

A Sketch of Reality (2018)\*  
Chapter 1 of *Modal Matters*

## 1. PREAMBLE

Every account of reality needs a creation myth. Here is mine, in three stages:

In the beginning, reality was without form, and darkness was upon the face of the deep. And then—wham!—there was logic. And the laws of logic gave structure to reality, not only by proscribing the ways that reality could not be, but by demanding that, for any way that reality could be structured, some portion of reality was structured that way. And then—splash!—fundamental properties, and perhaps relations, were hurled across reality in every combination. And various portions of reality became colored, and massy, and conscious, and acquired all manner of qualitative character. And then—buzz!—a portion of reality of which I am a part was lit up with actuality from within, acquiring an elevated ontological status. And that is all.

Most of the papers included in this volume concern issues that arise at one or more of the three stages in the above myth. But they leave a lot unsaid, sometimes because I lack arguments to back up my beliefs, sometimes because I simply don't know what to believe. In this introduction to the volume, I fill in some of the gaps. My hope is that a reader who knows, even in rough outline, the picture of reality that I had in the back of my mind as I wrote these papers will better understand the motivations for the views presented, and how those views fit together. I don't have space here to fully support the claims that I make; indeed, in many cases, I am raising what for me are open questions. My goal is to scope out the terrain in a useful way.

---

\* This chapter has not been previously published. Parts of Section 5 were presented at MIT in November 2018. Thanks to the audience for their helpful comments. And thanks especially to Sam Cowling, Cameron Gibbs, Kris McDaniel, and Jonathan Schaffer for comments on earlier drafts.

## 2. REALITY

What is reality? As a first pass, I want to say: reality consists entirely of *things* having fundamental properties and standing in fundamental relations.<sup>1</sup> Included in this characterization is that reality is ruled by Hume’s dictum, the denial of necessary connections between distinct existents;<sup>2</sup> for it is constitutive of my use of the term ‘thing’ that distinct things stand in no necessary connections. (More on what that means below in Section 5.) Given my acceptance of unrestricted composition, reality can be identified with a single thing, the fusion of all things. Less contentiously, it can be identified with the many things plurally. Either way, reality is the totality of things, not of facts (or states of affairs). For facts, unlike things, do not abide by Hume’s dictum. (See Chapters 13 and 14.)

For any thing or things—any portion of reality<sup>3</sup>—one can ask three questions, one corresponding to each of the three stages of creation. First, what is its *structure*? Second, what is its *content*, or *qualitative character*? And, third, is it *actual*? The answers to these questions, I think, are grounded in different ways. Roughly, I am a nominalist about structure, a trope theorist about qualitative character, and a sort of mysterian about the property of actuality: there is a fundamental distinction of ontological category between the actual and everything else that we have good reason to accept but about which there is very little positive to say. (On how we can *know* that we are actual, we can say a bit more; see Chapter 5.) Not only are the three stages

---

<sup>1</sup> Two terminological points. First, elsewhere in this volume I frequently use Lewis’s term ‘perfectly natural’ instead of ‘fundamental’. I take these terms to pick out the same properties and relations. Both are multiply ambiguous; but the ambiguities sway together. I say more about what I take ‘fundamental’ to include below in Section 5. Second, I use ‘property’ and ‘relation’ in accord with an abundant conception of properties and relations. (See Lewis (1986a: 59-63) on the distinction between abundant and sparse conceptions.) Thus, for any things, there is a property had by all and only those things.

<sup>2</sup> In Hume’s words: “There is no object, which implies the existence of any other if we consider these objects in themselves . . .” (Hume 2001: 61) Calling contemporary versions of this “Hume’s dictum” goes back (at least) to Goodman (1955), and has recently been made popular by Wilson (2010).

<sup>3</sup> The expression ‘portion of reality’ is a term of art that, although syntactically singular, is semantically neutral with respect to the plural/singular distinction; ‘part of reality’ and ‘region of reality’, on the other hand, I take to be both syntactically and semantically singular. Talk of “portions of reality” could be regimented within a version of plural logic that has only a single style of variable rather than separate singular and plural variables. But I prefer to understand it as schematic, to be replaced by either a singular or plural variable. See Chapter 15, Section 3.

differently grounded, they (presumably) apply to progressively smaller parts of reality. All of reality has structure. Reality then divides into a region of pure structure, where mathematical systems reside, and a region where there is both structure and qualitative character, where the possible worlds reside. And then there is the region where, in addition to structure and qualitative character, there is actuality, where we and what we are externally related to (and perhaps more) reside. Reality is thus threefold, with content heaped on structure, and actuality heaped on structure and content.

There is no room in reality for sets (or classes, or other set-like entities), not if sets are taken to be entities composed in some non-mereological way from their members. As an uncompromising Humean, I reject non-mereological modes of composition and the mysterious necessary connections that come with them. (See especially Chapters 13 and 15 and the Postscript to Chapter 2; see also Lewis 1991: 38-41.) I do allow that there is in reality a mathematical system in which Zermelo-Frankel set theory is true, indeed, many such systems since ZFC, even second-order ZFC, is not categorical. (See Chapter 2.) And I have no objection to calling the things that inhabit such systems “sets.” But these “sets” are not the composite entities that most friends of sets believe in. In the *mathematical* theory of sets, and the *mathematical* structure determined by the “membership” relation, it is irrelevant whether the “sets” have internal structure.

But although I reject sets as composite entities, I do not reject our ordinary or philosophical *talk* of sets (or sets of sets, or ...). And I help myself to such talk in many of the chapters of this volume. It is just that such talk, I am now convinced, must be interpreted in a way that does not introduce ontological commitment to anything beyond the “individuals,” the entities on the ground floor. There are two main methods on the market for accomplishing this. There is the structuralism about sets developed (but not yet endorsed) by Lewis (1991: 45-54, 121-149). (See also Nolan (2002: 151-74) for a variation on this method). I do not accept Lewis’s structuralism, however: it does not give a plausible account of what our set talk means. Instead of giving an interpretation of the membership relation, it generalizes over interpretations in a way that reduces the content of set theory to a claim about the size of reality. I prefer instead to understand talk of sets as talk of pluralities, and pluralities of pluralities, and so on into the transfinite. That provides a more straightforward interpretation of our ordinary and philosophical talk of sets; and an easy translation from the axioms of set theory into a higher-order plural logic.

Moreover, it allows our talk of sets to inherit the ontological innocence of plural logic. Please don't misunderstand. My rejection of sets is not motivated by a desire to resolve the paradoxes associated with sets: whatever pressure there was to say that the universe of sets is "indefinitely extensible" re-emerges as pressure to say that the hierarchy of pluralities is "open-ended." But resolving the paradoxes was not the goal. Rather, sets had to be excised from reality in service of a thoroughgoing Humeanism. (For a bit more on Humeanism and sets, see the postscript to Chapter 2.)

A defense of this approach to discourse about sets would require, not just a defense of *pluralism*—that is, the legitimacy and primacy of plural logic—but also a defense of *higher-order* plural logic: pluralities of pluralities, and on up the ladder. (Whether English has such higher-order plural terms is beside the point.) I cannot provide such a defense here.<sup>4</sup> It would include my conviction that the singularist bias (according to which plural terms and quantifiers must be construed as singular terms and quantifiers) is more prevalent even than most pluralists realize. It has afflicted not only the development of formal logic, but our understanding of ordinary language as well. For on my view, although English terms referring to classes, collections, groups and so on are grammatically singular, a metaphysical semantics of English would take them to be plural terms, and adjust their logic accordingly. Here, as in so many other places, our ordinary language, being built for convenience, fails to reflect the underlying reality.

\* \* \*

I called my initial characterization of reality a "first pass" for at least four separate reasons. First, it is too limiting to say that reality consists of things instantiating *all-or-nothing* properties and relations: that may not allow for an adequate account of quantities. I put this issue to one side in this introduction, but see Chapter 18. Second, it is also too limiting to say that reality consists of *things* instantiating fundamental properties and relations. I also allow for higher-order fundamental properties. For example, there could be an emergent fundamental property instantiated by a plurality of things, but not by any one thing. I also put this issue to one side

---

<sup>4</sup> Some defense, along with precise formulations and discussion of what is philosophically at stake, can be found in Rayo (2006) and Linnebo and Rayo (2012). In the terminology of the latter work, I am a "liberalist" about sets who accepts an open-ended "ideological hierarchy." But that is compatible with also holding, as I do, that reality is fixed once and for all, that there is no open-ended "ontological hierarchy." For more on the "size of reality," see Chapter 11.

here, but see Chapter 16. Third, we can eliminate the apparent duality of things and their properties if, as I think, the instantiation of fundamental properties and relations by things is a matter just of the existence of certain particulars, such as tropes, out of which all things are composed. (See Section 5 below.) Fourth, in addition to the reality of things described above, there are also *representations* of reality. I have in mind here not mental or linguistic tokens, which can easily be located within the reality of things. Rather, I speak of mind- and language-independent *propositions* that represent, truly or falsely, the reality of things and its parts. And, I speak of the properties and relations and higher-order “intensional entities,” such as propositional operators and quantifiers, that provide the constituents of propositions on a structured conception.<sup>5</sup> Perhaps God (were there such a creature), being infinite and omnipresent, could think about reality in some intimate way, communing with the things that comprise reality without having to represent them. But for us, being finite and occupying some small portion of reality, thinking about reality goes primarily by way of our representations of it. And now we come to what is perhaps the most fundamental question of metaphysics: do these representations belong to some realm separate and independent of the reality of things, a Fregean third realm? Or can these representations, these propositions and other “intensional entities,” be reduced to the reality of things? If the latter, then in this respect at least our first pass at what reality is will also be our last pass.

David Lewis, of course, was committed to reducing representations of reality to the reality of things. Primitive representational properties could not be understood by us, he claimed, and a primitive external relation of *representing* (or *corresponding to*, or *being true of*), in addition to not being understandable by us, would violate Humean strictures against necessary connections. (See Lewis’s argument against what he calls “magical ersatzism” in Lewis 1986a: 174-91.) No problem, Lewis thought: by extending reality to include a plurality of possible worlds, he believed that (with the aid of set theory) he could find room for all manner of intensional entity, abundant propositions and properties, structured and unstructured. (See Lewis

---

<sup>5</sup> See Lewis (1986a: 55-9) on structured vs. unstructured conceptions of propositions and properties. It won’t matter for present purposes whether propositions are structured like sentences in some language of mathematical logic, or sentences in some language with a categorial grammar, or in some other way, as long as the principle of compositionality is satisfied.

1986a: 50-69.) Lewis's account faces a problem, I think, with respect to the content of mathematical propositions (see Bricker 1983: 91-104); but my inclusion of mathematical systems within reality provides the wherewithal to set this right. The reduction of the third realm, however, faces a stiffer challenge from logic: logical truths differ from one another, not just in structure, but in content (on at least some conceptions of content). For example, I take the truths of mereology to be truths of logic. (See Chapter 15 and Section 3 below.) But, surely, the truth that every plurality has a fusion differs *in content* from the truth that everything is self-identical. Should we expand reality to include logically impossible "worlds"? No, here I draw the line; allowing reality to contain logically impossible "worlds" would be self-undermining for the realist.<sup>6</sup> We will need another way to account for the content of logical truths, and the theory of understanding that accompanies it. (See Section 4 below.)

A working hypothesis that underlies many of the chapters of this volume (this introduction included) is that a reduction of representations of reality to the reality of things can be carried out. I sometimes speak in the chapters of this volume, perhaps too glibly, of the space of concepts, and of some concepts being fundamental; but I am under no illusion that it is easy to square this talk with my Humean conviction that all there is is the reality of things. And I am especially concerned that the relations of fundamentality among logical concepts will not be derivable from the relations of fundamentality that hold among things and their properties and relations. (See Chapter 16 and Section 4 below.) If the project of reduction were to fail, then reality would consist not only of the reality of things but also a Fregean third realm of entities that are representational by their very nature; and the Humean prohibition against necessary connections would apply only to the reality of things, not to reality as a whole. Presumably there would then be a hierarchy of such entities—representations of representations, and so on up the ladder—and the impoverished budget of solutions that are on offer to ward off paradox. A major disappointment to be sure; but one that I am prepared to swallow, if need be.

---

<sup>6</sup> Lewis (1986a: 7) gives an argument that there are no (concrete) worlds in which contradictions are true. See Stalnaker (1996) for interesting discussion.

### 3. LOGIC

What is logic? First off, set aside conceptions of logic based on the mathematics of formal systems or the psychology of human reasoning. They are not much relevant to our current endeavor. But there are two rather different, and independent, conceptions of logic that are relevant, two different faces of logic. One face looks outward from the realm of representations to the reality of things; the other looks inward, toward the structure of the realm of representation itself. It is the first conception I have generally had in mind when I use the term ‘logic’ in the chapters of this volume. Call it, for easy reference, the *external* conception. On this conception, roughly, logic is a body of very general truths about reality. But let me start with a few words about the second conception according to which logic is internal to the realm of representation. Call it the *internal* conception.

