SUBSTANCE AND SHADOW

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Grasp at the shadow and lose the substance.

—Aesop

Those beings which have knowledge and consciousness are the only proper and real and substantial beings, inasmuch as the being of other things is only by these. From hence we may see the gross mistake of those who think material things the most substantial beings, and spirits more like a shadow; whereas spirits only are properly substance.

—Jonathan Edwards

The process of sound philosophizing, to my mind, consists mainly in passing from those obvious, vague, ambiguous things, that we feel quite sure of, to something precise, clear, definite, which by reflection and analysis we find is involved in the vague thing that we start from, and is, so to speak, the real truth of which that vague thing is a sort of shadow.

—Bertrand Russell

## 1. Introduction

There is a traditional idea that the most real beings (and perhaps the only beings that really exist)

are substances, things that exist without being dependent on anything else. One notch down in

the scale of being from substances are dependent entities, things that *do* depend for their existence on other things. A notch below that are things that exist only in a manner of speaking, all talk of them being paraphrasable into talk of other things and their doings. Such are the entities Russell called 'logical constructions' or 'logical fictions', of which sunsets and shadows are arguably examples. Further down yet are utter nonentities—things that do not exist even in a manner of speaking, as the facts that would underwrite their existence in either a dependent entity approach or in a constructionist approach do not obtain. Someone who placed sunsets in the bottom category would do so not because he was a convinced Copernican, nor because he regarded events in general as logical constructions out of individuals and their properties, but because he believed that neither the sun nor the earth ever so moves that that the sun becomes occluded by the earth's horizon—that the sun hangs permanently in the sky above him.

We have, then, four grades of ontological robustness:

1. Substances (or fundamental entities, as they are more often called nowadays)

2. Dependent entities (nonfundamental entities)

3. Logical constructions

4. Nonentities

To clarify the differences between categories 1 and 2, I discuss below some traditional and contemporary ways of understanding the concepts of substance and dependence. To illuminate

the differences between categories 2 and 3, I discuss the contested case of shadows, which Roy

Sorensen unstintingly places in category 2, but which I demote to category 3.[1]

Of course, I do not really believe as Descartes and some of the medievals did that reality

comes in degrees.  Things either exist or not.  So where in the fourfold scheme of things should

we draw the line between existence and nonexistence?  I argue for drawing it between categories

2 and 3.  But I also argue that category 2 tends to dwindle or dissipate, splitting (though perhaps

not without remainder) into one class that is assimilable to category 1 and another class that is

assimilable to category 3.  Things that depend solely on the existence of their own constituents

qualify as substances (category 1); things that depend on the existence of things outside

themselves (or on the possession by their own constituents of some accidental property) join the

ranks of shadows (category 3).[2]  If category 2 were to disappear altogether, the line between

existing and not existing would pass right below category 1.  Finally, I address concerns that the

resulting scheme of things is too austere.  Some, including Sorensen and Jonathan Schaffer,

maintain that if we insist on independence as a requisite of existence, the number of existents

will shrink to one or none.  Others, well represented by Schaffer and Amie Thomasson, hold that

in questions of existence we should be permissive, recognizing many more types of entity than

are dreamt of in my philosophy.

## 2.  Substances as independent beings

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[1] To anticipate matters that will be explained more fully in section 4, let me say here that what I mean by the "logical constructions" of category 3 is *mere* logical constructions, items reduced by the way of paraphrase.  If one calls items reduced by the way of identity logical constructions, they may belong to level 1 or level 2, depending on the status of what they are reduced to.

[2] I have been asked why some logical constructions do not depend solely on the existence of their own constituents and thus qualify as substances.  The answer is that the things the questioner has in mind may depend on the *existence* of nothing but their own constituents, but they also depend on *more* than the existence of these things, namely, how they are related.  These matters will be clarified further in section 5.

Substances are traditionally defined as independent beings, beings that depend on nothing

besides themselves.  One finds variations of this idea in Aristotle, Descartes, Spinoza, and

Leibniz among others.[3]

The notion of dependence involved here is often spelled out in modal terms as follows:

D1:  x depends on y =df ☐(x exists only if y exists).

One could then go on and say that substances are things that depend on nothing distinct from

themselves.[4]  A sneeze would not count as a substance, since it depends on the sneezer, but

perhaps the sneezer would count.  Or perhaps not:  more on that issue presently.

Contemporary treatments of ontological dependence have found merely modal definitions

like D1 deficient.  In Kit Fine's example, Socrates and the singleton set containing him,

{Socrates}, both depend on each other in the sense defined by D1, whereas in the intended

ontological sense, the dependence runs in one direction only, the singleton depending on

Socrates but not conversely (Fine 1995).  To remedy this shortcoming, we may use the following

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[3] Aristotle says that substances are those things that are neither "said of" nor "in" anything else, these two relations implying metaphysical dependence.  Unless there is some third way of being dependent, Aristotle's definition implies that substances are independent.  Spinoza defines substance as that which is "in itself and conceived through itself;" "in itself" may be interpreted to mean "not dependent on anything else."  He took this definition to imply that you and I modes, not substances, since he thought we are metaphysically dependent on God.  Descartes and Leibniz attribute independence to substances in a qualified sense:  they say a substance is independent of everything else but God.  I think they should have realized that the dependence of created things on God is only causal, not metaphysical—after all, neither of them is Spinoza—in which case their qualification would not have been necessary.  The Port Royalists (Arnauld and Nicole) define a substance as "what is conceived as subsisting by itself." Hume cites the definition of substance as "something which may exist by itself," though disparagingly, since he thinks everything there is satisfies this definition.

Sources for these attributions:  Aristotle, *Categories*, 2a11 (p. 5 in Ackrill); Descartes, *Principles of Philosophy*, Principle I.51 (p. 114 in Cottingham, vol. 2); Spinoza, *Ethics*, Part I, D3 (p. 31 in Shirley); Leibniz, *Discourse on Metaphysics*, section 14 (p. 26 in Parkinson); Port Royal, p. 39 in the Dickoff and James edition of Arnauld; Hume, *Treatise* 1.4.5.5, p. 153 in Norton.

For a good discussion of independence conceptions of substance from Aristotle through Port Royal, see Weir 2021.

[4] Or one could include 'x ≠ y' as a clause in the definition of dependence instead, ruling out self-dependence, in which case substances could be defined simply as beings that do not depend on anything.

improved definition from Benjamin Schnieder (2006, 412, his "Dep-7")), using the asymmetrical operator *because*:

  D2:  x depends on y =df ∃F⟨?⟩(whenever x exists, it exists because y is F at that time).

We could use a similar strategy to define a plural version of dependence, in which x depends on *the ys*.

  D2 makes two advances on D1.  First, the 'because' in D2 is a connective that can hold asymmetrically between necessarily equivalent formulas; it expresses the currently much-discussed relation or operation of being grounded in.[5]  So D2 enables us to say that {Socrates} depends on Socrates but not conversely, since {Socrates} exists *because* Socrates exists but not conversely.   Second, the dependence affirmed in D2 is dependence on something's having a certain property or standing in certain relations.  Dependence on the existence of something (as in D1) would be a special case, since 'exists' is a permissible value of 'F'.  A case of dependence in which 'F' stands for something more than sheer existence would be the dependence of my fist on my fingers:  necessarily, whenever my fist exists, it exists because my fingers exist and are clenched at that time.

  Schnieder suggests that the traditional definition of substance in terms of independence may now be stated as follows (412):

  D3:  x is a substance =df (i) x is a concrete particular & (ii) there is no item y distinct from x on
       which x depends (in the D2 sense).

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[5] For a primer on grounding, see either Rosen 2010 or Correia and Schnieder 2012.  Of the two construals of grounding distinguished on pp. 10-11 of Correia and Schnieder, I prefer the operational to the predicational, but I sometimes use the predicational for ease of exposition.

Clause (i) narrows the field down to concrete entities such as individuals, events, and tropes, excluding abstract objects such as universals and numbers.[6] Clause (ii) is supposed to take us the rest of the way, eliminating particulars that are not truly substantial by requiring independence.[7] The contrasting notion of a dependent entity would be the notion of something that may or may not satisfy clause (i), but does not satisfy clause (ii).

If the distinctness in D3 is just numerical nonidentity, $x \neq y$, two further questions arise. First, is the distinctness clause redundant? It would be if self-dependence were impossible, but is self-dependence impossible under D2? Nothing ever exists because it exists, of course. But does a thing ever exist because it is F? I doubt it myself, but someone who said 'x exists' is analyzable as $\exists FFx$ (as in Prior 1957) and worked with a conception of analysis under which the analysandum is grounded in the analysans would say otherwise—that x *can* exist because x is F. Not wishing to take sides on this issue, I retain the distinctness clause in D3, redundant or not.

Second, does D3 allow for composite substances? The parts of a whole are numerically distinct from it, so if a whole depends on its parts—not just on having some parts or other, but on having the very parts it has—the answer would be no. There could be no such thing as a

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[6] I have added 'concrete' to clause (i), as I believe Schnieder intends.

