinus, Lucius, and Athenodoros on to Olympiodorus, Plotinus, and Porphyry. A central item of disputation in this tradition concerns Aristotle's exact purpose in *The Categories*, in particular whether the classification he offers is to be understood as primarily grammatical, metaphysical, or conceptual. Given the grammatical interpretation, *The Categories* is concerned with the basic classification of significant words, items that are applied to or "said of" substances understood as the subjects of all meaningful sentences. On this interpretation, *The Categories* represents merely the first crude steps toward what has become empirical linguistics. This sort of categorizing can have metaphysical significance only on the shaky assumption that the distinctions embodied in ordinary language can be a privileged guide to the structure of reality. On the metaphysical interpretation, Aristotle's classification concerns the different kinds or elements of being, not simply as reflected in the recurrent patterns of what we say but as drawn out by intellectual insight and reflection. A third view is made explicit when one of Aristotle's commentators, Olympiodorus, splits the difference between the ontological and grammatical interpretations, maintaining that the categories are concepts. Olympiodorus writes,

> Of things that are, some only refer to others, some are only referred to by others, and some others both refer and are referred to. For instance, vocal signs only refer, existing things are only referred to, but the concepts both refer and are referred to. for the concepts are referred to by vocal signs, and things. Now other commentators say that Aristotle deals with words, and still others with things. But between them are the concepts. Thus the purpose of the categories is to deal with concepts.

This conceptualist interpretation of Aristotle doesn't provide a fresh approach to the issue of the metaphysical status of the categories. For there are two choices in understanding categories as concepts, associated with two different models of grasping a concept. On one model, grasping a concept is possessing a structured psychological ability, the ability to meaningfully use a word or conventional sign in accord with its conventional meaning. Just as an empirical linguistics replaces any archaic classification of words that earlier thinkers might have articulated, an empirical psycholinguistics replaces any speculative account of the structure of

those psychological abilities that issue in the meaningful use of words. But again, such a study can have philosophical significance only on the shaky assumption that psychological categories are a privileged guide to the structure of reality. There is scant reason to believe this might be so. The kinds that are most natural to us psychologically are likely to be synthetic or constructed kinds that have proved valuable to us in the local niches that we as a species evolved in response to, not necessarily the categories that (ultimately) prove to be metaphysically significant.

The other model of grasping a concept is explicitly ontological—that is, a concept is a universal, and to grasp a universal is to have an intellectual insight into its nature, which insight guides one in seeing significant similarities and differences among particulars and so guides the true classification of particular things. But this model leads us back to the ontological interpretation of the categories: Aristotle's categories are universals of a certain sort, namely real kinds or elements of the world.

It is probably best to interpret Aristotle's theory of categories as properly intended as a theory of the fundamental kinds of things that there are. One of these kinds of being, namely primary substance, is not a predicable. So the theory is not completely described by the more familiar account of it as a theory of predicables or universals. The theory is really organized around a central category of primary substance, where a primary substance is a bearer of properties not itself borne; or as Aristotle puts it, something of which things are said or predicated but which is not itself said or predicated of anything else. The organization of Aristotle's categories is thus in terms of their relations to the basic category of primary substance. Here then is a theory of categories that starts with a class of distinguished concrete objects—the substances—and works out from there. It explores the kinds of being necessary if there are to be such distinguished particulars.

Despite the unifying theme of primary substance, as suggested here, *The Categories* still continues to exhibit a lugubrious, list-like quality. Nothing significant is said about the interrelations among the categories and whether these interrelations would themselves count as categories. (As we shall argue, they must count as such.) Nor are we told how the categories stand to the later hylomorphic analysis of substances and to efficient and final causes. Nor, as Plotinus emphasized in *The Enneads*, are we given any indication of how Aristotle's substance-based list of categories is supposed to relate to the structure of forms that Plato described.

Although Aristotle allows that primary substances fall under genera, or kinds, the absence of any discussion of relations among these kinds is an omission of some significance, for those relations would have also to be categorical, i.e., elements in the structure of categories. It is this lacuna that Porphyry partly

addresses by way of his tree of definition. Porphyry's limited but distinctive contribution is not so much his own list of categories but the idea of a tree of categories whose highest node is the most abstract or general of categories—the *summum genus*—and whose immediate subcategories are distinguished by their differentia, or special features. This downward structure of subspecies upon subspecies, each defined by (i) the genus under which it falls and (ii) what differentiates it from other species of the same genus, reiterates at every node. Thus Porphyry's Tree is generated. The relation between a species and a genus emerges as itself a categorical relation, something as fundamental as the categories themselves.

This small advance opens up a whole arena of inquiry. How are we to think of the structure of the categories if the relations among the categories are themselves categories? This line of inquiry has remained a path less traveled. The present work, in contrast, will explore this path in great detail.

Chapter 3

Category Theory in Kant and Hegel

We have suggested that Aristotle's concern with categories is best read as part of a metaphysical project—a limning of everything there is. The conceptual understanding of categories was powerfully reanimated, however, in the eighteenth century, in the work of Kant. Although, as we have also suggested, conceptualism is ultimately not the right direction for a philosophical approach to categories to take, the particulars of Kant's approach nevertheless proved extremely fruitful because of subsequent philosophical views of categories that it made possible.

Kant notices that certain propositions regarding space and time that are codified in mathematics seem to be necessary truths. He takes the purported necessity of such truths as a given and raises the epistemic question of how we are able to grasp such truths. His answer is that the only possibility is that our minds, in some sense, impose such truths upon what we experience. Otherwise, although we would realize that geometrical facts are true, we would never see that they are necessarily true—that geometrical laws must apply to anything there is. And this is something that—Kant thinks—we do recognize.

It is worth noting, however, that this entire line of thought was deflected in the twentieth century by the mere rejection of its starting point: the supposed necessity of geometrical truths. That these laws govern the space and time we live within we recognize to be a claim to be empirically established or rejected. And general relativity is taken to have empirically refuted the necessity of the Euclidean geometry that Kant was wedded to.

But that is some centuries later. Kant instead draws the conclusion that space and time, and therefore the laws they must obey, are subjective forms of our perceptive faculty and thus that such laws are not laws governing things but rather are laws governing the nature of experience: they are laws about our own minds.

This radical subjectivist view makes natural the construal of the study of categories—not as a study of the metaphysical contours of everything there is but rather as a study of the sorts of judgments we necessarily make when we think about our experiences. In particular, we can recognize what kinds of fundamental categories there are by determining what concepts are involved in the different kinds of logical judgment there are. According to Kant, exactly twelve kinds of judgments are possible: universal (e.g., *All men are mortal*), particular (e.g., *Some men are mortal*), singular (e.g., *Socrates is mortal*), affirmative, negative, infinite, categorical, hypothetical, disjunctive, problematic, assertoric, and apodeictic.

And from these he derives the following corresponding pure concepts that he

calls categories: totality, plurality, unity, reality, negation, limitation, substance and accident, cause and effect, reciprocity, possibility and impossibility, existence and nonexistence, necessity and contingency. These concepts, like the *a priori* notions of space and time, do not arise empirically from the contemplation of experience but instead are imposed by the mind itself—*a priori*—on any possible sense experience we can have. In making any judgment about what we have experienced, such categories must be employed: a thing may or may not be red (specific colors, and even the notion of color itself, are not in the above list of concepts). But whatever we experience must be the effect of some cause. It must be a substance having accidents. It must be one or many. We can conceive a universe without whiteness or without weight but not one without unity, plurality, reality, negation, and so on.

The universal applicability of Kant's categories to anything we might sense or imagine is to be explained in the same way as the universal applicability of the notions of time and space: these categories are the work of our minds, and our minds are so structured that things must appear to us in ways that fit these categories.

Kant called reality as it really is—as opposed to our experiences of it—the "thing-in-itself" or "things-in-themselves." Things-in-themselves, he argued, are unknowable because none of the categories that we must impose on anything we can think about can apply to it. The thing-in-itself is not a cause or a substance; it is neither one nor many; it has neither quantity, quality, nor relation. That is to say, all these categories apply only to how things appear to us, not to the thing as it is in itself.

In this way Kant saw himself as limiting the possibility of metaphysics as we have interpreted Aristotle (and ourselves) as engaged in. Instead, any possible knowledge must be constrained by the set of categories through which anything can be thought, and this knowledge is therefore sound and good only insofar as it is applied to appearances. If we imagine that it is possible for us to know reality as it is in itself, then we are deluding ourselves. Kant's approach, as we have seen, is guided by his central question: How can such categories as cause, substance, possibility and necessity—according to him, concepts that are not given in experience—apply to empirically given objects? He is struck by the idea that these concepts apply to all such objects even though these concepts could not be acquired by experience-based generalizations. Hence Kant's aim is to both account for the *a priori*, or non-experiential, basis of his categories and at the same time to explain how such *a priori* concepts could apply to the objects we experience. His infamous solution, as we have seen, is that the objects we experience are "phenomenal," the products of a kind of mental activity of binding together or synthesizing sensory impressions, a synthesis that must be guided by the categories

themselves.

Philosophy, according to Kant, is to give up all attempts to know reality or to penetrate behind appearances. But interestingly, the effect of Kant's austere recommendation to philosophers instead led to a renaissance of metaphysical thought. The primary reason for this is that Kant's denial that categories apply to things-in-themselves requires the cogency of the very notion of things-in-themselves. But everyone saw pretty quickly that the concept of the thing-in-itself is self-contradictory. The cogency of the notion is assumed by Kant because he requires an external cause of our experiences. But contrary to the description just given, the thing-in-itself cannot be such a cause, because *cause* is a category that—so Kant claims—can apply only to how things appear. Even to say as little as that the thing-in-itself exists (something Kant is required to say if the concept is to play any role at all in his philosophy) is still to invite self-contradiction because the category of *existence* also cannot apply—so Kant claims—except to appearances.

The upshot is that although subsequent approaches to the study of the categories retain the conceptualist flavor that Kant introduced, such categories are nevertheless not restricted from applying to everything there is. There is, that is, nothing else apart from appearances. This is why the philosophers immediately following Kant, Hegel included, were idealists despite their robust metaphysical appreciation of the significance of the categories.

And this is why, despite their idealism, these philosophers could still rightly charge Kant with a kind of subjectivity they did not share. Hegel, who maintained a vibrant sense of the theory of categories as a substantial metaphysical subject, says as much in the *Encyclopedia of Philosophical Sciences*:

> Objectivity of thought in Kant's sense is … to a certain extent, subjective. Thoughts, according to Kant, although universal and necessary categories, are only our thoughts—separated by an impassable gulf from the thing, as it exists apart from our knowledge. But the true objectivity of thinking means that the thoughts, far from being merely ours, must at the same time be the real essences of things.

ith the thing-in-itself out of the picture, Hegel can reinstate the idea that the categories must correspond to—even be—the basic elements of an independent reality, not merely facets of our most general style of thinking. For how could the structure of reality lie apart from the structure of our thoughts? Those thoughts are not mere dependent existents or beings that are connected in some mysterious fashion to what there is. Rather, they exemplify—more accurately, instantiate—reality as a whole.

In the same anti-subjectivist—but nevertheless idealist—vein, Hegel treats synthesis not merely as a mental process as Kant does, but more deeply, as simultaneously a quasi-logical relation among the categories themselves. In this way, Hegel introduces for the first time a dynamic, generative, teleological structure among the categories, the so-called dialectic process, which he also takes to be the hidden key to the development of nature, consciousness, and history. The dialectic process is a story of stages in the overcoming of objective incompleteness. As Hegel puts it in an earlier work:

> Each being is, because posited, thereby op-posited and so is both conditioned and conditioning. The Understanding completes these limitations by positing the opposite limitations as their necessary accompaniment. These require the same completion, so that the Understanding's task develops into an infinite one ... as it completes a relative identity through its opposite and produces again, through the synthesis of the two, a new identity, which again is in its way incomplete.

Thus, Hegel's idea of the dialectical structure of the categories is grounded in two claims: (i) that to be a definite thing is to be demarcated or delimited by one's opposite, and (ii) that these opposites make up a genus, which will in its turn be delimited by its opposite, and so on ad infinitum. To see this dialectical process at work, begin with a category and call it the thesis. Standing as the delimiting opposite of the thesis—as its negation, as it were—is the antithesis. Taken together the thesis and the antithesis comprise the synthesis, in some respects like a Porphyrian genus made of two subcategories. The odd thing is that despite Hegel's genuine sensitivity for the importance of categories and the importance of determining how they arise from one another, Hegel deploys no real analog of Porphyry's differentia. He gives no account of how a thesis is delimited within the genus by anything other than its antithesis. This omission leads to a radical indeterminacy in the Hegelian system of categories. The vertical structure of the categories is clearly determined as a downward tree beginning with the *summum genus* at the topmost node, with each node of the tree (i) occupied by some genus and (ii) branching into nodes occupied by two subcategories corresponding to a thesis and an antithesis respectively. But we are given no idea of how the Hegelian categories are related "horizontally"—that is, when they are at the same level of generality while not being themselves thesis and antithesis of the same genus. The branches at a given horizontal level in the tree are not themselves standing in any interesting categorical relation. By omission of the notion of the differentia, crucial cross-connective tissue is lost in the resultant theory of categories.

Apart from this, for Hegel, so long as we are below the first category (the category of being, according to him), any genus or synthesis in its turn functions as a thesis, which finds its own antithesis, and then comprises a new thesis with its own opposing counterpart or antithesis. Here, by iterating the thesis/antithesis structure, Hegel is offering an account of the relations among the categories. But what Hegel does not do is present an overall picture of the resultant structure. Once the "infinite" task of the understanding is complete, what exactly would the structure it contemplates be like?

Kant and Hegel, by introducing a psychological element into category theory, take category theory a certain distance towards lessening the list-like quality of that study so salient in the earlier tradition. To some extent, thinking of the categories as determined empirically allowed the Greeks to set down collections of categories one after another, merely as one thought of them. The absence of any connective tissue among such categories was not even felt to be a problem.

But once categories are seen to require conceptual connections to one another and once this is recognized not merely as a subjective psychological fact about how we think about categories but is instead seen as a metaphysical fact about the categories themselves, the steps are in place to allow genuine discoveries about how the categories are connected to one another.

Chapter 4

Modern Category Theory

Despite the ambitions for, and insights into, category theory due to the conceptual turn taken by Kant and the resurrection of its ontological status on the part of Hegel, subsequent category theory has been for the most part much more circumscribed in its scope. Most notably, in a complete break with Hegel's deployment of his categories, modern category theory entirely ignores the possibility of an intrinsic teleology at the heart of reality. Instead, the varieties of modern theories of categories are usually exercises in conceptual or grammatical taxonomy.

Consider modern category theory as it appears in the work of Edmund Husserl. He makes a fundamental distinction between categories of meanings and categories of objects and stipulates a systematic correlation between the categories of each sort. We use the concept of a unicorn as an illustration. Regardless of whether such things exist, we recognize (*a priori*) that unicorns have horns. This is a connection between one concept (unicorn) and another concept (horn). Categories of meaning can be thought of as various concepts, various possible ways of thinking, as such possible ways are limited by the boundaries of what is rational. Categories of meaning are thus *a priori* structured concepts, and relations among those concepts, that are given by the rational mind (or by the rational mind as it expresses itself in language).

Categories of objects, on the other hand, are what correspond to categories of meaning. Nouns (and noun phrases) are examples of categories of meaning—"horse," "Bismarck." Corresponding to these are objects (horses and men). Adjectival phrases ("is white," "is running") are categories of meaning as well. Corresponding to these are properties (whiteness and running), and so on. These correlations, between categories of meaning and categories of objects, are called (by Husserl) "ideal laws."

With respect to categories of meaning, Husserl offers a particular syntactic substitution test to distinguish one such category from another. In *Logical Investigations*, he argues that when the substitution of one term for another in a sentence produces syntactic nonsense, it is because the two terms belong in different categories. "John and Sally" and "the armies of the night" are therefore in one category, and "runs," "and," and "because" do not belong to that category. This is shown by the various substitutions of these terms for "John and Sally" in the sentence "John and Sally are happy." (For example, "The armies of the night are happy," although odd, isn't syntactic nonsense the way "Runs are happy," or

"And are happy," is.)

Husserl's syntactic test distinguishes categories by determining when the substitution of one term for another leads to ungrammaticality. Grammaticality, however, is a property of natural languages, and one should worry about whether the categories so distinguished are metaphysically significant. Grammaticality looks to be a contingent and arbitrary matter, due only to the peculiar way that each natural language has evolved and to nothing at all about the way the world is (or must be). The categories so distinguished by Husserl's syntactic test may therefore not be ones that are significant. Husserl thus faces the same objection that we raised against the conceptualist interpretation of Aristotle's theory of categories.

Gilbert Ryle greatly broadened Husserl's syntactic test beyond the scope of grammar to include absurdities of all sorts—whether they are syntactic or not—as indications of when the concepts involved are in different categories. Thus, he took there to be a difference in category between the concept of an animal and the concept of a day of the week, because while "Fido is sleeping" makes perfect sense, "Saturday is sleeping" is an absurdity. "She came home in a flood of tears and a sedan chair," similarly shows a difference in categories between "flood of tears" and "sedan chair," because although there is nothing syntactically wrong with the sentence, it is nevertheless absurd.

This broadened notion of "category mistake" is the crucial tool that Ryle uses to argue against the Cartesian view that the mind and body are different substances. The Cartesian, in describing the mind as a substance, thinks of it as the same sort of thing as a table. I can have a table, and I can also have a mind. But in this way treating mentalistic terminology as if it belongs to the same category as physical terminology involves category mistakes. To say "I have a table and a mind" is to utter the same sort of absurdity as occurred in the first sentence in this paragraph.

Broadening Husserl's syntactic test the way Ryle has may be to broaden it too much. Smart has argued that Ryle's criterion for drawing category distinctions is so broad that it can be used to show that any two expressions whatsoever correspond to different categories. Smart complains that "The seat of the — is hard" works if "chair" or "bench" is put into the blank but not if "table" or "bed" is. And if furniture words do not form a category, we may well ask what do.

Apart from this objection, it is worth repeating that the general slant on categories—narrow or broad—that has been taken by Husserl and Ryle is relevant to metaphysics only if we posit metaphysical significance to ordinary intuitions about when a sentence is absurd or not. But such intuitions are due only to contingent usages in ordinary language and nothing deeper. Only if our ordinary intuitions are so binding on the way things are in the world can our sense of the

absurdity of sentences like “I have a table and a mind” be used against the Cartesian metaphysician.

One twentieth century thinker who has explicitly broken with these linguistic and conceptual approaches to category theory is Roderick Chisholm. He presents his own version of category theory as an account of the most fundamental kinds of entities there are. Starting with a *summum genus* of entities, Chisholm introduces as its immediate subcategories contingent entities and necessary entities. The category of contingent entities then divides into the categories of states and individuals, and on the other hand, the category of necessary entities divides up into the sub-categories of states and non-states. Chisholm’s division of categories continues on in a way that is supposed to encompass all of the allegedly fundamental kinds of entities.

We agree with Chisholm’s general approach, especially in the care with which he avoids allowing ordinary language and our natural ways of conceptualizing to distort the categorical system he tries to build. There are, however, a number of immediate worries one might nevertheless have about the particular way he goes about developing his system, worries that emerge clearly into view even given our very brief characterization of his approach.

First, it is natural to ask after the nature of the categories being divided. Presumably they are superordinate kinds of entities; but then one would have expected a category of kinds itself to be ontologically fundamental and so represented explicitly in Chisholm’s system.

Second, is it so clear that *necessary* and *contingent* are the fundamental sub-categories of the *summum genus*, once one takes the plausible view that what is necessary is what is derived from the essences of things? The differences between the necessary and the contingent, therefore, are not divisions in kinds at all but only differences in aspects of how we can know about things.

Third, why should it be that a single notion, states, has nevertheless two distinct positions in the tree and so therefore turns out to be a sub-category of two distinct genera?

Fourth, surely we have failed to offer an illuminating categorical division if we have no better name for that division than that between states and non-states? What is it that unifies the non-states in such a way that they should be set off as making up a single kind that is different from the states? (It will be useful to keep these objections in mind and see how our category theory—forthcoming in Part 3—avoids them.)

Another philosopher who has engaged in what he takes to be a purely metaphysical study of categories is Ingvar Johansson, who has written, “I am concerned with ontology, not merely with language.” Johansson, in his pursuit of the metaphysically real, also avoids the use of ordinary language to discern

ontological categories. Instead he appeals to the method of "successive abstraction." Using it, we reach the fundamental category "quality" through a series of categorical abstractions: starting with a particular shade of dark blue, we abstract out "blue," Then we abstract out the notion of "primary color," then the idea "color," and then finally, the notion "quality."

It is probably fair to say that among contemporary philosophers the main objection to category theories like those of Chisholm's and Johansson's is that such approaches seem entirely relative to the particular philosopher's preferred way of parsing reality. To Chisholm in particular it may be objected that his way of parsing reality may be adequate for his purposes, but there is nothing in Chisholm's work that shows why his scheme of categories is the unique, privileged structure that captures reality.

Johansson, it may seem, has adopted a better strategy for determining categories. Certainly it is the case that abstraction is an approach to categories with a long and distinguished pedigree, but even so one can worry that the method of successive abstraction does not guarantee that the categories thereby distinguished are all the ones desired. His method requires starting with various particulars and in that way tracing categories by successive abstraction up to the most abstract genus. But unless we know somehow how many such categories there are supposed to be to begin with, we cannot tell if we have examined sufficiently many particulars and abstracted from them all the categories needed. Apart from this, the method of successive abstraction seems strangely asystematic. Each category discovered by the method of abstraction stands alone from its fellows; nothing unifies these categories or even indicates how, if at all, such categories are related to one another.

In any case, taking category theory to involve serious metaphysical ambitions is, as far as most contemporary philosophers are concerned, an archaic—if not bizarre—philosophical taste. Indeed, most contemporary philosophers recognize category theory as worth pursuing—when they do—only for the purposes of designing a conceptual or metaphysical taxonomy that is useful for some quite specific purpose or other, for example, a study of the specific notions that arise in one or another special science. There seems little or no room in philosophy, as it is practiced these days, for the idea of the true, objective, non-relative categorical structure of reality.

As against all this, a central thesis of the present work is that the way to understand the true, objective, non-relative categorical structure governing all there is, is by reviving the Hegelian idea that the categories are elements in a structure governed by an objective teleology. The objective teleology in question is what we will subsequently describe as "Coming to Understanding."

Even if it is granted that this last suggestion can be developed cogently,

there is still left the more immediate question of how best to describe the categorical elements that enter into Coming to Understanding. We believe that the real categories are best understood as akin to Platonic forms; they are not, that is, predicables or universals, nor are they kinds of entities. They are ideal, non–spatio-temporal particulars in which ordinary sensible things participate.

This means that even the most metaphysically inclined category theorists of the twentieth century have not quite approached the theory of categories correctly. They have continued to think of them as privileged collections of objects; and they have continued to think of category theory as engaged with methods of recognizing such privileged collections. But categories, as we have seen hinted in the much earlier approach of Hegel, can play a fundamental explanatory role in what there is without their being collections of objects at all. This does not mean that ordinary sensible things bear no relation to such fundamental categories. Rather, it means that this relation between categories and ordinary sensible particulars is misconceived if we think of it in terms of membership and indeed if we persist in thinking of categories as the sorts of things that can even have members. This is a matter that will be discussed in more detail in the next chapter.

Chapter 5

Categories as Particulars

As we have seen, much of the contemporary work on theories of categories is recapitulation in one form or another of Aristotle's original deflation of Plato's theory of forms. This is either by way of the introduction of a taxonomy of linguistic or conceptual predicables (as in the case of Gilbert Ryle's work), or by way of an account of the highest kinds of items (as in the work of Roderick Chisholm).

The general theory of kinds—understood as collections of particulars—is perhaps best articulated by Nicholas Wolterstorff in his *On Universals: An Essay in Ontology*. The book consists of a number of compelling arguments for this conclusion:

> Everything whatsoever is one or the other, kind or example, and that necessarily. For all predicables are kinds; all cases are examples of those special kinds which are predicables; and every instance will at least be an example of the kind, Instance of a Property. The kind/example structure is a structure which nothing does or can fall outside of, which everything falls within.
>
> That reality should be a structure of kinds and examples, it is necessary that these be related, examples to kinds, kinds to examples. And for this, it is in turn necessary that there be a relation in which they can stand to each other, the relation of being an example of. But this demand is compatible with everything's being an example or a kind; since relations, being predicables, are themselves kinds.
>
> What is also necessary, if reality is to be a structure of kinds and examples, is that there should be relationships between examples and kinds—things actually standing to kinds in the relation of being examples of them. And this demand is also compatible with the claim that everything is a kind or an example. For relationships, being cases, are themselves examples of those kinds which are predicables.

Wolterstorff's claim that the structure of kinds and their examples is exhaustive, in the sense that everything is either a kind or an example, is interesting, but it raises a typical self-application problem that philosophers should be familiar with. Consider the structure itself, the whole ostensibly made up of kinds and examples that everything falls within. Is this structure a kind? Or is it an example? Or is it

yet—contrary to what Wolterstorff claims—some third sort of thing, neither a kind nor an example?

Moreover, if we think of the categories as the highest kinds, that is, as themselves contained in such a structure—although crowning it—then we face a destructive dilemma. Ordinary kinds, like man or horse, seem to be ontologically dependent on their examples. To say what man is, we have to mention individual men; for man is just the kind that gathers them together. These ordinary kinds, for just this reason, however, do not have sharp conditions of admission. Whether something is a member of the kind is a matter of degree and to a large extent reflects not how the objects are but only our classificatory interests. Consider, for example, species. The classification of entities into species can be achieved according to more than one standard; in any case, such classifications, due to the continuous nature of evolutionary development, do not have sharp boundaries in time. But the same point can be made with more everyday examples, such as "bald men," or "red."

This shows that ordinary kinds are vague, interest-relative, and—most important—ontologically dependent on their examples. This, however, is not the case with the categories—certainly not if the categories are to be metaphysically fundamental. Categories, in such a case, cannot be vaguely bounded; their scope cannot be an interest relative-matter; and in any case, they must be ontologically prior to the individuals and to ordinary kinds whose nature and purpose they explain.

If categories were superordinate kinds, then there would have to be a radical divide in the structure of kinds. On one side of the divide we would have the most general kinds that are not categories—the vague, interest-relative, and ontologically dependent kinds, such as species, and commonsense divisions among objects, such as bald men. On the other side of the divide we would have the most specific of the categories, the ones that, although categories, have as their sub-kinds only the ordinary kinds just mentioned. So on one side of the divide, therefore, we would have a mere kind, K, that is a sub-kind of a category, C. The kind K would be vague, interest relative and ontologically dependent on its sub-kinds. The category C, though, would be sharply demarcated, not interest relative, and not ontologically dependent on its sub-kinds. But paradoxically, C would be just the genus made up of K and some other kinds on K's side of the divide. How could C possibly have a radically different ontological status from the kinds that make it up?

The dilemma is this: if categories are superordinate kinds, then either they are just like ordinary kinds in being vague, interest relative, and dependent on their sub-kinds or there is a radical divide between kinds and categories. There is no non-paradoxical model for how the radical divide can work structurally; there is no

way, that is, to explain how a category with sub-kinds that are interest relative could itself nevertheless not be interest relative. But on the other hand, if categories are taken to be just like ordinary kinds in being ontologically dependent, interest relative, and so on, then there can be no deep metaphysical interest in a theory of categories: there is no special reason to single them out from all the arbitrary sorts of kinds that we can make up.

The conclusion is straightforward: contemporary theories of categories are just wrong to treat categories as superordinate kinds. Categories are not that sort of thing at all. Where then can we turn in order to find a model for the metaphysically fundamental categories? We know that such categories cannot be kinds but instead must somehow stand above Wolterstorff's posited structure of kinds and examples in a way that makes that structure intelligible. Nor can it be that the categories are ontologically dependent on the structure of kinds and examples, but if anything, the reverse.

We claim, as hinted earlier, that something like Plato's view of his forms provides the right model for the categories. Plato held that ordinary sensible objects participate in and imperfectly imitate the forms; but nevertheless, in no sense did he seem to take forms to be kinds or collections that particulars are part of. The present work similarly will develop the view that the whole structure of ordinary kinds and examples, which Wolterstorff takes to be all there is, in a sense participates in and imperfectly imitates something else: the structure of the categories.

That is, just as Plato held the forms to be ontologically prior to ordinary sensible objects, so too, the present work will develop the view that the categories are ontologically prior to the whole structure of kinds and examples. Finally, and most important, just as Plato held that the forms are paradigmatically intelligible items whose contemplation shows the point of reality and the proper direction of anyone's ethical life, the present work will develop the view that understanding the categories and their distinctive structure discloses the end for which anything exists and thereby sets the objective standards for the ethical life.

The tradition almost always represents Plato's forms as universals and not as particulars. Universals, thus understood, are very similar to sets. Indeed, they are most naturally understood as sets with membership conditions that are not extensional. Thus, although the set of creatures that naturally have kidneys is the same as the set of creatures that naturally have hearts or the set of unicorns is the same as the set of mermaids, nevertheless, the universal (or property) of naturally having kidneys is not the same as the universal of naturally having a heart, and similarly with the properties of being a unicorn or a mermaid.

But categories need not be seen as having members or being collections or even as being something—like properties—that particulars share. Categories being

entities that are participated in by the structure of kinds and examples is compatible with understanding those categories to be particulars and not universals. Participation, so understood, is naturally akin to imitation, a word Plato uses often. But imitation of one thing by another doesn't require what is imitated to be anything other than a particular. Thus, the crucial explanatory role categories possess by virtue of being items that are participated in by other particulars is not a role that requires categories to be universals as these are traditionally understood.

Lastly, taking the categories to be ontologically prior to the whole structure of kinds and examples is also compatible with understanding the categories to be particulars. This point extends to the teleological function that we take categories to possess vis-à-vis everything there is. Here too, the claim that the categories and their distinctive structure disclose the ends for which anything exists is compatible with understanding the categories as particulars and not as universals.

In adapting the insights of Plato to category theory there is, therefore, no need for a doctrine of two radically different sorts of being, the universal and the particular. As we have just indicated, a Platonic category theory is thoroughly consistent with unqualified particularism, the doctrine that everything that exists is particular. It is worth adding that the notion of a universal is fundamentally puzzling, although the long and familiar lineage of the notion of the universal as it evolved after Plato's initial introduction of it disguises this. It is difficult to understand exactly what such things are supposed to be. They are usually characterized by their logical role as it arises in the predicating of properties to things. But although that things have properties is easy to understand, it is not easy to understand the projection of this notion of predication into metaphysics, achieved by positing universals, where such universals are taken to satisfy the notion of predication by virtue of being things that are intrinsically plural.

On the other hand, the doctrine that categories are particulars may seem faintly contradictory because it may seem that the word "category" almost by definition must characterize items that pick out collections. But this interpretation of the word should be resisted, and if it cannot be resisted, then the word should be dropped altogether. (Because of this problem with the word "category," we shall indeed drop the word for another, as we discuss at the end of the next chapter.) Category theory at its grandest has been concerned with the fundamental elements that structure everything there is. Whatever those turn out to be, they can be characterized as "categories," provided systematic internal relations among the items posited are revealed and provided such items play the important explanatory roles that categories have been traditionally drafted for.

Chapter 6

Plotinus: The Forms and Monism

In Plato's dialogue *The Parmenides*, the Eleatic monists Parmenides and Zeno set out to refute the pluralistic doctrine of the forms that is defended by a young but able philosopher named Socrates. Apparently, it is the ambition of the young Socrates to establish that the pluralism of many forms does not raise the same problems as those that led the Eleatic monists to reject the plural reality of ordinary changing particulars. Unfortunately for Socrates' philosophical ambitions, Parmenides and Zeno raise a battery of fresh objections for the theory of forms.

Some of their objections are entertainingly frivolous; others, however, seem quite serious, reasonably read as Plato's own genuine attempts to explore possible refinements of his theory of forms and—more important—as attempted responses to objections that he has only now become aware of. So, for example, there is an extensive exploration of whether or not forms exist in their participants, and if they do, whether they are in them in part or as wholes. If they are in them in part, then the form is divisible, which strikes all the participants of the discussion as absurd. If, however, they are in them as wholes, then the form is separated from itself, which also strikes all the participants of the discussion as absurd. Whatever was the exact historical impact of this objection on Plato's subsequent theorizing about the forms, it does seem, in any case, that we have in place the makings of a powerful consideration against taking forms to be in the things that participate in them. The forms are in this sense at least separate from their participants; their participants may strive to be like them, but they do not include them as parts.

Since the issue of part and whole has come up explicitly, it should now be said that the makings of a powerful consideration raised in the previous paragraph nevertheless does not rule out a gloss of the participation relation that interprets it outright in terms of parts and whole in a way that is the reverse of the position attacked by Parmenides and Zeno: the view that those items that participate in a category are by virtue of that participation parts of the category.

In attempting to gain an initial understanding of what this last part/whole claim actually comes to, it is important to keep firmly in mind a sharp distinction between wholes and parts on the one hand and elements and sets on the other. To be an element or member of a set is not to be a part of that set. So, too, it should be kept in mind that because categories are particulars, it is quite coherent to imagine that they have parts. Nevertheless, one should be careful not to interpret such parts spatially or temporally or to presume that because categories are particulars, they themselves must be in space and time. As we will see, categories, despite being

particulars, need not be in space or in time. The same is true of their parts.

Having said this much in anticipation of further discussion of this topic, we are aware that the doctrine that items participating in a category do so by being parts of that category is not a typically held view. (We are under the impression, in fact, that no one before us has held such a view.) We understand, therefore, that one both needs and expects good arguments for the claim just made and that in any case time is needed to get used to the suggestion. Extensive discussion of the view, directed towards this aim, will take place in Part 3.

Meanwhile, we return to the objections to be found in *The Parmenides*. The most famous of these is the infinite regress argument that subsequently came to be called "the Third Man Argument." It is this argument whose conclusion is stated as "no longer will each of your forms be one, but unlimited in multitude." This argument is properly addressed to a particular use of the forms, namely, when they play the role of providing a quite general explanation of why each predicate holds of what it holds of. If we assume that the *aitia*, the cause or explanation of why anything is F, is that it participates in the form F-ness, then we will think that the form F-ness is the unity that explains why a class C of things is F. Since the form F-ness is a paradigm, then it too had better be F. But now there must be a new form that accounts for why F-ness and all the things in C are F, and so on, ad infinitum. Despite the reputation of the Third Man Argument, it remains unclear what Plato's own attitude to this argument actually was.

For present purposes, the most important issue receiving attention in *The Parmenides* is the mockery that Socrates receives over the "ignoble forms," the forms of hair, mud, dirt, and the bed. Clearly, a tension is exposed between two different roles of the forms: (i) as fundamental constituents of the real and the very different role of their figuring and (ii) as the *aita* of any ordinary predication. Socrates seems to emerge at the end of the dialogue with the view that only such forms as the just, the beautiful, and the good could be basic constituents of reality. This means that the semantic role of forms as the quite general explanation for predication of any type is jettisoned, quite properly, in *The Parmenides*. Instead, a form is to be posited not merely because a predicate exists—that such a form can be taken to correspond to—but because the positing of this specific form plays an indispensable role in our description of what is real. Forms therefore become sparser in number than what an uncritical look at our descriptive resources—our predicational resources—would imply. Indeed, in principle, forms are to be established on a basis that may not directly involve considerations of language at all.

Even so—and despite the apparent methodological advance on the part of Plato illustrated in this dialogue—we still find (as late as *The Timaeus* and *The Sophist*) no good account of how the forms are supposed to hang together, what

their interrelations are, or even how they are supposed to differ from mere collections of entities that they are to be distinguished from. This state of philosophical affairs is all the more intolerable once it has been denied that there is a form corresponding to every meaningful predicate. However confused a doctrine that was, it at least indicated a principled way of determining what forms there are. Without that doctrine, we need a fresh method for recognizing when a form is to be had.

In a sense, this is a deep issue we have already (implicitly) seen in action in the discussion of modern category theory in Chapter 4. If categories are not privileged collections of objects that therefore can be somehow identified directly from those objects that they are the categories of (by a process of abstraction, for example), then the categories can only be discovered by an intellectual process of generating them from autonomous principles recognized to govern categories and/or by a process of refining and altering systems of categories antecedently established. In a sense, Hegel is the first category theorist to recognize the importance of this requirement on category theory and to ruthlessly attempt to carry it out.

A principled family of methods for generating categories will be described in Part 3. Such methods, apart from laying out (provisionally) what the categories are, will also reveal their systematic interrelations to one another—the sense in which the categories belong to a unified structure.

Although Hegel, as we just indicated, seems to be the first philosopher to recognize the need for a method of systematically generating the categories, it was Plotinus, the third century exponent of Neo-Platonism, who first took up the challenge of providing at least an account of the unity of the forms. For Plotinus, the forms are the ideals of an unchanging nous (cosmic intelligence), which in addition Plotinus identifies with being itself. This nous is not to be distinguished from what it finds intelligible (*theoria*), namely, the forms themselves. The forms are the most basic reasons (*logoi spermatikoi*) for things being the way they are. On his view, ordinary sensible objects imperfectly—very imperfectly—imitate the forms.

The notion of an unchanging nous, or cosmic intelligence—especially in these atheistic times—may be thought to be quite problematic for any number of reasons. Our primary objection to the idea, however, is that it is ultimately dependent on an idealist premise: everything is ideas or thoughts. Nevertheless, there are genuine insights in this approach of Plotinus. Perhaps the best way to interpret his neo-Platonic notion of nous is to take it as a system of forms that explains itself. It is this self-explaining intelligibility that seems to invite the view that it is a kind of intelligence, even though, being outside time, it performs no acts of thought.

The system of categories to be presented in Part 3—an alternative to the various ancient and contemporary systems of categories that we have objected to in the preceding pages—will similarly feature a kind of self-explaining intelligibility at its core. The very explanatory principles that account for the categories and their place in the structure are themselves categories. Thus the only items truly deserving the title of "the categories" will be seen to be those forms that are united in a self-explaining intelligible structure. Nevertheless, this intelligible structure will not naturally be described as sentient or conscious.

Sentience and consciousness, unsurprisingly, prove to be far more local and parochial phenomena than the teleological and design elements that—especially in contemporary work—are taken to be their product. Teleology and the other intentional elements of everything there is do not arise by virtue of minds—either one such or many. Thus, the system to be developed in Part 3 is in no sense an idealist one.

As hinted earlier, a terminological point should be raised in light of our "particularism" regarding categories. In the foregoing, we have largely described these ontologically fundamental items as *categories* because their history, subsequent to Plato and Aristotle, has been almost always to interpret them as universals. As a way of terminologically avoiding—to the extent that this is possible—the philosophical reflex towards a universalist interpretation of these items, we shall from now on use only the transcribed Greek term *eidos* (plural *eide*).

But before turning to this systematic discussion of our metaphysical views, we must, in Part 2, engage in a much deeper analysis of the epistemic methodology that is available to us to reveal the nature and extent of the categories. Our aim is to describe the epistemic tools that are available for the establishing of valuable generalizations and explanations in any field of knowledge and show that such tools are available in the specific field of metaphysics and in the more specific subfield of that area of metaphysics (that we are interested in) called category theory. Along the way, we must defend the autonomy of specialized fields of knowledge from the scientistic claim that all knowledge can only be scientific knowledge, and indeed that all real knowledge is knowledge of physics.

Having done this, we shall at last be in position to provide a sketch of the metaphysical structure that transcends but nevertheless puts in an intelligible form the detailed knowledge of the sciences. In the course of doing so, we shall pose answers to the ontologically fundamental questions that Part 1 opened with: Is there any large-scale purpose embodied in the details of everything there is? Why is the world intelligible? What is the nature of explanation?

Part 2: Epistemology

Chapter 7

Belief

The philosophical subjects of epistemology and metaphysics (the latter to be taken up in Part 3) are inextricably intertwined. We cannot construct a system of *eide* that we are willing to believe in unless the result is justified or made plausible in ways that compel our belief in its likelihood. This requirement is hardly restricted to metaphysical systems of *eide*, of course. It holds of any systematic body of metaphysical claims. Indeed, it is a point that applies generally to the possibility of our belief in any substantial system of principles and to objects posited to be governed by those principles. So this requirement extends beyond philosophy to, for example, any of the grand constructions to be found either in the sciences or in religion. The terms "justified," "made plausible," and "likelihood" are not to be understood here as technical terms. Rather, we are describing the ordinary processes of becoming convinced of claims in whatever domain those claims are made. In Part 2, our aim is to present enough details about epistemology to justify the particulars of the methodology that is to be used in Part 3 of this work to construct the system of *eide*.

We start with an important peculiarity of belief acquisition. The most central—and perhaps the most primitive—cases of the acquisition of beliefs seem to be those where our beliefs are involuntarily forced upon us by sense perception. When we gaze around us, listen, or otherwise use our senses, we are involuntarily convinced by what we experience: the ordinary (and extraordinary) objects that fall within the range of our senses: plants, animals, furniture, the stars, rainbows, and so on. We are convinced not only that there are objects of various sorts that we perceive but that they have the properties we perceive them to have. Even to describe the experience as one of being convinced of something is to somewhat misdescribe the experience. We presume, or simply take for granted, the objects we experience. They are made manifest to us in ways that register automatically on our beliefs.

There is no doubt, of course, that we be wrong about what we perceive. That is actually a quite common experience: objects that are larger or differently configured than they first appeared to us to be. And of course there is the collection of tricks that magicians routinely use that illustrate so well the means by which the

eye can be fooled, so that we think something has vanished when it has not or is floating in the air when it is not. But Cartesian skepticism—the state of mind where one doubts all the presentations of one's senses—has long been recognized to be quite peculiar and unnatural. Many philosophers, in fact (Peirce is a notable example), have argued that it is an impossible state of mind: that Descartes's dramatic invocation of it at the beginning of his *Meditations* is a mere literary device devoid of any real psychological sincerity.

Like the many epistemologists who nowadays style themselves "naturalized epistemologists," we intend to set issues about skepticism aside. Our reasons for doing so will be presented shortly. In the meantime, let us consider the following question: Is the involuntary way that belief is induced by perception a general fact about belief? Are all our beliefs involuntary ones that we cannot help but have?

Certainly, the involuntary nature of perceptual belief is shared by those beliefs that arise in us because of deductive inference. The compelling phenomenology of deduction is most visible, of course, in mathematics. When following a proof in that subject matter—that we understand—we are psychologically compelled to believe the conclusions that are inferred to exactly to the same extent that we are compelled to believe the premises that are assumed.

But we have many beliefs acquired neither through deduction nor by perception. What about the ways we have acquired these beliefs? Are those ways equally involuntary? Consider, for example, the repeated experience of watching the sun rise. Seeing dawn often enough, have we become utterly convinced that indeed the sun will rise tomorrow?

Hume seems to think so. Hume is the first in modern philosophy to raise the problem of induction; and so he is the first to stress that in contrast to the case of deduction, no inductive inference requires that if the premises are true, then the conclusion must be true as well. No matter how many times we see ravens and find them to be unvaryingly black, there is nothing in the inference from all of these particular experiences of black ravens to the generalization that all ravens are black or that requires the conclusion that all ravens are black to follow necessarily. Indeed, even if the repetition of the experience makes our expectation of the next raven being black almost irresistible, that expectation is still compatible with a sighting of a very next raven of some different color entirely. Hume explains the overwhelming expectation of yet another black raven as due to the makeup of our psychology: after seeing enough cases of black ravens, we are psychologically constituted in such a way as to naturally expect the very next one we see to be black. Hume provides no story for why this should be true, but even an elementary consideration of evolution suggests that creatures lacking this psychological propensity would not survive. However, it is this automatic expectation—a mere psychological fact about us (and nothing about the world at all)—that we project

(mistakenly) on to the inference from particular black ravens to the blackness of all of them. But despite our psychological proclivities, as Hume never tires of stressing, it is still compatible with our having seen thousands upon thousands of black ravens that the very next one not be black.

Hume is right about the fallibility of inductive inferences. But our recognition that he is right betrays that those beliefs of ours that are acquired by inductive inferences do not possess quite the same involuntary phenomenology as those beliefs of ours acquired either through perception or through deduction. Even if we are convinced that the sun will rise tomorrow morning because we have seen it rise every morning of every day of our very long lives, it seems that other considerations can convince us that nevertheless dawns are only a temporary series of events—and that they will end at some point. Many of us have read—in science journals, for example—about the quantum mechanical mechanisms by which the sun produces its light and heat. The description of these mechanisms convinces us—in total opposition to what inductions on repeated dawn events seem to have taught us—that there will definitely be a time when the sun rises no more. And apart from this, we can imagine scenarios that we also recognize to be quite possible where the earth is torn out of its orbit by a passing massive body. Where, that is, the sun rises no more.

These bleak futuristic scenarios aside, it seems that there are many cases where we clearly deliberate our way to our beliefs in ways that involve considered and careful judgment, as opposed to experiencing irresistible belief being imposed upon us. Juries seem to deliberate in just this fashion, and so individuals can become convinced that such and such is true (or not). That is, they can acquire beliefs in the full knowledge that those beliefs might be wrong. In all such cases, clearly, deduction and perception can only take us some of the way to the set of beliefs that we have. What is further involved—to round out, as it were, the rest of our beliefs—are other epistemic processes for acquiring beliefs, and induction is among these. Such methods of belief acquisition are not overwhelmingly compelling in their effects upon us. They do not force us to our beliefs as perception and deduction do. Rather, although we become convinced of something, we do so in the full awareness that nevertheless we can be wrong and that we have made a choice to believe as we do.

There is a sense, therefore, in which the beliefs that we acquire on the basis of induction are voluntarily chosen beliefs. And the other methods of belief acquisition that we employ are similarly voluntary: after weighing various considerations, we choose the best beliefs for us to have from among the options that seem reasonable. Given our evidence, our beliefs are therefore not impelled but chosen. Because of this, however—and we recognize this fact—others could decide differently from the way we have decided. They could decide to believe

other than as we believe even though their evidence is exactly the same as our evidence. In addition, we also recognize that because of this it is possible that we are wrong in the decision to believe what we believe. Beliefs chosen must be beliefs that involve risk.

When choice is involved, questions of how to best choose arise as well, and the case of which beliefs to adopt is no different in this respect. We can ask, and ask quite naturally, what are the best ways to acquire our beliefs? This is not a natural question to ask, of course, with regard to those beliefs of ours that have been involuntarily acquired—those beliefs, that is, that are due to perception or deduction. To force this question to arise in cases of involuntary belief acquisition, the philosopher must cleverly employ the trickery of Cartesian skepticism. He must introduce descriptions of bizarre possibilities—evil demons, brains in vats, eternal dreams, and so on—to force us to consider the possibility that even the beliefs we have involuntarily acquired are not to be trusted. Descartes, in just this way, forces the reader of his *Meditations* to consider the possibility that he should not trust his senses in any respect at all—that sense perception is not among the best methods for acquiring beliefs.

The question of what the best methods are for acquiring beliefs is quite natural, however, with respect to those beliefs of ours that go beyond—as they have to—beliefs acquired only by perception or deduction. But by what standards, however vaguely described, should our question of "best ways" to acquire beliefs be directed? What kinds of standards are to be involved here? The initial answer, unsurprisingly, is straightforward: to ask after the best ways to acquire beliefs is to ask a question directed to the concern that our beliefs be true. Truth is the only goal of appropriate practices of belief acquisition. We describe as "rational" those people who manage the best methods of belief acquisition, who do the best they can to acquire true beliefs. We stress again that this goal can only apply in cases where belief acquisition is voluntary. We will look more carefully at rationality in the next chapter.

But first we must make a few points about the ground rules for the study of rational belief acquisition. The reason we must do so is that it has already become clear that epistemology is a normative subject matter: it is the study of the methods of belief acquisition that we should have. On the other hand, there have been philosophers who argued that the study of epistemology must take place within an already-in-place background set of beliefs and therefore must be undertaken in a way similar to the study of any other science. But if so, then epistemology looks like an empirical subject—the study of the methods of belief acquisition that we in fact employ—and normativity therefore is no longer part of epistemology. We discuss these issues in what follows.

The philosopher W. V. Quine suggests that a change for the better in the

practice of the ancient philosophical topic of epistemology is to be achieved by replacing that traditional epistemology with a successor subject that he calls "naturalized epistemology." Descartes, on Quine's view (but not on Quine's view alone), treats epistemology as a topic to be studied prior to the taking up of any other topic: Epistemology is, as it is put, first philosophy. One has to establish to begin with—before trying to learn about anything else—and presumably by a priori means—what sorts of things one can know and by what methods one can know them. The constraint on good methods for knowledge gathering is that such methods lead to certainty (and one has to determine that this holds of one's methods before beginning one's knowledge-gathering practice).

Once all this has been established, only such methods that have passed the Cartesian certification test are to be henceforth employed in the sciences and more generally in responsible knowledge-gathering activities of any sort. Thus, for example, testimony is to be excluded because it is an insufficiently trustworthy basis for knowledge claims. Perception, however, when suitably constrained, is trustworthy. So too is deductive inference. This, briefly, is epistemology as first philosophy as it seems due to Descartes: epistemology is to provide an epistemic foundation for knowledge gathering of all sorts. To repeat: one learns first how one can know anything and second what methods are to be used, and only then does one turn to the knowledge-gathering activities themselves.

Quine rejects this first philosophy model for epistemology. We start, he claims, in a position of purported knowledge—indeed, with a substantial and inherited body of beliefs that we hold in common—but that we only provisionally take for granted. This is because we can, of course, improve on it. We can jettison some of the theories we have inherited (Newtonian physics, say) and develop other new ones (general relativity, say). Regardless of how many of these specific changes we can make, we can never step aside from our entire web of beliefs all at once and start building a whole world view anew from the ground up. So our general study of epistemology—when we start, that is, to consider what we can know and by what methods—is also one that must take place not within an intellectual vacuum but within an already given background set of beliefs.

The result is that we take ourselves to be concerned with the cognitive powers of a kind of animal, in particular a primate. And based on our scientific understanding of what the cognitive powers of that kind of ape are (that is, what our cognitive powers are), we can go on to determine what our best epistemic methods should be. That is, we can, just as we do with our knowledge claims, determine which methods of knowledge gathering should be improved upon, which removed altogether, and so on. In this case as well, of course, it is not that we can set aside all our knowledge-gathering methods and examine them, as it were, innocently. We must use those very methods in their own evaluation. No

other option is cogent.

Epistemology, therefore (and this is true of topics in philosophy generally), is to take its place within the sciences. In particular, epistemology should be a branch of psychology. Knowledge, on Quine's view, remains true belief; but belief is a mental state; mental states are studied in the field of psychology; and thus to study knowledge is to study ourselves only from the vantage point of a certain scientific (psychological) context.

It is obvious that skepticism was a central concern for philosophers subsequent to Descartes in a way that it never was for the ancient Greek philosophers. This is not to say that ancient Greek philosophers were ignorant of skeptical doctrines or of skeptical scenarios. Clearly this is not true: already in Plato's dialogues the dream argument is described as ancient. It is only to say that skepticism is never the absolutely central problem for ancient philosophers that it becomes for modern philosophers after Descartes. It might even be to say that for a philosopher like Aristotle, as for Quine, epistemology is not seen as first philosophy but only as a branch of psychology. The differences between the two philosophers, in this respect, involve only differences in their respective and substantial background assumptions. This suggests that Descartes's first philosophy model of epistemology— bequeathed to his successors and notably echoed in the work of Locke, Hume, and Kant—is what makes skepticism such a central topic in philosophy from his time to ours. For Descartes's method of testing beliefs in order to see if they are suitable for knowledge is to raise skeptical scenarios about the possibility of our being massively wrong about everything. Given that certainty is the central plank of the Cartesian view of knowledge, this is the right strategy to take. But the result is that gathering knowledge, for Cartesian epistemologists, is rather like hoarding gold: one gets to keep it forever.

For Quine (and for us), this is the wrong model. One must instead embrace fallibilism, the doctrine that no knowledge claims are certain. It is possible to be wrong about anything. The best epistemic methods, therefore, are not to be ones that can provide bodies of belief that we can never be wrong about. There are no methods that can do that. Rather, one should be concerned with knowledge gathering as an ongoing process, where knowledge at a time is as good as it can be, and in repairing our knowledge claims, we may find it suitable to remove any claim no matter how central or obvious it seems to be. One attempts to discover ways of making epistemic progress not only by finding alternatives for knowledge claims that have been shown inadequate but even by discarding methods that in an earlier day were considered acceptable.

This process, as already suggested, is not expected to lead to a body of final beliefs that one can then rest with forever. The desire for something like that is taken to be an artifact of the peculiar methodology that Descartes introduced, that

suitable knowledge claims are ones that can survive skeptical scenarios.

We agree with Quine's rejection of epistemology as first philosophy. If, in order to do epistemology, we must step aside from all of our beliefs and methods for establishing those beliefs then we will be left with nothing with which we can even try evaluate potential epistemic tools. We must therefore begin epistemology in the midst of an already ongoing project of knowledge gathering. Perception, for example, is something we already recognize to be crucial to our having knowledge of any sort, but we accept that perception is a complicated relation that animals use to find out about their worlds and that those complicated relations are studied by, for example, vision scientists. In particular, how the brain constructs what is seen from the information contained in retinal images is indeed a matter of psychology, and those epistemologists who ignore what scientists studying such facts have to tell us risk the cogency of the distinctive philosophical views they are trying to develop.

But there is a rather different aspect to Quine's particular brand of naturalized epistemology that we must disagree with. The issue is not with his claims about the problems with traditional epistemology—we have made it clear that we are broadly sympathetic with those—but with his overall picture of what is to be included in what he takes to be our ongoing "web of belief": his implicit and explicit constraints on our background beliefs to be taken as held in common. Quine's work, in this respect, is almost a classical example of scientistic thinking—the tendency to restrict knowledge to only the dictates of the sciences. Indeed, there are times when it seems that Quine will settle for nothing less than physics—and the mathematics needed to do that physics—as the sole subject matter of our web of belief, as all the knowledge that he takes there to be.

We take it that the establishing of special generalizations in any body of knowledge, philosophy included, does not require that body of knowledge to be beholden to any other body of knowledge except in the sense that all our beliefs must cohere and be consistent. What is required of all such bodies of knowledge, of course, is that they yield generalizations and explanations. That, however, is a far cry from the scientistic demand that all knowledge be physical knowledge or even that all knowledge be scientific knowledge.

Having said this about Quine's view, we must stress again the ways that we are sympathetic with his perspective. Many philosophers have argued that Quine's replacement of traditional epistemology with naturalized epistemology in fact replaces a normative subject area with a purely descriptive one. Psychology, on this view, only studies how we in fact do acquire beliefs; it does not study how we should acquire them. We argue that on the contrary, placing epistemology—the study of methods of belief acquisition—within the context of an already-in-place set of background beliefs does not empty that study of the normative elements that

are so crucial to it. In particular, the central normative element—the distinction between rational and irrational methods of belief acquisition—is one that is reflected in the psychology of believers and is therefore to be found as one of the subject areas of psychology itself.

We started the discussion of this section with the ways in which belief acquisition is voluntary and involuntary. It is the fact that aspects of belief acquisition are voluntary that allows us to categorize ways of acquiring belief as rational or irrational, because only voluntary methods of acquiring beliefs are amenable to being treated this way. Epistemology is largely concerned with the methods we should use to acquire our beliefs. In this sense, as we have already pointed out, it is a normative subject matter. We have argued that its normativity is nevertheless compatible with the fact that we study it within the context of an already-in-place set of background beliefs. With these points in place, it is now time to take a closer look at the nature of rational belief acquisition. We undertake this in the next chapter.

Chapter 8

Rationality

We informally describe some people—but not all—as "rational"; the rest we label "irrational." Or more accurately—because people are not consistent in their thinking and behavior—we describe some of the behavior or thinking of (some) people as rational and other behavior or thinking of those same (or different) people as irrational.

One thing that is often meant when this distinction is drawn—about people or about their actions—is one that can be set aside. These are the cases of individuals who know better—who actually have the right beliefs—but who nevertheless do things that appear to be in flagrant disregard of those true beliefs. For example, people who smoke are often, especially nowadays, entirely aware of the many ways that smoking is bad for them and bad for the people around them. Nevertheless, they continue to smoke. This is sometimes described in the philosophical literature as the "weakness of the will" problem. We shall not discuss this problem.

We also describe those persons as irrational who are not very good to begin with at the acquisition of beliefs that are likely to be true. When we are focused this way on the acquisition of belief, we often describe such people as irrational, and we describe them as irrational regardless of how sensibly they act afterwards on the basis of their badly acquired beliefs. Someone, for example, who acts perfectly sensibly—provided only that it is true that he is surrounded by aliens who have recently taken over the bodies of his friends and who consequently now have peculiar motivations towards him—is nevertheless not someone we would comfortably describe as rational. The rational person, we think, is someone who has managed to avoid acquiring such strange beliefs to begin with. We also use terms like "sensible" or "possessed of common sense" to compliment those we regard as rational—but in such cases it is clear that it is how the person acquires certain beliefs and (perhaps more important) avoids acquiring other beliefs that is actually being complimented in this way. These individuals, of course, are not being applauded for the beliefs they have acquired or failed to acquire on the basis of what they perceive, for we all must believe what we perceive. Rather, they are described as rational because of how they have organized their beliefs and for the methods they use to supplement those beliefs of theirs that are due to perception and deduction. They are seen as rational, in fact, because they seem (to us) to use sensible inductions and other good epistemic methods.

It is true that there have been philosophers who narrowly think of rationality

as requiring a restriction of the methods of belief acquisition only to those inferences licensed by deductive logic. The irrational person, on this view, mistakenly employs invalid inference patterns. But it is clear that yielding to this restriction will hardly suffice to make someone's belief acquisition process a rational one. Deductive logic is far too slender a method of acquiring beliefs. It merely takes the reasoner from beliefs held to beliefs implied by those beliefs held. No one could ever get started in a process of drawing inferences at all if they did not already have a number of beliefs—otherwise established—to begin with.

It was once believed by certain epistemologists that certain classes of involuntary beliefs—ones due to perception, for example—would suffice as a foundation for all the rest of our beliefs. The idea was that based upon perception and utilizing only deductive logic as a tool of inference, everything we should believe would result. More important, anything not derivable by this means would be regarded as suppositions that we should not believe.

This kind of "foundationalist epistemology" would only work if our knowledge and knowledge aspirations were restricted to particular truths and involved no substantial generalizations whatsoever. But it is clear that no body of purported knowledge—neither those that occur in the successful sciences nor even those vast bodies of superstition such as astrology—restrict themselves only to particular truths. All believers whosoever aspire to generalizations, and this is because generalizations are the only grounds upon which prediction and explanation become possible. Beliefs that have been established on the basis of sheer perception seem to be justified by a process of comparing the content of the belief with what it is a belief of. If I believe I am sitting on a chair, for example, this is because I perceive that I am sitting on a chair. That is to say, the fact corresponding to my belief is one that seems open to inspection by my senses. But if we are to rationally believe in generalizations and even in particular claims—such as that my chair is composed of various subatomic particles—that we do not have access to by means of perception, then we must establish such beliefs in a more indirect manner.

All such indirect approaches to beliefs, however, if they are to be regarded as rational, must involve epistemic methods that we can establish, at least provisionally, as ones that we have reasons to think will enable us to achieve true beliefs. It must be stated again: truth is the norm—perhaps the sole norm—that governs belief; and rational methods of acquiring beliefs are those methods that to the best of our knowledge are the most likely to yield true beliefs.

However, before turning to a more careful discussion of the nature of these other methods, we must address a worry that can arise here. We have implicitly allowed, in recognizing that voluntary methods of belief acquisition are required of us, a kind of fallibilism: We can—we have admitted—make bad epistemic choices,

ones that fail to lead to true beliefs. We may reasonably extend this fallibilism about our methods of belief acquisition even to those beliefs we have involuntarily acquired, for we are all familiar with the ways in which our grasp on deduction can falter or, as it is commonly put, our senses can deceive us. But it may be thought that this fallibilism conflicts with another very deep view we have about the best epistemic methods we should adopt. The rational agent, we might think, must not employ methods that gain him true beliefs by the intercession of an accident or a piece of luck.

That rational agents should avoid epistemic luck explains—we might think—why we don't try to predict the future by visiting palm readers. If what the palm reader predicts turns out to be true, then this is only by accident. But to introduce any epistemic method that is acknowledged to be even somewhat fallible is to introduce a method that when it succeeds in yielding true beliefs does so at least in part on the basis of sheer good luck.

Avoiding the involvement of epistemic luck, if possible, is the goal of the rational agent. Were we able to employ methods that guarantee that the beliefs acquired are true, and were such methods broad enough in their scope to eliminate the need for other ways of acquiring beliefs, then it would be irrational to utilize anything but such methods. But rational belief acquisition operates in the same way as choice does in general. We do not blame ourselves—if we are rational—for failing to make a choice that was not ours to make. "Ought implies can," as the old moral cliché puts it.

Epistemic virtues are no different from moral virtues in this respect. We are certainly required to lower the degree of epistemic luck involved in our methods of belief acquisition as much as possible—but we are not required to remove it altogether, if such is impossible.

And, indeed, it is impossible to remove the role of epistemic luck from our methods of belief acquisition, and the reasons for this have already been indicated. Even in the case of deduction, where we take it that if the premises are true, the conclusion must be true as well, we still recognize that such methods can fail to be applied correctly. There is no way that a human being—or anything physical—can implement a proof procedure so that no mistakes are possible.

As we have already indicated, perception and deduction alone provide too slender a diet of beliefs that—on their basis—are allowed to be acquired. We need generalizations. In fact, we need generalizations so badly that we are willing to subsist on poor ones, even on ones that we are totally aware are poor ones, rather than to try to get by with none at all. But—and this is the important lesson that Hume teaches us about induction—there is no way to believe a generalization without taking a chance. And, as he also stresses, no matter how long that generalization remains successful, there is no way to eliminate the epistemic risk

we have taken in adopting that generalization.

Many philosophers have tried to restrict the epistemic risk in adopting generalizations by trying to invent one or another inductive logic: a set of principles for reasoning inductively that if it does not eliminate epistemic risk altogether at least shows how we can minimize it over time. But Hume starkly shows the futility of this too: the passage of time, accompanied by the repetition of events that confirm a generalization, nevertheless fails to eliminate the possibility of its falsity. Worse, the repetition of confirmations of a generalization fails to even lower the probability of the falsity of that generalization in any genuine sense.

What does raise the plausibility of a generalization is its consistency and coherence with other beliefs we have acquired. And in situations where our background knowledge indicates that statistical methods can be applied, such methods of establishing generalizations become acceptable. But the dangers of epistemic luck still linger over the whole body of beliefs that we work at acquiring in this way. It cannot be eliminated, for the presence of epistemic luck is a corollary of being an epistemic agent who cannot a priori reason his way to all his knowledge claims.

A symptom of the presence of epistemic luck in our methods of knowledge gathering is that the generalizations we choose to initially adopt are ones that we may come across or discover in any number of arbitrary ways: we may, for example, have inherited them as the lore of our forefathers, or they may simply have been made up by someone in a position of authority. It might be thought that the set of possible generalizations that can be bequeathed to us in this manner is constrained in its range at least in the sense that the terminology that such generalizations are to be couched in is restricted to the descriptive resources of our ordinary language. This would mean that the latitude for going wrong in our generalizations is limited by the expressive resources of our language. Unfortunately, this is not true: our language offers no such constraints on the generalizations we should consider as candidates. We discuss this important issue in the next chapter.

Chapter 9

Taxonomy

A traditional distinction between modes of inference is that between deductive inference and inductive inference. Until the twentieth century, the reliability of deduction seemed utterly secure. But now, after the discovery of alternative logical systems, such as intuitionism or the family of paraconsistent logics, debates have arisen about whether it is possible—even in principle—to compare alternative methods of deductive reasoning and to determine that some unusual one is better than our traditional classical logic. We shall not be concerned with this debate. In our view the evidence for deserting classical logic for one or another nontraditional logic is still not convincing.

The status of inductive inference is another matter, however. As we saw in Chapter 7, inductive inferences are not psychologically compelling in the way that the effects of either perception or deduction seem to be. We can imagine, and imagine in a way that undercuts our belief in the success of any particular inductive generalization, that what we have repeatedly seen happen, may nevertheless never happen again. Furthermore, this imagining of alternatives to what the inductive inference predicts does not seem idle. It seems to us that indeed inductive inferences are simply not truth preserving the way that deductive inferences are.

But there is another insight into the frailty of inductive inference that was discovered in the middle of the twentieth century. When Hume discusses possible inductive generalizations and considers how they might fail, he takes for granted the commonsense classification, or taxonomy, that he has inherited along with his mother tongue. He takes it for granted, that is, that the relevant classes for possible inductive inferences are those collections of objects that naturally occur to us, that—indeed—have been deemed important enough in the ordinary course of our lives for the language we speak to have terms for: collections of objects like those of ravens, tigers, gold, and so on, and properties like color, shape, and so on. Such groupings of kinds of objects we may call "the taxonomies of ordinary language."

One thing that successful science has taught us, however, is that we cannot take the taxonomic divisions of ordinary language for granted, no matter how natural they may seem to us. The lesson of successful science is that the ordinary ways that we naturally group things together often fail to be a suitable basis for successful inductive generalizations. Indeed, some of the ordinary ways of grouping objects together—on the basis of color, for example—have proven to be quite superficial with respect to the possibility of important scientific

generalizations. Color has just turned out not to be that significant a property. But if we allow that any strange way of grouping objects that we might imagine can prove to be an appropriate basis for inductive inferences, it becomes difficult to see how we can get inductive inferences off the ground to begin with. A way to see the depth of this problem is to consider the clear—although somewhat artificial—examples invented by Nelson Goodman.

Goodman's examples turn on the recognition that to even provide a candidate inductive inference requires that already-given classes of objects, events, or properties are in place as a medium for such an inference. Suppose we take ourselves to have established by induction that all emeralds are green. How did we do it? First, we needed to presuppose—have terms for—two classes of objects: green things and emerald things. Only then, if we have examined enough emeralds and discovered them to be green, can we "project" the property of being green over all emeralds whatsoever, whether we have seen them or not, and indeed, whether or not we will ever see them. This inference, that is, relies on our having chosen "green" as a projectable predicate—as a predicate that we take to be legitimately used as a candidate in such inductions: we took ourselves, in each particular examination of an emerald, to be checking that emerald for greenness. It might be thought: why "legitimate?" Is the worry that "green" might eventually prove not be a suitable property because all the inductive inferences using the concept might eventually fail—that is, that there are no interesting collections of objects all of which are green?

No, that is not the worry. The worry is that if all manner of properties are in principle allowed to be acceptable candidates for inductive inferences, we will have no idea which ones should be chosen first; but we will have to choose one or another, because many properties conflict with respect to inductive inferences in the sense that if we assert an inductive inference using certain properties, then inductive inferences using other properties must, by virtue of the first inductive inference, be denied.

In a sense, the problem is even worse than this. We normally think of inductive inferences as ones that can compatibly operate with respect to any collection of terms whatsoever that we have in our language. We can inductively (and simultaneously) test to see whether ravens are black, are birds, are blue, are spherical, visit the north pole on a regular basis, and so on. There is no conflict among all these possible generalizations except that given the right evidence, some might be shown to be true and others false. But there are terms possible, which, if they are simultaneously present in our language, cannot consistently be tested together because they lead to incompatible generalizations that are nevertheless justified on the basis of exactly the same evidence.