On the internal conception, logic is often characterized as the study of logical consequence, where the consequence relation is taken to be *formal*, to hold between propositions in virtue of their *logical form*. But the consequence relation I take to be fundamental to logic—call it (*logical*) *implication*—is *material*, not *formal*: whether one proposition implies another depends only on the content of those propositions, not on their form.<sup>7</sup> Intuitively, one proposition logically implies another just in case it has at least as much (informational) “content” as the other: it says everything that the other says, and perhaps more. Propositions with the same content mutually imply one another, and are (*logically*) *equivalent*. This notion of content does not presuppose any particular reduction of propositions to the reality of things, or even that any reduction is possible. It is clear enough, I believe, to stand on its own. But, of course, the reduction that I have in the back of my mind identifies the content of a proposition with the portions of reality of which it is true.

What do the theses of logic look like on the internal conception? They tell us how logical implication relates to the various logical operations and relations that apply to our representations of reality, the (abundant) propositions, properties, and relations. They include (to

---

<sup>7</sup> If indeed they have form. On an unstructured conception of proposition, the structure of a sentence that expresses a proposition does not correspond to any internal structure of the proposition expressed. Of course, saying that implication is not formal is compatible with holding that our *recognition* that implication holds between propositions often hinges on the forms of the sentences we use to express those propositions, or the terms we use to denote them.

give a couple of random examples): for any propositions  $p$  and  $q$ , the conjunction of  $p$  and  $q$  implies  $p$ ; and, for any propositions  $p$  and  $q$ , the negation of the conjunction of  $p$  and  $q$  mutually implies the disjunction of the negations of  $p$  and  $q$ . And they include (on an unstructured conception of propositions): whenever two propositions imply one another, they are identical. A succinct formulation of a part of logic that is concerned only with the “logic of (unstructured) propositions” would be: the propositions under implication form a complete Boolean algebra.<sup>8</sup> But there will be theses to reflect how all of the logical notions including quantifiers relate to one another and to logical implication.

When I use the term ‘logic’, however, it is generally the external conception that I have in mind according to which the laws of logic are general truths about reality. This conception of logic is grounded in tradition—or so I think—but it is out of step with contemporary ways of thinking about logic. Moreover, the scope of logic is *broader* for me than for most of my contemporaries; for example, I take logical notions to include not only the Boolean operators and singular and plural quantifiers, but also notions of mereology. And, even more controversially, I take logic to be *productive*, to give us substantial knowledge of what exists.<sup>9</sup>

The laws of logic express how our representations of reality relate to the reality of things. For each propositional operator, there will be a law expressing “truth conditions” for proposition-denoting terms involving that operator. For example, one law will be: a disjunction of  $p$  and  $q$  is true of a portion of reality just in case  $p$  is true of that portion or  $q$  is true of that portion. Another law will tie the relation of logical implication to reality:  $p$  logically implies  $q$  just in case every portion of reality of which  $p$  is true is a portion of reality of which  $q$  is true. Some logical laws, however, do not involve any particular logical notion, but express general truths about how propositions relate to reality. For example, there is a law of logic that expresses the abundance of

---

<sup>8</sup> Structured propositions form a Boolean algebra only after equivalent propositions have been “identified.” For more discussion of the relevant notion of propositional content, and how it relates to the “logic of propositions,” see Bricker (1983).

<sup>9</sup> Frege (1884) took logic to be a body of truths about reality, some of which make substantive claims about what exists, so-called “logical objects”; otherwise his combination of logicism and platonism would be incoherent. Frege (1918) also called the laws of logic “laws of truth.” I can accept that as well, as long as it is understood to say only that the logical laws are naturally expressed in terms of truth, not that they are about some primitive notion of truth. I am a deflationist about truth as it applies to propositions (given the hypothesis that the realm of representation reduces to the reality of things).

propositions: for any distinct portions of reality  $r$  and  $s$ , some proposition is true of  $r$  but not of  $s$ . This law guarantees that whatever the size and character of reality there are representations enough to describe it.<sup>10</sup>

It is sometimes thought mistakenly that the two conceptions of logic can be reduced one to the other. For, starting with the internal conception of logic and the notion of logical implication, we can define a “logical truth” as a proposition that is implied by any proposition and then we can take the logical laws to be those “logical truths” that are appropriately general. It seems we thus have no need for the external conception. But this proposed reduction rests on a confusion between two senses of ‘logical truth’: the notion defined in terms of the relation of logical implication is better called “logical validity.” Without the laws of logic relating the realm of representation to reality, there is no guarantee that these logically valid propositions will be logically true in the desired sense: true of all portions of reality. To make that case, we need to use the laws of logic given above that were provided by the external conception. Then we can argue as follows. Let  $p$  be a logical validity, and thus implied by any proposition. Let  $r$  be any portion of reality. Let  $q$  be a proposition that is true of  $r$ . Then, since  $q$  implies  $p$ ,  $p$  is true of  $r$  as well.

Do we need a third conception of logic to capture the way in which logic is normative? No. Again following Frege (1884) I do not think the laws of logic differ, say, from the laws of physics or the laws of biology with respect to the source of their normativity. Given that we have a desire to believe what is true, the laws of physics put constraints on what beliefs we should have about the physical world, and on what inferences we should make from our beliefs. For example, given Newton's third law and a belief that  $a$  impresses a force on  $b$ , I should believe that  $b$  impresses an equal and opposite force on  $a$ . Logic is different only in being more general: given our desire to believe what is true, it constrains how we should form our beliefs about *any* portion of reality. This approach to the normativity of logic also provides a response to Lewis Carroll's (1895) point that the rule of inference *modus ponens* cannot be captured by any *statement* of logic, such as the conditional ‘for any  $p$  and  $q$ , if  $p$  and  $p$  implies  $q$ , then  $q$ ’. Rather,

---

<sup>10</sup> See Bricker (1983) for a detailed account of these laws as applied just to the Boolean notions. Note that I now take the laws to quantify over all portions of reality, not just possible worlds.

it is the conditional statement, *together with our desire to believe what is true*, that supports *modus ponens* as a normative rule of inference.<sup>11</sup>

\* \* \*

I have said that the laws of logic are distinguished from other truths by their *generality*. But how to characterize the relevant notion of generality is a delicate affair. Certainly, we should require that a logical law refer to no particular part of the reality of things; it generalizes over all portions of reality. But that won't be enough: we should also require that it refer to no particular property or relation, even if we take these to be abundant and not constituents of the reality of things. But we cannot say that a logical law refers to *no* particular entity in the realm of representation, *no* particular (abundant) property or relation or proposition. For laws of logic require for their expression particular logical notions such as 'and', 'not', and 'all'; and these notions need not be generalized over. It seems, then, that we need some independent way of characterizing the logical notions so that we can exclude them when defining the appropriate sort of generality: logical truths generalize over all *non-logical* notions and entities.

Various ideas have been floated for how to characterize the logical notions, the so-called "logical constants." But they all seem susceptible to the same problem: what results one gets out depends on the assumptions one puts in; and thus by varying the assumptions one can pretty much get whatever result one wants. To illustrate, consider what may be the most developed idea according to which the logical notions are characterized in terms of *permutation invariance*: the logical notions are just those that are invariant over all permutations of objects in the domain.<sup>12</sup> The "domain" in our case is all of reality and the "objects of the domain" are the things that are parts of reality. To simplify, I will consider only which *properties* and *relations* over the domain are logical, and I will ignore logical notions of higher type. Now, as is often noted, the disputed question whether or not the identity relation is logical is decided on this proposal: identity is preserved over all permutations in virtue of permutations being mappings that are single-valued and one-one. But—wait—why assume that the mappings over which we require invariance should be *all and only permutations* of objects in the domain? Suppose instead we require

---

<sup>11</sup> For some discussion of how the laws of logic for Frege can be descriptive and yet have normative implications, see McFarlane (2002: 35-8).

<sup>12</sup> This was the suggestion in Tarski (1986). See also Sher (1991).

invariance, not just over permutations, but over all mappings, whether or not they are single-valued or one-one. Then the identity relation no longer counts as logical, though the property *being a thing* still does. Or suppose, in the other direction, we require invariance not over *all* permutations, but only over permutations that preserve “intrinsic structure.” If we take intrinsic structure to include *mereological* structure, then the generalized identity relation, *being the same portion of reality*, comes out logical, as do all the mereological relations, such as parthood and fusion, that, I have argued, are definable in terms of it. (See Chapter 15; here I am supposing the mappings may take plural arguments.) The axioms of mereology will now be among the laws of logic, a result that I endorse. Or we can go further and take the “intrinsic structure” of a thing to include whatever structure results from the external relations among its parts. Then the relation, *being externally related to*, is a logical notion, again a result that I endorse. And it will be a matter of logic whether reality divides into *isolated* regions, as I think, or is instead a single interrelated whole. (A region is *isolated* iff no part of the region is externally related to any part of the rest of reality. For a defense of isolated regions of reality, see Chapter 6.) Or, we can go even further and take the “intrinsic structure” of a thing to include its intrinsic qualitative nature, thereby making the relation, *is a duplicate of*, a logical relation. In any case, it is clear that the decision what to count as the relevant “intrinsic structure,” and thus the mappings over which the logical notions are required to be invariant, is what is determining the results. One might better just call the relevant intrinsic structure “*logical structure*” to make the circularity apparent.<sup>13</sup>

On my view, the feature that best captures what sets the logical notions apart is their *universal applicability*: logical notions, and only logical notions, apply whatever the subject matter.<sup>14</sup> Thus, propositions can be conjoined and disjoined whatever they are about. For entities from any part of reality, one can ask whether they are identical to one another, or (say I) related

---

<sup>13</sup> The previous paragraph owes much to the insightful discussion in McFarlane (2000, ch. 6). But we have very different views as to what might plausibly be counted as relevant “intrinsic structure.”

<sup>14</sup> Frege famously used the universal applicability of the concept of number—applying to “the widest domain of all . . . not only the actual, not only the intuitable, but everything thinkable”—as a mark of the logical in his defense of logicism about arithmetic. See Frege (1884, section 14). For discussion, see Dummett (1995: 43-6). Sometimes the view I espouse is characterized by saying that logic is *topic-neutral*. If that is taken to include the claim that logic does not have its own subject matter, however, then I do not endorse it: applying to all subject matters is not the same as not having its own subject matter.

as part to whole. On the other hand, there is a clear sense in which, say, the relation *being seventeen feet from* applies only to worlds with space and the relation *being a successor of* applies only to mathematical systems with numbers. This notion of “applicability” is, inevitably, a technical notion, but one that is intuitively based. Although it is used to identify logicality, it needn’t be incorporated into the logic itself; in particular, it doesn’t demand a three-valued logic. Making the notion more precise would involve assigning to each basic notion, of whatever type, a domain of application. The domains of derived notions will then be assigned domains recursively in terms of the domains of the basic notions from which they are derived. The simplest rule would be that the domain of a derived notion is the intersection of the domains of the notions from which it is derived. What matters is that a derived notion is logical—has universal application—if and only if all of its basic notions are logical. In particular, structured propositions, which are themselves derived from basic notions, will be classified as *logical* if and only if all of the basic notions from which they are derived are logical.<sup>15</sup> Logical propositions have the sought-after “generality.” We can now say that the *laws of logic* are the logical propositions that are true of reality as a whole, which is to say, true *simpliciter*.

Two questions remain. First, are *all* true logical propositions laws of logic? What about those that involve “gruesome” logical notions that are not at all fundamental? No problem: we can say that the *fundamental* laws of logic involve only *fundamental* logical notions. I am not here concerned with the project of singling out a few fundamental laws as axioms from which all the laws can be derived as theorems. But, second, don’t we still need to restrict the laws of logic—whether fundamental or derived—to those that belong to a “best system” according to a best system analysis of laws? No. In the case of natural laws, we need to somehow demarcate the laws from accidental generalizations, and the best system analysis provides a plausible way of doing that. But there are no “accidental” generalizations among the general truths of logic. The best system analysis loses its main point when applied to laws that govern a non-contingent domain.

---

<sup>15</sup> I am here taking propositions, and derived notions generally, to be structured and allowing propositions with the same content to differ in their logicality. If propositions are unstructured, we should say instead that a proposition is logical just in case some logical structured proposition has the same content.

For the universal applicability approach to logicity, just as with the permutation invariance approach, what one gets out depends on what one puts in, in this case, on the domain assignments to the basic notions. Not all philosophers will agree with the domain assignments that I make. Indeed, some philosophers even deny that identity can be applied to regions of reality made up of “stuff”; and many philosophers deny that the part-whole relation of mereology can be applied to regions of reality that are not, in some sense, “concrete.” Thus, I do not suppose that the idea that logical notions are universally applicable, even if accepted, will do much to resolve disputes over logicity. Moreover, some philosophers would challenge the idea itself. Most, I think, would allow that universal applicability is *necessary* for being a logical notion. But is it also *sufficient*? Certainly, those with an impoverished conception of reality—for example, those who take reality to consist only of our physical universe—may reject sufficiency: even fundamental physical properties will be universally applicable without being logical. But those who, like me, take the expanse of reality to be governed by Humean principles of plenitude will have a strong case for sufficiency. (See Chapter 9, in particular, what I call the Principle of Interchangeable Parts.) Consider any fundamental property (or relation) that makes for qualitative character, and consider the region of reality where it is applicable. That region will not be all of reality; for reality will also contain a distinct region whose fundamental properties are all alien to the chosen property. It follows that no fundamental property that makes for qualitative character will be universally applicable. But could there be a fundamental property that neither makes for qualitative character nor is logical, and yet is universally applicable? The most plausible counterexamples to sufficiency involve notions of intentionality. Consider, for example, the property *being a possible object of thought*, that is, being an object of thought for some possible thinker. Isn’t that property universally applicable? Can’t thought range indiscriminately over all portions of reality? Here I am happy to embrace the consequence that such general intentional notions are logical. My conception of reality is intimately tied to intentionality, to what can be an object of thought. (See Chapter 5, Section 2.) Such general intentional notions, then, are indistinguishable in content from the notion of *being something*, and share in that notion’s logicity.