[7] But does the independence requirement rule out too much, including would-be substances themselves? That is a persistent objection to the requirement, traced through several authors in Weir. The objection is that substances depend on their properties, or at least on their essential properties, or (in the version I find most threatening) at least on their own individual essences or haecceities, if such there be. The Schnieder definitions of substance and dependence take care of this objection neatly. A substance may *entail* the existence of its own haecceity, but it is arguably not the case that the substance exists *because* its haecceity exists or gets exemplified or does anything else. If anything, the haecceity exists because the substance does, not vice versa. For discussion of these "direction of dependence" issues, see Davidson 2024.
  There are other proposed solutions to the property-dependence objection that stay with the merely modal definition of "dependence." One is Weir's, in which a substance is defined as something whose existence does not necessitate the existence of anything "over and above it," in a sense in which the properties of a thing are not things over and above it. Another solution, too elaborate to summarize here, is offered in chapter 4 of Hoffman and Rosenkrantz 1994.

composite substance. This was a theorem for many in the tradition, including Spinoza and Leibniz, who held that genuine substances are partless.[8] But other philosophers in the tradition, including Aristotle, Kant and Brentano, did allow for composite substances.[9] I return to the question how composite substances might be accommodated in section 5.

The dependence relation expressed by 'because' is stronger than modal dependence in a way that makes unnecessary a tweak in some definitions of substance. Substances, it is sometimes said, are things that depend on no *contingent* beings, though they may depend on necessary beings such as God or the number two (in the "paradox of strict implication" sense).[10] Well, they do not depend on necessary beings in the D2 sense even if they do in the merely modal sense. No would-be substance exists *because* the number two is even.

It may appear that the dependence relation defined by D2 is not strictly stronger than the merely modal relation, since x can exist because y exists without x's existence entailing y's existence.[11] Nonetheless, the full definiens of D2 does imply the definiens of D1 (as I show in the footnote), so the D2 relation is strictly stronger.[12]

By the D3 definition of substance, my fist is arguably not a substance, but a dependent entity or what Spinoza would call a mode. What about my hand, on which my fist depends? Some

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[8] Spinoza: *Ethics*, Book 1, Proposition 14 and its proof; Leibniz: *Monadology*, paragraphs 1 and 2, p. 179 in Parkinson.

[9] Aristotle: Aristotle: *Categories*, 2a11 and 8b15-19, where man, horse, head, and hand are given as examples of substances; Kant: *Critique of Pure Reason*, A434-35/B462-63; Brentano: see Chisholm 1978, 15.

[10] That is, any truth strictly implies any necessary truth, so if there is any being whose existence is necessary, nothing can exist unless that being does.

[11] Compare: P v Q can be true because P is true without entailing that P is true.

[12] Proof sketch: 1. $\exists F$ ? (whenever x exists, it exists because y is F at that time)—the definiens of D2, assumed for conditional proof. 2. To show: (x exists only if y exists). 3. ? (x exists → x exists because y is F*)—1, instantiating F to F*. 4. (x exists because y is F* → y exists). This follows from two facts: 'because' is factive, and possession of any property implies existing. 5. (x exists → y exists)—from 3 and 4; Q.E.D.

would say it is not a substance, either, since there are further things on which it depends—flesh and bone, perhaps, or particles, or Spinoza's God-or-Nature, or the spirits of Berkeley and Edwards. Where we finally bottom out in genuine substances is, of course, a core question of metaphysics.

## 3. Shadows: dependent entities or logical fictions?

In this section, I give two arguments for regarding shadows, in the literal sense of the term, as logical constructions. In later sections, I argue that many other things are also logical constructions, making them shadows in a metaphorical sense of the term.

Bertrand Russell coined the term 'logical construction', which he often used interchangeably with 'logical fiction'. (More on these notions in section 4.) His program of logical atomism consisted of identifying the basic entities or atoms, which are not constructions, and showing how other things we talk about are logical constructions out of the atoms. As a first pass at a definition of constructions, we could say this: *A*s are logical constructions out of *B*s (or are reducible to *B*s) iff every statement ostensibly about *A*s may be translated into (or is at least logically equivalent to) some statement solely about *B*s. Putative examples of logical constructions in the philosophy of Russell and others in the decades since are these: *numbers* are logical constructions out of classes; *classes* themselves are constructions out of propositional functions; *times* are constructions out of events; *nations* are constructions out of their citizens;

*mental states* are constructions out of behavior and behavioral dispositions; and *tables* are constructions out of atoms arranged tablewise.[13]

For many years in my classes, I have used shadows as paradigms of logical constructions. It is undeniably true that there is a shadow lying across my yard, I have said, but that is only to say something like this: yard, tree, and sun are so positioned that (i) owing to the tree's blocking light from the sun, there is a patch of yard that is dark, and (ii) but for the blockage, that patch would be illuminated. More generally, shadows are constructions out of source, shade, and surface—a source of light, something that blocks the light, and a surface or region from which it is blocked.[14]

Comes now Roy Sorensen with an alternative view, devoting an entire book to the subtle delineation of the properties of shadows (2008). According to Sorensen, shadows are not things that exist only in a manner of speaking as per me, but genuine entities—dependent entities, but genuine ones. A shadow is an absence of light caused by blockage—a "hole in the light" in Sorensen's short formula. It depends on its blocker and a source of light. The dependence could be spelled out as in D2 above—a given shadow necessarily exists only because a certain source, a certain shade, and a certain surface are related in a certain way.

In support of his view, Sorensen says that shadows do various things they could not do unless they really exist: they are seen, they move, they have effects.

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[13] The years since Russell have seen various weakenings and strengthenings of the underlying idea. Weaker than reducibility is the relation of supervenience, which is weaker in two ways: it need not (like a translation) hold in virtue of meanings, and it need not require two-way entailments between the A statements and the B statements, but only one-way entailments from the B statements to the A statements. Stronger than supervening upon is the relation of being grounded in, which unlike supervenience is asymmetrical and hyperintensional. On supervenience, see Kim 1984; on grounding, see Rosen 2010.

[14] A hearer of this paper has contended that shadows need not involve objects that block light, citing the "shadow" cast by the lenses of his glasses when he puts them on the table. But that phenomenon is not a shadow; it is a para-refraction, such as might also be caused by the flame of a candle. See Sorensen 146-49 for the distinction.

Do shadows really move?  G.E. Moore said no (1962, 139), and I agree.  A shadow moves only in the sense in which spring moves north with a hiker along the Appalachian Trail.  Only the hiker really moves; spring moves north just in the sense that first the trees bud in South Carolina, then in North Carolina, and so on.  The moving season is a logical construction.

But Sorensen says shadows *do* move.  Not only do shadows undergo translatory motion, but they rotate and scroll.  A spinning sphere (with its axis perpendicular to the surface below) casts a circular shadow that spins imperceptibly.  This is because shadow parts are individuated by blocker parts and inherit their motion:  if a new part of the sphere comes to prevent light from reaching region r, then a new piece of shadow has come to occupy r, and its predecessor has moved on (92-93).  If the axis of rotation were parallel to the surface (say a tabletop below), the shadow would scroll, contiguous bands of shadow moving across the tabletop and ceasing to exist just after they become the edge of the darkness (94-95).[15]  Alaska enters the night (a region of Earth's shadow) both because of its own motion and because slices of night are moving to meet it.[16]

I offer two arguments against treating shadows Sorensen's way.  One is an argument from questions without good answers—either no answers, bad answers, or arbitrary answers.  The other is an argument from Hume's Dictum—there can be no necessary connections among distinct existences, a principle I defend in Van Cleve 2023.

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[15] When the blocking part has rotated to become one of the bottom parts of the sphere, it no longer catches any light and therefore casts no shadow; any shadows it formerly cast no longer exist.

[16] Sorensen is not of one mind on this point.  He needs to individuate shadow parts by blocker parts to claim that shadows move in the indicated ways, but he also says on p. 30 that a shadow may be created by a series of distinct blockers.

*Too many questions.* If there are two opaque objects lined up between my yard and the sun, either of which would cast a shadow of the same shape in the absence of the other, which object is the blocker? Sorensen's answer is that it is the object on which the sun's light is falling (53 and 99). This answer is required background for understanding some of what I say below.

Sorensen points out a number of surprising facts about shadows as he conceives them. Two shadows can interpenetrate, violating Locke's principle that two things of the same kind cannot be in the same place at the same time (*Essay* 2.27.1). This happens when the shadow made by the sun and the Earth, a huge shadow that engulfs my backyard as part of the nighttime, intersects the shadow made by the moon and my body; the moon shadow penetrates the sun shadow (102).[17] One shadow can exist again after an interval during which it did not exist, violating another of Locke's principles—that one thing cannot have two beginnings of existence (*Essay* 2.27.1). This happens when shadows scroll as described above; just after a band has become the edge of the darkness, it ceases to exist and reappears at the opposite edge after its former blocker has rotated far enough to catch the light again.[18]

Sorensen's theory of shadows has several further consequences he does not point out. I call attention to three.

(i) One can imagine a version of shadow tag in which I must touch your shadow not with my hand or foot, but with the shadow of my hand or foot. Moreover, my shadow must not merely come to be contiguous with yours, but penetrate it. If one child moves her hand so that its

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[17] Here is another example: as you and I approach each other, each passing before a different streetlight, our shadows will approach each other and eventually penetrate before they begin receding from each other.

[18] Once again, Sorensen is of two minds. He says on p. 95 that the destroyed parts of scrolling shadows are replaced by "new shadow parts" at the opposite edge, but he also speaks of the newly emerging parts as "coming around again" on p. 96.

shadow appears to invade the shadow of her playmate, has she tagged the other? It depends. If each child is blocking light that would otherwise land on a certain spot—one child's body blocking light from the streetlamp and the other child's hand blocking light from the porchlight—the answer is yes. But if one of them thrusts her hand into the voluminous shadow of the other, thereby removing her hand from any light, the shadow of her hand is destroyed and the answer is no. She is still "it." This game requires sharp referees.