We illustrate this with a variant of an example that Goodman gives.

Consider the following property in whose terms we could have been considering an inductive inference about emeralds: an object, we say, is *grue* if it is examined before the year 3000 and is found to be green or is not so examined and is otherwise blue.

Every emerald we checked to support the inductive inference that all emeralds are green was not only green but according to the definition also grue. If, therefore, instead of taking ourselves to be trying to establish by the examination of emeralds that all emeralds are green, we instead saw ourselves, on the basis of exactly the same evidence, to be trying to establish that all emeralds are grue, then come the year 3000, we would expect, upon the examination of a fresh emerald, to discover it to be blue, not green. The evidence for either inductive inference looks to be exactly the same. The same number of emeralds is examined in each case. The only difference seems to be that in one case we are intent upon an inference to the generalization "all emeralds are green" and in the other to the generalization "all emeralds are grue." Each inference is equally justified; but we cannot be allowed to make both inferences because they make incompatible predictions about the properties of emeralds to be found after the year 3000.

Grueness, we can all admit, is a very strange property. But this observation is of no help in defending our use of *green* against the suggestion that we should use *grue* instead. For the property grue is no stranger than the quantum mechanical properties that science has actually committed us to and that apparently allow subatomic objects to be at more than one place at the same time. In any case, nothing tells us which properties are really strange, that is, strange enough to be a priori ruled out of consideration for inductive inferences altogether, and which ones should be taken seriously. It seems, therefore, that the possibility of any inductive inference at all has ground to a halt because it seems that we need to have a taxonomy in place that we can trust before we engage in inductions. But how on earth is such a thing to be established before we test it for successful inductions?

Goodman is aware of this problem and suggests a solution. It is a mistake to try to supply the taxonomy first; at least it is a mistake to give a taxonomy that is already justified in what inductive inferences it will allow. Instead, we must start with provisional taxonomies and then modify them on the very grounds that they do or don't support successful inductive generalizations. Its failure to support any successful generalizations at all is a very good reason to drop a taxonomy. But the sheer failure of a taxonomy provides no guidance to the construction of alternative taxonomies, nor is it a guide to how we are supposed to come up with a taxonomy to begin with. There are two linked strategies to handle these issues. The first is to start with the taxonomy that we have inherited—and indeed, this is exactly how science has proceeded. Science was not designed on the basis of nothing; it took

over the concepts of ordinary life—what we might call "folk science"—and only then gradually modified them. And this is the second linked strategy: to change taxonomies creatively calls for imagination. Sometimes small modifications of an already given taxonomy will do the job. Sometimes only a drastic revision can succeed. It is an empirical matter which properties ultimately sustain successful inductive generalizations, and thus it is an empirical matter which properties will provide the ultimate material out of which our generalizations and explanations can be crafted. But we cannot dictate ahead of time which properties we have to presuppose in our inductions and which ones we should not so presuppose. We can only use the success and failure of the very inductive inferences themselves to discover which taxonomies can be taken seriously and which should not be taken seriously.

Taxonomy, the construction of a classification system for a body of phenomena, is often seen as a dreary and sterile subject—a dull matter of sorting items into pre-designed boxes. But we can see now how important the subject actually is. Taxonomy is not a simple matter of organizing particulars in ways that are memorable. Classifications of objects of all sorts are the material on which explanations and the generalizations that such explanations stand upon are built. But we have also learned that one cannot start by constructing a set of kinds. Rather, the process of taxonomy must operate hand-in-hand with the discovery of generalizations and explanations that are given in terms of these classifications. A kind of methodological holism has been exposed here—one with far-reaching consequences. In building up a world view, we must operate with all of its pieces at once.

In this section we have freely used the word "taxonomy." But it should be realized that any taxonomy is the vocabulary of some corresponding language. In describing us as needing to modify and test taxonomies in order to find suitable inductive generalizations, what is actually being urged is a systematic practice of changing the expressive resources of entire languages. This is an important and deep insight. In the next section, we develop this insight about languages further by linking it explicitly to the notion of truth.

Before turning to that issue, however, it's worth discussing briefly the forthcoming application of these ideas to the construction of the metaphysical system to take place in Part 3. The important point to note is that far-reaching taxonomy, such as arises in the sciences and in philosophy, is never merely the rearrangement of already described objects in a new classification system. As important, perhaps more important, is the positing of new objects that are classified within the taxonomy as well. Our discussion in Chapters 8 and 9 of the justification of generalizations can obscure this important point by its implicit reliance on tried and true philosophical examples such as black ravens and grue emeralds. But no

successful taxonomic system, one that sustains important generalizations, gets by without the positing of new objects not hitherto described. A discussion of how such positing is managed successfully will occur in Chapters 11 and 12.

Chapter 10

Truth

We mentioned in Chapter 7 that truth is the only proper goal of appropriate practices of belief acquisition. Another way to put that point is to describe truth as a norm for knowledge and in particular as a norm for knowledge gathering. But the seasoned philosopher knows that there is no more controversial notion than that of truth—despite how ordinary the word is. We should, therefore, say how we understand truth so that it will be clear how it can play the normative role that we have assigned to it.

Let us start with a straightforward "correspondence" picture of truth. On this view, truth is a property of sentences or of the propositions those sentences express. Sentences describe possible states of affairs, and true sentences therefore describe facts, where facts are understood to be actual states of affairs—the way things really are. A metaphysical norm for correspondence truth on this view is consistency. Since it is not possible for anything in the world to be such that a sentence S and the negation of S both describe facts, it is not possible for a sentence S and its negation both to be true. Any true description—list of true sentences—therefore is consistent: it does not imply both a sentence and its negation.

This is fine as far as it goes. But as everyone recognizes, it is not enough to have even a lot of truths. The truths one has ought to be significant, not trivial. But it is difficult to say exactly what significance amounts to here. Our suggestion is that the more significant truths have broader scope: they describe, as it were, more of something than less significant truths do. In knowledge gathering, therefore, we are not concerned merely with truth; we aspire to a certain kind of completeness in our list of truths. One can ask, how exactly do some truths have broader scope than others? The answer is that they imply more truths. In turn, the "more truths" implied is not a matter of mere numbers of truths, because every truth implies an infinite number of other truths. Rather, it is a matter of the truth implying other truths, where the latter truths differ from one another in their content. In this way, the generalization that all ravens are black has much broader scope than the statement "that raven in the sky overhead is black." The former implies many sentences with quite different content: "That raven in the sky overhead is black." "The raven in room 1221 is black." "All ravens in Australia are black," and so on. These statements all differ from one another in their content. "That raven in the sky overhead is black" implies truths that differ very much less (from one another) in their content.

Correspondence truth, as we have been describing it, presumes a language that is fixed in its vocabulary. On this view, truth is a property of sentences of a language, and completeness of truth therefore amounts to large groups of such sentences that differ in their content—the larger in number the better. But this view of truth overlooks an important way that the search for truth requires changing the very language itself.

It has been made clear in Chapter 9 that the taxonomy available to a language is quite relative to the descriptive resources of that language. And the grue-style examples discussed there make clear that languages must differ in significant ways in their descriptive resources. What this in turn shows—and this is something that should be clear in any case from the terminological revolutions that have become routine in the sciences—is that in our search for truths we do not simply try to augment the true sentences relative to a fixed language. Instead, we often need to modify the vocabulary of the language itself or invent new languages altogether. It is only in this way that we can formulate theories that more adequately express the truths we need expressed.

The initial way we described correspondence truth placed the focus on the sentence, true or false, and the facts expressed by true sentences came in as reflections of what sentences say. But the right view makes what is to be described—that is, reality—central. Our search for truth, therefore, requires not merely that we augment our recognition of the true sentences of a fixed language. It requires the invention of new languages that better describe that reality.

It is just at this point that metaphysics constrains how languages must be constructed or modified. And it is in this way that we can see how coherence emerges as a value for true theories, a value that goes far beyond the requirements of mere consistency.

The primary relevant metaphysical constraint that comes into play here is our monism. The "facts," whatever they turn out to be, are metaphysically linked to one another. Truth as mere correspondence is obviously compatible with an "atomic" picture of facts—one where the primitive vocabulary is a sheer list of terms (predicates) that are logically independent of one another. We are not mounting an objection to the specific idea that facts can be logically independent of one another because there is no reason to believe, in any case, that logic dictates the metaphysical linkages among facts.

Nevertheless, it is the expression of those metaphysical linkages between facts that enhances the coherence of a body of truths. Consider, for example, the metaphysical connection between the kinetic energy of molecules and the degree of pressure of a gas. This is not to be represented logically by an analysis of the predicate "pressure," so that it is revealed by definition to be composed in part of the concept of kinetic energy. No more, for that matter, is the metaphysical

connection between a table and the molecules that make it up to be represented logically, so that "table" can be defined as "molecules in such-and-such configuration." Rather, these connections are represented by additional substantive (empirical) truths that (provisionally) link the vocabulary of molecules with the vocabulary of tables.

The monist demands no more of the coherence of truths in general than this. The metaphysical constraint of monism is reflected in the truths expressible in a language by the need for a progressive enrichment of the vocabulary that will allow the expression of general connections between various sorts of facts. In this sense (ultimately) no truths are atomic: all truths, in the fullness of time, are to be linked to one another via the mediation of other truths.

We need a term that describes a complete list of truths with the just-mentioned properties. Let us call it "omni-truth." A picturesque way of thinking of the notion of omni-truth is to consider what omniscience would amount to, if such a thing were available to some agent or other. Omniscience is, as it were, knowledge of the way everything is. But that is surely only a first stab at the notion. More important, omniscience is the capacity to characterize everything from every angle. Thus, we should include in the idea of omniscience the Nietzschean notion of a perspective and so think of omniscience as the capacity to understand what there is in any sense in which that understanding can occur. To be omniscient is to be able—to put it metaphorically—to see things from any perspective. We are not, of course, suggesting that there is or could be an agent that is omniscient. We are simply characterizing omni-truth in terms of what such an idealized knower would know.

Were it possible to provide an enriched language that could describe reality as it really is, such an incredibly rich language would allow the expression of all interrelated truths from every perspective and about everything there is. In such a case, omni-truth would simply reduce to all the truths expressible in that language. We doubt such a language is possible—at least in any human sense of possibility. But this doesn't prevent the notion of such a language (despite its nonexistence) from functioning as a goal of knowledge gathering, thus as a norm for knowledge and more broadly as a norm for languages that are to be the vehicles of the expression of such knowledge.

The view of omni-truth that we have expressed here bears something of a family resemblance to one or another coherence theory of truth of the sort that was held by certain idealists. Correspondingly, our notion of coherence also bears a certain resemblance to their notion of coherence as well. But the differences in viewpoint are perhaps more notable and striking. Coherence was often characterized by these philosophers in terms of systematicity, consistency, and completeness. So, for example, they might describe a statement as true if and only

if it is logically consistent with other statements accepted as true. Sometimes truths are characterized as partial with respect to the "*Absolute*," and sometimes statements are regarded as true only if they can be deduced from the Absolute, where the Absolute is some final characterization of all truths.

Notice that such views are implicitly in opposition to correspondence truth, as we initially described it in this chapter. It is not enough, for such philosophers, for a statement to be true if all it does is correspond to a fact. Indeed, some philosophers of this sort deny the coherence of such a correspondence altogether. By contrast, our view leaves entirely intact the notion of correspondence truth. Our invocation of omni-truth is only to point out that there are additional norms on truth, apart from consistency, and that such norms operate not in terms of a characterization of the truths of a particular fixed language but in terms of the replacement of languages with better ones.

So too these traditional idealists often characterized coherence in a purely logical way. But as we have seen, doing so makes it difficult for coherence as a value to go beyond the dictates of consistency and significance. Of course, there was a crucial insight operating among such idealists—one that we have adopted as well. This is that the metaphysical facts should dictate the nature of truth rather than the semantic properties of sentences dictating the metaphysical facts. But this insight did not enable traditional idealists to recognize how metaphysics can govern the changes from one language to another rather than just governing the character of the truths of an already-in-place language. In addition, it was insufficiently recognized that coherence, although a metaphysical fact about reality that we must try to make our theories about that reality adequate to, is not to be reflected in logical relations among terms but rather in what may be described as empirical relations among such terms. Again, this characterization of coherence firmly distinguishes the idea from mere consistency.

So the quest for truth is enhanced by not allowing deduction to play too large a role in how we characterize reality.

This insight has more work to do: we turn to further discussion of it in the next section.

Chapter 11

Eduction

Hegel famously claims to deduce the true categorical structure by way of his quasi-dynamic dialectic process." His categories come in opposing pairs, as theses and antitheses, and these pairs generate further categories by a quasi-logical process he calls "synthesis." Despite drawing on the vocabulary of the logic of his time and despite his claim to have discovered the distinctive logic of the categories, Hegel clearly defends substantial propositions that lie outside what we can regard as the province of logic. Indeed, even in his own terms he sometimes seems so unclear about the proper demarcation of philosophy as a subject matter that he stands prepared to deduce features of the empirical structure of the world, as when he ventures a priori considerations in favor of the claim that the number of planets has to be seven. Setting aside such flights of philosophical fancy, it is still the case that none of Hegel's claims about the structure of the categories can be deduced from truly logical principles such as the *law of non-contradiction* or the *law of excluded middle*.

Any theory of *eide*, if it is to be at all interesting, must go beyond anything determined by the deductive consequences of logic and uncontroversial conventional definitions, even definitions of the metaphysical vocabulary. That this is true of any field of knowledge has been established in the preceding chapters. What are supposed to emerge from the study of metaphysics are substantial metaphysical claims—generalizations—that are to be confirmed, in part, in ways autonomous to the practice of philosophy. Thus it is clear that even if deduction is supplemented with ordinary inductive inferences on the basis of specific empirical observations concerning changing concrete objects, the result will be insufficient to provide confirmations of successful generalizations about the *eide*. For those metaphysical generalizations are supposed to be general substantive claims about the unchanging realm of the *eide*. Their structure, therefore, may not be made fully evident, even by the study of the empirical particulars that are parts of those *eide* that have parts.

Yet there remains a method for theorizing about the *eide* and the structuring relations among them, a method that includes induction and deduction but that goes beyond them. As it seems not to have a simple name as such, let us call this method "eduction" and explore some of its features. Eduction is like the detective's method of using whatever relevant hints, evidence, and considerations happen to be at hand in order to arrive at a tentative explanatory hypothesis about the problem area in question, a hypothesis that is then subjected to further testing. So,

although Sir Arthur Conan Doyle has Sherlock Holmes speak of his own "deductive" prowess, Holmes's method obviously involves much more than deduction in the logical sense. Holmes's problem is to determine the perpetrator of the crime. In doing this, he employs whatever relevant hints, evidence, and considerations he finds, in order to arrive at an adequate explanatory grasp of the crime: its means, motive, and opportunity and eventually its perpetrator. He forms hypotheses about these elements of the problem situation and then tests them by deducing their consequences.

So described, eduction involves three steps. First, inference to the best explanation of the data at hand, which seems to be what Charles Sanders Pierce described as "abduction," followed, second, by the attempt to derive further consequences (by deduction) from our explanatory hypothesis for, third, additional (inductive) testing or verification against the data. Eduction is therefore essentially an open-ended process of hypothesizing and testing. It is not a process that will produce the finality and certainty of logic or mathematics. There is always room for further refinement.

However, there is more to eduction—specifically, there is more to say about its abductive part—than what has been said so far. Sherlock Holmes's methods certainly illustrate a part of what is involved in eduction, but his methods do not exhaust it. The reason is that the conclusions that Holmes arrives at (for example, "The deadly snake crawled down the bell-rope") do not go beyond our already established ways of describing the events and objects being studied. But in science—and metaphysics—this is not so, as we have already indicated in Chapter 9. In physics, for example, what often happens is that a theory is established on the basis of entirely new ways of describing what there is or of new ways of describing wholly new entities. Descriptions of new particles, with novel properties not had by familiar things, are routine.

Now, although observational consequences are paramount for determining the value of scientific theories, they massively underdetermine which observationally adequate theory should be adopted. Certain internal theoretical virtues, therefore, are relevant in deciding among what would be otherwise equally observationally adequate theories. If it is to be accepted as a working hypothesis, a scientific theory must exhibit a satisfying internal coherence, so that it illuminates the problem area for the existing experts. Often mathematical properties of symmetry and elegance play a role, but that is hardly the whole of the sorts of internal virtues that practitioners in a field rely on to reject otherwise empirically adequate theories. Indeed, it is often difficult for a scientist to put into words the quasi-aesthetic virtues a theory must have if it is to succeed in illuminating a problem area for the existing experts. The physicist Steven Weinberg, in his book *Dreams of a Final Theory*, discusses such internal quasi-aesthetic virtues and how

powerful a role they play in theory selection, at least when it comes to the physical sciences.

When it comes to philosophy in general and specifically to the theory of *eide*, eduction clearly needs to rely heavily on internal virtues of the sort just described. The problem area in which the theory of *eide* arises is vast and abstract. One aims to discover an explanatory order in that problem area by drawing on a variety of hints, evidence, and considerations in order to develop explanatory principles to account for the structure one discerns. This means that as with the more mundane results of ordinary detection, no theory of *eide* can lay claim to the certainty of logic; crucial to philosophical thinking are epistemic decisions on the part of theorists. Precisely because studies in the theory of *eide* involve substantive claims about an abstract structure that can be only partly discerned, philosophy in general and a theory of *eide* in particular can have the status only of a body of internally virtuous explanatory decisions that remain open to continual refinement and improvement.

This bears directly on the troubling questions mentioned at the beginning of Part 1 of this work, those questions that were dismissed by linguistic philosophers in the middle part of the last century. These philosophers, you may recall, had a theory of truth and meaning that left no place in philosophy for a method like eduction. This is because they believed that there was a sharp distinction between sentences true solely in virtue of the meanings, or definitions, of words, so-called "analytic" sentences, and sentences true in virtue of how things those sentences are about actually stand, so-called "synthetic" sentences. The analytic truths followed by deduction from nominal definitions that captured the meanings of words, whereas sense perception and induction were the (only) routes to the discovery of synthetic truths.

Because of the above views about language and because they also believed that philosophy in general and metaphysics in particular aimed at disclosing what was necessarily the case, for them it followed that philosophical claims, if true at all, had to be analytic truths, true by virtue of the meanings of words. So the whole domain of philosophy in general and of metaphysics in particular was exhausted by logic and the correct definitions of the central philosophical vocabulary. Therefore, on their view, different metaphysical systems could be no more than disguised proposals to use words in certain ways. Metaphysical truths could not represent synthetic truths about a changeless reality. So too, metaphysics could only achieve its purported apodictic certainty by actually being something close to vacuous, namely by being the logical exploration of relatively arbitrary nominal definitions.

A method like eduction, however, inference to the best explanation of the data at hand, combined with (i) attempts to derive further consequences of explanatory hypotheses for further testing and verification of our initial

explanations and (ii) the evaluation of the internal virtues of such explanatory hypotheses, such as their compatibility with our other background assumptions, would thus be an epistemic process that is entirely misplaced in metaphysics. Such a method—on the positivist view—could only apply to the investigation of synthetic truths about the universe.

We can now see clearly what is wrong with this twentieth century criticism of metaphysics. It is rooted in a profoundly false theory of truth and meaning. There can indeed be synthetic metaphysical truths, substantive truths about reality, which are true thanks to the essential nature of the things under discussion. So metaphysics is anything but the logical exploration of relatively arbitrary nominal definitions.

It must be stressed, however, that metaphysics cannot aspire to the certainty of logic or mathematics. It must be content at each point in its history to educe what appear to be the best explanations then available. And this is the character of the present enterprise. It does not put forward its claims as apodictic; they are instead challenges to produce better explanations of the data that constitute the domain of metaphysics and particularly the theory of the *eide*.

These days, many philosophers aspire to the kind of fallibilism we espouse here. There is an expository practice, however, still widely used by philosophers, although not so common in the other fields of knowledge. This is the attempt to provide precise definitions of concepts—necessary and sufficient conditions—that are to govern the field of study. In a context where the aim is a form of apodictic knowledge, such definitions are worthy goals. But in a context like this one, where all results must be taken to be provisional, we should instead make do with definitions that are illuminating because of how they resonate with our background assumptions, not because they place precise necessary and sufficient conditions on the concepts so illuminated.

That is, since metaphysics cannot aspire to the certainty of logic or mathematics, it is useless to lay down strict, unchanging definitions of the philosophical concepts in play. For just as in the empirical sciences, where concepts get modified along with empirical theories, so also, as philosophy develops by way of better and better eductions, central philosophical concepts must be modified. The present work provides many examples of this, perhaps none more striking than the concept of *eidos* itself. Concepts are tightly wound-up little theories that must evolve with the larger theoretical framework in which they are embedded.

Chapter 12

Diagrams

In a deep way that we have been exploring in previous sections, a taxonomy is rather like a language, and therefore a new taxonomy is rather like a new language. When we think of how natural languages differ, apart from their distinctive grammars, we naturally think of the many words such languages have (and don't have). As we saw in Chapter 9, the words in a language implicitly group objects together in some ways and not in the other ways that other words (not present in such languages) would group things. Such groupings according to the words in a language implicitly circumscribe the generalizations we are able to express in that language, and indeed, to a very great extent they circumscribe the generalizations that our well-trained imaginations are even capable of imagining or inventing. Once we recognize that progress in any field of knowledge can take place only by the invention of fresh ways of grouping things together and by the fresh introduction of kinds of objects that have not hitherto been described by our inherited ways of speaking, we realize that we must learn methods of breaking away from the distinctions made in our inherited language. Once, that is, we recognize that we should not trust the ways our forefathers chose to demarcate the world, we need methods that free our thinking from the psychological pressure to think of the world in the old ways that the words of natural languages dictate.

It might be thought that what is therefore required for this kind of creativity is an altogether new language that we must learn to speak, one that has entirely new noun phrases that bear no resemblance to the words in the old languages. But this suggestion bears a frighteningly close resemblance to the old Cartesian suggestion of first philosophy: that we are to break away altogether from our inherited body of beliefs and raise a new structure—in the form of a new language—from the ground up. As our discussion in Chapter 7 should have made clear, this Herculean task is impossible to execute.

But it is obvious that—in the sciences, certainly—new ways of grouping objects together are invented all the time, and even more drastically, new types of objects with properties no one had even previously imagined are regularly invented. And, despite all this innovation, scientists still manage to continue to speak the same language(s) the rest of us do. However they enable themselves to be creative about ontology, it cannot be by the method of simply rejecting ordinary ways of grouping objects together or by rejecting ordinary ways of speaking about them.

The key, in the physical sciences, to ontological innovation is the application

of mathematics. We need to briefly think about how mathematics is used for this purpose and extract the lesson so that it can be fruitfully applied in metaphysics. We turn to this task in what follows.

How is mathematics, in physics especially, a useful tool for constructing alternative taxonomies? The way the trick is turned is to treat an applicable branch of mathematics, a mathematical system, as a formally defined collection of objects and properties of those objects. In this way, pure mathematicians can speak of numbers, functions, Hilbert spaces, spinors, and so on. This practice also allows formal derivations of the properties of these objects. From the point of view of the pure mathematician, who does not care about applications, such mathematical systems may in any number of ways be taken as corresponding to empirical objects.

As an example, consider geometry and the objects posited in that subject—points, lines, and especially plane figures. And consider the application of such a piece of pure mathematics to the chalk markings on a blackboard. As a result of this application, certain marks on the blackboard are singled out and naturally grouped together—triangles, squares, and so on. Others are ignored. Before the application is in place, one might imagine that any marks at all could have been grouped together in any way at all.

Imagine, for example, that the chalk marks come in different colors. We might therefore have grouped the red ones together, separate from the blue ones. This is not a grouping that the application of geometry makes salient. This application of geometry insists that certain items are to be significantly grouped together on the basis of shape and area alone, and others are not.

Applications of geometry are not the best ones for showing how the application of mathematics enables creative developments in ontology if only because, as the history of Euclidean geometry makes clear, we already had in place empirical descriptions of objects ("squarish," "circular") that proved to be mathematically tractable. In fact, geometrical concepts arose by a process of abstraction from these empirical concepts already in place.

But a great deal of contemporary mathematics that is successfully applied did (and does) not arise this way at all. Complex analysis is an example of a branch of mathematics that was invented not by thinking of empirical applications but by refinements of pure mathematical concepts. The (subsequent) applications of complex analysis are successful because complex analysis allows a taxonomy to be imposed on a phenomenon, dividing it into kinds of things and processes, that we otherwise would have no way of speaking about. In particular, the taxonomy imposed on a phenomenon by a mathematical system is one we understand only through the distinctions made in that system. We have no independent access to a way of cataloguing the objects being studied. This is the case especially with the

study of, say, subatomic particles.

This is a point that is generally true of "theoretical" objects, and this is why such objects are described as theoretical to begin with. Our ways of classifying them arise from the theories we have about them, and commonsense ways of classifying objects simply do not come into the picture. This useful property of mathematical systems is one that is shared by simpler objects, such as diagrams. In general, a diagram should be seen as a collection of physical symbols—lines, arrows, enclosed areas, colored expanses, and so on—where certain relationships among those symbols are stipulated to be significant and others are not. Such a diagram cannot only be formally defined, but its properties can be formally described as well; and the diagram can be treated as something amenable to proofs.

The result, in this case, is a taxonomy waiting for content. Howsoever we apply such a diagram, it will supply an internally determined way of speaking about what it is applied to. More important, it will supply kinds of objects and relations among those objects that—depending on exactly how it is applied—will prove to be a fresh reconstitution of whatever it is applied to. A map is certainly a diagram in this sense. But maps traditionally are designed only to describe the properties of a landscape that we already have the means of describing in ordinary language. Maps are deliberately designed not to be ontologically creative. As a result, the formal properties of maps as maps are traditionally used exert no independent force on what is being described. Therefore a map is never used to characterize generalizations that we do not already know of.

A map need not be used in this conservative way, of course. Imagine that we stipulate that any red patch of a map shaped in such and such a way and located in such and such a place on the map must correspond to a blue patch shaped in such and such a way and located in such and such a different place on the map. If, further, the red shapes are taken to correspond to mountains of such and such types and the blue shapes are taken to correspond to ponds of such and such types, at that point certain formal properties of these maps can be used to predict certain aspects of the landscape they are supposed to represent. In practice, of course, no such definable generalizations about maps lead to anything interesting that is true about landscapes.

But in the applications of mathematics that we alluded to above, precisely the same sorts of correspondence between formal properties of the mathematical objects and the empirical properties of the things that such mathematical objects are taken to correspond to does lead to valuable predictions and generalizations, and ones furthermore that cannot be expressed in the nomenclature that ordinary language is restricted to. More generally, we can think of the many kinds of diagrams that arise in mathematics as abstract taxonomies that allow the groupings of things and the positing of things in ways different from the groupings allowable

in natural languages. Indeed, if we are trying to break free of the inherited taxonomies of natural languages, one method is to construct a taxonomy free of those influences by utilizing diagrams that obey formal principles that we stipulate. Such stipulations should not be arbitrary, of course. Rather, they should encode various generalizations we are building into our new taxonomy. In this way, we can hope to provide the best explanations for whatever phenomena we intend to apply the taxonomy to.

The success of applied mathematics, and the rich and strange taxonomies that arise in the many diagrammatic forms that are routinely applied via the applications of mathematics (for example, vector spaces and Feynman diagrams) show the fruitfulness of this methodology. How such diagrammatic forms are to be manipulated or explicated formally (e.g., as Euclidean constructions, integrals, equations, and so on are so formally manipulated) reflects implicit taxonomies that become explicit when such are applied.

In this way, diagrams are revealed to be essential to the creation of new taxonomies. In the case of the theory of *eide*, as we have undertaken the subject in this work, they allow us to encode in a formal way principles governing *eide* without our having to fall back on the demarcations of ordinary language. These taxonomies, when made explicit, are then to be tested in the ways that eductions are normally tested in any knowledge-gathering area that they arise in.

We now have in place a discussion of epistemology sufficient for getting on with the metaphysical characterization of the *eide* to be carried out in Part 3. We have, in the foregoing, discussed the nature of belief and rational belief acquisition. We have also indicated the epistemic strategies available to us to discover useful generalizations not only in the sciences but in philosophy as well. An important tool for this, as we have seen, is the use of mathematics and more generally diagrams to drive theoretical assumptions and theoretical posits that can be subsequently tested. We now turn to the presentation of a metaphysical system of *eide* that has been—as much as possible—constructed with these powerful epistemological virtues firmly in mind.

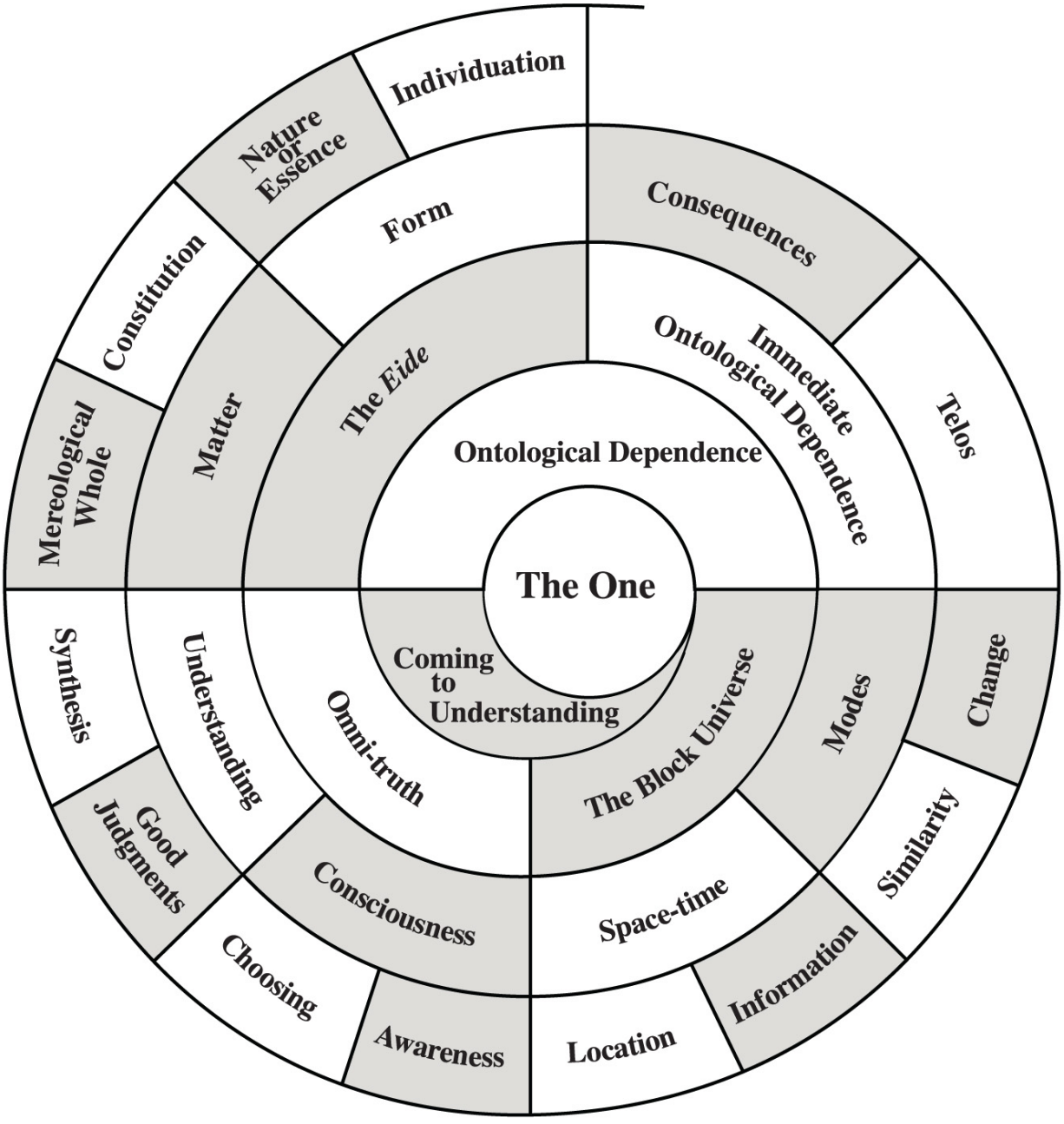
Part 3: Metaphysics

Chapter 13

Ontological Dependence

As we have indicated in Chapter 12, our approach to the metaphysics of the *eide* is diagram driven. We mean by this no more than what is meant by saying (as it should be said) that physics is mathematics driven—driven by the particular mathematics that it presupposes. In neither case should these phrases imply that the mathematics or the diagrams can do all the work in their respective subject areas. For physics, the presupposed mathematics imposes structures on the empirical subject matter: those imposed structures are in turn interpreted and tested empirically. The value of the application of a branch of mathematics in particular stands or falls with the value of the taxonomy that branch of mathematics implicitly imposes and with the set of generalizations that the implicit taxonomy resulting from the application invites. Similarly, to enable our study of the *eide*, we shall invoke a diagram pattern that is also to be interpreted and its implicit taxonomy and generalizations tested. In this case of metaphysics, the testing—of course—is to be executed not so much empirically as by the general methods of eduction described in Chapter 11. We begin, therefore, by laying out in diagrammatic form the first twenty-six *eide* that are to be tentatively educed in this and in later sections of Part 3.

DIAGRAM 1


The One
Ontological Dependence
Coming to Understanding
The Eide
Matter
Form
Mereological Whole
Constitution
Nature or Essence
Individuation
Ontological Dependence
Immediate
Consequences
Telos
The Block Universe
Omni-truth
Consciousness
Understanding
Synthesis
Good Judgments
Choosing
Awareness
Space-time
Location
Information
Modes
Similarity
Change

In what follows and as the labeling in Diagram 1 indicates, we shall capitalize the names of the *eide* to distinguish clearly those cases where we are speaking of an *eidos* from those cases where we are speaking of what that *eidos* intuitively "represents." (Why the word "represents" is in quotation marks will be discussed in Chapter 16.) So in particular—and to illustrate with an example where ambiguity can be especially confusing—when we are speaking of *eide*, we use lowercase, as just illustrated; but when we are speaking of the *eidos* the *Eide* (as it appears in Diagram 1), we use uppercase, as just illustrated.

Central to Diagram 1 and correspondingly central to our metaphysical viewpoint is The One. It is not an *eidos*, so strictly speaking Diagram 1 indicates twenty-six *eide* and The One on which they depend. As we mentioned in Chapter 1, we make a basic commitment in our study of The One, a commitment implicitly denied by many mystics, such as the author of *The Apocryphon* of John. Such mystics suggest that The One is ineffable or beyond intelligibility. We claim on the contrary that The One is intelligible and that to understand it we must employ exactly the same methods that we must employ to understand anything else.

Let us start by describing several properties of The One and indicating some of the implications of these properties. As we noted in Chapter 5, we are "particularists": we deny the existence of *abstracta*, or universals. The One, therefore, like everything else, is a particular. In addition, although it is an unchanging particular, it is nevertheless contingent. There are many different ways The One could have been, and one of those ways would have been for The One to not exist at all.

Some particulars have parts, and some do not. The One does not have parts. Every particular, however—as we indicated in Chapter 1—is amenable at least in principle to what we shall describe as four-cause explanations: analyses in terms of its form, matter, efficient cause, and finality—or, as we shall explain later, analogs thereof. The One, quite obviously, is not amenable to an explanation in terms of efficient causation because there is nothing outside The One that can play such a role. For a similar reason, The One is not amenable to an explanation in terms of finality. This leaves only form and matter—both of which, we claim, The One has, and in terms of which The One can be understood.

If we understand the form and matter of a particular as *internal* explanatory factors of it and finality and efficient causation as *external* explanatory factors of it, then it is almost tautological that although The One has form and matter, it does not have either an efficient cause or a purpose. Some may fear that without an efficient cause for The One, there is a problem with its being contingent. Indeed, this is one reason religious thinkers and philosophers have regarded their notions of The One as a necessary being. We shall show in Volume 2 that the contingency of The One is not threatened by its lacking an efficient cause.

We turn now to a description of the form of The One—the central topic of this chapter. Recall that in the passage from the *Metaphysics*, cited in Chapter 1, Aristotle identified form with pattern, the formula of the essence, of a given particular. In the case of The One, this pattern (this formula of the essence) is literally the essence (or nature) of everything. We need, therefore, to briefly indicate the scope of everything.

If changing concrete reality—everything that is in space and time—were the whole of what there is, then The One would be the world. But that characterization leaves out both The One itself and a fundamental (and unchanging) *part* of reality, namely the realm of the *eide*, in which the particulars in the world participate in some way. This part, we claim, illuminates the form of The One in an especially clear way. Our task is to understand the nature and pattern (or structure) of The One. To do this, therefore, first we shall analyze how the form of The One arises in the specific case of the *eide*, and then we shall turn to how it appears elsewhere in The One. What motivates this particular expository route is that (as indicated) the way ontological dependence arises among the *eide* is simpler metaphysically speaking than the way it arises elsewhere.

Of course, the talk of parts in the last paragraph is purely metaphorical. For one thing, the form and matter of The One are dependent aspects of The One, not preexisting parts that can be put together to make it up. Moreover, recall that we have stated that The One has no parts; nevertheless, this is entirely compatible with its having form and matter. In general, it should be remembered, the form and matter of a particular are not parts. It is unnatural, for example, to take the bronze of the statue and its shape as "parts" of it. This point about our intuitive impressions of form and matter as they arise in the case of things like statues generalizes to how matter and form arise in the context of The One and the *eide*. Our suggestion is that the form of The One is a relation among items within it. We call this relation *ontological dependence*. We now turn to characterizing ontological dependence with specific attention to the context of the *eide*.

As we have already stressed, the *eide*—like The One—are particulars; and like The One, they are unchanging and yet contingent. Among the many ways that The One could have been different is that it could have been that certain *eide* existed and not others. Furthermore, like all particulars, the *eide* are amenable to four-cause explanations, although—like The One—they need not be amenable to explanations in terms of all of the four causes. Four-cause explanation, in general, is crucial to our understanding of the *eide*, but it is actually a reflection of ontological dependence, a deeper structuring principle among them. The key to understanding this deeper principle turns on the contingency of *eide*.

For Aristotle, of course, all explanation is one and the same thing as the four causes. But crucial to his viewpoint is that these causes are not just linguistic tools

for giving explanatory accounts of particulars and their relations to each other: they are simultaneously the actual operating principles of the universe— the principles by which things come to exist. Explanation, in this sense, is Janus-faced for Aristotle: It has simultaneously a metaphysical and an epistemic character.

Something like this twofold character of explanation is at the heart of our approach as well. Explanations are not merely the products of linguistic conventions designed to fit what humans are capable of articulating and understanding; they are simultaneously the revelation of structure in The One. Our notion of explanation, therefore, although it is not restricted to Aristotle's four causes as he understood them—is nevertheless Aristotelian explanation insofar as it is both metaphysically substantial and intelligible.

It is because the term "explanation" in contemporary discourse has come to mean only the linguistic side of the richer Janus-faced notion that we have chosen to use the phrase ontological dependence as our nomenclature instead of explanation. We characterize it to begin with as follows:

Janus-face 1: (i) A particular *A* is ontologically dependent on a particular *B* if and only if the existence of *A* depends on the existence of *B*. (ii) The One is the only absolutely ontologically independent particular. The notion of ontological independence as just characterized is clearly not to be understood as applying only to particulars that exist in time. It also applies to particulars that are eternal, and it can even apply to ones that are necessary, although our metaphysical views won't require this second application. Consider, for example, the set {2, 3}. We intuitively grasp the ontological dependence of that set on its numbers even while taking such numbers simultaneously to be eternal and necessary. The point is that we should not reduce the notion of ontological dependence to a modal notion, e.g., that *A* is dependent on *B* if and only if it is the case that necessarily if *A*, then *B*. Notice also that the ontological dependence of the set {2, 3} on 2 and 3 is not because the set contains 2 and 3 as parts. Ontological dependence is independent of the part/whole relation as well.

If *A* is ontologically dependent on *B*, we say, "*B* is ontologically prior to *A*." We also say, "*A* is immediately ontologically dependent on *B*," just when there exists no *C* such that *A* is ontologically dependent on *C* and *C* is ontologically dependent on *B*.

The *eide* are linearly ordered in virtue of their immediate ontological dependence on one another. This ordering is depicted in Diagram 2.

DIAGRAM 2

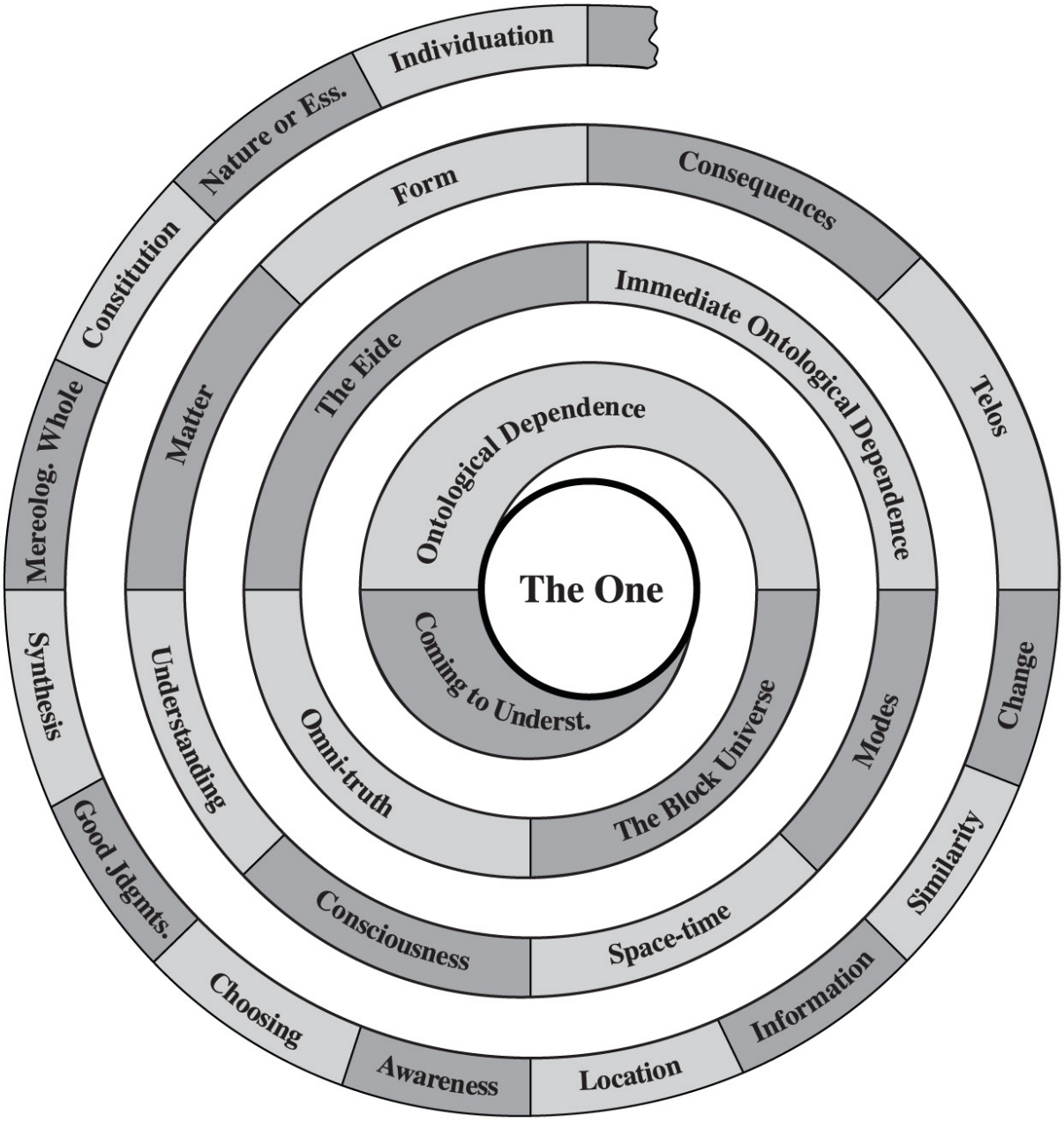

Individuation
Nature or Ess.
Constitution
Mereolog. Whole
Synthesis
Good Jdgmts.
Choosing
Awareness
Location
Information
Similarity
Change
Telos
Consequences
Immediate Ontological Dependence
Ontological Dependence
The One
Coming to Understand.
The Block Universe
Modes
Space-time
Consciousness
Omni-truth
The Eide
Form
Matter
Understanding

Diagram 2 reveals that every *eide* is ontologically dependent on The One and also ontologically dependent on every *eide* appearing between it and The One. In addition, each *eide* is immediately ontologically dependent on the *eide* appearing immediately before it in the spiral of *eide* depicted.

We mentioned earlier that ontological dependence, being a Janus-faced notion, operates both metaphysically and in terms of explanation. We thus give a second characterization of ontological dependence:

Janus-face 2: (i) A particular *A* is ontologically dependent on a particular *B* if and only if there exists an explanatory chain between *A* and The One and *B* is a link in that chain (or *B* is The One). (ii) Such chains, when restricted to *eide*, are entirely explicable in terms of (analogs of) Aristotle's four causes.

We have argued that Ontological Dependence is the form of The One. A different eduction would have been to take the *eide* themselves to be the form of The One. Prima facie, this is not a bad idea, but it is ultimately unworkable. First, notice that for this other eduction to have even a chance of success, it cannot be merely the suggestion that the *eide* alone is the form of The One. Equally crucial are the relationships of the *eide* to one another. So the candidate eduction must be amended thus: the *eide* and their relationships to one another are the form of The One. Unfortunately, now two things are involved, not one, and two things cannot be the form of The One.

So let us proceed a little more carefully. As we noted in Chapter 6, once we recognize the system of *eide* not to be a system of categories that are abstracted from the properties of particulars, we need principles (relating the *eide* to one another) that can help us in our eductions. This epistemic point is joined to a metaphysical one in the Janus-faced conception of ontological dependence. Ontological dependence is the structuring relation that gives us both the *eide* and their relations. Thus, the alternative candidate eduction has taken us back to our original suggestion that it is Ontological Dependence that should be described as the form of The One.

There is, however, a second misleading thought that can arise at this point. This is that it is not the ontological dependence relation among *eide* that can be used to recognize how the *eide* are related to one another. Rather, it is the stricter relation of *immediate* ontological dependence that is so used. After all, it is that relation, not the more general relation of ontological dependence, that is depicted in Diagram 2. But this is a bit of a mischaracterization of the role of immediate ontological dependence in our eductions. As later chapters will reveal, our eductions of the various *eide* and how they relate to one another will not utilize immediate ontological dependence very much. Rather, the eductions will largely turn on considerations about the form and matter of the various *eide*. During our quest to elucidate *eide*, that is, we shall rely not on immediate ontological

dependence but on specific ontological dependence relations that *eide* bear to other *eide* (including—but not restricted to—the relations that they bear, respectively, to their matter and to their form).

Our attempt to implement a different eduction for the form of The One indicates that the right picture is the one we gave initially: Ontological Dependence is the form of The One. Being an *eidos*, Ontological Dependence has matter and form—that matter and that form being the two components of our alternative candidate eduction above: The *Eide* and Immediate Ontological Dependence, respectively. Here is why: The *eide*, shaped by immediate ontological dependence, yields the more general ontological dependence relation—the form of The One. Diagram 2 depicts this: the boxes adjacent to one another in the spiral represent the *eide* that bear immediate ontological dependence relations to one another; but any such *eidos* bears the ontological dependence relation to all the *eide* preceding it in the spiral, and all the *eide* succeeding it in the spiral bear the ontological dependence relation to it. Notice also that the three boxes in the upper half of Diagram 1 depict the eductions of these *eide*: Ontological Dependence, the *Eide*, and Immediate Ontological Dependence.

Let us turn now to the matter of The One. It must, of course, be all-inclusive in its own domain, and this compels a treatment of the universe, or the world, as the matter of The One. (The reason "world," a word that we have temporarily adopted for expository purposes, does not appear in Diagram 1 shall be given in the next chapter.) According to ordinary usage, "the world" is a vague term for whatever encompasses everything around us and everything around that, and so on without limit (until, that is, everything is included).

When we think of the world in this way, we may inadvertently take it to be a totality or aggregate of all particular things. There are several philosophical varieties of this thought, but for present purposes they all amount to the same thing. Some, like David Lewis in *The Plurality of Worlds*, think of *the world* as a huge all-inclusive sum of concrete things, including a distinguished, ubiquitous concrete thing—space-time—that functions as a sort of super-container for all the other concrete things.

Although we do regard what we call "The Block Universe" as containing—in an appropriate sense of "contain"—everything concrete (everything that is in space and time; see especially Chapter 16 on this), we still have many reasons to disagree with the view of the world that we have just attributed to David Lewis. For according to this viewpoint, the world is itself a mere plurality of concrete things—at most an aggregate. No sense is made of the world itself as a particular distinct from and ontologically prior to this inclusive aggregate. For on this common view, the world is ontologically dependent on the particulars that make it up. Furthermore, because the world is not seen as a particular, it is not recognized

as the complex of form and matter that it really is.

On our view, the world is not Lewis's kind of simple plurality but is much more complex. The world is one thing with both form and matter. Its matter (the block universe) more closely corresponds to Lewis's notion of the actual world. According to our view, however, the block universe is also one thing, a particular with its own form and matter despite being different at different times and different places within it. The block universe possesses modes, to use Spinoza's language—local ways of being at this place and at that time. And it is only these modes, finally, that correspond to the ordinary objects that ordinary people—and many philosophers—take to exist and to be primary substances in Aristotle's sense.

The aggregate picture of the block universe (according to which the latter is all the actual world there is) implies that the world is ontologically dependent on the objects in it, whereas the truth is exactly the reverse. We should think of ordinary concrete objects as local and fleeting manifestations of the block universe, just as a wave is a local and fleeting manifestation of the ocean. And just as a wave is ontologically dependent on the ocean, being no more than the ocean conformed in that way there and then, so ordinary concrete objects, such as Aristotle's favorite examples of primary substances, "the individual man and horse," are no more than The block universe conformed in appropriate ways. Whether there is a concrete object at a particular region of space-time and how that object happens to be are determined by how The Block Universe is at that time and place. So it is natural to think of these concrete objects as local manifestations of features of The Block Universe. What we have been stressing in the foregoing is that neither the matter of The One (what we have called "the world"), nor the matter of the matter of The One (The Block Universe) are mere conglomerations: both are particulars—indeed, *eide*—in their own right. And as we have partially illustrated, as *eide*, they too have form and matter. This point generalizes: the form and the matter of any *eide* are themselves *eide*, in turn amenable to a hylomorphic explanation. Thus far, we have seen only a tiny part of the resulting iteration of form and matter of the *eide* that are the form and the matter of other *eide* (or of The One). We shall see more of this iteration as we proceed.

In this chapter, we have implicitly introduced four kinds of particulars with very different properties. The One is the (unique) first-order particular. The *eide* are second-order particulars. We have also stated that the form and matter of these particulars are always themselves *eide*. Next, we note that some (but not all) of the *eide* have parts. We call those parts of the *eide* that are not themselves *eide* third-order particulars. These third-order particulars are quite different metaphysically from the first two orders of particulars. Although, as we have stated, *eide* have matter and form that are themselves *eide*, it cannot be presumed that third-order particulars have matter and form that are themselves particulars of any sort, nor

can it be presumed that those *eide* with parts are ontologically dependent on those parts.

Given the ordinary notion of "part and whole," the second point about third-order particulars and the *eide* they are parts of may be a surprise. It is important, however, not to import into the notions of part and whole, as they are being used here, spatial intuitions that do not apply to objects that are not in space or time. A good example of why is to consider the particular *eidos* the *Eide*. As its name suggests, its parts are the *eide* themselves. However, as has already been shown, the *Eide* is ontologically dependent on the four *eide* that precede it in the spiral of immediate ontological dependence (see Diagram 2), and the infinitely many other *eide* that follow it in the spiral are ontologically dependent on it. Furthermore, the *Eide* contains itself as a part. This shows that mereological intuitions do not apply to the *eidos* the *Eide*. There is no objection, by the way, to the *Eide* containing itself as a part. Inconsistency of the sort exemplified by Russell's paradox arises not from mere impredicativity but from the vicious impredicativity due to the principles generating a class of objects (e.g., sets in a system of set theory using the unrestricted comprehension axiom) being too strong. This is not the case with the *eide*, which, in any case, are not to be generated in a mathematical fashion from principles but rather by eductions. It cannot be denied, of course, that the intuitive notion of a part and a whole is based most firmly—intuitively speaking—on cases of spatial (and temporal) extension, where we think of a spatio-temporal object as having as its parts those spatial (and temporal) extensions of space-time that are contained within it. But it is clear that the notion of part and whole naturally extends well beyond these primitive beginnings. Consider the idea of a judgment, say, as Russell often thought of it. This, according to Russell, is a logical object that nevertheless contains as proper parts the items that the judgment is about. There is no suggestion, nevertheless, that the judgment (which for Russell is an abstract object) is extended in space and time.

It is in this sense that *eide* themselves can have third-order particulars as their parts; and despite being particulars, *eide* are not required to be in space and time. So, too, the parts of *eide* need not be in space and time—although in some cases they are. (A judgment, although it is not in space and time, may contain objects that themselves are in space and time.) It is important to realize that the part-whole relationship does not require either the whole or its part to be extended in space and time. It is, as it were, a more abstract relationship than that.

The fourth order of particulars we shall describe as "constructed particulars." These are conglomerations—often metaphysically quite artificial ones—of other particulars; they are not parts of *eide* but are made up of such parts. Constructed particulars are thus ontologically dependent on the particulars out of which they are made. Artifacts are good examples of such—but among fourth-order particulars

may also be objects that we ordinarily think of as natural. Two clear examples of constructed particulars are a computer and the set of the greatest of the ancient philosophers {Socrates, Plato, Aristotle}. It is constructed particulars that are the source of the general intuition that wholes generally are dependent on their parts.

We take it that there exist no further orders of particulars: (i) The One, (ii) its *eide*, (iii) the parts of the *eide* when such exist and are not themselves *eide*, and (iv) the particulars constructed from other particulars—be they intentionally constructed or accidentally constructed (by the random workings of nature, for example). There is yet more to say about the particulars that are neither *eide* nor The One, however, and we shall discuss them in later chapters, especially in Chapter 16. Armed, however, with our newly clarified notion of ontological dependence, we can now explicate more fully the content of the three monisms that lie at the heart of the present work. Monism is itself a thesis about ontological dependence, and it is properly asserted of each of the following: The One and the *eide*. As applied to the *eide*, we have two *relative monisms*, namely, that the parts of any *eidos* (excepting the *Eide*) are ontologically dependent on the *eidos* they are the parts of and that the matter and form of any *eidos* are ontologically dependent on it. We shall argue for this second monistic doctrine in Chapter 14. Further applications of these monisms will show that the four-dimensional Block Universe is itself ontologically prior to the *eide* and that the modes of The Block Universe are ontologically dependent on it. Our monism regarding The One, of course, is absolute: The One is ontologically prior to everything.

One last topic should be raised before we turn to further details about the *eide*. This is the contrast between *eide* and "constructed categories" of the ordinary sort. Recall our description of The Block Universe and its modes: local and fleeting manifestations. Some of these manifestations have a size, a duration, and self-maintaining aspects that render them salient for creatures like us. Our animal bodies are among these local manifestations. The individual man and horse are not primary substances, as Aristotle thought, but manifestations of the world. Such manifestations become pivotal objects in our thinking about the world. We organize them into kinds based on their perceptually salient similarities and the deeper explanations for those similarities that we sometimes discover. We predicate things of the kinds and of their examples. And indeed, these predications can be usefully classified in the fashion of Aristotle's *Categories*. However, such predications are not fundamental in the way that *eide* are. Instead, they represent just the kinds of things we say about the salient manifestations of the world.

Determined as it must be by what is salient to us, our lived experience is an experience of kinds of salient manifestations and examples of these kinds. Thus our lived experience presents roughly the world that Wolterstorff describes in *On Universals: An Essay in Ontology*. However, this is just a world of nominal, or

constructed, kinds and their examples: a world whose cleavages are marked out by the constructed concepts that we find useful to enable us to negotiate our environment.

Having discussed in a somewhat informal way ontological dependence and related notions and having tentatively offered some eductions of these notions, we are now ready to give a more formal presentation of the metaphysics of this system.

Chapter 14

Six Principles

Hylomorphism looms large for us because matter and form are concepts that play a major role in our approach to the *eide* and indeed in our approach to particulars of all sorts. As an initial motivation for the use of these concepts, we have relied on the same ancient examples that Aristotle used, e.g., the statue and the bronze of which it is made (recall the extensive discussion of this example in Chapter 1). However, in Chapter 13 we described how particulars come in four different orders and how the resulting differences in particulars are metaphysically significant. Because of this, we cannot simply adopt those intuitions about matter and form that arise from thinking about third- or fourth-order particulars and apply them to the *eide*.

Recall from Chapter 1 that form is described there as the structure or shape of a particular: the way that it is. At the moment, we do not take issue with this static construal of form; but we will substitute a more active construal of form a little later in this chapter. Recall, however, that the factor that makes the statue this entity as opposed to another entity was attributed not to the form of the statue but to its efficient cause. Crucially motivating that intuition is the idea that there can be more than one statue with exactly the same form. In point of fact, this is false. Perfectly twin statues strike us as possible only because such are constructed particulars that moreover are perceived and conceived by us in abstraction from their actual properties. We imagine, for example, that two bronze statues can be manufactured to be exactly alike. Closer inspection of any two such purportedly identical statues, however, will reveal them to be different, and the more careful the inspection of the statues is, the more different they will be revealed to be. In any case, to speak of statues being individuated from one another is ultimately as cogent as describing the waves of the ocean as being individuated from one another. This is a point that applies to all constructed particulars and specifically to all items in space and time.

Eide, however, are uniquely distinct from one another in a way that is cogent (as opposed to third- and fourth-order particulars, which only present the illusion of having complete individuation conditions). Because *eide* are not in space and time, if they did not differ in their properties, in what sense could one say that two of them were nevertheless distinct? Being unique and being particulars that really are individuated from one another enable their individuation to be given solely by their form, which we describe as their essence or nature. Furthermore, in the case of *eide*, this essence or nature is itself not only an *eidos* but (as we shall argue

below) always a partless *eidos*. And as we have just noted, it individuates a given *eidos* as the specific *eidos* that it is.

Let us sum up our view of the matter and the form of *eide* in the following two informal definitions:

Definition (1) Matter of an *eidos*: The matter of a given *eidos* is that whole—with or without parts—of which the given *eidos* is constituted. This whole is an *eidos*.

Definition (2) Form of an *eidos*: The form of a given *eidos* is that essence or nature—itself a partless *eidos*—that individuates the given *eidos* as the specific *eidos* that it is.

Definitions (1) and (2) codify the insights iterated by matter and form relations that *eide* have to other *eide*. That is to say, because every *eidos* has both form and matter—as does The One, as we discussed at length in Chapter 13—and because the form and matter of any *eidos* are themselves *eide*, we can define unique "trees" of *eide* starting from any *eidos* at all. We shall describe the initial *eidos* as the initial node of its *matter and form* tree. Any such *matter and form* tree—with any *eidos* as its initial node—is, of course, infinite.

Unsurprisingly, not all *matter and form* trees of particulars are of equal significance, metaphysically speaking. The significance of any *matter and form* tree corresponds to that of the *eidos* at its initial node; and we regard the unique *matter and form* tree with The One at its initial node to have the most significance of all. This unique tree has a number of striking properties. The first is this: every member of it is metaphysically distinguished from all other particulars. The One, of course, is so distinguished; but every other member of this *matter and form* tree is an *eidos*—a second-order particular. No other particulars are located on this *matter and form* tree. Furthermore, if a particular is an *eidos*, then it appears somewhere in the unique tree with The One as its initial node. We can put the point another way. Any *matter and form* tree that has an *eidos* at its initial node is a sub-tree of the unique tree with The One at its initial node. Lastly, the parts of *eide*—when *eide* have parts—never participate in these *matter and form* trees, with the one exception (noted in the last chapter): the parts of the *Eide*, being *eide*, are so involved. This brings us to our third and final informal definition:

Definition (3) *Eide*: The *eide* are the (all and only) particulars that appear in the *matter and form* tree with The One at its initial node.

It is appropriate to make one other observation about the application of the notions of matter and form to the *eide*. Despite the fact that the *eide* are not in space and time, idioms of process are still suitably applied to them. We shall have a lot to say about the nature of atemporal processes in Chapter 17, but one easy way to see the point quickly for current purposes is to notice that idioms of process are even suitably applied to mathematical objects. We describe mathematical objects as "constructed" from one another or as "generated" on the basis of other ones. These processes are often glossed as logical processes, of course, rather than as physical events. Nevertheless, what enables the cogency of the application of notions of process to *eide* is precisely the fact that they have form and matter. Matter, virtually by definition, does not do anything. It just constitutes other things; it just is. Form, by contrast, does do something. It acts on matter to make a particular (a whole) of it. In this sense, form embodies process, whether or not that process is taking place in time. We should note that this association of form with activity and matter with passivity is hardly original with us. Maimonides, for example—an able proponent of the metaphysical importance of form and matter—writes, in his *Guide to the Perplexed*:

> Matter … is always receptive and passive…. Form, on the other hand, is in its essence always active….

One qualification about the activity of form and the passivity of matter is required. To speak of matter as not doing anything and of a form by contrast as acting on that matter is to speak only in a relative manner. For the matter of any *eidos* is passive only in relation to the *eidos* it is the matter of, not in any absolute sense. This is clear because any matter of any *eidos* is itself in turn an *eidos* and therefore cannot be utterly passive, since it has form.

The above construal of form is related to another point. Notice that Definition (2) does not allow any formal *eidos* to have parts. Given the foregoing suggestion that form is active, this is no surprise: activities do not divide easily into parts. Intuitively speaking, activities are events, and there is no natural (or uncontroversial) way to demarcate the boundaries of events in order to separate them definitively from one another.

We can encapsulate the discussion of The One, the *matter and form* tree with The One at its initial node, the nature of the *eide* with respect to form and matter, and the unique status of the *Eide*, in four clauses as follows:

The One is the only ontologically independent particular.

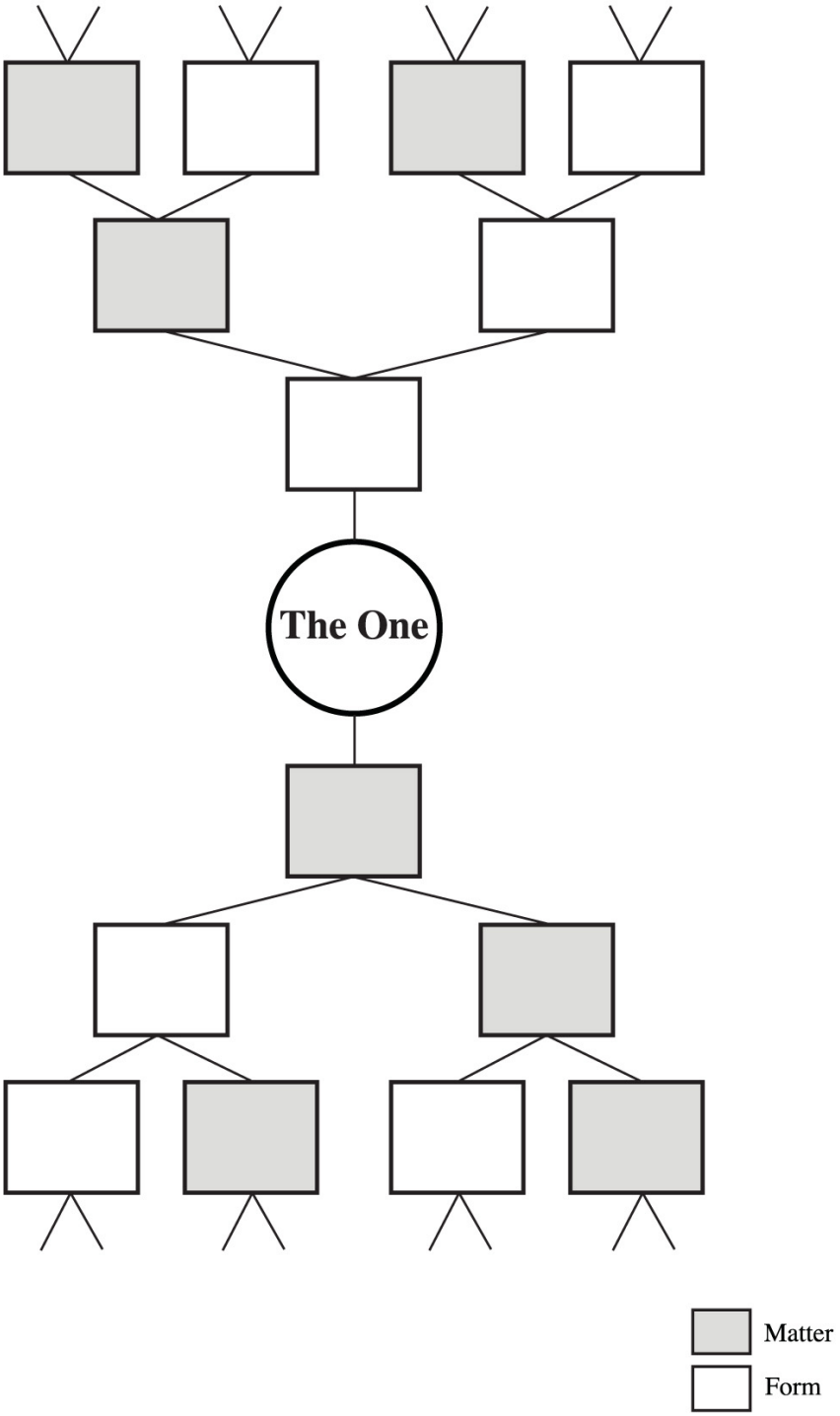
The One divides into two further particulars, neither of which is a proper part of The One: the first, its matter, is the whole that constitutes The One; the second, its form, is the essence or nature that individuates The One.

The matter and the form of The One are *eide*. They also divide into matter and form, as do each of their matters and forms, in turn, and so on, iterating all the *eide* into the infinite *matter and form* tree with The One as its initial node.

Eide that are the form of other *eide* or of The One have no parts. *Eide* that are the matter of other *eide* or of The One may have parts. Furthermore, with the exception of the parts of the *Eide*, no part of any *eide* is itself the matter or the form of an *eidos* or of The One.

The content of the third clause—the description of the *matter and form* tree with The One at its node—is already present in Diagram 1. We make this fact salient by means of Diagram 3.

DIAGRAM 3



Notice how, as required, each *eidos* has *eide* as its matter and its form in Diagram 3. These appear respectively as gray and white boxes, immediately radiating out from each *eidos*. Starting from any given *eidos*, there is a branch of *eide* leading back from it to The One, where each such *eidos* is either the matter or the form of an earlier *eidos* or the matter or the form of The One itself. These branches are examples of some of the explanatory chains described in Janus-face 2. The ontological dependence relation is such that the explanatory chain relation is simultaneously a relation among *eide*, each of which is ontologically dependent on the one before it in the chain.

It will be recalled that on most readings of the traditional view of matter and form—originating in Aristotle—the matter of a particular is what that particular depends on. On the other hand, the form of a particular is taken to be an ontologically second-class item that is thought of by a process of abstraction from the entity that the form is of. Aristotle's view of the relation of the form of a particular to what it is the form of may be thought to arise in part from a concern to avoid the reification of Platonic objects. But the main problem with his view of the relation of the matter of a particular to what it is the matter of arises from a mistaken reliance on the ontological dependence of the ordinary particulars he has in mind as the constituents of the world—the individual man and horse. These particulars, as we have noted, are third- and fourth-order particulars, and although it is true that they are indeed ontologically dependent on their matter, this is not the case with first- or second-order particulars, as we said earlier.