I said above that the relation of logical implication is material, not formal. It may seem, then, that my account is far removed from the orthodox conception of logical consequence embodied in Tarski’s (1936) model-theoretic account. Not so: my account is ideally suited to the

Tarskian conception. First, since I accept an objective delineation of the “logical constants,” I have an objective notion of the “logical form” of a (structured) proposition, or a pair of (structured) propositions. That allows me to say that the implication relation, though not *formal*, is *formalizable* in this sense: whenever  $p$  implies  $q$ , there exists a  $p'$  equivalent with  $p$  and a  $q'$  equivalent with  $q$  such that, for every  $p''$  and every  $q''$  such that the pair  $\langle p'', q'' \rangle$  has the same logical form as the pair  $\langle p', q' \rangle$ ,  $p''$  implies  $q''$ . Second, both my account and Tarski’s account are *reductive* accounts of logical modality. Third, because I accept a plenitudinous reality, I can interpret Tarski’s reduction of logical modality as quantification over portions of reality without being susceptible to the familiar critique that the account makes logically contingent claims about the size of reality come out logically true.<sup>16</sup> Far from rejecting Tarski’s account of logical consequence, I am in a position to fully endorse it.

\* \* \*

Among all the propositions, some are singled out as *contradictory*: the propositions that imply every proposition. (Only one, on an unstructured conception of propositions.) It is a law of logic, a version of the law of non-contradiction, that contradictory propositions are true of no portion of reality. That is how logic proscribes the ways that reality could not be: there are no logically impossible objects or worlds.

The law of non-contradiction is controversial, to be sure.<sup>17</sup> But it is not nearly as controversial as its converse, which I also take to be a law of logic. Say that a proposition is *consistent* if it is not identical with any contradictory proposition. Then I claim: every consistent proposition is true of some portion of reality.<sup>18</sup> Call this the *law of plenitude*. This law has far-reaching implications for the extent and structure of reality. Consider, for example, second-order Peano arithmetic which I suppose is not contradictory. The proposition that is the conjunction of

---

<sup>16</sup> See Etchemendy (1990: 95-106) on the reductive commitments of Tarski’s account, and Etchemendy (1990: 107-124) for the main critique.

<sup>17</sup> Dialetheists, such as Priest (2006), hold that there are true contradictions. They will not want to accept my claim that all contradictory propositions are logically equivalent and have the same content.

<sup>18</sup> See Bricker (1983, section 5) for discussion. An important derived law will be: distinct propositions are true of different portions of reality. See Bricker (1983, section 7). Note that the restriction ‘of some portion of reality’ is needed to avoid the “bad company objection.” See the postscript to Chapter 2.

all its theorems is, according to our law, true of some portion of reality. So there is a portion of reality that divides into an infinite succession of things. If we add to the theory that these things have no qualitative character, and that they stand in no fundamental relation other than “is a successor of” to one another or to any other objects, we get that there is a portion of reality where this augmented theory is true, an *isolated* portion of reality satisfying Peano arithmetic, what I call a “mathematical system.” But there was nothing special about Peano arithmetic here. We could start with any logically consistent mathematical theory positing any sort of structure, and the law demands that there exists, as a part of reality, an isolated mathematical system where that theory is true. We have the “plenitudinous platonism” with respect to mathematics that I defend in Chapter 2 and its postscript.<sup>19</sup> Plenitudinous platonism is properly classified as a version of mathematical structuralism. For each structure posited by the mathematical structuralist, I say there is a system composed of objects occupying the places of that structure, objects that have no (substantial) qualitative character. But it is the system of objects that is primary, not the structure. Facts about the structure and its places reduce to facts about the system and the relations between its objects; and those facts in turn derive just from the objects themselves, taken plurally. Neither the structures, nor the relations that ground the structures, are parts of reality.<sup>20</sup> This allows for a uniform Humean treatment of the mathematical and qualitative realms. Both realms can be characterized simply as objects (or things) standing in relations; or, equivalently, as objects occupying places in a structure. The difference between the realms has to do with whether or not the objects have (substantial) qualitative character. (More on “qualitative character” in Section 5 below.)

Thus far I have applied the law of plenitude only to mathematical theories. But laws of logic are fully general, and apply whatever the subject matter. If we start instead with a physical theory, whether physical laws or particular facts or some combination, then, as long as the theory is not logically contradictory, the law of plenitude demands that there exist some portion of reality in which the theory is true: such portions when unified and isolated I call “possible

---

<sup>19</sup> I first defended a version of plenitudinous platonism in my doctoral thesis, Bricker (1983, section 10). Versions have been independently developed by Balaguer (2001) under the designation “full-blooded platonism” and by Eklund (2006) under the designation “maximalism.”

<sup>20</sup> For arguments against positing structures, see Lewis (1986b).

worlds.” There will be Aristotelian worlds and Newtonian worlds; indeed, there will be Newtonian worlds in which our solar system has a planet Vulcan orbiting inside the orbit of Mercury. And there will be worlds to match even the wildest fictions with flying pigs and talking donkeys. There will be a plenitudinous plurality of worlds among the portions of reality, indeed, a plurality that surpasses in scope even the worlds of Lewis’s modal realism.<sup>21</sup> And all this, as I see it, will be demanded by the laws of logic.

I am well aware that my conception of logic as productive is opposed to the currently fashionable idea that logic is neutral with respect to what exists, that logic is ontologically innocent.<sup>22</sup> My conception harks back to the time when comprehension principles were considered a part of logic. For example, the naïve comprehension principle for extensions—that for any concept, there exists an extension whose members are all and only those things that fall under the concept—followed from Basic Law V of Frege’s logic. Indeed, the law of plenitude is a comprehension principle applied to consistent propositions (or theories).<sup>23</sup> But it differs from the naïve comprehension principle for extensions in a number of ways, some significant, some not. First, the fact that the law of plenitude applies to propositions rather than concepts or properties is not significant. Propositions themselves are properties of maximally connected, isolated portions of reality—what I call *islands of reality*—such as possible worlds or mathematical systems. And in any case I also endorse a more general law of plenitude which applies to properties: for any consistent property, there exists a portion of reality of which the property is true. Second, and more significantly, the law of plenitude, unlike the naïve comprehension principle, does not posit the existence of entities of some special ontological category, entities that the theory, intuitively, is not about: no extensions, or sets, or courses of

---

<sup>21</sup> See Chapters 3 and 6 on the individuation and character of possible worlds. Unlike Lewis, I do not suppose that worlds must be spatiotemporal.

<sup>22</sup> See, for example, Yablo (2000). He takes it to be “out of the question” to accept the rationalist view according to which existence can be established *a priori* from “truths of reason.” Quineanism, he thinks, has won the day: one can establish the existence of mathematical or modal entities only by means of a “holistic *a posteriori* indispensability argument.”

<sup>23</sup> In Chapter 2, I say any *coherent* theory is true of some portion of reality so as to allow that there may be some constraints on theories that do not come from logic itself. Whether that is needed will depend on how certain issues about the scope of logic are decided. If theories are identified with unstructured propositions and all principles of the framework are deemed part of logic, then coherence and logical consistency will coincide.

value. In that way, it is more like the comprehension principle for plurals: for any concept, if something falls under the concept, then there exist some things that are all and only the things that fall under the concept. But, third, unlike the comprehension principle for plurals, the law of plenitude is not conditional on any thing or things existing; it posits existence *ab nihilo*. It is conditional only on the proposition (or property) being consistent. But, fourth, although naïve comprehension is not likewise conditional on the concept being consistent, that just reflects that, whereas even inconsistent concepts have an extension—the null class—there is no corresponding “null” part of reality. Fifth and most significantly, the law of plenitude, unlike naïve comprehension, leads to no contradiction, not under my working hypothesis that the realm of representation reduces to the reality of things. For then propositions and properties, in the final analysis, are true only of portions of the reality of things, not of propositions or properties or other representational entities. There is no way for them to feed on themselves to generate Russellian contradictions. (For more on the relation between principles of plenitude and the threat of paradox, see Chapter 11.)

\* \* \*

I hear a chorus of naysayers: “Your ontological profligacy offends egregiously against Occam’s Razor.” Well, I reply, that depends on what it means to posit entities beyond necessity; I think I posit exactly those entities that it is necessary to posit according to the general metaphysical or logical principles that I accept.<sup>24</sup> The chorus responds: “But, surely, positing such a bloated reality is not indispensable to our theorizing about the world.” Well, I concede that the claim that reality is plenitudinous is not indispensable to our theorizing about the *physical* world. But I can’t help but think it is indispensable to our theorizing about reality as a whole: after all, I think it is true! If the charge is that I fail to take various pragmatic features of a theory, such as its

---

<sup>24</sup> See Chapter 3, where I argue that one can support a plenitudinous reality either by invoking a truthmaker principle or an intentionality principle. These two approaches may be more similar than appears at first blush. The truthmaker principle that I accept holds that every proposition has a subject matter; propositions are always *about* portions of reality. (See Chapter 14, and the discussion of the “Subject Matter Principle.”) The intentionality principle that I accept holds that intentional thought is genuinely relational; thoughts are always *about* portions of reality. But propositions and thoughts (in the relevant sense) are entities in the realm of representation, and all such entities are “relational” in that they require the existence of those portions of reality that they are about. Thus, the demands on reality made by truthmaker principles and intentionality principles are at bottom one and the same.

simplicity or usefulness, to count as evidence for the truth of the theory, then I am guilty as charged, and proudly so. The Quinean orthodoxy that takes pragmatic features to be evidence of the truth about reality is absurd on its face. Those who endorse it are false friends of ontological realism. They are instead what I call *parochialists*: they hold that reality is made in our image, that it somehow conforms to our desire for simple and useful theories. To be sure, pragmatic features have a role to play in our metaphysical theorizing, but not as evidence of truth. I lay out that role in Chapter 2.

When I read the work of self-proclaimed Quineans, I find that they often help themselves to rationalist intuitions no less than I do. Is that not blatant hypocrisy? No; for they can always respond that these intuitions are just more *a posteriori* grist to feed into their holistic pragmatic mill. In that way, they get to invoke rationalist intuitions without the burden of having to provide *a priori* justification for them. I can never win that argument, never convince them that they are dissembling rationalists. But it is not about winning arguments. It is about holding fast to realist principles. I would rather admit that my view of reality is based on a shaky rationalist foundation than endorse a Quinean methodology which provides no foundation at all.

#### 4. MODALITY

Propositions, I have supposed, have truth values relative to isolated portions of reality. Isolated portions of reality include not only possible worlds and mathematical systems, but also pluralities of possible worlds and mathematical systems.<sup>25</sup> The broadest alethic modality, what I will call *logical* or *absolute* modality, quantifies unrestrictedly over this domain. A proposition is *logically necessary* just in case it is true of every isolated portion of reality; a proposition is *logically possible* just in case it is true of some isolated portion. (These analyses can be extended to apply to properties by dropping the restrictor ‘isolated’; but I here focus on the modal features of propositions.) Note that the analyses are not very discriminating when applied to unstructured

---

<sup>25</sup> In Chapter 4 I argue that propositions have truth values relative to *pluralities* of possible worlds to allow for the possibility of island universes. And I argue that one can introduce a “null plurality” to allow for the possibility of nothing. If one chooses to do that, then the null plurality will count as a “portion of reality” in the definitions that follow. (But *nota bene*: talk of a “null plurality” or “null portion of reality” is a terminological convenience, not an ontological posit.)

propositions, since there is only one unstructured proposition that is logically necessary and only one that is not logically possible. I will suppose, then, just as with the laws of logic, that we are dealing with structured propositions.

One might wonder whether the logically necessary propositions are just the laws of logic. But that identification fails in both directions. First, not every law of logic is logically necessary. For a logical proposition to be a law of logic, it is sufficient for it to be true of reality as a whole; but many logical propositions are true of reality as a whole without being true of smaller portions of reality. For example, it is a law of logic, on my broad conception of logic, that everything has a distinct duplicate; but there are possible worlds, certainly, such that no part of the world has a distinct duplicate as part of that same world. Purely universal laws of logic, such as that everything is self-identical, will all be logically necessary; but that need not be so for laws of logic that involve existential quantification.