(ii) Imagine that a bird flies through a barn's three-dimensional shadow, between the barn and the two-dimensional portion of shadow lying across the barnyard. Does the shadow of the bird penetrate the shadow of the barn? No; as in the tag game above, the bird loses its shadow when it enters the shadow of the barn. Only objects on which light falls can cast shadows (53, principle 1). The bird regains its shadow when it emerges on the other side. What if instead the bird flies above the barn, between the sun and the barn's shadow? Sorensen's principles imply that since the bird is now catching the light, it has its shadow all the way. It obliterates a series of bird-shaped barn shadow parts, replacing them successively with its own shadow, which moves invisibly through the surrounding barn shadow

(iii) Suppose now that the bird is perched on an electric wire and a barn is deposited between the bird and the barnyard. The bird's shadow would remain, now surrounded by a barn shadow with a bird-and-wire shaped hole in it. There would be a hole in the barn's shadow, even if not in the composite shadow of barn, wire, and bird.

What exists in a given shadowed patch of barnyard, one shadow or two? If one, to what does it belong—bird or barn? If there really are such things as shadows, then (assuming as I do that reality is determinate) these questions must have correct answers, either the Sorensen answers

given above or those of some rival theory. Sorensen's theory implies that in the bird and barn

scenarios, there is just one shadow in any given place, and it belongs just to the bird or just to the

barn, depending on which of them is actually blocking light. Other answers are possible and

have been advocated: there are two co-habiting shadows, one belonging to the bird and one to

the barn; there is just one, and it does not belong to anything; there is just one, and it belongs to

the bird-barn fusion. As I say, if shadows are real entities, these questions arise and (more to the

point) must have correct answers; similarly for questions about whether circular shadows can

rotate imperceptibly.[19] If shadows are merely constructions, however, we need not suppose that

the questions have correct answers, any more than we must suppose a correct answer to the

question whether the average plumber has taken a trip to Jamaica.

   Similar considerations have motivated negative answers to earlier ontological questions, such

as whether there are sense data. Should we posit an elliptical sense datum to explain why the

round cup mouth viewed from an angle looks elliptical to Jones, or should we accept 'x looks

elliptical to Jones' as fundamental and unanalyzable? If there really were such items as sense

data, we would have to reckon with such questions as whether they have or lack backsides,

whether they can have an indeterminate number of speckles, and whether mine can be identical

with yours. It appears that there are either no answers or bad answers to questions like these, and

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[19] Sorensen says circular shadows can move imperceptibly, for reasons given above. Savan says they cannot, for reasons described in Sorensen 89-92.
   What of elliptical shadows? Spin an egg on a glass tabletop to make a shadow on the floor below; the shadow will change perceptibly as the egg spins. How best to describe this change? Casati and Varzi (1994) say that nothing is moving; instead there are successive outbulgings of different parts of the shadow. (This is the implication of applying what they say about holes on p. 123 to "holes in the light.") Sayan says that there is a stationary circular core and a series of bumps moving wavelike around it. Sorensen says that the entire shadow is rotating. If shadows are real entities, we must decide who is right. Or perhaps they are *all* right; perhaps "shadow plenitude" is true, and Casati shadows, Sayan shadows, and Sorensen shadows are all there, occupying the same place and doing their own things. On plenitude, see Hawthorne 2006.

that is one reason why sense data as dependent but genuine entities have been regarded as *entia non grata*.

*Hume's Dictum.* My second argument against shadows as dependent entities is based on Hume's Dictum. By Hume's Dictum I mean the principle, used extensively in Hume's philosophy, that between distinct existences there can never be a necessary connection. I interpret 'distinct' in this principle to mean something stronger than mere numerical distinctness, namely, mereological distinctness, which means having no common part. And I take a necessary connection between two things to be a metaphysically necessary connection between them whereby if one exists, so must the other. Putting these points together, we get the principle that if x and y have no part in common, then it cannot be true that the existence of x necessitates the existence of y.[20] This principle lies behind many of Hume's views, including his view that causes do not necessitate their effects and his view that no impression can depend metaphysically either on a substantial self or on a wider bundle of impressions to which it belongs.

The Schnieder definition of dependence given above was formulated only for the case in which one thing depends on a single other, but it is plainly supposed to be extendable to cover cases in which one thing depends on any number of others. For the "two others" case, we would say that x depends on y and z iff $\exists R$☐(whenever x exists, it exists because y and z are related by R at that time). In this sense, a Sorensen shadow depends on a given blocker and on a source; in

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[20] For statements or applications of the principle in Hume, see T 1.2.5.3, T 1.3.3.3, and T 1.3.6.1. In Van Cleve 2023, I defend the formulation just given as the right interpretation of Hume and also as the philosophical truth.

particular, it could not exist unless its blocker existed.[21]  But the shadow and the blocker have no common part; therefore, Sorensen shadows violate Hume's Dictum.

Hume's Dictum allows that there can be a necessary connection between a whole and its parts, the whole not existing unless each part does, since the parts and the whole are not distinct in the relevant sense.[22]  If we allow forms of constituency broader than parthood, the dictum also allows that there can be a necessary connection between Socrates and his singleton, since one is a constituent of the other.  But the sun and the walnut tree in my back yard are not constituents of the tree's shadow lying across my lawn, nor it of them, nor do they have any part in common.[23]  Therefore, Hume's Dictum decrees that shadows are not genuine existents.  If they were, there would be a necessary connection between distinct existents.  Instead they are mere constructions, which exist only in a manner of speaking; the truth about them is exhausted by what we say about source, shade, and surface.

## 4.  The way of identity and the way of paraphrase

In this section I distinguish two strategies for reducing entities, the way of identity and the way of paraphrase.  Things reduced in the first way are as real as what they get reduced to; things reduced in the second way, not.  I begin with two varieties of phenomenalism as an illustration.

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[21] Though he says a shadow depends on its actual blocker, I am not sure whether Sorensen would say a shadow depends on its actual light source.  Perhaps he would only say that if x is a shadow caused by blocker y, then ☐(whenever x exists, it exists because for *some* item z, y prevents z's light from reaching the surface or volume where x resides.  The dependence on a source would only be generic dependence of the sort I discuss in section 6.  But the dependence on the blocker is specific, and that is all I need for my present argument.
  As noted above, Sorensen is not completely consistent about blocker dependence.  On p. 30, he says a shadow can survive the demise of its blocker, as when a tree casting a shadow petrifies into stone.  The example is contestable insofar as petrification could be regarded as transformation rather than destruction.  He also says the shadow of the moon could outlast the moon itself owing to the finite velocity of light.  If he held in this case that the shadow requires the *previous* existence of the moon, it would be an even more virulent violation of Humean principles.

[22] At *Treatise* 1.4.6.8, Hume affirms mereological essentialism for masses of matter; they cannot survive the addition or subtraction of parts.  That is why I take the distinctness in Hume's Dictum to be mereological distinctness, not just numerical distinctness.

[23] On p. 37, Sorensen agrees.

According to old-style phenomenalism, endorsed by Berkeley as I interpret him, a cherry is a congeries or aggregate of ideas or sense data—a whole consisting of a patch of red (or many patches as seen from different perspectives), a feeling of smoothness, a burst of tartness, and so on.  The 'is' is the 'is' of identity, so here we have the way of identity.

According to latter-day phenomenalism, endorsed by A.J. Ayer (1946) and C.I. Lewis (1946), a cherry is not to be identified with any compound of sense data; instead, any statement about cherries may be translated or paraphrased into a long equivalent statement just about sense data. Here we have the way of paraphrase.  For example, to say that there is a cherry in front of me is to say that I am now visually sensing a red, round patch and feeling a smooth one, that if I were to have the kinaesthetic sensations characteristic of putting something into my mouth and biting, I would experience a burst of tartness, and so on (at great and perhaps even infinite length). Cherries are logical constructions out of sense data, not physical aggregates of them.

An important difference between the two ways may be brought out by considering a paradoxical remark by G.E. Moore.  Highlighting what he took to be an implication of phenomenalism of the latter-day sort (which he attributed to Russell and Mill), Moore said the following:

> Though there are plenty of material things in the Universe, there is nothing in it of which it could be asserted that *it* is a material thing.  (Moore 1918)

The remark is at first sight puzzling.  How can there be material things if there is nothing such that *it* is a material thing?   But the remark makes at least a modicum of sense once we appreciate what is involved in treating material things as logical constructions.  (See Van Cleve 1985 for further discussion.)

When Fs are logical constructions, the sentence 'there are Fs' can be true holophrastically, even if there is nothing of which it is true that *it* is an F.  We can explain this by using an important but not always sufficiently appreciated notion from Russell:  that of an *incomplete symbol*.[24]  An incomplete symbol has no meaning in isolation, Russell said, but statements containing it are meaningful and have truth conditions.  The symbol refers to nothing, but it can be provided with a contextual definition or translation scheme showing how to understand statements in which it occurs.  The original example in Russell's philosophy is 'the present king of France', which refers to nothing, but statements containing which, like 'the present king of France is bald', can be assigned truth conditions as prescribed in Russell's theory of descriptions.[25]  As his philosophy developed, Russell came to regard more and more terms as incomplete symbols, including terms for numbers, classes, propositions, and material things.  He was unfortunately wont to put this by saying that classes and the rest are *themselves* incomplete symbols.[26]

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[24] The idea, but not the term, is present in Russell 1905.  The term 'incomplete symbol' is explained in Lecture 6 of Russell 1918. The idea is arguably present earlier in Bentham's theory of paraphrasis and fictions; see Ogden 1932. It receives later enthusiastic endorsement from Quine in 1960 and 1981.  Quine offers a series of examples of "the defective noun that proves undeserving of objects and is dismissed as an irreferential fragment of a few containing phrases" (1960, 257).