This is therefore another case where over-reliance on intuitions honed on interactions with ordinary particulars turns out to be misleading when we consider *eide* and indeed when we consider the ontological relations between the matter and the form of The One and The One itself. In accord with our monism, the matter and the form of The One are naturally ontologically dependent on The One, as everything is. But we also understand the matter and the form of any *eidos* to be ontologically dependent on the *eidos* of which they are the matter and the form, respectively. We now give an argument for this claim.

When it comes to *eide*, the matter and the form of these second-order particulars are quite specific to them: it is not possible for the matter or form of a particular *eidos* to be the matter or form of something else. This is seen both from the fact that the form of an *eidos* is itself an *eidos* and thus neither a universal nor a mere abstraction from a particular and from the fact that the matter of an *eidos* is not mere unstructured stuff. The matter and the form of an *eidos* being so specific to that *eidos* is what forces the ontological dependence of the matter and the form of an *eidos* upon that *eidos*.

We encapsulate the foregoing point about *eide* and the ontological dependence relations of their matter and form in the following clause:

The matter and the form of an *eidos*, themselves *eide*, are ontologically dependent on the *eide* they are the matter and the form of.

Diagram 3 graphically exemplifies this clause. Given that every *eidos* thus is either the matter of some other *eidos* or the form of such, the following terminological convention is useful: We shall sometimes describe an *eidos* that is the matter of some other *eidos* as a "material *eidos*." So too, we will sometimes describe an *eidos* that is the form of some other *eidos* as a "formal *eidos*."

In Chapter 13, we described the matter of The One as the world. Given Diagram 3, our description does not correspond to the labeling of Diagram 1, and it is time to explain why. In accord with our general claims about the matter and form of *eide*, the world itself is an *eidos*. We think of it, however, as a grand, overarching process rather than as a totality of material or as an extension in space and time. Not only is it a process—we might as well make our views on this important issue official—it is a process that is teleologically saturated: it is a process "with a purpose." For this reason, and tipping our hand to a more specific characterization of that purpose, we call this process *Coming to Understanding*. We also noted in Chapter 13 that the world involves as its matter a four-dimensional Block Universe, and where the individual particulars we are familiar with, stars, people, furniture, etc., are (Spinozistic) modes of that Block Universe.

Let us now summarize all the eductions so far, together with the diagram-driven structure of the *eide*, in two principles that we now give in full:

(1) Principle of The One, the *Eide*, and Hylomorphism:
   (i) The One is the only ontologically independent particular.
   (ii) The One divides into two further particulars, neither of which is a proper part of The One: The first, its matter, is the whole that constitutes The One. The second, its form, is the essence or nature that individuates The One.
   (iii) The matter and the form of The One are *eide*. They also divide into matter and form, as do each of their matters and forms in turn, and so on, iterating all the *eide* into the infinite *matter and form* tree with The One as its initial node.
   (iv) *Eide* that are the form of other *eide*, or The One, have no parts. *Eide* that are the matter of other *eide*, or of The One, may have parts. Furthermore, with the exception of the parts of the *Eide*, no part of any *eide* is itself the matter or the form of an *eidos* or of The One.
   (v) The matter of The One is a grand, overarching process described as *Coming to Understanding*; and the form of The One is Ontological Dependence.

(vi) The matter of Coming to Understanding is the (four-dimensional) Block Universe. The matter of Ontological Dependence is the *Eide*.

(2) Principle of Hylomorphism and Ontological Dependence:
The matter and the form of an *eidos*, themselves *eide*, are ontologically dependent on the *eidos* they are the matter and the form of.

Diagram 2 and Diagram 3 together capture the relations between the *matter and form* relations among *eide* and the immediate ontological dependence relations among *eide*. We encapsulate these in the next two principles:

(3) Principle of Immediate Ontological Dependence:
The relation of immediate ontological dependence operates as follows for *eide*:
(i) The form of an *eidos* is immediately ontologically dependent on the matter of that *eidos*.
(ii) The matter of every *eidos* is immediately ontologically dependent on the form of some other *eidos*.
(iii) The *eide* are ordered by relations of immediate ontological dependence in an infinite linear sequence.

(4) Principle of the Eidetic Spiral Structure:
The specific relations of ontological dependence—*is the matter of* and *is the form of*—and the specific relations of immediate ontological dependence—*is the immediately ontologically dependent matter of* and *is the immediately ontologically dependent form of*—shape the *eide* arising in The One as depicted in Diagram 1.

We have mentioned more than once that in general explanations of particulars (and thus explanations of the *eide*) is four-cause and not merely hylomorphic. As of yet, we have not indicated, not even in our diagrams, how efficient causation (what we will hereafter call "Consequence") and finality (what we will hereafter call "Telos") are to arise in the analysis of *eide*. We turn to that issue now.

We shall start by noting that if the *eide* are taken to be like categories or universals, then it will be puzzling how applications of the notions of causation or teleology to them is even possible to begin with. Of course, as we have stressed repeatedly in the foregoing, the *eide* are particulars. Therefore, this reason for distrusting the application of four-cause analysis to them is groundless.

However, another worry is possible. Although *eide* are particulars, they are

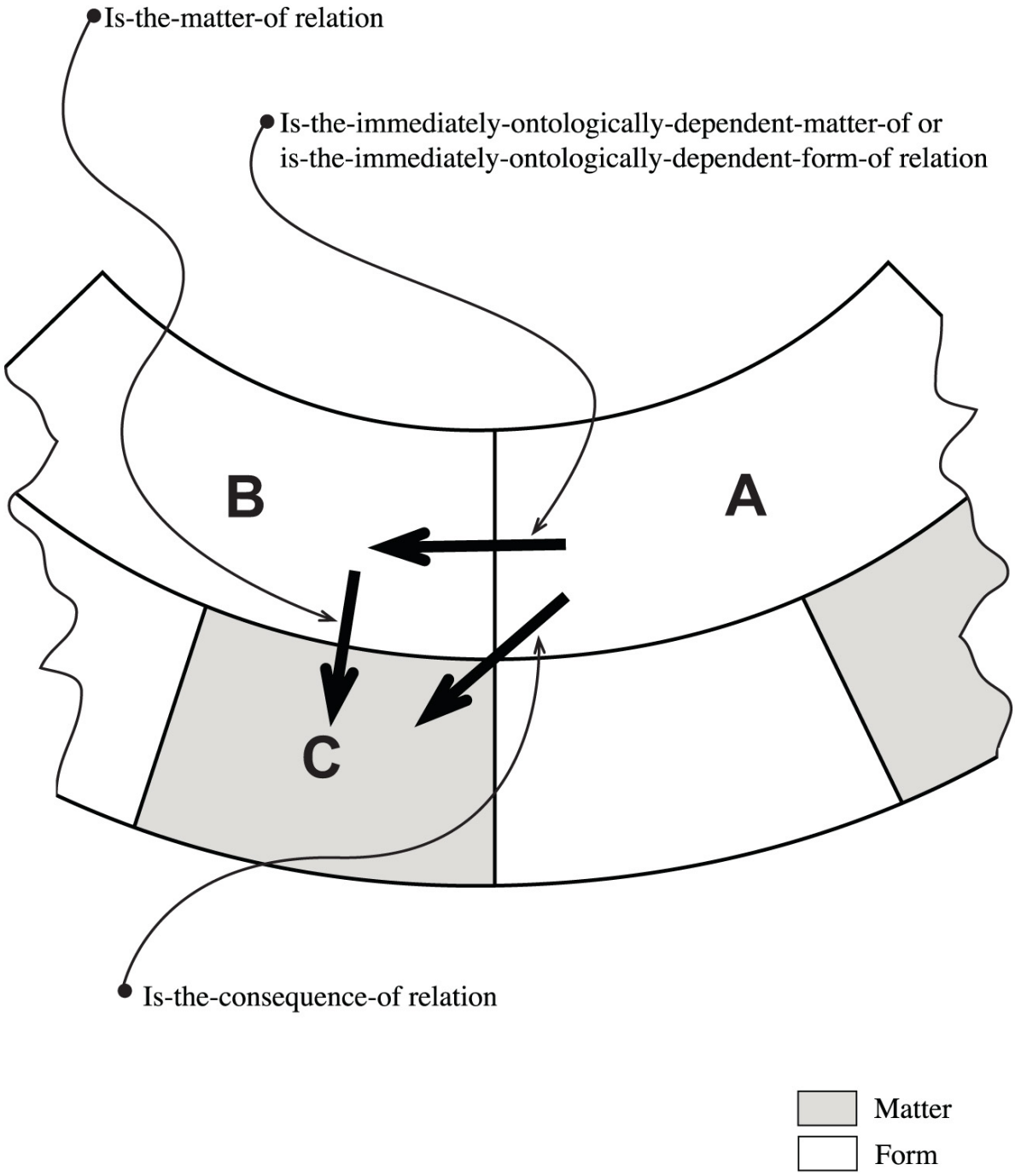
not in space and time. But can efficient causation be generalized in any cogent way beyond applications to events that take place in time? Our response to this worry is very similar to our response to an issue that was raised in Chapter 13 about ontological dependence and the part/whole relation with respect to *eide*. In both cases, we must be careful of intuitions we have because of our long habits of applying these notions only to third- and fourth-order particulars.

Intuitive notions of causation confound two notions that should be distinguished. Built into the (ordinary) idea of causation is that of bringing about something or of being necessary for something. Thus, as Janus-face 1 makes clear, what is often attributed to relations of causation are properties more suited to a notion that we have already described—namely, ontological dependence.

Our suggestion is that this confusion is no accident. Consider two items, *A* and *B*, where *B* is immediately ontologically dependent on *A*. Utilizing Janus-face 1, we recognize that the existence of *B* depends on the existence of *A*. Given that *B* is a particular, it has both matter and form. We think of the matter of *B* as what is consequent upon *A*. Focusing on the matter of the item is what we do (normally) when we think of efficient causation: what there is subsequently is consequent upon the earlier particular. This makes the matter of *B* the consequent of *A*; *B* itself requires *A* for *B* to exist—but that (strictly speaking) is ontological dependence rather than consequence.

What we have just described is a "triangulation" of consequence in terms of the *is the matter of* relation and a corresponding Immediate Ontological Dependence relation. Given that the *eide* have consequent relations only to other *eide*, the consequence relations among *eide* and the triangulation just described may be depicted as in Diagram 4.

DIAGRAM 4


Is-the-matter-of relation
Is-the-immediately-ontologically-dependent-matter-of or
is-the-immediately-ontologically-dependent-form-of relation
B
A
C
Is-the-consequence-of relation
Matter
Form

Let us turn now to the Telos relation between a particular and the particular that is its purpose. Here two diagram-driven properties and a substantive fact about how the Telos relation works will lead to insight into the nature of the Telos relation among *eide*. The two diagram-driven properties are as follows: First, the Telos relation between two *eide* is depicted in our diagram by one or another systematic adjacency relation among *eide*, like the adjacency relations that represent the Immediate Ontological Dependence relations, the Form and Matter relations, and the Consequence relations among *eide*. The second property is that the Telos relation does not duplicate any of the previous relations described, nor does it duplicate their converses.

The relevant fact is that in general when something has a goal, it is never the whole particular that is endowed with that goal; it is only the design of the particular that should be understood in relation to a goal. When we design pens for the purpose of writing, the material that is to be made into a pen is given such and such a form because of the purpose that pen is to be put to. From this point of view, the "what" of the pen is irrelevant. The "design feature" of a particular is always what has a purpose, not the matter of that particular. The constraints described in this and the last paragraph force the Telos relation among *eide* to take the form illustrated by Diagram 5.

DIAGRAM 5

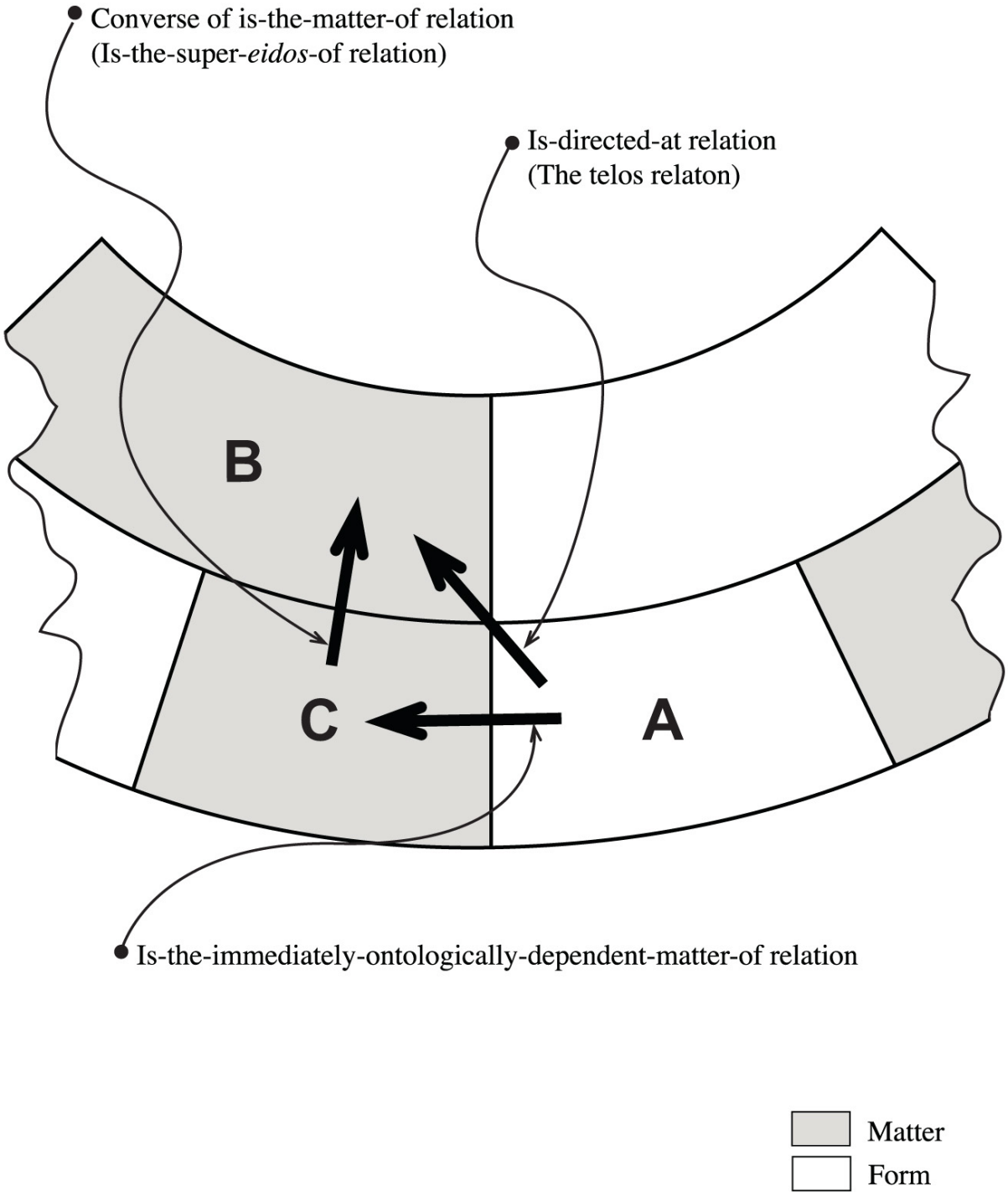

Converse of is-the-matter-of relation
(Is-the-super-*eidos*-of relation)
Is-directed-at relation
(The telos relaton)
B
C
A
Is-the-immediately-ontologically-dependent-matter-of relation
Matter
Form

Diagram 5 depicts a triangulation relation for the Telos relation similar to the one we described above for the consequence relation. The Telos relation between two generic *eide*, *A* and *B*, is the triangulation between the immediate ontological dependence relation of *A* to *C* and the converse of the is-the-matter-of relation between *C* and *B*. This is intuitively more difficult to make sense of than the triangulation result for the consequence relation, because it is a relation that holds specifically of *eide*, and not (in general) of the kinds of purposes we tend to attribute to various constructed particulars.

We summarize our results in the following principle:

(5) Principle of Eidetic Consequence and Telos:
In the arrangement of *eide* to be found in Diagram 1, the consequence of a given *eidos C* is the *eidos* that is the material sub-*eidos* of the *eidos* that is immediately ontologically dependent on *C*; and the Telos of a given formal *eidos C*, the end to which it is directed, is the *eidos* that is immediately ontologically dependent on the super-*eidos* of *C*.

Recall from Chapter 2 and later the criticism of Aristotle and other category theorists on the grounds that the theory of categories cannot be a mere list but must treat the interconnecting relations as well as their *relata* as categories. Thus *eide* akin to the four explanatory relations must themselves appear as *eide* at some point in the hylomorphic division of ontological dependence, the form of The One. In our system of *eide* they do, as Diagram 1 indicates, and as we shall educe in the next chapter. Let us first summarize our discussion of the connective tissue of the *eide* and give six rules that govern *eide* and their parts, in the following final principle:

(6) Principle of the Sixes:
- (i) There are exactly six relations by which The One and its *eide* stand to each other:
  - (a) is the constituting matter of.
  - (b) is the individuating form of.
  - (c) is directed at.
  - (d) is the consequence of.
  - (e) is the immediately ontologically dependent matter of.
  - (f) is the immediately ontologically dependent form of.
- (ii) The following six rules govern *eide* and their parts:
  - (a) Of the first six *eide*, only the *eidos* the *Eide* has parts, and those parts are the *eide* themselves.
  - (b) The parts of any *eidos*—excepting the *Eide*—are

individuated only by virtue of their being parts of that *eidos*.

(c) Parts of an *eidos* are never simultaneously parts of some other *eidos*.

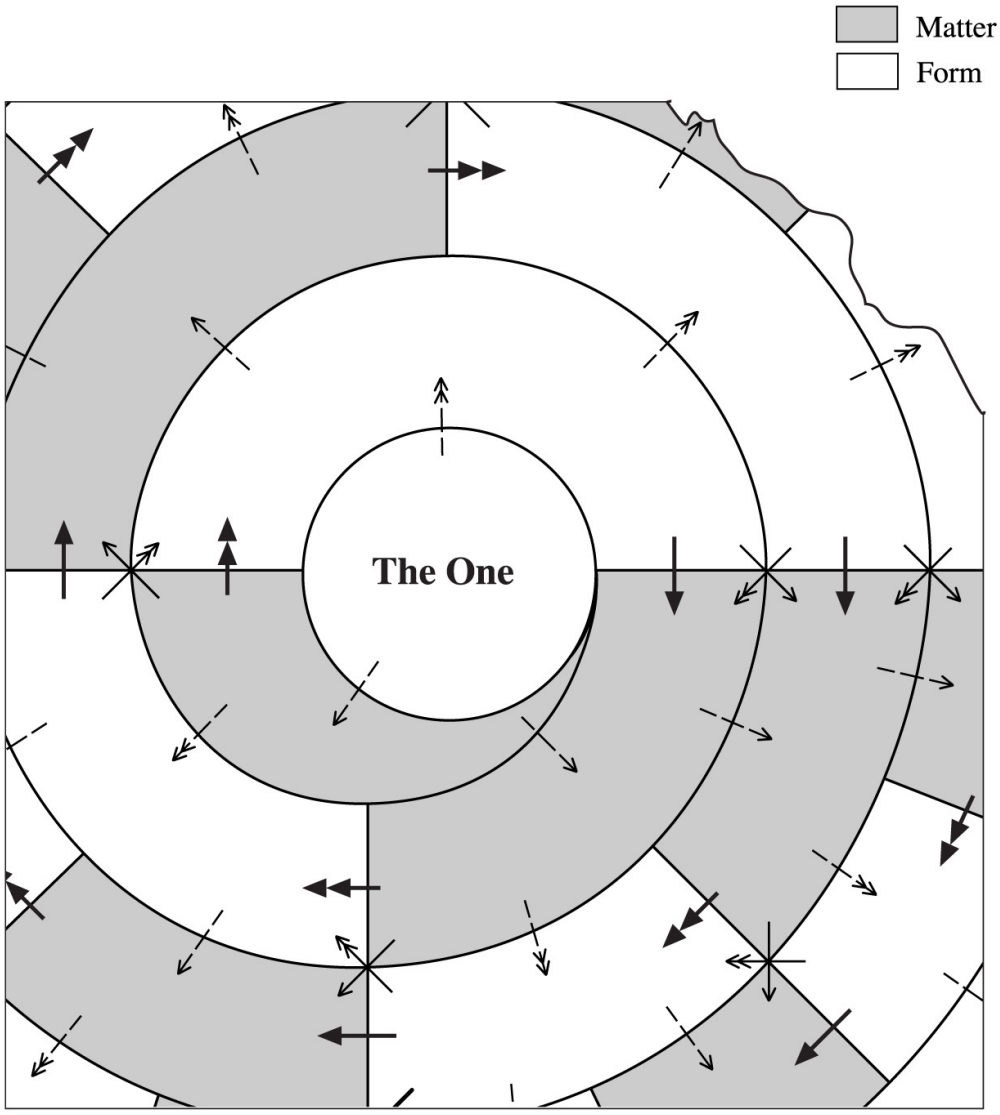
(d) The individuation of the parts of *eide* come in degrees.

(e) Given an *eidos* that has parts, the more formal *eide* there are among its super-*eide*, the more individuation it imposes on its parts.

(f) The seventh *eidos*, Modes, is transitional. Its parts are as minimally individuated as the parts of an *eidos* can be.

In Diagram 6 the six relations of clause (i) are depicted as labeled vectors between a set of generic boxes of our diagram system:

DIAGRAM 6



- Is-the-matter-of
- Is-the-form-of
- Is-the-consequence-of
- Is-the-directed-at
- Is-the-immediately-ontologically-dependent-matter-of
- Is-the-immediately-ontologically-dependent-form-of

The six rules of clause (ii) of Principle 6 have not been discussed by us in the foregoing. Substantial discussion of it shall be provided in Chapter 16. The numerological flavor of the principle of the sixes is purely stylistic (though it does seem to flow quite naturally).

Chapter 15

Further Eductions

Let us start by gathering in a list the *eide* that we have partially educed in the previous chapters:

Coming to Understanding
Ontological Dependence
The Block Universe
The *Eide*
Immediate Ontological Dependence

As we indicated in Chapter 14, we shall rely in large part on the *matter and form* relations among the *eide* to guide our eductions. We do so not because the other relations, immediate ontological dependence, consequence, and Telos, are not equally significant. Rather, it is because those eductions that utilize form and matter are the easiest to grasp intuitively. At the end of this chapter, we shall attempt an eduction of all the relations of a particular *eidos* to all its neighbors. This will illustrate the difficulty—and the necessarily speculative nature—of eductions that utilize the other explanatory relations. Nevertheless, there is no doubt that the specific relations they reveal between *eide* are often illuminating.

We start with the *eide* in the Ontological Dependence quadrant. It has already been established that the form of Ontological Dependence is Immediate Ontological Dependence and that the *eidos* the *Eide* is the matter of Ontological Dependence. It is as the form and matter of these two *eide—Eide* and Immediate Ontological Dependence—that the crucial four causes Form, Matter, Consequences, and Telos must arise.

Our previous eductions have not allowed these four *eide* to emerge any sooner in relation to Ontological Dependence, because there are four causes to contend with and only two *eide* bear the matter and the form relations to the *eidos* Ontological Dependence. It is clear, however, that the four causes must have some relation to Ontological Dependence and that this relation must occur at that unique "radial distance" from Ontological Dependence where they and only they fill out all the available *matter and form* slots. This is what forces the four causes to bear immediate *matter and form* relations to the *Eide* and to Immediate Ontological Dependence. The only question remaining is their order.

We (tentatively) educe as follows: *Matter and Form* and *Consequences and* Telos are appropriate pairings because the first two causes are internal and the

second two are external. Furthermore, as Diagram 3 indicates, matter and form operate directly in relation to the *eide* and not so directly in relation to the relation of immediate ontological dependence. On the other hand, Diagram 4 and Diagram 5 show the intimate triangular relationships between immediate ontological dependence and the consequence relation and immediate ontological dependence and the Telos relation, respectively. Given this, it follows that Matter should be the matter of the *Eide* and Form the form of the *Eide*; the other option scarcely makes sense.

As for the *eidos* Immediate Ontological Dependence, we educe the matter and form of that *eidos* as, respectively, the *relata* of our other two causes, Consequences and Telos. As we saw in Chapter 14, the consequence relation is always directed at the matter of the *relata* of ontological dependence; the Telos relation, by contrast, always involves form, because as we also saw in Chapter 14, it is always the form (of something) that the goal or purpose (of that thing) is related to. The result is that Consequences, which corresponds to the *relata* of the consequence relation, is the matter of Immediate Ontological Dependence. Telos—an *eidos* that corresponds to the *relata* of the Telos relation—is therefore the form of Immediate Ontological Dependence.

It should be added that we have an additional argument for why the just-given eductions yield the right relationships between Consequences, Telos, and Immediate Ontological Dependence. Consider a causal process that takes place in the context of a business goal: the causal process of making pens. The consequence of a particular series of events in a factory is a pen. Corresponding to this outcome, however, is the goal of the design (of the pen) that as a result is the form of the series of events that causally yields the matter of the pen. The series of events that includes molding plastic tubes, filling them with ink, and so on, is organized in such a way—has the appropriate form—to yield pens, not some other product or nothing at all. The pen itself, we should add, ontologically depends on both the causal elements needed to bring it about and the design and ordering of these causal elements. In other words, the goal (the *relatum*) of a particular Telos relation structures the outcome (the *relatum*) of a particular causal relation. Telos in this sense therefore shapes Consequences. Such examples of the *relatum* of the Telos relation acting formally on the *relatum* of an efficient causal sequence are not restricted to artificial situations where humans have designed a controlled series of causal events to produce a desired product: teleology does not require agency. We shall discuss this further in Chapter 18.

Let us meanwhile push the eductions in the *Eide* quadrant just a little further. Given our understanding of matter, as encapsulated in Definition 1 of Chapter 14—specifically, that the matter of a particular is itself a particular—we search for a formal *eidos* that helps us to characterize what the nature of that particular (as a

whole) is. Similarly, we correspondingly search for a material *eidos* that can be operated on by that formal *eidos* to yield Matter. Our speculation is that the appropriate formal *eidos* is the *eidos* Constitution and that the corresponding material *eidos* is the *eidos* Mereological Whole. (When, that is, a mereological whole is constituted, the result is always matter.) On the other hand, the matter of Form is Nature or Essence, while the form of Form is Individuation. (When, that is, a nature or an essence is individuated, the result is a form.) We shall have more to say about individuation in the following chapter.

This completes a sketch of our speculations for the "upper half" of the first twenty-six categories of The One that are depicted in Diagram 1. Let us then begin our discussion of the "lower half"—Coming to Understanding and its sub-*eide*. We have two quadrants before us: Omni-truth and The Block Universe, where Omni-truth is the form of Coming to Understanding and The Block Universe is the matter. We have already briefly discussed The Block Universe in Chapter 13, where we also mentioned modes. The *eidos* Modes is the matter of The Block Universe: its parts, the modes, are the fleeting temporary manifestations that are ordinarily taken to be the contents of the block universe. That which shapes Modes to yield the particular, The Block Universe, is Space-time. Space-time thus is the form of The Block Universe. The Block Universe, we should add, is what the usual scientist takes to be—or to contain—everything there is.

We first mentioned Omni-truth in Chapter 10, where it was described as a collection of truths—truths from all possible perspectives. The scientist, if he thinks of omni-truth at all, will probably think of it as true theories of the kinds of things that exist in The Block Universe. Philosophers often have more of a grip on omni-truth because they are concerned with the ontological status of such things as propositions. In any case, both scientists and philosophers, because of their failure to see the form and matter relations of Omni-truth and The Block Universe to the whole—Coming to Understanding—often misconstrue the subtle relationship between Omni-truth and The Block Universe. It is, of course, not inaccurate to see omni-truth as a collection of truths—truths from all possible perspectives—but that is not sufficiently insightful. It is more illuminating to realize that Omni-truth is ontologically dependent on The Block Universe and that nevertheless, because it is the form of Coming to Understanding, it simultaneously acts on The Block Universe, shaping it so that it can be the matter of Coming to Understanding.

By contrast, the scientist, who thinks of truths as merely describing aspects of The Block Universe, recognizes the immediate ontological dependence of truths on what they are truths of but overlooks how those truths can be understood as shaping what they are true of. The philosophical idealist, on the other hand, is usually aware of how truths—or at least the "mind" housing those truths—shapes what those truths are about; but he loses sight of how truth immediately

ontologically depends on what there is (and not the reverse). Only the dual relationship (form/matter and immediate ontological dependence) that we have described between Omni-truth and The Block Universe retains both insights. We shall have a great deal more to say about the details of Omni-truth and its sub-*eide* in Chapter 17, where we shall complete our eductions of the fourth quadrant.

We have suggested that the scientist—at least the scientistic scientist—is blind to the form/matter relation between Omni-truth and The Block Universe. To him, our view of the eductions of Omni-truth involves elements with which he is not sympathetic. We should discuss this briefly now.

There is a sense in which our first hylomorphic division of Coming to Understanding is more or less the usual Cartesian one so often made of the unfolding reality of the world as a whole. The Block Universe is something like the corporeal "body" of the process that is Coming to Understanding, and Omni-truth is something like its "mind." This division of reality is one of the more common ways scientists and philosophers cleave the world.

Despite that, it is also clear that these suggestions (even in the embryonic form we have so far given) are not compatible with today's omnipresent world view—a view that we have labeled "scientism." Proponents of this view are likely to have a negative response to our (ultimate) enterprise of describing what we take to be metaphysically real purposes in the world; this will be the case especially if something akin to "mind" is fundamental to such a description (as we will claim). On the contrary, scientism believes that Darwin's theory of evolution tells us that there are no purposes "out there" to be found, other than those that accidentally come to exist in individual sentient beings. The process of evolution is random. There is no background design to that process.

We disagree. On our view there is directionality in the world and even underlying the evolutionary process itself, although there is no requirement that all evolutionary processes must exhibit that directionality. A way of describing our disagreement with the secular Darwinist is to attribute to him the view that the whole of physical unfolding is all there is. The Darwinist exhibits no awareness of the hylomorphic structure of what there is; and so there is no place in his world view for the directionality of the process by which the world (as Coming to Understanding or as anything else) exhibits itself.

We turn next to a couple of suggestions on the sub-*eide* of Space-time and Modes. We stress the quite tentative nature of these educations—even beyond the general tentativeness of the method of eduction in general. This is because the *matter and form* relations of these sub-*eide* depend more specifically on the nature, as it were, of the world than is the case with the other *eide*. Consequently, beyond a certain point (and we have nearly reached this point with regard to eductions based on Space-time and Modes) the details of the hylomorphic unfolding is more a

scientific matter than a philosophical one. That is, the resulting eductions depend much more on the details of The Block Universe (whatever those might be). To further elaborate the subdivision of the *eide* in this quadrant is to poach on the preserves of science. Nevertheless, we can offer a suggestion or two.

In choosing the phrase "The Block Universe" to designate the matter of world—seen as Coming to Understanding—as well as in the statement of a number of substantial claims made in Chapter 13, we have committed ourselves to four-dimensionalism, the claim that modes in the past, the present, and the future are all on a par with respect to existence. We mean, therefore, that the matter of Coming to Understanding is The Block Universe of four-dimensionalism.

Some may worry that this commitment to four-dimensionalism is not compatible with libertarianism—something that will also be crucial to our goals in Volume 2 of this work. The worry is this: even if we deny determinism, we do not deny the definiteness of the future—that the future is already just one way. In what sense, then, can the future be up to us? Although strict determinism, the claim that every event is caused by some group of antecedent events, undermines rational decision making, the same result does not follow from mere four-dimensionalism. The fact that the future will be what it will be does not prevent us from freely choosing that future, at least in those situations in which we have the option to do so.

Let us now turn to the *eidos* Modes. This *eidos*, recall, is the matter of The Block Universe. Corresponding to this fact is the further fact that The Block Universe itself does not have parts—modes are not parts of it. The *eidos* Modes, however, does have parts, but the relationship between it and its parts—modes—is an important topic that we must also defer to Chapter 16. In the meantime, let us consider the form and matter of the *eidos* Modes. Individual modes, recall, are the "wavelets" of The Block Universe—the items that for a time and a place appear distinguished from their background in The Block Universe. The matter of Modes is therefore the *eidos* Change. Change here is understood not in some metaphysically absolute sense (we have, after all, committed ourselves to four-dimensionalism); rather, it is change understood as a shift in the spatio-temporal geography within the block universe simultaneously coupled with a shift in properties. Not all such changes, of course, correspond to the lineaments of modes; otherwise a mode could not have spatially distinguished parts with different properties. Therefore, something must act upon raw changes in order to shape them in a way that corresponds to modes as opposed to changes within modes. We are searching, that is, for the form of Modes.

It is Plato to whom we turn for guidance with regard to the form of the *eidos* Modes. Recall from Chapter 5 our brief discussion of the importance of imitation. We claim that the form of Modes is Imitation. The modes are shaped into modes

from the clay of sheer change by virtue of imitation. And what do modes imitate? (What do they attempt to model themselves on?) *Eide*. We have to postpone discussion of this important topic until Chapter 16 as well.

Turning to Space-time, we ask: what might the matter and form of Space-time be? In answering this question we will find, as we have found with our other attempts to discover the form and matter of particular *eidos*, that the resulting *eide* need not result from a straightforward analysis of the properties of the *eidos* under analysis. In this case we tentatively adopt a particularly speculative answer based (perhaps loosely) on a personal communication from the information theorist Bjorn Gruenwald. Information theory is a quite new science, one could claim, that still largely involves speculation at this point, especially in relation to physical concepts such as space and time. Nonetheless, we understand Gruenwald to envision Space-time, at another level of description, to be an infinite-dimensional Hilbert space, not a four-dimensional thing—and one in which information is embodied in quantified vectors. For our purposes, this does not contradict the taking of The Block Universe to be four-dimensional in the sense that its form is Space-time (understood four-dimensionally). It does imply, however, that Space-time in turn must be analyzed into its form and matter; and we do so utilizing Gruenwald's approach. We educe the matter of Space-time to be Information. And the form to be imposed on Information (to yield the *eidos* Space-time) is Location, where that is understood as location not in four dimensions but in an infinite-dimensional Hilbert space.

With the foregoing, we have completed the eductions for all the quadrants that we shall hazard in this book except one, the quadrant of Omni-truth. Before turning to that topic, we must first deepen our understanding of the nature of particulars. Specifically, we must explore the nature of particulars that are not either the *eide* or The One. This topic of the next chapter will provide important background material for our eductions of the Omni-truth quadrant.

But first, let us close this chapter with an example of what a complete account of the eductions of all the relations of a given *eidos* to its neighbors can look like. We choose as our example the *eidos* the *Eide*.

A list of the eight topological neighbor relations of the *eidos* the *Eide* to its adjacent *eide* is as follows:

(1) The *eidos Eide* is the matter of Ontological Dependence.
(2) The *eidos* Matter is the matter of the *Eide*.
(3) The *eidos* Form is the form of the *Eide*.
(4) The *eidos Eide* is immediately ontologically dependent on Omni-truth.
(5). The *eidos* Immediate Ontological Dependence is immediately

ontologically dependent on the *Eide*.
(6) The *eidos* Understanding is directed at the *Eide*.
(7) The *eidos Eide* is a consequence of Coming to Understanding.
(8) The *eidos* Consequence is a consequence of the *eidos Eide*.

Eductions of Relations (1) to (3) have already been discussed.

Eduction of Relation (4): Omni-truth is the truth about everything from every possible perspective. Given Janus-face 1, it is clear that the immediate ontological dependence relation goes from Omni-truth to the *eide*, not the other way. The *eide* may be taken to underwrite the truths that they determine; but by no means are those the truths available from every perspective. Change that set of truths, however, and the *eide* must change with them.

Eduction of Relation (5): That Immediate Ontological Dependence is immediately ontologically dependent on the *Eide* can be seen from the fact that the former is the matter on which the latter operates to yield Ontological Dependence.

Eduction of Relation (6): That Understanding is attained when and only when the eye of reason gazes upon the *eide* can already be seen by the crucial role the *eide* have been playing in our own metaphysical description of The One. Relation 6 or something like it is of course essential to the viewpoint of Plato and Socrates.

Eduction of Relation (7): Coming to Understanding is the matter of The One, but it is matter that must be seen as dynamic; Coming to Understanding is a process that The One undergoes internally. This process, of course, does not take place in time (at least, not all of it does), and so the consequence of it need not be temporal. We educe its consequence to be the *Eide*. One might have thought that its consequence should be more than the *eide*—that its consequence should include parts of *eide* as well. Not so, as we shall discuss in Chapter 16: The One is not responsible for the parts of *eide*—excepting those of the *Eide*. And what The One is not responsible for cannot be the consequence of Coming to Understanding.

Eduction of Relation (8): That Consequences is a consequence of the *Eide* is—at least at the moment—a purely diagram-driven result. We are not yet sure how to interpret it. That is to say, although we feel comfortable with the

> claim that Consequences is a consequence of the *Eide*, we do not yet see how to rule out other possible *eide* as bearing the *is a consequence of* relation to the *Eide*. Of course, global pressure from the other eductions we have successfully executed force this result; and that gives us great confidence in its being correct. But a precise interpretation of what it means currently eludes us.

It is to be hoped that the foregoing eductions show that all eductions are genuinely speculative and complicated, and as with the application of any mathematical or diagrammatic tool to a subject area, sometimes interpretations are forced upon us that we do not fully understand. Understanding will unfold—with respect to our grasp of this metaphysical system—just as it generally does over the course of the future. For now, we leave further eductions aside and turn to the topic of particulars that are neither The One nor *eide*.

Chapter 16

Non-Eidetic Particulars

Crucial to our metaphysical views is the nature of the different orders of particulars and how they relate to one another. Aspects of this important topic have come up in earlier chapters, but we must now give a more systematic presentation in preparation for our explication of the final quadrant, that of Omni-truth. Central to the forthcoming discussion of particulars are what we shall call "non-eidetic particulars"—these are the third-and fourth-order particulars. This new terminology for them is slightly misleading because The One is not an *eidos*; but since it is the relationships from third-and fourth-order particulars to the *eide*—and to The One—that it is important to illuminate, we trust that this nomenclature is acceptable.

The first point to make is one about the degree to which The One necessitates aspects of the other particulars. Our understanding is that the *eide*, insofar as they are related to The One and to the other *eide* (in terms of ontological dependence and four-cause explanations), are entirely metaphysically determined by The One. So, too (and therefore), the principles that have guided us in our eductions are metaphysically determined by The One. The adverb "metaphysically," twice used, is so needed because although the process of eduction is not an a priori one—we do not deduce the properties of the *eide*—nevertheless it is understood that there is no metaphysical contingency in the eductions of *eide*; and so there is also no metaphysical slack in the principles that structure the *eide*. This is, of course, entirely compatible with the fallibility of the process of eduction.

A possible misunderstanding should be averted. In Chapter 13, we stressed the metaphysical contingency of The One (and thus the resulting metaphysical contingency of both the individual *eide* and their properties). It may sound as if this doctrine contradicts what was just claimed in the preceding paragraph. This is not so. The metaphysical determination of the *eide* on the part of The One is due to The One as it is. Were The One different, so would the *eide* differ. But given The One as it is, the *eide*—and their interrelations with The One and each other—must be as they are. This is compatible with The One and the *eide* otherwise being radically contingent.

The One, however, does not metaphysically determine all particulars in this way—specifically, it does not fully determine non-eidetic particulars. Instead, these are at least partially random, or partially constructed (by someone or something), and therefore their ontological-dependence relations to each other can

be due to something other than The One and its *eide*.

Let us now turn to other details about non-eidetic particulars. First, consider an *eidos* with parts. As Principle (1) (iv) of Chapter 14 indicates, this *eidos* must be a material *eidos*. Its parts are related to one another in various ways on which that *eidos* may or may not have any influence. Consider, for example, the modes of Modes. These wavelets of The Block Universe resemble one another in various fleeting ways—just as the waves of the ocean can take up temporary shapes that resemble the temporary shapes taken on by other waves in the ocean. These resemblances are fortuitous and have nothing much to do with how they are individuated from one another—even as modes. So too, neither the parts of any material *eidos* nor the relations between those parts are completely fixed in their metaphysical contours either by The One or by the *eide*. Both are non-eidetic particulars; and therefore—as we have already discussed in Chapter 5 with respect to Wolterstorff—kinds and their examples are non-eidetic particulars. In this case, they are not so much a result of sheer random accident as they are at least partially the result of deliberate constructions on the part of humans.

We now consider another important example. All living organisms are partially random and partially constructed. They are random in accordance with the dictates of Darwinian evolution, but they are partially constructed in virtue of their having been explanatorily cleaved as they have—by humans—in the course of their sense-dependent demarcation of the modes of the world as they experience it. For example, we demarcate organisms primarily as "substances"—physical entities that happen to be active. But this is not the only demarcation possible. We could think of them primarily as processes—as events of a certain sort (such as "lives") that are more or less localized to various material bodies (the way that storms are localized to certain portions of space where clouds are). This arbitrariness in what we could have taken living organisms to be—metaphysically speaking—indicates how the kinds we take them to exemplify are partially constructed by the imposition of a conceptual apparatus that we have adopted. Similarly, most of the things that we take to be natural material objects are in part random and in part human constructs, just as we have discovered living organisms to be. At some level, they are random products—in accordance with the dictates of quantum mechanics. But they are also partially constructed by virtue of our taxonomic decisions to cleave them apart in ways that suit our pragmatic purposes. That we, for example, regard a tree as distinct from the soil it is rooted in is only due to our treatment of "trees" in ways that make it convenient for us to think of them as distinct from their soil. This constructed nature of the items we treat as distinct and namable is even clearer when it comes to the "parts" of a single item, such as an individual tree, when we divide it into distinct objects, such as leaves, fruit, roots, a trunk, and so on. For that matter, consider a table when we divide it into legs and a

top. There need not be any natural divisions in the object that justifies our cleaving it so.

This motivates the otherwise quite dramatic claim that all of the above non-eidetic particulars that we have been speaking of are members of the "realm" that Plato claims (with our agreement) to be mere appearance in contrast to the realm of reality: the realm of The One and its *eide*.

Despite, however, the relative non-reality of the things that we encounter both in everyday life and in the sciences, many of them do nevertheless correspond in important ways to "the real" and its cleavages, just as the shadows in Plato's cave correspond to the real things that cast them, although other accidents of lighting and shading on the cave wall may not so correspond. As this analogy indicates, there are important distinctions (even among what—from an absolute point of view—are unreal) that need explaining in terms of the *eide*. Our view is this: the (relatively) "real" cleavages among non-eidetic particulars that we perceive to be objects (and classes of such) are parts of material *eide*. To the extent that they succeed in being parts of material *eide*, they sustain the individuation conditions imposed by those *eide* to allow their presence in them as parts (within material *eide*). Insufficient adaptation to these individuation conditions prevents an item's presence within an *eidos*.

Humans, of course, are no exception to this. Human beings, or more accurately, those aspects of human beings that are "real" in the sense we are now concerned with, are real by virtue of their being the proper parts of material *eide*. We shall have more to say about this in Chapter 17.

The foregoing points, about the distinctions among non-eidetic particulars reflecting the extent to which they correspond to the *eide*, make natural a discussion of the issue of the relation of *eide* to what they are intuitively about, or as philosophers are prone to say, to what they "refer to" or "represent." Given that *eide* are particulars, as we have argued, it certainly needs explaining why taking them to be universals is so tempting to so many philosophers. Our explanation is this: It is clear that *eide* bear important relations to non-eidetic particulars. If this relationship is not analyzed carefully, it can happen that it is treated as one kind of thing: an intrinsic *intentional* relationship between each *eidos* and a certain designated class of objects, events, relations, and so on. This relationship then becomes reified as a *reference* relation or as a *containment* relation, and when that happens, the temptation to treat *eide* as universals (or sets) becomes virtually irresistible.

We can see how Plato wrestles repeatedly with this issue in his various dialogues, sometimes treating the things in the world of appearances as trying to emulate, imitate, participate in, partake of, or approximate ideal forms. These are by no means equivalent. Plato's problem in part is that different ideal forms invite

different relationships between themselves and items in the world of appearance; but at the same time, Plato wants this relationship to be one kind of thing.

If we rigorously insist on the insight that *eide* are particulars, it becomes a requirement to reanalyze the relationship of *eide* to those items that one unthinkingly wants to describe as what a particular *eidos* represents or refers to. We claim, contrary to Plato's hopes, that there is no such simple relationship between *eide* and those items to which they bear this kind of relationship. *Eide* are not like words, which are conventionally stipulated to refer to these objects and not those. We suggest instead that it is three relations that different *eide* can bear to particulars that have been wrongly coalesced by philosophers into a single *intentional* relation between "universals" and what they are "of." One of these relations has already played a large role in the foregoing. This is for non-eidetic particulars to be parts of *eide*—to be third-order particulars. This reconstrual of the "represents" relationship of *eide* to what they are "about" holds, however, only between those *eide* which have parts and their parts.

Another relationship is the simple one of the identity of an *eidos* to itself. The *eidos* The Block Universe, for example, does not correspond to another thing, "the block universe," where it is the latter that contains modes and is governed by four-dimensional space-time. Rather, there is just the *eidos* The Block Universe. It is a particular, and so it does not have to correspond to anything. The same is true of Coming to Understanding. It is the *eidos* Coming to Understanding that is the process that is the form of The One. There is nothing else that corresponds to this important *eidos*, that it represents (somehow), and that actually is the process "coming to understanding."

As we mentioned, there is yet a third relationship possible between an *eidos* and a particular. Consider Omni-truth. Truths of all sorts are what correspond to Omni-truth. Thinking this way would impel us to treat Omni-truth as a kind of set or collection of such truths. But it is not; no *eidos* is a set or a collection, because every *eidos* is a particular. Because there are many truths, they cannot therefore be identified with Omni-truth, nor, because Omni-truth is a formal *eidos*, can they be parts of Omni-truth. What option is left? This: they imitate the *eidos* Omni-truth. Imitation generally is a relationship that holds between a number of formal *eide* and what we otherwise might think they represent. Telos, Understanding, Choosing, and Location are all formal *eide* which bear an *is imitated by* relation to the items we think of those *eide* as about. Another way to think of the relationship of these *eide* to the items that imitate them is along the lines of Aristotle's unmoved mover. On one interpretation of this idea, other objects, because of their desire for or the love of the unmoved mover, change themselves in various ways. So too some *eide* inspire self-reformatting on the part of (some) non-eidetic particulars by virtue of their imitation of those *eide*.

It is not only formal *eide* that are imitated by non-eidetic particulars; those material *eide* without parts are also so imitated by the non-eidetic particulars that they seem (intuitively) to be about. It is worth adding—but we are speculating here—that the *imitation* relation that non-eidetic particulars can have to particular *eide* may go beyond the examples of it that we can recognize by the relationships holding between partless *eide* and the non-eidetic particulars those *eide* seem concerned with. Non-eidetic particulars may take the contours they take because of their imitation of *eide* that are not obviously related to them. We should add—although we are speculating here—that it is our view that even material *eide* with parts can be imitated in this way by other third-order particulars. That is, there can be third-order particulars that are not parts of a material *eidos* that nevertheless imitate it.

A question that arises at this point is the nature of the kinds of particulars that imitate *eide*. Are they third-or fourth-order particulars, or is there some other order of particular that we have overlooked? The answer is that they are third-order particulars. That is, for any non-eidetic particular that bears the *imitation* relation to a formal *eidos*, there is some material *eidos* that it is a part of. In general, that material *eidos* is located farther out in the spiral than is the *eidos* that the non-eidetic particular imitates. Although we have not yet spoken in detail about the Omni-truth quadrant, consider the *eidos* Choosing as an example. Our suggestion is that the "events" that imitate this *eidos* are events that subdivide into various material *eide* lying farther out in the spiral. Perhaps—this is a speculative eduction—the matter of Choosing is Choices. In that case, all the third-order particulars that imitate Choosing would be parts of Choices.

Another example is this. Consider the specific relations of immediate ontological dependence. These relations are particulars that imitate the *eidos* Immediate Ontological Dependence. There are, however, material *eide* further out in the Immediate Ontological Dependence quadrant that they belong to.

Our divisions of non-eidetic particulars, we therefore claim, are exhaustive. Leaving aside the *identity* relation between an *eidos* and what it (intuitively) refers to, every non-eidetic particular that is not a fourth-order particular either imitates an *eidos* or is a part of an *eidos*; but if it is the former, then it is a part of some other material *eidos*. Therefore, every third-order particular is a part of some *eidos* or other. Furthermore, we can now establish that any such third-order particular is a part of one and only one *eidos*.

Here is the argument. Consider the material *eide*. On the view we have been developing, the parts of such *eide* must obey individuation conditions of one sort or another in order to be their parts. But there is nothing that requires the individuation conditions of different material *eide* to be the same, and indeed, they clearly are not. What this in turn means is that when a third-order particular is a

part of one *eidos*, it satisfies the individuation conditions to enable it to be such a part. It cannot, therefore, obey the very different individuation conditions that some other *eidos* places upon its parts. Material *eide* do not overlap in their parts.

Let us illustrate this important fact with an example. Consider the *eidos* Coming to Understanding. Its matter is The Block Universe. The matter of The Block Universe in turn is Modes. Modes have parts, the individual modes. The Block Universe, however, is partless: it is a four-dimensional whole that—because its form is Space-time—is not naturally cleaved into parts at all. The Block Universe is a body of smooth continua; it is not "granulated" in any sense. No mode, therefore, can be a part of The Block Universe.

Although material *eide* do not overlap in their parts, there is a sense in which they nevertheless can and do overlap. A non-eidetic particular not being a part of an *eidos* does not mean that particular has no presence whatsoever in the *eidos*. Here is an analogy. A human body has as its parts various organs—the heart, the liver, the brain, and so on. However, although the individual molecules of a human body (at a time) are certainly present in that body, they cannot be seen as parts of it.

Here is an example of the same phenomenon that is not an analogy. Consider The Block Universe again. Modes, we have just learned, are not parts of The Block Universe. Nevertheless, modes are certainly present in The Block Universe—embedded in its space-time fabric, although not in a way that easily enables us to distinguish one mode from another. We say that although modes are not parts of The Block Universe, they nevertheless inhabit The Block Universe. Indeed, all sorts of things inhabit The Block Universe: many constructed particulars inhabit The Block Universe, although they are not parts of any *eidos*. As we have just done, we shall describe a non-eidetic particular that appears in an *eidos* without being a part thereof as "inhabiting" that *eidos*. If a non-eidetic particular is a third-order particular, then there is, of course, a different *eidos* that it is a part of. Material *eide*, therefore, can overlap in the third-and fourth-order particulars that inhabit them—although (as we have said) they do not overlap in their parts.

We should add that—unsurprisingly—fourth-order particulars are fairly wild in how they may relate to *eide*. Not only can they inhabit more than one *eidos*, as we indicated in the last paragraph, they can fail to inhabit any *eidos*. We can construct particulars in such a way that their parts are metaphysically speaking quite scattered among *eide*. The resulting chimeras belong nowhere.

Before turning to the second major topic of this chapter—individuation—let us satisfy a promissory note regarding Principle (6) (ii) (a), the rule that of the first six *eide*, only the *eidos* the *Eide* has parts. Since we have already established the partlessness of The Block Universe, Coming to Understanding is the only material

candidate left. If it had parts, they would be events of some sort. But Coming to Understanding is too global in its extent to admit of parts: It spans, as it were, the entire length and breadth of The One. If it were to have parts, these could only be the different possible trajectories of Coming to Understanding that The One could have instantiated, given the other ways The One could have been. But these are not parts, in the appropriate sense, of Coming to Understanding. This leaves only the *eidos* the *Eide*, among the first six *eide*, as possessing parts. Let us now turn to providing further details about the ways in which the individuation conditions that *eide* place on their parts vary systematically among them.

The material *eide* place conditions of individuation on non-eidetic particulars if they are to be parts of those *eide*. Because these conditions differ depending on the *eidos* in question, individuation is clearly not an all-or-nothing issue: specifically, different wholes make different demands on the items that are to be their parts. That means that something that is not individuated sufficiently to be a part of one thing may nevertheless be sufficiently individuated to be a part of something else. As we saw, modes, although not sufficiently individuated to be parts of The Block Universe, are sufficiently individuated to be parts of the *eidos* Modes. The notion of individuation at play is obviously an important one for our system. It is through this notion that we will eventually be able to show that there are real purposes available for the non-eidetic particulars of the world, such as ourselves.

Apropos of the phrase "real purposes," used in the last paragraph, we should mention here that just as scientism is likely to take a dim view of our enterprise of describing real purposes in the world, proponents of doctrines like panpsychism or idealism will probably approve. But proponents of the latter views are likely to have as their basic reason for this approval something as unwarranted (in our view) as what is behind the disapproving stance of scientism. Panpsychism contends that mental properties are found in everything. Idealism believes in the absolute fundamentality and primacy of consciousness in the world. (For idealism, consciousness is the omnipresent matter or stuff of the world, from which purpose necessarily flows.) But we disagree with these contentions. We claim (i) that though mental activities are crucial for The One's purposes, they are not located anywhere in The Block Universe and (ii) that though consciousness in particular is crucial, it is less fundamental and important than idealism takes it to be. Most important, the world is most definitely not—in any way—reducible to consciousness as the ground of all things.

Nevertheless, as we have stressed already, one way in which all non-eidetic particulars are dependent is that they are all at least partially individuated and/or constructed by mind (or minds). This follows from and conforms to our earlier stipulated view of the "world" as the process of Coming to Understanding and our

Cartesian division of it. In this way, consciousness has a real role to play in the cleaving of the natural and/or physical reality of The Block Universe into its inhabitants. Of course we take the account of both the mind-dependent and mind-independent aspects of these cleavages as matters better left to science. But we believe that whatever science ultimately concludes, our claim that the inhabitants of The Block Universe are something like modes shall be vindicated.

With regard to those particulars that inhabit Coming to Understanding (putting aside for the moment concerns about the dependence of these particulars), Aristotle takes it that there is a hierarchical gradation of them from inert matter to plants to animals and to human beings (albeit, of course, in much finer gradations). And however unfashionable it might be to make such a claim nowadays, we agree! There is indeed a real gradation among the inhabitants of Coming to Understanding, and it is remarkably similar to the one suggested by Aristotle. His taxonomy is famously based on the relative amounts of matter and form of which ordinary particulars are comprised: inert matter having the highest ratio of matter to form at one extreme, human beings having the highest ratio of form to matter at the other extreme. Curiously, his taxonomy and ours sort non-eidetic particulars in precisely the same way.

In order to fruitfully compare our and Aristotle's approaches on this matter, we need to make a little clearer where some of our differences are. One important difference that we have mentioned already is that he treats non-eidetic particulars as fully individuated substances. On the contrary, we find his substances to be at best third-order particulars, and some others that he takes seriously are not, on our view, even that. Second, he takes the degrees of matter and form that are used to locate particulars in his hierarchy to be part of those very particulars, whereas, as we shall indicate, we locate these degrees of matter and form in the hierarchy of *eide*. Third (and to make this point we shall use language that Aristotle would find foreign), there is a sense in which he would regard the realm of the substances he has taxonomized all to be in The Block Universe. We instead take them to be the parts of all the material *eide* (with parts) that are located in the Coming to Understanding hemisphere of The One.

Let us describe how we understand the hierarchy of the non-eidetic particulars that are the parts of those *eide* lying in the Coming to Understanding hemisphere to function. The matter and form that establish the gradation for non-eidetic material particulars are the relative degrees to which the *eide* (that the non-eidetic particulars are parts of) are themselves more material or more formal.

A glance at Diagram 1 and Diagram 3 shows that in one sense the most material of the *eide* is that of Coming to Understanding, the first material *eidos*. Furthermore, we see that in another sense those material *eide* in the lower half are more material than those in the upper half in virtue of being material sub-*eide* of

the first material *eidos*. But what is most salient is the virtually total materiality of the material *eide* lying immediately south of the right-hand axis, beginning with the *eidos* Coming to Understanding itself. Similarly, the most formal of the material *eide* of this half are those lying immediately south of the left-hand axis. We thus see a gradation from the most material of the material *eide* to the most formal of the material *eide* of the lower half as we traverse it in a clockwise direction.

To determine how material an *eidos* is (or correlatively, how formal one is) it suffices to examine the super-*eide* that the *eidos* falls under. The more matter *eide* there are directly superior to an *eidos*, the more material that *eidos* is defined to be. (Notice that there are only a finite number of super-*eide* above any *eidos*, so that its degree of formality or materiality can actually be explicitly computed.) By virtue of the form of a particular being the factor by which that particular is individuated, we see that the gradation just described is one of individuation, the relative degrees by which form in general individuates some aspect of the *eide*. As it is form's function to individuate, the more form the more individuation.

Aristotle does not distinguish between degrees of individuation, because for him ordinary particulars are both fully individuated and ontologically independent. We take it that the only fully individuated particulars are The One and its *eide*. How, then, do the degrees of individuation we have just described by means of the number of formal super-*eide* of an *eidos* impact metaphysically, if not directly on the *eidos* itself? It does so on the parts of that *eidos* when it has parts. As we have seen, non-eidetic particulars differ in the conditions of individuation that they satisfy, and some non-eidetic particulars are clearly more individuated than others. We claim that the degree of individuation of a class of non-eidetic particulars can be computed on the basis of the number of formal *eide* that are the super-*eide* of the *eidos* they are the parts of. The addition of formal super-*eide* for an *eidos* strengthens the individuation conditions it imposes on its parts. For example, we claim that our individual mental activities, which we claim are aspects of the yet to be educed quadrant, are more individuated than any mode. Notice that the gradation determined by the relative amounts of matter and form established by what a given *eidos* "falls under"—and which in turn classifies their parts (if any)—and the taxonomic gradation determined by the relative amounts of matter and form that comprise a given "ordinary" particular, are structurally the same. Which is to say that Aristotle's taxonomy is not just an antiquarian curiosity, as it may seem to many. He is glimpsing a deep and important truth about the way the world is.

We should add that this graded notion of individuation will be crucial for the possibility of individual agents—a notion that is glaringly lacking in Spinoza's description of the ethical consequences that follow from his monistic account of

the nature of the world.

Our approach to hierarchically ordering third-order particulars is one that can apply to such particulars wherever they show up as parts of *eide*. Specifically, if such appear in the Ontological Dependence hemisphere, then this approach to ordering them hierarchically will apply as well. We have restricted our discussion to the Coming to Understanding hemisphere, however, because we are not entirely sure that any of the *eide* in the Ontological Dependence hemisphere have third-order particulars as parts. The *Eide*, of course, has parts; but these are *eide*, not third-order particulars. We simply cannot say at this time whether any other *eide* in that hemisphere have parts.

For us, individuation and individual agency are dictated quite literally by the hylomorphism of The One. We envision a realm (so to speak) of non-eidetic particulars that stands to the realm of *eide* as parts of certain (but not all) material *eide*. So it is then natural to ask what, if anything, our system will have to say about this "other realm" of non-eidetic particulars that it would not simply want to defer to science on. A great deal, as it turns out. For one thing, this system of *eide* will give a convincing argument for why the ground for moral human behavior lies not within human beings themselves but elsewhere, within the *eide* of The One.

Indeed, once we have completed our eductions of the final quadrant (which we undertake in the next chapter), we will be in a better position to see how the *eide* establish an "Aristotelian" taxonomy on all of the important non-eidetic particulars and how that taxonomy reveals the compelling moral ground for human behavior that resides with The One and its *eide*. Equally important, we will be able to see how and why human agency itself actually arises in The One. Let us then turn to the eductions of the *eide* of the Omni-truth quadrant.

Before doing so, however, let us make explicit one last point that has probably already been noticed. Although the diagrams we have been using to guide us through the metaphysical thickets that are the topic of this work have proven indispensable, such diagrams by no means completely characterize the elements we have been studying; and we have never claimed that they do. In particular, these diagrams are restricted to The One, the *eide*, and the relations among these. The important relations between the parts of *eide* and those *eide* are not represented by our diagramming approach. That should be no surprise, however. After all, there can be no diagrams of everything.

Chapter 17

A New Theory of Mind

We now return to eductions in order to fill in the final quadrant. It will be useful to refer to Diagram 1 to guide the understanding of the eductions made here. Some care is required because these are the most important eductions we shall consider: they lead us to fundamental concerns about who we are and what we should do.

Let us first consider Omni-truth. This is the form of Coming to Understanding. Recall the way we first suggested thinking of Omni-truth in Chapter 10 by means of the picturesque notion of omniscience. Omniscience is the knowledge and understanding of everything, everywhere, at all times, and from every perspective. Given such an idea, it is clear why we think Omni-truth is the form of Coming to Understanding. What unifies Coming to Understanding, what makes it what it is (as it were), is precisely the body of truths that shape Coming to Understanding. Omni-truth in turn, we claim, has as its form the *eidos* Understanding and as its matter the *eidos* Consciousness. These eductions are as complex as they are crucial, and we will need to dwell on them for some pages to come.

But first we must respond to a possible worry that first arose in Chapter 14. This is that we have repeatedly described Coming to Understanding as a process, and indeed the very language "Coming to Understanding" seems meant to make one think of it as a process. But our ordinary understanding of processes takes them to be—if not necessarily in space—at least in time. Processes, so we think, occur over time, from a starting point to a goal (if they have a goal and if they achieve it). Our earlier eductions established Space-time as the form of the Block Universe, and so space and time do not seem to govern Coming to Understanding as a whole, but at best, only the matter of Coming to Understanding. The form of Coming to Understanding, therefore, seems to lie outside of space and time.

How can this be? This puzzlement has its source in a systematic confusion of temporal processes with logical ones; this is a confusion we all experience, and attempting to sort it out will help us understand all the eductions that are to be characterized in this chapter.

Consider an ordinary inference, such as:

> All men are mortal.
> Socrates is a man.
> Therefore: Socrates is mortal.

Intuitively speaking, this is an inference—like all inferences—that we grasp over time. We first grasp the premises, and then when we understand what follows from those premises, we grasp the—or a—conclusion. But although this grasping of the inference is carried out over time, there is an important sense in which temporality is irrelevant to the nature of the inference. We grasp the inference over time—but the inference itself holds atemporally. It is not so much that the inference is outside of time—although saying that is not to say something false—as that temporal processes are altogether irrelevant to the nature of inference.

A terminological distinction may be of use here. We can distinguish "temporal objects" from "logical objects"; and we can say that although the inferences we carry out are temporal objects (or processes), the inferences themselves—although they are naturally also described as processes (because they involve prior steps and subsequent steps)—are not naturally described as processes that takes place in time.

It is all too easy to confuse temporal processes of reasoning with the atemporal inferences that correspond to these processes and that those processes are the understanding of. But a way to keep the notions separate is to realize they have different properties. The atemporal inferences have purely logical properties; they are, for example, either valid or invalid. The temporal processes of reasoning, on the other hand, are justified in terms of whether they correspond to these atemporal inferences or not. A fashionable debate in metaphysics nowadays is that of "truth making": the belief that truth is grounded in reality. Truth making is taken as a relation between truth makers and truth bearers. The debate has two sides: one side is those who believe that truth is grounded in particulars—the ones we would call non-eidetic— and the other side is those who believe that truth is grounded in "states of affairs" (another new term of the art)—the way things are. For us of course, the way things are is nothing but the hylomorphic form of things. Clearly, we are sympathetic with both sides of this debate.

In this debate, the truth bearers are typically thought of as propositions rather than sentences and belief tokens, but they are always thought of as the constructs of intelligence or of consciousness or of both. For us, this is the salient point about truth making: without consciousness or intelligence, there is no truth. Writ large: without consciousness or intelligence there can be no Omni-truth. Thus, Consciousness is the matter of Omni-truth.

Does any of foregoing suggest then that an omniscient being is needed to ground Omni-truth? No. It simply suggests that there is some consciousness or intelligence within the One (such as, for example, our own). When we described Omni-truth in terms of what an idealized knower would know, we were indeed envisioning the existence of a genuine infinite realm of truth makers; but we were not envisioning the existence of a corresponding infinite realm of truth bearers. In

fact, we do not claim to know whether or not the truth bearers of the One—however many there might be—are infinite in number or not. This will remain an unanswered question for us. But we most definitely do not subscribe to the existence of an omniscient being in the ordinary sense. Despite the lengthy list of contenders throughout the history of philosophy and theology, there has been no convincing rational argument for the existence of such a being, nor (we claim) could there ever be one. In Volume 2 we will explore in detail why this is so and what it amounts to.

Let us turn now to Consciousness, that whole that we claim to be the matter of Omni-truth and without which there could be no such (real) thing as Omni-truth. This eduction makes official the implicit perspectival nature of Omni-truth. The latter is, as it were, a summation of the various ways possible of being conscious of things in all their details. But to yield Omni-truth, Consciousness (as sheer matter)—even infinite consciousness—will not suffice. Something more is needed. Consciousness (as sheer matter) can be consciousness of hallucinations or confusions. It is only when Consciousness is suffused with (organized by) Understanding that it takes the form of Omni-truth. We take up Understanding in a little more detail shortly, but first we need to discuss Consciousness further.

We claim that the *eidos* Consciousness has parts and that those parts are selves. Selves are thus not constructed objects but third-order particulars. And "self" is understood here to at least pick out the things we naturally think of when we use the word "self": ourselves and others. But having said this much, there are a number of confusions that must be dealt with, confusions that keep close company with the confusions we described above, those between inferences and the temporal processes of reasoning that are confused with those inferences. In a word, a self too is a logical object, not something that occurs in space and time.

This can be directly seen via our eductions: if selves are parts of Consciousness, then although (as Diagram 1 makes clear) they are ontologically dependent on Space-time, they themselves are not spatio-temporal. This may strike one as a bizarre claim. We therefore need to take some time to explicate what it comes to and why one should believe it.

The philosophical topic of the nature of the self is one with a long pedigree. We need not go into the particulars of all this but only note the wide variety of options that have been explored. On some views, selves are just animal bodies. There are debates about this: some would restrict the self (so construed) to the brain, and those people would see "brain transfers" into other bodies as preserving the self under such transformations. Others, who demand that the self involves the physicality of the whole body, would deny the person survives such an operation.

Still others understand the self to be the available memory of events from a particular point of view. (There are debates about whether this sort of

characterization of the self fails because it presupposes the very notion it is supposedly characterizing.) Others characterize it as the whole of the events of lifetime (centered, broadly speaking, on a particular animal) or as the activities of a lifetime (centered again, and broadly speaking, on a particular animal).

From our point of view, all of these options for an understanding of the self flounder on a very simple category mistake in Gilbert Ryle's sense. They bind the notion of a self to one or another temporal kind of thing—object, set of events, or the like. The self, however, is atemporal: it is a logical object in much the same sense that an inference or a judgment is.

Selves understood in this way are what we posit as the parts of Consciousness. Our awareness of ourselves, therefore, is an awareness of something that is not in time, although it is ontologically dependent on temporal processes such as the actions of our bodies and brains or the rising and the setting of the sun. In the same way, a judgment—even if it too is not in time and is not extended in space (because it is a logical object)—is ontologically dependent on what it is a judgment of, which in fact may be objects that are in space and time. Concurrent with our brain processes, we become aware over time of what our self is constituted of and formed by. Although these can be described as involving processes, these processes too must be understood as we described Coming to Understanding earlier. They are not in time, but they are structured in a way that naturally invites the term "process" as a description of them.