Second, considering the other direction, not every logically necessary proposition is a law of logic. The laws of logic are fully general; but it is natural, if not inevitable, to understand the logical notions in a way that allows propositions that refer to particular objects or properties to be logically necessary. I will illustrate with two test cases. Consider the proposition *that Trump is identical with Trump*; call it  $T_i$ . And consider the proposition *that Trump exists*; call it  $T_e$ . Are either or both of these propositions logically necessary? It seems we have three options. (1)  $T_i$  is logically necessary and  $T_i$  implies  $T_e$ . In that case,  $T_e$  is logically necessary as well—not a result that I like. (2) Neither  $T_i$  nor  $T_e$  is logically necessary: both are true only at portions of reality that contain Trump as a part. Or (3)  $T_i$  is logically necessary but  $T_e$  is not, in which case  $T_i$  does not imply  $T_e$  and the resulting logic is a version of free logic. Only this third option, which I prefer, allows us to hold in accordance with custom that identity is (strictly) necessary whereas existence is contingent. It requires that in our assignment of truth conditions to a proposition the existential quantifier, but not the singular component, is restricted to parts of the portion of reality where the proposition is being evaluated. For a second test case, consider a possible world  $w$  in which grass is purple and consider the “world-indexed” proposition *that grass is purple in  $w$* . Is that proposition logically necessary? With our free logic in hand, we can say “yes” without having to say that the world  $w$  exists in every world: what exists in each world is just that world and its parts.

By choosing to understand existential propositions and certain singular propositions as I have while granting that I could choose to understand them in other ways, do I thereby endorse the conventionality of logic? No. It is a matter of convention that I have chosen to interpret our ordinary existential and singular claims as involving the logical notions that I have, with the truth conditions I have given them. The alternative interpretations are not alternative logics; they simply invoke alternative logical notions I have chosen to ignore. Thus, there is an alternative logical notion of “existence” that is always unrestricted: using that notion, it is true to say that Trump “exists” even in worlds in which neither he (nor any counterpart of him) is a part.<sup>26</sup> There are logical notions of identity and truth-in according to which *that Trump is identical with Trump*, or *that snow is purple in w*, are true in some worlds and not in others. One can be a pluralist about logical *notions* without being a pluralist about logic. It is no different here than with propositional logic: the same logic can be formulated using different combinations of Boolean operators. There is one true logic, I say, and reality makes it so. There could only be a plurality of logics, on my understanding of logic, if there were a plurality of realities. And talk of a plurality of realities is plainly incoherent.<sup>27</sup>

\* \* \*

As a Humean, I reject all primitive modality, be it logical, natural, metaphysical, or epistemic. So far, I have dealt only with logical modality: I have analyzed it in terms of quantification over portions of reality. But even here there may seem to be a problem. How do I square this analysis with my realist account of logic, and my acceptance of logical notions such as consistency as fundamental?

I said in the preamble that logic gives structure to reality. But the myth of logic impressing form on a featureless reality is just that: a myth. And my calling logic “productive” is

---

<sup>26</sup> Indeed, it is true to say that necessarily everything is necessarily something, the thesis that Williamson (2013) takes to define what he calls “necessitism.” Using the unrestricted notion of existence, as Williamson notes with respect to modal realism, necessitism is trivially true. I can’t object to that: ‘necessitism’ is Williamson’s coinage, and he can define the term as he wishes. But I can insist that we speak truly in ordinary contexts when we say that things exist contingently. For I am within my rights to interpret ‘exists’ in the way that best accords with our ordinary usage as it applies to reality as I take it to be. See Bricker (2014).

<sup>27</sup> Not that that is a deterrent to philosophical invention. See, for example, the “fragmentalism” considered by Fine (2005).

not to be construed as bestowing on logic some mysterious metaphysical power. (Compare how the platonist about sets should understand the metaphors embodied in the iterative conception.) The way that reality is is not grounded in logic. On the contrary, the truths of logic are grounded in the way reality is. But that is compatible with also holding that logical notions are *epistemically* (or *conceptually*) fundamental, that is, fundamental at the level of our representations. I take a notion to be epistemically fundamental, roughly, if it belongs to our basic ideology for theorizing about reality. (For a bit more on this, see Chapter 16.) Logic is one of the pillars on which our access to reality depends. But the logical notions are not *metaphysically* fundamental.

How to analyze the various other modalities is a long story that I can only touch on here. For the varieties of natural modality associated with laws, causation, dispositions, and objective chance, suffice it to say that they must all be reduced, one way or another, to the Humean mosaic. Note that the reduction of natural modality is independent of the acceptance of a plenitudinous reality. The laws, causes, and so forth in *our* world reduce to the Humean mosaic in *our* world.

The Humean reduction of metaphysical modality proceeds along different lines. In my view, the notion of metaphysical modality as it is understood by most of my contemporaries is based on conventional and/or contextual features of our modal discourse, not on the nature of reality itself. This is most obviously true, I claim, with respect to metaphysical modality *de re*. That water is necessarily composed of hydrogen and oxygen or that I couldn't have existed without my parents existing are true, today, when asserted in the philosophy room (owing to the influence of Kripke and others); but there are ordinary contexts where these claims are false, contexts that are in no way defective. Counterpart theory, of course, is the semantic tool that allows for such contextual variability. Perhaps there are conventional limits on this variability; perhaps, for example, there is no context where it can be truly asserted that I might have been a poached egg, or a prime number (though I doubt it, see Chapter 13, Section 5.1 for discussion). But in any case, what counts as an essential property of a thing will be highly language dependent. There are no deep metaphysical facts about the essences of things.

Metaphysical modality *de dicto*, as commonly understood by philosophers, I take to be a conventional restriction of logical modality.<sup>28</sup> As I interpret their usage, it quantifies only over some of reality—the realm of “possible worlds”—while ignoring the rest of reality, including the realm of mathematical systems. And it in effect expands the domain of each possible world uniformly so that it includes the entire mathematical realm, thus making the truth value of mathematical statements invariant from world to world. Perhaps this expansion is plausible for the platonist who reduces all of mathematics to a single mathematical system, say, some version of set theory. But once one allows that reality is composed of a plurality of mathematical systems no less than a plurality of possible worlds, and that the truth value of mathematical propositions varies from system to system in a way analogous to the way the truth value of ordinary contingent propositions about the natural world vary from world to world, there is no reason not to allow for mathematical contingency. That every number has a square root is contingent, true in some mathematical systems and not others, just as that every house has a square window is contingent, true in some worlds and not others. Of course, we can say, if we choose, that the relational claim, *that every number has a square root is true in the complex number system* is a necessary truth; but we can say the same about *that every house has a square window is true in w*, where *w* is a world where it is true. Differences in how we have chosen to apply modal talk to mathematics often do not reflect genuine differences in reality itself.<sup>29</sup>

---

<sup>28</sup> Sider (2014, chapter 12) also takes metaphysical modality to involve convention, and not to carve reality at its joints. He is a fellow Humean in his rejection of all primitive modality. But there the similarities between our accounts end. Because he does not endorse a plenitudinous reality, he does not take the relevant conventions to provide, as I do, a restriction on the space of logical possibilities. Rather, he takes the relevant conventions to specify a list of types of truth that are to count as metaphysically necessary, one type being the logically necessary propositions.

<sup>29</sup> There is however at least one genuine difference between the mathematical and the modal realms that will affect our modal discourse. Because mathematical systems lack qualitative content, all counterpart relations underlying modality *de re* will be based on similarity of *structure* in the mathematical case. A second ostensible difference is this. The distinction between being actual and being merely possible appears to apply only to the modal realm, not the mathematical realm (except in the trivial semantic way in which the entire mathematical realm can be taken to be “actual by courtesy”; see Lewis 1986a: 95-6.) If that is so, there is no notion of truth *simpliciter* for mathematical statements: all mathematical truth is system relative. For scientific statements, on the other hand, we can ask not only whether they are true at this or

I said there is no reason not to *allow* for mathematical contingency. But when asked whether *mathematics* is contingent or necessary, I hem and haw and say “it depends what you mean by ‘mathematics.’” When focusing on the *content* of mathematical statements, I find it natural to say that those statements are contingent, true at some systems but not others. For example, ‘ $2+3=1$ ’ is true in mod 4 arithmetic, but not in Peano arithmetic. (Its content, the proposition expressed, is relative to a counterpart relation, just as with the contingent truth ‘Barack is married to Michelle’. Mathematical systems, no less than possible worlds, do not overlap.) But when focusing on our *a priori* knowledge of mathematical truths, I find it more natural to take those truths to generalize over mathematical systems, thus making them necessarily true—indeed, making them truths of logic (in my broad sense). The statement ‘ $2+3=1$ ’, made in the context of doing mod 4 arithmetic, would be interpreted to say that every system satisfying the axioms of mod 4 arithmetic has the relevant feature, and there are such systems. Taking mathematics to be a body of statements interpreted in the former way makes mathematics contingent; taking mathematics to be a body of statements interpreted in the latter way makes mathematics necessary. As I said, “it depends what you mean by ‘mathematics.’”<sup>30</sup>

\* \* \*

Logical modality, I have said, is the broadest alethic modality. But it is also, as I see it, a form of epistemic modality. For consider an *ideally rational thinker*. The logically necessary propositions are the sum total of what such a thinker knows *a priori* in virtue of being ideally rational. That is not a claim that can be argued: it is constitutive of ‘ideally rational thinker’ that it be so. It is then straightforward to analyze more restrictive epistemic modalities, modalities that apply to particular thinkers with varying amounts of *a posteriori* knowledge, as restrictions on logical modality. *A posteriori* knowledge serves to rule out some portion of reality. What the thinker knows is that she is located somewhere within the portion of reality that hasn’t been ruled out. Because the knowledge gained from experience is *de se*, the portion of reality that remains as a possibility for the thinker need not be an isolated portion of reality. Her knowledge, then, is

---

that possible world, but whether they are true *simpliciter*, true in actuality. (But see Section 5 where I question whether this second difference is genuine.)

<sup>30</sup> This sort of bifurcation in how to understand mathematical statements is familiar, of course, and has been introduced, with variations, to serve different philosophical ends: nominalism, fictionalism, logicism, and structuralism.

best captured by taking its objects to be properties rather than propositions. (See Lewis 1979.) In any case, what is epistemically possible for such a thinker is a restriction of what is logically possible, and so easily analyzable as such. All this is standard, of course, and goes through smoothly as long as one holds to the assumption that the thinker is ideally rational and knows the laws of logic.

But what if we drop that assumption, and consider instead what is compatible with the knowledge of a less than ideally rational thinker? Consider some such non-ideal thinker that fails to know a law of logic. It seems that there are ways for reality to be *according to the epistemic state of that thinker* that are not ways that reality could possibly be. To capture the content of the thinker's thought, it seems, we need to expand reality to include portions where the logical law in question is false, logically impossible portions of reality. And thus a popular response to the problem of the less than ideally rational thinker has been to introduce impossible worlds (and even impossible mathematical systems) so as to capture the content of such a thinker's thought.

I do not recommend that response. It's not just that I find "concrete" impossible worlds and objects incoherent. Even if one instead takes impossible worlds to be abstract constructions of some sort, they do not provide a stable solution to the problem at hand. For suppose we add "impossible worlds" where some law of logic is false to capture the epistemic state of our non-ideal thinker. Those impossible worlds, like all portions of reality, could be represented by a thinker in multiple ways. An ideally rational thinker would know that these representations are equivalent and have the same content. But a non-ideal thinker need not know this. And so those impossible worlds will not be able to serve as the content, relative to that thinker, of the different representations. To capture the content of the thinker's thought, we would need to expand reality once again. And we would be embarking on an infinite regress. That regress will be vicious if one holds, as I do, that reality is definite, not indefinitely extensible.

How bad would it be to stonewall, and simply refuse to assign content to the thought of a less than ideally rational thinker? Here my broad notion of logic exacerbates the problem. I really don't much care if there is no way to capture the content of thought of someone who claims to reject the law of non-contradiction. But I include principles of plenitude, of truthmaking, and of mereology as part of logic, indeed, all the principles of metaphysics that I take to be *a priori*. I do not want to say I cannot understand philosophers when they deny these principles. For I am able to accurately predict what other principles they hold or deny. I can engage them in critical

discussion. I don't treat what they say as gibberish, or in a purely syntactic way. There must be some way, in virtue of my understanding these denials, that I attribute genuine content to them, and not just the content of a logical contradiction.

Consider, for example, the thesis of unrestricted composition: for any things, there exists a fusion of those things. I take this to be a law of logic, absolutely necessary. When some philosopher asserts its denial, I can only suppose that they do not mean what I do by 'fusion'. For if I take them to mean what I mean, what they assert is logically incoherent, equivalent to the contradictory proposition. (See Chapter 15 for my take on unrestricted composition.) But that is not the end of the matter: it does not mean that I cannot make any sense of what they say. I can make (some) sense of what they say by finding an *interpretation* of their words into my own words that allows me to engage with their thought, for example, by allowing me to successfully predict what else they will say. I may know full well that this interpretation does not capture all that they mean. But I choose the interpretation that makes the totality of what they say as coherent, by my lights, as possible. In the case of the denial of unrestricted composition, I will interpret them to be speaking about some portion of reality whose structure matches the structure that they take to hold of the parthood relation. Thus, I interpret their words 'is a part of' not as the parthood relation, but as a structurally similar relation that is instantiated in some limited portion of reality. (This assumes a strong principle of plenitude for structures; see Chapter 10 and its postscript.) I then can predict what mereological claims they will endorse or deny by asking what is true of that portion of reality. Thus, I interpret their mereological claims to be contingent truths (whether or not they agree that mereology is contingent). And in this way, I am able to "make sense" of what they say.