[25] What of the statement 'the present Queen of England has reigned for over half a century', given that there is such person?  Russell would still say the sentence is not about her, as she is not a constituent of the proposition it expresses.

[26] John Wisdom and Susan Stebbing both fault Russell for saying such things as "classes are incomplete symbols" when he should say instead that they are *symbolized by* incomplete symbols (Wisdom 1931, 188, with a reference there to Stebbing).

In my view, shadows are almost perfect examples of logical constructions—and 'shadow' of an incomplete symbol.[27] It can be unobjectionably true to say that there is a shadow creeping across my yard, thanks to the truths into which shadow talk is paraphrasable, while at the same time it is *not* true that there is anything such that *it* is a shadow and literally on the move.

By contrast, those who say that shadows are dependent entities will say (as Sorensen does) that there are things such that *they* are shadows (and about which all of Sorensen's questions arise and must have answers). The entityhood of dependent entities is explicit in the very form of the definition of them: x is a dependent entity iff there is some item y distinct from x on which x depends. There we use a variable ranging over the entities said to be dependent, and we affirm a relation of them to other things, which we could not truly do if they were not there to stand in the relation.

I would be happier with the view that shadows are dependent entities if its proponents could find something to identify shadows with that I already believe in. I consider candidates in a moment. But first I illustrate the paraphrase and identity strategies further with another type of contested entity—holes.

The Lewises' character Argle, not wanting to admit any immaterial entities into his ontology, at first tried to deal with holes by going the way of paraphrase (Lewis and Lewis 1970). He paraphrased 'there are many holes in that piece of cheese' as 'that piece of cheese is multiply perforated', claiming the latter locution merely attributed a certain complex shape to the

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[27] Wisdom cites Moore's lectures for the definition "Xs are logical constructions =df 'X' is an incomplete symbol" (Wisdom 1931,193). That gets the idea across, but it has two liabilities I do not know how to remedy. (i) Since a definition using free variables is implicitly preceded by a universal quantifier binding them, the definition quantifies into quotation. (ii) The biconditional corresponding to a definition should be a necessary truth, but that is arguably not the case here, for the same reason the biconditional "'Snow is white' is true iff snow is white" is not a necessary truth. One side implies the existence of language and the other does not.

cheese.[28]  But Bargle came up with truths about holes that were evidently not paraphraseable in that way, such as those involving numerical comparisons:  there are as many holes in that piece of cheese as there are crackers on this plate.  Thereupon Argle gave up on the way of paraphrase and went over to the way of identity.  He admitted that there are such things as holes, but found something already in his materialist ontology to identify them with, namely, hole linings.

I have always thought Argle's second position untenable for a simple reason:  when you plug a hole, the hole is no more, but the lining remains.  The lining of a hole in a fence is simply a ring-shaped piece of wood, and that bit of matter is still there after you fill the hole.  For further objections to Argle's identification strategy, see Casati and Varzi (26-30).[29]

An easy solution to my objection may recommend itself:  a hole lining is a hole *only when* it is empty, enveloping no matter—or at any rate, no relevant matter, but only air or some stuff other than what the lining is made of.  Argle says as much on p. 25:  a hole lining is a hole partly in virtue of how it contrasts with whatever is inside it.  But it is really no good saying "the hole is the hole lining *when* the lining is empty of relevant matter, but *not* after the lining has been filled."  That is because there are no temporary identities.  If a = b at some time t, then a = b at any time when either a or b exists.[30]  If H is our original hole and L its lining and H = L at t1, then if L is filled at t2 (and thus existent at t2), you cannot say L is no longer identical with H at t2.  You can say if you like that L is no longer *a hole*, but if so, that will not be because L ≠ H,

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[28] In a remark some readers will find as puzzling as Moore's, Argle says there are holes in the cheese, but it does not follow that there are holes (22).

[29] Here is one of them, best appreciated by viewing their figure on p. 28:  a hole with circular cross sections may be larger than a hole with daisy-shaped cross sections, even though the lining of the circular hole is smaller (at least in surface area) than the lining of the daisy-shaped hole.

[30] The proof of this, as with all the important properties of identity, draws on reflexivity and Leibniz's Law.  Suppose for reductio that a = b now and that a will exist tomorrow without being identical with b.  Then by Leibniz's Law, b will exist tomorrow without being identical with b, but that is contrary to reflexivity.

but because L = H and H is no longer a hole predicatively speaking.  If you say this, you are

implying that holes are not essentially holes—an odd result, I should think, for anyone who

believes that holes are entities.  ("Is the big hole that used to be in our back yard still there?"

"Yes, although it's been filled with dirt now.")  The bottom line:  Do not say that a hole is

identical with a hole lining *when* the lining is empty.  You may say that a hole exists just when

some hole lining is empty, but that would be compatible with a constructionist approach under

which there is nothing such that *it* is a hole.

   If we renounce the way of identity for holes and go back to the way of paraphrase, how are

we to deal with Bargle's challenge about numerical comparisons?  Frank Jackson has offered an

elegant way:

> There are as many holes in that piece of cheese as there are crackers on the plate =df there are
> as many hole-linings in that piece of cheese as there are crackers on the plate (1977, 132).

In that proposal, we count holes by hole linings, but we do not identify holes with hole linings or

anything else.[31]  As Jackson perceptively notes, on his theory, holes are not anything.

   Let's now go back to shadows and apply what we have learned about holes.  (I am setting

aside the direct carryover suggested by the Sorensen slogan "shadows are holes in the light.")

Could we identify shadows with any entities already unproblematically in our ontology?  The

first candidate that comes to mind is shadowed surfaces or regions, but that suggestion will not

do.  A shadow is not identical with a shadowed surface or region for the same reason that a hole

is not identical with a hole lining:  when the light or the blocker is removed, the surface or region

is still there, but the shadow is gone.  We cannot say that the shadow is the region *when*

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[31] As far as I can see, the Jackson strategy may also be used to answer the challenges Casati and Varzi raise for paraphrase programs on pp. 177-84, since many properties of holes besides their number are also inherited directly from their linings.

shadowed, for the reasons we have just discussed.  Moreover, regions are incapable of doing some of the things that true believers in shadows think shadows can do.  Shadows allegedly move and grow, but regions do not.

Could a shadow be identified with a *sequence* of regions (or temporal parts of regions)—the sequence of regions or temporal parts of regions successively shadowed by a given blocker and source?  Then we would not have to say that the shadow is still there when the blocker is removed, for the region parts that are there after the removal are not parts of the shadow.  We could also accommodate movement and growth; for instance, a shadow grows when later members of its sequence are larger than earlier members (which does not imply, of course, that any region has increased in size, but only that some regions in the sequence are followed by larger ones).

There are two problems with the strategy of identifying shadows with sequences of regions.  First, sequences do not have the same modal profile as shadows.  A shadow as entity is supposed to be a dependent entity, depending for its existence on the existence of a certain blocker, but the sequence might have existed in the absence of the blocker.  Similarly, the shadow would have been smaller had my tree been trimmed—but the sequence with which it is supposedly identical would not have had smaller or fewer members.  Second, to square our supposed identification with Leibniz's Law, we must change the meaning of some of the predicates applied to shadows when they are applied to sequences.  We have just seen an instance of this; the sequence does not grow in the same sense as the shadow, but in the sense of having later members that are larger.  Such change in the meaning of predicates is one of the marks of logical constructions.[32]

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[32] As Wisdom used to say, when *A*s are logical constructions out of *B*s, to say anything about *A*s is to say something, though not necessarily the *same* thing, about *B*s.

Of course, none of the obstacles I have raised for identifying shadows with anything already in our ontology would prevent a true believer from identifying them with something—namely, shadows!  The true believer could simply invoke Bishop Butler's maxim—"A thing is what it is, and not another thing."  My resistance evidently presupposes an approved inventory of basic entities and building operations out of which all other entities are generated, a presupposition I simply take for granted here.

I close this section by addressing two questions: (i) how are logical constructions related to logical fictions?, and (ii) how are logical fictions related to contemporary programs that go under the name of fictionalism?

(i) How are logical constructions related to logical fictions?  As far as I can see, Russell uses the terms interchangeably.  If I had to regiment his usage, I might suggest something like the following:  If Xs are reducible entities, call Xs logical fictions when you do not find anything to identify them with, but simply explain how to use sentences in which 'X' occurs, as in the way of paraphrase.  Call Xs logical constructions when you *do* find something to identify Xs with, as in the way of identity.[33]  But Russell himself does not adhere to any such convention, and neither shall I.  I will use 'logical construction' and 'logical fiction' interchangeably for purported entities that get reduced via paraphrase.  Entities that are dealt with via identity will be either dependent entities or substances, depending on the dependence or independence of what they are identified with.

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[33] Bernard Linsky (2019) seems to say something similar, linking logical constructions with explicit definitions and logical fictions with contextual definitions, but he then contradicts this by linking classes both with explicit definitions and with fictions.

Far from observing a distinction between the way of identity and the way of paraphrase, Russell sometimes offers up unholy hybrids of the two. He and Whitehead went the way of identity with points, identifying a point with an infinite class of nested volumes (or rather with an equivalence class of such classes; see Broad 1923, 30-51, for exposition of the method). But with classes, Russell went the way of paraphrase, claiming that everything you want to say about classes can be said about propositional functions instead (1918, p. 265 in Marsh or p. 136 in Pears). If class talk is paraphraseable away and 'class' is an incomplete symbol, you have not got anything by way of classes to identify points with. A class is not identical with anything, and therefore no point is identical with a class.[34]

(ii) How are logical fictions related to contemporary fictionalist programs? There are a number of fictionalisms out there, of which the one I like best is the one explicated and espoused by Stephen Yablo (2001). For Yablo, what would be literally true in a sentence like 'there is a shadow creeping across my yard' (or 'the number of oranges on the table is two') is its *log*. As the logarithm of *n* with respect to some base is the power to which it must be raised to get *n*, so the log of a sentence S with respect to some scheme of things is the worldly condition to which that scheme must be applied to arrive at S. By abbreviatory coincidence, we could also say that the log of a sentence is its *logos*—that which serves in the scheme as a reason for asserting S.