To see selves as processes—as we should—is to see them as wholes, as entire processes of life that include everything: thoughts, feelings, memories, action, and so on. Everything, that is, that we normally think of a self as engaged in (but distinct from) are more appropriately thought of as the selves themselves. Having thus said that a self is a process, which is a life, and having noted that we are examples of what such selves are, it should be added that there is nothing specific about being human beings that constrains the application of this notion. Anything, from amoebas to computers to institutions can have lives and thus be selves. This is a discussion we cannot pursue yet. It is a major topic of Volume 2.

Consciousness, we can now educe, has Choosing as its form and Awareness as its matter. A further speculative eduction that we have not placed in Diagram 1 is this: the matter of Awareness is Self-awareness; the form of Awareness is External Awareness. One way to appreciate what these eductions come to—if they are right—is to notice that selves, the parts of Consciousness, bear relations to other selves (to other parts of Consciousness). These complex relations in part amount to what we describe as external awarenesses of others. In interacting with another self, we capture a complex of perspectives held by that self and reflect it in our own self. This process, although apparently unfolding in time the way that inferences seem to do, is also atemporal: it is a process of logical relations among

selves.

Let us now turn to Understanding itself—the form of Omni-truth and that at which all Choosing (the form of Consciousness) is directed. First notice, in Diagram 1, that Understanding is directed at the Eide—just as Plato would have it be. But of course we are not equating, here, the understanding of individual selves with the *eidos* Understanding or even, for that matter, with its proper parts, because Understanding is a formal *eidos* and thus has no parts. We take the individual understandings to be the judgments that an individual self makes—and we understand these to imitate Understanding. In particular, they imitate the directedness of Understanding towards the Eide.

One last pair of eductions can now be given. This is our describing the matter of Understanding as Judgment and form of Understanding as Synthesis. Individual judgments are the parts of the *eidos* Judgment. In giving this eduction—one a little reminiscent of Kant—it is worth noting that it is an especially speculative one because it attempts to answer a question that seems to be more appropriately answered by the psychological sciences. Even so, it is natural to take it that Understanding requires two components, its matter and its form: Judgment, with its parts being the judgments of individual selves, and Synthesis. Understanding clearly requires both.

Despite the many intriguing ramifications of these last eductions, the most important thing about the *eidos* Understanding is not this last speculation about the nature of Understanding but that Understanding, being a formal *eidos*, is a unified whole, not a multiplicity—even though it may appear to us to be more like a many than a one because of its ground in the apparent multiplicity of our cognition. Most of us feel as though the understanding that we "have" is something that we possess as part (or parts) of our "own" separate individual mind. But in reality, it is only the awareness of particular elements of Understanding that we "possess."

With the above overview of the Coming to Understanding quadrant in place, let us both make some additional related comments and stress some points that we regard as especially important.

First, let us note that it is a contingent matter that the *eidos* Consciousness has parts, and therefore it is a contingent matter that there are selves. The One, just as with many material *eide*, does not necessitate the presence of parts in the *eidos* Consciousness.

Second, we have stressed the falsity of the identification of the self with various sorts of spatio-temporal classes of items—memories, our body, and so on. Two points should be made about this. The first is that these philosophical views are natural companions of the tendency of the ordinary person to identify with such things. It is all too easy, as we have suggested above, to confuse the logical object of the self (that one is) with other things that it is only ontologically dependent

upon, such as its temporal animal body. In addition, it should be said that the self, as we have described it, is the only real component (the only third-order particular) among these (constructed) items that the ordinary person so often identifies with the self.

Third, selves are posited as parts of Consciousness, whereas Information has already been placed—as an *eidos*—in the Block Universe quadrant. And so we do not identify human selves, for example, with the human brain's information processing (although selves are ontologically dependent on such).

This brings the eductions of this work to an end. We have, however, in our description of what selves are and how the *eide* in these quadrants bear relations to one another, laid the groundwork for illuminating the question of what place selves have in the universe. Crucially involved in our description of the self's place in the universe is the ethical question of how selves should comport themselves vis-à-vis each other and—more important—how they should comport themselves vis-à-vis the One. Diagram 1 lays out the full set of eductions that have been characterized as of this point and that provide the foundations for our further studies.

In the next and final chapter of this volume, we shall present certain patterns of relations among *eide* that indicate our role with respect to the One. In doing so, we shall have completed the philosophical foundations for Volume 2.

Chapter 18

Teleology, Agency, and The One

As we have indicated earlier, we have almost uniformly focused on the *matter and form* relations among the *eide* to drive our eductions. We did point out, however, that the telic and consequence relations among *eide* are equally important to enable eductions. We turn to these in this concluding chapter of Volume 1, not merely because they will help justify the eductions already in place but more important, because they provide clues to the overall metaphysical and ethical dimensions of the *eide*. We shall first consider some of the more interesting consequence relations among the *eide* and then turn to certain teleological relations among them. It should be said that there is a sense in which the teleological relations among the *eide* are perhaps the most important relationships we shall draw attention to because they reflect and illuminate the teleological structure of The One, how that teleological structure bears directly on us, and what our ethical goals in life should be.

It will be helpful in following the discussion of these relations to rely on Diagram 1. Diagram 5, Diagram 6, and Principle 5 from Chapter 14 will also be of use.

We start by "reading off" some of the consequences of specific *eide*.
The consequence of The One is The Block Universe.
The consequence of Coming to Understanding is the *Eide*.
The consequence of Ontological Dependence is Modes.
The consequence of Modes is Information.
The consequence of The Block Universe is Consciousness.
The consequence of Consciousness is Judgment.
The consequence of Omni-truth is Matter.
The consequence of Matter is Nature or Essence.
The consequence of the *Eide* is Consequences.

Other significant consequences of other *eide* can be found in Diagram 1 in a similar way.

Of course, when we speak of "reading off" these relations from Diagram 1, where the *eide* are already named and in place, we are speaking somewhat metaphorically. As we have stated, consequential and telic relations among *eide* are both fundamental structuring elements of The One and important parts of the eductive processes to be used in arriving at the *eide* in the first place. But it is

proper at this point to step back to see the larger sweep of things.

> The place beyond heaven, none of our earthly poets has ever sung or will sing its praises enough! Still, risky as it may be, I must attempt to speak the truth about it, especially since Truth is my subject. What is in this place is without color and without shape and without solidity. Found there is the Being that really is what it is, the subject of all real Knowledge, the soul's steersman, which is visible only to intelligence. A god's mind is nourished by this pure Knowledge, as is the mind of anyone that is concerned to take in what is appropriate to mind. Such a person is delighted at last to be seeing what is Real and watching what is True, and so feeds on all this and feels wonderful, until the circular motion brings it around to where it started. On the way around it has a complete view of Knowledge. This is not the knowledge that is close to change, the knowledge that becomes different as it knows the different things that we consider real down here. This is instead the knowledge of what really is what it is.—*Phaedrus* 247c–248a

When one contemplates these relationships and couples them with a previous understanding of the eductions of the *eide* first characterized in terms of the *matter and form* relations, one will see a compelling systematicity emerging among the *eide*. Having already drawn attention to these remarkable consequence relations, let us now turn to the even more compelling and important telos relations among the *eide*.

We describe a teleological arc—a linked pattern of telos among *eide*. Choosing is directed at Understanding, which in turn is directed at the *Eide*, as Socrates and Plato teach us. Thus, in a sense we see that the whole goal of understanding is not complete until the *eide* themselves have been grasped and understood. The resultant picture, therefore, is reminiscent of Plato's Myth of the Cave. We have found, that is, that a pattern of *eide*, those *eide* that correspond to what we ordinarily understand as psychological activities of various sorts, are connected in a teleological arc. We can choose in so many ways, but the goal of choosing (choosing rightly, it might be put) is understanding. In turn, understanding is an activity that can be frittered away trivially if it is done wrong. Understanding rightly (or perhaps understanding truly) has as its goal the fundamental ideals of everything there is, the *Eide*.

Let us consider a second teleological arc. This quite grand one starts by noting that Imitation is directed at the ordered structure of Space-time. In turn, this ordered structure is directed at Omni-truth, all the ways that everything is at every

time and place and from every perspective. This totality of truth is directed towards Ontological Dependence, itself the form of The One. Finally, Ontological Dependence is directed towards Coming to Understanding, the first *eidos*. This, we should add, is the only teleological arc—or, technically, the tail end of the only teleological arc—that culminates in the first *eidos*. It is a remarkable fact that teleological arcs are unique in the sense that any such arc does not overlap in the *eide* it links with any *eide* in other arcs—unless those arcs are sub-arcs of it.

This second teleological arc indicates (surprisingly) that the purpose of imitation is Space-time. Space-time in turn (equally surprisingly) has its telos in Omni-truth. Space and time, that is, have the aim of bringing about the form of Coming to Understanding. Omni-truth in turn is directed towards Ontological Dependence. This last *eidos*, Ontological Dependence, is directed towards Coming to Understanding—which ultimately satisfies all the goals exhibited in this teleological arc.

The first teleological arc encapsulates the wisdom that we have already seen expressed by Plato and Socrates—that human choice needs to be directed towards understanding, which in turn should be directed towards the true source of understanding, the *eide*. But our second teleological arc is more surprising, especially to a modern temperament. It shows how aspects of the universe that one is prone to think of in purely scientific and nonteleological ways are actually participating in a directed attempt to bring about Coming to Understanding. It is not only in humans that implicit design—the goal-directedness of The One—makes its appearance.

These teleological arcs begin to give sense to our roles in the whole cosmic drama. What has always looked from the purely scientific view to be indistinguishable from a temporary accident, what we have called "emergent order swimming against the tide of entropy," is now revealed to be the nature of the directed process in the world of unfolding understanding—the grasping of the structure and nature of our ontological dependence on The One.

Here, then, is our discovery of an objective teleology for human agency—for human agency is to be located naturally in the broader unfolding process of Coming to Understanding. The process of Coming to Understanding in turn is seen as the telos at which the form of The One (Ontological Dependence) is directed. It is from this teleology that we will derive an answer to the most basic questions about how to live: that is, how to orient one's cognitive life and the behavior that flows from this orientation. As indicated already, the answer to these questions are not to be grounded superficially in the historically contingent and fleeting conventions of one's culture but rather to be rooted deeply in the basic structure of reality, that is, in the structure of the *eide* of The One. In this way we will vindicate the original Platonic idea that the *eide* set the standards for an objective morality

and hence for the right way of orienting one's life.

We should take a moment to also consider the fact that Diagram 1 gives The One, represented by the circle at the center, a unique topological position among the *eide*. Unlike any of the *eide*, it has only three adjacent neighbors. They are Coming to Understanding, Ontological Dependence, and The Block Universe—and we note that Coming to Understanding is the one and only *eidos* that is immediately ontologically dependent on The One itself, a fact that emphasizes its primacy.

What follows from our observation above about The Block Universe is that although science properly investigates the physical and biological particulars of the world (the process of Coming to Understanding) and thus quite properly has its own special tools for doing this, The Block Universe itself is literally the consequence of The One in exactly the same sense that the rest of Aristotle's universe is the consequence of his "unmoved mover." The One is that unchanging and transcendent nature—that is, it transcends The Block Universe— but nevertheless it causes that universe.

Those who have studied these topics carefully have always sensed a basic lacuna in the Platonic way of grounding the ethical life in the *eide*. There seems to be an enormous distance between the structure of the *eide*, no matter how fully they are described, and the local worldly activity of individual human beings who need guidance from those *eide*. For this reason, among others, the general Platonic dictum that the *eide* should guide the lives of individual human beings has struck many as devoid of real content. We will show how our reconstrual of the *eide* bridges this gap and dictates in real and concrete ways how humans should live their lives.

But this is a topic to be taken up in Volume 2. In the meantime, we must raise—and then solve—one remaining issue about agency. In Chapter 17, recall, a great deal was made of the fact that the *eide* of Consciousness and Understanding and indeed the *eide* of Coming to Understanding lie outside of The Block Universe and therefore that they are apart from space and time. A problem, therefore, similar to the problem of Coming to Understanding being a (timeless) process seems to arise here as well. Agency, with its basis in free will and therefore with its focus on choice and the effects of choices for good or for evil, seems deeply intertwined with temporal processes. Agency seems deeply connected with how we perceive time: that we are ignorant of the future but not necessarily of the past and that we perceive our actions to be ones that can affect the future but that cannot affect the past. How then is such a temporally loaded notion of agency supposed to be compatible with the timeless way that we have argued that so many crucial notions connected to agency—understanding, consciousness, choosing, awareness—should be understood? Indeed, how is this apparently temporally

loaded notion of agency supposed to be a power of a self that (we have claimed) is not in time and space? The answer to this question, as some may have guessed, replicates closely the discussion of related issues in Chapter 17. Agency, like Coming to Understanding, is not a temporal process. Rather, it is ontologically dependent on temporal processes that as a result we often confuse agency with. But agency, purely understood, only describes certain logical relationships between selves and their actions. Although these relationships are ones we take ourselves to perceive in time—in much the way that we take ourselves to perceive logical inferences in time—in point of fact to treat agency as therefore essentially connected to temporal processes is to make the very same mistake we make when we treat atemporal logical relations as temporal ones. There certainly are relationships that can be described (timelessly) between a self, what it believes, and how it acts. These relations are perceived—even by the self that is making the decisions it makes—as taking place in time. But nevertheless, there is nothing intrinsically temporal involved in these relationships.

To repeat: The temporal elements that we so often mistakenly take consciousness, awareness, inference, agency, and the like to be are rather what such phenomena are ontologically dependent on. And it is also worth noting again that such temporal misconstruals of these ultimately atemporal processes are due to cultural influences rather than to a rigorous philosophical analysis of selves and their powers.

The intellectual crime of reductionism arises in philosophy in many devious ways. Attempts to understand agency and more broadly consciousness in a temporal manner have been revealed to be mistaken attempts to engage in the reduction of something atemporal to something temporal that it is distinct from.

This concludes our philosophical account of these matters.

Part 4: Critical Reviews

Review 1: E. J. Lowe

Coming to Understanding, Volume 1, is an ambitious and original exercise in fundamental metaphysics. It is very rich and densely argued, making it difficult to characterize in a few simple phrases. Perhaps, however, the general flavor of the system of metaphysics that it embodies can, without excessive distortion, be described as a mixture of Platonism, Spinozism, and Aristotelianism, roughly in the proportions of 3 to 2 to 1. The extended essay—for that is what it is—comprises three parts: the first entitled "Categories," the second "Epistemology," and the third "Metaphysics." The first is a concise critical history of category theory as a branch of philosophy, from its Aristotelian beginnings to its present day manifestations. The second presents a theory of knowledge and rational inference, designed to embrace the needs of both scientific and metaphysical inquiry, including above all the inquiry that the essay itself is concerned with. The third presents the most fundamental results of that inquiry, in the form of a systematic speculative theory about the most basic elements of reality and their structural relationships to one another. This theory is resolutely *monistic* in character, having at its heart the notion of the One as that upon which all else depends for its existence. It is also a form of *transcendent realism*, as opposed to any form of absolute idealism or any form of immanent realism. Finally, it is also a form of *rationalism*, contending that the real is rationally ordered and that this is why it is intelligible. As such, the theory stands in radical opposition to various currently fashionable philosophical positions, such as naturalism and physicalism, which the author rejects as scientistic. At the same time, the author maintains throughout a sober respect for scientific inquiry, provided that its limitations are duly recognized. In what follows, I shall examine each of the three Parts of the essay in turn. However, I shall not spend the same amount of time on each, partly because they differ in length and complexity, and partly because I find that some sections of the essay present more difficult problems of interpretation or evaluation than others.

Part 1: Categories

Near the beginning, the author remarks that "rumors of the death of metaphysics

have been greatly exaggerated" (p. 1)—a sentiment with which I agree wholeheartedly. And, indeed, metaphysics has of late undergone something of a renaissance. The author rightly remarks—as have a number of other recent authors—that metaphysics is required to provide an intelligible account of the nature of reality as a whole: something that no special science can do, since "[e]ach [such] science is focused on the individual items peculiar to its domain" (p. 2). I entirely endorse the author's claim that questions such as "What is the structure of reality?" and "Why is the world intelligible?" are perfectly good questions which cannot receive a scientific answer—and that there is no reason to conclude from that that they have no discoverable answers at all. The author also invokes and endorses the well-known distinction between *speculative cosmology* and *analytic ontology*, contending that the latter is the key to the former—the former being the focus of the essay as a whole. And in this context *Aristotle* is duly recognized as having provided, in his *Categories*, the archetype of this second branch of metaphysics, conceived as an inquiry into the fundamental divisions of being.

At this point, however, the author charges previous metaphysicians—except Hegel—with merely having provided unstructured *lists* of categories, going on to remark that

> In particular, no account of categories has attempted to address the second-order question of ostensible categorical relations among [the] categories, nor the broader question of how we are to conceive the relation between the categories and the reality they categorize. *When we comprehend the nature of the categories and the fundamental relations among them, the nature and purpose of reality as a whole will be laid bare.* (p. 3, author's emphasis)

This charge is clearly intended to include Aristotle amongst its targets. However, while it is true that the ten categories that Aristotle explicitly recognizes as such in the *Categories* are presented by him rather in the manner of a list of unrelated items, the foregoing charge is, in his case, very arguably unfair in the following respect: it overlooks the crucial second chapter of the *Categories* in which Aristotle lays out what he regards as being the *most fundamental* divisions between things—divisions which, furthermore, he sees as being intimately *connected* to one another in structured ways, in virtue of the characteristic relations of *ontological dependency* holding between the items falling into those divisions. What I have in mind here is the well-known *Ontological Square* of Aristotelian metaphysics, whose four corners or quadrants are occupied by the following four fundamental divisions of beings: (1) individual or *primary* substances, (2) substantial universals or kinds (that is, the *species* and *genera* of individual substances, also called by

Aristotle *secondary* substances), (3) non-substantial universals (that is properties or attributes), and finally (4) non-substantial individuals (later, in scholastic and early modern philosophy, called "individual accidents" or "modes"). See Figure 1.

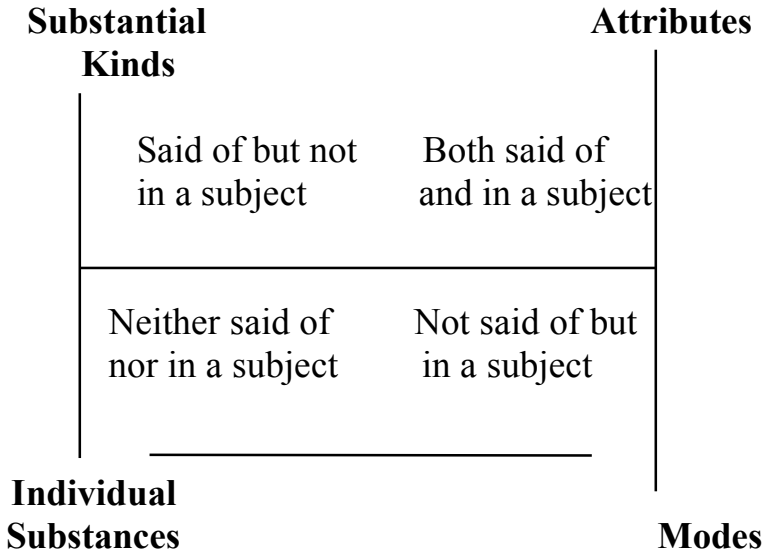


Figure 1: The Aristotelian Ontological Square.

Aristotle makes it clear that he regards individual substances as being *ontologically independent* beings, while beings belonging to the other three divisions depend ontologically, in characteristically different ways, upon these individual substances. It is perhaps unfortunate that philosophers studying Aristotle's *Categories* over the ages have often concentrated on his famous list of ten—substance, quantity, quality, relation, place, date, posture, state, action, and passion—rather than on the four *fundamental* divisions that he announces at the outset. It is these alone that are truly deserving of being called fundamental *categories*, if one is concerned—as I firmly believe that Aristotle himself primarily was—with category theory as a branch of *ontology* rather than as a branch of *grammar*.

Now, the author of *Coming to Understanding* correctly remarks that Aristotle is an advocate of a "pluralistic substance ontology," regarding—in his *Categories*, at least—such things as an individual man or horse as "substances or ontologically self-contained beings existing in their own right" (p. 4). And the author makes it clear that this pluralism will be rejected later in the essay. However, it is very important to distinguish what Aristotle says about the four fundamental divisions of being from his opinions regarding *which beings*, if any, that we encounter in everyday experience fall into which of these divisions. We could *agree* with Aristotle in recognizing the four fundamental divisions while

disagreeing with, for example, his opinion that an individual horse is rightly assigned to the division of *individual substance*. It is perfectly open to us, consistently with accepting his fourfold division, to contend that horses are, in fact, (complex) individual accidents or modes, and that there is in fact only *one* being that properly falls into the division of individual substance. This, in effect, is precisely what *Spinoza* contended. Indeed, of course, Aristotle himself, in his later philosophy, came to reject his earlier view that individual men and horses are substances *properly so-called*, when he developed his theory of *matter and form*: for he then took such an individual to be a *composite* being consisting in a *combination* of matter and form, holding that in such a composite the *form* possesses a kind of *ontological priority* over both the matter and the composite itself, consisting of matter *and* form. This is why he is normally interpreted as maintaining, in the *Metaphysics*, that if anything properly deserves to be called "primary substance," it is *form*.

In this connection, it is interesting to observe that the author of *Coming to Understanding* wishes to embrace Aristotle's doctrine of *hylomorphism*—his theory of matter and form—while rejecting his pluralistic substance ontology of the *Categories*. But then it is important to recognize, as was remarked above, that Aristotle's theory of matter and form represented a significant *departure* from his earlier ontology of the *Categories*, so that—to this extent, at least—the author is in fact retreading a path that Aristotle himself, rightly or wrongly, took. My own opinion is that Aristotle's move to the theory of matter and form was, in certain crucial respects, a backward one. The author is right to connect this move with Aristotle's attempt to deal with the problem of *change*—and also right, of course, to connect it with his doctrine of *the four kinds of cause*, material, formal, efficient, and final. But it is debatable whether the theory in question was the correct one to adopt for this, or indeed any other, purpose. Aristotle never really succeeded in making coherent his account of the relationship between matter and form and, inasmuch as the doctrine of the four kinds of cause rests upon the theory of matter and form, it falls with the fall of that theory. In this context, it is instructive to note that the notion of matter, long though it survived in metaphysics and physical science after the death of Aristotle, has no real place at all in modern subatomic physics, whose fundamental "particles" are best understood in terms of quantum field theory. I think that it is high time for metaphysics to abandon it too.

The following passage from *Coming to Understanding* is, I think, of particular interest in this context:

> In contrast to Aristotle, Spinoza takes the world as a whole as the one and only fundamentally real thing. His monism, therefore, takes a particularly simple form. Our monism, because of the incorporation of

> hylomorphism, is more "layered." We agree with Spinoza that the whole of reality (we shall hereafter refer to this as "the One") is the only independent concrete particular; all other things are dependent on it. But, in addition, we find imposed on the One that hylomorphism that was first discovered by Aristotle: The only independent concrete particular has both form and matter, and its fundamental nature or *form* structures this whole reality. (p. 6)

This, I think, is neither wholly fair to Spinoza nor an entirely appropriate appeal to Aristotle. Spinoza's "One"—*Deus sive Natura*—was, of course, by no means conceived by him to be wholly uniform or undifferentiated, even though it was supposed to be a single, simple, and infinite *substance*. His "One" was certainly regarded by him as embodying complex part–whole relations amongst modes and thus as being truly "layered." He says a great deal about what modern metaphysicians would call "macro-micro relations.." Spinoza certainly saw the universe as being a highly *structured* unity. On the other hand, he clearly did reject Aristotle's *matter and form* distinction. And rightly so, I think. That is partly why Spinoza's metaphysics, of all those advanced in the seventeenth century, is really the only one that looks at all compatible with the field theories of modern quantum physics and general relativity. Aristotle's theory of matter and form served its purpose for many centuries as a metaphysical framework for physical theory, but in that connection it has now had its day. I do not think that it can really be consistently revived and modified in conjunction with anything remotely like a Spinozistic monism. Hylomorphic terminology is absolutely central to Part 3 of *Coming to Understanding*, but wrenched out of its original Aristotelian context that terminology is difficult to comprehend other than in a rather elusive metaphorical way. It is difficult to resist the suspicion that the terminology is retained not least because of its involvement with the doctrine of *the four kinds of cause*, which the author does not wish to dispense with. However, Spinoza's own philosophy is not, of course, devoid of an account of *explanation*, both physical and metaphysical. Indeed, in this respect his system is one of the most sophisticated and comprehensive that have ever been developed—far more sophisticated, I am inclined to say, than Aristotle's doctrine of the four kinds of cause. Admirer though I am, then, of Aristotle's metaphysics, I suspect that the author of *Coming to Understanding* would have been better served by cleaving closer to Spinoza than to Aristotle in this regard.

This brings me to the end of section 1 of *Coming to Understanding*, so let me sum up my reflections on it so far. The author rejects Aristotle's account of the categories and his pluralistic substance ontology, favoring instead a Spinozistic monism. But at the same time the author wishes to retain Aristotle's hylomorphism

and his associated doctrine of the four kinds of cause as an account of explanation. Arguably, this is the wrong combination of lessons to draw from these two great metaphysicians. Aristotle's fundamental fourfold division of being, represented in the Ontological Square, was in fact accepted by Spinoza, whose metaphysics is resolutely one of *substance*, *attribute*, and *mode* (although, of course, the distinction between individual substances and substantial kinds effectively collapses in the context of Spinoza's substance monism). Spinoza's monism, however, involved a rejection of the Aristotelian *matter and form* distinction and a new account of explanation that was, very arguably, superior to Aristotle's. Very arguably, then, what we should *retain* from Aristotle is precisely what Spinoza retained—the fourfold division of being—and what we should *reject* is not only Aristotle's pluralism of substances but also his hylomorphism and the doctrine of the four causes. Remarkably, Spinoza in the seventeenth century—at the very beginning of the scientific revolution—provided us with a metaphysical framework for natural science, including a science of human nature, which not only constitutes a major advance on that of Aristotle but also still proves relevant to the post-Newtonian physics of general relativity and quantum field theory.

Now, Spinoza's rejection of hylomorphism is more specifically a rejection of the Aristotelian notion of *matter*—always, in Aristotle, something relatively murky and mysterious—rather than a condemnation of the notion of *form* as such. It is *form* alone after all, that the rational intellect can truly grasp, even according to Aristotle—and it is the notion of form that is so intimately related to those other rationalist notions of *essence* and *real definition*, that are retained by Spinoza at the heart of his system. Recall here that "essence" is just the English word, derived from Latin, that is standardly (but unhelpfully) used to translate the Greek phrase in Aristotle's works that is more literally translated as "(the) what it is (to be)" or "(the) what it would be (to be)": and what a real definition of an entity, *A*, tells us is precisely *what A is or would be*—in short, it reveals *A*'s *essence* to us. The doctrine of essence is absolutely central to both Aristotle's and Spinoza's metaphysics and epistemology, and indissolubly linked to their substance-based systems of categorial ontology. For the fundamental categories of substance, attribute, and mode correspond to *essential* differences between the items belonging to those categories: a substance is *essentially* a substance, an attribute *essentially* an attribute, and a mode *essentially* a mode. In other words, if an entity *A* belongs to a category *C*, then it is *an aspect of what A is*—an aspect of *A*'s *essence*—that *A* is a *C*, with the consequence that *A* is *of necessity* a *C*. Even more crucially, though, we need to appreciate that neither the *categories* themselves, nor *essences*, are properly to be thought of as *beings* or *entities*—that is, as things that do or could *exist*. Things *have* essences and *belong to* categories, but this isn't a matter of their standing in certain special relations to *other things* of special sorts,

"essences" and "categories." This is by no means to regard the categories and essences as *unreal* or *mind-dependent*. On the contrary, the lesson is that objective, mind-independent reality cannot be characterized merely in terms of *what there is*—what entities or beings exist.

The first step to success in matters of fundamental ontology is knowing when to resist the urge to indulge in excessive *reification*. To repeat: all beings *have* essences and *belong to* categories, but neither essences nor categories are themselves *beings* of any sort. In another terminology, we may say that the concepts of essence and category are *formal* concepts—not in a narrow, *logical* sense of "formality," but in a broader, *ontological* sense. They may be contrasted with what we could call—were it not potentially misleading—*material* concepts (misleading because it is suggestive of a revival of the *matter and form* distinction). The latter are such concepts as those of *man* and *redness*, which genuinely are concepts of *beings* of certain sorts. The concept of *substance*, by contrast—a categorial, formal concept—is not the concept *of* a certain being, although certain beings (no more than one, according to Spinoza) do *fall under* the concept. We could put it this way, in the terminology of the Ontological Square: although "man" and "redness" denote items belonging to one or other corner of the square—according to Aristotle, a substantial kind and an attribute respectively—"substantial kind" and "attribute" do not *themselves* denote items belonging to any of those corners. "Attribute," for instance, does not denote *one of the attributes*, along with such attributes as *redness*. *Redness* is an attribute, but there is no such attribute as "attributehood." In our urge to reify, we are inclined to posit an *entity* or *being* as the *designatum* of any meaningful expression, such as the predicate "is an attribute," as it figures in the sentence "Redness is an attribute"—just as we regard the predicate "is red" as designating the attribute *redness*. But this is an urge that we must learn to resist, for it rests upon an incoherent conception of ontology as being concerned only with *beings*, rather than more generally with *the real*. Reality embraces much more than just the beings that are—if one wants to use this dangerous phrase—its "material content." For reality is *structured* being—and the *structure* of being cannot coherently be conceived simply as *more being* or *beings*, that is, as more of *what there is*. Rather, the structure of being is *how* what-there-is is.

I dwell upon these points because I believe that *Coming to Understanding* falls foul of the principle that the structure of being is *not* just more being, or beings. The error, as I see it, surfaces already in the author's discussion of the ontological status of the Aristotelian categories and in the later defense of a more "Platonic" alternative. After a critical discussion of the "conceptualist" interpretation of the Aristotelian categories, the author writes:

> But this model leads us back to the ontological interpretation of the categories: Aristotle's categories are universals of a certain sort, namely real kinds or elements of the world. It is probably best to interpret Aristotle's theory of categories as properly intended as a theory of the fundamental kinds of things that there are. (p. 11)

This, I think, is partly right and partly wrong. Certainly, I agree that Aristotle understands categorial distinctions to be fundamentally *ontological* rather than conceptual or linguistic in character. But I think that it is seriously wrong to suppose that he thought that the categories themselves are "universals of a certain sort" and "elements of the world" (at least in the sense in which such elements are taken to be *beings* or *entities*). Aristotle did indeed believe that *universals* exist as elements of being, holding that they fall into two distinct categories—the category of substantial kinds and the category of attributes. But he did not hold—and, certainly, he *should not* have held—that these two categories are *themselves* universals, or indeed that they are *beings* of any sort whatever, either universals or particulars.

The author of *Coming to Understanding* goes on to cast more misplaced criticism on Aristotle for, allegedly, saying "[n]othing significant ... about the interrelations among the categories, and whether these interrelations would themselves count as categories" (p. 11). This is just after having acknowledged that "[t]he organization of Aristotle's categories is ... in terms of their relations to the basic category of primary substance." But Aristotle says a *great deal* about these relations: they are all (subtly different) relations of *ontological dependency*. It is to Aristotle, more than any other philosopher, that we owe the very notion of ontological dependency, and his account of it is still one of the most sophisticated available. It is strange, then, given that the author of *Coming to Understanding* places such weight on this notion, that we find in the pages of this essay such a criticism of Aristotle. Even more significant, however, is the further evidence of the mistaken urge to *reify excessively* that we find in the charge leveled above against Aristotle. I refer to the author's question of "whether these interrelations [among the categories] would themselves count as categories." The author clearly *does* think of categories (later to be called, in deference to Plato, *eide*) as beings or entities and regards *relations* between categories in the same way. But this is another dubious reification. The relations between categories are *formal* relations and so not themselves elements of being. For example, in Aristotle's system, particulars are thought of as *instantiating* universals. But it would be a mistake to regard *instantiation* as being either a universal or a particular, because it would be a mistake to regard it as one of the elements of being. When we speak of one being (a particular) *instantiating* another being (a universal), we are saying something

about *how being is structured*, not adding something to the inventory of being.

In this way, the author of *Coming to Understanding* is, unfortunately, led seriously astray—or so I believe. We read, apropos of Porphyry's "tree of categories," which meets with the author's approval:

> This small advance opens up a whole arena of inquiry. How are we to think of the structure of the categories if the relations among the categories are themselves categories? This line of inquiry has remained a path less traveled. The present work, in contrast, will explore this path in great detail. (p. 12)

For the reason I have just given—that one should not *reify* such relations—I am not convinced that this is a good path to take. I should also remark that, in my view, Porphyry's assumption that the categories are organized in a *tree-like* fashion is, although a widespread one, seriously mistaken. It arises, I strongly suspect, from conflating category theory proper—a branch of metaphysics—with more general systems of taxonomy or classification, such as we find, for instance, in various scientific domains of discourse, like botany and zoology. Indeed, the Ontological Square provides a useful corrective to this misconception, for its structure is precisely *not* tree-like. All the various mutually inconsistent attempts that have been made over the centuries to organize ontological categories into a tree-like structure have failed dismally, because we routinely find that the same category is forced to be placed in more than one branch of the tree in order to make the system sufficiently comprehensive. Interestingly, the author of *Coming to Understanding* briefly notes this particular failing in Roderick Chisholm's system of categories (p. 20). Furthermore, the Porphyrian approach makes the fundamental error of supposing that there is a single *highest* category into which everything falls. This is a very un-Aristotelian thought and a seriously mistaken one, in my view. It is true that I myself repeatedly use the terms "being" and "entity" as all-purpose ontological expressions, denoting anything that does or can exist. But this is not because I think that everything that does or can exist falls into a highest ontological category of *being* or *entity* (as Chisholm does, quite explicitly). I regard "being" and "entity" as *cross*-categorial terms, capable of denoting items belonging to *different* fundamental ontological categories, such as those of *individual substance* and *mode*. These categories, being *fundamental*, are not sub-categories of any higher category.

I pass over the author's discussion of Kant's and Hegel's category theories, because I entirely agree with the author's criticisms of those theories as conceptualist and idealist in character, whereas what we should be seeking is a genuinely metaphysical account. I pass over likewise the author's discussion of

modern category theory, much of which inherits the mistakes of past centuries, failing to learn the lessons that Aristotle taught us. Thus I come, finally, to the author's own favored approach to category theory, which is well summed up in the following passage:

> We believe that the real categories are best understood as akin to Platonic Forms; they are not, that is, *predicables* or universals, nor are they *kinds* of entities. They are ideal, non–spatio-temporal particulars in which ordinary sensible things participate. (p. 22)

This view is, I think, trebly unfortunate—although I agree, of course, with the claim that categories are not be to thought of as universals or kinds. It is unfortunate, first and foremost, in that it falls prey to the mistaken urge to *reify* the categories, a subject on which I have already said enough above. Secondly, it is unfortunate in its conflation of categories with Platonic Forms. For Plato himself, I believe, did *not* fall prey to the mistaken urge to reify in his own conception of ontological categories. Plato believed in the categorial distinction between particulars and universals: his Forms are *transcendent universals*, while his *particulars* are one and all concrete entities existing in space and time. But Plato would not, I believe, have said that the categories *universal* and *particular* are themselves amongst the Forms. Thirdly, the view is unfortunate in that it requires us to regard knowledge of the categories as *transcendent* knowledge, that is, as a knowledge of entities that do not exist in space or time. For this immediately renders problematic the very notion that we, who are surely (*pace* the author) confined to space and time in our own being, can have knowledge of the categories and their relations, and thus that we can have knowledge of the fundamental structure of reality.

It is also worth noting a certain incongruity in the author's deployment of the term "particular." As I have just indicated, *Plato's* intended understanding of this term (or, rather, of its Greek equivalent) is relatively clear: he thinks that it applies to all concrete beings existing in space and time, but *not* to the Forms (again, *pace* the author). But *the author's* is not. The author, it seems, contends that the categories are particulars simply as a consequence of *denying* that they are universals. Not only does this contention thus rest on a questionable assumption that the particular/universal distinction is an exhaustive and exclusive one, but also, since we are not really told by the author what the distinguishing features of either universals or particulars are supposed to *be*, it really isn't clear what substance there is in the claim that the categories are *particulars*. All that the author says, in this context, about universals is that "the notion of a universal is fundamentally puzzling ... [and] it is difficult to understand exactly what such things are supposed

to be" (p. 26). I would only remark, in response, first that a good many other philosophers seem to have had considerably less difficulty in grasping the notion of a universal and, second, that since the notion of a *particular* is correlative with that of a universal, to the extent that the latter is regarded as puzzling, so should the former be. Unfortunately, although the author clearly does not regard the notion of a particular as being at all puzzling, it is nowhere really explained in *Coming to Understanding* what the author takes this notion to *be*, and hence what *we*, as readers of that work, should take it to be in trying to interpret the text.

The last point that I wish to dwell upon, very briefly, in this part of my review is the author's doctrine that "those items that participate in a category are, by virtue of that participation, parts of the category" (p. 27)—a doctrine concerning which the author candidly remarks, in something of an understatement, that it "is not a typically held view," adding that "time is needed to get used to the suggestion." I can only say that I find the suggestion not merely strange, but literally incoherent, on a proper understanding of the notion of an ontological category. For, however generally one conceives of part–whole relations—and I agree with the author that one need not be confined to regarding them as holding between entities that exist in space and time—they must at least be conceived to be relations that hold between *beings* or *entities* of one sort or another. And, certainly, it can make no sense to say that the whole of which a certain being is a part is not *itself* a being of some sort. Yet, as I have already explained, it is a mistake to *reify* categories: consequently, when a certain being or entity is said to "belong" to a certain category, this assuredly cannot be construed in terms of that entity being a *part* of that category—for then the category, in having *entities* as its parts, would *itself* have to be an entity of some sort, which we now have good reason to think it cannot be.

Part 2: Epistemology

The second part of *Coming to Understanding* is not only (by a small margin) the shortest, but also—and I say this without meaning in the least to belittle its value—the least innovative and challenging to current philosophical orthodoxy. Consequently, I have relatively little to say about it.

One problem, however, that I perceive in this part of the essay is that the author operates with a relatively undifferentiated notion of *belief*, when in fact it is important to distinguish between belief and *judgment*. A symptom of this deficiency is that the author is compelled to distinguish between "involuntary" and "voluntary" *beliefs*, taking the former to include our "perceptual" beliefs and "those beliefs that arise in us because of deductive inference" (p. 32) and the latter to include "the beliefs that we acquire on the basis of induction" (p. 33). It seems

much more satisfactory to say that beliefs, quite generally, are never acquired voluntarily—that we cannot choose to believe "at will"—but that judgment, on the contrary, is a voluntary act performed in response to reasons that are disclosed to the intellect. We—typically, at least—*deliberate* before passing judgment, whether that judgment consists in our assent to a proposition or our endorsement of a course of practical action. However, it is not clear that too much damage is done by conflating belief and judgment, as the author of *Coming to Understanding* does. What is important is that the author rightly regards truth as "the only goal of appropriate practices of belief acquisition" (p. 34)—though I would add, of course, that it is also the goal of judgment—and rightly acknowledges that these practices are inescapably *fallible*. Accordingly, *certainty* cannot be our epistemic goal, even in metaphysics, and *skepticism* should neither be endorsed as a method of attaining certainty nor feared as a threat to the possibility of knowledge. As for what the author says concerning deduction and induction as methods of inference—and more particularly with regard to their limitations as means to enlarge our stock of true beliefs—I have no quarrel with it at all. I agree, too, with the author's estimate of the merits and deficiencies of so-called "naturalized epistemology."

Concerning the nature of *truth*, however, I am not wholly in agreement with the author. Although no advocate of a classical correspondence theory of truth myself—I prefer, instead, to endorse a restricted version of the truth maker principle—I cannot agree with the author's assertion that "[c]orrespondence truth ... presumes a language that is fixed in its vocabulary" (p. 49). This is because I take the primary bearers of truth to be not *sentences* but *propositions*. This view is forced upon us by a recognition of the fact that *truth is closed under deductive consequence*—that is, that the deductive consequences of any truth are themselves true. For the deductive consequences of any truth are infinite in number and far outrun the capacity of any language to represent them by means of its sentences. Furthermore, it is propositions, not sentences, that are the objects of belief and judgment, even if beliefs and judgments are—by us language-using humans, at least—typically expressed or conveyed by sentences. It seems to me that the author of *Coming to Understanding* adopts an overly linguistic approach to the notion of truth in saying, for instance, that the correspondence conception of truth "overlooks an important way that the search for truth requires changing the very language itself" (p. 49). On the contrary, I believe that the search for truth is not essentially dependent on a capacity to express it in any language at all.

It is for this reason, not least, that I find the author's notion of "omni-truth" unappealing and unnecessary. The author writes:

> The metaphysical constraint of monism is reflected in the truths expressible in a language by the need for a progressive enrichment of

> the vocabulary that will allow the expression of general connections between various sorts of facts. In this sense (ultimately) no truths are atomic: all truths, in the fullness of time, are to be linked to one another via the mediation of other truths. We need a term that describes a complete list of truths with the just mentioned properties. Let us call it "omni-truth." ... Were it possible to provide an enriched language that could describe reality as it really is, such an incredibly rich language would allow the expression of all inter-related truths from every perspective, and about everything there is. (p. 50)

To the extent that what is being asserted here is that there is a necessary connection between *metaphysical monism* and the *unity of truth*, I wholeheartedly agree with it. What I find unhelpful, however, is the linguistic gloss that this idea is given. A "language" capable of saying *everything* true about *everything* is not merely—as the author is inclined to concede—*humanly* impossible, but a contradiction in terms. And this is not only because it would have to be capable of saying everything true about *itself*, since it would be one of the things about which there would be true things to be said. Even a so-called "Lagadonian" language in which everything represented *itself*—in which, for instance, Mount Everest itself was the name of Mount Everest—would not be able to capture every truth. This is because, as I explained earlier, there are truths about reality that are not just about *what there is*, but about *how* what-there-is is. A "language" in which everything was its own name would, of course, be able to *name* everything, but it would not be able to say *everything that is true* about everything. Western philosophers have long hankered after a truly *universal* language, but far from its being, as the author of *Coming to Understanding* suggests, "a norm for knowledge" (p. 50), it is nothing but a will o" the wisp—an alluring illusion. The author is probably right to associate this notion with certain idealists" vision of the "Absolute," conceived as "some final characterization of all truths" (p. 51). But, rather than see anything profound in this vision, I see in it only a misunderstanding of the nature of truth and truth bearers.

In section 11 of *Coming to Understanding*, the author describes a method of reasoning or theorizing that is there called "eduction" and is said to consist in three steps or stages: (1) *abduction*, in Peirce's sense, to generate explanatory hypotheses, (2) *deduction* of further consequences from these hypotheses, and (3) *induction* as a means of empirically testing or verifying these consequences and hence the hypotheses from which they are derived. Since the author does not—and I am sure would not claim to—say anything strikingly new about the three forms of reasoning that comprise the stages of "eduction," I have nothing much to say about this section of the work, with the following important exception. I am happy

to concede that something like "eduction" is a method of reasoning that seems to characterize a good deal of scientific theorizing, but I am much less happy to acknowledge—on the basis of my own experience as a metaphysician—that it provides an entirely adequate model of *metaphysical* and, more generally, *philosophical* reasoning. I think that to construe philosophical reasoning as an "eductive" exercise is to assimilate philosophical method much too closely to scientific method. I am inclined to follow what I take to be the great lesson that Socrates taught us: that philosophy, at heart, is an inquiry into *essence*. What philosophers ultimately seek to grasp is *the nature of things*—that is, *what things are*, their *essences*. They are not, unlike scientists, primarily concerned to discover *what things there are*, but to understand *what* those things are. Metaphysics, as I have said elsewhere, may aptly be characterized as *the science of essence.* And its method is not at all like that of the empirical sciences.

At the same time, I wholeheartedly endorse the view of the author of *Coming to Understanding* that "metaphysics cannot aspire to the certainty of logic or mathematics" (p. 55) It is a truly *sui generis* discipline, distinct in its methods and its subject-matter both from the pure *a priori* sciences of logic and mathematics and from the empirical sciences such as physics. But, as I say, I suspect the author of *Coming to Understanding*—despite the resolute opposition to scientism that is expressed in its pages—of assimilating metaphysics too closely to theoretical natural science. This, I surmise, is partly a consequence of the author's *reificationist* tendencies, already sufficiently discussed earlier. For if one thought that part of the aim of metaphysics was to discover the existence of *things* of a special sort—beings or entities—then it would indeed be natural to see metaphysics as continuous with empirical science, which includes just such discoveries amongst its aims. And even if one acknowledged that part of the aim of metaphysics is to inquire into the *essences* of things, if one *reified* those essences by treating them as further things to be discovered, then one would still have failed to grasp the fundamental difference between metaphysical and scientific inquiry. I fear that such a failure is reflected in the method of metaphysical reasoning that is advocated in the pages of *Coming to Understanding*, despite its many merits in other regards.

The final section of Part 2 of *Coming to Understanding* is entitled "Diagrams." I have no quarrel with its basic import, that diagrams are a vital tool for helping us to understand and represent complex abstract structures, in metaphysics as much as in other domains of inquiry. Indeed, it would be odd of me to deny this, given my own appeal to the *Ontological Square* of figure 1 above. For this, I think, is the very paradigm of a metaphysically illuminating diagram. At the same time, however, I would urge that diagrams can mislead as well as guide us. The Porphyrian tree of categories is a salutary example of this. Too many

metaphysicians over the ages have squandered their valuable time trying to fit their favored categories into such a tree-like structure, inventing in the process quite unnecessary categories simply because there seemed to exist places for them in the tree. In general, my advice to categorial ontologists would be this: fit your diagrams to your categories, rather than your categories to your diagrams. Diagrams should not be used as a *method of discovery* in categorial ontology, only as a means of representing perspicuously what has already been discovered by more principled methods.

Part 3: Metaphysics

In view of my immediately preceding remarks, it is with some alarm that I read, at the outset of Part 3 of *Coming to Understanding*, that the author's "approach to the metaphysics of the *eide* is "diagram-driven"" (p. 60). However, the proof of the pudding is in the eating, so that it would be unfair to prejudge the results of the author's "eductions" in Part 3 simply on the grounds that they are "diagram-driven." At the same time, I should reiterate my earlier opinion that it is probably wrong to think of philosophical method—and, more particularly, metaphysical method—as being fundamentally "eductive" in character, in the author's sense. Hence, I begin my examination of Part 3 of *Coming to Understanding* with some serious misgivings about the very conception of the enterprise that is there being undertaken.

The author has, right at the start of Part 3, some striking things to say about "the One"—for instance, that it is a *particular* and that it does not have *parts*, that it is *contingent* and that it has both *matter* and *form*, in terms of which it is explicable in accordance with the Aristotelian doctrine of the four kinds of cause, two of which are material and final. I can only say that I find such controversial assumptions about so major an issue—the ultimate nature of fundamental reality—a precarious starting point for any metaphysical system. If we are ever to attain an understanding of the ultimate nature of fundamental reality, I think that it will only be as a result of *synthesizing* our understanding of more easily graspable things. Our opinions concerning the nature of the One—assuming, indeed, that in the end we find monism to be rationally preferable to any other option—should be the *end points* of metaphysical inquiry, not our starting assumptions. A metaphysical system should not be likened to a scientific hypothesis, postulated with a view to explaining a body of accepted data in the most economic fashion. *Scientific* theorizing can in fact proceed in this way only because it takes place within the framework of antecedently assumed metaphysical principles, in the absence of which scientific hypotheses make no independent sense. But *metaphysical* theorizing obviously cannot proceed in anything like the same fashion, precisely

because it ultimately concerns the correct choice of metaphysical principles and thus cannot depend upon a prior assumption of any such principles.

Thus, whereas it would be inappropriate to criticize a theoretical physicist who advances a completely speculative hypothesis—such as that of current string theory in subatomic physics—and who claims to justify his choice of posited entities simply on the grounds that their existence would provide simple and unified explanations of many observable phenomena, it is not at all inappropriate to criticize a metaphysician who invites us to accept some highly controversial claims in fundamental ontology simply on the grounds that they form the basis of a coherent metaphysical system that is, as far as we can see, consistent with any empirical evidence that is available to us. One feels bound to ask such a metaphysician: why should we start *here*—when it seems that we could so easily start elsewhere instead? We don't feel at all bound to ask such a question of the physicist who posits superstrings. He does so in the context of an already assumed body of scientific knowledge in the domain of subatomic physics and does it in order to simplify the explanations of certain phenomena in that domain. If his explanations succeed and do better than those of rival theories, we shall take that as tentative evidence in favor of his postulates. But, really, nothing like this situation obtains in the case of metaphysical theorizing, properly understood. In metaphysics, there *is* no body of knowledge that can safely be assumed in advance of any fundamental principles that are proposed, in the light of which those principles can be "tested." Rather, we have to work slowly *towards* an understanding of what the correct principles must be, by building carefully and systematically on our understanding of less fundamental matters in metaphysics. The great organizing principles of reality must be the *goal* and *end-point* of metaphysical inquiry, knowledge of which is achieved painstakingly by way of synthesis—not initial postulates on the basis of which the rest of our metaphysical opinions should then be constructed.

My charge, then, against the author of *Coming to Understanding* is that the claims that are made, at the outset of Part 3, concerning the properties of the One strike me as being arbitrary and unmotivated—or, if motivated, then only by historical precedent rather than by independently given reasons. This charge seems especially pertinent with respect to the author's assumption that Aristotelian "four-cause explanations"—at least, material and formal causal explanations—are applicable to the One. For, as I suggested earlier, it is difficult even to understand that system of explanation in abstraction from Aristotle's own comprehensive metaphysical theory, which embodies at its heart a substance ontology that is explicitly rejected by the author. The application of the notions of matter and form to the One, as this is conceived by the author, seems to me at best tenuous and metaphorical, and the application to it of the notions of material and formal *causes*

seems doubly so.

Having made what appears to me to be the relatively arbitrary and inadequately motivated assumption that the One has both matter and form, the author is naturally confronted with the puzzling question of *what* its matter and form are. With regard to the issue of its *form*, we are told that

> Our suggestion is that the form of the One is a relation among items within it. We call this relation *ontological dependence*. (p. 63)

This "suggestion," however, seems almost to come out of thin air, as a bolt from the blue. Nothing that we read previously in *Coming to Understanding* really prepares us for this: it arrives, as far as I am concerned, as a complete surprise. I am uncertain whether I even understand what it would *mean* to say that "the form of the One is ontological dependence," much less why anyone should think that it is *true*. But, in the spirit of inquiry, let me put aside all such qualms and see where the suggestion leads us. For I think we must accept that, for better or worse, the author's approach to metaphysics is entirely *speculative* in character, in opposition to the less heady and ambitious *synthetic* approach that I have just been recommending.

On being told that the form of the One is *ontological dependence*, our natural reaction is to wonder what, according to the author of *Coming to Understanding*, this relation is supposed to *be*. Fortunately, we are soon presented with two relatively simple characterizations of it, as follows:

> Janus-face 1: (i) A particular *A* is ontologically dependent on a particular *B* if and only if the existence of *A* depends on the existence of *B*. (ii) The One is the only absolutely ontologically independent particular. (p. 64)

> Janus-face 2: (i) A particular *A* is ontologically dependent on a particular *B* if and only if there exists an explanatory chain between *A* and the One, and *B* is a link in that chain (or *B* is the One). (ii) Such chains, when restricted to *eide*, are entirely explicable in terms of (analogs of) Aristotle's four causes. (p. 66)

Now, the general notion of ontological dependence is, of course, one that has a long history in metaphysics, traceable back to Aristotle and beyond. But one thing that we should learn from Aristotle is that it is not a perfectly *univocal* notion. There are many different varieties of ontological dependence—a fact that is intimately connected with Aristotle's principle that "being is said in many ways."

Unfortunately, this variety is not captured at all in Janus-face 1, clause (i) of which says merely that ontological dependence is *existence*-dependence, while saying nothing about what *dependence* is. But even saying that ontological dependence is *existence*-dependence, trivial though it might seem, is in fact too restrictive—for it ignores the quite different, but equally important, relation of *identity*-dependence, which is quite as deserving of being described as a species of ontological dependence. The difference is illustrated by the author's own example of the set {2, 3}. For not only does this set depend for its *existence* on its members, the numbers 2 and 3: it also depends on them for its *identity*. But it is not *always* the case that if *A* depends on *B* for its *existence*, then *A* also depends on *B* for its *identity*. For example, a whole whose parts can change over time depends for its *existence* at any given time on the parts that it has at that time, but it manifestly does not depend for its *identity* on those parts, since it can remain numerically the same without retaining them, provided that they are suitably replaced by other parts. As for Janus-face 2, it does, in principle, allow for different varieties of ontological dependence, inasmuch as it allows that there are different species of *explanation*, although only the four modeled on Aristotle's doctrine of the four kinds of cause. However, I have already expressed my doubts about that doctrine and its applicability outside of Aristotle's broader metaphysical system. Even so, I entirely agree with the author—and with Aristotle—that explanation "is Janus-faced ... [i]t has simultaneously a metaphysical and an epistemic character" (p. 64). To that extent, then, I have no quarrel with Janus-face 2 as a characterization of ontological dependence, at least as a first approximation.

Moving on, I confess that I can make very little of the arguments, on page 67 of *Coming to Understanding*, that are intended to convince us that ontological dependence is indeed the form of the One, as opposed to certain other hypotheses. But we are next asked to turn to the *matter* of the One. Once again, I shall try to set aside my doubts as to the very intelligibility of the claim that the One must have its "matter," along with its "form," other than in some highly tenuous metaphorical sense. We are told by the author, however, that *the world* must be the matter of the One (p. 67). We are also told that *the matter of the world* is "The Block Universe" (pp. 77–8). And ordinary objects, we are informed—with an allusion to Spinoza—are *modes* of this Block Universe. This, finally, is at least a picture that is philosophically familiar. But how different is the route by which the author of *Coming to Understanding* arrives at doctrine of The Block Universe and its modes from the one taken by Spinoza himself. In the *Ethics*, Spinoza attempts to prove, *more geometrico*—that is, on the model of Euclid's *Elements*—that reality is *necessarily* thus. The author, by contrast, posits it as a hypothesis, prefaced by some such phrase as "on our view." This approach is not well designed to persuade the impartial philosophical reader. Such a reader will very likely be familiar with

the expression "The Block Universe" from mid-twentieth century publications in the philosophy of time and will know that, since then, there have been very lively debates in metaphysics between *eternalism* and *presentism* and between *four-dimensionalism* and *three-dimensionalism*. The notion of The Block Universe is associated with the eternalist and four-dimensionalist sides of these debates. But the important point for present purposes is that these debates are still very much *alive*. To assume that the notion of The Block Universe is correct is, accordingly, to assume that these debates can have only one acceptable conclusion, in advance of any rational consensus being reached amongst those philosophers who are parties to them.

A judicious reader of *Coming to Understanding* ought, surely, to protest at this point in the text that he or she is being asked to take on trust a metaphysical doctrine whose cogency has seriously been challenged by some of the finest philosophical intellects of our age. What is a reader to do who is already persuaded, by his or her other reading on the subject, that *presentism* and *three-dimensionalism* are probably correct? In the absence of any argument in the pages of *Coming to Understanding* showing that and why the picture of The Block Universe is *correct*, or at least preferable to the presentist alternative, such a reader has little option but to say, even if he or she has accepted the author's train of thought up until now, "thus far and no further." This is what I mean by suggesting that the way in which *Coming to Understanding* is composed is not well designed to *persuade* its potential readers. And, while I would be the first to condemn as mere sophists those philosophers who care *only* to persuade their audiences, without any concern for the *truth* of what they say, nonetheless it is, I believe, part of the public duty of a philosopher to present his or her views in a way that is designed to persuade those with impartial and rational intellects of their truth, rather than merely as a series of *faits accomplis*.

The pages that immediately ensue (pp. 79-70), in which the author of *Coming to Understanding* contends that there are four "orders of particulars"—"(i) the One, (ii) its *eide*, (iii) the parts of the *eide*, when such exist, and are not themselves *eide*, and (iv) the particulars constructed from other particulars" (p. 70)—are unexceptionable, if one accepts everything else that has been assumed up until this point. They present, I think, an *intelligible* philosophical theory, or at least one that follows from the author's assumptions so far—just not one that the author has done nearly enough to persuade me of its likely *truth*.

In section 14, the author introduces the important topic of *individuation*. The assertion is there made—without any supporting argument—that two statues cannot have exactly the same form. It is also claimed that "the factor that makes [a] statue *this* entity as opposed to another entity ... [is] its efficient cause" (p. 72). This is a strange combination of views. If one really thought that two statues would

have to have different forms—though I see as yet no good reason why one should—one would be in a position to claim that a statue's *form* individuates it. On the other hand, the claim that a statue's *efficient cause* individuates it is problematic, because it is far from evident why two different statues should not have the *same* efficient cause. Nothing here hinges on the choice of *statues* as an example. A certain subatomic event—say, the collision of two high-energy atomic nuclei—might cause two different fundamental particles of the same kind to come into existence: two electrons, perhaps. Clearly, then, that event—their efficient cause—could not be what *individuates* either particle, since it stands in the same relation to both.

In the Aristotelian tradition, of course—certainly in the work of Aquinas—it is *matter* that is said to individuate. The idea here, then, is that what makes a certain statue *this* one rather than *that* one is the matter of which it is composed, not its efficient cause. And, certainly, a concrete thing's matter has an advantage over its efficient cause as a putative individuator of that thing, inasmuch as two concrete things cannot share the same matter—at the same time, at least—in the way that they could share the same efficient cause. If it is then objected that they *can* share the same matter *at different times*, since—for example—one statue can be melted down and formed into another, then it could be replied that what individuates a concrete thing is the *combination* of its matter and the time at which it first comes into existence, because one and the same concrete thing obviously cannot first come into existence at two different times.

But perhaps none of this is of much concern to the author of *Coming to Understanding*, since we are told that "to speak of statues being individuated from one another is ultimately as cogent as describing the waves of the ocean as being individuated from one another ... a point that applies to ... all items in space and time" (p. 72). We are apparently being asked to believe that the individuation of such items is somehow always vague or partial. In reply, I can only say that I consider the notion of individuation to be an all-or-nothing one, not one that admits of degrees. Be that as it may, we are supposed to conclude that the individuation of *eide*, because they allegedly do *not* exist in space and time, is always clear-cut and effected solely by their *form*, in stark contrast to the case of spatio-temporal particulars. I understand the *claim*, but see no compelling argument for it. There are examples of abstract *mathematical* objects—non–spatio-temporal particulars *par excellence*—existing in structures which, owing to their symmetry, provide no basis for individuating the objects in question. Consider, for instance, the Platonic "Form" of the Equilateral Triangle, which has three different vertices and three different sides—but, owing to its symmetry, nothing distinguishes any one of these vertices from the other two vertices, nor any one of these sides from the other two sides.

On page 74 of *Coming to Understanding*, the author defines for us the *matter* of an *eidos* as being "that whole ... of which [it] is *constituted*" and the *form* of an *eidos* as being "that *essence or nature* ... that *individuates* [it]." Both definitions appear to be implicitly circular: the first because the notion of *constitution* has not been explained to us independently of that of matter, and the second because the notion of *essence or nature* has not been explained to us independently of that of form. Thus, earlier on the same page, the author says that "[the] individuation [of *eide*] ... [is] given solely by their form, *which we describe as their essence or nature*" (my emphasis). Also built into the proposed definitions, however, is the claim that the matter and form of any *eidos* are themselves *eide*, so that "matter and form relations that *eide* have to other *eide iterate*," to generate "*matter and form* trees" (p. 73). It is worth remarking here that, despite the supposedly *Aristotelian* flavor of the *matter and form* distinction employed by the author, this consequence of the author's position puts it in radical opposition to Aristotle's own conception of the distinction. For Aristotle would never have said that a *form* has both matter and form. According to Aristotle, a *concrete object* has both matter and form, being a composite of these. Sometimes, too, when he is deploying a *relative* notion of matter (in opposition to the notion of *prime* matter)—as when bricks are said to be the matter of a house—he is prepared to say that such matter has both matter and form: for instance, *clay* is the matter of a brick and its *shape* is its form. So, in the sense in which one or more concrete objects can function as the "matter" (in a relative sense) of another concrete object, *matter* can, for Aristotle, have both matter and form. But, as I say, Aristotle could not allow that a *form* can have both matter and form. Matter/form relations do not "iterate" for Aristotle, thus, in the way that they do for the author of *Coming to Understanding*—and this is just another indication of how far removed from its Aristotelian origins the author's conception of the *matter and form* distinction is. So far removed, I am inclined to say, as to retain nothing more than a loose analogical relation to Aristotle's conception. All the more reason, then, why the author owes us a full and clear account of the distinction, shorn of all analogy and metaphor.

Unfortunately, the author is still relying on this tenuous link with Aristotle's theory of matter and form when the following is said:

> Matter, virtually by definition, does not do anything. It just constitutes other things; it just is. Form, by contrast, does do something. It acts on matter ... [and] [i]n this sense, form embodies process. (p. 74)

By *whose* definition, I ask, does matter not "do anything"? It is true enough that, as the author points out, in the *Aristotelian* tradition, matter is associated with

passivity and form with activity. But *so far removed* from that tradition is the author's own understanding and deployment of the *matter and form* distinction that it must be entirely questionable to appeal to that traditional association with the passive/active distinction for the purposes of *Coming to Understanding*. It would be better, I think, for the author to eschew altogether the language of "matter" and "form" and, rather than trade upon connotations and associations that those terms have acquired in the context of Aristotelian metaphysics, introduce *and clearly define* two new terms in their place for the purposes of the present work. As it is, by using those terms the author gives the *appearance* of making claims that are considerably more substantive and readily intelligible than they really are, given the very different context in which the terms are now being deployed and the very different principles that are now being assumed to govern them.

That the author of *Coming to Understanding* does not even correctly interpret Aristotle's own view of the *matter and form* distinction is illustrated by the following passage:

> [O]n most readings of the traditional view of matter and form—originating in Aristotle—the matter of a particular is what that particular depends on. On the other hand, the form of a particular is taken to be an ontologically second-class item that is thought of by a process of abstraction from the entity that the form is of. ... [T]he main problem with [Aristotle's] view of the relation of the matter of a particular to what it is the matter of arises from a mistaken reliance on the ontological dependence of the ordinary particulars he has in mind as the constituents of the world—the individual man and horse. These particulars ... are third- and fourth-order particulars, and although it is true that they are indeed ontologically dependent on their matter—this is not the case with first- or second-order particulars. (p. 77)

This passage suggests that the author is not sensitive to the developments in Aristotle's thinking between the productions of his *Categories* and his *Metaphysics*. Only in the latter, of course, does the *matter and form* distinction figure, where it looms very large indeed. And, obscure though some of Aristotle's views about the distinction are, one thing that is very clear is that he does *not* regard form as the *junior partner* in the *matter and form* relationship—that is, as being an "ontologically second-class item." Quite the reverse, in fact. It is true that later philosophers in the Aristotelian tradition—notably, Aquinas, as mentioned above—held that it is matter that *individuates* a concrete particular, but even that is very different from saying that matter is *ontologically prior* to form in such a particular: something that Aquinas certainly did not hold, and could not have held

as a loyal Aristotelian.

So what, exactly, is the charge that is being brought against Aristotle in the foregoing passage? We shall get to that in a moment. Aristotle is first of all being interpreted—mistakenly, as I have just explained—as maintaining that in all particulars *matter is ontologically prior to form*, because (a) form is "ontologically second-class" and (b) the particular is ontologically dependent on its matter. In fact, it seems clear, Aristotle's mature view, in the *Metaphysics*, is that any *concrete* particular, such as an individual man or horse, is a *composite* of matter and form and thus ontologically dependent *both* on its matter *and* on its form, but that of the latter two items—the matter and the form—it is the *form* that has ontological priority. This is why it is very common to interpret his mature view as holding that if anything is properly deserving of the title "substance"—in the sense of something possessing an independent existence—it is *form*, rather than either *matter* or the *composite* of matter and form, such as the individual man or horse. This, then, is seen as a *rejection* of his position in the *Categories*, in which items such as the individual man or horse are classified as "primary substances"—a position on which the author of *Coming to Understanding* lays far too much emphasis in interpreting Aristotle.

These points bear directly on the criticism that is being leveled at Aristotle in the foregoing passage. The burden of that criticism seems to be that although (1) Aristotle—*correctly*, according to the author—took particulars such as an individual man or horse to be ontologically dependent on their matter, (2) he also—*incorrectly*, according to the author—supposed that what held for such particulars held for *all* particulars. Now, as we have just seen, it is indeed the case that Aristotle, in his mature doctrine, held that a *concrete* particular such as an individual man or horse is ontologically dependent on its matter—though he *also* held that it is ontologically dependent on its *form* and furthermore that its form, contrary to what the author says, is ontologically prior both to the individual man or horse and to its matter. However, what we need to establish in order to judge whether the author's criticism even gets off the ground is whether, as the author suggests, Aristotle supposed that what held for concrete particulars such as the individual man or horse held for *all* particulars. But that depends, not least, on whether or not Aristotle should be construed as holding that the *form* of a particular, such as the form of this man or this horse, is itself a *particular*. If it is, then it is, of course, not a *concrete* particular, itself a composite of both matter and form (see my earlier discussion of this point). On this question the commentators are divided, some maintaining that for Aristotle all forms are *universals*. But, certainly, there is a significant body of opinion maintaining that Aristotle includes not only universal forms in his ontology—that is, forms that are shareable by different concrete particulars—but also particular forms. Aquinas certainly seems

to be committed to this view, for he takes the human soul—which, following Aristotle, he regards as an individual man or woman's form—to be capable of *post mortem* existence, pending that man or woman's bodily resurrection at the Day of Judgment. In any case, what seems clear is that there is nothing fundamentally inconsistent with Aristotelian metaphysics in the supposition that there are *particular* forms which, like forms in general for Aristotle, are ontologically prior both to matter and to concrete particulars. Hence, the author's criticism of Aristotle in the passage quoted above is, at the very least, based on an incautious and in some respects manifestly mistaken interpretation of that philosopher's position.

I dwell on this issue not because I am especially concerned to defend what I take to be Aristotle's position, but rather because what we find in the passage quoted earlier from *Coming to Understanding*, in which the author takes Aristotle to task for a supposed mistake, is not an isolated instance in that text. I would be the first to insist that we cannot do philosophy well ourselves without studying the works of the great philosophers of the past, and I commend the author of *Coming to Understanding* for adopting this practice. But then we owe it to those philosophers to study their work with the greatest care, with the help of those expert commentators who have devoted their lives to the task. It cannot aid us in our own thinking if we rely on hasty and inexpert interpretations of the works of the great philosophers of the past, based solely on our reading of some parts of their works.

Returning from this digression to the point in the text that we have now reached, we come to the author's summary of "all the eductions so far" (pp. 83–5). The main novelty in these pages is the claim that "[t]he matter of the One is a grand, overarching process described as "Coming to Understanding"" (p. 78)—its form supposedly being, as we learned earlier, Ontological Dependence. This is a claim which, at this stage, is very hard even to comprehend, much less to evaluate. So at this point I shall just register my recognition of the great importance that the author attaches to it.