Sometimes philosophers argue as follows. Surely, I can make sense of what my opponent says when she denies unrestricted composition. But then I must allow that the denial of unrestricted composition is at least coherent, and has non-trivial content. Moreover, because I take a proposition to have non-trivial content just when it is true of some portions of reality and not others, I must allow that the denial of unrestricted composition is contingent.<sup>31</sup> But I hope

---

<sup>31</sup> Cameron (2012) seems to endorse this line of thought when he claims that, since the Composition as Identity theorist can "make sense" of things not composing, she should accept that it is conceptually possible that things not compose.

that what I said above makes plain that this argument conflates the proposition that I express by the denial of unrestricted composition and the proposition that I interpret my opponent as expressing when she appears to assert that denial. Let  $S$  be a sentence in my language and call the sentence not- $S$  the *linguistic* denial of  $S$ . Let  $E$  be the function from my sentences to the propositions that those sentences express in my language, and let  $I$  be the function from your sentences to the propositions that give my interpretation of your sentences. For any proposition  $p$ , let  $\sim p$  be the *propositional* denial of  $p$ . Then it may well be that  $I(\text{not-}S) \neq \sim E(S)$ . And that is how I can make sense of your linguistic denial of what I say even when the propositional denial of what I say is logically incoherent, and lacks any non-trivial content. I conclude that the consideration of less than ideally rational thinkers does not give good reason to hold that there are epistemically possible propositions that are not logically possible.

## 5. QUALITATIVE CHARACTER

Shape, color, mass, charge, pain, pleasure: all these contribute to the qualitative character of things. Qualitative character, as I understand it, supervenes on the distribution of fundamental properties and relations: two portions of reality have the *same (intrinsic) qualitative character*—are *qualitative duplicates*—just in case there is a one-one correspondence between their parts that preserves all fundamental properties and relations.<sup>32</sup> But what this amounts to won't be clear until more is said about the kinds of fundamental properties and relations, and how they differ.

After the first stage of our mythical creation, reality was all structure. There was the structure induced by *logical* relations such as *is-identical-to*, *is-a-fusion-of*, and *is-one-of*. And there was the structure induced by the fundamental relations that unite portions of reality into mathematical systems. Call these relations *mathematical*.<sup>33</sup> The mathematical relations are *purely*

---

<sup>32</sup> A complication: because I allow that fundamental properties may apply to pluralities (see below), the one-one correspondence has to be extended in the natural way to apply to all subpluralities of the two portions of reality. See Chapter 16.

<sup>33</sup> Mathematical systems may also involve fundamental properties, functions, and constants. My use of “mathematical relation” is meant to encompass all these, but whether it is by way of reduction or terminological stipulation I need not decide here. Nor need I decide here whether there are mathematical systems with properties only, and no unifying relations. Such a system

*structural* in this sense: their nature is determined entirely by their *pattern* of instantiation. Distinct but isomorphic mathematical systems (if any there be—see Chapter 2) are each unified by the same mathematical relations. Non-isomorphic systems are each unified by different relations. For example, the “successor” relation that unites the natural numbers and the “successor” relation that unites the integers are the same in name only. Now, because after the first stage of creation the fundamental properties and relations were all logical or mathematical, the qualitative character of things at that stage was determined by logic and structure alone. The simples that composed the mathematical systems had no qualitative character beyond their bare simplicity.

Could that be all there is to qualitative character? I think not. Something more is needed, I think, to get the colors and masses, a second stage of creation. Something must be added to reality in virtue of which things acquire properties, and perhaps relations, that do not derive from structure alone; content must be added to structure. These newly acquired, non-structural fundamental properties have “suchnesses” or *quiddities*. They have substantial intrinsic natures in virtue of which they may be cross-identified between distinct portions of reality. The qualitative character of a portion of reality thus has three separate components, arising from three different kinds of fundamental properties and relations: logical, mathematical, and *quiddistic*. The qualitative properties and relations, then, are just those that supervene on the distribution of these three kinds of fundamental property and relation.<sup>34</sup>

Not all properties are qualitative. The non-qualitative properties derive from two different sources. First, there are “thisnesses” or *haecceities*: properties of being identical with some given entity or thing. That these properties are sometimes non-qualitative follows from my rejection of (non-trivial) principles of the identity of indiscernibles; indeed, I hold that every part of a system or world has somewhere in reality a distinct qualitative duplicate. Moreover, since distinct portions of reality have no things in common, no haecceity instantiated in one is

---

would be unified by a fundamental plural property that applies to the elements of the system taken together.

<sup>34</sup> On a narrower notion of “qualitative,” only the quiddistic properties are qualitative, not the logical or mathematical properties. I stick with the broader notion of “qualitative” from here on out, and use “quiddistic” for the narrower notion. But I often use the narrower notion of “qualitative” in other chapters of this volume (and earlier in this introductory chapter). Context should decide.

instantiated in the other. There is no cross-identification in virtue of haecceities.<sup>35</sup> Second, there is the property of actuality. That actuality is non-qualitative follows from my belief that actual things have qualitative duplicates that are merely possible.<sup>36</sup> This property only arises at the third stage of creation; see Section 6 below. Because I take the qualitative to supervene on the fundamental, and haecceities and actuality to be non-qualitative, it follows that I do not take haecceities and actuality to be fundamental properties. That is terminologically awkward, perhaps, especially with respect to actuality since I say also that actuality marks a fundamental ontological distinction, a distinction of kind. One could instead take haecceities and actuality to be a fourth and fifth kind of fundamental property, and define the qualitative to supervene on just the first three kinds.<sup>37</sup> But the terminology I have here introduced best coheres with how I speak in other chapters of this volume. It is enough to bring the awkwardness to the surface.

\* \* \*

*Quidditism*, as I understand it, is the view that structurally indiscernible portions of reality can differ qualitatively. In that case, I will say that there is a *quiddistic difference* between those portions. *Structurally indiscernible* portions of reality agree on all their logical and mathematical properties and relations. And they agree on the *pattern of instantiation* of fundamental properties and relations with quiddities (if any), what I call *instantial structure*. If they differ qualitatively, they differ with respect to the *distribution* of fundamental properties or relations with quiddities. They differ either because some of the quiddistic properties or relations instantiated in one of the portions of reality have been switched in the other portion of reality, or because some have been replaced in the other portion of reality by quiddistic properties or relations *alien* to the first

---

<sup>35</sup> If a haecceity is taken more broadly to be a property had by a thing and all of its counterparts, then things in distinct portions of reality can share haecceities, and *qua* counterparts be “cross-identified.” Whether haecceities in this broad sense are qualitative then reduces to whether the counterpart relation is qualitative. For some discussion, see Chapter 3, Section 5. Note, however, that haecceities in this broad sense won’t be able to play the traditional role of “thisnesses” if the counterpart relation is not an equivalence relation.

<sup>36</sup> See Chapter 5. But note that, on what I there call the “transformation account” of absolute actuality, the property of actuality would be trivially qualitative under the hypothesis of universal actualization.

<sup>37</sup> Cowling (2015) defends the supervenience account of qualitative character that I have relied on in many of the following chapters. He also argues that some non-qualitative properties should be deemed fundamental.

portion of reality, or because of some combination of switching and replacing. Note that we can speak of these properties having been switched or replaced because they have substantial intrinsic natures, or quiddities, in virtue of which they have been cross-identified.<sup>38</sup>

I have presupposed quidditism throughout my writing on modality. (See especially Chapter 7, where I use quidditism together with the possibility of alien fundamental properties to argue against (what Lewis later called) linguistic ersatzism.) But why be a quidditist? Why not hold instead that the qualitative character of composite things *emerges* as structure becomes sufficiently complex? In that case, no superaddition of content is needed to get a world with mass or color or pain.

There are many ways to argue for quidditism that I endorse. But some of them rest heavily on modal intuitions as to the individuation of possibilities, intuitions that an opponent might simply reject.<sup>39</sup> Here I sketch two sorts of argument that are less dependent on brute modal intuition. According to the first, support for quidditism comes directly from the phenomenology of our experience, for example, our experience of color qualia. Consider the visual experience of seeing a solitary blue square. Now consider the experience that results from switching the color to red while holding the shape fixed. This switch in color doesn't alter the internal structure of the visual impression, or its relations to anything external in the visual experience. I claim that experiences of this sort give us a clear and distinct idea of how portions of reality can differ qualitatively without differing in structure. There are two steps to the argument. First, the differing phenomenal content of these two experiences is given by two different portions of reality. This follows from my more general view that all contentful thought and experience is relational (see Chapter 5, Section 2) together with the law of plenitude discussed above. Second, the portions of reality that give the phenomenal content have no structure beyond what is

---

<sup>38</sup> Lewis (2009) uses switching and replacing to illustrate quiddistic differences. But note that Lewis (and many others engaging in this debate) have a stronger notion of structural indiscernibility in mind, and that potentially makes quiddistic differences harder to come by. On this stronger notion, causal and nomological structure, whether or not fundamental, is relevant to whether portions of reality are structurally indiscernible, not just logical, mathematical, and instancial structure. I also endorse quidditism in Lewis's sense.

<sup>39</sup> Moreover, intuitions favoring quiddistic differences can be accommodated by a "cheap substitute" for quidditism that parallels Lewis's (1986: 227-35) "cheap substitute" for haecceitism. Hawthorne (2001) recommends this strategy to the causal structuralist.

apparent in the visual experience. Phenomenal content is entirely manifest.<sup>40</sup> Given these admittedly controversial assumptions, quidditism follows as a thesis about reality *as a whole*. That is, somewhere in reality there are portions that are structurally, but not qualitatively, indiscernible. But, of course, the argument does nothing to support that quidditism holds as a thesis restricted to our neighborhood of reality, the sphere of worlds that have the same fundamental properties as our world. Indeed, I incline towards materialism. I therefore doubt that color qualia are fundamental *in our world*.

A second way of arguing for quidditism bases quiddistic differences, not on our experience, but on our scientific theorizing. First off, it is natural to take our scientific theorizing to give insight into what structures are possible. (See Chapter 10 and the principle (B).) According to classical physical theories, the structure of a classical world is given by the pattern of instantiation of fundamental properties instantiated by point particles occupying a uniform spacetime. Is that *all* the fundamental structure in these worlds (excepting logical structure)? As a Humean, I say “yes.” In particular, I reject fundamental causal or nomological structure. But the argument that follows does not depend on that. Second, it is natural to take our scientific theorizing to give insight into what fundamental properties are possible and how they can be arranged. According to (a simplified) classical physical theory, the fundamental (non-kinematical) properties are the determinates of mass and charge, and any assignment of mass and charge over finitely many point particles in any spatiotemporal arrangement in accordance with Newton’s law of gravitation and Coulomb’s law represents a possible world. Now consider the following two simple worlds. Each world has two point particles, and the masses of the particles are the same between the two worlds. The charges of the particles, however, differ between the two worlds, but in such a way that the trajectories of the two point particles do not differ between the worlds. At the first world, the two particles revolve around one another as determined by their masses and charges. At the second world, the two particles follow the exact same trajectories as in the first world, but the forces between them depend on a different combination

---

<sup>40</sup> Lewis is a quidditist. But he would reject this argument for quidditism at its second step. It rests on something akin to what Lewis calls the *Identification Thesis*: anyone acquainted with a quale knows just which property it is. See Lewis (2009: 217).

of charges.<sup>41</sup> These two worlds are structurally indiscernible: they both have the same pattern of instantiation of fundamental properties over the same uniform spacetime. But they differ qualitatively because the fundamental properties at one world are different from the fundamental properties at the other. Classical physics, at least as standardly interpreted, supports quidditism.<sup>42</sup>

Again, as with the argument from experience, we can conclude that quidditism holds as a thesis about reality as a whole, but not that it holds when restricted to our neighborhood of reality. After all, we no longer believe that there is a uniform spacetime whose structure is independent of the configuration of mass and charge; so it may be that the different configurations correspond to different spatiotemporal structures. That would indeed be the case if *geometrodynamics* were true, the view summed up by the physicist John Wheeler as follows: “There is nothing in the world except empty curved space. Matter, charge, electromagnetism, and other fields are only manifestations of the bending of space. *Physics is geometry*.” (Wheeler 1962: 225.) That program was soon abandoned even by its most ardent proponents. But what grounds are there for thinking that no mathematical structure, not even one more complex than the spatiotemporal structure posited by Einstein’s General Relativity, could deliver the goods? If there were such a structure, we could conclude: *Physics is mathematics*.<sup>43</sup>

David Lewis once wrote: “I cannot believe (though I know not why not) that our world is a purely mathematical entity.” (Lewis 1973: 90.) Few would dispute this sentiment, or bother asking why we hold it. But all of our beliefs, I think, call out for justification. Whether this belief can be justified depends, I think, on what we take the mathematical entities to be. In Chapter 5, I

---

<sup>41</sup> Let the charges of the particles in the first world be  $c_1$  and  $c_2$  and the charges in the second world be  $c_3$  and  $c_4$ . Then it suffices (in our simplified theory that ignores magnetic forces) to set  $c_3 \times c_4 = c_1 \times c_2$ .