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[34] Russell is aware of the situation to some extent, noting that since numbers are classes of classes and classes are fictions, numbers are fictions at two removes (1918, 270 in Marsh or 141 in Pears). What he is not aware of is the impossibility of going the way of paraphrase at one level and the way of identity one level up.

Russell is not the only philosopher who deals in unholy hybrids. In their relational accounts of space, Leibniz and E.J. Lowe both give a relational account of places, then identify space with the totality of places. But they define places only contextually, saying that a thing is in the same place that it was in previously when it bears the same relations to other things chosen as landmarks (Leibniz 1704, 92) or that an unoccupied place exists at a certain distance and direction from a certain object =df it would be possible for the object to move that distance in that direction (Lowe, 265). Leibniz and Lowe do not really provide any places for space to be identified with.

But if we are fictionalists about the entities in question, we will back off from asserting S—we will only assert its log.

I suggested above that if we go the way of paraphrase with Xs, we can make sense of the Moore sentence 'There are Xs, but there is nothing such that *it* is an X.' I find that some of my readers and hearers balk at that sentence, perhaps even regarding it as contradictory.[35] Such readers may fall in with Yablo as a more acceptable substitute in their way of thinking. When you are not willing to allow that there is anything such that *it* is an X, don't say that there are Xs, either. Do not assert that there are shadows; only assert those facts that serve as the log for such assertions in the shadow scheme.[36]

The connection between cases in which Xs genuinely exist and cases in which there is something such that *it* is an X will be important in sections 7 and 8 below. We will see that some would-be proponents of ontological permissivism never come up with the required *it*.

## 5. The return of Spinoza and the threat of nihilism

Do my reasons for regarding shadows as third-class entities (mere logical constructions) generalize to an untenable extremism? That way lies Spinoza, intimates Sorensen in opposing a

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[35] As one last attempt to win over such readers, let me introduce the term 'Billary' by stipulating that Billary exists iff either Bill Clinton exists or Hillary Clinton exists. I claim it is true under that stipulation that Billary exists, but that there is nothing such that *it* is Billary. What would it be? Not Bill, since Billary can exist without him; not Hillary, for the same reason; not their fusion, for the same reason again; and not their disjunctivum, for there are no disjunctive entities.

Someone may protest: "You haven't introduced 'Billary' as a term, but only as part of a larger expression, so how can you even raise the question whether a given thing is Billary?" Just so—and perhaps a better way of making my point!

[36] Or in van Inwagen's method of paraphrase, which may be used to similar effect, we say there are no Xs, but not to worry, since we can still accept paraphrases of 'X' talk (1990).

constructionist approach to shadows.[37]  If you insist that only independent entities truly exist, you will be left only with Spinoza's One Substance.

I am not convinced that the number of independent entities would have to be *one*, despite the case for this contention advanced by Jonathan Schaffer (2010) and discussed below in note 44 and section 9.  I can see a case, however, for supposing that the number of independent entities might turn out to be *zero*—for chains of dependence might be endless, as Sorensen also intimates.

Here is an argument whose conclusion I must somehow avoid:

1.  Composite entities, if they are entities at all and not mere constructions, would be dependent entities, depending on their parts.

2.  Entities that would be dependent entities if they were entities at all should be treated as logical constructions, existing only in a manner of speaking.

3.  Therefore, composite entities are logical constructions.

4.  It is possible that *all* entities are composite—that there are parts within parts forever and no ultimate parts.

5.  Therefore, it is possible that all entities are mere constructions.

5.  Therefore, it is possible that all entities are mere constructions.

What the conclusion affirms as possible is a form of nihilism that is *not* possible.  The impossibility lies not in the thought that nothing exists, but in in the idea that everything is a construction without there being any raw materials for the constructions to be built on.

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[37] He calls the approach "eliminativist" (p. 83), but I reserve that term for views that would put shadows in my class 4.

Constructions are fictions based somehow on realities, and it is not possible to have fictions without realities.[38]

Step 5, the conclusion of the nihilist argument, follows from premises 3 and 4.  Premise 4 asserts the possibility of what David Lewis calls "atomless gunk."[39]  That is a possibility I have endorsed, at least as a possibility (Van Cleve 2008).  Therefore, if I reject 5, I must deny 3, which would in turn oblige me to deny either 1 or 2, since together they imply 3.  May I deny either of them?

I expect some readers to say no.  "Composite entities are clearly dependent," they may say, "so you must accept premise 1.  Moreover, the whole tenor of your discussion is to treat dependent entities as constructions, as premise 2 enjoins.  It sounds as though you would adopt a variant of Russell's maxim:  whenever possible, logical constructions are to be substituted for dependent entities.[40]  So how can you possibly avoid being committed to step 3?"

Io reply, I do advocate substituting logical constructions for *some* types of dependent entities.  Previously in this paper, I have said that whenever you encounter an apparent case of one entity depending on an entity *other than one of its own parts*, you should treat that entity as a construction.  That is why I advocate treating shadows and holes as constructions.  But that

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[38] As Leibniz put it, "Where there is no reality that is not borrowed, there will never be any reality, since it must belong ultimately to some subject." (Leibniz to de Volder, quoted in Adams 335)

[39] Lewis 1991, 20. I do not like the term 'gunk'—it connotes something altogether too viscous and unpleasant.  I prefer to think of atomless matter as being like infinitely fine sand.

[40] Here are Russell's words: "Whenever possible, substitute constructions out of known entities for inferences to unknown entities" (Russell 1924, 326 in Marsh and 161 in Pears).  Carnap rephrased it thus: "The supreme maxim in scientific philosophizing is this: Whenever possible, logical constructions are to be substituted for inferred entities" (Carnap 1928, 5).  Russell's motives are mainly epistemological, mine metaphysical.

restricted maxim lets other composite entities remain safely above the line in class 2; it does not enjoin treating them as constructions.

Nonetheless, I have gone further elsewhere and swept into class 3 many supposed dependent entities that depend only on their own parts, such as tables and other artifacts (Van Cleve 1986). If I do not accept the need for atoms, how do I stop the march to nihilism?

To answer this question, I distinguish three ways in which a composite entity may depend on its parts.

First way: in accordance with the classical definition of dependence, D1 above. Like Hume, I am a mereological essentialist; I believe it is a dictate of right reason that if an aggregate or sum has *a*, *b*, and *c* as parts, then it cannot exist without having precisely those things as parts. So composites depend on their parts in the D1 sense..

Second way: in accordance with Schnieder's improved definition of dependence, D2 above. I state it again with an extension to the case of dependence on two things, not just one:

D2a: x depends on y and z =df ∃R⍰(whenever x exists, it exists because y and z are related by R at that time).

We could easily extend the definition to an arbitrary number of dependees or state it using plural variables: x depends on the ys iff, etc.

Many composites arguably depend on their parts in the D2a sense as well as the D1 sense. Consider a whole x composed of y and z. There is almost bound to be a relation R such that necessarily, whenever x exists, it does so because y and z stand in that relation. If x is a hammer composed of head y and handle z, perhaps R will be the relation of being joined together in the

right way. If x is a mere aggregate of y and z, perhaps (as I think) R will be the relation of simply coexisting. Either way, x will depend on y and z in the D2a sense.

Third way: in accordance with a third definition of dependence I now state. This definition will cover the way in which tables and chairs depend on their parts. We arrive at it by adding one more clause to Schnieder's definition—that the relation R in the definiens be *accidental to its relata*:

D2b: x depends on y and z =df ∃R(R is accidental to y and z & ? (whenever x exists, it exists because y and z are related by R at that time).

To say that R is *accidental to its relata* is to say that it is possible for y and z both to exist without standing in R. Entities that count as dependent on their parts according to D2b are those that are conceived of as having not only their matter essentially, but also a certain form essentially. For example, if it is deemed essential to a certain table that its legs and its top not only exist but be fastened together in a certain way, the table would be dependent on its legs and its top in the D2b sense. Their being fastened together, though accidental to the existence of these parts of the table, would be essential to the existence of the table.

By contrast, there is one variety of wholes—namely, mereological sums or aggregates—that are *not* dependent on their parts in the D2b sense. At any rate, this would be the case if one adopts (as I do) the assumption of mereological universalism, according to which any things whatsoever, no matter how scattered and disparate, automatically compose a whole. There thus exists a composite entity consisting of the Eiffel Tower and my nose. Crazy though it seems to many, this is a view I have previously defended (Van Cleve 1986 and 2008). If it is true, mereological sums are not dependent on their parts in the D2b sense because they do not depend

on their parts being arranged in any certain way.  They only depend on the sheer existence of their parts.  You may say that sums depend on the relation of coexistence among their parts, but that relation is not accidental to its relata—it must hold so long as the relata exist.