The immediately following pages of the text are devoted to the topic of efficient and final causation, as they apply to the author's system of *eide*. The author sets aside as misguided the complaint that, since the *eide* are not supposed to exist in space and time, causal notions are not applicable to them. Given that "causal" in this context really means "explanatory," this seems to be a perfectly fair response. The author's diagrammatic account of the relationships between (1) the "is-the-matter-of" relation, the "is-the-immediately-ontologically-dependent-matter-of" relation, and the "is-the-consequence-of" relation and (2) the converse of the "is-the-matter-of" relation, the "is-the-immediately-ontologically-dependent-matter-of" relation, and the "is-directed-at" relation is certainly ingenious. If everything else that the author has maintained up until now is accepted, then the

account that is offered here of the explanatory relations amongst the *eide* seems perfectly cogent and natural. But in my view, at least, that is quite a big "if." It cannot be doubted that the *six principles* set out in section 14 of *Coming to Understanding* together constitute a *formally* coherent metaphysical system. If there is any difficulty with the system, it lies with *understanding* it and seeing why it should be supposed to be *true*.

To be fair, the remaining sections of the text do provide considerable assistance in this regard, by filling out in much greater detail the system that the author has begun to construct and showing us how it is supposed to apply to reality as we experience it. I do not really have any useful comments to make on section 15, "Further Eductions." I think I can *mostly* understand the author's train of thought in this section, but find solace in the closing remarks that "the foregoing eductions show that *all* eductions are genuinely speculative and complicated and ... there are sometimes interpretations that are forced upon us that we do not fully understand" and that "Understanding will unfold—with respect to our grasp of this metaphysical system—just as it generally does over the course of the future" (p. 95). Let us hope so. I would only repeat, however, that this is not my own approach to or style of metaphysics. Constructing a metaphysical system can be likened to completing a grand jig-saw puzzle. Some people like to approach the task by first guessing what the overall picture must be, at least in rough outline, and then trying to fit the pieces in accordingly—blue here, because that's where the sky should be, and so on. Others like to work on different parts of the puzzle simultaneously, and then try to build up the overall picture by fitting together these lesser parts. The author of *Coming to Understanding* seems to take something like the first approach to metaphysics, whereas I much prefer the second. The danger lying in the first approach is that if your guess about the rough outline of the overall picture is wrong, your subsequent work will be completely in vain—you will be on a wild goose chase. By contrast, if you approach your task in the second way, the work that you do on smaller parts of the picture need not be in vain, even if you never succeed in putting them all together. The first approach, in short, is ambitious but risky, the second modest but safer. I don't have enough confidence in my own mental powers to adopt the first. And I don't have enough confidence in anyone else's mental powers to recommend them to adopt it either.

The next part of the text of *Coming to Understanding* that I can at all usefully comment on is section 17, "A New Theory of Mind." The most striking claim of this theory, it seems to me, is that "a self ... is a logical object, and not something that occurs in space and time" (p. 109)—"[i]t is a logical object in much the same sense that an inference or a judgment is" (p. 109). (I note, in passing, that the author, here and subsequently, commendably speaks of *judgment*, not merely of *belief*: see my earlier comments on the author's epistemology in Part 2.) This is

a view of the self that is certainly not unheard of in the history of philosophy. After all, the Kantian "transcendental" self is supposed not to exist in space and time. Some commentators even read something similar into those passages in Spinoza's *Ethics* in which he seems to talk about the immortality of the self. It is, perhaps, a comforting thought. But I cannot see in this section of *Coming to Understanding* any compelling argument for its *truth*—only an argument that the view follows from other commitments that the author has already made. As it happens, I agree with the author that the human self is not to be identified with its "temporal animal body," nor any part of that body, such as its brain. But this is not because I regard the self as being, unlike the body, "atemporal." Nor is it because I agree with Descartes in regarding the self as being a wholly non-physical substance, existing in time but *not in space*. However, this is not the place for me to elaborate on my own view of the self, which is extensively developed in other writings of mine. I can only say that I find the author's conception of the self deeply improbable—but then, since no one else has ever provided any theory of the self that hasn't seemed deeply improbable to many people, I should concede that the author's theory is no worse in that regard than any other. The problem of the self, like that of the nature of time, is one of the deepest in metaphysics, and we shouldn't hope for a generally agreed resolution to it sometime soon. Meanwhile, the more theories we have to choose from, the better. So I welcome the author's theory as one more deserving of consideration.

The final section of *Coming to Understanding*, "teleology, Agency and the One" contains some rhapsodic and inspiring passages concerning "our roles in the whole cosmic drama" (p. 114). Here, one almost feels, philosophy and poetry meet, in the grand tradition of Lucretius's *De Rerum Natura*. We are promised a Volume 2, in which the ethical consequences of the author's metaphysical system will be set forth. That, no doubt, will be equally inspiring. The journey so far has certainly been an intriguing and stimulating one, and in many places an illuminating one as well. If I have sounded severe at times in my disagreements with the author, that is only because I have found substance in the views with which I disagree. They are challenging views which deserve our attention, whether or not we find that we can ultimately give them our allegiance. Has anything more ever been achieved by any philosopher?

Review 2: Daniel Nolan

Coming to Understanding is a work of systematic metaphysics in an ancient tradition. Indeed, on first blush, it looks specifically like a work of metaphysics in the Neoplatonist tradition. The pinnacle of reality is The One, on which everything else ontologically depends. The worldview is also thoroughly and fundamentally teleological: reality has a purpose, and the fundamental features of reality are explained purposefully. Furthermore, these great purposes are the ground of normative guidance to us: the final sections of the work indicate that a proper understanding of our cognitive and moral purposes is to be revealed by a suitable theory of the ultimate *eide*, or forms, or categories, of reality. The One and the fundamental purposes of the world lie outside the spatio-temporal realm, and despite this status, our investigation for them is important, perhaps even vital, for discovering the cognitive and ethical norms governing our own lives.

We might have expected something Neo-Platonist from the author's *nom de plume*, since the original philosophical Ammonius was the teacher of Plotinus, and also seems to have employed the kind of understanding of Plato and Aristotle that is associated with the Neoplatonist school. Indeed, the author himself characterises his approach as "deeply Neo-Platonic" (p. 7). But *Coming to Understanding* is not quite a paradigm of Neoplatonist philosophy, either. There are important disagreements between Monius and Plotinus: not least, Monius rejects the existence of a cosmic *nous* or intellect, along with any suggestion that his *eide* or forms are the thoughts or ideas (in the non-technical sense) of that intellect (p. 29). Another difference is apparent method: while Monius's conclusions are in many respects similar to those of the Neoplatonists, he does not employ arguments from authority, or try to show that his view should be accepted because it is somehow what Plato or Aristotle really intended. At least, I do not think Monius intends to rest the plausibility of his theory on the authority of Plato, though there are several invocations of Plato (e.g. on pp. 25, 94, 117). What the reasons are supposed to be for endorsing the author's view is a difficult question, and the central one I will focus on in this review.

A new version of *Coming to Understanding* was made available in March 2007. It is substantially longer than the 2000 version (120 pages versus 60), and covers a lot more ground, as well as revising Monius's position in several key ways. The new version is divided into three parts of six sections each. The first part is a historical introduction to some of the key issues Monius wishes to grapple with: what the fundamental categories of being are, what the structure of these categories are and the relationships between them, and, perhaps most grandly, what the "nature and purpose of reality" is (p. 3). The second section is devoted to

epistemology, laying out the sort of epistemic approach Monius thinks it is appropriate to take when dealing with basic metaphysical issues: here he carves out space for metaphysical inquiry that goes beyond what the sciences ordinarily concern themselves with, but using a method that is broadly continuous with what he takes the methods of science to be. The third section is devoted to Monius's own metaphysical system: largely focused on what he takes to be the metaphysically basic entities, the ultimate entity "the One" and the entities that are next most fundamental, his *eide*. *Eide* are a bit like Platonic forms, a bit like Aristotelian categories, and in some respects unlike either: I will discuss them below. The final sections of the Part 3 also discuss the nature of objects in the physical world, and the nature of our selves.

Before I begin a discussion of the different parts of this work, some general remarks may be in order. It is a pleasure to see a broadly Neo-Platonist framework renovated in a contemporary milieu, and though I do not believe very much of the metaphysics associated with this work I wish it well. The work is obviously very ambitious, but it is hard to see how to propose a novel fundamental metaphysics without such ambition. Also to be welcomed is the engagement this work has with contemporary philosophical thought. Roderick Chisholm, Nelson Goodman and David Lewis and others are mentioned alongside Aristotle and Hegel in the development of the work, and the tone is one of seeking to interest and persuade contemporaries and not just to pursue a Neo-Platonist vision in antiquarian isolation. Discovering the truth about difficult matters is more of a priority than faithfulness to a tradition.

I fear the work, in its current form, also has serious limitations. We are given too little reason to believe many of the central contentions about the fundamental metaphysical structure of the world. The material covered is often dealt with in a very truncated way—only a few pages on the nature of objects in space-time, for example, or on the distinctive mode of ampliative inquiry ("eduction") defended in the Part devoted to epistemology. Of course, when one wants to cover a lot of ground without wearing out a reader's patience, a lack of detail might be a necessary evil, but they are evils nonetheless. A final feature of the current work that I find very regrettable is the lack of bibliographic details in the references. Even direct quotes are presented without necessarily specifying the work they are drawn from, let along page or line numbers. Author's views are cited without specific references to where those authors might have expressed the views attributed to them. I do not object to this out of a spirit of academic pedantry: readers would like to know where quotes come from in order to follow up the ideas discussed in the texts, and references when interesting or controversial interpretations are given of authors who are not directly quoted give readers a starting point to check Monius's claims and see what else those authors might have

to say about their positions. I hope this lack of references is a temporary matter.

I will not be able to discuss every interesting issue that is raised in the course of this work, though I do hope I will be able to covey the structure of Monius's position as well as provide some critical engagement where I think it will be most useful.

Starting Points

The first part of *Coming to Understanding* begins with some general starting points. Monius is unapologetic about pursuing metaphysics, despite the attempts of positivism and "linguistic philosophy" to dissolve metaphysical questions or reduce them to those about language. Monius then tells us that he rejects the existence of any "brute contingent facts": every fact whatsoever is to have a further explanation. This is the first point where we might wish to hear some more argument. Many believe that there are facts (whether contingent or not) that do not have further explanations, and many more who think that settling the question of whether there are brute facts is a matter of metaphysical investigation, not something to be settled in advance. Monius's argument that there are no inexplicable facts seems to be this:

> to do metaphysics at all is in part to presuppose that the nature of things is intelligible, that is, that the nature of things is in principle accessible to our epistemic tools. The hallmark of intelligibility, in turn, is explanation, so we adopt a methodological presupposition that brute (unexplainable) contingent facts do not exist. (p. 2)

This argument is not convincing. We may need to suppose that *some* of the nature of things is intelligible to pursue metaphysical inquiry, but we can surely pursue metaphysics without the assumption that *all* of the nature of things is intelligible. More seriously, we are not given any reason to think that for something to be intelligible it must be explained or possess an explanation. Maybe this is true in some sense of "intelligible," but I do not see why it would be true in the sense of intelligibility that must be presupposed for inquiry. After all, I can find out things about a phenomenon without knowing any explanation of that phenomenon—I can find things out about lightning, such as the fact that lightning can set fire to trees, before I know any good explanation of lightning, for example. Likewise, I could find out whether there are tropes before I knew what explained the fact that there are tropes, if indeed anything does. I am also not sure what "contingent" is doing in this passage: if to be intelligible were to be explainable, then surely we should suppose that all intelligible facts had explanations, contingent or not.

The assumption of universal explicability seems to drive Monius to seek explanations of things (e.g. Categories) that others have been happy to leave unexplained: such a principle of universal explanation (or universal explanation of the contingent, at least) deserves more defence than it receives here. Indeed, Monius tells us that "[t]o explain reality as a whole... is to discharge the fundamental tasks of metaphysics" (p. 3). If it really is this crucial, surely we could be told more about why explanation is so important, as well as why it is universal.

An account of "the Categories" is of central importance to Monius. Monius tells us that categories are fundamental divisions of reality "best understood as the basic ways things can be." (p. 3). That suggests that Categories are going to be properties or kinds, but Monius rejects this view (p. 23). Instead, Monius's preferred view will be that categories are to be treated like Plato's Forms, and indeed he eventually suggests we use the term "*eide*" (sing. *eidos*) to refer to these categories, to remove any kind/property overtones or Aristotelian flavour that "categories" has.

Some of Monius's categories do not look like "fundamental ways things can be." Ontological Dependence, for example, is a particular relation. The Block Universe, despite being an *eidos*, is not naturally taken to be the way anything is, except perhaps itself. (If this is enough to be a basic way things can be, we might wonder why we do not just list everything in the categories, since each thing is the way it is in this sense.) I suspect these initial characterisations are best seen at first passes in explaining what *eide* are, and the full story comes from seeing the role in Monius's theory that *eide* play.

One task Monius clearly sets for himself and for metaphysics is to explain how these categories are arranged—their relations to each other, and the relation between categories and the categorised (p. 3). If we are to believe that there are absolute fundamental divisions in reality (as opposed to divisions we might draw anthropocentrically or for a particular theoretical purpose), then it does seem right that we should be interested in what sort of relationships these categories stand, and how they might relate to each other. Furthermore, the question of how these categories are to be *explained* is an interesting question to pose, even if we do not share Monius's conviction that those explanations must be forthcoming. Monius does metaphysics a service by directing our attention to these questions, questions rarely as explicit and front-and-centre as they are here.

Another of Monius's core commitments is to monism, which he characterises in different ways at different points. In Monius it is not the denial that many things exist, but rather that the multiplicity is explained by, and ontologically dependent on, a single object. I found monism somewhat of a shifting target in this work, and nowhere could I find what looked like a direct argument for it. Perhaps the system as a whole is meant to seem compelling, but I would have appreciated

some more direct argument for this monism.

The final, largely undefended, commitment is to hylomorphism, and in particular extending hylomorphism to the *eide*, so that the fundamental entities, which are also somehow the "fundamental divides in reality," have both form and matter. He also cites with approval Aristotle's doctrine of the four "causes": the matter, form, efficient cause and final cause of an object such as a statue. The form, matter, and final cause of the statue are required in order for the statue to be a "genuine entity rather than merely some bronze or a mere sum of pieces of bronze," and the efficient cause is needed to make the statue "*this* entity as opposed to *another* entity… with the same matter, form, and final end" (p. 5). Indeed, supplying these things is what we should see the doctrine of the four causes as doing, according to Monius: they are "aspects of an answer to a specific metaphysical question, namely what makes this particular the one thing it is and not some other thing or a mere collection of parts" (p. 5).

Why we should see things in this Aristotelian way is not further spelled out. We might doubt that the question of why the statue is the one thing it is rather than something else, or no thing at all, even has an informative answer— since it seems incoherent to suppose that very statue is some other entity not identical to it, or to suppose it exists but is not an entity at all, it is hard to know how to explain why one of these incoherent options did not obtain. And if we are more charitable, and find coherent readings of the alternatives of the statue itself being some other thing, or it being a mere collection, then it is not obvious that all and only the four causes explain the statue. The existence of the statue alone ensures that it is self-identical and not a non-thing: maybe this existence is the thing we should cite? Maybe features like being a statue or being bronze could explain it and yet those features not have the sort of structure hylomorphism attributes to them? Perhaps the efficient cause on its own can bear the explanatory burden?

Suppose Monius is right about statues: that is, in order to get this sort of needed explanation of them, we require all four categories. It is another matter again, as Monius realises, to demand that category-like entities have form, matter, efficient causes and final causes. Perhaps here things can be explained to be as they are without having all four of form, matter, efficient and final causes. Monius concedes that at least one thing, The One, lacks efficient and final causes (p. 66), so it cannot be that all four of these things are absolutely required to be a single thing. More needs to be said, I think, before we can see why we should expect every *eidos* to have form and matter, let alone form and matter that conform to a broadly hylomorphic understanding. (For example, presumably it is not on to say that some *eidos* is its own form, or own matter, or both—but why not?)

I have complained that the demand for universal explanation, the monism, and Monius's hylomorphism are not defended very thoroughly. Still, let us for the

sake of the argument accept these principles as constraints in what follows. Indeed, every work has to have starting points, and Monius is not the first nor the last to defend monism, hylomorphism, or the demand for an explanation of every contingent thing, so it is not as if these starting points are completely alien.

The History of Categories

Monius presents us with a historical introduction to Categories. The first precursors are Plato's forms. Aristotle's categories are the next option—Monius thinks that Aristotle's doctrine of the categories is best interpreted as a "theory of the fundamental kinds of things that there are." (p. 11). One of these kinds, substance, is not a predicable or universal, so while they are kinds they are not (or not all) universals. Monius criticises Aristotle's list of categories for its "lugubrious, list-like quality" (p. 11). A systematic theory of how the categories themselves relate to each other is partly provided by Porphyry, who at least opens up the issue of the structure of the categories and the relations between them.

Monius then jumps to Kant and Hegel's idealistic turn in characterising the categories. In viewing the categories as imposed on the world by us and the concepts we employ, Kant and Hegel succumbed to an idealism that Monius wishes to reject. Monius is much more welcoming, however, of Hegel's attempt to spell out the relationships between categories, though to some extent it is still to piecemeal for Monius. Hegel's dialectical structure relates some categories, such as the thesis/antithesis/synthesis triples, but it does not give us a unified structure of all the categories and the relations between each. Monius is also approving of the teleology built into Hegel's system—Monius also wants teleology to play an important role within the categories, though not anything very like the Hegelian system in detail.

A grab-bag of twentieth century figures who have had things to say about categories are then discussed—Edmund Husserl, Gilbert Ryle, Roderick Chisholm and Ingvar Johansson. Some points of agreement and disagreement are mentioned—often there is a complaint about a lack of systematicity in these thinkers. The choice of thinkers seemed eclectic and somewhat arbitrary. I was left wondering what we should reasonably expect a theory of categories to be able to do for us, since there seemed to be little in common on that question among the thinkers discussed.

In an interlude from the historical discussion, we are given an interesting argument that the categories, despite much of the tradition, are not to be thought of as kinds. This argument does rely on implicit assumptions that it would be well to bring out. Monius begins with some claims about ordinary kinds "like man and horse" (p. 24). He claims they seem to be ontologically dependent on their

examples. I am not sure we should accept this "seeming"—the tradition of universals as *ante rem* would reject it, for example, though the dependence of kinds on their examples does seem to be part of a broadly Aristotelian tradition, and Monius seems to want to treat ordinary kinds as mere collections of their instances (p. 23). Monius next claims that ordinary kinds do not have sharp conditions of admission, and are vague—and that this helps show they are dependent on their instances. Here many more will wish to get off the train. Perhaps our expressions are vague, but it is another matter to say that the properties or kinds associated with them are (perhaps our expressions stand in complicated relations to many non-vague kinds). Even if there was a lack of sharpness in cut-offs of kinds, we would need more reason to conclude that there were not simply ontologically vague kinds picked up by our expressions. Even if our kinds were vague and interest-relative, that still would not immediately show they ontologically depended on our instances—perhaps they merely depend on our classificatory practices.

If ordinary kinds are "vague, interest-relative and ontologically dependent," then Monius wants to argue that categories must be distinct from kinds. For otherwise there would have to be "a radical divide in the structure of kinds." Sometimes a fundamental, sharply demarcated, non-interest-relative category C would have these lesser kinds K as sub-kinds. "But, paradoxically, C would just be the genus made up of K and some other kinds on K's side of the divide. How could C possibly have a radically different ontological status from the kinds that made it up?" (p. 24). Grant Monius the assumption that categories would be non-vague, non-interest-relative, and not ontologically dependent on its sub-kinds. We have not been given a reason to grant that C would be a genus of K and some other similar kinds, unless "genus" means no more here than "sub-kind," in the sense of applying to a sub-collection of examples. That a broader kind C would have to be "made up" of its subkinds at all in any but a metaphorical sense is not something we need be committed to—indeed, many will not be. (Is the kind electron "made up" of the kind "electron before 2000 A.D." plus the kind "electron after 2000 A.D.," even if we suppose there are the latter kinds?)

As one might suspect, I was not convinced by Monius's argument as it stands, though this kind of thing—direct arguments supporting pieces of doctrine for pieces of doctrine—is exactly the kind of thing I would like to see more of. Not only does it demonstrate what sort of considerations are being employed, it makes it much clearer what the alternative options might plausibly be than just statements of preferred options.

With categories determined to not be kinds (and presumably not universals or properties either, since Monius embraces nominalism), Monius turns to the sort of positive option he favours—categories or *eide* as being like the forms postulated

by the Neoplatonists like Plotinus. (Though Monius rejects the suggestion in Plotinus that *nous* or cosmic intelligence plays a fundamental role.) Monius is in favour of ordinary objects and the way they are being dependent on the *eide*. He suggests that ordinary objects might "participate" in categories by being parts of those categories (p. 25)—which is, as he says, novel. He cites an argument from Plato's *Parmenides* to dispose of the opposite suggestion, that objects belong to categories by having those categories as parts, or parts of those categories as parts. So while the *eide* are not universals, some of them are quite unlike Platonic Forms as well, since Plato at least would hardly have thought that ordinary objects were parts of the Forms they participate in!

Monius, drawing on his interpretation of Plato's view in the *Parmenides*, also tells us what sort of extent the Forms have. "[A] form is to be posited, not merely because a predicate exists—that such a form can be taken to correspond to—because the positing of this specific form plays an indispensable role in our description of what is real" (p. 28). The first part of this is admittedly rather a negative way to characterise the extent of forms, but the second at least makes it clear what we should require before we accept the existence of a form—it must play an indispensable role in our theory. I shall have occasion to ask of Monius's candidates whether many of them are indispensable.

Epistemology

The second part of *Coming To Understanding* is devoted to epistemology. One of the traditional concerns about dealing with the sort of issues that Monius is addressing is how we are to make sense of the epistemology of fundamental metaphysics. We can see, well enough, how perception might give us information about our environment, or the process of theorising and testing through experiments might help with scientific issues. But how do we determine if we need to appeal to a form/matter distinction in our account of abstract objects? How do we determine if, for example, space-time is ontologically dependent on something more fundamental? Questions in fundamental metaphysics seem to go beyond what basic epistemic faculties like perception, or our ordinary practices of testing hypotheses with experiment, can deliver.

Monius argues that our way of discovering metaphysical truths is not entirely divorced from epistemic practices used elsewhere. Indeed, as Monius himself points out, his view of epistemology is not to far from that of "naturalized epistemology." He agrees (p. 35) with Quine and others that Descartes's apparent attitude to epistemology as "first philosophy," together with the search for a permanently secure foundation for knowledge, is misguided. Instead, we should take as our starting point our corpus of beliefs, and locate epistemology "within the

context of an already-in-place set of background beliefs" (p. 37-8). We should also be fallibilists—epistemology is an ongoing project, as with many of our other inquiries, and so our best opinion at the moment about what is known and what is not might easily be overturned by future discoveries. On the other hand, Monius does not want to follow that strand of Quine's thought that would seek to replace normative epistemology (inquiry about what should we believe and how should we inquire) with a purely descriptive project (e.g. the study of how we do, in fact, form our beliefs). Monius rightly holds that dethroning epistemology from its Cartesian position does not mean we should abandon epistemology as a normative inquiry.

Let me turn, then, to the details of Monius's conception of how we come to know. Some belief formation, according to Monius, is essentially involuntary. The deliverances of sense perception are like this for Monius—we do not choose what immediate beliefs to form, but we just are "convinced" by the senses, and even the language of being convinced does not sufficiently capture the immediacy of perception (p. 31). Monius also tells us that beliefs that arise from deductive inference share this involuntary compellingness, though in a more conditional way: "we are psychologically compelled to believe the conclusions that are inferred to exactly to the same extent that we are compelled to believe the premises that are assumed" (p. 32). Monius wants to contrast these sorts of cases with less immediately compelling cases where what is believed is to some extent "chosen."

I think Monius could usefully refine the classes of belief to fall into the "immediately compelling" classification. The list of these "immediate" beliefs, it seems to me, could be usefully expanded. Many deliverances of memory seem to share some of the immediacy of perception—I do not have to reason about whether I had breakfast, I can just tell. Cases of testimony, arguably, can fall in the same category—if I ask my friend the time, or where a seminar is being held, or what she had for breakfast, and she tells me, I often seem to just take it on board. Of course there can be situations where I am on my guard and I treat what is told to me critically, but there are cases where I do not uncritically believe what I see, either, for example when I am at a magic show. Testimony is a less obvious case, I admit, since the alternative picture of getting an "involuntary" sensory belief about what was said and then performing "voluntary" assessment procedures on it is available. But insofar as we are to be guided by initial judgments of immediacy, accepting testimony seems to be often immediate and automatic to me. Perhaps there are other cases of this sort of immediate and compelling coming to believe as well, though these are likely to be even more controversial.

On the other hand, there are cases of perception and deduction where the belief formed on those bases do not seem immediate and do seem to some extent "chosen." A case in which I am trying to work out whether what I see is a distant

light or a reflected glint on the window is not one where my belief is "forced on me" by my sight. Sufficiently surprising deductions from premises I am sure of can make me do a double-take, at least: even before I know whether to worry about a premise or to worry about the cogency of my reasoning, I can face a choice about whether to take a conclusion on board. I suggest that rather than treating perceptual belief as all of one piece, or treating all beliefs produced through deduction the same way, Monius distinguishes the "involuntary" instances from the others within those classes of beliefs—and thinks about whether there might be properly involuntary beliefs from other sources (e.g. memory and testimony) as well: though again, there seem to be cases of equivocal memories and doubtful testimony where the corresponding beliefs are not automatic.

Monius wants to contrast these involuntary, "compelling" sources of belief from others—and it is within this class of others that he wishes to locate the sorts of epistemic processes that he thinks we will need to rely on in metaphysical investigations. Enumerative induction is his first example: our seeing the sun rise in the past produces our belief that it will tomorrow, but this belief nevertheless, according to Monius, does "not possess quite the same involuntary psychology" (p. 36). Monius also claims that in cases of conclusions from induction, we make a "choice" to believe the conclusion, and there is a sense in which these are "voluntarily chosen beliefs." There is, of course, a considerable contemporary debate about whether beliefs are "chosen," and Monius is clearly a partisan of the voluntarist camp. I would have liked to see some discussion of anti-voluntarist arguments by Monius here, since this voluntary choice of many of our beliefs plays a significant role not only in Monius's epistemology but also his metaphysics of psychology, in the final sections of the work.

Whether or not belief formation is sometimes a matter of voluntary choice, Monius's next question, of "what the best methods are for acquiring beliefs" (p. 34), is an important one: even if belief formation was not a matter of voluntary choice, we could still assess beliefs, and belief formation procedures, as good or bad. (Though Monius appears to disagree: "[w]e stress again, that this goal can only apply in cases where belief acquisition is voluntary" (pp. 34).)

To discover the best methods of belief acquisition (in the realm that is voluntary, according to Monius), Monius asks what the goal of belief formation is, and what it is to be rational. He asserts without argument that the *only* goal of belief acquisition is truth (p. 34), though he does attempt to account for the increased "significance" of some truths over others as being a matter of them implying "more" truths than others, in a sense of "more" that remained obscure, at least to me (p. 48). Why avoidance of error, or avoidance of distracting irrelevancies, or acquisition of useful beliefs, or acquisition of well-supported beliefs, or acquisition of knowledge (which presumably goes beyond true belief)

are none of them goals of belief is something Monius may perhaps want to expand upon if he revisits this topic. In particular, I would have thought that *understanding* was a goal of our belief-forming inquiries, and I would have thought that Monius would be sympathetic to this, given the title of his work and what I imagine the impact will be on epistemology of Monius's later contention that Coming To Understanding is the teleological end of much of Reality.

Perhaps Monius thinks that understanding is at base a matter of forming true beliefs, in which case the pursuit of truth and the pursuit of understanding would not be in much tension. But this is far from obvious: perhaps I can condition myself into believing a list of truths vouchsafed to me from a reliable authority (such as a guru): but coming to believe a list of metaphysical truths this way seems importantly different from, for example, working them out for myself by being influenced by the weight of argument. Indeed, even without self-conditioning, the point seems good: we can come to believe through blind deference to authority, but again, taking this attitude to the utterances of a guru seems to me no substitute for the exercise of one's own critical faculties if the goal is understanding. If I am right about this, then it will have broader implications for the presentation of Monius's project. As Monius's project currently stands, as I will illustrate below, Monius makes many assertions about fundamental metaphysics with little in the way of argument to show why we should think things are the way he says rather than another way.

One problem with presenting positions without providing the reasons to believe them is that those positions will be found unconvincing by most readers. But the further problem is that such a presentation will not produce the right kind of understanding, I suspect, *even if* a reader believes those positions on the basis of Monius's say-so. In urging that the reasons be stated for believing the various positions, I am not saying, necessarily, that they need to be provided as we go along—a perfectly good way to proceed would be to outline the position and then show how the overall theory generates satisfying explanations of puzzling phenomena, or has other epistemically valuable features. But at present, it seems to me, this explicit attention to the epistemic virtues of the specific theory proposed is sporadic at best. If there are reasons for making the various theoretical decisions that are evident later in this work, particularly in the metaphysical third, I think the piece would be greatly improved by more discussion of them.

As well as aiming at true beliefs, Monius also wants to stress the importance of employing the right predicates in our inquiry—in employing an appropriate *taxonomy*. Monius's stress on this aspect of epistemology is welcome, since I think it is still too little recognized that this project is central to investigation of the world. Monius is initially worried by Goodman's Grue paradox. If we apply enumerative induction mechanically using any old predicate to classify

observations, it seems we can crank out any conclusion we like: if we use a classification that classes all already-observed green emeralds together with blue not-yet-observed emeralds (if any), then we can use the inductive scheme to go from the fact that all observed emeralds are green to infer that all the remaining emeralds (or the next-to-be-observed emerald, for that matter) will be blue.

Monius recognizes that this problem potentially spreads much further than induction. "Classification of objects—of all sorts—are the material on which explanations, and the generalizations that such explanations stand upon, are built from" (p. 46). While he does not say much about why we should think the problem extends beyond induction, though I agree. If indeed it is true that we should employ predicates that are good for prediction and explanation, as well as try to discover truths stated in whatever vocabulary we employ, then we need some idea about how to go about checking and improving our system of predicates, or taxonomy. Monius's own suggestion is that we cannot do the taxonomy before investigation of truths, nor vice versa. Monius promises a further discussion of how to successfully improve our taxonomy (p. 46-7), though I am not sure where the further discussion was. I was left wanting to hear more about how to improve our taxonomic system.

The most important remaining part of Monius's epistemology for his metaphysical project, it seems to me, consists of the conclusions he reaches about what forms of theoretical "voluntary" inferences are correct ones, or alternatively which epistemic standards are best employed for them.

Monius proposes the label "eduction" for the processes that go beyond deduction and ordinary inductive inferences: it bears a good deal of similarity to the processes of inquiry suggested by Charles Sanders Pierce and especially William Whewell, and is not very different from those procedures labelled as "Inference to the Best Explanation," though this final label can mean different things to different people, and Monius in particular uses this final label for something more restrictive. Eduction consists of three steps (p. 53): working out the best explanation of the data at hand (what Pierce would label abduction); deducing further consequences, if available, from the conclusions of the first step; and finally testing or verification of the hypotheses arrived at by the data. Deduction and inductive testing are not further discussed, but Monius does have some more to say about the most puzzling of these steps—the first "inference to the best explanation" step.

It is during this first step that the expansion or refinement of our predicates may need to occur, according to Monius—the best explanation may not be one we could formulate, or formulate perspicuously, in the pre-existing vocabulary. Again, this view of the role of new concepts strikes me as very Whewellian. In determining which explanations are to be (tentatively) considered good ones,

Monius also appeals to a range of internal virtues of a theory, such as internal coherence, symmetry and elegance, and other "quasi-aesthetic" virtues like the ones plausibly invoked by e.g. physicists in choosing between theories when such choices cannot be settled straightforwardly by experiment (p. 53).

Monius stresses as a result of this that the metaphysical enterprise is a fallible one: at any stage we should aim to produce the best explanations available and test them, and be ready to change our theories in the light of the outcomes of those tests or in the light of newly developed explanatory hypotheses and their virtues. The sterile game of laying down strict definitions and playing with their consequences alone should not be confused with the metaphysical enterprise of answering fundamental questions about the world through eduction. On this point I am in agreement with Monius, as it happens: and even those who are not should appreciate his care to make explicit the general epistemological standards he aims to hold himself to.

The final section of the epistemology part of *Coming to Understanding* concerns diagrams. Monius sings their praises as one of the ways to develop new modes of representation, so as to improve our taxonomies. He makes the startling claim that "diagrams are revealed to be essential to the creation of new taxonomies" (p. 59)—while I do not see why we should accept that they are essential, the basic point that increasing the variety of representations at our disposal can make developing new representational schemes easier. Diagrams are used extensively in Monius's presentation of his metaphysics of The One and the *eide*, and indeed some diagrammatic connections that at first seem fortuitous are pressed into service as representing important ontological connections. It is to Monius's ontological picture that I will now turn.

The One and the *Eide*

At the core of Monius's ontological position is a very special object, called the One, and the *eide*, or categories, which are ontologically dependent on it. Ordinary objects, in turn, appear in his framework either as ontologically dependent on various *eide* or are "constructed" from things that are. The One is not itself an *eide*, though everything, *eide* or not, ultimately depends on it. It is also partless and outside space and time, though Monius does allow that how it is a contingent matter—in this way it is the source of all contingency, in a way presumably that a being that is how it is necessarily could not be. Apparently, Monius even allows that the existence of The One is contingent: "[t]here are many different ways the One could have been, and one of those ways would have been for the One to not exist at all" (p. 62). One interesting question here is what the explanation is of why the One is as it is and not some other way. It is not open to Monius to claim that

this is a fact without an explanation, given his rejection of "brute facts." And, as we will see, for Monius everything else is explanatorily dependent on the One. So I suppose either the One explains itself, or the One is to be explained in terms of something to be explained in terms of the One. I suspect this last option is the one Monius would endorse, and I suspect it is not the only explanatory circle the system ends up being committed to, though as we will see when I discuss explanatory chains below, this option may also prove a problem.

Why postulate a partless, non-eidetic One at the heart of reality? The need to postulate some single thing on which everything else ontologically depends flows from Monius's monism, which seems to me more of a starting point for Monius than a doctrine he argues for, at least here. One reason that is apparent in Monius's work besides the explicit monism is the drive to offer a systematic account of the categories and their relationships. Tying them all together as flowing from a single organising principle is one way of doing this. That by itself would not be a sufficient motivation, of course, since other organisations seem possible, but it may be a contributing factor. So much for reasons to postulate a single ontological ground for everything. A harder question is why we should agree with Monius about what that single thing is like. One traditional reason to suppose such a thing would be partless is the thought that wholes somehow depend on their parts, and that dependence should not be symmetric. But this would not be a reason for Monius, at least, since he holds that parts can depend on their wholes (p. 73). It is not clear to me why he thinks the One is not an *eidos*. That would certainly fit better with some strands of the Platonic tradition, since arguably the One discussed in Plato's *Parmenides* is the form of the One, or the form of Unity. Since Monius's One is not an *eidos* that means there is no category-like thing of being a unity, of being a one. Maybe this category would be too promiscuous to count?

The entities which immediately depend on the One are the One's form, and its matter. They are each *eide*, and in turn they each have form and matter—eventually all the other *eide* will be generated as form or as matter of more fundamental *eide* (in the realm of *eide* an object's form and its matter are both ontological dependent on it, rather than the other way around. This part of the view at least seems more Aristotelian than Platonic). One oddity of Monius's construction, as far as I can see nowhere defended, is that each *eide* has exactly one form and exactly one matter. I would have thought ordinary objects participate in several forms: I am a human being, a physical object, a rational creature, and fall on one side or another of various other important divisions in reality. Monius may not agree that I am some of those things, given his metaphysics of persons (see below), but other examples of objects with multiple classifications abound. Why not allow that some categories themselves fall under different *eide* that are each one of their forms? Another oddity is that each *eidos*'s unique form is possessed by

no other *eidos*, and its unique matter is possessed by no other *eidos* either. This is also not argued for, even though it gives rise to an initially surprising infinite series of descending *eide*, which is not quite how categories are normally conceived!

Perhaps we can at least see what Monius has in mind by consulting the "definitions" of the form of an *eidos* and the matter of an *eidos* on p. 73. (I use "definition" in scare quotes because Monius has argued that the definitions offered are not unrevisable stipulations, but themselves conjectural parts of a theory to be supported, or not, by eduction.) There we are told that "The form of a given *eidos* is that *essence or nature*—itself a partless *eidos*—that individuates the given *eidos* as the specific *eidos* that it is." and "The matter of a given *eidos* is that whole—with or without parts—of which the given *eidos* is *constituted*." I suppose that Monius might worry that if two *eide* shared a form, there would be no way to individuate them, or to make each the specific, distinct, *eidos* that it is. That worry would not apply to *eide* sharing matter, but perhaps there is some unstated principle barring one thing from constituting more than one other. In a way, though, these definitions push the puzzle back one step: why must an essence or nature individuate? Why can this task not be done by the equivalent, in the realm of *eide*, of efficient causation, since according to Monius it is efficient causation in the ordinary realm that performs this function? A lot of metaphysical principles, some articulated and some not, seem to be being taken for granted in the very specific doctrines about the form and matter of *eide* proposed by Monius. I have to admit I found it mysterious why we should accept these principles. Since they are absolutely crucial to the picture Monius gives us, I fear his overall metaphysical picture will fail to convince.

The issue of what the most fundamental categories are is important whether we accept Monius's account of their relationships, so let us examine the most fundamental *eide* next. These naturally fall into two classes—the ones that flow from the *eidos* identified as the form of the One, and those that flow from the *eidos* that is the matter of the One. The form of the One is an eidos Monius labels "Ontological Dependence." What does this *eidos* have to do with the relationship of ontological dependence? One might have thought that Monius would deny that there *is* a relation of ontological dependence, because he is a "particularist" (p. 62)—there are no universals, and so, one would expect, no relations, only things related. (Or at most a particularist might allow that there are relation-instances, but no relation types.) This is not the route Monius takes. He says the form of the One *is* a relation: the relation of ontological dependence. Furthermore, presumably this is not just a token of the relation, but the type itself—at any rate, if it is a token of it, the two *relata* it has are not specified. I do not know how to square his apparent rejection of the existence of properties and relations in his insistence that everything is only particular, and his commitment to the existence of this

relation—I fear I may have misunderstood the view somewhere.

Let us suppose we are to take the form of the One to be a relation type (i.e. a relation in the sense that one and the same relation can relate different pairs of *relata*—the sense in which parenthood can be the same relation between Henry VII and Elizabeth I, in one case, and George H. W. Bush and George W. Bush in another). This is one illustration, incidentally, of why Monius's relation of form to object informed cannot be assimilated to the relation of property to possessor—this form is not even a property, though it has only one possessor. This relation itself must have form and matter, for Monius: and according to him the form of it is "Immediate Ontological Dependence" and its matter is the *eidos* called "the *Eide*." Immediate Ontological Dependence is also a relation—Ontological Dependence is its ancestral. We are in the odd situation of Immediate Ontological Dependence being ontologically dependent on its ancestral—normally one would think of the ancestral of a relation being dependent on the relation itself—facts about who is an ancestor of who seem to depend on facts about parentage, rather than the other way around, for example.

No matter. Ontological dependence is a key relationship between different *eide*, according to Monius. It stands in an important relationship to explanation:

> (i) A particular A is ontologically dependent on a particular B if and only if there exists an explanatory chain between A and the One, and B is a link in that chain (or B is the One). (ii) Such chains, when restricted to *eide*, are entirely explicable in terms of (analogs of) Aristotle's four causes. (p. 66)

Each of Aristotle's four causes (form, matter, efficient cause and final cause) produces a link of immediate ontological dependence. This link between ontological dependence and explanation, incidentally, is why the puzzle of explaining the One, above, is such a challenge for Monius: if anything *else* explains why the One is as it is, then there will be a explanatory loop from the One (or how it is) to this other thing, and eventually back to the One, since everything else ontologically depends on the One, and so is explained by it according to the principle just quoted. In addition, if the One is explained by anything else, then by the principle just quoted, the One would be ontologically dependant on that thing. Monius never explicitly tells us ontological dependence is anti-symmetric, but it is hard to see how mutual ontological dependence might work. And it seems against the spirit of Monius's view to make the One ontologically dependant on anything else. Perhaps it ontologically depends on itself—in which case it would be, in a very special sense, self-explanatory. This also seems odd, but maybe it is the best of a range of unappealing options.

I am not so sure all of the links of ontological dependence Monius tells us about are explained by the four causes. (I think the "analogues of" caveat is present in the piece quoted because Monius thinks that the equivalent, among *eide*, of efficient causation is in fact something called "consequence," perhaps to avoid the temporal or other everyday causal overtones "efficient cause" might have.) Monius's diagram of the *eide* indicates that the *eidos* of Consciousness is immediately ontologically dependent on the *eidos* of Space-time, for example (pp. 65 and 66), though neither stands in any of the four causes to the other, unless I missed something. It will turn out that all of the *eide* are parts of one of the *eide*, called the *Eide*—and I think that parthood relationship means most of them depend on that special *eidos*, though this is not dependence via any of the four causes. But I am jumping ahead somewhat—and in any case, the main point to note here is that the four causes do not provide the only linkages that are, or directly support, ontological dependence, though they may support it in more indirect ways.

Immediate Ontological Dependence does not need much independent discussion, but it is worth stopping to look at "the *Eide*" (notice the capitalization), the category of *eide* itself. It contains all the *eide* as parts, including itself. It can be thought of as the category of *eide*, and in standing to the other *eide* as whole to part it can be seen as a model of one relation an *eide* to those that have the feature "represented" by that *eidos*. A similar arrangement obtains between the *eidos* Modes and the modes, that is, according to Monius, the ordinary objects found in space-time. Likewise between various mental *eide*, such as Consciousness, and our individual consciousnesses, which are parts of it.

But explaining falling under a category or *eide* by being a part of it is a very selective strategy in Monius's theory. Even if there are token relationships of ontological dependence, they are certainly not part of Ontological Dependence. Acts of understanding or choice are not parts of Understanding or Choice (though Monius does wonder if there might also be an *eidos* of Choices for our choices to be part of). It appears that there can be a variety of relationships that individuals can bear to the *eide* they "fall under," if that category-like expression is not too misleading. heterogeneity is on the face of it a diminution of the "quasi-aesthetic" virtue of unity that this theory has. Monius often seems to draw this distinction seems to be on the basis of whether the eidos in question is one of the "formal *eide*" (that is, those *eide* that are forms of something) or a "material *eide*" (among the *eide* that are the matter of another *eide*): only material *eide* have parts. Though why this should be so, or what explanatory or other advantage the theory gains from imposing this restriction, is unclear to me.

The *eide* of Matter, Form, Consequences and Telos are all generated as the form or matter of the *eidos* of *Eide* or the *eidos* of Immediate Ontological Dependence. It seems reasonable enough, in the context of this project, that those

four *eide* should ontologically depend on Ontological Dependence, though fitting this into a mould of two-step form-matter dependence seems a little procrustean, at least to me: but I fear I have not seen the reason for fitting all the *eide* into form/matter chains in the first place, so perhaps it would seem more natural to someone who found that constraint natural. One puzzle I had was why the other relations that undergird ontological dependence were not related to it in the way that these four were: perhaps these are further down the chains of form/matter dependence.

Thus the form of the One generates (metaphorically) a realm of abstract relations, as well as other entities such as the *eidos* of *Eide*. On the material side, the matter of the One gives rise to the more everyday features of our world, both the physical aspects, such as space-time and its occupants, but also the psychical aspect of reality: agency, choice, correct judgment, and understanding. Let me first focus on the physical side, and then discuss the curious vision of ourselves, our minds and our agency that Monius presents us based on his eductions about mental *eide*.

The matter of the One is an *eidos* that Monius labels "coming to understanding." He describes this *eidos* also as "the world." "[I]t is a process that is teleologically saturated" (p. 78). It is an unusually sort of process, however, since it is atemporal: and despite the label, it does not seem to be perspicuously treated as a process of *something* coming to understand *something*: it seems to be self-contained. It is reminiscent, of course, of the Hegelian *geist* coming to self-understanding, but this should not mislead us—this overarching (atemporal) process does not seem to be a matter of the One doing anything, for example. Monius clearly seems to think that a purpose of understanding is important, and somehow central to his system—but I wonder how much an atemporal thing that does not seem to be literally an understanding *by* anything or *of* anything (unless, perhaps, it is understanding of the One) is enough like "coming to understanding" to be usefully labelled this way.

Perhaps we can see better what this thing is, the matter of the One that is somehow like "the world," by seeing how it is related to other *eide*. The form of Coming to Understanding, according to Monius, is an *eidos* labeled "Omni-truth." Omni-truth is all the truth about everything, from every perspective—and not just the truths expressible in any given language (pp. 50). Curiously, Omni-truth does not have smaller truths as parts—I am not sure whether Monius has abstract propositions in his system at all, but if there are they are not, at any rate, parts of Omni-truth in the way that *eide* are parts of *Eide*. Whether there is any reason for this apart from Monius's desire to have all *eide* that are forms be partless is not clear to me. Omni-truth is something like the mind of Coming to Understanding, says Monius (p. 90), though it is not a cosmic intelligence of any sort of Plotinian

stripe (p. 29)—perhaps it is only like a mind in providing teleological direction and being representational.

The matter of Coming to Understanding is an *eidos* called The Block Universe, though this should be distinguished from anything normally called the block universe. A block universe, as it is often conceived, is a four-dimensional manifold of space-time plus its contents, the objects and fields that occupy it. Monius's Block Universe does not have these components, though these things are ontologically dependent on it: the form of the Block Universe is Space-time (which is our space-time even though it is an *eidos*) and the matter of his Block Universe is the eidos of Modes, the parts of which (the modes) are the physical objects and processes located in space time. So Coming to Understanding is ontologically prior to, and unifies, the entities that give rise to the whole truth about spacetime and its contents, as well as spacetime and its contents. Coming to Understanding is an ontological underpinning of those things that a scientific world picture might take to be our world.

Space-time and Modes themselves have dependent forms and matters: Space-time has Location and Information as its form and matter, and Modes has Imitation and Change as its. These in turn have forms and matters, *ad infinitum*. On the other side, Omni-truth has mental *eide* as its form and matter: Understanding (not to be confused with Coming to Understanding) as its form, Consciousness as its matter: with Synthesis, Judgment, Choosing and Awareness as the dependent forms and matters of these. These *eide* are not in fact instances of understanding, consciousness, etc., though instances of these stand in some sort of dependence relation to them—some more details are discussed below.

So the One has Ontological Dependence and Coming to Understanding depending on it, and these *eide* give rise to many more—apparently the *eide* concerned with more abstract and metaphysical matters on the Ontological Dependence side, and the *eide* concerning more worldly, more process-related *eide* on the other side. Before shifting our gaze from the great eidetic structure to the relatively more mundane topic of ourselves and our place in this system, I would like to discuss one more piece of ontological machinery in Monius's system. Recall that Monius emphasises the importance of the four causes. The matter-form relations play an obviously important role in Monius's system, but he also wants to find a place for consequence (his name for the equivalent, among *eide*, of efficient causation) and of teleological relationships among the *eide*. He duly specifies the general conditions when a consequence relation and a teleological relationship obtain among *eide* produced by his form/matter hierarchies, and provides brief discussions of the connections. For example, there is a "grand" teleological arc giving Imitation the telos of Space-time, which in turn has as its end Omni-truth, which in turn has as its telos Ontological Dependence, which in turn has its telos

the One (p. 112). Monius tells us that some of these links are surprising (p. 112): Space-time has its telos in Omni-truth, but it is unclear why it should be Space-time rather than Modes of the *Eide*, or any of a number of other *eide*. Consequence is discussed in even less detail—the consequence of Omni-truth is Matter, to take one example, or to take another the consequence of Modes is Information (p. 112).

The problem here is that these many connections do not seem to do anything very useful in Monius's system at the moment. What part of the world would we have trouble understanding or explaining if we did not know that the consequence of the *eidos* of Coming to Understanding was the *eidos* of *Eide*? The purpose of Imitation is Space-time, apparently—what does that help us with? (I hope it is not supposed to follow that the purpose of ordinary acts of imitation is always some ordinary region of space-time, for example—I have seen all sorts of imitations, and they are rarely "for" spacetime regions.) From various remarks, and a theme of the previous version of *Coming to Understanding* it is clear that Monius thinks the fundamental teleology among *eide*, at least, will be put to work to do important explanatory work. But at present the linkages look fairly arbitrary from an outside perspective, and what it means for one *eidos* to be a telos of consequence of another is not really spelled out in any detail. Monius stresses that many of these hypotheses are tentative, but perhaps it would be better not to introduce them into the system until better explanations are available of what these connections mean between *eide*, and what they contribute to the overall theory, which after all is supposed to be held to the standard of providing a good eduction based on our evidence.

Some parts of this broad outline are obviously motivated by considerations that at least have force for Monius. The monistic conception of the world tells us that there ought to be chains of ontological dependence that reach out from the One to all the important categories of reality. Presumably some *eide* are thought to be deeper or more wide-ranging than others, which might explain why Space-time is closer to the One than Location, for example. And we have seen above that it might make sense to make the "four causes," matter, form, consequence and telos, ontologically downstream from Ontological Dependence, if we are to put Ontological Dependence immediately below the One. But too many of these choices are at best largely unexplained, and at worst arbitrary. I have already complained that we are given little motivation for applying hylomorphism to *eide*, and little motivation for supposing each *eide* has just one form, and just one matter, for that matter. But particular choices also seem undermotivated. Why have separate *eide* for Space-time and Location? Why distinguish Omni-truth and Information, and why have Information not be on the Omni-truth tree?

We are also given little indication how to go on. I am not clear what we are supposed to look for in order to determine the form and the matter of a given *eidos*.

Take Imitation, for example, one of the derivative *eide* that Monius has not yet described (it is the form of Modes, apparently). Presumably, I am to identify its nature or essence to be its form, and some matter or ground to be its matter. Note well that this is the nature and matter of the *eidos* of Imitation, not any act of imitation itself, or the universal of imitation (since Monius claims there is none such). What are we even being asked to do? I am afraid the examples Monius provides us have not yet given me a sense of how to go on. Nor are we told, except for the general epistemological remarks, how to test a conjecture about what is the form, or matter, of what. Suppose, for vividness, I thought The Block Universe was the form of Coming to Understanding, and Omni-truth only its matter. How do we examine whether this gives us a good theory? I think the main problem here is that the explanatory goals of this systematic framework are not clear enough—perhaps if there was a more explicit story about what this theory is for, or how we are to apply this system of *eide* in resolving traditional metaphysical puzzles or synthesising apparently disparate insights into reality, this would help me. I fear that intricate and interesting though this system is, without more arguments about why the given pieces should be put where they are in the puzzle, and why the puzzle looks like this in the first place, readers will have difficulty believing or understanding the proposal.

Let us finally turn, then, to a question that is more mundane, in one way, but at least of great anthropocentric interest: where do we fit into all of this?

Selves, Minds, and Agency

In the final three sections, particularly section 17, we see how the metaphysics of persons fits into the grand scheme of *Coming to Understanding*. We are given an unusual picture of selves, minds, and the processes that are associated with minds such as "consciousness, awareness, inference, agency and the like" (p. 116). Strictly speaking, according to Monius, all of these are outside time and have the structure of "logical processes" rather than any of temporal processes many of us normally take mental activity to be. In placing our selves outside time, Monius follows a Neoplatonist tradition, since e.g. Plotinus would also object to identifying our true selves in this messy world of flux. But it is a position that many contemporaries, philosophers and non-philosophers alike, will find puzzling.

Of course, there are things that are related to selves, agency, thinking and all the rest that are in space and time. But according to Monius these spatio-temporal things are only things that our atemporal selves are ontologically dependent on. The waving of my arms and the movement of my mouth are required in order for my self to act in a certain way (i.e. for there to be an atemporal "process" of action, such as engaging in a conversation). Presumably there needs to be a temporal

process of brain changes in order for me to think or understand or synthesise. But these are only some sort of ontological requirement or basis for personality, not the person or the processes associated with a person themselves.

We are not told very much about exactly what sort of ontological dependence this is. Do the modes associated with thought etc. *cause* the atemporal personal things? It would be an odd sort of causing, especially since we would more naturally think that I cause (or at least somehow influence) the relevant processes than that they cause me, but stranger things have been hypothesised. Likewise, it would be odd if my purpose were the fluctuations in spatio-temporal entities, so it would be surprising if it was formal causation: if anything, we would expect my body to act for *my* purposes, not for me to act for my body's. Is one the form, and one the matter? One natural thought, I suppose, might be that my personhood is a form that binds some range of spatio-temporal modes together into a corresponding sequence: but presumably this is not so according to Monius, since I infer that particular modes are ontologically dependent on their form and matter, not the other way around. Monius is explicit that "ordinary particulars" are ontologically dependent on their matter (p. 82), and my impression of the framework is that, while *eide* are ontologically prior to both their forms and matters, it is the exact opposite when we come to the occupants of space-time. Perhaps I am mistaken, though if I am Monius has here a significant departure from the Platonic idea that ordinary objects are derivative from their forms as well as their matter.

So I doubt our selves are either the forms or the matters of the spatio-temporal modes that they ontologically depend upon. The hypothesis that the spatio-temporal goings-on cause my self and my activity, or that they formally explain my self and my activity, are also unpalatable, initially at least. Perhaps this is ontological dependence without any of the four causes—Monius tells us (on p. 68) that when ontological dependence holds between *eide*, it is always because of one of his four causes, but he leaves it open, there at least, what the story might be when such particulars as these are in play.

Leaving aside the lack of illumination we currently have about what the dependence is (and maybe there is nothing more to say than that it is brute), the direction of dependence from spatio-temporal objects to the self, rather than the other way around, does seem strange. Why isn't it my purposes that explain my bodily movements, or my choices that cause them? If my self is a distinct, atemporal locus of consciousness and intelligence, why should we think it is entirely ontologically downstream of the temporal processes of some hairless apes? Perhaps it is just because we are used to watered down traditional notions (with some of their origins in Plato and Neoplatonists) that the soul is superior and somehow directing the body, that the reverse strikes us as strange when we are

asked to believe that we are atemporal beings, selves with no material parts. Still, it is striking.

Monius offers us a very different picture of ourselves and our mental lives than we are used to. (If "lives" is even the right word for the atemporal "logical processes" that are all the self engages in.) I would have hoped for strong arguments here, reasons why reconceiving ourselves in this way is, after all, not entirely implausible. Instead of considerations directly about selves and their relations to bodily movements and brain processes, though, the arguments, insofar as there are any, seem to be derivations from the system of *eide* already laid out. Individual selves are parts of Consciousness, and objects in spacetime are parts of the *eide* of Modes, and since *eide* can never overlap, that must mean that selves have no parts in space or time. Consciousness is lower down the hierarchy of the great chain of dependence from the One, so Consciousness ontologically depends on Modes rather than the other way around. (Admittedly, that would not yet tell us that the parts of Consciousness depended on any proper parts of Modes, but there seems to me to be some "as above, so below" principle at work in Monius's thought.) At least I *think* this is the sort of reason Monius has to make our selves depend on the modes, rather than, for example, vice versa. We are not anywhere told explicitly why Monius thinks this.

As a demonstration of the order of the world, deduction of the relations between relatively ordinary particulars from the relations between the exalted *eide* might be perfectly reasonable. But from the epistemic point of view, it seems very shaky. Monius frequently stresses the tentativeness of some of his eductions about the fundamental *eide* of reality, and this is fair enough. We have much more experience and familiarity with things like our minds and our bodies than we do with what the matter of the *eidos* of *Eide* might be, for example. At the very least, if our understanding of ourselves and our relations to ordinary objects are epistemically more inaccessible than the esoteric matters Monius tells us about, we should at least be given reasons to think that our self-conceptions are illusions, if those reasons are available. As far as I can see, *epistemically*, we are in a better position to test the system of Coming to Understanding with how well it explains and illuminates ourselves and our everyday world, than to reject very plausible principles about our minds and our actions because of a metaphysical system where many of the relationships established between *eide*, including many of the crucial ones, seem quite speculative. Volume II of Coming to Understanding is promised to contain a theory about how we should live our lives: I hope that it will contain more in the way of reasons to accept the curious picture Volume I presents us of ourselves and our connection to the everyday world.

Conclusion

I think Monius is asking a lot of the right questions. I applaud his attempt to put the theory of categories firmly back on the metaphysical agenda. Another important project that Monius has highlighted is the project of thinking seriously not just about what divisions in nature there are, but about the connections between these divisions and critical inquiry into the overall arrangement of these divisions/categories/*eide*. Bringing this issue to prominence is also very welcome. A lot of metaphysics these days, including I suspect my own, is approached in a bottom-up manner: it starts from specific puzzles and examples, and a system, if any, arises out of connecting the resulting puzzle pieces. Monius, on the other hand, has provided us as example of a "top down" way of proceeding, starting with some of the biggest and most general issues, and moving from there to give answers to more specific puzzles.

I worry about whether such "top-down" approaches can work epistemically, since it seems to me our best epistemic access to metaphysical matters comes at the bottom level, as when advances in physics shed some light on the nature and structure of space-time, or reflection on our everyday view shows us the importance of admitting the existence of events and provides some guide as to their nature. It does seem to me that the best way of discovering whether my epistemic worries are well-founded, however, is to attempt a top down approach and see what its fruits are. In any case, even workers from below should not lose sight of the issues that arise from the top, regardless of whether those issues are tackled early or late in a given inquiry, and there should be more people working on issues such as the ones Monius rightly insists are important.

The present version of *Coming to Understanding* is best seen as a beginning, it seems to me. I have indicated many places where I thought more argument was needed, and some where I feared there were significant difficulties to be overcome. But this is a project headed in an interesting and important direction: and I join with Monius in hoping for an eventual understanding of Reality and its basic metaphysical structure.

Review 3: Gary Rosenkrantz

Introductory Remarks

Volume I of *Coming to Understanding*, subtitled "Philosophy," introduces the elements of an ambitious and novel metaphysical system. It is written in a clear analytical style. The argumentation is closely reasoned and subtle. This volume is also quite well organized. There are three main parts, each of which is divided into six subsections, as follows.

Part 1, Categories, (1) Introduction: Explanation and Monism, (2) Category Theory in Greek Philosophy, (3) Category Theory in Kant and Hegel, (4) Modern Category Theory, (5) Categories as Particulars, and (6) Plotinus: The Forms and Monism.

Part 2, Epistemology, (7) Belief, (8) Rationality, (9) Taxonomy, (10) Truth, (11) Eduction, (12) Diagrams.

Part 3, Metaphysics, (13) Ontological Dependence, (14) Six Principles, (15) Further Eductions, (16) Non-Eidetic Particulars, (17) A New Theory of Mind, and (18) Teleology, Agency, and the One.

The first two parts of the volume provide a powerful defense of the primacy of metaphysics in the face of anti-metaphysical positivist challenges. As the author remarks on page 1,

> From where we stand now, at the beginning of the twenty-first century, it is already clear that the rumors of the death of metaphysics have been greatly exaggerated. This should come as no surprise, for the very understanding provided by the natural sciences invites metaphysical questions.

These remarks should be heartily applauded.

Part 1 provides an excellent discussion of Aristotle's theory of categories. And more generally, the critical review of historical theories of categories is highly insightful. However, the discussion of contemporary category theory is a bit incomplete, failing to discuss some prominent approaches in the recent literature.

Part 2 provides a powerful defense of the viability of metaphysics from the perspective of contemporary analytical epistemology, persuasively arguing that metaphysical theories can only be epistemically justified as fallible *eductions*. Eductive justifications in this sense involve inference to the best explanation of the data, continual testing and verification of metaphysical hypotheses via their consequences, and overall assessment of the theoretical virtues of those

hypotheses. As the author observes, the only way in which the theories of natural science can be epistemically justified is by eductive means. Accordingly, it appears that the epistemic justification of metaphysical theories is on a par with the epistemic justification of theories in natural science. This is an important point which the logical positivists failed to grasp and which is still often not fully appreciated.

Part 2 also defends the controversial thesis that at least some of our beliefs are under our direct voluntary control. This thesis may be referred to as the doctrine of *doxastic voluntarism*. I critically examine the author's defense of doxastic voluntarism at a later point in this review.

Part 3 sets forth and defends the author's sweeping, intricately developed, and provocative account of the basic structure of reality, addressing traditional ontological and cosmological questions, including the ultimate purpose of reality as a whole. The author educes that this ultimate purpose is *selves coming to an understanding of the basic structure of reality*. Later in this review I will raise the question of to what extent this eduction is compelling.

The author's account of the basic structure of reality is rich, fascinating, and ingeniously characterized. He hypothesizes that the basic structure of reality is an infinite "spiral" structure of *non–spatio-temporal* categorial *particulars*, the *eide*, generated by the infinite iteration of their *matter and form* (hylomorphic) relationships, ultimately emanating from a non–spatio-temporal, absolutely independent, contingently existing, unique, primal particular, the One.

There are six specific hylomorphic relations in which the One and its *eide* stand to one another and in terms of which the iterative generation of the *eide* may be understood. Interestingly, the author's approach to the metaphysics of the *eide* is "diagram-driven" in something like the way in which the study of various mathematical systems may be 'diagram-driven." He constructs ingeniously conceived diagrams which represent regions or aspects of the infinite Eidetic "Spiral Structure" and which depict these six relations in a variety of illuminating ways, e.g., Diagram 6 on page 86. The six relations are as follows: (I) *is the* [ontologically dependent] *constituting matter of*, (II) *is the* [ontologically dependent] *individuating form of*, (III) *is directed at* (the Telos relation), (IV) *is the consequence of*, (V) *is the immediately ontologically dependent matter of*, and (VI) *is the immediately ontologically dependent form of*. (There is typographical error in the symbol key for Diagram 6: "Is-the-directed-at" should be "Is-directed-at.")

The author compares (I), (II), (III), and (IV) to Aristotle's material, formal, final, and efficient causes, respectively; I will examine some of these comparisons later. His account of the *consequence* relation is especially interesting; he explains is *the consequence of* as the "triangulation" of *is the constituting matter of* (as in (I) above) and a relation of *immediate ontological dependence* (as in (V) or (VI)

above). In the author's view, the six aforementioned relations, as well as Aristotle's four causes, are *explanatory relations*.

Fundamentally, the infinite totality of *eide* are iteratively generated in virtue of every particular's being such that it has its own unique matter and form, as follows: the One has a matter, ***M1***, and a form, ***F1***, *M1* has a matter, ***M2***, and a form, ***F2***, *F1* has a matter, ***M3***, and a form, ***F3***, *M2* has a matter ***M4*** and a form ***F4***, *F2* has a matter ***M5*** and a form ***F5***, *M3* has a matter ***M6*** and a form ***F6,*** *F3* has a matter ***M7*** and a form ***F7***, , and so on, *ad infinitum*. *M1* and *F1* are ontologically dependent on the One, *M2* and *F2* are ontologically dependent on *M1*, *M3* and *F3* are ontologically dependent on *F1*, *M4* and *F4* are ontologically dependent on *M2*, *M5* and *F5* are ontologically dependent on *F2*, *M6* and *F6* are ontologically dependent on *M3*, *M7* and *F7* are ontologically dependent on *F3*, and so on, *ad infinitum*. On the other hand, in their "linear progression," the *eide* "spiral outward" from the One in the following order: *M1*, *F1*, *M2*, *F2*, *M3*, *F3*, *M4*, *F4*, *M5*, *F5*, *M6*, *F6*, *M7*, *F7*, and so on, *ad infinitum*. If *E1* and *E2* are *eide*, and *E1*'s position in the infinite Eidetic "Spiral" is immediately before *E2*'s, then *E2* is said to be *immediately ontologically dependent* on *E1*.

Through a careful, deliberative, step-by-step process of conjecture, the author educes the first 26 *eide* of the infinite Eidetic "Spiral" as follows: *Coming to Understanding* (*M1*), *Ontological Dependence* (*F1*), *The Block Universe* (*M2*), *Omni-truth* (*F2*), *The Eide* (*M3*), *Immediate Ontological Dependence* (*F3*), *Modes* (*M4*), *Space-time* (*F4*), *Consciousness* (*M5*), *Understanding* (*F5*), *Matter* (*M6*), *Form* (*F6*), *Consequences* (M7), Telos (*F7*), *Change* (*M8*), *Imitation* (*F8*), *Information* (*M9*), *Location* (*F9*), *Awareness* (*M10*), *Choosing* (*F10*), *Judgment* (*M11*), *Synthesis* (*F11*), *Mereological Whole* (*M12*), *Constitution* (*F12*), *Nature or Essence* (*M13*), and *Individuation* (*F13*).

Because the One and the *eide* exist outside of space and time, they are unchanging. However, everything *other than the One*, i.e., the *eide* and the *non-eidetic particulars*, is ontologically dependent on the One. (I note that although the One is not an *eidos*, the technical term "non-*eidetic* particular" covers all particulars other than the One and the *eide*.) The author proposes that every particular has both matter and form and that the existence of any particular can be explained in terms of some particular's matter or form, in one way or another.

In the author's view, there are four orders of particulars. A first-order particular is an absolutely independent being; the One is the only particular of this kind. The *eide* are second-order particulars; they ontologically depend on the One. Third-order particulars are non-*eidetic* parts of *eide*, including spatio-temporal modes, e.g., elementary particles, as well as [non–spatio-temporal] selves. Fourth-order particulars are constructed out of third-order particulars, in other words, have third-order particulars as parts, and are ontologically dependent upon third-order

particulars. Artifacts and organisms are examples of fourth-order particulars. A non-*eidetic* particular "participates in" an *eidos* in virtue of being a part of that *eidos*, or in virtue of imitating that *eidos*.

The picture that the author paints of the basic structure of reality has considerable philosophical interest and promise. Its hylomorphism is appealing; Aristotle's notion that we can understand something in terms of its form and its matter has great fecundity. The author's metaphysical system possesses impressive depth and power, though, as I shall argue, it is not without some difficulties.

Historically, the attempt to develop a systematic metaphysics involves two central tasks. One of those tasks involves the characterizing reality as an orderly, law-governed whole. Completion of this task is the ultimate goal of *cosmology*, in the historical metaphysical sense of this term. The other task involves identifying and characterizing the basic categories of existence. Completion of that task is the ultimate goal of *ontology*, the science of being, or as Aristotle put it, the science of being *qua* being. Although the focus of *Coming to Understanding* is speculative cosmology, ontology figures prominently. The author believes, quite rightly, that speculative cosmology can be significantly enhanced by analytic ontology. The conviction inspiring the present work holds out the promise of a singularly exciting enhancement of speculative cosmology by ontology:

> "*When we comprehend the nature of the nature of the categories and the fundamental relations among them, the nature and purpose of reality as a whole will be laid bare*." (p. 3)

The metaphysical system that the author sets forth incorporates important historical elements from Plato, Aristotle, Neo-Platonism, Descartes, Spinoza, and Hegel. It also puts insights and methods of contemporary analytic ontology to admirable use in the service of speculative cosmology. Part 3 is much more complex and intricate than the other two parts of the volume. My comments on Part 3 will focus on technical philosophical questions about the basic structural relations of the author's proposed metaphysical system, including ontological dependence, certain specific forms of ontological dependence, identity, parthood, and imitation.