<sup>42</sup> In Chapter 18, I argue that a Humean should take determinables, not determinates, to be fundamental; determinates arise from the instantiation of determinables in an enhanced world structure. On that view, the simple worlds described do not support quidditism: the worlds differ in instantial structure. The argument from scientific theorizing can still be made, but it requires a more complex theory. In Chapter 7, I argue, based more on hypothetical than actual scientific theorizing, that there are quiddistic differences between worlds with different kinds of homogeneous matter. I would classify that argument as an argument from modal intuition, not an argument from scientific theorizing.

<sup>43</sup> The cosmologist Max Tegmark believes that our universe is part of a multiverse that ultimately reduces to pure mathematics. According to his Mathematical Universe Hypothesis, “our external physical reality is a mathematical structure.” (Tegmark 2014: 280)

give an account of how we could know that we are individuals and not sets (if, contrary to what I think, sets exist and belong to a different fundamental ontological category than individuals). Roughly, I take the concepts of individual and set to have indexical components: it is part of the meaning of ‘individual’ and ‘set’ that I am an individual and not a set. But that account (and the similar indexical account I give of how we can know that we are actual) rests on the assumption that individuals and sets (or *actualia* and mere *possibilia*) belong to different fundamental ontological categories. I don’t think, however, that mathematical and physical entities belong to different ontological categories in a way that would allow for an indexical solution. (See Section 6 below on how I understand ‘ontological category’.) Rather, they differ quiddistically in the most extreme way: mathematical entities have no quiddistic nature. Is there some other way to justify my belief that I am not a mathematical entity, that I have a quiddistic nature?

A conception of reality different from the one I have been touting might be in a better position to justify the belief that physics does not reduce to mathematics. I have supposed thus far that reality divides into separate realms: the purely structural or mathematical, and the quiddistic realm. (There is also a “mixed” realm, by recombination; see below.) And that opened up the troubling question: which realm do I inhabit? Suppose instead we take all of reality to be infused with quiddities. Mathematical entities, then, are not portions of reality, but something abstracted from those portions; not systems, but structures (and constituents of structures). And since mathematical entities are now universals, they belong to a different ontological category than the physical portions of reality, and an indexical solution to how I know I am not a mathematical entity can be applied. But I reject this alternative conception of reality, not just on the mathematics side (owing to my rejection of structural universals), but also (more tentatively) on the physics side. For, on this alternative conception, it is natural (though not inevitable) to take the fundamental relations, not just the fundamental properties, to have quiddities. For example, structurally indiscernible worlds can differ qualitatively merely because their fundamental spatiotemporal relations have different quiddities. And that raises the important question: are there *relational* quiddities?

It might seem that the arguments given above for quiddistic *properties* can be used to support quiddistic *relations* as well. But I am doubtful. The argument from scientific theorizing is less convincing because, at least with respect to classical theories, the non-spatiotemporal fundamental properties and relations can all be reduced to fundamental scalar and vector

quantities that hold at points of spacetime; and those quantities, I argue in Chapter 18, can be construed as properties instantiated within an enhanced world structure. There is no need to posit fundamental relations that are not purely structural.<sup>44</sup>

The argument from perceptual experience may seem more promising. Indeed, Frege (1884, section 26) famously argued that the principle of duality in projective geometry supported the Kantian view that space has intuitive content that goes beyond what can be captured by the axioms and theorems. This argument could be adapted to support quiddistic relations as follows. Call the relation that holds between a point and a line that the point lies on the *incidence* relation. Suppose we take incidence to be a fundamental geometric relation. In that case, we do not need to take the property of being a point or of being a line to be fundamental geometric properties. We can define a point as anything that bears the incidence relation to something and a line as anything to which the incidence relation is borne by something. Now, according to duality, for any configuration of points and lines, there is a dual configuration that results from switching the incidence relation for its converse and thereby switching points and lines.<sup>45</sup> The resulting configuration is structurally isomorphic to the original configuration. But the two configurations look completely different from one another! For example, a single line containing many points becomes a single point through which many lines pass. So, again making the controversial assumptions needed by the argument from perceptual experience, there are structurally isomorphic portions of reality that differ quiddistically. The incidence relation that is instantiated in the portions of reality that give content to our visual experience of points and lines is a quiddistic relation.

I do not think, however, that this argument for quiddistic relations has merit. The incidence relation in geometry is a *mereological* relation, the relation of being a (simple) part of.

---

<sup>44</sup> I believe this is also true of the fundamental non-spatiotemporal relations that may be needed for quantum mechanics. But this is not a topic that I am prepared to pronounce on.

<sup>45</sup> One needs the full projective plane, with its points at infinity, to have a full duality of *theorems* of geometry: that every theorem has a dual theorem gotten by replacing ‘point’ with ‘line’ and ‘lie on’ with ‘contains’. But the argument from experience need not assume that the geometry of our visual experience is projective. It need only draw on the duality of *configurations*, that for every configuration of points and lines, there is a dual configuration gotten by switching points with lines and the relation of lying on with its converse. For, presumably, our perception of a finite part of space does not depend on what goes on at infinity.

Portions of reality are structurally isomorphic only if there is a one-one mapping between them that preserves logical relations, which include (I say) the parthood relation, and so maps points to points and lines to lines. When we switch points with lines and the incidence relation with its converse, we do not thereby move to a part of reality that is structurally isomorphic; and so the differing content of the switched experience does not require the positing of quiddities. I conclude that this Frege-inspired argument for relational quiddities does not succeed. Indeed, I know of no argument for relational quiddities that I find convincing.<sup>46</sup> Are there arguments against? To answer this we need to know more about the nature of quiddities and their ultimate grounds. Different accounts of quiddities may differ as to whether to allow for relational quiddities.

\* \* \*

What grounds the third component of qualitative character? When portions of reality differ quiddistically, what grounds the difference? Don't say: the quiddistic properties. I have been using 'property' in an abundant sense. The quiddistic properties are not themselves parts of reality; they belong rather to the realm of representation. The question is: when a thing instantiates a quiddistic property, what *in reality* makes it so? The *nominalist* answers: just the thing itself. Nothing but things are needed to serve as truthmakers for all the fundamental truths. Moreover, distinct fundamental truths may have a single truthmaker; for example, that *a* is *P* and that *a* is *Q*, for fundamental properties *P* and *Q*, are both made true by the thing *a*. The truthmakers are not very discriminating. (See Chapter 13, Section 5 and Chapter 14, Section 6 for an account of things as truthmakers.) The *realist* answers: the instantiation of a quiddistic property is grounded in some part or constituent of the thing, a universal or trope. It is then natural to say that it is the universal or the trope that has a quiddity, a substantial intrinsic nature; the (abundant) properties have quiddities, when they do, in a derived sense. Throughout most of the chapters included in this volume, I have tried to remain neutral between nominalist and

---

<sup>46</sup> When I presented this material at MIT, Stephen Yablo suggested that perhaps a stronger argument from perceptual experience could be based on our perception of temporal order. Perhaps. Consider an experience involving a blue flash followed immediately by a red flash. The experience that instead has a red flash followed by a blue flash differs in phenomenal content from the first. But I am doubtful whether the difference is purely structural. In any case, how to understand the content of our experience of temporal order is not a simple matter.

realist accounts of qualitative character. But in fact I strongly favor a realist theory with tropes. The basic tenets of trope theory are well known, and I will be brief.<sup>47</sup> Tropes are particulars, which is just to say that they have qualitative duplicates. Tropes are mereologically simple. Tropes have non-qualitative haecceities, which is just to say that, as with all simple particulars, their identity and distinctness is primitive and not analyzable. And tropes have quiddities in virtue of which distinct tropes may or may not be qualitative duplicates of one another. Let me illustrate with respect to a possible world whose structure is spatiotemporal, and whose (quiddistic) fundamental properties apply only to point-sized things. According to the trope theory I endorse, this world, and all the things that exist in this world, are composed entirely of tropes. Because tropes are particulars, the trope theorist will agree with the nominalist that whatever exists in the world is particular. But unlike the nominalist the trope theorist holds that point-sized things may be composite, having tropes as non-spatiotemporal parts. When these point-sized things instantiate the same (quiddistic) fundamental property, it is in virtue of having parts that are duplicate tropes. The (quiddistic) fundamental properties correspond one-one with maximal sums of duplicate tropes, summing not just across this world but across all of reality.

Questions remain. First, how do the tropes occupy places in a structure? There are two options. Return to our myth. After the first stage of creation, there were systems exhibiting pure structure. Each place in the structure was occupied by an object having only logical and purely structural character. Call such objects *bare particulars*.<sup>48</sup> Now, at the second stage of creation, the stage at which reality takes on quiddistic character, should we think of the tropes as *replacing* the bare particulars that make up mathematical systems so as to create fully qualitative systems, including the possible worlds? Or should we instead think of the tropes as being *added* to the bare particulars of mathematical systems, so that the qualitative systems have a dualism of bare

---

<sup>47</sup> *Loci classici* for trope theories include Williams (1953) and Campbell (1981). But there have been many defenders of tropes, from ancient times to the present.

<sup>48</sup> Use of the term ‘bare particular’ is sometimes restricted to substance-attribute metaphysics but I use it broadly to refer to particulars none of whose parts instantiate a quiddistic property. Trope theorists may have need for bare particulars in their ontology even if they are not wanted to serve as substances that tropes instantiate. They may be needed to serve as mathematical objects if the trope theorist endorses a structuralist version of Platonism (as I do); or to serve as spacetime points if the trope theorist is a spacetime substantialist. Bare particulars have sometimes gotten a bad rap in contemporary metaphysics. For some arguments in their defense, see Sider (2006).

particulars co-located with tropes? In that case, contrary to what was said above, the spatiotemporal world would not be composed only of tropes; it would be composed of tropes together with points of spacetime. When I spoke in the preamble of “hurling” the tropes across some of reality, that suggested the second view. But in fact I find the first, monistic view more credible. (Requiring that tropes always coexist with bare particulars would violate a reasonable Humean principle of recombination; see Chapter 9.) That leaves us with the following picture of reality after the second stage. First, there is still a mathematical realm, a realm of pure structure left untouched by the hurling of tropes. In this realm, systems are composed entirely of bare particulars with one or more bare particulars occupying each of the places in the structure of that system. Bare particulars, I surmise, are all simples—mereological atoms—or sums of simples; and simple bare particulars are all qualitative duplicates of one another. (See the postscript to Chapter 10 on why my (tentative) rejection of gunk does not offend against principles of plenitude.) Second, there is now a quiddistic realm, a realm of structure and content. The unified and isolated portions of reality in this realm—the “islands of reality”—are composed entirely of tropes, with one or more tropes occupying each of the places in the structure of that island. There are no bare particulars in the quiddistic realm. I would have liked to say that every island of reality in the quiddistic realm is a possible world; but such a broad notion of “possible world” would gratuitously conflict with my fellow metaphysicians (see Chapter 18, Section 12). I therefore say that only those islands of the quiddistic realm that are sufficiently world-like are called “possible worlds.” Finally, there will be a mixed realm where the hurled tropes occupy some but not all of the places in the structure of an island; in this mixed realm, tropes and bare particulars reside side by side. The existence of a mixed realm will follow from any reasonable principle of recombination; again, see Chapter 9. At first blush, the islands of this mixed realm might seem to be mere oddities. But if physical theories are best interpreted as positing a structure with places unoccupied by tropes—as I argue in Chapter 18 may be the case on a Humean account of quantities—then this mixed realm may well be the realm we inhabit. For purposes of this introduction, however, I set the mixed realm aside and focus on portions of reality composed entirely of bare particulars or entirely of tropes.

Another question is this. If reality is composed entirely of tropes and bare particulars, what happened to the *things* that, on my first pass as to what reality is, I took to instantiate the fundamental properties and relations? In the mathematical realm, the things can be identified

with bare particulars, and the sums of bare particulars, belonging to a single system. In the quiddistic realm, the things can be identified with maximal sums of tropes occupying a single place in a structure, and the sums of such maximal sums belonging to a single “world.” (For more on how I understand the co-location of tropes, see Chapter 11, Section 11.) That identification will not allow distinct point-sized things to occupy the same place in a spatiotemporal world. Causal relations, however, may be called on to get a finer individuation of things. I here set this finer grained notion of thing to one side: it belongs more to contingent physics than to metaphysics. We are now in a position to correct our first pass at what reality is by saying that reality consists of bare particulars and tropes (and sums of such) instantiating fundamental properties and relations. The pattern of instantiation of fundamental properties and relations determines what fundamental structures are exhibited throughout reality. So we can also say that reality consists of bare particulars and tropes occupying places in fundamental structures.<sup>49</sup>

Another question pertains to the extent and variety of the quiddistic realm. According to the myth in the preamble, the tropes were hurled across portions of reality *in every combination*. It is the business of Chapter 9 to make this more precise, to develop and defend particular Humean principles of plenitude. In rough outline the picture is this. First, the laws of logic, spearheaded by the law of plenitude, provide a principle of plenitude for structures: they determine what the logically possible structures are, that is, what structures are instantiated throughout reality.<sup>50</sup> Then, we Humeans endorse the following principle of recombination: for any logically possible structure, and any way of arranging tropes within that structure, there is a portion of reality that arranges duplicates of those tropes in that way. This too follows from the law of plenitude on a Humean account of possibility.<sup>51</sup> Finally, to get the full range of Humean

---

<sup>49</sup> Whether these two characterizations of reality are equivalent will depend on subtle issues having to do with the individuation of structures. In this introductory sketch, I have set those issues aside and used these two modes of speaking—fundamental-properties-and-relations talk vs. fundamental-structures talk—interchangeably.