Now I can explain how the threat of nihilism is averted.  Anything that is a compound of matter and essential form—tables, chairs, statues, and much of the furniture of the universe—is a dependent entity in the D2b sense, or would be if it was an entity at all.  There are motives that lead some philosophers to sweep such entities into class 3.  Perhaps there would be too many of them in a given place; perhaps they have too loose a relationship to their own parts; perhaps their existence conditions are intolerably vague or too hard to state.[41]   But none of these motives extends to sheer material aggregates, which are dependent entities only in the D2a sense, not in the D2b sense.  One who demoted all would-be dependent entities in the D2b sense to constructions would not have to do the same for dependent entities that were such only in the D2a sense.  So to the objector of several paragraphs back, I reply as follows:  the sense of dependent entity under which I might allow premise 2 (namely, D2b) is a sense under which I would deny premise 1; by the same token, the sense of dependent entity under which I would affirm premise 1 (namely, D2a) is a sense under which I would deny premise 2.  Taking gunk seriously need not be flirting with nihilism.

Mereological aggregates need not be regarded as mere constructions, but do they qualify as substances?  That question was left hanging in section 2—are there any composite substances?  I am now in a position to answer.  If we let the definition of substance remain as before, in terms

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[41] These are among the motives of Bertrand Russell (1918), Roderick Chisholm (1976), and Peter van Inwagen (1990).

of no dependence in the D2a sense, aggregates are dependent entities. If we let it incorporate instead the new D2b sense, aggregates are composite substances.[42]

Although the hypothesis of atomless gunk may be saved from the objection that it makes everything a mere construction, it still faces a second objection—that an endlessly descending series of parts, even if all of them robustly exist, would violate the well-foundedness of the grounding relation. Here, then, is another argument whose conclusion I must somehow avoid:

1. Wholes are grounded in their parts. Every whole has some decomposition into parts such that the whole exists because the parts do.

2. The relation of grounding is well founded. There cannot be endless downward chains of grounding not anchored either in fundamental entities at the bottom of the chain or outside it.[43]

3. Therefore, there cannot be parts within parts forever with no ultimate parts. There must be atoms.

The well-foundedness requirement is affirmed by many theorists of grounding, including Schaffer (2010) and Bennett (2011). I have considered denying it, at least in the case of mere matter. I do find something disconcerting about structure within structure all the way down (as you would have with horse statues composed of horse statues *ad infinitum*), but I am not quite so perturbed by the prospect of matter within matter all the way down (as you would have with

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[42] Schnieder wants to allow that there are composite substances—substances having other substances as parts. "Whatever is solely composed of substances is a substance itself" (395). But if one assumes mereological essentialism, his definitions (D2a and D3) do *not* allow for composite substances. Perhaps Schnieder would deny mereological essentialism. One who does not do that must do what I do here: embrace mereological universalism and define substances in terms of D2b independence.

[43] 'Outside it' is meant to accommodate possibilities such as this one: there are smaller and smaller nested volumes *ad infinitum*, but every volume in the series is composed of points that do not belong to the series. This possibility would exemplify the second of the three conceptions of well-foundedness distinguished in Rabin and Rabern 2016.

gunk).  Unfounded chains of grounding in the D2a sense might be okay even if unfounded chains in the D2b sense are not.  On balance, though, I find that a general requirement of well-foundedness commands enough credence that I should find a way not to flout it.

A better response for the denier of atoms would be to deny the first premise in the argument of two paragraphs back—that wholes are grounded in their parts.  There are two ways in which one might do this.  The first is to hold, as Schaffer does, that the true priority runs in the *opposite* direction:  parts are grounded in wholes.  In his monistic view, every part of the universe is grounded in that whole which is the universe itself.  That is not my way.[44]  The second is to hold that priority does not hold in *either* direction—parts are not grounded in wholes, nor wholes in parts.  A whole *entails* the existence of its parts, and their existence entails its existence, but neither exists *because* the other does.  Parts and wholes are co-fundamental.[45]  This, I believe, is the best way for a believer in gunk not to run afoul of the well-foundedness of grounding.

In taking this tack, I am taking back something I provisionally affirmed in discussing the threat of nihilism—that wholes are dependent on their parts in the D2a sense, existing because their parts do.  Instead, they are only dependent on their parts in the old modal sense, D1, necessarily existing only if their parts do.  Premise 1 in the argument for nihilism I now deny under both the D2a and D2b senses of dependence.

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[44] Here is one of my reasons for resisting Schaffer's monism:  If a given part is grounded in the existence of the entire cosmos, then for some property F, the part exists because the cosmos is F.  What is F—what must the cosmos "do" to make that part exist?  Do not say:  the cosmos must be such that the part exists.  Any statement of the form *x is such that P* (where 'P' is a closed sentence) is equivalent to *x exists & P*.  Therefore, we would be saying "the part exists because the cosmos exists and the part exists," which is of the form *P because Q & P*, which violates the strong irreflexivity of grounding.  So what *is* the partmaking property on Schaffer's view?

[45] In saying this, I must deny Schaffer's "no overlap" condition on fundamental entities (2010, 38-39), but doing so is fine with me.

There are those who advocate "composition as identity"—a whole *is* its parts (Cotnoir and

Baxter 2014).  Since grounding is irreflexive, such theorists have a good reason for denying that

a whole exists *because* its parts do.  It is not a reason I share, though, since I cannot make sense

of alleged identities with a singular term on the left and a plural term on the right.

## 6. Dependence, specific and generic

Dependence as defined by Schnieder is *specific* dependence:  x exists only because a certain specific item y exists and is a certain way.[46]  There is also what we might call *generic* dependence:  x exists only because there is *something or other* that has certain (accidental) features and/or is related to y in a certain (accidental) way.[47]

   We may define generic dependence as follows:

   D4:  x depends on there being something F =Df □(whenever x exists, it exists because ∃y(y is F at that time).[48]

A generically dependent entity would then simply be any entity that satisfies the definiens of D4 for some value of 'F':

   x is a generically dependent entity =df ∃F□(whenever x exists, it exists because ∃y(y is distinct from x & y is F at that time).

For simplicity from now on, I let the 'y is distinct from x' clause simply be understood.

   For mereological essentialists, the dependence of a mereological aggregate on its parts is specific dependence:  the whole cannot exist unless *those very parts* exist, and it exists because they do (though I saw fit myself to deny the 'exists because they do' clause in the preceding

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[46] I use 'x exists only because y exists and is a certain way' as short for the definiens of D2, '∃F□(whenever x exists, it exists because y is F at that time)'.

[47] One might tempted to refer to these two varieties as dependence *de re* and dependence *de dicto*—except that specific dependence and generic dependence are actually both *de re* insofar as the variable x in the definitions of them has free occurrence within the scope of the necessity operator.  Specific dependence could be said to be "doubly *de re*," insofar as the variable y for the dependee also has free occurrence inside □ in the definition, whereas in the definition of generic dependence I am about to give, y only occurs as bound by an existential quantifier.
   What I am calling specific dependence is sometimes also called *rigid* dependence, as in Schnieder 2006 and Tahko and Lowe 2020.

[48] It turns out that the existential quantifier could go to the left of the 'because' operator just as well as to the right.  Here is why:  the existential '∃y(y is F at that time)' must be grounded in or hold because of some particular instance of it, e.g., y* is F at that time.  By the transitivity of grounding, if x exists because ∃y(y is F at that time), x exists because y* is F at that time.  By existential generalization, ∃y(x exists because y is F at that time).

section).  The dependence of sets on their members and that of events or tropes on their subjects

are also arguably cases of specific dependence.

The dependence of an Aristotelian or Armstrongian universal on individual things that

exemplify it is generic:  the universal exists only because *some individual or other* exemplifies it

(Armstrong 1978, 68-69 and 113, or Armstrong 1989, 75-82).[49,50] For mereological

inessentialists, the dependence of an ordinary whole on its parts is also merely generic; a whole

must obviously have some parts or other (and exist because they do?), but it need not have the

very parts it does.  It can gain some and lose others.

Boundaries as conceived of by Brentano afford an interesting case of generic dependence.[51]

There are such things as points, lines, and surfaces, according to Brentano, but they exist only if

some solid or other exists of which they are parts.  The utmost tip of a cone can exist only if

there is some solid of which it is the extremity, but it need not be the whole cone; it could be just

the top half or the top third or the top one millionth, just so long as it is something three-

dimensional.[52]

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[49] To get an instance of D4 covering this case, let 'Fy' = y is an individual that exemplifies x.

[50] Do individuals also depend generically on universals, giving us a case of mutual generic dependence?  If generic dependence were only defined modally, the answer would be yes.  For every universal, there would have to be some individual or other that exemplified it, and for every individual, there would have to be some universal or other that it exemplified—there cannot be bare individuals.  But if generic dependence is defined with *because* as in D4, the answer is not so straightforward.  A case of mutual dependence in a sparse world with just one individual, x, and just one universal, U, would be a case in which x exists because x exemplifies U and U exists because x exemplifies U.  This would not be a case in which we violate the asymmetry of *because*, but it would be a case in which something weird happens— the holding of a relation precipitates the existence of both relata.
  Elizabeth Barnes has cited the dependence of Aristotelian universals on individuals and the dependence of individuals on whatever universals they possess essentially (their essential kinds) as a case of mutual dependence (Barnes 2018).  In my view, this is not a legitimate case, since the dependence is generic in one direction and specific in the other.

[51] See Chisholm 1983 for references to Brentano and an account of boundaries inspired by him.

[52] Casati and Varzi seem to be like Brentano in the way they think of surfaces; see their 1994, 18-19.  However, I believe there may be an error in their definition of 'the surface of x' on p. 12 as 'the part of x that overlaps all those parts of x that are in contact with the complement of x.'  There is no unique such part, but many, and one of them is x itself.

Shadows as theorized about by Sorensen exhibit specific dependence on their blockers, but I do not know whether he thinks their dependence on a light source is specific or generic.