In what follows, I set forth, in linear order, my detailed comments on the three parts of *Coming to Understanding*, Volume I, addressing both relatively minor matters of detail as well as significant issues pertaining to central concepts, claims, and arguments.

Comments on Part 1 of *Coming to Understanding*, Volume I

Let me begin with two quibbles I have concerning the author's descriptions of the

historical views of Kant and the "Logical Positivists" of the Vienna Circle. First, the author makes the following remarks.

> [Wittgenstein's] view that the fundamental structure of our language prevents us from giving sense to questions that transcend empirical science, recapitulates Immanuel Kant's claim that the most general categories of our thought, the foundational categories of substance, causation and necessity with which we are tempted to frame world pictures, only have legitimate application within sensory experience [p. 1].

In the ordinary sense of the term, however, Kant did not limit the application of the categories to *sensory experience*; for Kant, the categories also apply within *reflective experience* of oneself.

Second, the author observes that the "Logical Positivists" of the Vienna Circle insisted "that the only "cognitively meaningful" statements, besides stipulative or merely conventional definitions, were the verifiable or falsifiable statements that constituted the domain of empirical knowledge" (p. 1).

Strictly speaking, though, these "Logical Positivists" also insisted that logical falsehoods, including the negations of the aforementioned stipulative or merely conventional definitions, qualify as "cognitively meaningful" statements.

My next point concerns the author's discussion of the "methodological divide" between his approach and the approach of other, more skeptically-minded, philosophers. He writes as follows.

> Some philosophers believe that some questions cannot be answered—not even in principle. They believe, in other words, that there are "brute contingent facts," facts that can never be explained, *even in principle*. We reject the existence of brute contingent facts. …To do metaphysics at all is in part to presuppose that the nature of things is intelligible, that is, that the nature of things is in principle accessible to our epistemic tools. The hallmark of intelligibility, in turn, is explanation, and so we adopt as a methodological presupposition that brute (unexplainable) contingent facts do not exist [p. 2].

While the author *calls* his principled negative attitude toward brute contingent facts a "methodological presupposition," he *expresses* this presupposition by using *doxastic* locutions, i.e., "we reject the existence of brute contingent facts," or *propositional clauses*, i.e., "that the nature of things is intelligible" and "that brute (unexplainable) contingent facts do not exist." Unfortunately, the use of these

locutions makes this so-called methodological presupposition sound rather more like a tenet of the author's belief-system. Methodological presuppositions are most appropriately expressed as non-doxastic, non-propositional prescriptions, e.g., commands or prohibitions, or as normative principles, that is, as principles about what one should or ought to do. Accordingly, the methodological presupposition that the author seems to have in mind may be more appropriately expressed as the injunction "Never stop seeking explanations of contingent facts," or as the normative principle "One should never stop seeking explanations of contingent facts." I myself prefer to adopt a more moderate methodological presupposition, one which is consistent with our accepting the existence of brute contingent facts, and which I believe is adequate for the purposes of analytic ontology and speculative cosmology, namely (in its prescriptive form), "Explain as many contingent facts as you can," or equivalently, "Do not multiply brute contingent facts unnecessarily." In the light of my methodological preference, described above, I wonder whether the author would characterize me as one of those "philosophers of a more skeptical temperament" he refers to on page 4.

Comments on Part 2 of *Coming to Understanding*, Volume I

I now turn to the author's defense of the thesis that at least some of our beliefs are under our direct voluntary control. As the author points out, there are several classes of our beliefs which are clearly *not* under our direct voluntary control. For example, as he observes,

> …our beliefs are involuntarily forced upon us by sense-perception…" [p. 31].
> Certainly, the involuntary nature of perceptual belief is shared by those beliefs that arise in us because of deductive inference [p. 32].

However, in the following passage, the author explicitly acknowledges the fact that our perceptual beliefs are fallible.

> There is no doubt, of course, that we can get things about what we perceive wrong. That is, actually, a quite common experience: objects that are larger, or differently configured, than they first appeared to us to be. And, of course, there is the collection of tricks that magicians routinely use that illustrate so well the means by which the eye can be fooled so that we think something has vanished, when it has not, or is floating in the air when it is not [p. 31].

Evidently, then, the fact that our perceptual beliefs are involuntarily forced on us by our sensory experiences is compatible with the fact that sense-perception is fallible.

Hume thought that our enumerative inductive beliefs are involuntarily forced on us by our experiences. The author disagrees. In the following passage, he makes his case for the claim that our acquisition of beliefs through inductive inferences is *under our direct voluntary control*, and thus, that we acquire such beliefs by *choosing* them.

> Hume is right about the fallibility of inductive inferences. But our recognition that he is right betrays that those beliefs of ours that are acquired by inductive inference do not possess quite the same involuntary phenomenology as those beliefs of ours acquired either through sense-perception or through deduction….it seems that there are many cases where we clearly deliberate our way to beliefs in ways that involve considered and careful judgment, as opposed to experiencing irresistible belief being imposed upon us. Juries seem to deliberate in just this fashion — and so individuals can become convinced that such and such is true (or not). That is, they can acquire beliefs in the full knowledge that those beliefs might be wrong. In all such cases, clearly, deduction and perception can only take us some of the way…further involved…are other epistemic processes for acquiring beliefs, and induction is among these. Such methods of belief acquisition are not overwhelmingly compelling in their effects upon us. They do not force us to our beliefs as perception and deduction do. Rather, although we become convinced of something, we do so in the full awareness that nevertheless we can be wrong, and that we have made a choice to believe as we do [p. 33].

There seem to be several different lines of reasoning in this passage. The first is that the fallibility of inductive inference entails that they "do not possess quite the same involuntary phenomenology as those beliefs of ours acquired either through sense-perception or through deduction." But the fallibility of inductive inference has no such entailment. If it *did*, then *the fallibility of perceptual beliefs* would paradoxically entail that they too *are* lacking in the requisite involuntary phenomenology!

The author's second line of reasoning is that when we "deliberate our way to our beliefs in ways that involve careful and considered judgment" we do not "experience irresistible belief being imposed upon us." There are two problems with this line of thought.

First of all, the author seems to presume that when beliefs are involuntarily forced on us, for example, in the case of our ordinary perceptual beliefs, we normally "experience irresistible belief being imposed upon us." This appears not to be the case. On the contrary, I daresay that most perceivers are not familiar with any such experience. Although their formation of perceptual beliefs involves automatically registering various elements of what they perceive, there does not seem to be an *experience* of being compelled to believe which is normally involved. Thus, the absence of such experiences in connection with some class of beliefs (say, inductively inferred beliefs) does not suggest that our acquisition of those beliefs is under our direct voluntary control.

Second of all, we may "deliberate our way to beliefs in ways that involve careful and considered judgment" even when we acquire those beliefs by means of our constructing a *deductive* mathematical *proof*. Since such *deductively acquired beliefs* are involuntarily forced on us, that we "deliberate our way to beliefs" does *not* indicate that our acquiring those beliefs is under our direct voluntary control. Hence, even though inductive reasoning may involve evidentiary deliberation, this does *not* indicate that our acquisition of inductively inferred beliefs is under our direct voluntary control. In evidentiary deliberation, we reflectively consider the cogency of premises and the cogency of inferences from premises to conclusions; the cogency of inferential reasons is sufficient to produce belief and it does not appear that any act of *choosing to believe* is needed to produce that result when the deliberative process ends.

The author's third line of reasoning is that when we "acquire beliefs in the full knowledge that those beliefs might be wrong," or "become convinced of something… in the full awareness that nevertheless we can be wrong," our acquisition of the beliefs in question is under our direct voluntary control. This line of reasoning is similar to the first and it is subject to similar difficulties. In particular, it is belied by the fact that although it is widely known among philosophers that their perceptual beliefs are fallible, the perceptual beliefs of those very philosophers are involuntarily forced on them nonetheless.

I conclude that the author does not provide us with any good reason to think that one's acquiring an inductively inferred belief is under one's direct voluntary control; he does not provide any good reason to think that one's acquiring an inductively inferred belief *that such & such is the case* has as its proximate cause *one's choosing to believe that such & such is the case*.

The author appears to have a subtext here, namely, that when we speak of "theory choice" within the context of our *eductively* acquired beliefs, "choice" should be taken *literally*. I note that it is possible to defend doxastic voluntarism with respect to *eductively acquired beliefs* without defending it with respect to *beliefs acquired by enumerative inductive inference*. Nevertheless, it is far from

clear that doxastic voluntarism with respect to our eductively acquired beliefs is correct. At any rate, it does not appear that the author's reasons for thinking that our beliefs acquired by enumerative inductive inference are under our direct control have any greater weightier when applied to eductively acquired beliefs. It remains an open question whether there are good reasons to think that our eductively acquired beliefs are under our direct voluntary control.

In his famous essay, *The Will to Believe*, William James argued that under certain special conditions we can literally *choose* to believe that God exists. However, among those special conditions is the *intellectual undecidability* of the proposition *that God exists*. This means that James's argument for doxastic voluntarism does not apply to metaphysical hypotheses that are intellectually or epistemically decidable.

Finally, it is important to distinguish *the acquisition of theoretical beliefs* from *the making of theoretical commitments*. Our theoretical commitments certainly *do* appear to be under our direct voluntary control, but it would be a mistake to identify them with theoretical beliefs. Theoretical commitments are essentially a matter of *behavior* in a way in which our beliefs do not appear to be. Being committed to a theory, *T*, for example, is matter of being committed to seeking support for *T*, to publicly defending *T*, to publicly stating that *T* is true, to using *T* as premise in other contexts, etc. These are all *patterns of behavior* that one can literally *choose* to follow. But it appears that none of these behaviors entail *belief*.

I now turn to two other epistemological issues discussed by the author. On page 34, the author puts forward the following guiding statement of principle.

Truth is the only goal of appropriate practices of belief acquisition.

I have a quibble with this statement; it appears that there are *other goals* of appropriate practices of belief acquisition. One such goal is *avoiding false beliefs*, which is not necessarily the same thing as *acquiring true beliefs*. Other goals of this kind are *acquiring justified beliefs*, and *acquiring knowledge*. With respect to the *canons of epistemic rationality*, I would endorse the slightly amended statement that "Truth is *the ultimate goal* of appropriate practices of belief acquisition."

Next, I note the occurrence of a typographical error. Towards the end of the first paragraph on page 55, "out background assumptions" should read "our background assumptions."

Also on page 55, and much more interestingly, the author seems to argue that "precise definitions of concepts – necessary and sufficient conditions" are of no inherent value in metaphysics. He sets forth his views on this matter in the

following passage.

> These days, there are many philosophers who aspire to the kind of fallibilism we espouse here. There is an expository practice, however, still widely used by philosophers although not so common in the other fields of knowledge. This is the attempt to provide precise definitions of concepts – necessary and sufficient conditions – that are to govern a field of study. In a context where the aim is a form of apodictic knowledge, such definitions are worthy goals. But in a context, like this one, where all results must be taken to be provisional, we should instead make do with definitions that are illuminating because of how they resonate with our background assumptions, and not because they place precise necessary and sufficient conditions on the concepts so illuminated.

I do not find the line of reasoning presented in this passage persuasive. To begin with, a definition of a concept may be *imprecise* or *vague* and nonetheless place necessary and sufficient conditions on that concept. After all, if a concept, *C*, is imprecise, then it shouldn't be too surprising that some defining necessary and sufficient conditions for *C* involve other imprecise concepts which are parts of *C*. For example, the concept of a *vixen*, despite its imprecision, can be defined in terms of the necessary and sufficient conditions of being a female and being a fox; but the concepts of *a female* and of *a fox* are also imprecise, as shown by the possibilities of hermaphrodites and evolutionary transitional biological forms, respectively. Thus, to be fair, the friends of necessary and sufficient conditions should not be saddled with the assumption that such defining conditions must be *precise*.

Moreover, when we propose a definition of a given concept, the proposal's placing necessary and sufficient conditions on that concept is compatible with the proposal's resonating in an illuminating way with our background assumptions. The author maintains that apodictic certainty is unattainable in the natural sciences and metaphysics, and I wholeheartedly agree. However, the impossibility of attaining apodictic certainty in a domain of inquiry is not an obstacle to our proposing necessary and sufficient defining conditions for concepts in that domain. After all, we might reasonably propose one set of defining necessary and sufficient conditions *on Monday*, and *on Tuesday*, conclude for some good reason that a *different* set of defining necessary and sufficient conditions is superior. Thus, our fallibility in no way undercuts the feasibility or value of our placing defining sets of necessary and sufficient conditions, regardless of whether those sets of defining conditions are precise or vague. If, as the author insists, the goal is *coming to*

understanding, then, surely, we would do *better* to develop definitions which resonate in an illuminating way with our background assumptions *and* place defining necessary and sufficient conditions, than we would do to develop definitions which resonate in this way, but which fail to place defining necessary and sufficient conditions.

In addition, according to the author, the Aristotelian formal cause is an important mode of metaphysical explanation which involves defining what a thing is essentially. The author also holds that the epistemic justification of a metaphysical theory is eductive and therefore involves *inference to the best explanation*. Yet, surely, all other things being equal, a proposed formal cause which places precise necessary and sufficient conditions on something provides a *better explanation* of it than a proposed formal cause which fails to do so. For example, consider these two proposed formal causes of the phenomenon of a lunar eclipse: (i) *there is a lunar eclipse because the Earth is interposed between the Sun and the Moon*, and (ii) *there is a lunar eclipse because something is interposed between the Sun and the Moon*. We assume for the sake of argument that the first account puts forward a precise necessary and sufficient condition for a lunar eclipse, whereas the second account does not, putting forward instead an imprecise condition which is necessary, but insufficient, for a lunar eclipse. Surely, prima facie, the first proposal provides *a better explanation* of the phenomenon of a lunar eclipse than the second one.

Fortunately, more often than not, the author fails to follow his own advice in these matters. Actually, he seems to be committed to what I believe is a correct methodological principle pertaining to these matters, namely, *that in the course of developing a theory, one should place defining necessary and sufficient conditions on relevant explanatory concepts to the extent that one can*. In particular, the author does not hesitate to place defining necessary and sufficient conditions on a variety of concepts relating to ways in which an *eidos* may ontologically depend upon another *eidos*.

Still, it is important to acknowledge that we are *not obligated* to place defining necessary and sufficient conditions on every concept within a theory. Unless *some* of the concepts within the theory in question are taken as *basic* or *undefined*, either an *infinite chain* of definitions, or a *circular sequence* of definitions, would result. However, a circular sequence of definitions is vicious, and as *finite intellects*, we are incapable of grasping an infinite chain of definitions. It follows that we simply *cannot* place defining necessary and sufficient conditions on *every* concept within a theory. Moreover, in the case of epistemic norms, as with ethical ones, ‘ought’ implies ‘can’. Thus, in putting forward a theory, it is *not the case* that we *ought* to place defining necessary and sufficient conditions on every concept, or in other words, it is permissible for us to take some of the

concepts within that theory as basic or undefined.

Comments on Part 3 of *Coming to Understanding*, Volume I

In Part 3, the author sets forth and defends his account of the basic structure of reality. This account identifies the metaphysical categories with the *eide*. Historically, such categories have often been thought of as *universals*, that is, as entities which are capable of multiple instantiation, in contrast to *particulars*, entities which are not capable of multiple instantiation. Alternatively, a category may be thought of as *collective* entity, for instance, as a *set* or a *sum* of entities in the category in question. For his purposes, the author wishes to avoid any such historical associations. He provides a novel, powerful, and convincing argument that categories cannot be identified with collective entities, whether sets or sums. Moreover, as a *particularist*, he summarily dismisses the venerable idea of categories as *universals*.

So what kind of entity is a category in the author's view? Well, according to the author, the *eide*, like Plato's forms, are unchanging *particulars* which exist outside of space and time. However, the author maintains that the *eide* exist *contingently*. One of the *eide* is the *eidos*, the *Eide*. Moreover, in some cases an *eidos* has *parts*. For example, the *eidos*, the *Eide*, has parts; however, the only parts it has are the *eide*. In the author's view, if an *eidetic* particular is a *part* of an *eidos*, then it "participates in" that *eidos*, a la "participation in" a Platonic form. Concerning the notion of non–spatio-temporal *eide* having parts, the author writes as follows.

> It is important, however, not to import into the notions of part and whole, as they are being used here, spatial intuitions that do not apply to objects that are not in space or time. A good example of why is to consider the particular *eidos* the *Eide*...the *Eide* contains itself as a part. This shows that mereological intuitions do not apply to the *eidos* the *Eide*. There is no objection…to the *Eide* containing itself as a part. [p.69]

I find this passage perplexing. On the one hand, the axioms of standard mereology require that if the *Eide* exists, then it has itself as a part, namely, an *improper* part; if the *Eide* exists, then it has itself as such a part simply in virtue of its being identical with itself. In other words, given these axioms, for any x, x is an improper part of x. So long as the statement that the *Eide* contains itself as a part simply means that the *Eide* is an improper part of itself, such a statement is entirely unobjectionable. However, when the author comments that the *Eide* containing

itself as a part shows that mereological intuitions do not apply to the *Eide*, he appears to be endorsing the peculiar notion that the *Eide* has itself as a *proper* part. Unfortunately, the axioms of standard mereology entail that an entity does not have *itself* as a *proper* part. That an entity does not have itself as a proper part is necessarily true in virtue of the definition of "proper part," since, according to that definition, a *proper* part is simply a part which is *not* identical with the whole. Thus, if the *Eide* had itself as a proper part, it would paradoxically follow, given the definition of "proper part," that the *Eide* is not identical with itself!

In my view, the mereological intuition embodied in the foregoing definition of "proper part" is absolutely basic and wholly general. I argue below that this intuition is *not* based upon the importation of "spatial intuitions that do not apply to objects that are not in space or time."

I begin by raising the following question. Given that the *eide* are outside of space and time, what *species of part* do they have? Clearly, they do not have *spatial* or *temporal parts*. Moreover, as noted earlier, the author argues against any notion of the *eide* as arbitrary sums or collections of some sort. Rather, his suggestion is that the *eide* have *logical parts*. To be as fair as possible, I will understand the notion of a logical part in its most general sense, that is, as a [broadly] logical [or metaphysical] part.

The author defends his notion of the [*eidetic*] parts of the *Eide*, and of the [non-*eidetic*] parts of other *eide*, by appealing to the notion of a *logical object* (e.g., the proposition *that Venus is hot*) which exists outside of space and time and which has both a *non–spatio-temporal logical part* (e.g., the universal Hotness) and a *spatio-temporal logical part* (e.g., the planet Venus).

I will return later to the notion of a non–spatio-temporal entity which has a *spatio-temporal* entity as a logical part. In the present context, what is relevant is the notion of a non–spatio-temporal entity which has a *non–spatio-temporal* entity as a logical part. An example would be a non–spatio-temporal logical object such as a property, relation, or proposition which has a non–spatio-temporal property, relation, or proposition as a conjunctive part, logical "subject," logical "predicate," and so forth.

But I don't see how this notion would help to address the problem of the *Eide* having *itself* as a proper part. Specifically, even if the *Eide*'s parts are logical in character, it doesn't appear to be possible for the *Eide* to be a proper part of itself. For instance, suppose that *even and prime*, and *Sphericity is a shape and Red is a color*, are logical objects which exist outside of space and time and which have their *conjuncts*, "subjects," or "predicates" as logical parts. Surely, even with respect to non–spatio-temporal logically complex objects such as these, it remains utterly inconceivable that they have *themselves* as [logical] proper parts, e.g., as one of their own conjuncts, etc. And in particular, it is not possible for there to be

an intelligible example of a self-referential *proposition* that has *itself* as a [logical] proper part, e.g., which is its own logical "subject," "predicate," etc.

There is yet another difficulty concerning the *Eide*'s parts. This difficulty pertains to one of the axioms of standard mereology. According to this axiom, parthood is a transitive relation.

A relation, *R*, is transitive if and only if, necessarily, for any *x*, *y*, & *z*, if *x* bears *R* to *y*, and *y* bears *R* to *z*, then *x* bears *R* to *z*. Thus, for example, if a spark plug is part of an automobile engine, and that automobile engine is a part of an automobile, then that spark plug is a part of that automobile.

The author's view about the parts of the *Eide*, his view about the parts of the *eidos*, Modes, and the transitivity of parthood, together form an inconsistent triad. The *eidos*, Modes, has various spatio-temporal particulars as parts. And the *eidos*, Modes, is a part of the *eidos*, the *Eide*. Given the transitivity of parthood, it follows that the *Eide* has various spatio-temporal particulars as parts, a conclusion that the author denies.

However, there has been considerable controversy over whether parthood is transitive. Although I believe that the relation of parthood *is* transitive, there are philosophers who have intuitions to the contrary. Given the author's views about the parts of the *Eide* and the parts of the *eidos*, Modes, he would do well to more explicitly address the philosophical issues at stake in the debate about whether parthood is transitive. In particular, arguably, the relation, *is a component of*, is not transitive. For example, arguably, there is a sense in which some nucleus, *N*, is a *component* of a skin cell, *C*, and in which *C* is a *component* of a person (*S*'s) skin, but in which that nucleus, *N*, is *not* a *component* of *S*'s skin. Indeed, the following remarks of the author suggest that he is thinking of *parthood* along these lines.

> A human body has as its parts various organs—the heart, the liver, the brain, and so on. However, although the individual molecules of a human body (at a time) are certainly present in that body, they cannot be seen as parts of it. [p. 101]

Next, I would like to assess the author's claim that in some cases non-eidetic *spatio-temporal* particulars "participate in" non–spatio-temporal eidetic particulars (*eide*) by being *parts* of those eidetic particulars. However, I find it difficult to understand how an entity that is *outside* of space and time could have an entity that is *in* space and time as a *part*. Because a spatio-temporal entity, *x*, and a non–spatio-temporal entity, *y*, are so *utterly unlike* and belong to such *fundamentally different realms of existence*, I wonder how *x* could be a *part* of *y*. For this reason, I worry about whether the claim that some non–spatio-temporal entities have spatio-temporal entities as parts is intelligible. Analogous questions would arise, for

example, with respect to the notion that non-spatial souls could have spatial bodies as parts. Of course, this particular sort of worry about how non–spatio-temporal items could have spatio-temporal items as parts does not affect the author's notion that there is a non–spatio-temporal entity, the *Eide*, which has other *non–spatio-temporal* entities (the other *eide*) as parts.

It is to the author's credit that he addresses the worry raised in the preceding paragraph. In doing so, he provides an intriguing defense of the intelligibility of the notion of a non–spatio-temporal entity having a spatio-temporal entity as a part.

This defense is based upon what the author takes to be an intuitive case of a kind of non–spatio-temporal item that has a spatio-temporal object as a part. According to the intuitive case in question, attributed by the author to the early Bertrand Russell, certain abstract "judgments" or propositions, for example, *that Venus is hot*, are non–spatio-temporal entities which have, *as parts*, both spatio-temporal objects and non–spatio-temporal universals (in the foregoing example Venus and Hotness, respectively).

Obviously, on the assumption that a proposition is an abstract or non–spatio-temporal entity, a proposition does not have spatial or temporal parts. The author's suggestion (noted earlier) is that such a non–spatio-temporal entity has logical parts. The notion that the abstract proposition *that Venus is hot* has the planet Venus and the universal Hotness as logical parts presupposes that *this planet* and *that universal* are *united together* in virtue of them being robustly inter-related in some way. After all, propositions have unified structures; they are not mere arbitrary sums of items. (It is not required that the parts of an arbitrary sum be united in virtue of them being inter-related in some robust way.) And, more generally, the following metaphysical principle appears to be necessarily true: if *W* is a whole (and has parts), and *W* is not an arbitrary sum, then *W*'s parts are united in virtue of *W*'s parts being inter-related in some robust way. Moreover, in particular, if *W* is a whole (and has *broadly logical or metaphysical parts*), and *W* is not an arbitrary sum, then *W*'s parts must be united in virtue of *W*'s parts *being logically or metaphysically inter-related in some robust way*.

For instance, on a Platonic or extreme realist conception of universals, the conjunctive universal, (*F* & *Q*) – ness, is such that its logical parts, *F* – ness, and *Q* – ness, are united by standing to one another in the robust logical or metaphysical relation, necessarily, *F* – ness exists if and only if *Q* – ness exists. Parallel remarks apply to a conjunctive proposition (*p* & *q*) vis-à-vis the unifying inter-relation of its logical parts *p* and *q*. On the other hand, given an Aristotelian or moderate realist conception of universals, the conjunctive universal, (*F* & *Q*) – ness, is such that its logical parts, *F* – ness, and *Q* – ness, are united by standing to one another in the robust logical or metaphysical relation, (∃*x*) (*x* exemplifies *F* – ness & *x* exemplifies *Q* – ness).

One way of characterizing the inter-relationship of Venus and Hotness vis-à-vis the proposition *that Venus is hot* is to say that Venus and Hotness are robustly inter-related as the logical "subject" and "predicate" of that proposition. Another way of putting the matter is to say that Venus and Hotness are inter-related in virtue of Venus *having* Hotness, in other words, via the logical or metaphysical relation of *exemplification* (or the like).

However, the interpretation of this sort of example is not nearly as straightforward as the author seems to think. For one thing, it is interesting that Russell did not actually use the term ***part*** to express his view about such examples. Russell's actual formulation of his famous Principle of Acquaintance is:

> *…Every proposition which we can understand must be composed wholly of* ***constituents*** [my emphasis] *with which we are acquainted.* [*The Problems of Philosophy*, New York and Oxford: Oxford University Press, 1997, p. 58]

In *ordinary* usage, a "constituent" may be either a *part* or an *element*. Although Russell holds that some non–spatio-temporal propositions have spatio-temporal objects such as Venus as a constituent, Russell does not make clear exactly what he means by his technical term "constituent" in this context. Thus, it is by no means clear that by a "constituent" Russell meant a *part*. So, it is unclear whether Russell holds that propositions of the sort in question have both spatio-temporal objects and non–spatio-temporal universals as *parts*.

Still, since the question of whether there are non–spatio-temporal propositions which have spatio-temporal objects such as Venus as parts should not be settled by an appeal to authority, answering the question "What *did* Russell mean by a "constituent" of a proposition?" is not crucial in this context. Rather, the crucial questions are the following two.

First, "Should we regard a proposition's "constituents" as parts of that proposition, or do a proposition's "constituents" have some other status?" Second, "If a "constituent" of a proposition *is* a part of that proposition, should we conclude that a spatio-temporal object could be a constituent of a non–spatio-temporal proposition?" I address these questions below.

To begin with, the view that there are non–spatio-temporal propositions which have both spatio-temporal and non–spatio-temporal "constituents" is highly controversial within metaphysics. Some philosophers, such as Roderick Chisholm, have denied the possibility of such propositions on the ground that non–spatio-temporal propositions must be "purely qualitative," that is, analyzable in wholly general terms. However, for the sake of argument, let us grant that there are propositions such as *that Venus is hot* which are irreducibly non-qualitative. Even

so, the correct ontological analysis of such propositions remains highly controversial.

It can be argued plausibly that an element of a set, *S*, is a "constituent" of *S* in a metaphysically interesting sense, e.g., that the set, {Venus, Mars}, has Venus and Mars as constituents. In addition, arguably, this sense of "constituent" is the same as the sense in which propositions have "constituents." But, as the author acknowledges, an element of a set is *not* a *part* of that set. It can also be argued that the subsets of a set, *S*, count as "constituents" of *S* in that sense. It can further be argued that the elements of a set's (*S*'s) elements qualify as "constituents" of *S* in the relevant sense. Thus, arguably, the proposition *that Venus is hot* has Venus and Hotness as *constituents*, *not* because it has those entities as *parts*, but rather because this proposition can be reduced to (and thus identified with) a set-theoretical entity, say, the ordered pair <Venus, Hotness>. On the other hand, if it is assumed that the proposition in question cannot be reduced to or identified with ordered n-tuples of any sort, then it can be argued that *the parts* of the proposition *that Venus is hot* are actually non–spatio-temporal abstract entities, namely, Venus-ness (the haecceity or "this-ness" of Venus), and Hotness. In the light of the foregoing considerations, it is not clear that the proposition *that Venus is hot* provides an example of a non–spatio-temporal entity which has a non–spatio-temporal object as a part.

There is an alternative defense of the intelligibility of the notion of a non–spatio-temporal entity having a spatio-temporal entity as a part. This alternative defense is based on intuitions about a different kind of example not discussed by the author. This alternative defense is based on the following two premises.

1. If there might be *spatio-temporal* entities which have *non–spatio-temporal* entities as parts, there might be *non–spatio-temporal* entities which have *spatio-temporal* entities as parts.

In support of premise 1, if the first sort of part-whole relationship is possible, then there appears to be no reason to deny that the second sort of part-whole relationship is possible. In other words, it doesn't appear that it would be any more difficult for a spatio-temporal entity to have a non–spatio-temporal entity as a part than it would be for a non–spatio-temporal entity to have a spatio-temporal entity as part.

2. There might be concrete "states" of things, for example, that spatio-temporal *state* of Venus which is *Venus being hot at* [time] *t*, and which have, as *parts*, both spatio-temporal objects and non–spatio-temporal universals (in this example, Venus and Hotness,

respectively).

Given premises 1 and 2, it follows that there might be non–spatio-temporal entities which have spatio-temporal objects as parts.

With respect to premise 2, it might be objected, along lines parallel to those advanced in the preceding paragraph, that the spatio-temporal state in question has Venus and Hotness as "constituents," *not* because it has those entities as *parts*, but rather because this state can be identified with the ordered triple <Venus, Hotness, *t*>. However, there is a serious problem with this objection. After all, this ordered triple is a set-theoretical entity which has a non–spatio-temporal entity, i.e., the universal Hotness, as a constituent. Thus, it appears that this ordered triple is a *non–spatio-temporal* entity. Because *ex hypothesis* the state under discussion is a *spatio-temporal* entity, it appears that this state cannot be identified with the ordered triple in question.

However, there is another, weightier objection that may be raised against premise (2). According to this objection, if we conceive of *Venus being hot at t* as a spatio-temporal state, then it is plausible to think of that state as having *only spatio-temporal parts* such as Venus, *the particular hotness of Venus* (understood as a non-sharable *trope*), and *t*.

I also note that one cannot plausibly defend the intelligibility of the general notion of an entity's having both spatio-temporal and non–spatio-temporal parts by appealing to the possibility of an arbitrary sum's having parts of both of these sorts. This is true for the following reasons. First, the division between the spatio-temporal and the non–spatio-temporal realms is exhaustive and exclusive. In other words, everything must be either spatio-temporal or non–spatio-temporal, and nothing can be both. Second, the arbitrary sum of a single spatio-temporal object, say, a particular electron, *e*, and a single non–spatio-temporal item, say, the null set, { }, has just as a good claim to be characterized as spatio-temporal, as it has to be characterized as non–spatio-temporal. So, there appears to be no fact of the matter as to whether a sum such as *e* + { } is spatio-temporal, or non–spatio-temporal. I conclude that it is quite doubtful that *e* + { } exists. Yet, it appears that there are arbitrary sums of spatio-temporal and non–spatio-temporal items only if *e* + { } exists. Thus, arbitrary sums of spatio-temporal and non–spatio-temporal items are extremely dubious entities.

Even in the light of the doubts I have raised about the possibility of a non–spatio-temporal proposition which has a spatio-temporal object as a logical part, it seems that the notion of such a proposition has not been shown to be *incoherent*. Let it be granted that there could be propositions of this kind. Even so, an *eidos* is a non–spatio-temporal entity of a *very different kind* than a proposition. Thus, it is not clear that the possibility of a non–spatio-temporal proposition which has a

spatio-temporal object as a logical part can any shed light on how a non–spatio-temporal *eidos* could have such a logical part. I shall argue below that even if a non–spatio-temporal proposition could have a spatio-temporal object as a logical part, it remains mysterious how an *eidos* could have a logical part of this kind.

To begin, suppose that there is an *eidos*, *E*, such that *E's* [broadly] logical [or metaphysical] parts are $o_1 \ldots o_n$. Further suppose that $o_1 \ldots o_n$ include the basic spatio-temporal "objects" or "things" of our world. In the author's view Modes is an *eidos* which actually meets these two conditions. Earlier, I argued that, necessarily, if *W* is a whole (and has broadly logical or metaphysical parts), and *W* is not an arbitrary sum, then *W*'s parts must be united in virtue of *W*'s parts being logically or metaphysically inter-related in some robust way. Since $o_1 \ldots o_n$ are [broadly logical or metaphysical] parts of *E*, and *E* is not an arbitrary sum, it follows that the logical parts of *E*, including $o_1 \ldots o_n$, are united together in virtue of some robust logical or metaphysical inter-relationship among them. Given that $o_1 \ldots o_n$ include the basic spatio-temporal "objects" of our world, what might this robust logical or metaphysical inter-relationship be? The author does not give us any hint. I haven't been able to think of any likely candidate. E.g., since, by and large, the existence of one basic spatio-temporal "object" is logically and metaphysically independent of the existence of another, the basic spatio-temporal "objects" which are parts of *E* cannot be united by a connecting chain of logical or metaphysical existential entailments. Without an adequate explanation of the nature of the robust logical or metaphysical inter-relationships in question, the notion of an *eidos* having spatio-temporal "objects" as parts is a mysterious one. To the extent that this notion remains mysterious, so does the idea of a spatio-temporal "object" participating in an *eidos* by virtue of being a part of that *eidos*.

I turn next to the author's conception of the crucial relation of *ontological dependence*. He characterizes this relation as follows.

> …A particular *A* is ontologically dependent on a particular *B* if and only if the existence of *A* depends on the existence of *B*…The One is the only absolutely ontologically independent particular (p.64).
>
> If *A* is ontologically dependent on *B*, we say, "*B* is ontologically prior to *A* (p.64).
>
> …A particular *A* is ontologically dependent on a particular *B* if and only there exists an explanatory chain between *A* and the One, and *B* is a link in that chain (or *B* is the One)…Such chains, when restricted to *eide*, are entirely explicable in terms of (analogs of) Aristotle's four causes"(p. 66).

In the foregoing citations, the author states that *A*'s ontological dependence on *B* requires *B*'s *ontological priority* to *A*. Therefore, if *A* ontologically depends on *B*, then *B* does *not* ontologically depend on *A*. In other words, *ontological dependence* is an *asymmetrical* relation.

The author also maintains that *A*'s ontologically depending on *B* is not reducible to a *modal* relation, e.g., *necessarily*, *A* exists only if *B* exists, or equivalently, *A*'s existing *entails B*'s existing. Of course, this is consistent with *A*'s ontologically depending on *B* implying that necessarily, *A* exists only if *B* exists. As we shall see, the author is committed to there being such an implication. As we shall also see, although ontological dependence is not reducible to a modal relation, if the author's metaphysical theory is true, then there is a modal variety of ontological dependence.

One reason that the author is right to say that *A's ontologically depending on B* is not reducible to *A's existing entailing B's existing* is that this relation of entailment is *not* asymmetrical. In other words, there could be two entities such that the existence of each of them entails the existence of the other. For example, necessarily, the *number 3* exists if and only if the *number 4* exists, I exist if and only if my singleton set exists, and a *sphere* exists if and only if a *spherical surface* exists. Yet, despite the latter two symmetrical entailments, it is intuitively plausible that *in some metaphysically significant respect* a spherical surface asymmetrically depends upon a sphere, and that *in some metaphysically significant respect* my singleton set asymmetrically depends upon me.

Judging from the author's own examples, and his insistence that ontological dependence cannot be reduced to a modal notion, he clearly appreciates the metaphysical significance of these examples. Indeed, within the author's metaphysical framework, there are other sorts of cases in which one entity is ontologically prior to another, even though the existence of each of them entails the existence of the other. For example, consider the following two quotations from the author.

> It is not possible for the matter or form of a particular *eidos* to be the matter or form of something else. [p. 77]

> But *given the One as it is*, the *eide* — and their interrelations with the One and each other — must be as they are. [p. 96]

Taken together, these quotations imply two things. (1) Necessarily, a first *eidos*, *E1*, exists if and only if *E1*'s (ontologically dependent) form exists (where this form is another *eidos*, *E2*). (2) Necessarily, a first *eidos*, *E**, exists if and only if *E**'s (ontologically dependent) matter exists (where this matter is another *eidos*,

*E***). Nevertheless, the existence of these symmetrical existential entailments is *consistent* with the truth of the author's claims that *E2* is ontologically dependent on *E1*, and *E*** is ontologically dependent on *E**, insofar as these two specific forms of ontological dependence, i.e., *is the matter of* and *is the form of*, are inherently asymmetrical relations.

However, I shall now argue that there is an asymmetric modal relation that should be counted as a specific form of ontological dependence. This modal relation can be defined as follows. A particular, *A*, *asymmetrically modally depends* on a particular, *B*, if and only if, *necessarily*, *A* exists only if *B* exists, and *possibly*, *B* exists without *A's* existing. For instance, if God exists and is a necessary being, and I am a contingent being, then I am asymmetrically modally dependent on God in virtue of my bearing the latter relation to God.

There is only one objection to counting the relation of *asymmetrical modal dependence* as a specific form of *ontological dependence* that need be considered. This objection is based on the fact that for *any x & y*, if *x* is a contingent being and *y* is a necessary being, then *x* asymmetrically modally depends on *y*. Thus, for example, on the assumptions that I am a contingent being, and the empty set is a necessary being, then I am asymmetrically modally dependent upon the empty set. So, if asymmetrical modal dependence counts as a specific form of ontological dependence, then I am *ontologically dependent* upon the empty set. It may be argued that this consequence is counter-intuitive, and if so, such an example raises doubts about the explanatory power of the relation of asymmetrical modal dependence, and hence, doubts about whether this relation counts as a specific form of ontological dependence. Be that as it may, the following line of reasoning shows that within the author's metaphysical system no doubts of this sort could arise.

First, according to that system, *everything*, including the One, has *contingent existence* and, consequently, a necessary being does not actually exist. Second, we may assume that if a necessary being does not *actually exist*, then the existence of such a being is *impossible*. It follows that within the author's metaphysical system, it is impossible that there be a necessary being. In that case, there appears to be no reason for doubting the explanatory power of the relation of asymmetrical modal dependence, and counting this relation as a specific form of ontological dependence appears to be unobjectionable. Moreover, within the author's metaphysical system, for any *x*, if *x* is other than the One, then, necessarily, *x* exists only if the One exists, and possibly, the One exists without *x* existing. It follows that within this metaphysical system, everything other than the One asymmetrically modally depends upon the One. Thus, it appears that if the author's metaphysical theory is true, asymmetrical modal dependence should be counted as a specific form of ontological dependence.

Nonetheless, the author is correct in his insistence that ontological dependence [in general] cannot be reduced to any modal notion. For example, consider his two specific forms of ontological dependence, the relations *is the matter of* and *is the form of*. As we have seen, both of these relations have *modal implications*, e.g., if *A* is the [ontologically dependent] matter of *B*, or *A* is the [ontologically dependent] form of *B*, then *necessarily*, if *A* exists, then *B* exists. Nevertheless, it is clear that neither of these relations is *reducible* to any *modal notion*.

I now turn to an aspect of the author's treatment of his two specific forms of ontological dependence which I find somewhat obscure. It concerns his characterization of *is the matter of* and *is the form of* as *analogs* of Aristotle's material and formal causes. This characterization is not illuminating. For one thing, it is not made clear what the relevant analogy or analogies are supposed to be. For another, as the author himself indicates, *is the matter of* and *is the form of* are *not* analogous to Aristotle's material and formal causes in some salient and relevant respects.

To see this, consider a paradigmatic example of an Aristotelian material cause, for example, *that the statue is heavy because it is made of lead*. Generalizing from this paradigmatic example, I conclude that for any instance of Aristotelian material causation, there exists an *x*, such that *x*'s *matter* explains [something about] *x*. In contrast, for any instance of the author's relation of *is the matter of*, there exists an *x*, such that *x* explains [something about] *x's matter*. Thus, with respect to their *opposite explanatory directions*, the relation of Aristotelian material causation and *is the matter of* relation are *not* analogous, much like pairs of *converse* relations such as *is an ancestor of* / *is a descendant of*, and *is the cause of* / *is the effect of,*, respectively. A paradigmatic example of an Aristotelian formal cause is *that there is a solar eclipse because the Moon is interposed between the Sun and the Earth*. Generalizing from this paradigmatic example, I conclude that in any instance of Aristotelian formal causation, there exists an *x*, such that *x*'s form explains [something about] *x*. By contrast, for any instance of the author's relation of *is the form of*, there exists an *x*, such that *x* explains [something about] *x*'s form. Hence, with respect to their *opposite explanatory directions*, the relation of Aristotelian formal causation and *is the form of* relation are also *not* analogous.

Instead of thinking of the author's two specific forms of ontological dependence as *analogs* of Aristotle's material and formal causes, it would be clearer and more illuminating to think of the four of them as belonging to the same *family of relations*, just as, for example, we think of *is the grandmother of* and *is the granddaughter of* as belonging to the same family of relations, namely, *kinship relations*.

The foregoing line of reasoning has implications for how ontological dependence is best characterized vis-à-vis the four causes. In characterizing his conception of ontological dependence the author says that explanatory chains,

> …when restricted to *eide*, are entirely explicable in terms of (analogs of) Aristotle's four causes. [p. 66]

In the light of the earlier discussion of the *is the matter of* and *is the form of* relations, I conclude that it would be clearer and more illuminating to say, instead, that such chains *when restricted to eide, are entirely explicable in terms of (analogs of) of Aristotle's efficient cause, final cause, and (the converse-relations of) Aristotle's material and formal causes.*

There is another aspect of the author's treatment of ontological dependence which stands in need of clarification. In the following citations, the author further characterizes his understanding of the phrase "ontological dependence."

> Our notion of explanation, therefore, although it is not restricted to Aristotle's four causes, as he understood them—is nevertheless "Aristotelian explanation" insofar as it is both metaphysically substantial as well as intelligible. It is because the term "explanation" in contemporary discourse has come to mean only the linguistic side of the richer Janus-faced notion that we have chosen to use the phrase "ontological dependence" as our official nomenclature instead of "explanation."[p. 64]

> …ontological dependence…operates both metaphysically and in terms of explanation. [p. 66]

In the foregoing citations, the author certainly at least appears to say that within the official nomenclature of his metaphysical theory the phrases "ontological dependence" and 'explanation" are *synonymous*. In other words, it appears that within the official nomenclature of his metaphysical theory, the phrases "*A* ontologically depends on *B*" (or equivalently, "the existence of *A* depends on the existence of *B*") *and* "*A* is explained by *B*" are semantically equivalent. Given this semantic equivalence, it follows that *every* case of *metaphysical explanation* is a case of *ontological dependence*. Moreover, as the author states, if *A* is ontologically dependent on *B*, then *B* is *ontologically prior* to *A*. As I noted earlier, this implies that the author's intended relation of ontological dependence is *asymmetrical*, that is, if the existence of *A* depends on the existence of *B*, then the existence of *B* does *not* depend on the existence of *A*. So, the author also appears to

be committed to the thesis that *A*'s being [metaphysically] *explained by B* is an *asymmetrical* relation, or in other words, that if *A* is metaphysically explained by *B*, then *B* is *not* metaphysically explained by *A*.

Now, observe that, according to the author,

> …the form and matter of the One are dependent aspects of the One, not pre-existing parts that can be must together to make it up. [p. 63]
> …The One is the only absolutely ontologically independent particular. [p. 64]

In the foregoing citations from pages 63 and 64, the author commits himself to the thesis that the form and matter of the One are *ontologically dependent* on the One. This implies *that the form and matter of the One are metaphysically explained by the One*.

However, as the author makes clear in the following passage, he also holds that there is a metaphysical explanation of the One in terms of its form and matter, or in other words, *that the One is metaphysically explained by its form and matter*.

> Every particular…is amenable at least in principle to what we shall describe as four-cause explanations: analyses in terms of its form, matter, efficient cause, and finality-or, as we shall explain later, analogues thereof. The One, quite obviously, is not amenable to an explanation in terms of efficient causation because there is nothing outside the One that can play such a role. For a similar reason, the One is not amenable to an explanation in terms of finality. This leaves only form and matter-both of which, we claim, the One has, and in terms of which the One can be understood. [p.62]

Let us take stock for a moment. As we have seen, the author appears to imply that every case of *metaphysical explanation* is a case of *ontological dependence*. He also implies that ontological dependence is an *asymmetrical relation*. Hence, it deductively follows that *metaphysical explanation* is also an *asymmetrical relation*. Consequently, the author creates an appearance of inconsistency by holding both that *the form and matter of the One* are metaphysically explained by *the One*, and that *the One* is metaphysically explained by *its form and matter*.

How can the author avoid creating this appearance of inconsistency? Part of the answer is that he needs to modify the official nomenclature of his metaphysical theory to avoid creating the impression that the phrases "ontological dependence" and "explanation" are synonymous within that nomenclature.

As we have seen, the author's account requires that some instances of

metaphysical explanation are *not* instances of ontological dependence. It also requires that *metaphysical explanation*, unlike *ontological dependence*, is *not* in general an asymmetrical relation of ontological priority.

To understand why metaphysical explanation is not such an asymmetrical relation is to understand why *A's* being ontologically dependent on (and therefore being metaphysically explained by) *B* is *compatible with A*'s metaphysically explaining *B*. The reason why they are compatible is this. Possibly, there are *different* basic modes of metaphysical explanation, *E1* and *E2*, and two different entities *A* & *B*, such that *A E1*-explains *B and B E2*-explains *A*. Since in a case of this kind, *E1* and *E2* are two fundamentally different modes of metaphysical explanation, *A*'s explaining *B* may be coupled with *B*'s explaining *A* without any sort of *circularity* arising. (On the other hand, necessarily for any *single* explanatory relation, *E*, and any entities *A* & *B*, it is *viciously circular* (and thus *impossible*) for *A* to *E*-explain *B and B* to *E*-explain *A*.)

In the author's view, for example, the particular form and matter of the One ontologically depend on (and thus are explained by) the One; but it is also the case that the One has Aristotelian formal and material explanations in terms of its particular form and matter. Fortunately, since the author's two explanatory relations, *is the [ontologically dependent] matter of*, and *is the [ontologically dependent] form of*, are asymmetrical and, as we have seen, fundamentally differ in their explanatory direction, from the relations of Aristotelian formal and material explanation, the author's view here is entirely coherent.

Similarly, it is entirely coherent, for example, to suppose that *both* of the following states of affairs obtain. (1) The particular form and matter of the One are ontologically dependent on (and thus metaphysically explained by) the One because *although the* [*ontologically dependent*] *form and matter of the One could not exist without the One*, *the One could exist even if th*e *form and matter in question did not*. (2) The One is metaphysically explained by (though *not* ontologically dependent on) the One's particular form by virtue of having a certain *formal cause* (a definition of the essence or nature of the One). Since, as described above, the states of affairs obtaining in 1 and 2 *involve two fundamentally different modes of explanation*, the conjunction of these two states of affairs does not appear to involve any sort of circularity.

In the light of the foregoing discussion, it would make a great deal of sense for the author to include an explicit statement to the effect that in the realm of the *eide* and *the One*, the explanatory relations of Aristotelian material and formal causation are *not* forms of *ontological dependence*. By the way, this constitutes a second important respect in which the author's two specific forms of ontological dependence, *is the matter of* and *is the form of*, are *not* analogous to Aristotelian material and formal causation. In the first instance (as we saw earlier), the relations

of *is the matter of* and *is the form of* are not analogous to the relations of Aristotelian material and formal causation, with regard to their opposite [or converse] explanatory directions.

Let us now turn to the author's views on the topic of *change*. He maintains that his metaphysical system allows for the reality of change, unlike other historically important forms of Monism. Yet, given the structure of the author's metaphysical system, it is not clear how there can be change. Since the *eide* are unchanging, the *eidos*, Change, does not *itself* change. Can non-eidetic particulars change by *participating* in that *eidos*? Well, according to the author, there are just two ways in which non-eidetic [third-order] particulars "participate in" or derive their character from *eide*: (i) through being part of a [material] *edios*, and (ii) through imitating an *eidos*. Since what is unchanging does not have *parts* which change, no particular "participates in" the *eidos*, Change, in virtue of *being part of that eidos*. Moreover, since every *edios* is unchanging, and since it is obscure how change can arise through the imitation of non-change, it is unclear how non-eidetic particulars can change in virtue of imitating an *eidos*. Since in its current form the author's metaphysical system has no other means of explaining how non-eidetic [third-order] particulars can change, it is not clear that the author's metaphysical system allows for change.

In the following passage, however, the author suggests that through imitation, *eide* are *final causes* of changes in non-eidetic particulars.

> Another way to think of the relationship of these *eide* to the items that imitate them is along the lines of Aristotle's unmoved mover. On one interpretation of this idea, other objects, because of their desire for, or the love of, the unmoved mover, change themselves in various ways. So, too, some *eide* inspire self-reformatting on the part of (some) non-eidetic particulars by virtue of their imitation of those *eide*. [p. 99]

But, within Aristotle's metaphysical theory, the "other objects," i.e., the ones engaged in imitation, which "change themselves in various ways because of their desire for, or love of, the unmoved mover" are *temporal in nature*. Yet, within the author's metaphysical theory, those beings who *desire and love* are selves which are *non-temporal in nature*, and therefore, *unchanging*. This striking disparity between Aristotle's metaphysical theory and the author's raises serious doubts about whether we can coherently suppose, within the context of the author's metaphysical theory, that some *eide* are related to items that *imitate* them, *analogously* to the way in which Aristotle's unmoved mover is related to items that *imitate* it. For this reason, as it stands, the author's analogy to Aristotle here does not shed light on how non-eidetic particulars can change in virtue of imitating

some *eide.*

Moreover, even if this analogy is coherent, the use of it in the absence of any additional details, i.e., in the statement "So, too, some *eide* inspire self-reformatting on the part of (some) non-eidetic particulars by virtue of their imitation of those *eide*," does *not* provide an *explanation* of how change can occur within the realm of non-eidetic particulars. The aforementioned statement is no more than a promissory note. Until an explanation of how non-eidetic particulars can change is actually provided, it will remain mysterious how a non-eidetic particular can change. And since the One and the *eide* are immutable, until such an explanation is provided, it also will remain mysterious how there can be any change at all.

Plato's Theory of Forms, from which the author draws some inspiration, seems to face related problems concerning the reality of change. If the Forms are immutable exemplars, then it appears that, paradoxically, the Form of Change both changes and does not change. On the other hand, if there is no Form of change, then how can we explain the reality of change?

The final question I wish to address is "How compelling is the author's eduction that the *eidos*, *Coming to Understanding*, is the [ontologically dependent] matter of the One?" This eduction grounds the author's conclusion that the ultimate purpose of reality as a whole is *selves coming to understanding of the basic structure of reality*.

Even the skeptic Hume, through the words of his character Philo, seems to concede that the following philosophical hypothesis is acceptable.

> *...the cause or causes of order in the universe probably bear some remote analogy to human intelligence.* [*Dialogues Concerning Natural Religion*, Pt. XII, sec. 227]

Such a hypothesis is consistent with the hypothesis of *Coming to Understanding*.

Hume appears to be convinced, though, that we are not capable of advancing our understanding of the cause or causes of order in the universe one whit beyond this highly general and ambiguous proposition. As Philo remarks,

> …a man who follows your hypothesis is able perhaps to assert, or conjecture, that the universe, sometime, arose from something like design, but beyond that position he cannot ascertain one single circumstance… [*Dialogues Concerning Natural Religion*, Pt. V, sec. 168]

However, the author persuasively argues that we can use eductive reasoning to

advance our understanding of the cause or causes of order in the universe beyond the aforementioned highly general and ambiguous proposition. Such an argument provides an effective reply to Hume on this score. It appears, then, that the author is on the side of the angels in his passionate conviction that speculative metaphysics remains viable.

Still, in the words of the old adage, the devil is in the details. The following thorny question looms. What details can we presently educe about the cause or causes of order in the universe?" For the sake of argument, let us grant the author's hypothesis that the One is the ultimate cause of order in the universe. *Future* advances in knowledge and understanding notwithstanding, is it *now* the case that we are epistemically justified in educing *Coming to Understanding* as the matter of the One?

The eduction in question is plausible only if the hypothesis of *Coming to Understanding* as the matter of the One provides the best explanation of the relevant data. For the purposes of speculative cosmology, it appears that the relevant data includes everything of which we are currently aware. However, it is not clear that this hypothesis provides a *better explanation* of the relevant data than several other competing hypotheses concerning the identity of the One's matter.

In particular, it can be plausibly argued that, at present, the explanation of the relevant data provided by each one of the following five alternative hypotheses is at least as good as the explanation provided by the hypothesis that *Coming to Understanding* is the matter of the One: (1) that *Coming to Goodness* is the matter of the One, (2) that *Coming to Rightness* is the matter of the One, (3) that *Coming to Virtue* is the matter of the One, (4) that *Coming to Beauty* is the matter of the One, and (5) that *Everything being in Balance* is the matter of the One. It may be argued that hypotheses (1) to (6) are disconfirmed by the occurrence of *badness*, *wrongness*, *vice*, *ugliness*, and *imbalance*. But if so, then it appears that the hypothesis that *Coming to Understanding* is the matter of the One is disconfirmed to at least an equal degree by the occurrence of *ignorance*. If, at present, it is plausible that the explanations of the relevant data provided by each of hypotheses (1) to (5) is at least as good as the explanation provided by the hypothesis that *Coming to Understanding* is the matter of the One, then it appears that at present we are not in a position to educe that *Coming to Understanding* is the matter of the One. And if we are not presently in a position to educe that *Coming to Understanding* is the matter of the One, then we are not currently epistemically justified in believing that the ultimate purpose of reality is *selves coming to an understanding of the basic structure of reality*.

A possible reply to the foregoing line of reasoning is that *Coming to Understanding*, *Coming to Goodness*, *Coming to Rightness*, *Coming to Virtue*, *Coming to Beauty*, and *Everything being in Balance* are actually identical with one

another. If this were the case, then the so-called six alternative hypotheses referred to above would actually be mere notational variants of one another and not alternative hypotheses at all. At times, Plato appears sympathetic to the doctrine that Knowledge, Goodness, Rightness, Virtue, and Beauty are identical with one another. And according to Aristotle, Goodness, Beauty, and the Balance of Nature are intimately inter-related. Yet, it remains far from clear that *Coming to Understanding*, *Coming to Goodness*, *Coming to Rightness*, *Coming to Virtue*, *Coming to Beauty*, and *Everything being in Balance* are identical with one another. Thus, substantial argumentation would be needed to sustain the possible reply under discussion.

Before bringing my review to a close, I shall assess the explanatory merit of the author's metaphysical theory in terms of some of its *intrinsic characteristics*. Such an assessment is especially useful with respect to metaphysical theories, such as this one, which possess great comprehensiveness and depth.

One crucial question about metaphysical theories is whether they are *internally coherent.* After all, we can be epistemically justified in believing that a metaphysical theory, *T*, is true only by means of our inferring that *T* provides a better explanation of the relevant data than the competing metaphysical theories. However, since an internally incoherent metaphysical theory cannot be true, it cannot provide a metaphysical explanation. Thus, if a metaphysical theory, *T*, appears to us to be internally incoherent, then we cannot be epistemically justified in believing that *T* is true.

In the light of my commentary up to this point, is there a serious threat to the internal coherence of the author's metaphysical theory? Well, as it currently stands, the internal coherence of this metaphysical theory is seriously threatened by its apparent commitment to the *Eide*'s being a proper part of itself, something which is self-evidently incoherent due to the fact that a *proper part* is, by definition, a part which *is not identical with the whole*.

However, I shall argue below that, fortunately, the supposition that the *Eide* is a proper part of itself is unnecessary for the purposes of the author's metaphysical system. It might be thought that this supposition is necessary in order to explain why it is that the *Eide* is one of the *eide*, or in other words, how it is that the *Eide* "participates in" itself. (The relevant intuition here seems to be something like the notion that one of the *metaphysical categories* is *Category*.) I cannot think of any other good reason to suppose that the *Eide* is a proper part of itself and the author doesn't suggest that there is one. However, we can explain why the *Eide* is one of the *eide* by postulating that the *Eide* "participates in" itself simply in virtue of its *being identical with itself*, or in other words, in virtue of its being an *improper part* of itself. An *eide's identity with itself*, after all, is one of the three relationships in the author's system by virtue of which "participation in" an *edios*

may occur. I conclude that the author has the resources to explain how it is that the *Eide* "participates in" itself without running afoul of either any definitional truth of mereology or any mereological intuition.

A metaphysical theory exhibits a second sort of internal flaw when it *fails to explain* something that it seeks to (or that it is obliged to) explain. This sort of internal flaw, though not as serious as the presence of internal incoherence, is nevertheless troubling, because, after all, we can be epistemically justified in believing that a metaphysical theory, *T*, is true only by means of our inferring that *T* provides a *better explanation* of the relevant data than the competing metaphysical theories.

Does the author's metaphysical theory have any internal flaws of this second sort? I believe that it does.

First, the author's metaphysical theory fails to explain how non-eidetic particulars "participate in" the *eidos*, Modes. It seeks to explain this in terms of the idea that the *eidos*, Modes, has those non-eidetic particulars as *parts*; but, as I have argued, this idea is mysterious.

Second, as I have argued, in failing to explain how [third-order] non-eidetic particulars can change, the author's metaphysical theory makes it mysterious how there can be change.

The author can adequately address these difficulties if he can solve or dissolve the mysteries described above. Alternatively, he can respond by arguing that the competing metaphysical theories *have even greater difficulties than his own*. And to the extent that such an argument were cogent, this sort of response would be effective. Of course, giving that sort of response would require developing more detailed comparative critiques of the competing metaphysical theories. As the author emphasizes, the philosophical enterprise of *Coming to Understanding* is an on-going, evolutionary process, whose concepts and arguments are continually open to enhancement and revision. Given the philosophical significance and value of the author's metaphysical theory, I can happily say that I deem its continued development a most worthy endeavor.

Review 4: Jonathan Schaffer

Coming to Understanding, Volume I: Philosophy is a work of historical sweep, coupling metaphysical ambition with epistemic modesty. The author, who remains anonymous,[1] attempts to educe the nature, structure, and purpose of the world. In this review I will begin with a three-part summary of the central doctrines of *Coming to Understanding*, Chapter 1, and then turn to twelve questions I have for the author, primarily focusing on the metaphysical issues arising in Part 3 of the work (Section 2 of this critique).

1. Summary

I begin with a summary of some of the central claims of *Coming to Understanding*. This is largely for my own benefit. It will help me clarify some of the author's doctrines in my own mind. It will also allow me to refer back to some of these doctrines in the questions that follow. Perhaps this exercise will also be of some benefit to the author as well. It may be helpful to see one's views expressed in another person's words. Also it may help the author to know which of my resulting questions are based on a real grasp of his ideas, and which are based on misunderstandings. The reviewer may as well expose his misunderstandings from the start!

So I begin where the author begins, by characterizing the task of metaphysical inquiry. For the author, in order to "discharge the fundamental tasks of metaphysics" one must "explain reality as a whole in the most and general and comprehensive way" (p. 3). To do this is "to say what [reality as a whole] is, to articulate its form or nature, and to extract its purpose" (p. 3).

Two questions arise already.[2] First, in speaking of "reality as a whole," does the author merely mean that no parts are excluded? Or does the author mean that metaphysics must explain reality *qua* the one whole? The former understanding may be embraced by the pluralist, but the latter understanding presupposes a monistic conception from the start. I myself am sympathetic to a monistic view, but would not want to presuppose it in the very characterization of the task of metaphysics! (Pluralists are doing metaphysics; I would only argue that they cannot do it quite as well.) In any case these meanings should not be conflated.

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[1] Is the author still writing under the name "A. M. Monius"? I see no mention of this name in the text, so in this review I will stick to the label "the author."

[2] These are purely clarificatory questions. I do not think anything substantial turns on them. I only wonder if the author is expressing himself as precisely as possible at this point.

A second question about the author's characterization of the task of metaphysics: the author will later claim that the "what it is" of a thing, and its purpose, are both given by its form. So in that case the three characterizations of the task of metaphysics turn out to be redundant (though it is an interesting claim that they are so). Moreover, the author also thinks that everything has both form and matter. So hasn't identifying the matter of reality been wrongly left off from the task of metaphysics, by the author's own lights?

Leaving this aside, the strategy that the author recommends for carrying out the task of metaphysics is expressed concisely by the phrase "analytic ontology is the key to speculative cosmology" (p. 3). By "analytic ontology" is meant a theory of the categorical structure of reality, and by "speculative cosmology" is meant an account of the origin, purpose, and structure of reality as a whole.[3] Thus the author proposes that "When we comprehend the nature of the categories and the fundamental relations among them, the nature and purpose of reality as a whole will be laid bare" (p. 3).

I will now attempt to summarize the adequacy conditions the author imposes on a theory of categorical structure (Section 1.1), some of the main assumptions guiding the author (Section 1.2), and the positive theory that emerges from these assumptions (Section 1.3).

1.1. Adequacy Conditions on a Theory of Categorical Structure

An adequate theory of categorical structure is held to the following five constraints. First and in some ways foremost, an adequate theory of the categories is required to treat categories as metaphysical rather than merely grammatical or conceptual. Categories are real features of the world, not just structures in our language or way of thinking, as they turn out to be on some interpretations of Aristotle's *Categories*, and on the Kantian view.

Second and in some ways most influential to the theory to follow, an adequate theory of the categories is required to have *non-arbitrary structure*. Thus the author objects to the "flaccid, arbitrary, list-like qualities" (p. 3) of traditional theories of categories such as that found in Aristotle. Indeed, only Hegel's conception of categories is granted some partial reprieve from the accusation of arbitrary structure.

Third, an adequate theory of categorical structure is required to provide for

[3] A further clarificatory aside: the term "origin" occurs on p. 3, but not elsewhere. In the context of discussing speculative cosmology, the reader may be excused for thinking the "origin" of reality is the Big Bang (or God's act of creation, or whatever is temporally first in the cosmos). Perhaps the term "foundations" would better express the author's intentions?

categorical relations among the categories. Presumably the idea is that not only are there relations among the categories (as I take it none would deny), but that these relations among the categories must themselves be further categories in some sense. Of course these relations among categories are *relations*, so any schedule of categories that includes Relation has a category for them. It was not clear to me whether more was being demanded (and if more was being demanded, why it was being demanded). Is there a further demand that there be a *specific* category for all the inter-categorical relations *collectively* (which excludes any other sorts of relations)? Or is there a further demand for a specific category for each inter-categorical relation *individually*? Inspecting the resulting theory, one finds a specific category for each inter-categorical relation individually, so perhaps this is what the author is demanding. (Though of course it could turn out that less is actually demanded, but that the theory provided just so happens to satisfy some stronger possible demands.)

Fourth, an adequate account of the categories must illuminate the relation (*categorization*?) "between the categories and the reality they categorize" (p. 3). As I understand this fourth adequacy condition, it is connected to the question of the ontological priority relations between the categories and the categorized. Which is prior to which? If one views the categorized beings as prior, with the categories arising as abstractions from these beings, then the categorization relation will be a relation of abstraction. Whereas if one views the categories as prior (as the author does), with the categorized beings depending on the categories, then the categorization relation will be a relation of dependency and in some sense generation.

Fifth, an adequate account of the categories is to render them as ontologically prior to the categorized beings. Thus the author seeks to develop the view that "the categories are ontologically prior to the whole structure of kinds and examples" (p. 25). Such a priority claim follows from the claim that the categories explain the "nature and purpose" of both the kinds and examples (p. 24), together with an understanding of ontological priority in terms of the order of metaphysical explanation. Categories are to come first in the order of being.

Putting these constraints together, here is what emerges so far. As I understand the author, an adequate account of the categories is required to satisfy the following five conditions:

1. *Realism*: Categories are real, objective, mind-independent features of the world.
2. *Non-arbitrariness*: The system of categories must have an internal and non-arbitrary structure.
3. *Providing Categorical Relations*: The relations that systematize the

categories must themselves each correspond to categories.

4. *Illuminating Categorization*: The categories must relate properly to what they categorize (and this relation must be illuminated).
5. *Fundamentality*: The categories are metaphysically fundamental (or at least are prior to the structure of kinds and examples).

These conditions function to eliminate virtually all extant theories of categories from the running. For instance, the Kantian approach looks to fail all five conditions, while the Aristotelian approach, even when realistically interpreted, still looks to fail 2 to 5. The Hegelian approach satisfies 1 and partially satisfies 2, but still looks to fails 3 to 5. More recent realist approaches like Chisholm's fail 2 to 5 entirely. While abstractionist approaches like Johansson's fail 5 and partially fail 2 (and perhaps fail 3 and 4 as well).[4]

1.2. Assumptions of the Positive Theory

So much for constrains on the theory of categories. It may be worth briefly noting nine assumptions that the author makes in developing the positive theory. First, the author assumes a fairly robust *metaphysical realism*. There is real, objective, mind-independent structure to reality (of which categorical structure is one example). Second, the author assumes a *hierarchicalist* theory of reality, on which there is an objective and lower-bounded ordering induced by ontological priority relations. This is the structure of what is fundamental (categorical structure), and what depends on it. Third, the author assumes a form of *monism*, according to which the ultimate explanatory ground (what is fundamental) is reality as a whole. These first three assumptions are closely interconnected. Monism is a positive theory about what is really basic.

In the fourth place, the author assumes a *particularist* ontology. The author refers to this as an "unqualified particularism," which is "the doctrine that everything that exists is particular" (p. 26). This particularism is allied with a fifth

[4] Perhaps the author's overall argument strategy could be made clearer by providing an explicit "scorecard" of desiderata, and explicitly scoring various accounts of categories thereby. I am attempting to reconstruct such a scorecard in the main text, but am not confident I have fully understood how to proceed. For instance, I'm not sure if the abstractionist approach (as per Johansson) satisfies 4 or not. My inclination is to say that it does. The relation between the beings categorized and the categories as revealed to be the relation of abstraction. But the author does claim (on p. 3) that "no account of categories has attempted to address" condition 4. Perhaps that only means that the abstractionists have satisfied 4 by accident, or perhaps it really means I have not fully understood what the author intends by 4. In any case this could have been made more explicit.

assumption, that of a *hylomorphic* treatment of particulars as constituted by a combination of *matter* and *form*. Thus categories themselves are treated as particulars. Indeed, they are specifically accorded a status akin to Platonic forms, as being "ideal, non–spatio-temporal particulars in which ordinary things participate" (p. 22). As particulars, the categories themselves must then have both material and formal constituents. Thus the author speaks of "a fundamental premise of the present system" as involving "generalizing Aristotle's hylomorphism even to… categories" (p. 4).

Sixth, the author follows an Aristotelian approach to explanation, as divisible into four factors. There are material, formal, efficient, and final explanations. Seventh, as an immediate corollary of the sixth assumption, the author assumes that there are final (teleological) explanations in the world. The author adds that these final explanations are objective and do not presuppose the existence of a "world mind" or anything of that ilk. The author's approach to explanation is connected to his particularist hylomorphism, and to his hierarchicalist view of reality. The reason it is said to be apt to extend the notions of matter and form to the categories, is that the categories, as particulars, must have unity and individuality. The unity and individuality of the categories is connected to formal and final explanation.