<sup>50</sup> In Chapter 10, I develop more narrowly a principle of plenitude for *metaphysically* possible structures, that is, structures instantiated within some “possible world.” Not all logically possible structures are metaphysically possible in this sense.

<sup>51</sup> In Chapter 9, following Lewis, I applied the principle of recombination to *things* (what I there call “individuals”), rather than to *tropes*. But only a minor adjustment to the principle is required: in an arrangement of tropes within a structure, allow multiple tropes to be located in the same

possibilities, we need a principle that guarantees an inexhaustible supply of qualitatively distinct tropes, what I call a principle of plenitude for contents: any trope in any island of reality can be replaced, without altering the structure, by an *alien* trope, by a trope that has no duplicates in that island. (See the Principle of Interchangeable Parts, and the principle (B2) in Chapter 9.) Without such a principle, there would be a kind of necessary connection between distinct tropes. With these three sorts of principle of plenitude—plenitude of structures, of contents, and of recombination—the extent and variety of the quiddistic realm is fully settled.

\* \* \*

I can now, finally, return to the question: are there relational quiddities? Given the trope-theoretic account of quiddities adumbrated above, that reduces to the question: are there relational tropes? For example, when a fundamental relation holds between two point-sized things, is that ever made true by a relational trope that somehow spans the location of those two things? Or instead are the fundamental relations that hold in a physical world—for example, the spatiotemporal relations—no different from the purely structural relations that hold between points of a mathematical spacetime? For ease of exposition, let me restrict attention to fundamental *dyadic* relations. *Prima facie*, there are two cases to consider: fundamental *symmetric* relations and fundamental *non-symmetric* relations. The non-symmetric case raises problems for relational tropes that go beyond the problems raised by the symmetric case.<sup>52</sup> Here I focus on the symmetric case which raises problems enough.

The question, then, is whether relational tropes are coherent given a Humean conception of possibility. The first thing to note is that relational tropes, if there are such, are *extended simples*. A dyadic trope occupies two places, and is thus extended, without having parts that separately occupy those places. For if it did divide into two parts—one in one place, one in the other—the relationality would be lost. Relational tropes, then, violate a general *principle of mereological harmony* according to which the mereological structure of an occupant of

---

place. Whether distinct duplicate tropes are ever co-located, however, is a delicate problem. For more on how co-location can be accommodated within an account of plenitude, see Chapter 11, Section 11.

<sup>52</sup> See Fine (2000) for some of the problems with positing worldly non-symmetric relations, and possible responses.

spacetime matches the mereological structure of the places that it occupies.<sup>53</sup> Moreover, if *things* are just sums of tropes, mereological harmony for things must be abandoned as well whenever things have relational tropes among their parts. That might make trouble for *perdurantism*, the view that things persist in virtue of dividing into temporal parts: perdurantism will have to be restricted to worlds where things are not composed in part of relational tropes that span distinct times. And then it will have to be argued on contingent grounds that the things of our world divide into temporal parts, which may be none too easy. But these consequences of admitting relational tropes, however unfortunate, do not amount to incoherence.

Extended simples are sometimes thought to be incoherent in virtue of their having primitive distributional properties.<sup>54</sup> For example, an extended simple could be red and blue striped without having parts that are red and blue. Indeed, I am doubtful that primitive distributional properties are coherent, but we can set that issue aside here; for there is no pressure to deny that relational tropes are homogeneous. When an extended thing composed of relational tropes has a distributional property, that reduces to a matter of the co-location of various monadic tropes with the relational tropes. No incoherence there.

But there is a problem for the stout Humean. Relations require *relata*.<sup>55</sup> That is an analytic truth if ever there was one. But then grounding fundamental relations in relational tropes will introduce unacceptable necessary connections. It will be impossible to have a relational trope existing in isolation, all by itself. Whenever a relational trope exists, there would have to be monadic tropes co-located with the relational trope to serve as the *relata*. Note that this problem is specific to relations and does not afflict properties. It is also an analytic truth, I say, that properties require bearers; but that is no obstacle to a property trope existing in isolation all by itself. On a “bundle theory” according to which the bearers of properties are sums of tropes, a lonely trope, in effect, does double duty: it grounds a fundamental property and is also that

---

<sup>53</sup> I endorsed mereological harmony in Chapter 9. But if one makes the amendment to the principle of recombination recommended above, allowing multiple entities to occupy the same place, mereological harmony is already lost.

<sup>54</sup> See Parsons (2004), however, for a defense of primitive distributional properties.

<sup>55</sup> This has been denied by “ontic structural realists” (see, e.g., French and Ladyman, 2011) who take structures to be primitive; but their inevitable talk of “places” in the structure, it seems to me, belie this denial. Note, however, that I do not suppose that the *relata* must have a substantial intrinsic nature; they may all be bare particulars.

property's bearer.<sup>56</sup> Now, it may seem that the Humean has a way out of this problem: she can hold that the relationality of relational tropes is an extrinsic feature, that when a relational trope exists all by itself, its relationality is lost. But then how does a relational trope differ from a property trope? If the distinction isn't structural, which it can't be given that tropes are simple, then it seems to be utterly mysterious.

Thus, I do not think a Humean trope theorist should admit different categories of trope, relational tropes in addition to property tropes. It is worth noting, however, that property tropes can sometimes serve as substitutes for relational tropes: property tropes can ground the instantiation of *symmetric* relations. What I have in mind is this. There are worlds in which fundamental properties are instantiated by *pluralities* of things. (See Chapter 16; when a fundamental property is instantiated by a plurality, it is *emergent*.) And when these properties have quiddities, their instantiation is grounded in the existence of extended tropes. Consider for example a world where property dualism is true, where fundamental mental properties, such as experiencing a red quale, are instantiated by brains. I ground a given instantiation of this experiential property in a trope co-located with the brain, call it RED. RED is an extended simple in the world in question. But there is nothing in the nature of RED that requires that it be co-located with a plurality of things. Indeed, a duplicate of RED could exist all by itself, in which case RED would not be an *extended* simple. Being extended is an extrinsic feature of tropes. Now consider a putatively fundamental symmetric relation, *R*. *R* is associated with a unique plural property *P*: *R* holds between *a* and *b* if and only if *P* holds collectively of the plurality with members *a* and *b*. It would not be proper to call *P* a *relation*, or the tropes that ground instantiations of *P* *relational* tropes. But the instantiation of *R* is now grounded in the existence of property tropes, allowing the instantiation of *R* to make a quiddistic difference. Strictly speaking, however, it is the plural property *P*, not the relation *R*, that is fundamental. Note that there is no hope of using property tropes in this way to ground non-symmetric relations. So whereas the trope theorist has the option to take putatively fundamental symmetric relations to have quiddities, that option is closed for non-symmetric relations.

---

<sup>56</sup> On this fundamental difference between relational tropes and property tropes, I am in agreement with Campbell (1990: 99).

In rejecting relational tropes, I made no mention of what is sometimes taken to be the main objection: Bradley's relation regress.<sup>57</sup> According to the regress argument, if one posits a worldly relation, say a relational trope, in order to ground that two things stand in some fundamental relation, then one will be led also to posit a worldly relation to ground that the relation applies to those things, a relational trope of relation application. And so on, leading to a vicious infinity of grounds. But the regress can be curtailed at the start. It rests on the faulty assumption that if a relation is unanalyzable in the realm of representation—is a primitive notion in our ideology—then it must have a worldly correlate. But a relation may be fundamental to our thought without being fundamental to reality. (See the Chapter 16 for more on this distinction.) Identity, I claim, is not analyzable; but no relation of identity need be posited to ground facts of identity. The identity of a thing with itself is grounded in the existence of that very thing; the non-identity of two things is grounded in the existence of those two things. Similarly, the relation of instantiation that holds between a relation and what it relates is unanalyzable, but no worldly instantiation relation is needed to ground facts of instantiation: whatever grounds the fact that  $a$   $R$   $b$  also grounds the fact that  $a$  and  $b$  instantiate  $R$ . Even the realist about relations should agree with the nominalist that some relations fundamental to our thought require no worldly correlates to serve as grounds or truthmakers. Everyone's a little bit nominalist.

But I am more than just a little bit nominalist. Not only do I hold that there are fundamental logical relations, such as identity and predication, that have no worldly correlates, no "relational" parts of reality that determine when they apply, I hold the same for all fundamental relations, and all fundamental structure, be it mathematical or physical. The structure of a portion of reality is fully grounded in the things—more generally, the tropes and bare particulars—that compose that portion of reality. Consider, for example, the natural numbers: countably many bare particulars united by the successor relation in accordance with Peano's axioms. In reality, there are just the bare particulars. The successor relation, and all the properties, relations, and functions defined in terms of it, belong to the realm of representation, as do the truths of number theory. But those truths need nothing but that plurality of bare particulars to make them true. Other pluralities of bare particulars instantiate other mathematical structures, and make other mathematical theories true—the integers, the rationals. But in each

---

<sup>57</sup> See McBride (2011) for discussion of this objection.

case, there is nothing but the bare particulars to do the work of truthmaking, or grounding. I expect resistance to this nominalist mode of thinking. If both the natural numbers and the rationals are just countable pluralities of bare particulars, an opponent might ask, where does the difference in structure come from? Well, *these* particulars get together one way to make up the natural numbers, *those* particulars get together another way to make up the rational numbers. They need no help from worldly relations to get together in these different ways. To suppose that they do would, for no good reason, be to embark on Bradley's regress.

Banishing structures to the realm of representation helps solve a problem with the individuation of possibilities. If structures are immanent, there will be an artificial proliferation of portions of reality, distinctions without a difference. To take the simplest case: consider a portion of reality composed of two non-duplicate simples standing in a symmetric relation. This portion of reality instantiates a structure with two places. Now, there are two ways of arranging those simples within the structure: there is a second arrangement where the simples switch places. Then, by the principle of recombination (see the principle (LPR) in Chapter 9), for each of these arrangements, there is a portion of reality where duplicates of the simples are arranged in that way. But do these two arrangements correspond to *two distinct* portions of reality, *two distinct* possibilities? The principle of recombination does not say; it says that both arrangements are possible, but not whether the possibilities are distinct. But if structures are immanent, the answer will be "yes." (This assumes that the "places" in structures can be cross-identified between different instantiations; but I take that to be part of a realist account of structures.) It seems, however, that the answer should be "no." For example, if a red and blue simple are ten meters apart (and there is no substantial space), one does not get a distinct possibility where the simples have switched places. Removing the structures from reality and placing them in the realm of representation allows us to say what we should: the two different arrangements are two different *representations* of the same portion of reality, not two different portions of reality.<sup>58</sup>

\* \* \*

Let me conclude this long section by returning to a question earlier left hanging: Might all of reality be infused with quiddities? In that case, there would be no separate mathematical realm.

---

<sup>58</sup> Compare the critique of positionalism in Fine (2000). Fine's solution to the problem allows relations to be immanent, but it is not a solution a Humean can accept.

Instead mathematics would somehow be abstracted from or reduced to the quiddistic realm which would be all of reality. I do not think my rejection of relational tropes answers this question. After all, a nominalist about structure believes, no less than the realist, that there are truths about structure. No doubt in some sense one does not *need* a separate mathematical realm to ground the truths of mathematics. One can choose to reinterpret the theories of mathematics as generalizations over the quiddistic realm by ramsifying mathematical theories.<sup>59</sup> Given the plenitude of structures instantiated in the quiddistic realm (see Chapter 10), no mathematical truths would be lost. But why should one reinterpret mathematical theories if they are perfectly coherent as they are written, not as generalizations over possible worlds, but as statements about entities and systems that lack quiddities? The question isn't whether we *need* the mathematical realm, but whether logic demands that it exists. And, as I argued in Section 3, the law of plenitude will demand it. I therefore cannot reject the mathematical realm. And that leaves me in the rather awkward position of having to say that I do not know how to justify my belief that I am not an inhabitant of the mathematical realm, an entity with structure but no quiddity. For, verbal tricks aside, nothing that I know *a priori*—much less *a posteriori*—rules that out. Only a dualist about phenomenal consciousness, it seems, could have good reason to deny (with Lewis) that “our world is a purely mathematical entity.”

## 6. ACTUALITY

I am actual. So is the racehorse Secretariat. But Mr. Ed, the talking horse, is not; he is merely possible.<sup>60</sup> In what does this difference consist? According to Lewis, the difference in question is a matter of how these two horses *relate to me*: Secretariat is spatiotemporally related to me, and is thereby truly said by me to be “actual”; Mr. Ed is spatiotemporally isolated from me, and is thereby truly said by me to be “merely possible.” It is not a difference in ontological status.