Hume's Dictum (there are no necessary connections between distinct existences) may be used as a ban against entities that are specifically dependent on entities distinct from themselves. Indeed, I used it above for that purpose against Sorensen shadows. It is not so clear, however, whether it can be used as a ban against entities that are only generically dependent on entities distinct from themselves.[53] What should a Humean think about generically dependent entities?

David Lewis, taking himself to be following in Hume's footsteps, advocates what he calls a *patchwork principle* for possibility:

> If it is possible that X happen intrinsically in a spatiotemporal region, and it is likewise possible that Y happen in a region, then also it is possible that both X and Y happen in two distinct but adjacent regions. There are no necessary incompatibilities between distinct existences. (Lewis 1983, 77)

The idea is that if you can have a Humean mosaic containing a red tile and another containing a green tile, you can also have one containing a red tile next to a green tile.

It would be Humean in spirit also to affirm a *reverse patchwork principle*, according to which you can destroy any tile or pluck it away without destroying its neighbors. More precisely, you can erase (without replacement) whatever lies in any of the regions around a given region without erasing anything that exists within that region itself. If you erase Socrates, Xantippe is no longer a wife, but she still exists. Lewis subsequently took up the reverse principle as well, lumping it together with the original under the name *principle of recombination* (1986, 87-88).

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[53] Hume's argument against the necessity of the principle of universal causation contains a non sequitur related to the specific/generic distinction. He uses his Dictum to show that for any conjectured specific cause C of E, it is possible for E to occur without having been caused by C (*Treatise* 1.3.3.3). He erroneously thinks he has thereby shown that it is not necessary that every event has some cause or other.

The reverse patchwork principle excludes some generically dependent entities from genuine being and consigns them to class three, including Sorensen shadows if they are held to be generically dependent on light sources. The reverse patchwork principle implies that if I shoot out the streetlamp across the street from my house and replace it with no other source of light, I do not thereby make anything in my yard cease to exist. Therefore, there did not exist previously any such entity as the shadow cast on my lawn by the tree between my house and the lamp, conceived of as being generically dependent on a light source if not on that particular lamp. There were only the tree, the lamp, and the lawn, some parts of which were darker than others owing to the tree's blocking light from the lamp.

The reverse patchwork principle also excludes from being such supposed entities as Eli Hirsch's incars and outcars (Hirsch 1976, 361-62). An incar is any car or portion thereof that is inside a garage; an outcar is any car or portion thereof that is outside a garage; and the associated conditions of identity are such that nothing at any time or in any world could be identical with a given incar at a given time unless it was inside a garage. Incars are generically dependent entities, depending for their existence (and not just for their being correctly classifiable as incars) on garages. The reverse patchwork principle implies that there cannot be entities like that.

Boundaries *bei* Brentano are *not* excluded by the reverse patchwork principle. Put a grid however fine around any point, and you can erase what is outside any cell without erasing what is inside—the point is still there along with some solid support, on which it has generic dependence. If there were a grid so fine that its cells could include only a single point, I could according to the reverse patchwork principle destroy everything outside any cell without destroying the point within it, showing contrary to Brentano that the point did not depend on

there being anything outside itself.  But Brentano would say there is no grid so fine that its cells include only single points—if there are no points of matter that are not parts of larger tracts of matter, then for similar reasons, there are no grids that have point-sized holes.

How do immanent universals fare under the reverse patchwork principle?  It depends on where they are located relative to their instances.  If they are anywhere, I suppose they are precisely where their instances are (and thus susceptible of multiple location, as is the way with universals).  Since the reverse patchwork principle is couched in terms of erasing things in neighboring regions, it says nothing about immanent universals.

To recapitulate the results of this section:  I have suggested that some supposed entities that are specifically dependent on entities other than their own parts, such as shadows dependent on their blockers, should be relegated to class three out of respect for Hume's "no necessary connections between distinct existences" principle.   I have also suggested that some supposed entities that are only generically dependent on entities other than their own parts, such as shadows generically dependent on their light sources, should be relegated to class three out of respect for the reverse patchwork principle.  But there are other generically dependent entities, including immanent universals and Brentanian boundaries, which for all that has been said so far may remain in class two.

It may be that Hume himself held his Dictum in a form stronger than anything I have considered so far—in a form implying that for anything whatever, it could exist even though nothing mereologically distinct from it existed.[54]  But the Dictum in that form would be not so

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[54] See, for instance, T 1.4.5.5, where Hume says that under the definition of substance as "something which may exist by itself," anything whatever counts as a substance.

much a reason for denying the existence of generically dependent entities as a decree that none exist.

## 7. Aristotle or Quine?

In an influential article (2009), Jonathan Schaffer contrasts Aristotelian and Quinean metaphysics. For Quine, the central question of ontology is *What exists?* For Aristotle, the central question is *What things are fundamental?* In other words, which things are substances and which things are dependent on substances? Schaffer advocates a return to Aristotelian metaphysics. The sheer existence questions are trivial, he says, while the dependence questions carry all the interest.

I agree with Schaffer on the interest of dependence questions and the importance to metaphysics of an asymmetrical grounding relation such as he discusses. But I take issue with his self-proclaimed *permissivism*—his contention that affirmations of existence in metaphysics should generally be accepted as obvious and that many denials of existence are really misdescribed denials of fundamentality.

In debates about whether φs exist, some metaphysicians sometimes tell other metaphysicians what their affirmations or denials of the existence of φs really amount to. Case in point: Eli Hirsch (2005) contends that the debate about whether arbitrary mereological sums exist is verbal, in the sense that each side can assign truth conditions in his own language to what the other side asserts under which it comes out true. As a mereological universalist, I assert that there is an object composed of the pencil on my desk and the coffee mug on the cabinet. According to Hirsch, the truth conditions of my affirmation are given by the following statement, which both sides can agree is uncontroversially true: there is a pencil on my desk, and there is a coffee mug

on the cabinet.[55]  More generally, when the universalist says that an object composed of A and B

exists, he is just saying that A exists and B exists.  I protest that there are things the universalist

says that Hirsch's paraphrase cannot capture.  For example, I claim that there is an item x

composed of the pencil and the mug, and that it (x) is not identical with either the pencil or the

mug.  How can the Hirschian conciliator make sense of that 'it'?  His language affords no

antecedent for 'it' to refer to.

For another case in point, we may return to Schaffer, who says this:

> When the mereological nihilist denies that fusions exist, what she is denying is that such
> entities *ultimately* exist—she is denying that such entities are fundamental (p. 361).

Yes, that may well be the nihilist's *premise*.  But it would be presumptuous to think the nihilist

can mean nothing more than that by way of conclusion.

Schaffer cites seven metaphysical debates that are purportedly about what exists, but which

according to him are really about what is fundamental.  I shall comment on three of them.

*Realism versus Berkeleian idealism*.  Schaffer thinks there is really no question of existence at

issue between commonsense realists and Berkeleian idealists.  "If a rock is mind-dependent as

per Berkeley (for the rock to be is for it to be perceived), and it is in fact perceived, then does it

not thereby have being?" (n. 16).  The only point of debate, Schaffer thinks, is whether rocks are

mind-dependent or not.

I think the answer to the question whether rocks exist in Berkeley's scheme of things depends

on two further issues not considered by Schaffer.  Suppose we say that for Berkeley (i) a rock is a

collection or congeries of ideas, and (ii) that ideas are objects rather than sensory states.  Then

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[55]2005, p. 16.  Hirsch actually applies this strategy to the dispute over *temporal* sums, such as the "first wood, then ceramic" object composed of the present temporal part of my pencil and a later temporal part of the mug, but it applies equally well to the dispute over spatial sums of contemporaneous objects.

Schaffer would be right: rocks exist in Berkeley's philosophy, though they are mind-dependent. After all, ideas exist, and composites of co-bundled existing things exist, so rocks exist. But suppose Berkeley held a phenomenalist view of the latter-day sort discussed in section 4, under which point (i) is false. Then there would be nothing in his ontology such that *it* is a rock. Or suppose that ideas are not objects as in point (ii), but modifications of the mind—putting it more carefully, that for a red idea to exist is for someone to sense redly.[56] Then there would not even be something such that *it* is an idea for Berkeley.[57] So Schaffer's verdict about the existence of rocks presupposes prior commitment to points (i) and (ii), which not all phenomenalists accept.

*Platonic realism versus nominalism*. Schaffer says the debate is not (or should not be) about whether properties exist, but about whether they are fundamental. The realist regards them as fundamental, the nominalist as derivative. I say the existence question turns on a distinction to which Schaffer is insensitive. If the nominalist finds something to identify properties with—for example, if he says that properties are classes of resembling tropes—then yes, properties exist. But if the nominalist is an ostrich nominalist, who says that '*a* exemplifies redness' is simply an inflated paraphrase of '*a* is red', then the answer is no.[58] For such a nominalist, there is nothing such that *it* is a property.

In this connection, I should say something about Schaffer's contention that the existence of properties follows from a truism. Here is the argument, using his numbering (358):

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[56] The issue whether Berkeleian ideas are sensory objects or sensory states is discussed in Winkler 1989 on pp. 3-10 and 290-309.

[57] Winkler favors the object construal of ideas, but there are also considerations favoring the state construal. The principal one is this: if ideas are objects, it is hard to see why their *esse* should be *percipi*. We can invoke Hume's distinct existences principle again: if ideas are objects distinct from minds, it should be possible for them to exist without being perceived by any mind. Hume himself says as much at *Treatise* 1.4.2.39.

[58] For explanation of the term 'ostrich nominalism', see Armstrong 1978, 16; for a defense of the doctrine, see Van Cleve 1994.