On a side note, the author makes two epistemological assumptions worth noting. The first, and eighth overall, is that metaphysical inquiry may proceed by a process the author calls *eduction*. Eduction consists in a three part process. First one infers to the best explanation for a body of data, second one deduces further consequences of this explanatory theory, and third one confirms these further consequences. Eduction is said to be a rational procedure in that it aims to provide the truth. Ninth overall, the author assumes a fallibilist approach to knowledge, thus allowing the result of sufficiently successful eduction to count as knowledge. In this way the author allows for knowledge of metaphysics, in a modestly fallible and revisable way: "philosophy in general and a theory of *eide* in particular can only have the status of a body of internally virtuous explanatory decisions that remain open to continual refinement and improvement" (p. 54).[5]

Drawing up the slate of central assumptions, I would report the following:

6. *Metaphysical Realism*: There is real, objective, mind-independent structure to reality (of which categorical structure is one example).

[5] The author actually devotes a third of the manuscript to the epistemology in question, so this paragraph can only represent a complete oversimplification of the author's views. Still, since my questions will primarily be focused on the metaphysical issues, it is hoped that this oversimplification will suffice for my purposes.

7. *Hierarchicalism*: There is an objective and lower-bounded ordering induced by ontological priority relations.
8. *Monism*: The ultimate explanatory ground is reality as a whole.
9. *Particularism*: Everything that exists is particular.
10. *Hylomorphism*: Particulars are constituted by a combination of matter and form.
11. *Fourfold explanations*: There are material, formal, efficient, and final explanations.
12. *Teleology*: There are objective purposes in nature that ground final explanations.
13. *Eductionism*: Metaphysical inquiry may proceed by inference to the best explanation, deduction of further consequences, and confirmations thereof.
14. *Fallibilism*: Knowledge is possible without conclusive evidence.

For whatever it is worth, I consider 6 to 8 to be highly plausible. I have some sympathy for 9. I am no fan of 10 but appreciate that 10 is the orthodox view. I am quite wary of both 11 and 12 (11 because it entails 12), though I do not claim to have any knock-down arguments against teleological explanations. They seem spooky to me, but perhaps that is mere prejudice. I am happy with 13 though I would reject 14. But I would insist that one can have better and worse reasons for metaphysical doctrines, so would not take my rejection of 14 to have any bad effects on the author's project. At any rate, I propose to accept all of 6 to 14 for the sake of the argument, if only to see where they lead.

1.2. The Author's Theory of Categorical Structure

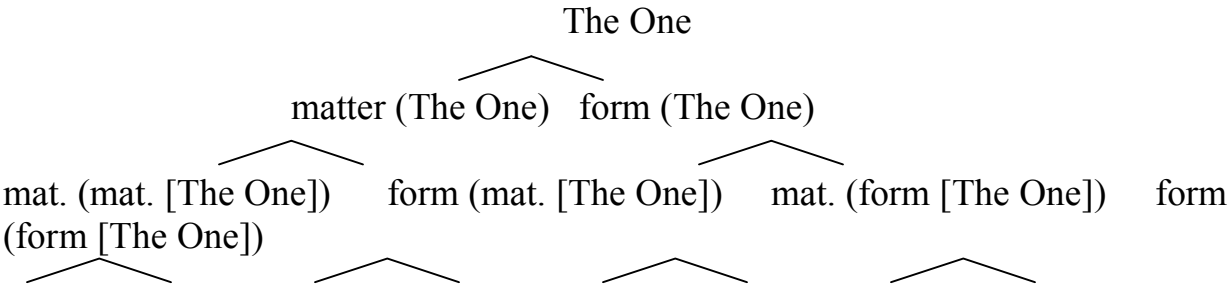
Where these assumptions lead is to the author's positive theory of the categorical structure of reality, which is said to satisfy all the adequacy conditions (1 to 5) reported above.[6] The theory is on display in the first diagram provided (p. 61), featuring 26 categories spiraling outward from The One. The inner structure of the theory is displayed in the sixth diagram provided (p. 86), where six connecting relations tie the spiral structure together.

I will try to exhibit as best I can the ways in which the positive theory follows from the author's assumptions; 8 to 12 will prove to be the crucial

[6] To avoid some potentially misleading connotations of "category," and to emphasize the affinity with Platonic forms, the author shifts from "category" to "*eide*." I will continue to use "category," and hope that my questions below will not depend on any of its potentially misleading connotations.

assumptions at this juncture, and a few subsidiary assumptions will be needed as well. I will also try to exhibit the ways in which the positive theory can be seen to satisfy the author's adequacy conditions (1 to 5).

So to begin, given the assumption of monism in 8, we start with The One as the fundamental category, on which all else depends. Given the assumption of particularism in 9, this category is itself a particular, and by hylomorphism as per 10, it is constituted by a combination of matter and form. Now consider the matter of The One. By particularism (9) this is itself a particular, and by a reapplication of hylomorphism (10) it itself subdivides into matter and form. Similar comments hold for the form of The One. Obviously this line of argument can be applied recursively. As the author explains: "This result generalizes: the form and the matter of any *eide* are themselves *eide*, and in turn amenable to a hylomorphic explanation" (p. 68). The general result is an infinitely cascading structure of matter-form divisions. Strictly speaking one (quite plausible) subsidiary assumption is needed here, which is that at no stage of matter-form bifurcation is the result identical to anything at any other stage. No nodes are identified.[7] With this assumption of non-identity added into the mix, the result may be diagrammed as:



This diagram is structurally equivalent to the author's third diagram (p. 81), albeit less artfully rendered.

So far, so good. What is missing from the author's final theory are (i) the structural interrelations between the nodes, and (ii) the labels given to the nodes. The structural interrelations between the nodes are summarized by the "Principle of the Sixes" which are given (pp. 84 and 85) as:

(a) is the constituting matter of

[7] On p. 85 the author introduces the rule according to which "Parts of an *eidos* are never simultaneously parts of some other *eidos*." This has nearly the same effect as the subsidiary assumption of the main text, though strictly speaking it allows for the identification of parts of the same *eidos*. That is, strictly speaking, it allows that the matter of category *c* = the form of category *c*. I take it as evident that this prospect is intended to be excluded.

(b) is the individuating form of
(c) is directed at
(d) is the consequence of
(e) is the immediately ontologically dependent matter of
(f) is the immediately ontologically dependent form of

These structural interrelations connect up the nodes.

Now the structuring relations (a) and (b) are themselves consequences of the hylomorphic assumption (10). The relation (c) is a teleological relation introduced by 11 and specifically covered by 12. The relation (d) is an extension of the notion of efficient causation into the ideal realm of the categories, and in that sense is introduced by 11. The relations (e) and (f) introduce a horizontal structure into the system, relating branches of the tree at the same depth. Principle (e) arises in the claim that "The form of an *eidos* is immediately ontologically dependent on the matter of that *eidos*" (p. 79). So far we have stayed within a given branch. But principle (f) crosses branches. It holds: "The matter of every *eidos* is immediately ontologically dependent on the form of some other *eidos*" (p. 79). In particular, it turns out dependent on the form of the category on the next horizontal branch.

Of course there is more to the structuring, for I have not said which nodes are supposed to be connected by which relations. Given hylomorphism and the principle that the matter and form depend on the concrete whole they are abstracted from, I can see quite readily which nodes are connected by relations (a) and (b). Further, given the classical picture on which the form inheres in, and thereby depends on, its matter, I can see quite readily which nodes are connected by (f). But I do not understand why relations (c)-(e) connect the nodes they connect. For instance, I do not understand why *is directed at* runs from the form of category *c1* to the category *c2* next out in the spiral. (If I had been given the task of inserting final explanations into the diagram, I would have guessed that everything exists for the sake of The One. Actually, inspecting the author's theory, it seems as if nothing at all is claimed to exist for the sake of The One.) I will have questions to ask about all of this in Section 2.

In any case, the resulting theory is the author's final theory, minus labels for the nodes. I can only say that I do not understand how the nodes other than The One earn their labels. For instance, I do not understand why the form of The One should be Ontological Dependence. Perhaps there is a good reason, only I haven't seen it. (If I had been given the task of identifying the form of The One, I might have guessed Unity, or something like that. After all, isn't the form of a thing supposed to correspond to its essence, to "what it is"?) I will have some questions to ask about this in Section 2.

For present purpose I want to take on the author's whole theory, to consider

the question of whether the theory satisfies conditions of adequacy 1 to 5. Starting with condition 1, the theory is certainly realist through and through. Turning to condition 2, the theory is structured by the relations a to f just reviewed above, and in that sense has non-arbitrary structure (both vertically and horizontally). Moving to condition 3, the relations that systematize the categories do themselves (each one of them) correspond to categories. This can be confirmed by comparing the relations a to f to the nodes of the first diagram the author provides (p. 61). Things are working well.

Shifting to condition 4 however, I do not understand how the spiraling schedule of categories provided sheds any light on the categorization relation. The categories depicted are all supposed to be ideal non–spatio-temporal particulars, akin to Platonic forms. The spiral is supposed to be, as it were, a map of Platonic heaven. But map Platonic heaven all you like, there remains the question of the structure of the sensible realm, and the relation between the realms (which is what condition 4 concerns, at least as I understood it).

I have similar concerns about whether the positive theory satisfies condition 5. The author does claim that the categories are prior to the structure of kinds and examples. But consider the theorist with more Aristotelian inclinations, who insists that the categories are *posterior* to what they categorize. Why couldn't such a theorist equally embrace the author's theory of the structure of the categories themselves? If the author's positive theory is equally accessible to the Aristotelian who reverses the priority claim offered in 5, then it becomes hard to see how the author's theory does much to satisfy 5.

In a way, my concerns about the satisfaction of condition 4 and 5 might actually reveal further advantages of the author's theory. If the theory were as acceptable to the Aristotelian (e.g. the philosopher who thinks that (i) the realm of categories mirrors the structure of the sensible realm, and (ii) is thereby posterior to it), as it is to the Platonist, then the author's theory might even be acceptable to a wider range of philosophers than advertised.

2. Twelve Questions

In the previous section (Section 1), I attempted to summarize some of the central claims of *Coming to Understanding*. Several questions already arose in the summary. In this section I shall pose twelve connected questions for the author. In some cases I will attempt a reply on the author's behalf, in other cases I will just leave off with a question. I should emphasize that this section is not intended as any sort of "refutation" of the author's theory or anything of that nature. Rather this is merely intended to respectfully pose questions the author might wish to consider.

2.1. Question 1: In what sense is this a theory of categories?

Traditional theories of categories distinguish between things such as objects, events, and properties. These are thought to be different sorts of entities in some sense. Perhaps these different sorts of entities can all be said "to exist," but perhaps not in exactly the same sense. One often sees a large-scale bifurcation into the concrete and the abstract, etc.

The author's theory is not obviously a theory of the categories in this sense. It looks on face to be a theory about the structure of the Platonic forms. This is an interesting and important topic to theorize about, only it is not obvious that this is the same topic. For surely not *everything* that exists is a Platonic form! There are sensible objects, there are events, etc.

The author does understand category theory in terms of "the fundamental divisions of reality" and "the basic ways things can be" (p. 3), as well as "the fundamental elements that structure everything there is" (p. 26). This is good. But inspecting the resulting system of categories, one finds entries such as Coming to Understanding and Judgment. In what sense can something fundamentally be a coming to understanding? In what sense can something fundamentally be a judgment? Indeed, given the author's Spinozistic sympathies, I would have expected the author to claim that the basic categories are merely Substance and Mode. Everything is fundamentally either The One or a mode of The One. Why are there any more categories than these two?

The key move the author seems to be making is (i) denying that categories are highest kinds (as per the "destructive dilemma" appearing on pp. 24 to 25), (ii) arguing that categories are instead individuals (pp. 26 to 28), and then (iii) limning the structure of such individuals. So perhaps the author would reply that my question presupposes the "highest kind" conception of categories.

To this sort of reply I would raise two objections. First, the fact that ordinary kinds are "vague, interest-relative, and… dependent on their examples" (p. 24) does not strike me as being destructive of the highest kind conception of categories. The fact that there is vagueness and interest-relativity in some kind divisions does not entail that there is vagueness and interest-relativity in all of them. One could still claim that there is an objective division of entities into highest kinds, even if some of the subdivisions we humans make are not perfectly precise or objective. And the fact that kinds depend on their examples simply makes the highest kind theory into an Aristotelian-style theory in which what is categorized is prior to the categories. This does mean that the categories cannot explain the nature and purpose of the categorized. This does mean that what is categorized will itself be taken as fundamental and inexplicable (*contra* the

author's injunction against bruteness on p. 2). So perhaps what this means is that the issue boils down to whether there can be brute existences. I will have more to say on that score in the second question (Section 2.2).

In any case, perhaps the label "category theory" is proving misleading all around. Let us just say that there are kinds, and thus there should be a theory of the structure of kinds that includes a theory of highest kinds. Call that *the theory of highest kinds*. And let us grant for the sake of argument that there are Platonic forms understood as particulars, and thus that there should be a theory of the structure of Platonic forms. Call that *the theory of eidetic structure*. I would have thought both theories to be interesting and important theories worth pursuing. Given one theory, I would still want the other.

2.2. Question 2: Is there a danger of infinite regress, with a need for super-categories, super-super-categories, etc.?

Consider the author's schedule of categories. One sees on it The One, the 26 categories depicted (though presumably there are infinitely many), and the 6 structuring relations. So it seems that there are three super-categories: [The One], [The Categories], and [The Structuring Relations].

Indeed, given the author's claims that "the categories are prior to the whole structure of kinds and examples" (p. 25) and that categories "must be ontologically prior to the individuals, and to ordinary kinds, whose nature and purpose they explain" (p. 24), it seems like these claims should apply to the author's system just as much. For the author's system of categories is just another system of particulars, with a certain structure. So aren't super-categories needed to explain the nature and purpose of these individuals, and to structure them into a system?

I suspect that the author would reply to this question by claiming that these alleged super-categories are already contained within the schedule of categories, so that the schedule of categories provided suffices for self-explanation and self-structuring.[8] (Indeed perhaps this is what adequacy condition 4 is really concerned with [?]) But first, the notion of the ontologically self-explanatory is deeply problematic. For if the order of explanation is the order of ontological priority, then the self-explanatory, by explaining itself, gets to be ontologically prior to itself. This is a bad result. Indeed this is a reason for thinking that whatever is fundamental has no explanation whatsoever. For if it had an explanation, the explainer would be prior to the fundamental, and the fundamental would then be

[8] Thus the author compliments Plotinus for providing "a system of forms that explains itself" and notes that the positive theory to come "will similarly feature a kind of self-explaining intelligibility at the core" (p. 29).

unseated. So this is a reason for resisting the author's premise (exhibited on p. 2) that there can be no brute facts. To be fundamental *just is* to be brute.

Second, it is not obvious that the super-categories are properly contained within the schedule of categories. What is obvious is that nodes have been labeled with the labels that the super-categories might bear. But what is not obvious is that these labels are fitting. This leads me to my third question (Section 2.3).

2.3. Question 3: Can the structuring relations re-appear as nodes?

The author's schedule of categories is interconnected by the structuring relations, which bear the labels (a)-(f), as reviewed above (Section 1.3). The labels for the structuring relation also feature as labels for nodes in the author's first diagram (p. 61). Presumably this reappearance plays a role in the author's claim of the self-explanatoriness (or self-groundedness) of the system. For if the relations did not appear as nodes, then there would seem to be further sorts of entities (namely, the relations) that were not accorded any category, and so some system of super-categories would be needed that would at least recognize The Categories and The Structuring Relations. This system of super-categories would itself need super-structuring relations (on pain of falling to the arbitrariness objection encapsulated in adequacy condition 2), and the regress mentioned in Section 2.2 would be underway.

But in what sense is this reappearance possible? Actually there are two separate questions concealed here. The first question concerns the conditions for identification. What makes a given node *n* apt to be identified with a given structuring relation *r*? Why not identify *r* with some other node *n*', or with no node at all? This first question ultimately concerns (i) why the nodes gets the labels they get (asked above in Section 1.3, and to be repeated as the ninth question below [Section 2.9]), and (ii) why the relations get the labels they get (asked above in Section 1.3, and as the tenth question below [Section 2.10]). I defer this question for later.

The second question about reappearance, which I do want to pose here, concerns the coherence of such an identification given priority structure (as per the hierarchicalist assumption of 2). Thus consider (i) the relation of ontological dependence, and (ii) the category Ontological Dependence. The relation of ontological dependence obtains between the categories of The One and Ontological Dependence. But it seems plausible that in order for a given relation *r* to play a role in grounding an object *x*, *r* must be prior to *x* to serve as a part of its grounds. This would then require that the relation of ontological dependence be prior to the category of Ontological Dependence, since the relation, alongside The One, grounds the category. But this in turn entails that the example (an instance of

the relation) be prior to the category, which seems to contradict the author's position that the category is prior to what it categorizes.

Likewise consider (i) the relation of being directed at, and (ii) the category Telos. The relation of being directed at occurs fairly close to the center of the spiral moving inward, holding for instance between Omni-truth and Ontological Dependence, and also between Space-time and Omni-truth. But at both of these points in the spiral, the category Telos has not yet come into being. (Of course I do not mean this in a temporal sense. I mean that the hierarchy of grounds has not yet been built up to the level where the category Telos enters the structure.) But how could an instance of what has not yet come into being, be already serving to relate things?

2.4 Question 4: Should categories be thought of as prior to what they categorize?

The author contrasts two main approaches to category theory. On the one hand there is the orthodox approach in the contemporary literature, on which categories are thought of as *highest kinds*. On the other hand there is the author's approach, on which categories are thought of as *particulars*.

It is not obvious to me that these are exclusive. The highest kinds theorist could conceivably add that the kinds (including the highest kinds) are themselves particulars. It seems to me that the central contrast between the highest kind theory and that offered by the author concerns ontological priority. Given that kinds are posterior to their instances, the highest kind theory makes the category dependent on the categorized. But given that Platonic forms are prior to what they inform, the author's theory makes the categorized depend on the category.

So why think the priority runs in one direction rather than another? The only argument that I can spot in the main text claims that the categories "must be ontologically prior to the individuals, and to ordinary kinds, whose nature and purpose they explain" (p. 24).[9] But of course the highest kind theorist will deny that the categories are supposed to explain the "nature and purpose" of the individuals. Rather she will hold that the categories merely *reflect* the ways the individuals already are.

So I can put my question to the author as follows: what would go wrong for

[9] Actually I am unclear if the author intends this as an argument for priority, or merely as a consequence of the assumptions being made about priority. For earlier in the same paragraph, the author claims that the categories cannot be dependent on their examples "if the categories are to be metaphysically fundamental" (p. 24). So it might be that the passage just cited in the main text is only intended to be read under the scope of this "if." But in that case there would simply be no argument whatsoever for the priority assumption.

a category theory that merely claimed to reflect the way individuals are? Is there some reason to think, for instance, that such a theory must violate one of the conditions of adequacy listed above (1-5, in Section 1.1)? Is there some other condition of adequacy that would be violated? Or is the priority claim merely intended as a fundamental assumption of the work? In the last case it is not obvious that any substantive criticism of highest kind theories should follow, other than that they do not share in the fundamental assumption of the work.

2.5. Question 5: How many categories are there?

I think the author's theory permits three plausible answers to the question of how many categories exist. The first answer to consider is that *infinitely many* categories exist. After all, the spiral winds outwards forever. The structure of particulars dividing into material and formal particulars applies recursively, generating an infinite cascade (Section 1.3).

The second answer to consider is that only *one* category exists. After all, categories are supposed to represent *fundamental* joints in nature (Section 2.1). The author is a monist, who thinks that the only fundamental entity is The One. To be a monist just is (in some sense) to think that are no fundamental divisions within nature. It is true that The One is treated as susceptible to hylomorphic division, and that the division process is treated as recursively applicable, but these seem to be mere derivative distinctions rather than fundamental ones.

The third answer to consider is that *no* categories exist. (This is actually an off-shoot of the second answer.) After all, The One is not itself supposed to be a category.[10] It is rather the pre-categorical source and wellspring of the categories. But categories are required to be metaphysically fundamental (as per p. 24). So then it follows that there are no categories at all. All that is metaphysically fundamental is the pre-categorical One.

Which answer would the author prefer? It is not obvious that these answers are exclusive. Perhaps there are different, equally viable counting schemes that vindicate each of the three answers given (much like one and the same class could be counted as thirty when counting by number of students, or one when counting by number of classes). As Frege taught, counting depends on what is treated as a unit.

But still, if categories are to be particulars, there must be a fact of the matter as to how many there are. For part of what constitutes something being a particular is that it participates in identity facts. By participating in identity facts, an entity

[10] Thus the author explicitly says, of the first diagram, that "The One… is *not* an *eidos*, so strictly speaking Diagram 1 indicates twenty-six *eide*, *and* The One on which they all depend" (p. 62).

licenses a count.[11] So the question of how many categories there are needs a good answer, otherwise there will be reason to doubt that categories can be particulars.

2.6. Question 6: In what sense do categories have matter and form?

Central to the author's attempt to generate a cascading structure of categories is the hylomorphic analysis of categories into material and formal components. The author is careful to explain that the notion of material and formal components, as used, does not presuppose spatio-temporality. Rather the idea is that: (i) everything that exists is particular (by the particularist assumption of 9), (ii) every particular has both an individuality (its thisness), and a unity (what makes it be one particular rather than many), (iii) the individuality and the unity of a particular must be explained, (iv) the explanation is to proceed via the fourfold Aristotelian explanatory schema (the fourfold explanation assumption of 11),[12] and (v) the applicability of the fourfold schema presupposes material and formal components.[13]

My concern is not with any presuppositions of spatio-temporality. I agree with the author that these may be shorn away. Rather my concern is with claim (iii) of the previous paragraph, that the individuality and unity of a particular must be explained. As to particularity, I don't see what there is to explain. Everything is what it is. Just that, and nothing more. The answer to the question "what makes the statue *this* entity as opposed to *another* entity of the very same kind" (as the author asks on p. 5) is simply that the statue *is* this entity and not another. And the fact of the statue's being this entity and not another is the simple fact of it being self-identical and not other-identical. Nothing more is needed, and nothing less will do.

As to the unity of the entity, I don't see what there is to explain either. Keep in mind that unity is a form of numerical predication. To say that an entity is

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[11] That is, one can say how many particulars exist using the existential quantifier and the identity sign. For instance, one can say that exactly two particulars exist via the formula $(\exists x)(\exists y)\ (\sim x{=}y\ \&\ (\forall z)\ (z{=}x \vee z{=}y))$. So to say that a given class of entities are particulars is to say that one such numerical formula is the true one.

[12] Thus the author speaks of interpreting Aristotle's doctrine of the four causes as "an account of the unity and the particularity off a composite entity" (p. 5). Thus the author concludes that the causes "are not essentially tied to concrete particulars. They will apply to anything that is a genuine unity or particular" (p. 6). So given that the categories are particulars, the fourfold causes are said to apply to them.

[13] The term "matter" may mislead the uncareful reader here. An alternative terminology that is less spatio-temporally loaded would be to say that every particular has both a "that"-aspect and a "what"-aspect. The "that"-aspect is its individuality and substratum—for spatio-temporal entities this would be its matter. The "what"-aspect is its formula and essence—this is what it is to be that entity.

unified is to say that it is one, rather than many. But also keep in mind Frege's point that numerical predication is relative to a unit. So every entity is a unity when counted by its own kind as a unit, and a plurality when counted by its parts as units (except in the limit case of extensionless point particles or other simples — but presumably, if such entities exist at all, they aren't supposed to be the only entities that exhibit genuine unity). So the answer to the question of what makes the statue one entity rather than "a mere sum of pieces of bronze" (the contrast cited by the author on p. 5), is the statue is one entity as counted by statues, and a mere sum of, say, seven pieces of bronze as counted by pieces of bronze. *There is no ontological contrast here to be explained*. The statue is both one (counted one way) and many (counted another way). *There is only a contrast in which units we count by*.

So I should like to see more arguments for thinking that some sort of hylomorphic analysis is needed, for either spatio-temporal or for ideal entities. Indeed there is a danger of infinite regress lurking behind (iii), in that if the individuality and the unity of any particular must be explained, and if the explainer is always prior to the explained, then it seems that no entity can be fundamental. Any would-be fundamental entity will be a particular, and so have an individuality and unity that will need explanation, and the explainer will then come out prior to the entity that was supposed to have been fundamental.

Thus emerges the following question concerning hylomorphic treatments. Is the hylomorphic compound prior to its matter and form, or are the matter and form prior to the hylomorphic compound?[14] It is evident that the author treats the hylomorphic compound as prior to its matter and form. But it also seems that the author treats the matter and form as explaining core features of the compound, and treats explanation as exhibiting priority. How can these be reconciled?

2.7 Question 7: In what sense are matter and form distinguished?

Given a hylomorphic treatment of a given particular (never mind whether spatio-temporal or ideal), one might have thought one could in principle abstract out (i) pure matter, from (ii) pure form. Or in alternative vocabulary, one might have thought one could in principle abstract out (i′) bare particularity, a pure thisness, a mere property hook, from (ii′) bare qualitative form, a pure whatness, a universal because lacking any particularity.

Instead the author has the matter itself having both a form and a matter, and the form itself equally having both a form and a matter. But then what is the ultimate difference between matter and form? On the treatment mentioned in the

[14] It is sometimes suggested that this is one of the central questions Aristotle struggles with in the transition from *Categories* to *Metaphysics*, and perhaps never fully resolves.

previous paragraph, it is obvious what the ultimate difference is between matter and form. Matter is purely matter (pure thisness), and form is purely form (pure whatness). But on the author's treatment it is not obvious that matter and form deserve to be distinguished. Both turn out to be particulars. In fact both turn out to be hylomorphic compounds *in exactly the same way*.

So there is a worry that the attempt to render hylomorphic analysis recursively applicable winds up undermining the very *matter and form* distinction the hylomorphic analysis relies on. The worry is only deepened given that the author resists any identification of the material with the spatio-temporal. Is anything left to determine which constituent of the object should count as the matter, and which the form?

2.8. Question 8: Must the matter of a category itself have a form, and must the form of a category itself have a matter?

Suppose some way is given to distinguish the matter from the form (in answer to question 7). Still it might seem strange to think that the matter of a category has a form, and the form of a category has a matter. For doesn't that still compromise the pure materiality of the matter, and the pure formality of the form?

It seems odd to me that, operating within a hylomorphic account, one is still not able to isolate anything purely material (*sans* form), or anything purely formal (*sans* material). It is as if the hylomorphic compound has these two distinct aspects, but somehow when the compound is divided into its aspects, a new form "springs up" to inform the material aspect, and a new matter "slides in" for the formal aspect to inhere in

So my question for the author is what prevents us from isolating anything purely material (*sans* form), or anything purely formal (*sans* material). Obviously if we could isolate such a thing then (i) it would be a particular by the particularist assumption of 9, and so (ii) it would have both matter and form by the hylomorphic assumption of 10, so the attempt at isolation must fail. My question is why it fails.

It seems to me that the author has two options here. Either (i) the material and formal aspects are each hylomorphically loaded from the start, or (ii) the process of dividing the matter off from the form produces hylomorphic loading. What puzzles me about option (i) is why I can't find any purely formal or purely material aspects if they exist. What puzzles me about option (ii) is why division should generate hylomorphic compounding.

2.9. Question 9: What would go wrong if we relabeled some of the nodes, or shifted the labels around?

As emerged in my summary of the author's positive theory (Section 1.3), it

was not obvious to me why the nodes were labeled as they were. I could see that the author was making choices (especially in the further eductions of Chapter 15, pp. 88-95), and I could see that the author was experiencing constraints on those choices. Only I could not understand why the choices were being made as they were, or what constraints were operative. Had it been left for me to make the choices, I would not have known how to begin.

Moreover some of the specific choices seemed puzzling to me. For instance, I was puzzled by the matter of The Block Universe being Modes, and the form of The Block Universe being Space-time. If anything I would have guessed it would have gone the other way around. The modes are qualitative, whereas space-time seems akin to a bare particular, a substrate in which properties inhere. So if anything, even given the information that The Block Universe is a hylomorphic compound of Modes and Space-time, I still do not understand the author's choice as to which is matter and which is form.[15]

Further, I was perplexed by the choice of Ontological Dependence to serve as the form of The One. The form of something gives its essence and definition. It says what the thing is. How is the category Ontological Dependence apt to serve as the essence of The One? If anything the defining features of The One seem to be some complex of unity (oneness) and fundamentality (centrality in the diagrams). It is true that, on the author's system, "ontological dependence is the structuring relation that gives us both the *eide* and their relations" (p. 66), only I do not see why that should make Ontological Dependence apt to serve as the essence of The One. The author earlier suggests that "the form of The One is a relation among items within it" (p. 63), which relation is ontological dependence. But I would have thought that what something is, in the case of a genuine unity, goes beyond the mere relation of items within it. Otherwise The One seems to be treated like a heap rather than a syllable (in the author's terms, a mere "fourth-order particular": p. 70). The oneness of The One seems to me to have gone missing in the account, as far as I can see.

To take one other example of where I was confused, I did not grasp the content of Immediate Ontological Dependence. This is supposed to be the form of Ontological Dependence. But how can the relation of being directly R be the form of being R? For instance, the relation *being a son or daughter of* cannot be the

[15] Now in fairness, the author does claim: "The *eidos* Modes is the matter of The Block Universe — its parts, the modes, are the fleeting temporal manifestations that are ordinarily taken to be the 'contents' of the block universe" (p. 90), and then immediately adds: "That which shapes Modes to yield the particular, The Block Universe, is Space-time. Space-time is thus the form of The Block Universe" (p. 90). But the "contents," at least understood in a qualitative sense, should not be the matter but rather the form. The form informs and gives content to the matter, which is just a receptacle for form.

definition of the relation *being an ancestor of*.

Perhaps these questions merely indicate my lack of familiarity with the author's theory, or my inability to fully grasp certain elements of the system. A satisfactory answer to my question would explain what would go wrong if one relabeled some of the nodes, or shifted the labels around. What would be ideal would be an articulated set of adequacy conditions for correctly labeling a given node, such that the reader could follow the author's eductions and confirm that the eduction had been concluded adequately. Without such conditions, this reader felt unable to assess the adequacy of the eductions.

2.10. Question 10: What would go wrong if we redirected some of the arrows or relabeled the arrows?

For the sake of the discussion, let me grant that all the nodes are labeled correctly. Now I want to consider the arrows. It was not obvious to me which nodes ought to be connected, or why the arrows were labeled as they were (Section 1.3). As to which nodes ought to be connected, the author introduces two triplets of triangulating relations (as exhibited in diagram 4, p. 81, and in diagram 5, p. 83). But I did not see (i) why so many structuring relations were needed, or (ii) whether there was any barrier to adding in other structuring relations.

So why are so many structuring relations needed? Suppose the author merely used (a) is the constituting matter of, and (b) is the individuating form of, together with their converses (has as its matter, and has as its form). Given just two relations, one can chart a path from any node to any other.[16] So every node is structurally interrelated given just (a), (b), and their respective converses. So why are (c) to (f) needed at all?

If (c) to (f) are added in, I wonder why stop there. Is there any principled barrier to adding in other structuring relations? For instance, there is the possible structuring relation of:

(g) being the matter of a category that is two steps posterior to the form of a category.

The relation in (g) will hold, for instance, between (i) Mereological Whole, which is the matter of Matter, and (ii) Choosing, which is the form of the category

[16] *Proof*: for any pairs of nodes, there will be some finite (perhaps zero) number of steps of the converse relations that will get from the first node to The One, and some finite (perhaps zero) number of steps of (a)/(b) relations that will get from The One to the second node. This needn't be the shortest path from node to node, but it is guaranteed to exist in every case.

(Consciousness) that is two steps prior to Matter. Obviously many other and far more gruesome relations can be concocted. So what is special about the six relations found in (a) to (f)? Why just those six?

In any case, even given the six member roster of structuring relations (a) to (f), I wonder what would go wrong if we relabeled some of the arrows. Suppose we switch the labels of (c) is directed at, and (d) is the consequence of. Then for instance Telos would get counted as the consequence of Modes, and Space-time would get counted as directed at Awareness.[17] It is not obvious to me that this is the wrong result. It is not obvious to me what is supposed to be the right result at all here.

Again, these questions may merely indicate my lack of familiarity with the author's theory, or my inability to fully grasp the system. A satisfactory answer to my question would explain what would go wrong if one relabeled some of the arrows, or redirected them. What would be ideal would be an articulated set of adequacy conditions for correctly labeling and directing a given arrow, such that the reader could follow the author's eductions and confirm their success. This reader felt unable to confirm anything of that nature.

2.11. Question 11: How does all this structure related to the concrete spatio-temporal realm?

Given that the author seeks to illuminate the relation between the categories and the reality they categorize, and given that the reality categorized at least includes that of the concrete spatio-temporal realm, I wonder what the relation is. Given that the author's theory aims to provide "a map of Platonic heaven" (Section 1.3), how does this map illuminate the spatio-temporal terrain?

The author does provide a category of Imitation, which is the relation claimed between forms and sensibles (p. 25, p. 99, *inter alia*). But this is only a further category. As such, the discussion remains in Platonic heaven.

The author also speaks of the category Mode, and says that modes, though they inhabit the partless block universe, do themselves have parts. This may well be true of modes as concrete spatio-temporal entities (waves and wavelets, etc.), but I do not see how any discussion of the category Mode can tell us anything about the concrete spatio-temporal modes, unless we are already assuming that we grasp the relation between the categories and the reality categorized. But that is the

[17] Request to the author: it might help to furnish one final diagram with bodes the nodes and the arrows exhibited, assuming this is not too difficult to depict in a single frame. I had to shuffle back and forth between several diagrams to try to figure out what consequences relabeling the arrows would have, and even now I'm not confident I did it properly!

relation in question.

Perhaps all the author means to claim is that the sensibles imitate the realm of categories. Perhaps so. Perhaps this is all that there is to be said about the relation between the categories and the reality categorized. But in that case it does not seem that the author's positive theory of the structure of the categories is doing any work here. Even a completely unstructured theory could maintain the imitation claim.

On a side note, it is not clear what exactly an imitation claim commits one to. On one extreme would be the *perfect isomorphism* claim, which is that there is a structure to the concrete spatio-temporal realm, and it is a perfect overlay of the structure of Platonic heaven (or better, it is as if the structure of Platonic heaven is completely overlaid on the material realm). On another extreme would be the *one-off explanation* claim, which is merely that whenever a sensible item happens to instantiates property F, it does so in virtue of imitating the form of F-ness. The one-off explanatory claim is compatible with the sensible realm having an overall structure that is completely unrelated to the structure of the forms. Presumably there are intermediary positions as well. It was not obvious to this reader what exactly the author had in mind at this point.

2.12. Question 12: What explains The One?

I conclude with a final question for the author, which is the question of what explains The One. There seems to be three possible answers, none of which seems entirely comfortable. One possible answer is that *nothing* explains The One. This fits the foundational status of The One, as the ultimate ground of being. But it does not seem to sit comfortably with the author's rejection of the existence of brute contingent facts (p. 4), for the author explicitly holds The One to be a contingent being (p. 66).[18] So if nothing explains The One, then we seem to face a brute contingent fact of The One's existence.

A second possible answer to what explains The One is that *the other entities* explain The One. Since The One is held to be prior to the other entities, and since priority is correlated with explanation, this second possible answer would posit priority relations running in a circle. But that is presumably impossible—priority relations are supposed to be asymmetric and transitive, and thereby to induce an ordering. Priority circles are supposed to be impossible. So if the others explain The One, then the notion of priority seems to collapse.

[18] In this vein, the author writes: "[A]lthough [The One] is an unchanging particular, it is nevertheless contingent. There are many different ways The One could have been, and one of those ways would have been for The One to not exist at all" (p. 62).

A third possible answer is that *The One explains itself*. But then given the association of explanation with priority, the result is that The One is prior to itself. This too is contrary to the asymmetry of the priority relation.

What emerges from this final line of questioning is a potential conflict between hierarchicalism (the ordering assumption of 7), and the author's rejection of brute facts. As is familiar from debates over the epistemic structure of reasons, there are essentially three logically possible hierarchical structures: (i) a circle, (ii) an infinite descent, and (iii) foundations.[19] I take it the author would reject both (i) and (ii) as possibilities for the ontological structure of dependence relations, leaving us with a foundationalist picture as per (iii).

Within the foundationalist picture, there seem three possible statuses to assign the foundational entities: (iiia) brute foundations, (iiib) necessary foundations, and (iiic) self-founded foundations. I myself prefer option (iiia), but it requires brute facts. The author not only rejects brute facts, but I think builds a rejection of brute facts deep into the discussion, in the rejection of arbitrary systems of categories. For if brute facts are possible, then why can't it just be a brute fact that beings come in, say, seven flavors?

Option (iiib) of necessary foundations is the option pursued in some versions of classical theism. Indeed one version of the cosmological argument—the argument from contingency—seems to turn on this idea that contingent beings need to be grounded in a necessary existent. The author does hold The One to be contingent, but this does not seem to me to be build deeply into the system, in the same way that the rejection of brute facts is. So one option for the author would be to claim the necessity of The One. However, even then it is not obvious that the necessity of The One would be enough. For it is not at all obvious that necessary beings are in any way exempt from explanatory demands. Indeed, the author's argument against "brute contingent facts" is from the intelligibility of the nature of things (p. 2), and obviously intelligibility is not limited to contingent things. Moreover there do seem to be perfectly natural examples of explanations of necessary beings. For instance, it seems that the existence of $\{\varnothing\}$ is grounded in the existence of $\varnothing$.[20]

Option (iiic) of self-founded foundations may be the author's preferred strategy. But the idea of self-foundedness requires a reflexive (and hence non-asymmetric) conception of priority, which strikes me as being of dubious

[19] The circular structure corresponds to one rendition of coherentism, the structure of infinite descent to infinitism, and the foundational structure to foundationalism.

[20] Thus the author notes that "we immediately grasp the ontological dependence of [the set {2, 3}] on its numbers even while taking such numbers simultaneously to be eternal and necessary" (p. 64).

coherence. How could anything ground *itself*? Just as it seems that nothing can precede itself in the causal or temporal orders, so it seems that nothing can precede itself in the ontological dependence ordering.

Thus I conclude with the following worry. The author seems deeply committed to the following triad: ontological foundations, universal explanations (no brute facts), and a connection between explanatoriness and dependence. These are *prima facie* inconsistent. So I conclude with the question of how the author can reconcile these positions.

Review 5: Peter van Inwagen

Coming to Understanding is a work of metaphysics in the grand style—as ambitious as Spinoza's *Ethics* or Hegel's *Logic* (its affinities with these works, like its borrowings from them, are, of course, not lost on the author). This raises the question what I can say about such a book, given my deep conviction that metaphysical truth of the sort that the author wishes to discover is something that it is essentially beyond the capacity of the human mind to discover. I should say that although I believe this, I am by no means hostile to present-day works that attempt to uncover metaphysical truths of the sort set out in *Ethics* and *Logic* and *Coming to Understanding*. After all, I might be wrong and—on this point at least—I should be delighted if someone could convince me that I was wrong. (And I have no tendency to believe that good work in philosophy can only be done by professors of philosophy. As many writers have rightly pointed out, most of the great philosophers of history were neither professors nor even the closest analog of "professor" that their culture had to offer.) Still, I am myself unconvinced that the author has demonstrated, or even "educed" the propositions that he claims to have demonstrated (or educed). (I mean that statement literally, as a statement about my subjective psychological state: it's not supposed to be a polite or indirect way of saying that he *hasn't* demonstrated these things.) Because of this, I don't have a lot to say about the central theses of the work. I do, however, have a lot to say about many particular passages. If you gave me my head, and if I had the opportunity, I could produce an *ms*. at least as long as the *ms*. of *Coming to Understanding* that consisted of commentary on particular passages in the work—a record of things that struck me (things I disagreed with and about which I thought I could state the grounds of my disagreement succinctly and clearly, alternative possible formulations of theses that had certain advantages over the author's formulation, minor misinterpretations—in my view—of various thinkers . . .). After I had studied the *ms*., I made a list of the passages I wanted to comment on, and proceeded to write till my time was up—till the day before the comments were due. I have in fact got only about a third of the way through my list. There is much more that I'd like to say, but the deadline is the deadline. (The next topic I should have discussed was what the author says about parthood on p. 69 ff—in connection with his contention that the *eidos* The Eide is a part of itself. It is a feature of most formal treatments of parthood that *everything*, or everything that has parts, is a part of itself, but it is by no means on this trivial ground that the author says that The Eide is a part of itself. But I cannot allow myself now to be drawn into a discussion of this fascinating matter at this point, or these comments will not get submitted.)

My comments on particular passages (organized as comments on topics) follow.

Contingency

I was brought up short by the author's contention (p. 62) that "there are many different ways that the One could have been, and one of those ways would be for the One not to exist at all." I was brought up short by the fact that he has said this *and* by the fact that says this much and not much more. That the author has said this surprised me because all his historical models either deny the existence of contingency or at least relegate it to trivial aspects of reality. I by no means object to this feature of the author's metaphysical system. In my view, contingency *is* a real feature of the world (*contra* Spinoza) and is by no means to be relegated to its most trivial features (such as, according to Hegel, the existence of Herr Krug's pen). I am pleasantly surprised to see that a "grand system builder," a philosopher who in that respect stands in the same tradition as Spinoza and Hegel, agrees with me on that point.

But, as I have remarked, he has said this much about contingency and not much more. On p. 63, he says two things that expand on this statement (and I have been unable to find any other statements that relate to the contingency of the One and the *eide*):

1. "Among the many ways that the One could have been different is that it could have been that certain *eide* existed but not others."

2. "The key to understanding this deeper principle [roughly speaking, ontological dependency as a structuring principle] turns on the contingency of the *eide*."

I'll have occasion to mention item 1 at two places in what follows. As to item 2, it simply puzzles me. If the author had said not "contingency" but "(ontological) dependence" this statement would make sense to me. But I don't see how he makes use of the contingency of the *eide* in anything he goes on to say.

I want to know more about the contingency of the One (and the particulars of other orders), and for two reasons. I want to know more first, because, as a metaphysician, I am interested in possibilities and necessities—I think of metaphysics as at least in part the "science" that attempts to answer "ultimate" questions about possibility and necessity—, and the statements that I have quoted raise a many questions about modality that the author does not answer. (That was "first"; it will be a long time before I get to the second reason I want to know

more.) I will explicitly state these questions. I set them out not because I think that the author will have trouble answering them (I don't, that is, present them as a challenge to the author), but because they pertain to matters that interest me deeply. (If the author's only answers are "I don't know" or "It's not possible to know things like that," even that would be worth knowing. If nothing of the sort that I should like to know can be known, *that* would be worth knowing. One would, of course, in that case, want to know—if even this much can be known—why such things can't be known. One would like to know—if possible—why the boundaries of metaphysical knowledge fall where they do.)

Some of my questions are variants on the following question, more specific forms of this question.

Suppose the One did not exist. Would there then be *nothing*—or might there be a reality that was structured like actual reality but did not contain the One; and might there be a sort of reality that was *not* structured like actual reality, that did *not* consist of "a" One (another particular having the same ontological properties the author ascribes to the One) and a chain of *eide* ordered by the relation of ontological dependence (and further structured by the relations "is the form of" and "is the matter of" and the relations of consequence and *telos* that these two relations "generate")?

Consider those "possible worlds" (that is, ways things might have been, ways reality as a whole might have been; I'm not presupposing any particular ontology of possible worlds; I mean to be using the term in the most ontologically neutral way possible) in which the One does not exist. Which of the following propositions are true in various of those possible worlds (i.e., which of the following propositions are metaphysically or absolutely or intrinsically possible)? In setting out this list of propositions, I assume that the author's particularism (nominalism) is true in all possible worlds; I do not raise the question whether other possible worlds may contain universals or any other objects (propositions, say, or numbers) that are not particulars.

- There is nothing at all.

- There is *a* One but it is not *our* One (that is, there is one partless and changeless particular that is ontologically dependent on nothing and on which everything else is ontologically dependent, but it is not the thing that is—in actuality—denoted by the description "the partless and changeless particular that is ontologically dependent on nothing and on which everything else is ontologically dependent").

- There is a One (not "our" One but some other) and there is nothing

else (there are no *eide* or any other objects ontologically dependent on that One: it is only, as logicians say, vacuously true that everything else is ontologically dependent on that One).

- There is an object (or more than one) that is like the One in being a partless, changeless particular that is ontologically dependent on nothing, but is unlike the One in that there exist one or more particulars that do not depend on it ontologically.

(If the parenthetical possibility—"or more than one"—is realized, there will of course be both a "One-like" particular and other particulars that do not depend ontologically on it. But I mean also to raise the question of the possibility of there being a both a One-like particular and various particulars that depend ontologically on something but not on *it*. Might there, for example, be a possible world in which there is a One-like particular that generates an infinite form-matter tree—having a structure like the structure represented in the author's diagrams—*and* other particulars than those that have a place in that tree, particulars that are absolutely ontologically independent of everything in that tree?)

(The following proposition really represents a special case of the previous proposition, but it is both important and complex enough, that I state it separately.)

- There are two or sixteen or an infinite number of discrete (non-overlapping) form-matter trees, each of which has a One-like object at its apex.

(As was implicit in the framing of the questions that followed the previous proposition, a "One-like particular" is defined as a particular that is partless and changeless and is ontologically dependent on nothing: it is One-*like* only in that it is possible for there to be particulars that do not depend ontologically on it. I should mention that I added the parenthetical "non-overlapping" for the sake of the reader who is trying to draw mental pictures of "possible world" in which my listed propositions are true; I'm willing to grant that "intersecting" trees would be impossible, since they would involve something's being ontologically dependent on both of two objects A and B neither of which is ontologically dependent on the other. This seems contrary to the author's idea of ontological dependence, which entails that *x* can depend ontologically on both A and B only if one of the latter two depends ontologically on the other.)

- There is a One (a partless and changeless particular that is ontologically dependent on nothing and on which everything else is

ontologically dependent) but it has no form and no matter (in the author's "generalized" sense of "form" and "matter"). More generally, there is a first-order particular and there are second-order particulars, but at least some of them are not unions of form and matter.

(If this proposition is possibly true, its possibility would seem to entail the possibility of a *finite* form-matter tree with a One at its apex—the possibility of a tree that has terminal nodes, nodes that have no form and no matter. Does this entailment indeed hold? Of course, if it is impossible for there to be a higher-order particular that has neither form nor matter—I take it it's impossible for there to be any sort of object that has form but no matter or has matter but no form—, the question is moot.)

- There are worlds in which there is a form-matter tree with a One at its apex and identical (descriptively) with the actual form-matter tree for a certain number of initial "steps,"—and which diverge from the structure displayed by the actual tree at some point.

(For example, is there a world whose tree has a One at its apex and the matter of that One is Coming to Understanding and the form of that One is Ontological Independence, but the matter of Coming to Understanding is not The Block Universe but some other material particular, and the form of Coming to Understanding is not Omni-truth but some other formal particular?)

- There are worlds containing a form-matter tree with a One at its apex that is identical with the actual tree in those respects represented in the author's diagrams [the form-matter relations are those represented in the diagrams and the relations of ontological dependence are those represented in the diagrams and the "identities" of each node are identical with the identities of each actual node; that is, in a possible world w of the sort I am asking about, the One in w is the actual One, and, if x is the actual form (matter) of y, then x is the form (matter) of y in w, and if x_1 is immediately ontologically dependent on y_1 in actuality, then x_1 is immediately ontologically dependent on y_1 in w] but in which some particulars (the One or some of the *eide*) have significantly different properties from those they have in actuality.

(I say *significantly* different properties, because I am sure that the author means to allow this: in some possible worlds, the Block Universe, for example, does not have the particular finite modes it has in actuality—lacks the mode that is my

dachshund Jack, for example. I am asking about more radical and metaphysically significant departures from the actual properties of the One and/or the *eide* —for example, the Block Universe having no finite modes at all.)

Finally:

- There is a form-matter tree that is "two-way infinite"—that is, that has neither terminal nodes *nor* an apex. There is neither a One nor a One-like particular in this world. There are an infinite number of particulars, each of which has two other particulars as, respectively, its form and its matter, and each of which is either the form or the matter of some other particular. Each particular in this world is immediately ontologically dependent on one other particular, and each of them is such that some one particular is immediately ontologically dependent on it.

- There is a form-matter tree that has no apex but has terminal nodes (case one: all its branches have terminal nodes; case two: some but only some of its branches have terminal nodes).

All these propositions are propositions about ways things might be if the One did not exist—that is, if the object that is actually denoted by the words "the One" did not exist. (These are the propositions questions about which constitute the set of questions that are "more specific forms" of my initial question, the question whose initial words were, "Suppose the One did not exist . . .".) Some of these propositions have analogues for the case in which the (actual) One exists but has different properties. And these propositions generate a second set of questions—in each case the question whether that proposition is possibly true. I'll state only some of them (in my statement of these propositions, I mean "the One" to be the One of the actual world):

- The One exists but there is nothing else (the One has neither form nor matter).
- The One exists and generates only a finite number of *eide* (some *eide*, the "terminal" *eide* have neither form nor matter).
- The One exists and generates an infinite sequence of *eide*, but at some point that sequence "diverges" from the actual sequence.

(Is there, for example, a possible world in which the One exists but in which the matter of Coming to Understanding is not The Block Universe but some other material particular, and the form of Coming to Understanding is not Omni-truth but

some other formal particular? I *think* that this is the kind of possibility that is suggested by statement (1) above, but an official statement to this effect would be appreciated)

- The One exists and generates the same infinite sequence of *eide* as the actual sequence but those eide have significantly different properties from their actual properties.

(The phrase "significantly different properties" is to be understood as above.)

These are the propositions whose modal status it has occurred to me to wonder about. The author's statement with which I began this part of these remarks—"there are many different ways that the One could have been, and one of those ways would be for the One not to exist at all"—admits of interpretations of varying "strength." The weakest of all would (I think) be this:

The only ways in which things could have been different are these two:

—The actual One's not existing.

(The author has said that this is possible. I do not know how he thinks things would be if this possibility were realized. The two *simplest* resolutions of this question seem to be (a) If the actual One did not exist, some other particular having the properties the author ascribes to the One would exist, or (b) nothing at all would exist.)

—Things being different in those ways that we should pre-theoretically describe as different arrangements of material things (this would, I think, come to the Block Universe's having finite different modes, and such other adjustments—e.g., differences in which aggregates of modes there are—as are necessitated by its having different modes).

Many things the author says indicate that he means his statement to be true in a way that requires a stronger interpretation than this, however. (The most important of them, and the one that most clearly has this implication, is statement (1) above.) What I should like to see is how strong an interpretation of this statement the author is willing to endorse—that is to say, which of the propositions set out above the author thinks is possibly true (and which he has no opinion about).

It may well be that the author has said some things that rule at least some of these possibilities out—or, better, that imply that some of these propositions are impossible. I may have failed to see the modal implications of some of the remarks the author has made in passing. If so, then a reader with my preoccupations—I am

preoccupied with modality—would appreciate these incidental remarks being brought together into one section and connected systematically.

Now the second thing I want to know more about—I said at the outset that there were two things I wanted to know more about. I want to know more about *brute* contingency. The author, on p. 4, states that there are no brute contingent facts. Well, he certainly thinks that there are *contingent* facts—he affirms that even the existence of the One is a contingent fact. And there is a familiar argument that purports to show that if there are contingent facts, at least some of them must be "brute" (A brute fact is a fact of which there is and can be no explanation.) Here is one formulation of the argument.

If there are facts, there are conjunctions of facts. For any two facts, there is the fact that is their conjunction. If, for example, there is such a fact as the fact that Paris is the capital of France and such a fact as the fact that New Mexico is arid, then there is such a fact as the fact that Paris is the capital of France *and* New Mexico is arid. And if the fact that Paris is the capital of France is contingent and the fact that New Mexico is arid is contingent, then their conjunction, the fact that Paris is the capital of France and New Mexico is arid, must be contingent—for a fact that has even one contingent conjunct is contingent. Now consider the conjunction of *all* contingent facts—the "Great Contingent Fact" some have called it. (Obviously, the GCF must have some sort of connection with the *eide* the author calls Omni-truth. I'm not sure I fully grasp "Omni-truth," but the GCF would seem to be something like the *contingent aspect* of the *content* of Omni-truth.) The GCF is a contingent fact. And it can have no explanation. For—here begins the argument—if a contingent fact has an explanation, then the proposition one asserts in giving that explanation must be a contingent proposition.

Before continuing with the argument, I must insert a tangential but perhaps important parenthesis. What I have said in the previous paragraph does *not* commit me to a certain thesis that the author takes pains to reject, namely that all explanation is linguistic. Maybe an example will help to make it clear why what I have said does not imply that all explanation is linguistic. Suppose the explanation, or at least a partial explanation, of the fact that the ice in the ice bucket has melted is that the ice bucket has been sitting in a very hot room for several hours. To *give* this explanation, one must assert that the ice bucket has been sitting in a very hot room for several hours, and to do that, one must speak or write some sentence along the lines of "The ice-bucket has been sitting in a very hot room for several hours." I think this is obvious, and it certainly does not entail that the explanation of the fact in question is a *proposition*—the proposition that the ice-bucket has been sitting in a very hot room for several hours—much less one of the *sentences* that express that proposition. What I have said leaves it an open question what, speaking ontologically or speaking epistemologically, an explanation is. Now it is

possible that I do not understand what the author means when he speaks of the thesis or theory that all explanation is linguistic. An incidental remark on p. 64 suggests that the thesis somehow involves the notion of convention, that it implies that all explanations are in some sense conventional. I don't understand this, but I am certainly not saying anything that has any implications as regards the role convention plays in explanation (what I have said is consistent with the statement that convention plays no role whatever in explanation). And I see nothing in what I have said that is inconsistent with "Janus-face 2." The proposition that every explanation can be *given* or *stated* ("in principle": it is consistent with what I have said that, say, the fact that the expansion of the universe is speeding up has an explanation and that we human beings lack the cognitive resources to understand—and therefore to state or give—this explanation) seems to me to be consistent with Janus face 2."

Of course, assuming that the GCF has an explanation, no one (at any rate, no one but God) could *give* that explanation. But I think it is reasonable to say that for any fact that has an explanation, there must be an "explanatory proposition" associated with that explanation, the proposition that one would assert if one *gave* or *stated* or *set out* the explanation (in some cases, including the case of the GCF, we shall have to say, "if, *per impossibile*, one gave *etc.* the explanation).

What I am saying could therefore be put this way: If a fact is contingent and has an explanation, the explanatory proposition associated with that explanation must be a contingent proposition. But why do I say this? Why can't something of this form be true: "The explanation of the fact that *p* is that *q*"—where the fact that *p* is contingent and it is necessary that *q*. The answer is that if that were so, the *explanans* would be true even if the *explanandum* (the fact) did not exist. Suppose, for example, someone said this: The explanation of the fact that Kant believed that 7 + 5 = 12 is that 7 + 5 = 12. We'd have to say that there must be more to the explanation than that, for 7 + 5 would have equaled 12 *whether or not* Kant believed that it did (7 + 5 would have equaled 12 if Kant had not *existed*). That 7 + 5 equals 12, therefore, cannot explain the contingent fact that a given person, Kant or anyone else, believes that 7 + 5 equals 12. "There must be more to it than that"; yes, and that "more" must involve contingency: that Kant was minimally competent in arithmetic, say, and that he trusted his own ability to perform simple calculations, generally believed the results of such calculations, that he had considered the question whether 7 + 5 = 12 . . . and so on.

So the explanatory proposition that that is associated with (that states, one might say) the explanation of the GCF cannot be necessary. But neither can it be contingent—for then it would be a statement of one of the facts that is a conjunct of the GCF, and it would explain itself, and no contingent fact explains itself (and no contingent fact can explain some conjunctive fact of which it is one of the

conjuncts: the explanation of the fact that that Paris is the capital of France and New Mexico is arid cannot be the fact that Paris is the capital of France; if someone asks, "What is the explanation of the fact that Paris is the capital of France and New Mexico is arid?" the answer cannot be "Paris is the capital of France" or "That fact is explained by the fact that Paris is the capital of France").

But then—since every proposition must be either contingent or necessary—it cannot be that the GCF has an explanation. And there is such a fact as the GCF if there are any contingent facts at all. Therefore, if there are any contingent facts, at least one of them is without an explanation.

I think that this is intuitively evident. Examining any possible explanation of the GCF shows this. (I mean, examining any explanation that anyone might plausibly be supposed to offer for the GCF shows this.) Suppose, for example, that a theist were to say, "The explanation of the GCF is that God has willed it; God said, "Let things be thus-and-so," where "thus-and-so" is a statement of the GCF." But this can't be true, even given that the God of theism exists. The proposition that God said "Let things be thus-and-so" is either necessary or contingent. If it's necessary, then (since, as the theist is supposing, "If God wills that *p*, then *p*" is a necessary truth), the GCF is not a contingent fact but is rather a necessary fact (and *all* facts are necessary facts). If, on the other hand, the proposition that God said "Let things be thus-and-so" is contingent, the fact that God said "Let things be thus-and-so" is a contingent fact, and is thus one of the conjuncts of the GCF. And if that were so, then the theist's position entails that the explanation of the contingent fact that God said, "Let things be thus-and-so" taken together with all other contingent facts, is the fact that God said, "Let things be thus-and-so". Thus, if the theist is right, the contingent fact that God said, "Let things be thus-and-so" is its own explanation—and no contingent fact can be its own explanation, not even if it's a contingent fact about an omnipotent decrier of contingencies.

So there must be at least one *brute* contingent fact if there are contingent facts at all. Note that the above argument by no means implies that the *only* contingent fact without an explanation is the GCF. There could well be others. (It seems reasonable to suppose that if the GCF is brute, then many of the "larger" contingent facts will also be brute. For example, if the laws of physics are contingent, the fact that the laws of physics are *these particular* laws may well be brute; or—if the God of theism exists—the contingent fact that God has decreed that the laws of physics be *these particular* laws, may well be brute.)

So it seems at least reasonable to suppose that there are brute contingent facts other than the GCF. If the author's ontology is correct, and if the author is right to say that certain features of the matter-form tree having the One at its Apex are contingent facts, it must at least be that that tree's having *the exact set of features it has* is a brute contingent fact—for that is the form that the GCF takes if

the author's ontology is right. That fact will be contingent if the tree has any features contingently, and the above argument shows that this contingent fact, the GCF, must be brute. And it seems reasonable to suppose (although I can't demonstrate this) that other, "lesser" contingent features of the tree will be brute as well.

There is a way in which the author could avoid this conclusion. (And I think he should want to avoid it. I myself am happy to accept the thesis that there are brute, contingent facts. But I am not a monist. On p. 3, the author, rightly in my view, characterizes the "general monistic idea" in these words: "reality as a whole is the highest paradigm of unity, explanatory coherence, and independence." It seems to me that to the extent to which a theory allows or implies the existence of brute, contingent facts, it denies explanatory coherency to reality: a brute contingent fact is a surd; it is something *sui generis*; an infinite intellect, contemplating reality as a whole will have to say, "There's no reason for that; it simply *is*.") I mean there is a way he could modify his system to avoid this conclusion. Suppose he were to modify it as follows: all possible arrangements of first-and-second-order particulars actually (one is tempted to say "simultaneously" but the particulars whose arrangements are in question are non-temporal) exist. Consider only those arrangements of particulars that are "top-down infinite" form-matter trees, trees with an apex and with no terminal nodes. (In the sequel, by "form-matter tree" I'll mean "form-matter tree with an apex and no terminal nodes".) Suppose that all possible such trees actually exist. Assuming that many such trees are possible, and therefore, we are assuming, real or actual, it cannot be that any of them has "the One" at its apex, since, by definition nothing is ontologically independent of the One and the members of any tree will be ontologically dependent of the members of any other (the relation of ontological independence holds only within a given tree). But it could still be that the apex of each tree is what I have called a *One-like particular*, a partless, unchanging particular that is neither the form nor the matter of any other particular and which is ontologically dependent on nothing. (In the sequel, I'll call a One-like particular that is the apex of a form-matter tree an Apex. Since it is hard to regard "*x* is ontologically dependent on nothing" as entailing "Everything (other than *x*) depends ontologically on *x*," I see no reason to say that the idea of there being two or more Apices is an impossible or incoherent idea.) Suppose, then, that *all possible* trees satisfying this description exist (or at least that the only unrealized possible trees are trivial variants on one of the actual trees: perhaps there is no near-duplicate of "our" tree that is unlike it only in that some of the finite modes of the Block Universe are different)—and not as mere possibilities but rather as *co-actualities*. (This would be a special case of the truth of one of the propositions I asked about above: There are two or sixteen or an infinite number of discrete, non-

overlapping form-matter trees, each of which has a One-like object at its apex.)

And why would things be this way? Presumably because they *have* to be this way—because "Every possible arrangement of objects actually exists" is a necessary truth. This principle is a sort of Principle of Plenitude: it tells us that actual reality is (and must be) "maximally rich." If it is true, this principle has the property (beloved of metaphysicians) of eliminating the arbitrariness that is inherent in reality if any aspect of reality is merely contingent. If reality is as the author of *Coming to Understanding* says it is, then there must be brute, contingent facts. (So, at any rate, I have tried to show.) But in a world governed by the Plenitude Principle, there are no contingent facts at all (or at least all contingent facts are trivial: different arrangements of material objects, for example) and *a fortiori* no brute contingent facts. Not in the strict sense of the word "contingent," that is. There are, however, what we might call "locally contingent" facts: there are facts about the properties of *this* form-matter tree that are not facts about the properties of other form-matter trees. Attention to these locally contingent facts suggests an explanation of our firmly rooted conviction that some aspects of the world are contingent in the strict sense.

Here is an illustration of what I mean. Suppose that there is a form-matter tree, one among many, that is exactly like the form-matter tree that the author says is the only one (remember that we are now using "form-matter tree" in a special sense) except that its apex is not the by-definition unique One; it is rather a "mere" Apex, one Apex among many. According to this ontology, it is, strictly speaking, a necessary truth that there are such things as space and time (it is a necessary truth that that in at least one possible—and, therefore, according to this ontology, in at least one *actual*—form-matter tree, the form of the matter of the matter of its Apex is Space-time, and it is also a necessary truth that in at least one tree (the same one, in fact), the ninth member of its ontological-dependence chain is Space-time—that is, the ninth member of the chain whose first member is its Apex and whose *n*th member uniquely bears "immediate ontological dependence" to its $n - 1$st member is Space-time). But suppose that not all possible (and therefore not all actual) form-matter trees contain the *eide* Space-time at any place in their structure. Then the existence of space and time is, although, strictly necessary (globally necessary, we might say), "locally" contingent. When we say that there might have been no space-time, we mean (given this ontology; at least this is what we must mean if what we say is to be true), that other arrangements of particulars than the one we "belong to" (other form-matter trees than ours) do not contain Space-time.

I trust the idea is reasonably clear. (In a way it is an adaptation of David Lewis's modal ontology to the author's ontology of the nature of "actual reality." It could be looked as an ontology that replaces Lewis's "Block-universe" actual world with something like what actual reality—the totality of all particulars

together with all their intrinsic properties and mutual relations—is if the author's account of actual particulars and their properties and relations is correct. "Something like" in that each of the non-overlapping maximally interrelated parts of the total reality has a mere Apex where the author's one reality has at its apex a particular of which nothing is ontologically independent.)

Such a modification of the author's metaphysics has very little point if the only contingency there is is philosophically trivial—instead of "a candlestick here and a snuffbox there" (Hegel's condescending description of what "experience" and "observation" meant for Kant), "a snuffbox here and a candlestick there." And, indeed, if that sort of contingency is the only contingency there is, and if one takes the option I offered of saying that not every possible tree is realized, but only at least one "representative" tree from every maximal class of possible trees whose members differ from one another only trivially, my suggestion in that case would reduce to the author's metaphysic. But it's clear that the author does *not* regard this trivial sort of contingency as the only contingency (if only because he holds that the existence of the One is contingent). Suppose, then, as the author does suppose, that there is contingency (beyond the contingent existence of the One) that is not philosophically trivial—suppose, for example, that (as we supposed for the sake of an example above) the existence of space and time is contingent, or that the existence of finite modes is contingent. If that is so, I do not see how to rule out the existence of these things is a *brute* contingent fact. On the metaphysic I propose (I mean that I propose that the author consider it as an alternative to his own), there are no contingent facts or are only trivial ones—and hence there are no (metaphysically significant) facts that are *brute* contingencies. (I must concede that this alternative metaphysic has at least one unfortunate feature: if it is right, it is in no sense possible that there be nothing at all. As I have said, I am not sure whether the author thinks it is possible for there to be nothing—I am not sure whether he thinks that if the One did not exist, there would be nothing. David Lewis recognizes a corresponding implication of his modal ontology—the necessary existence of a Block Universe or something "analogous" to a Block Universe, something structured by other external relations than spatio-temporal relations—and attempts to minimize the import of this implication.)

I emphasize that I am not recommending this theory as an alternative to the author's—I am recommending it as a theory with which the author can usefully compare and contrast his theory. It opens the question: why does the author wish to allow the existence of real contingency? And it shows that an appeal to the *appearance* of contingency in the world (or our firmly rooted conviction that contingency must exist) cannot provide a satisfying answer to this question, since the theory explains the appearance and the conviction: these are rooted in our awareness that other arrangements of particulars than what we think of as *the*

actual arrangement are possible. It maintains, however, that "the" actual arrangement is no more than the *local* actual arrangement, the arrangement we are "within."

I think this will suffice for an account of the questions about modality and "bruteness" that *Coming to Understanding* has raised in the mind of one reader who is (he confesses) preoccupied with these topics.

The Rules that Generate the Eidetic Spiral Structure

I want to suggest a technical improvement in the statements of the principles that lead up to the author's statement of the "Principle of *Eidetic* Spiral Structure (p. 84). Unless I am mistaken, these principles are not sufficient to yield the spiral structure displayed in the diagrams. The difficulty can be located in the Principle of Immediate Ontological Dependence, whose three clauses are:

(i) The form of an *eidos* is immediately ontologically dependent on the matter of that *eidos*.

(ii) The matter of every *eidos* is immediately ontologically dependent on the form of some other *eidos*.

(iii) The *eide* are ordered by relations of immediate ontological dependence in an infinite linear sequence.

The problem I see derives from the word "some" in clause (ii). I will have to describe this problem by a somewhat indirect route. Let us use "M" to mean "the matter of" and "F" to mean "the form of" and "O" to mean "the One." Thus, for example, Omni-truth is F(M(O))—the form of the matter of the One. [A parenthetical remark. One of my questions about contingency could be put like this: Is this kind of identity necessary or contingent; might the form of the matter of the One have been something other than Omni-truth?] The chain of immediate ontological dependence (the infinite linear sequence the author refers to) should start like this:

O
M(O)
F(O)
M(M(O))
F(M(O))
M(F(O))

F(F(O))
M(M(M(O)))
F(M(M(O)))
.
.
.

(In this representation, of course, each item is to be understood as immediately ontologically dependent on the item immediately above it.) But this sequence (it is a way of representing the *eidetic* spiral; at any rate, it contains the same information about immediate ontological dependence and form-matter relations as the author's spiral diagrams, albeit not in a form as immediately accessible to inspection as the spiral diagrams) is not uniquely generated by the Principle of Immediate Ontological Dependence. It is consistent with that principle, but so is the following sequence (which is got by exchanging the positions of the two pairs "M(O), F(O)" and "M(M(O)), F(M(O))":

O
M(M(O))
F(M(O))
M(O)
F(O)
M(F(O))
F(F(O))
M(M(M(O)))
F(M(M(O)))
.
.
.