---

<sup>59</sup> As Lewis (1991, section 2.6) does for set theory. But note that Lewis's reinterpretation does not take structure seriously, although he has the means to do so by quantifying over natural properties and relations. For discussion, see Chapter 2.

<sup>60</sup> I take fictional entities to be merely possible. But fictional names, such as ‘Mr. Ed’, do not uniquely refer. They have descriptive meanings that pick out a suitable class of counterparts, each member of which is indeterminately referred to by the fictional name. Statements about fictional entities are evaluated using supervaluations.

Secretariat and Mr. Ed are both flesh-and-blood horses, and both concrete; indeed, they belong to all the same fundamental ontological kinds. It is just that Secretariat is *here*, in my little portion of reality, and Mr. Ed is *out there*, in portions of reality disconnected from mine. So says Lewis.

Like many others, I find Lewis's relational account of actuality incoherent. (For more on this, see Chapters 3, 4, and 5.) Actuality, I claim, is *categorial* and *absolute*. The actual things comprise a fundamental ontological category. In virtue of belonging to that category, they have a different ontological status than merely possible things. And the ontological status conferred by the property of actuality is had absolutely: it does not depend on relations to me, or to anything else. Because I take actuality to be categorial and absolute, I cannot help but interpret Lewis as believing in a bloated actuality, chock-full of actual universes; for according to Lewis, all the worlds are ontologically on a par with the actual world. And it is because I take actuality to be categorial and absolute that I can safely and literally say, in agreement with ordinary language, that Mr. Ed is a talking horse. I don't need to take this back in the philosophy room, saying instead that Mr. Ed is some abstract whatnot that magically represents something being a talking horse, in order to accept the philosophical truism: Mr. Ed is not ontologically on a par with me.

Return one last time to my little creation myth. At the end of the second stage, reality is infused with all manner of qualitative character: protons, pigs, people in pain. But I am nowhere to be found. There are qualitative duplicates of me scattered throughout reality, indeed, qualitative duplicates of the entire cosmos of which I am a miniscule part. But nothing as yet has been made actual. A third stage of creation is needed, I claim, to confer that special ontological status in virtue of which actual things differ from their merely possible counterparts. I know *a priori* that at least one world has this special status: the world I inhabit. Perhaps other worlds have it as well, in which case the realm of the actual is composed of island universes, disconnected cosmoi (see Chapter 4); perhaps I can even have indirect evidence of such. But I know nothing *a priori* as to how or whether actuality extends beyond the world I inhabit. For all I know *a priori*, actuality could infuse the entire quiddisitic realm, or even all of reality.

The property of actuality is mysterious, to be sure. I differ in some fundamental way from my merely possible qualitative duplicates.<sup>61</sup> But how? It can't be that there is some background

---

<sup>61</sup> Is 'qualitative' redundant in 'qualitative duplicate'? That depends on whether duplicates are characterized as "sharing all intrinsic qualitative properties" or "sharing all intrinsic properties."

buzz that I hear and my duplicate does not, or that my experience of the world is more vivid or vivacious than his; for these are qualitative differences, and there are none between me and my duplicate. Nor can there be “actuality tropes” that ground the property of actuality by virtue of having some special quiddity; for, again, that would be to posit a qualitative difference where none exists. Attempting to give some defining characteristic of actuality is a futile endeavor. But that is only to be expected given that actuality is a fundamental ontological distinction that cuts across all other fundamental properties.

Still, something must be said to motivate the need for both a second and third stage of creation, for a distinction between the quiddistic and the actual. Why not simply collapse the distinction, either by being Lewisians or “actualists”? Lewisians agree with me that the quiddistic realm is plenitudinous, but take actuality to have a much greater extent than we ordinarily take it to have (although Lewis, of course, would not describe his view this way). Actualists restrict the quiddistic realm to what we ordinarily take to be actual, and posit non-qualitative substitutes for my quiddistic realm. Endorsing either of these views would avoid having to posit an ideological primitive of absolute actuality. I could simply identify the actual with the quiddistic, calling them both “concrete.”

I have no decisive argument that a separate ontological category of the actual must be posited. But there are two considerations I take to be weighty against Lewisians. The first is metaphysical. I take the supposition that actuality consists of island universes—spatiotemporally disconnected regions—to be coherent. Moreover, as I argue in Chapter 4, the possibility of island universes follows from plausible Humean principles of plenitude, indeed, principles that Lewis himself accepts. But on Lewis’s relational analysis of actuality, it is analytically false that the actual realm is composed of island universes. If actuality is absolute, on the other hand, a believer in concrete worlds can allow that the actual realm is composed of island universes simply by allowing that more than one world be actual.

The second consideration is epistemic. I claim that we have fundamentally different modes of access to reality, modes of forming beliefs about what exists. We access what we take

---

On the latter characterization, since the property of actuality is naturally taken to be intrinsic, I have no merely possible duplicates. But in the chapters that follow, I sometimes invoke the former characterization and take ‘duplicate’ and ‘qualitative duplicate’ to be synonymous.

to be actual by *acquaintance*, and by the causal and statistical inferences founded on such acquaintance. Knowledge of reality that we acquire in this way is *a posteriori*. But, I have claimed, we also access portions of reality by *description*, positing the existence of whatever portions of reality are needed to serve as the content of our thought. Knowledge of reality that we acquire in this way is *a priori*, and based purely on logic (in my broad sense). Those portions of reality that we can access only *a posteriori*, it seems to me, have a special ontological status. We learn something about those portions of reality in virtue of having accessed them in this way, founded on acquaintance: this mode of access to a thing is indicative of the thing's ontological nature. Now, it is certainly traditional to hold that the objects of *a posteriori* disciplines such as physics and *a priori* disciplines such as mathematics differ ontologically in some fundamental way. But I have no argument to persuade a Lewisian who claimed instead that we have here different modes of accessing things that are ontologically on a par.

A challenge for any account that holds that actuality is absolute is to say how one can know that one is actual. I have given my response at length in Chapter 5, so here I will be brief. The key move is to distinguish the *concept* of actuality, which is indexical, and the *property* of actuality expressed by uses of the concept, which is absolute. If the indexical component of the concept is something like, belongs to the same fundamental ontological category as me (or categories, if I belong to more than one), then I know trivially that I am actual; there is no need to make the property I thereby know relational, as Lewis does. This is not the end of the matter, however; for one might also ask what my merely possible qualitative duplicates believe when they think to themselves that they are actual. I argue in Chapter 5 that, unless there are certain symmetries between the structure of the actual and merely possible realms, the concept of actuality is what I call a "perspectival concept." Whether or not one can grasp such a concept, and express thoughts by means of it, depends on having the right perspective on reality. I have it in virtue of being actual; my merely possible duplicates do not. The concept of actuality is defective for them, and designates no property in their mouths. This requires a special exception to my otherwise internalist views about knowledge. Two subjects can have the same evidence, the same concepts, the same powers of reasoning, and yet differ in what they know, not because of differing causal relations to their environment, but merely because of differing perspectives on reality. One but not the other, in virtue of being actual, has the right perspective, and thereby is in a position to know.

A final question has to do with whether and how my account of actuality counts as a version of “ontological pluralism.”<sup>62</sup> That depends, of course, on how ontological pluralism is characterized. If to be an ontological pluralist is just to believe in more than one fundamental ontological category where the ontological categories are just the most general kinds of thing, then anyone who believes in, say, sets and individuals or particulars and universals counts as an ontological pluralist. (I was using ‘fundamental ontological category’ in this weak sense in the chapters of this volume.) My belief in the distinction between actual and merely possible things would count as well. But if fundamental ontological kinds differ from, say, kinds of dog or kinds of ice cream just by being more general, then ontological pluralism doesn’t have much punch. It’s just a matter of extending the classification of things by genus and species all the way up the ladder. What more might be meant by “ontological pluralism”? Sometimes it is said that the ontological pluralist believes there are different “ways of being,” or that members of one category are “more real” than members of some other. I have no objection to saying that actual things are “more real” than merely possible things. But such talk is metaphorical at best, and lacks the substance to hang a philosophical theory on. How, then, should a strong version of ontological pluralism be characterized?

The characterization of ontological pluralism that is currently fashionable is in terms of quantification: ontological pluralism is the view that there are *multiple (singular) existential quantifiers*, each of which is fundamental and “carves at the joints.”<sup>63</sup> But this seems to me to put the “pluralism” in the wrong place. There is only one fundamental (singular) existential quantifier, say I, so I prefer to locate the multiplicity in what the quantifier *ranges over*, in different *domains* of the quantifier.<sup>64</sup> Ontological pluralism, then, is the view that there are multiple fundamental domains of quantification, but no more inclusive fundamental domain. But that still won’t do. For I think that some fundamental domains, such as the actual and the merely possible, support ontological pluralism, whereas other fundamental domains, such as the domain of atomic things and the domain of composite things, do not. What distinguishes the former sort

---

<sup>62</sup> It is used as one of a number of illustrations of ontological pluralism in McDaniel (2017: 74-5).

<sup>63</sup> See especially Turner (2010) and McDaniel (2017).

<sup>64</sup> If an argument is wanted, see Schaffer (manuscript). He argues (in sections 2.1 and 2.2) on semantic grounds that “quantifier variance is best understood as domain variance.”

of case from the latter? McDaniel (2010: 708-13) and Turner (2012) argue that when different domains support ontological pluralism, different logical principles will apply to the different domains. But I do not think the logic that governs actual things is any different from the logic that governs merely possible things. There is only one logic.

I do, however, think that there is a way in which my acceptance of a fundamental distinction between the actual and the merely possible makes me an ontological pluralist in a robust sense; and if I accepted a distinction between sets and individuals, or universals and particulars, or present and past or future, those views too would count as ontologically pluralist. The distinction between ontological categories cannot, however, be made out in terms of fundamental properties. It has to do, rather, with the concepts by means of which we pick out the fundamental properties and thereby gain *a priori* knowledge of reality, and our place in reality. I say: a fundamental property corresponds to an *ontological category* (in a robust sense) just in case there is a perspectival concept by means of which thinkers gain access to that property, and may thereby know that they have the property. This account will not fit what all philosophers have meant by “ontological category”; but it is broad enough to include any candidate that I would take seriously. It identifies ontological categories with *privileged perspectives* on reality. But note that the “privilege” in question has an epistemic source. Although any fundamental property creates a divide across reality, with each side of that divide providing a perspective on reality, it takes more for a perspective to be privileged in the sense that makes for an ontological category. There must be a perspectival concept, the grasping of which provides me with knowledge *de se*, knowledge of which side of the divide I inhabit. Ontological pluralism thus becomes a thesis, not just about reality’s structure, but about our epistemic access to reality, *qua* thinker.

## 7. CONCLUSION

So concludes this whirlwind tour of reality as I see it. I expect my fair share of “incredulous stares.” The incredulity should not stem, as it did with Lewis, from the positing of flying pigs and talking donkeys ontologically on a par with the ordinary pigs and donkeys of my acquaintance; I do not believe in those. But I do believe in *merely possible* flying pigs and

talking donkeys. Although they exist as objects of my thought, I believe they are no less parts of reality for that. And, yes, they are made out of flesh and blood.

Some philosophers, so-called *naturalists*, hold to a creation myth much simpler than mine. There is only a single stage of creation at which the physical cosmos is brought into being. And that is all. All of reality is actual and concrete. There can be worthwhile philosophical debate, they allow, over the constituents of the cosmos—facts or things? universals or tropes? atoms or gunk?—but the extent of reality is a matter for cosmologists to determine (if it can be determined at all), not for philosophers. There is no *a priori* knowledge of some greater reality, no knowledge that transcends the knowledge bequeathed to us by science. My response, simply put, is not to take their denials at face value. Their discourse is subject to the same truthmaking principles, and harbors the same intentional content, as my own. Their thoughts about flying pigs do not differ in content from mine. I cannot consistently take my thoughts to be ontologically committing but not theirs.

Other philosophers, sometimes called *abstractionists*, allow that reality must be extended to include truthmakers for our modal claims, and contents for our thoughts, but disagree with me over the nature of those entities. Perhaps there are possible flying pigs, but they are not pigs and not concrete (as Williamson holds). Or perhaps there are just actually existing properties that are possibly instantiated (as Stalnaker holds). These are legitimate disputes. As are disputes over the truthmakers for mathematics: perhaps they are sets, or *ante rem* structures, and not the mathematical systems of bare particulars that I believe in. For I would not go so far as to claim that it is illegitimate to challenge the Humeanism that underwrites many of my arguments as to the nature of reality.

\* \* \*

I once wrote (in the paper that is Chapter 4), after presenting my view of concrete possible worlds with absolute actuality, that “I wouldn’t stake my life on [the account] being true—or even my next paycheck.” If forced to assign a degree of belief to the account I have here put forth in this introduction, that number would not be very high. (Although at least I can say I put more credence in my own view than in any of the alternatives!) I have reasons and arguments for my views; but the very subject matter ensures that much of what I affirm is speculative in the extreme. Sometimes I wish I had chosen to pursue a field where certainty, or near certainty, is not so far out of reach: mathematics, or physics, or some less speculative area of philosophy. But

out of reach or not, my work in metaphysics has ever only been about truth, about getting it right. Truth may be elusive in matters of fundamental metaphysics. But it remains the overriding goal.