For this sequence, too, satisfies the three clauses of the Principle of Immediate Ontological Dependence. I do not contend that this second, "deviant" sequence of ontological dependencies is consistent with everything the author says at any point in *Coming to Understanding* concerning the interplay of the form-matter relations and the immediate ontological dependence relation. It is, however, consistent with the Principle of Immediate Ontological Dependence taken in isolation. (The problem, as I say, is with the word "some" in clause (ii); to determine a unique sequence of immediate ontological dependencies, it will be necessary to replace clause ii with a statement that, so to speak, says *which* other *eidos* the matter of a given *eidos* is immediately ontologically dependent on—or, as I shall, to replace the whole principle with a principle that contains this information.)

Here is one way of doing this:

(i) The 0^{th} term in the infinite linear sequence of immediate ontological dependencies is The One.

(ii) For any number $n > 0$, the nth term in the infinite linear sequence of immediate ontological dependencies is
  (a) M (the $n - 1$st term) if n is odd
  (b) F (the $n - 2$nd term) if n is even.

Having introduced this apparatus, we may use it to state two related principles. The first tells us which term in the sequence of ontological dependencies the matter of any given term is:

For any number $n > 0$, M (the nth term of the sequence) = the $2n + 1$st term of the sequence.

The second tells us which term in the sequence is the form of any given term:

For any number $n > 0$, F (the nth term of the sequence) = the $2n + 2$nd term of the sequence.

[It would not be difficult to formulate principles of the same sort that relate each material *eidos* to its efficient cause and relate each *eidos* to the formal *eidos* that is its final cause. I have, by the way, a few questions about the efficient and final causation of *eide*—or questions about the relations "is a consequence of" and "for the sake of which." Perhaps I missed something, but it's not clear to me whether the One is an efficient cause. If it *is* an efficient cause of something, that thing would be the Block Universe—which is the matter of Coming to Understanding, which is immediately ontologically dependent on the One. A question along the same lines is: Does Ontological Dependence exist for the sake of Coming to Understanding (in virtue of the fact that Ontological Dependence is the form of the One, and Coming to Understanding is immediately ontologically dependent on the One)? Finally, it seems that Coming to Understanding, alone among the material *eide*, has no efficient cause—for it is the matter of the One, and its efficient cause would have to be, if it were anything, the thing on which the One is immediately ontologically independent (and, of course, there is no such thing). I can see why the One has no efficient cause, of course, and it makes sense to deny efficient causes to the formal *eide*, but it troubles me that there is a material *eide* that lacks an efficient cause.]

"Missing" categories (with special attention to the question of nominalism)?

In his exposition of his theory, the author repeatedly appeals to many categories that have no evident home in his diagrams. Or at least this is my impression—an impression that I should gladly have corrected. For example (an example chosen almost at random), he says (p. 72) "The *eide* are uniquely distinct from one another"—thus making use of the category of sameness and difference. Other examples would be existence or being ("The One might not have *existed*"), modality ("The One *might* not have existed"), negation ("The One is *not* an *eidos*"), and universality ("All *eide* are ontologically dependent on the One"). And yet sameness-and-difference, existence, negation, and universality do not appear in the diagrams.

Are the items I have listed then in fact *not* categories? If they are not, what is the authors account of them? Do they not require an account? If not, why not? Or are they categories that occur somewhere further down in the sequence of immediate ontological dependence than the items in the part of the sequence that the author has represented in his diagrams? Is there some other resolution of my difficulty? I'd like to know what the answers to these questions are. Again, I don't present them as challenges to the author. I present them rather as someone who is trying to understand the text and has the sense of an unresolved puzzle: my not knowing what to say in response to them creates in me an uneasy feeling of not being sure what is going on.

In my own work in analytical ontology, I have tried to find a place for all the categories (or let us say all the most general concepts; I don't want to place any weight on the word "category") in that ontology. That is, when I use a general concept in my exposition of that ontology (or indeed in any piece of discourse I may engage in) I try either to find a place for it in my ontology or to explain why I needn't do so. Let me illustrate this: my only two categories are "abstract object" and "concrete object." I hold, moreover, that the only representative of the former category is "relation" (0-term relations are propositions and 1-term relations are properties; 2-or-more term relations are relations in the usual sense) and "substance." I try to write so that every general term and operator I use has either substances or relations as its extension—or else is syncategormatic (can be understood as not having an extension). Thus I would treat the sentence-operator "it is not the case that" as syncategormatic, but as closely related to the operator "the negation of," which applies to propositions (a kind of relation) and yields other propositions. I do this kind of thing so as to ensure that I am never in a position where, in stating my ontology and defending it, I am "helping myself to" objects of a kind that have no place in that ontology. I am not accusing the author of illegitimately helping himself to anything—of, for example, making statements

that could only be true if there were universals in the course of presenting a nominalist ontology. (There *are* some philosophers I would accuse of just that transgression.) I suppose my problem is this: careful analysis of the author's sentences reveals apparent or *prima facie* ontological commitments (to use Quine's term) to objects that, on the face of it, I can find no place for in his ontology: items that are not particulars of any of his "orders." On p. 26, the author deplores the projection of predication into metaphysics by positing universals. And he has just said that "things having properties" is an easy notion to understand, although the notion of a universal, is hard to understand. And yet . . . properties *are* universals, or one sort of universal. They are "intrinsically plural" only in that they can (or typical properties can) be true of more than one thing. For example, the universal "whiteness," if there is such a thing, is true of both the White House and the Washington Monument. Let me pose this question. One of the things that is true of every *eidos* is that it is ontologically dependent on something. Well, then there is something that is true of every *eidos*. And when I say that, I've asserted the existence of something—which is what the words "there is" are for: assertions of existence. And what could it be but a property? And a property is a universal.

The author will perhaps reply that in saying "There is something that is true of every *eidos*" he is saying only that every *eidos* imitates something, and that that "something" is a particular, a certain *eidos*. But what would that *eidos* be in the present case? Ontological Dependence? But the *eidos*, the particular, Ontological Dependence is the "Platonic nominalist's" (if I may use this oxymoron to describe the author's position on the nominalism-realism question) "replacement" not for a *property*, not for the property "being ontologically dependent on something," but rather for a *relation*, the relation of ontological dependence. This relation, being a binary or dyadic relation, *holds between two* things (and, being asymmetrical, between two things "taken in a certain order," for if *x* is ontologically dependent on *y*, *y* is not ontologically dependent on *x*) and does not (like a property) *belong to one* thing. It is not clear to me, therefore, how the author can understand (in terms of his own ontology) the following simple piece of discourse:

> It is true of every *eidos* that it is ontologically dependent on something other than itself. Therefore, there is (that is to say, there exists) something that is true of every *eidos*. Moreover, "that it is ontologically dependent on something else" is not the only thing that is true of every *eidos*. There are, in fact, infinitely many things (most of them to complex to express in any human language) that are true of every *eidos*—and for every set of *eide*, there are things that true of just exactly the members of *that* set of *eide*.

Once more: this is not a challenge. I'm not saying that, I don't mean to imply that, the author cannot respond adequately to the points I've raised. It's simply that until I know how he would respond to these points, I can't feel confident that I understand his position on the problem of universals.

Review 6: Dean W. Zimmerman

I. Introduction: Coming to Understanding…Again

Several years ago, I was asked to write a critique of a remarkable piece of fundamental ontology entitled *Coming to Understanding* by an author known only as "A. M. Monius.." His identity is now generally known—though I shall continue to refer to him as "A.M. „" as in my first essay. But much else has changed as well. Since then, his ontological system has been subject to the intense probing of a truly impressive array of contemporary philosophers (in the form of extensive critical essays by Ermano Bencivenga, Jan Cover, Jonathan Dancy, John Hawthorne, Eugene Mills, Trenton Merricks, Gideon Rosen, Ted Sider, and Michael Scriven). And the manuscript now made available under the title *Coming to Understanding*, Volume 1, presents a radically different system. Few, if any, of my original criticisms now apply, and my suggestions for ways to develop the theory also now seem a bit beside the point. The things that made the first version exciting are still present: it is elegantly written and boldly conceived, and its details worked out with admirable care. I must confess, however, that the ontological scheme that emerges is less to my liking than that of the original. And I found that I had more difficulties of interpretation this time around.

What and Why, Structure and Teleology

Before diving into quite specific criticisms, I shall pause to make a couple of remarks about a fundamental conviction A.M. brings to his exploration of ontology. A.M. is confident that the quest to find out *what* things are like—to discover their fundamental structure—will have consequences for the quest to find out *why* things are as they are—to discover the point of everything, the purpose for which everything exists. "When we comprehend the nature of the categories and the fundamental relations among them, the nature and purpose of reality as a whole will be laid bare" (p. 3). In an essay I plan to write concerning Volume 2 of *Coming to Understanding*, I shall express some reservations about this expectation. Here, I restrict myself to a point about A.M.'s optimism that the categories will turn out to be "elements in a structure governed by an objective teleology" (p. 21).

The story of category theory, as A.M. tells it, is one that begins, in Plato and Aristotle, with the unsystematic positing of mere lists, resulting in explanatorily impotent theories. As the history of the subject unfolds, Kant and, especially, Hegel turn out to be the heroes, because they expect to be able to find elaborate interconnections among the categories. Kant expects this because his categories are

generated by the human mind; but, as a consequence of this origin, he thinks, they do not apply to everything. We have no grip on concepts that apply to the mind-independent "things-in-themselves." Hegel expects to find elaborate interconnections because he, too, thinks the categories are generated by the mind; but, being an idealist, he can suppose that they *do* apply to everything. A.M. celebrates *parts* of Hegel's view: Hegel had the important insights that "categories … require conceptual connections to one another," and that this is "not merely … a subjective psychological fact about how we think about categories." But A.M. rejects Hegel's idealism.

There seems to me to be something slightly unstable about A.M.'s picture of "progress" in the theory of categories. If the world has a mind-independent structure, why suppose that this structure will come with all sorts of built-in "conceptual connections"? Why should the categorical structure of the world be expected to contain an elaborate quasi-teleological ordering? Hegel and Kant had a reason to expect this: If the categories are in some sense a reflection of minds, and minds are complicated systems that impose systematic unities on the things they produce, such a result should not be surprising. But once the mind dependence of ontological structure has been given up, why should we not expect to return to the kinds of theories offered by Aristotle and Plato—as, indeed, the most recent category theorists have done?

II. A. M.'s Epistemology

"Eduction": A Generalization of Scientific Method

A.M. calls the kind of reasoning that will be used to justify his metaphysical views, "eduction." The justificatory methods that eduction comprises are simply a generalized version of what might be called "scientific method." One takes a body of data, and looks for theories that explain the data—where a "theory" is a more general description of the subject matter, one that unifies the phenomena. The best such theory is chosen, and predictions are derived from it using deduction; and the predictions are tested inductively. A.M. supposes—rightly, by my lights—that suitably generalized forms of reasoning of all these sorts (inference to the best explanation, deduction, induction) can be applied in any subject matter, including metaphysics. Calling the process "eduction" is a charming idiosyncrasy; there should be little controversy about the viability of the method in any legitimate field of knowledge. A person is engaged in eduction if she is pursuing reflective equilibrium and accepts inference to the best explanation as a valid form of reasoning, in addition to deduction and induction.

The role of deduction in testing metaphysical theories is fairly obvious.

Induction is bound to play a lesser role. But the most important application of scientifically respectable forms of reasoning in the realm of metaphysics, for A.M.'s purposes, is inference to the best explanation—or "abduction." Abduction includes a multitude of explanatory strategies. In particular, A.M. agrees with those advocates of inference to the best explanation who say that an explanation can be better than another in virtue of "quasi-aesthetic virtues" (p. 53). Symmetries within a theory, simplicity, internal coherence, and other factors—"often difficult for a scientist to put into words"—are allowed to favor one theory over another, if other things are equal. As we shall see in the discussion of part three of *Coming to Understanding*, most of A.M.'s claims about the structure of "the One" and its categories (or "*eide*") will in fact be justified on the basis, ultimately, of such quasi-aesthetic virtues.

New Entities for Old

A.M. discusses the conditions under which it may be legitimate to introduce terms for new kinds of entities. Although he does not explicitly treat the positing of heretofore unknown entities as typically justified by inference to the best explanation (instead, he simply describes it as a distinctive part of his eductive method), it is clear that, when new entities are introduced in A.M.'s metaphysics, it is inference to the best explanation that justifies them. The greater theoretical virtues of a metaphysics that includes the new entities—like symmetry, simplicity, and explanatory unity—provide reason to accept that they exist. And no doubt this is a perfectly legitimate procedure—in many areas of inquiry, the "best explanation" will often posit entities for which there has so far been no direct evidence.

Why does A.M. lay such stress upon the fact that eduction can lead one to alter the "taxonomy" of a theory, enriching its language with terms for things not previously recognized? I suspect that it is because he is sensitive to the fact that, shortly, he shall be introducing the term "*eide*"; and his *eide* are not like Plato's *eide*, in important respects; nor are they exactly like the forms, universals, and natures of any other category theorist before him (as shall appear in the next section). Although he wants to call (at least some of) his *eide* "forms" and "categories" (and "*eide*" is, after all, Plato's term for his Forms), many of them do not play anything like the role traditionally assigned to a form, category, or nature—or so I shall argue.

A.M. is right to think that the unfamiliarity of his theoretical posits should not stop us from taking his theory seriously. However, I do worry that he underestimates the difficulty of conveying the meaning of a word for a new type of entity. If the interpretation of his theory that I hazard below is correct, then some of

the things he calls "*eide*" serve as the metaphysical grounds of the natures of things, while others do nothing of the sort. The existence of the latter prevent his readers from interpreting "*eide*" as meaning anything like "form" or "essence" or "nature." Among those of his *eide* which seem to play something like the role traditionally reserved to forms or natures, some are the metaphysical grounds for the similarities among objects in virtue of those objects imitating or resembling the relevant *eide*—much as in Plato's theory of the Forms. However, other such *eide* serve as the natures of particulars by having those particulars as parts. Still other *eide* are (I shall argue) rather like structural properties exemplified by things—and they are *not* exemplified in virtue of anything like Platonic imitation, nor in virtue of parthood relations. A.M.'s theory must simply contain a further primitive notion of exemplification or characterization, distinct from the other two ways in which an *eide* may account for the nature of a thing. Given the multifarious roles that his newly-minted entities play—at least four quite different roles, one very "un-form-like"—they eventually seem very peculiar, a kind of thing undreamt of in anyone else's ontology. In the circumstances, the best I can do by way of interpreting the term "*eide*" is something like: "fundamental things," or "things that belong on A.M.'s 'wheel'"—though my grasp of the nature of the wheel will also be tenuous, until I have a clear sense of the kinds of entities it is supposed to contain.

Quine and "Naturalized Epistemology"

One final remark about the epistemological portion of *Coming to Understanding*: A.M. offers a very mild interpretation of Quine's intent in arguing for a "naturalized epistemology." To many of us, Quine's advocacy of naturalized epistemology seems to be the proposal to replace a normative enterprise (working out the canons of right reason that we *should* follow) with a non-normative, purely descriptive cognitive psychology. Quine seems to be proposing that we give up any attempt to "validate" our actual methods, or to produce "rational reconstructions" of them that show that they are more or less how we *should* proceed in forming beliefs. Instead, he invites us to join psychologists in the project of examining our brains, to see how these systems actually work. "Sensory receptors" are "stimulated" in certain ways, and then we utter sentences; psychology aims to figure out how this process works, formulating testable generalizations and hypotheses about the architecture of the brain. But the idea of discovering criteria of justification with which to pass judgment upon the deliverances of these systems, determining whether they function in accord with canons of right reason,… Quine seems to think that is a quaint idea, one that should have died with Cartesian foundationalism.

This interpretation of Quine is, I admit, contested—like all interpretations of

Quine! (He is a regular 20th century Aristotle, in this respect, at least.) But it is one of the standard readings of Quine; see, for example, Jaegwon Kim, "What is 'Naturalized Epistemology'?," *Philosophical Perspectives*, Vol. 2 (1988), pp. 381–405.

A.M., on the other hand, takes Quine to be making a modest, anti-Cartesian point about epistemological method: it is perfectly appropriate to take everything we think we know, at a given point in time, as something that we are entitled to think that we know. But if that were all Quine proposed, his naturalizing program would not have been greeted with the shock and horror it generally received from traditional epistemologists—be they foundationalists, coherentists, or whatever.

The fact that Quine intended something more radical is supported by an aspect of Quine's philosophy that A.M. (rightly, in my view) criticizes: namely, Quine's unwillingness to take seriously any purported piece of knowledge that cannot be nailed down by the hardest of empirical sciences. Since the sciences do not take normative issues for their subject matter (at least Quine did not take them to do so), they cannot tell us how to correctly apply a normative notion such as that of epistemic justification. It is a will-o'-the-wisp, and philosophers should stop wasting time trying to find it.

III. The Ontological System

Meet the New Wheel!

The ontological scheme of the earlier version of *Coming to Understanding* was depicted as a spiral with a very traditional centerpiece: namely, a necessarily existing form called "*Being*." And the categories falling under Being were also necessarily existing forms, all of them quite clearly universals, things that could be exemplified by many.

The second *Coming to Understanding* (Volume One) contains a diagram very much like the spiral of the first version. But at the center sits, not a necessarily existing universal, but a contingently existing particular, "the One." And although the entities occupying the arms of the spiral are still frequently said to be forms (or at least "*eide*"); they, too, are no longer said to exist necessarily. And, as I shall show, it is no longer so clear that all of them are forms, on any sensible use of the word.

In discussing the history of metaphysical theories of forms, A.M. approves of the move he detects in Plato's *Parmenides*: Deny that there is a form corresponding to the meaning of just any old predicate, and affirm that the only forms that exist are the ones that play the role of a certain kind of "fundamental constituents of the real" (p. 28). In contemporary terms, the first, negative, part of

this strategy is the rejection of a "plenitudinous" theory of universals—one that posits a universal for every meaningful predicate (or at least every non-paradoxical meaningful predicate). The second, positive part is the advocacy of a "sparse" theory of universals that identifies the *real* universals with the most fundamental kinds. But those who advocate a sparse theory of universals (or forms) do not agree about many other features of the forms. In order to discover to what extent the items in the new version of A.M.'s wheel should be thought of as the universals of a sparse theory, I shall explore in some detail the kinds of theories of forms (universals, categories, essences) that are on offer.

Theories of Universals, Forms, Natures, and Individual Essences

In the Parmenidean approach to the forms, of which A.M. evidently approves, "a form is posited, not merely because a predicate exists—that such a form can be taken to correspond to—but because the positing of this specific form plays an indispensable role in our description of what is real" (p. 28). But what role? As the ontological system of *Coming to Understanding* unfolded in part three, I less and less sure what role A.M. might have had in mind, in this earlier passage. He clearly regards his theory as, in some sense, continuing the traditional effort to elucidate "the theory of categories"; and he also clearly regards the final product as more similar to Plato's theory of the Forms than to Aristotelian theories of universals or contemporary versions of "Platonism" (which have very little in common with the historical Plato's theory of Forms). A.M. substituted "*eidos*" for "form" or "category" so as not to mislead us into thinking his *eide* are exactly like the forms and categories of earlier metaphysicians; and I gradually realized that the change of terminology signals a number of very radical departures from traditional views (although, since it is Plato's word for his Forms, "*eidos*" is perhaps not the best choice; it cannot help but evoke Plato's conception). I approach the question of the role A.M. reserves for the his "*eide*" (which—following A.M.'s own usage—I will continue, frequently, to call "forms") by consideration of the kind of Platonism with which he feels the most affinity.

I take it that a traditional Platonist would posit forms only to explain a fundamental respect of resemblance. What is it in virtue of which all just actions are just, all beautiful things beautiful, all good things good? The answer: the forms of Justice, Beauty, and Goodness. Some contemporary defenders of sparse theories of universals look to science for the fundamental respects of resemblance, and denigrate normative properties like Plato's paradigmatic forms—they are merely projections of our attitudes, and, as such, could hardly be *fundamental* ways for things to resemble one another. But this is an "in-house" disagreement among defenders of sparse theories of universals; they disagree over which respects of

resemblance are objective and fundamental—which ones are "out there in the world" and "cutting nature at the joints." It is not a disagreement about the general role of universals. They are still in the same game: namely, providing a metaphysical account of the most fundamental respects of resemblance among things (where "things" should be taken in the widest possible sense). These sparse theorists agree that particular, changeable individuals are not enough, by themselves, to give a full (metaphysical) account of the facts of resemblance. Perhaps some concrete, changeable individuals are indispensable for the telling of a complete story about what there is (I would not presume to guess what Plato would say about that question; but I know that contemporary scientifically-minded sparse theorists would generally agree—with the exception of some kinds of "bundle theorists"). But, however fundamental they might be, the concrete, changeable things would not count as "forms" if they were not playing a certain kind of exalted role in the metaphysics of resemblance—that is, providing a metaphysical grounding for common natures or characteristics.

Of course Plato had a rather peculiar theory about the way in which his Forms explain fundamental similarities among things. They are perfect exemplars of the features they confer upon their instances; and things truly called by the common name for a Form are so-called only in virtue of their imperfect resemblance to the necessarily existing, unchanging, non-temporal, non-spatial Form. Subsequent generations of self-styled "Platonists" have agreed with Plato about the necessary, non-temporal, non-spatial nature of the things that explain fundamental respects of resemblance. But they have by-and-large denied that the explanation has the structure Plato posited; they have denied that the relation between instances of a form and the form itself is one of resemblance or imitation. Consider, for instance, the beautiful things, which are instances of the form Beauty. Plato would say that they stand in a resemblance relation to Beauty, a thing that is more beautiful than any of the particulars that imperfectly imitate it. Latter day "Platonists" by and large deny this imitative theory of the relation between a form and its instances.

Their denial is not without cost. Plato does, after all, have a much clearer account of the relation between particular beautiful things and Beauty than those who deny that the relation is imitation. Plato can analyze the "exemplification relation" in non-technical terms that anybody should be able to understand. Those who take exemplification as a primitive notion have stopped one step short in their explanation. And the modern legatees of Plato are hard-pressed to say how it is that something that is not itself beautiful or just or good (or, for the physics-minded, something that is not of positive charge or not massive) can be *that in virtue of which* something is beautiful, just, or good (or of positive charge or massive). A.M. is making these (or very similar) points when he speaks approvingly of the

imitative aspect of Plato's theory (p. 25), and complains about the mysterious nature of the universals posited by latter-day Platonists (pp. 25 and 26). Eventually, I hope to show that he is not in a good position to lodge this complaint.

There are passages that strongly suggest that A.M.'s *eide* are intended to play the role of Plato's Forms: "We claim … that something like Plato's view of his forms provides the right model for the categories. Plato held that ordinary sensible objects participate in, and imperfectly imitate, the forms…." (p. 25) A.M. links this Platonic doctrine of "participation as imitation" with his claim that the forms or categories can be *particulars* rather than *universals* (p. 26). I found this distinction to be elusive. Contrasts between "particulars" and "universals," or "concrete objects" and "abstract objects," are notoriously slippery. Russell teased apart several different alternative lines one might be drawing by means of such distinctions in "On the Relation of Universals and Particulars," (*Proceedings of the Aristotelian Society*, Vol. XII, 1912, pp. 1–24). But his distinctions and advice has had little effect; these pairs of contrasting terms continue to be used in disparate and sometimes hopelessly vague ways. A case in point: Philosophers often blithely say "sets are abstract objects, and therefore outside of space and time," without bothering to explain what "abstract" means. It cannot mean "the result of abstracting away from some aspects of a thing." If anything, a *set* of some objects, or the *unit set* of a single object, is something extra: it is those objects or that object *plus* something…though it is difficult to say what, exactly, the extra thing is. And these philosophers do not usually tell us why exactly "outside space and time" should be thought to follow from "abstract." I notice a thing's color by "abstracting away from" its shape and other qualities; but why should the end result of this process of abstraction be thought to suddenly yield a completely non-spatial and non-temporal item when it was, all along, the process of attending to something in space and time? Perhaps, in this context, the word "abstract" has nothing to do with the process of abstraction; but then we need some further story about what it *does* mean.

Here are a few of the distinctions in the vicinity of "universal" and "particular" that seem to me to be relatively unproblematic, and relevant to the interpretation of A.M. (i) There is a distinction to be made between things that exist necessarily and things that are contingent. (ii) There is a distinction to be made between things that are the primary occupants of spatio-temporal locations (or the fundamental *relata* of spatio-temporal relations, in a relationist theory of space-time), and things that are at best indirect occupiers of space and time. (iii) There are theories that posit an entity to ground every meaningful, nonparadoxical predication—plenitudinous theories of universals—and theories according to which only predications ascribing the most fundamental features need to be regarded as grounded in relations to some entity beyond the item to which the

feature is ascribed—sparse theories of universals. (iv) There are theories according to which the metaphysics behind resemblances among individuals need posit nothing more than a set of individuals, perhaps allowing that it must be a set with some special property of "naturalness" or a set of things standing in a certain pattern of resemblance relations to members and non-members. On the other hand, there are theories that insist that, at least in some cases of individuals with "something in common," the "something" is an additional entity to which all the individuals are somehow related; it is their common relation to this thing that makes the set of these individuals special, not some feature of the set or some facts merely about their relations to one another. The first sort of theory was misleadingly described as "Platonism" by Quine and Goodman; but I will call it "set-theoretic nominalism." The contrasting view has good claim to the title "realism (about universals)," so that is what I shall call it. (I shall ignore truly thoroughgoing nominalisms—ones that reject even sets.)

Realism about universals, then, as I shall use the term, is the acceptance of the need to posit entities that play a certain role in a metaphysical account of resemblance—the "universal role." (Although a term of art, I take it that my use of the term "realism" is fairly standard.) The version of Platonism ascribed to Plato, above, posits a peculiar kind of entity, relations to which provide the grounds for the most fundamental kinds of resemblance—for instance, similarities among good, just, and beautiful things—although it does not imply that all cases in which we apply common names ("dirt," "hair," etc.) require such grounding. So Plato's is a sparse realism. Contemporary believers in universals, like Armstrong, are often in agreement with the sparseness of Plato's picture. But they deny his judgments about which respects of resemblance are most fundamental; they reject his supposition that such things must exist necessarily; and some will insist that they can be as thoroughly spatio-temporal as anything. (Armstrong is a bit cagey on this last point.) Almost all contemporary realists reject Plato's peculiar imitative theory of the exemplification relation. But many realists (Plantinga, Chisholm, van Inwagen) happily embrace the view that the entities playing the universal role are, as Plato says, necessary and non–spatio-temporal. On the other hand, many of them disagree with Plato's advocacy of sparseness, preferring a plenitudinous realm of entities that play the universal role; on their view, some universals confer only the most tenuous (extrinsic) kinds of resemblances upon things that share them. And there are no doubt other combinations possible.

Unsharable Forms

Shortly, I return to the question whether A.M.'s *eide* play the universal role, and what is meant by his calling them "particulars." One additional wrinkle in the

taxonomy of realisms is worth noting at this point, and will be relevant to these questions—a wrinkle due to the possibility of something that is like a universal in other ways, but that can only be had by one thing. Such an entity does not exactly "play the universal role," since it does not account for resemblances among many similar items. Many of A.M.'s *eide*, if they are properly interpreted as forms at all, would be of this sort. So it is worth seeing how they fit into a realistic approach to universals.

No one should claim to be carrying on the tradition of Plato, Aristotle, and other realists about universals unless they posit things that play the universal role. Terms like "universal," "form," "nature," "category," "essential property," "contingent property" and "Platonic ideal" are being wrenched from their original meaning if they are not used to describe the kinds of things that can ground similarities. However, anyone who posits such entities—true universals—will have some theory about them; and the theory may imply that there are things *otherwise just like true universals* but that can only be had by one thing.

Part of any metaphysics of universals will be a theory of exemplification—or whatever name is chosen for the relation holding between a thing playing the universal role and the things that are characterized by the universal, the things that are its instances. Instances of a universal are often said to "exemplify" the universal; imitators of a form, to "participate in" the form. Things "have" natures and "fall under" categories. But these are all recognizably similar relations; and believers in any of these universal-role players must say something about the relation in question. Perhaps the exemplification relation will be said to be a matter of imitation, as in Plato; perhaps it will be construed as a "non-relational tie" or "nexus," as in Armstrong and Bergmann. But, in any case, the realist will have things to say about exemplification.

There are other standard questions a theory of universals must answer, such as: What role do the universals play in the constitution of the entities that exemplify them? There are, for example, bundle theories which take relations of "coinherence" among universals as fundamental, and identify individuals with maximal sets of coinherent universals; and on the other hand, there are "substratum" theories, which require an entity of a different sort (at least in the case of ordinary individuals), a thing that exemplifies properties but cannot itself play the universal role for anything else. And these substratum theories in turn divide into theories according to which universals are not parts of the objects characterized by them and theories according to which they are. (Armstrong speaks of "thin" and "thick particulars.")

At any rate, a metaphysical realism about universals will characterize the things that play the universal role in various ways; it will include, crucially, doctrines about the relation between universals and the things they characterize.

Now I return to the possibility of recognizing entities that are *like* universals, but that are not responsible for similarities among many things. It is plausible to suppose that there exist things that are necessarily unique of their kind. Universals and categories may have been posited, in the first instance, to explain common natures, and "ways things can be"; but if there are unsharable natures or ways that at most one thing could be, surely the realist about universals is under pressure to provide the same form of metaphysical grounding for these unique natures or "ways one thing can be" as she provides in the paradigm case of shared natures and "ways several things can be." And so realists are frequently driven to suppose that the general metaphysical kind, members of which play the universal role, includes entities that can be had by *at most one thing*. One might say that they "play the unique nature role." And if an entity is said to play *either* the universal role *or* the unique nature role, I will say that it is a thing intended to "play the property role."

Some realists about universals will see no need to posit such "non-universal universals"; they will suppose that all one needs are individuals and natures that can be shared. But many realists have felt the need for unsharable natures such as, for example, individual essences. Some forms, properties, or universals are naturally thought to be essential to the things that have them, and could then be said to be "part of the essence" of a thing. But an *individual* essence is a property of a thing that is essential to it, and also necessarily such that, if anything were to have it, it would be identical to that thing. Although individual essences are not in any straightforward sense "universals," those who posit them place them in the same category as things playing the universal role—they can be exemplified, they are the grounds for some crucial aspects of the natures of the things that have them; in short, they play the unique nature role. If the philosophers in question are bundle theorists, they will likely include the individual essence in the bundle; if they are substratum theorists, they will stick it in the substratum (which is like a "pincushion" for properties) alongside the thing's universals.

If someone were to introduce the term "essence" for a kind of thing, but then were to deny that there are any things that play the universal role, or to deny that essences are relevantly like such things, she would be wrenching the term "essence" from its traditional use. Essences have to play the property role. There need be no law against such reinvention of terminology, but anyone who would do so owes us an explanation of what she means. What is unclear is whether A.M.'s *eide* are intended to be things that play the property role. I believe that some of them are so intended, and some of them are not.

What are the Eide?

So where does A.M. fit in? Is he a realist about universals? Does he believe

in things that play the property role? And what does he mean when he insists that everything is particular? One might take the claim that the *eide* are particulars, not universals, to be the denial that his *eide* are even intended to play the universal role. But this interpretation is belied by his claim to be following Plato; and his assertion that the similarities among vague, ordinary kinds of objects and events are going to be explained in terms of their imitation of the structure of categories to be developed in Part 3 (p. 30). Some philosophers have identified "particularity" with "being in space and/or time." But A.M. is certainly *not* ascribing spatio-temporality to the *eide*. Some have claimed that universals, propositions, and other such entities are necessary, but that there are no "necessary individuals" (for instance, God). In the context of an argument about that sort of doctrine, the claim that the *eide* are "particular" might have been taken to be equivalent simply to the claim that the *eide* are contingent. But, although A.M. believes that they *are* contingent, he clearly takes that to be a separate issue.

On p. 26, he identifies the notion of a thing's being "universal," in the problematic sense that contrasts with "particular," as: being "intrinsically 'plural.'" But what the talk of "intrinsically plural" things suggests to me is simply sets or classes; so this sounds like the rejection of set-theoretic nominalism. The idea of an intrinsically plural thing is reminiscent of the notion of a "distributive class" or a "class taken as many," terminology used by Russell in *Principles of Mathematics*. Of course A.M. rejects the idea that the universal role can be adequately played by mere sets; but then so do all the other sorts of realists about universals whom I have described; that hardly justifies saying that they take particulars to play the property role! He also says that the term "categories" should not be used for his *eide*, if "categories" is taken to imply "items that pick out collections." The most straightforward reading of this assertion is that *eide* should not be regarded as anything like *terms* or *words*.

In any case, A.M. does not seem to mean, by either of these statements, that his *eide* fail to play the property role; for he says that his theory will reveal "systematic internal relations among the items posited" and explain how "such items play the important explanatory roles that categories have been traditionally drafted for." I take it that there should be no controversy over my claim that Plato's forms, Aristotle's universals (assuming, with the majority of current scholars, that Aristotle was not a "conceptualist"), and the universals, kinds, essences, and categories of more recent realists (Armstrong, Chisholm, etc.), are all intended to play the property role as I have defined it—they are intended to provide a metaphysical grounds for fundamental aspects of similarity (for plenitudinous realists, non-fundamental aspects as well; and, for believers in individual essences, unique natures, too). Of course there are plenty of differences amongst these theorists. Some suppose there are deep distinctions to be made among entities that

play the universal role. Michael Loux, for instance, is a contemporary representative of older traditions that draw a radical distinction between *kinds* and *universals*. Although kinds play what I have been calling the universal role (there are many instances of the kind, Tiger, for instance; each is a tiger in virtue of participation in this kind); nevertheless, they are much more deeply involved in the business of "individuating" their instances than universals; and universals can be shared by things of very different kinds, with very different "individuation conditions." In addition, there is the question, broached earlier, of whether the category of entities that includes things playing the universal role should be thought to include unsharable natures, such as individual essences. But despite such differences, the unifying doctrine amongst realists seems to me to be perfectly clear; what remains unclear is whether A.M. should be numbered with the realists; and, if so, whether his *eide* are the kinds of thing that play the property role in his system.

One would naturally, if tentatively, conclude from the first part of *Coming to Understanding*, that the *eide* are contingently existing, timeless exemplars which, like Plato's Forms, will play the universal role for the most fundamental respects in which individuals in space and time resemble one another. Given A.M.'s interest in explaining the categories themselves, and describing their interrelations, it comes as no surprise to learn that many of the *eide* will also be introduced as the forms of other *eide*, showing what they have in common and in what ways they differ one from another. And one should not be surprised to learn that some *eide* are the unsharable natures of other *eide*—that one *eidos* is, for example, the individual essence of another. But once the details of the theory of *eide* are adumbrated, it becomes very hard to see *all* of the things A.M. calls "*eide*" as playing the property role in any straightforward way.

Consider first the form of the One, namely, Ontological Dependence. In elucidating the claim that ontological dependence is the form of the One, A.M. says that "the form of the One is a relation among items within it. We call this relation *ontological dependence*" (p. 63). This is a dark saying, if *eide* are supposed to play the property role. Surely the relation of ontological dependence must hold between distinct things, and be the form in virtue of which several pairs resemble one another—pairs in which one thing is ontologically dependent upon the other. It is as though one were looking for the thing that every nuclear family has in common with every other nuclear family, and one were told that it is the universal, *Parenthood*. The answer to this proposal should be: "*Parenthood* cannot be the nature of the nuclear family; the whole family itself is not the parent of someone, and it is not a pair of things standing in the parent-child relation; no doubt the relation *being the parent of* is crucial to describing the essential nature of the nuclear family, but that essential nature is a complicated thing, and it is not

specifiable simply by mentioning a relation that figures prominently in its specification." Similarly, I want to say in response to the proposal that *ontological dependence* is the form of the One: "*Ontological dependence* cannot be the form of the One; the One itself is not ontologically dependent upon something, and it is not a pair of things, one of which is ontologically dependent upon the other; no doubt the relation *being ontologically dependent upon* is crucial to describing the nature of the One, but the nature of the One, as described by A.M., is extremely complicated, and not specifiable simply by mentioning a relation that figures prominently in its specification."

When A.M. argues in detail for the status of Ontological Dependence as formal *eidos* of the One, I think we get some clues as to how he is thinking about this *eidos*. In this passage, he is countering two suggested alternatives for its formal *eidos*: (i) that "the *eide* themselves" are the form of the One, and (ii) that immediate ontological dependence is the form of the One. In his response, A.M. relies upon the importance of ontological dependence in the theory to be developed in subsequent sections. He argues (against the first suggestion) that it is not the *eide* by themselves that constitute the One, but the *eide* "*and* their relationships," crucially those of ontological dependence (p. 66). Since the combination of the *Eide* plus their key relationship, Ontological Independence, is not a single form, it "cannot be *the* form of the One" (p. 66). One might have thought immediate ontological dependence was more important than the more general relation of ontological dependence, and so had a better claim to be the formal *eidos* of the One (the second suggestion); but, in the actual arguments he will give, A.M. "will not utilize immediate ontological dependence very much" (p. 66); it is ontological dependencies of various sorts that will prove more important. So he is left with the generic relation of Ontological Dependence as the form of the One.

If one wants to hold onto the idea that the *eide* play the property role, one might take these arguments as indicating that A.M. supposes the formal *eidos* of the One should be a feature of it that gives it its most important sort of *structure*—that is, that its *eidos* is a *structural property* (this interpretation is also supported by the statement that "the form of the One is a relation among items within it"). It is not the constituents of the One —the *eide* themselves—that should count as its form, but the distinctive structural property that characterizes them. On this interpretation, the form of the One is *not* the *eidos* Ontological Dependence itself, but rather the property of *having as constituents certain* eide *related by ontological dependence in such-and-such characteristic ways*. The second of the two arguments he gives (the argument against (ii)) could be taken as supporting the idea that it must be this structural property, rather than the property of *having as constituents certain* eide *related by* immediate *ontological dependence in such-and-such characteristic ways*. There is an analogous interpretation of the intent of

the person who proposes that *Parenthood* is the form of the nuclear family: what she really meant was that the thing that gives a nuclear family its nature is the structural property *being a collection of people, two of whom are the parents of all the rest* (or some properly precisified description along those lines). Since *being the parent of* figures most prominently in this structural property, it would not be inappropriate to describe the form of the nuclear family, by a sort of shorthand, as *Parenthood*.

(Incidentally, A.M.'s arguments against (i) and (ii) seemed quite unconvincing to this reader. If Ontological Dependence can be said to be the form of the One in virtue of its constituents being ontologically dependent in a certain characteristic way, why could not the conjunction of Ontological Dependence and The *Eide* be said to be its form in virtue of its constituents being these particular *eide* being ontologically dependent in a characteristic way? If the form of the One is thought of as a structural property, there seems nothing objectionable about choosing the latter structural property rather than the form—at least, nothing objectionable to be found in the vicinity of A.M.'s assertion that *the* form of the One cannot be conjunctive. The two structural properties I have indicated are simply distinct structural properties, and neither one is more of a real unity than the other. The second is certainly not the conjunctive property of *being The Eide and being ontologically dependent*. I am not sure that my structural property interpretation of A.M. is correct; so perhaps, on other readings—which are more difficult for me to grasp, unfortunately—A.M.'s argument against (i) might look better. The second argument (against (ii)) also strikes me as problematic. Why should we assign metaphysical importance to the fact that ontological dependence is used more often than immediate ontological dependence in the admittedly fallible process of "educing" the categories? Clearly, when ontological dependence holds among a pair of items, it is *because* they are either immediately ontologically dependent or linked by a chain of immediate dependencies. Does this not make immediate ontological dependence a more fundamental aspect of the structure of the One? It may not always come first in the "*ratio cognoscenti*," but it should come first in the "*ratio essentia*"; and that sort of priority should be more relevant to the metaphysical question about the form of the One.)

It is possible, in this way, to construe A.M.'s claim that the *eidos* Ontological Dependence is the form of the One as shorthand for the claim that there is a structural property, something belonging to the same category as things that play the universal role (though perhaps it is an unsharable individual essence, playing the unique nature role), that is the metaphysical grounds for the nature of the One. After all, after giving these arguments, he repeats the assertion of section one that "form is … the structure or shape of a particular: the way that it is" (p. 72). My structural property interpretation feels, at times, to be strained. But he does

not back away from using the language of "nature" and "essence" in his later descriptions of at least the formal *eidos* of an *eide*: "The form of a given *eidos* is that *essence or nature*—itself, a partless *eidos*—that *individuates* the given *eidos* as the specific *eidos* that it is." I submit that such language would be completely inappropriate unless a formal *eidos* belonged to the category of things that can play the property role. And, in the case of the *eidos* of the One, the structure in question is one of infinitely many items, ordered by ontological dependence; and so the claim that Ontological Dependence is the form of the One can only be shorthand for the claim that a structural property in which ontological dependence figures prominently is the form of the one.

Given A.M.'s attraction to Plato's "imitative" theory of participation or exemplification, one might have thought that the structural property in question must be something like an exemplar of the very structure possessed by the One. The structural property which is the nature of the One would therefore be something distinct from the One that nevertheless perfectly possesses the structure that the One somehow imitates. I do not think, however, that A.M.'s positive assessment of Plato's theory of Forms as exemplars, and exemplification-as-imitation, should be thought to commit him to the view that the relation between the One and its *eidos* is one of imitation. Although he does describe Ontological Dependence as the form of the One, and says that it gives the One its structure, he can hardly suppose that Ontological Dependence is a more perfect exemplar of the structure exhibited by the One. After all, a more perfect exemplar of the structure of ontological dependencies represented in the One would be something like a copy of the One, only better! A.M. holds that the *eidos* of the One is dependent upon it; as such, it could hardly be something that the One attempts to imitate.

The place at which A.M. invokes Plato's imitative theory of participation is early in *Coming to Understanding*; and, there, the only thing that is explicitly said to have its form in virtue of imitation is "the whole structure of ordinary kinds and examples, that Wolterstorff takes to be all there is…." In other words, ordinary objects and events fall under kinds and are instances of universals in virtue of the fact that they imitate structures among the *eide*. At least, that is how I understand this passage. Unfortunately, later on, when A.M. tells us more about the nature of the "world of nominal or 'constructed' kinds and their examples" (p. 71), the story we hear does not seem to be one according to which there are entities in the realm of the eternal *eidos* that are imitated by individuals and events—like tigers and rocks, wars and explosions. These ordinary things and events are identified with "modes" of the Block Universe; but they are not exhibited, at least not in any obvious way, as having their characteristic natures in virtue of resembling some of the *eide*. The one passage in which imitation-as-exemplification does reappear (p. 99) mentions "Telos, Understanding, Choosing, and Location" as formal *eide* that

are imitated by "the items we think of those *eide* as about." So, individual choices may be thought of as exemplifying the form Choosing in virtue of resembling it. But in this context, A.M. explicitly denies that every *eidos* is imitated by something. Some just are what they are—in particular, the two material *eide*, Coming to Understanding and the Block Universe (the former of which is mistakenly said, on p. 99, to be the *form* of the One, rather than its matter). These do not "represent" some further thing; and they are not imitated by anything else (pp. 98 and 99).

It is clear, then, that A.M. does not have a theory of participation or exemplification that is much like Plato's, except in a few special cases. The manifest individuals are at least not *clearly* exhibited as imitating the *eide*. And the relation between the One and its formal *eidos* does not seem to be one of imitation—on pain of Ontological Dependence being a copy of the One. Nor does Space-time seem to be a thing imitated by the Block Universe; and so on, for many other cases of an *eidos* and its formal *eidos*. In fact, the Platonic language of imitation seems utterly out of keeping with A.M.'s conception of the form of an *eidos* as ontologically dependent upon the *eidos* of which it is the form; how could a thing have its structure in virtue of imitating a second thing that is a perfect exemplar of that structure, and yet that second thing be ontologically dependent upon the first? There may be a place in A.M.'s theory for a Platonic variety of exemplification-as-imitation; but I suspect that it could only be in the case he explicitly mentions—that of manifest individuals and kinds. The sense in which Ontological Dependence is the form of the One, and other *eide* are the forms of *eide*, cannot be anything like the sense in which Plato's Goodness is the form of good things, Justice is the form of just acts, etc. A.M.'s theory of forms—if it is properly taken as offering us essences or natures of the One and the *eide*—must simply take exemplification of an essence, or participation in a form, as a primitive notion.

The material *eide* provide further problems for an interpretation of *eide* as things that play the property role. They do not seem to provide the metaphysical grounds for similarities or unique natures. The Block Universe seems simply to be a gigantic individual, itself a compound of form and matter. It is described as the matter of the grand process of "coming to understanding" which the One undergoes; but it does not serve as the form of anything. Nevertheless it is an *eidos*. So, what is being said of something, when it is said to be an *eidos*, if not that it is one of the items that "play the important explanatory roles that categories have been traditionally drafted for" (p. 26)?

My hypothesis is that no *material eidos* should be thought of as a successor to the categories or forms of earlier theorists; they are just not in the business of playing the property role at all. If this hypothesis is correct, then when A.M. calls

something an "*eidos*," he is simply saying that it appears in his wheel of ontologically dependent entities leading up to the One. It need not be the nature or essence of anything else; it need not be the Platonic Ideal of anything. (So, if this hypothesis is correct, it would have been more appropriate to call the *eide* "the fundamental constituents of reality.") Nothing need be what it is in virtue of imitating a material *eidos* or participating in it or exemplifying it. I am encouraged in this reading by the aforementioned remarks about the two material *eide*, the Block Universe and Coming to Understanding (p. 99).

But suppose A.M. were to go further than this; suppose he were also to admit that even the *formal eide* are not essences of the things of which they are the forms. Then I will have lost all my bearings. Ontological Dependence simply *has* to be a name for the characteristic structural property that is the individual essence of the One, or I will have no idea what is meant by calling it "the form of the One." If the formal *eide* are not in the business of serving as the essences of the things of which they are forms, if they are not the metaphysical grounds of their natures, then the wheel becomes a very mysterious thing indeed. Perhaps I can wrap my mind around the idea of a thing called "the One" which somehow includes everything, without those things being parts of it (though I shall worry about this idea soon enough!); and perhaps I can understand the supposition that there is an infinite series of things related by immediate ontological dependence, all ultimately dependent upon the One. But I shall have no idea what it means to say that some of them are more like "forms" and some more like "matter."

I shall, then, proceed under the assumption that a formal *eidos* can properly be said to be exemplified by (or to characterize, or to be had by, or to be the nature of) the *eidos* of which it is the form; formal *eide*, at any rate, do play the property role. This means that Ontological Dependence cannot be the name of the relation that holds between a pair of things just in case one is ontologically dependent upon the other (as one might have thought, given the name); it must be something much more complex than that—something more like the structural property described earlier. Similarly, Immediate Ontological Dependence cannot be a name for the relation that holds between a pair of things just in case the one is immediately ontologically dependent upon the other; it must be a name for the essential nature of the structural property A.M. has labeled Ontological Dependence. (Although here I begin to lose my bearings; why did I have to posit this property? Why must I suppose that there is an infinity of essences of essences of essences…?) Similarly, Space-time must be a way that the Block Universe is, a way in which its Modes are organized or structured (although, again, I feel a bit at sea, wondering why Space-time is not the raw "material" that is structured or organized by the modes that modify it; the choice of Space-time as form and Modes as matter appears backwards, insofar as I have any intuitions about which should be which). And so

on, for other formal *eide*; they all play the property role, relative to the *eide* of which they are the forms.

Three Kinds of Exemplification

There is a puzzling passage that might be read as offering an analysis of the relation that holds between a thing and the forms and categories it exemplifies—a general account of the relation between something that plays the property role and things the property is *of*. I do not think this could have been A.M.'s intention, exactly; but examination of the passage will prove illuminating. Although his three varieties of exemplification could not serve as a disjunctive analysis of the notion, it will emerge that A.M. does have three very different varieties of exemplification relation within his system.

A.M. claims that "it is three relations—that different *eide* can bear to particulars—that have been wrongly coalesced by philosophers into a single intentional relation between 'universals' and what they are 'of'" (p. 99). One is imitation; an example from A.M.'s metaphysics is the case of particular choices which are the kinds of events they are in virtue of resembling the *eidos*, Choosing. Another of the three relations he mentions is simply identity. As an example, he says that the Block Universe just is what it is, it is not *of* anything else. The moral I draw from this remark is that some of the things he calls "*eide*" are not the forms or essences of other things at all; they are simply not in the business of playing the property role relative to something else. (Personally, I think this makes them unworthy of the name Plato reserved for his forms; but this is just a question of terminology.) The third relation in virtue of which an *eidos* can be the *eidos* of a thing is parthood; "non-*eidetic* particulars [are] parts of *eide*" , and it is in virtue of this relationship that the non-*eidetic* particular has the *eidos* as its form (p. 98).

Two of the three relations, then, are ways in which a thing can exemplify an *eidos*. But there are *eide* that play the property role with respect to other things, but that do not stand in either of these two relations. Consider the fact that five of the first six *eide* (Coming to Understanding, Ontological Dependence, the Block Universe, Omni-truth, and Immediate Ontological Dependence) have no parts (p. 88). Omni-truth is the formal *eidos* of Coming to Understanding; so it is the form of something that has no parts. The same can be said, *mutatis mutandis*, for the relations between Ontological Dependence and the One, and Immediate Ontological Dependence and Ontological Dependence. If these formal *eide* do not imitate the things of which they are the forms (and, for reasons adduced above, this seems an unlikely metaphysical hypothesis), and if they are not identical with the *eide* of which they are the forms (which they surely are not), then all three of the relations A.M. mentions have all been ruled out: There must be a *being the form of*

relation in addition to the ones A.M. mentions in this passage. An *eidos* can be *of* something else—can be the nature or essence of that other thing—in some further way.

Perhaps A.M.'s tripartite analysis was meant simply as an analysis of the ways in which genuinely *universal eide* can stand to things that are correctly said to be characterized by them (so that forms that play the unique nature role are exempted from the analysis). But, whatever his intention may have been, it is clear that A.M. does not here have the makings for an analysis of the exemplification relation between a formal *eide* and the thing of which it is the form. Within the system as it stands, this exemplification relation is a primitive notion.

Tales of the Material Eide

Earlier, I hazarded the guess that none of A.M.'s material *eide* were things that genuinely play the property role in his system. Whether or not this is so, clearly, some of the *eide* (such as the Block Universe and Coming to Understanding) are not intended to play the property role with respect to anything else. So it is time to take more seriously the idea that they are more like the parcels of matter that appear in hylomorphic theories of substances.

The role of "matter," in more traditional metaphysical systems, includes that of "individuator" for things that could have qualitative duplicates. It is curious that in A.M.'s scheme, matter never plays this role. One might have thought that, in the realm of ordinary objects and events, i.e., the "manifest" world, there would be a need to distinguish between things alike in all their qualitative properties. One might have thought that it was at least possible, in principle, for a pair of statues to be exactly alike; and, in fact, when it comes to very simple things, such as electrons, I should have thought it quite certain that, at least occasionally, several of these things differ only extrinsically. Although the basis for this eduction is unclear to me, A.M. insists that exact duplication among concrete entities is impossible (p. 68). Matter is not needed to individuate duplicates in the realm of *concreta*. Furthermore, in the realm of the *eide*, there is no possibility of exactly similar entities, even when it comes to the material *eide*. For the matter of a given *eidos* is itself an *eidos*, distinguished from every other by its individuating formal *eidos*.

What other traditional role for "matter" could his material *eide* be playing? A.M. says that "[t]he matter of a given *eidos* is that *whole*—with or without parts—of which the given *eidos* is *constituted*. This whole is an *eidos*." I shall see how far this idea can be taken, given my supposition that formal *eide* are natures or essences—typically something like structural properties.

The exact nature of the "unfolding process of Coming to Understanding"

remains rather mysterious (though it will become clearer, I take it, in the second volume); and it is hard for me to see how it is to be construed as "raw material" somehow structured by the pattern of ontological dependence that is the form of the One. So I shall set this case to one side.

I am better able to make sense of the idea that the Block Universe is a gigantic, four-dimensional, complex thing (one that contains everything "concrete"), and that this thing constitutes, in virtue of some pattern displayed by its contents (i.e., the pattern of truths-grasped-from-perspectives, or "Omni-truth"), a process worthy of the name "Coming to Understanding." (As an aside, I note that it takes a great deal of faith to believe that a truly profound process of "coming to understand" the ontological structure of the world will indeed take place in our space-time, especially if there are *infinitely many* categories and only *finitely many* thinking beings with *finitely many* years to live, and there is no God to help us figure things out, and entropy is simply allowed to run its course! But perhaps, in volume two, we shall discover that the process of coming to understanding does not require *full* understanding of the ontological structure of the One.)

I can also work up some sympathy for the idea that the Modes characterizing the various parts of the Block Universe are the things that constitute that Universe, when organized by the structure Space-time (though, for reasons mentioned above, it feels more natural to me to suppose that Space-time is a whole which, when its parts are characterized by various modes, constitutes the Block Universe; and some physical theories seem to favor this alternative).

But in what sense is the category, The *Eide*, fit to serve as the matter of Ontological Dependence? Suppose I am right in taking the latter to be a structural essence of the One, something like *the property of including the eide interrelated in such-and-such characteristic ways by ontological dependencies*. Then it is not so much the *category* of The *Eide* that constitutes this complicated property or nature. It is the many *eide* themselves, or the sum or fusion of them. If the structural property called Ontological Dependence is the property of having as constituents the *eide* that appear in the wheel, and having them ordered in a certain way by ontological dependence; then Ontological Dependence does indeed look like something with the *eide* as constituents, and the form that structures them is something like: the first being immediately ontologically dependent upon the One, the second being immediately ontologically dependent upon the first, the third being… and so on. On this interpretation, the term "Immediate Ontological Dependence" that appears on the wheel is a name, *not* for the relation that holds between, for example, Coming to Understanding and the One, but rather for something like a structural property of a structural property. Perhaps the property in question would be something like: *being a property in virtue of which something that has it consists of things in immediate ontological dependence relations of a*

certain sort.

IV. Eductions of the One and the *Eide*

The Elusiveness of Eduction

As noted earlier, when describing the kind of reasoning that will lead to an ontological theory such as his, A.M. lays great stress on inference to the best explanation, and the quasi-aesthetic virtues that can favor one theory over another. This is entirely appropriate. A metaphysician worth his or her salt will develop an ontology that is compatible with the empirical facts, and will also make sure that it fits smoothly with the best current scientific theories. But these constraints do not take us very far; they leave many seemingly incompatible ontological schemes, none of which predicts observations the others do not, none of which is obviously better adapted to the needs of science. And so we are thrown back upon theoretical virtues, like simplicity, that do not admit of precise characterization, and about which there can be massive disagreement. The reason one ontological scheme seems better than an alternative will often, as A.M. himself realizes, be "difficult … to put into words"; and there will be great disagreement about the relative values of various kinds of simplicity, symmetry, unity, etc.

A.M. should not expect that any metaphysician will agree with all or even most of his judgments about the theoretical virtues of the alternatives he prefers as he develops his theory of categories. Below, I will point to quite a few examples of "eductions" where reasonable people will certainly differ. In my judgment, A.M. has an extremely well-calibrated sense for the quasi-aesthetic virtues exemplified by ontological theories. The problem is that the metaphysicians I believe to have finely-tuned theoretic-virtue-detectors, a group that includes A.M., does not speak with one voice. They often disagree about which metaphysical theories display more of the virtues in question. Even the subtlest of metaphysical minds nevertheless differ in their judgments time and again about the relative naturalness or elegance of ontological doctrines, and about the ways in which various theoretical virtues should be played off against one another. Perhaps one of us metaphysicians (perhaps A.M., for all I know!) has a *perfectly* calibrated quasi-aesthetic virtue detector; but, in the face of massive disagreement (both at present, and throughout the history of our subject), the best a poor metaphysician can do is to rely upon her own sense of which doctrines are simpler, more elegant, etc.; develop a theory in light of these judgments; and hope that the sum of the theory's virtues will win it at least begrudging acceptance as a plausible contender in the competition for *the fundamental ontology*.

Fortunately, the sum of an ontological theory's virtues will include not just

the quasi-aesthetic, but also its adequacy for the statement of philosophical theories in other areas. This sort of extrinsic virtue was emphasized by Chisholm, when he would attempt to make a case for his choice of fundamental ontological categories and privileged notions. Chisholm would point out that his ontological categories provided him with the resources to develop plausible philosophical theories addressing the traditional problems of epistemology, ethics, language, and philosophy of mind, in addition to those of metaphysics. In general, he was a Quinean about ontological commitment: one should figure out what there is, including what abstract kinds of things there are, by the regimentation of "total theory"—i.e., all the things that, upon reflection, one believes. Quine's strategy for uncovering the ontological commitments of a theory breathed new life into ontology, promising a way forward that consisted of more than "the swapping of hunches about what exists" (to use Stephen Yablo's memorable phrase). I fear that a close look at most individual "eductions" in *Coming to Understanding* will reveal plausible but far from inevitable "hunches"—ones that not all reasonable metaphysicians can be expected to share. Unless there is considerable support for the theory from some other source, the final edifice will stand as one metaphysician's interesting and elaborate construction, well worth consideration in the "ontology sweepstakes"; but not as a theory that should be rationally compelling to every careful user of "eduction."

Eduction of the One

Consider first the eduction of the One—or, rather, the *introduction* of the One, since it arrives on the scene virtually without argument. A.M.'s monism is not the mad monism that recognizes no plurality at all. There are many things—e.g., many *eide*, many modes, etc. But there is one thing that somehow includes everything else, and it is a thing that is not ontologically dependent upon any of those things, but upon which everything else is dependent. Why should one think there is such a thing? Of course there is Spinoza's argument for an even more radical monism (p. 8), but A.M. does not seem to endorse this argument. Beyond that, the only reason I can see for accepting the starting point of A.M.'s system would be something like: the system as a whole is the best ontology anyone has so far adumbrated, and it crucially involves the One. But how should one approach a gigantic judgment call of this kind? One would have to look at A.M.'s entire ontological scheme, and compare it with the ontologies of, say, Plato, Aristotle, Aquinas, Hegel, Brentano, Chisholm, etc. Among the crucial factors that could favor one ontology over another are, of course, their "quasi-aesthetic" theoretical virtues; and, given the subtlety of assessments of such virtues, there is little chance of widespread agreement even among old-fashioned, "hardcore" metaphysicians of the utmost good will.

Are pluralisms somehow to be ruled out right from the start, as not allowing

for the kind of complete explanation that A.M.'s monism can offer? But why think everything *can* be explained (even given A.M.'s modest notion of explanation, according to which probabilistic explanations can be sufficient)? In any case, A.M.'s One turns out to be a contingently existing thing, and (in volume two) he says that the bare existence of a contingent thing needs no explanation. The pluralist can take aid and comfort from this admission, and claim that the fact that several distinct and independent individuals exist should need no more explanation than the fact that the One exists.

Consider the eductions of other features of the One: it is contingent, partless, and a particular (although, given the above problems about understanding A.M.'s use of "particular," I am not certain that I know how to interpret the term in this context). I see no argument, at least in volume one, for the contingency of the One. (The closest thing I can find is the paradoxical statement: "There are many different ways the One could have been, and one of those ways would have been for the One not to exist at all" [p. 62].) And I can find no argument for the thesis that, of all the many distinct particulars that are "included in" the One, none deserve to be called *parts* of the One. Some monists have argued that, if *x* is dependent upon *y*, and not vice versa; then, even if *x* is "included in" *y* in some sense, *x* should not be called a part of *y*. But one worries that this is merely a terminological choice; the expression "*x* includes *y* and *z* within itself" seems to be simply a way of introducing the idea that *y* and *z* are parts of *x* without using the word "part." If one wants to reserve the term "parts" for cases in which the included items are not dependent upon the thing that includes them, who will argue with this, as a stipulative choice? In any case, A.M. clearly allows for ontologically dependent things to be parts of the thing on which they depend (cf., e.g., p. 71). If denial that included items are parts comes to more than a terminological choice, however, we need to know what that "more" is that is required for inclusion to count as parthood; and then we need a serious eduction of the thesis that the One has no parts.

Reservations about Further Eductions

Earlier, I voiced reservations about the two arguments against alternative eductions of the form of the One; the result of those reservations is that A.M.'s eduction of Ontological Dependence as the form of the One seems to me to fail; there are plenty of alternatives (mentioned earlier) that strike me as equally good, such as a structural property including both ontological dependence and the *eide*, and one including immediate ontological dependence in place of ontological dependence, and one including immediate ontological dependence and the *eide*. Of course it is possible that my interpretation of the form Ontological Dependence as

a structural property is misguided; but if so, I have no idea how to interpret A.M.'s claims about its relation to the One.

The "eduction" of the matter of the One is not, I take it, completed in volume one. Very little is said about the nature of the process of Coming to Understanding. But it seems to me that a lot of faith will be needed to believe that the universe of space and time will include a profound Coming to Understanding of the ontological structure of the One (see my parenthetical reservations above); and there are many other processes that could be chosen as the crucial matter that is shaped in the form of an infinite hierarchy of ontological dependencies that includes the Block Universe, among other things. Some might have more faith that Love will work itself out in everything, or Hate, or Coming to Ignorance (which would seem more likely, really, given our admitted fallibility and finite numbers and lifespan). Furthermore, there is the question why the matter of the One should be thought to be a *process* at all. A.M. asserts that it is a "grand, overarching process rather than … a totality of material, or … an extension in space and time," but there is no real grounds for this educed here—although I wonder whether A.M. might wish to support it on the grounds that a process can have built-in teleology, and built-in teleology is needed in order for everything to be explained. The claim that a theory is better if, according to it, everything has an explanation will also be controversial, of course. A.M. defends a sort of principle of sufficient reason, at least as methodological assumption (p. 2); but some metaphysicians will take it to be fairly obvious that some facts lack explanations—even of the weaker, probabilistic sorts—and that a theory that implies the opposite bears a considerable burden of proof.

Educing the partlessness of Coming to Understanding and the Block Universe went past far too quickly. Why should the "global" nature of the process of Coming to Understanding prevent its having stages? Why are "different possible trajectories" the only possible kinds of parts such a process could have (p. 102)? Is the partlessness of the Block Universe due to some commitment to the impossibility of points? If space-time consists of a continuum of point-events, as current scientific theories presuppose, it is "granulated," and has a natural division into smallest parts, contrary to A.M.'s claim (p. 101).

There is also much to question in the eduction of the Block Universe, its form and matter, and the theory of ordinary concrete entities A.M. gives. I have already raised the question: Why take modes as the matter and space-time as the form, rather than the reverse? Indeed, on geometrodynamic theories of matter, it seems clear that the reverse should be the case—space-time is a set of points, and the metrical properties of subsets of the points are responsible for the phenomena we call matter. Surely the "shape" of a region of space-time is a mode of that region—and, being a shape, it is a paradigm of form, not matter. Even if

geometrodynamic theories are false, the fact that (according to General Relativity) space-time can be shaped differently in different places strongly suggests that the parts of space are matter to a kind of formal modification. In addition, I saw little in the way of eductive grounds for the claim that ordinary concrete objects are "local and fleeting manifestations of the Block Universe"; nor for the claim that there could not be two such objects intrinsically exactly alike. A metaphysician could be forgiven for thinking that there are many quasi-aesthetic theoretical virtues exemplified by a theory that *allows for* exact duplication among concrete entities, and that *allows for* things that persist in a way that is more robust than a "local and fleeting" perturbation in the Block Universe. Many find these ideas as appealing as A.M. apparently finds their contraries.

The definitions of the form and matter of an *eidos* (p. 73) imply that there are infinitely many. Why suppose this? Why not suppose that the tree structure can "bottom out" in matter that has no form, or is its own form, or has a form that has already shown up elsewhere on the tree? My guess is that the grounds for eduction here are the simplicity of the definitions, and the beauty of an infinite spiral. But of course some metaphysicians have found infinities ugly; some have liked unmoved movers, prime matter, circles of dependence, self-applying concepts, etc. Perhaps A.M.'s theoretical virtue detector is right and theirs are wrong; but the variety of opinion among metaphysicians-of-goodwill suggests that such differences are not amenable to decisive resolution.

The eduction of the consequence relation among the *eide* seemed strained. Why suppose that "when we think about efficient causation" it is typically "the matter of the item" upon which we focus? The efficient cause of a statue—say, the melting of some bronze, the pouring of the bronze into a mold, and the hardening of the bronze—does not produce the matter. It does *act upon* the matter, giving it the form of a statue, but it takes the matter as given. Insofar as the Four Causes are motivated by anything like the traditional examples, A.M.'s choice for the analogue of efficient causation (i.e., "consequence") seems wrong. If the paradigm cases of the Four Causes are simply misleading, then I will have lost me grip on them—why think there are four, rather than three or even two? Why not just stick to ontological dependencies?

The four causes are inserted where they appear on the wheel mainly because they are important, and should come in as soon as there is "room" for all four to appear side by side. This "forces" them to be the matter and form pairs for the *Eide* and Immediate Ontological Dependence. But I found the "need" to place them just there rather contrived. Why is it important that they appear side by side? Why not dispersed according to some other symmetrical pattern, or in a telic arc? The web of consequence and telic relations that A.M. was able to discern among the four causes and their neighbors in the wheel was very difficult for me to see. Perhaps it

is there; but the meanings of "form," "matter," "efficient cause" (i.e., Consequent), and "final cause" (i.e., Telos) are so far from their home that I did not know how to assess many of the claims being made.

A.M.'s view is "diagram driven"; but what guides the choice of initial diagram? Instead of a spiral, he could have started with a traditional branching structure. The reason for the spiral is to indicate the order of ontological dependence. But why think the order is as depicted? If there was an eduction supporting the idea that immediate ontological dependence "spirals," rather than simply flowing upwards through the nodes of a branching structure, I missed it (I should have thought it would appear around pp. 59-65).

A.M. seems to think that the justification for his system as a whole depends to a considerable extent upon something rather like its overall aesthetic appeal—its coherence, the symmetries embedded in it, and so on. As a consequence, there is a real cost when he needs to make inelegant exceptions here and there. Consider, for instance, the several ways in which an *eidos* may be the form of something, distinguished earlier—i.e., as something like a structural property, as a whole that can contain parts, as an exemplar to be imitated—and the fact that some *eide* do none of these things (i.e., the Block Universe). Is there not considerable inelegance in these differences, especially if they do not conform to any sort of pattern? (Perhaps they do conform to a pattern; but it is not obvious that they do.) There also appears to be a measure of inelegance in the claim that no part of an *eidos* can be the matter or form of an *eidos* or of the One—*except for* the form called "The *Eide*." If it can have parts that are *eide* of *eide*, why cannot other things have such parts?

V. Conclusion

I should have liked to conclude this critical review with a series of suggestions for extending and modifying the fundamental ontology developed in *Coming to Understanding*. But I find that I have run out of time (and, almost, words!); so I shall save detailed suggestions for the conclusion of my critique of volume two. The main thrust of my criticisms could be taken as an argument for a metaphysically momentous difference between two types of *eide*—ones that play the property role and ones that do not. I think this distinction *has* to count as deep and important, and should be front and center in any ontology that allows for things falling on both sides of it. But it is very much in the background here; even after weeks of thinking about the system, I am still not confident that I have fully understood the sense in which the formal *eide* are supposed to ground the natures of the *eide* of which they are forms. I hope that A.M. will have opportunity to explore his system further; and that, when he does, he will shed more light on the

varieties of exemplification that can hold between an *eidos* and the One, between *eide* and *eide*, and between *eide* and non-*eidetic* particulars. Doing so will help to prevent the items named by the technical terms of his theory from becoming, for me, mere nodes in a mysterious structure.