3. There are properties that you and I share (alleged truism).

4. Therefore, there are properties.

I say that the truth in 3 can be captured by using quantification into predicate position: $\exists F$(you are F and I am F). Moreover, I hold with Arthur Prior (and against Quine) that quantification into non-nominal position is not ontologically committing.[59] Only quantification into nominal position is ontologically committing.

*Substratum theories versus bundle theories of individual objects.* Schaffer says both sides in this debate accept the existence of individuals; the question is whether individuals are fundamental or built out of properties. I agree that for a traditional bundle theorist, who says that an individual is some sort of class, collection, or sum of co-instantiated properties, individuals exist. But for the "new bundle theorist" described in Van Cleve 1985 and Dasgupta 2009, they don't. Properties are instantiated and some of them are co-instantiated with others, but there is nothing that instantiates them. This view is a purely Platonic view in which (to put it paradoxically) properties are the only substances. There is nothing in this scheme such that *it* is an individual.

In short, some of the existence claims Schaffer finds trivial are not genuine existence claims at all, insofar as there as nothing with which one could plausibly identify the supposed existent.[60]

## 8. Easy ontology

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[59] See my 1994 for some remarks in this direction. At the time, I did not know about Prior's work, but I would now refer the reader to Prior 1971, chapter 3, for defense of non-nominal quantification and its ontological innocence. I have also found reinforcement in Rayo and Yablo 2001. One reason for holding that ontological commitment into predicate position is not ontologically committing is this: a quantified statement should have no commitments not carried by its instances, and Quine himself holds that 'Tom is bald' has no commitment to baldness. Therefore, neither does '$\exists F$(Tom is F)'.

[60] I wonder how far Schaffer would go with his ontological permissivism. It is probable to degree 0.9 that it will rain tomorrow: May that be given a trivial rewrite, to be taken with ontological seriousness, as 'there is a 0.9 probability that it will rain tomorrow'? Can anyone find anything to identify that with?

Another philosopher on the contemporary scene in addition to Schaffer who would take issue

with my ontological austerity is Amie Thomasson. Like Schaffer, Thomasson believes that

ontological claims typically follow by trivial inferences from undisputed facts. The following is

one of the paradigms in her program of "easy ontology" (2013):

1. I ate two bagels.

2. The number of bagels I ate is two (from 1 plus a transformation rule).

3. There is a number (from 2).

Statement 2 is supposed to be a permissible rewrite of 1 using a trivial transformation rule, and 3

is supposed to be a conclusion that follows equally trivially from 2.[61] Thus no nominalist should

take exception to the existence of numbers. Similar procedures are supposed to establish the

existence of properties, propositions, events, and ordinary objects like tables (*contra*

mereological nihilists or compositional conservatives like van Inwagen).[62]

I dispute the triviality of Thomasson's inferences, since there are parallel inferences that yield

conclusions no one would accept. Here is one of them:

1. The number of plumber's children divided by the number of plumbers is 3.2.

2. The average plumber has 3.2 children (from 1 plus a transformation rule).

3. There is such a thing as the average plumber (from 2 by an easy inference).

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[61] The inference from 2 to 3 could be authorized by the principle that only existing things have properties or stand in relations, including identity. This is a principle denied by Meinongians with their distinction between *Sein* (existing) and *Sosein* (having properties). Does Thomasson think Meinongians flout trivialities?

[62] Thomasson distinguishes three progressively more liberal varieties of easy ontology: that of the neo-Fregeans (to be discussed below), that of Stephen Schiffer, and her own (Thomasson 2015, chapter 3.) Schiffer and Thomasson are more liberal than the neo-Fregeans in not requiring the initial undisputed premise to be an identity or a biconditional, and Thomasson is more liberal than Schiffer in not requiring the initial premise to be conceptually distinct from the conclusion. She is also more liberal than Schiffer in allowing easy inferences not just to abstract objects like properties and propositions, but also to concrete objects like tables.

4. Something has a non-integral number of children (from 2 and 3).

Thomasson would classify this objection as a "bad company" objection to her program, and she devotes a chapter to showing how to avoid such objections (2015, chapter 8). She puts three constraints on the legitimate introduction of new terms and their correlated sorts of entities, the relevant one in the present case being the requirement that any new term be accompanied by a rule that gives identity conditions for things of the sort.[63] She uses this requirement to exclude an easy argument for the existence of *sakes*, as in 'John did it for the sake of Mary.' Sakes are one of Quine's examples of *entia non grata*, and Quine thinks we can avoid commitment to them simply by paraphrasing 'John did it for the sake of Mary' as 'John did it for Mary'.[64] But paraphrase is a two-way street; by reversing our route along it, Thomasson thinks we can get an easy argument for the existence of that which was paraphrased away. Hence she imposes her additional restriction: we cannot run an easy argument for the existence of Fs unless someone has provided an identity condition for Fs, as no one has for sakes.[65] She could say the same thing to exclude the average plumber: no one has told us when the average F is or is not the same as the average G.

But what if someone *did* tell us this? I'll do it right now: the average F = the average G iff the property of being F = the property of being G.[66] Thus the average eye doctor = the average ophthalmologist, in consequence of which if one of these average practitioners has a certain

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[63] The other two are requirements of anti-circularity and empirical conservatism; see 260-267.

[64] Quine 1960, 244, adverting back to a passage I have been unable to locate.

[65] Except for Simon Evnine, as discussed in Thomasson's note 8 on p. 265.

[66] Identity conditions being ours for the devising, we could also propose something more demanding in some ways and easier in others: the average F = the average G iff for every property P susceptible of averaging, the average number of Ps had by Fs = the average number of Ps had by Gs. Thus if the average eye doctor has three children and two cars and weighs 170 pounds . . . , and the average dermatologist does likewise for every property susceptible of averaging, the average eye doctor = the average dermatologist.

number of children, so does the nominal other, threatening again to give us families with non-integral numbers of children.

Doubtless Thomasson has or will propose a way to exclude the average plumber from our ontology, but I believe there are other problematic entities that the easy ontologist will still have to admit. Consider the following argument, another parallel of the two-bagels argument:

1. Hand 1 (my left hand) and hand 2 (my wife's left hand) are oriented alike—they are the same in handedness.

2. The handedness of hand 1 is the same as the handedness of hand 2 (from 1 plus a transformation rule, to be discussed below).

3. There is such a property as handedness, and hand 1 has it (from 2).

Thus far, we have a typical specimen of easy ontology. Let's extend it in a direction taken by Kant:

4. Even in a world empty of other material objects, hand 1 would have its handedness.

5. Therefore, there is such an entity as *absolute space*, since nothing else could ground the handedness of a solitary hand.

This time I do not claim that the conclusion we reach is absurd (as I did in the case of the average plumber). I only claim that the conclusion is contestable—and that is enough to make trouble for easy ontology.

Why is the conclusion contestable? Because it has actually been contested, and not without reason, by relationalists about space such as Martin Gardner and Hermann Weyl. They claim against Kant that a hand is right or left only in relation to some other material object, not in

virtue of any relation it bears to absolute space.[67]  If Kant's absolutism is legitimately

contestable, the steps leading to it can hardly all be trivial.

So which steps might be challenged?

Premise 1, as in all easy ontology arguments, is an undisputed fact.

Premise 2 is supposed to follow from premise 1 by a transformation rule.  The rule in this

case is a Frege-like principle of identity, namely, 'the handedness of hand 1 = the handedness of

hand 2 iff hand 1 and hand 2 are oriented alike.'  This principle is entirely of a piece with other

principles of identity used by Fregeans and neo-Fregeans, such as Hume's Principle, 'the number

of Fs = the number of Gs iff the Fs and the Gs are equinumerous (standing in 1-1

correspondence)', and Frege's own principle about directions, 'the direction of line 1 = the

direction of line 2 iff line 1 and line 2 are parallel'.

The transition from 2 to 3 is sanctioned by another piece of the neo-Fregean program, namely,

that it is permissible to believe in objects of a certain type if you can provide identity conditions

for objects of that type.  Neo-Fregeans accept the converse of a slogan of Quine's:  where he says

"no entity without identity," they say "no identity without entity."  In their view, the same

identity principle that lets you arrive at 2 also lets you advance to 3.  Alternatively, the transition

to 3 could be sanctioned by the principle that what has properties or stands in relations must

exist.

It seems that there is nothing Thomasson would find contestable in the steps from 1 to 2 and

from 2 to 3.  She considers neo-Fregeanism to be a special case of her own approach, and she

would allow in any case that the inferences are trivially valid.

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[67] See Van Cleve 1987 for an account of the debate.

What of the inference from 4 to 5?  I can imagine someone saying that we do not need absolute space as an entity to ground handedness, since we could simply treat being left and being right as primitive monadic properties.  But that would still be absolutism of a sort; it would make 4 itself into a substantive proposition that relationalists like Gardner and Weyl would oppose (as we shall see presently).[68]  So it cannot be that all the steps on the way to 4 are trivial.

The step we have yet to consider is the inference from 3 to 4.  Thomasson has told me she finds this inference suspicious and not one that easy ontology must needs countenance.  But having gotten as far as 3, with what right could we resist 4?  Suppose we held back on the ground that although hand 1 has a particular handedness, handedness is something that a hand can have only in relation to another material object—say, another hand from which it is the same or different in handedness.  In that case, we would again be violating Hume's prohibition against necessary connections between distinct existences.  The handedness of hand 1 is one thing, the handedness of any other thing is another, and it cannot be necessary that if one exists, so does the other.[69]  If we go as far as 3, we should go on to 4.

In my opinion, a relationalist who balks at 4 should balk at the inference from 1 to 2—which is precisely one of the inferences that is supposed to be trivial.  That, indeed, is the place where Gardner and Weyl balk.  As I interpret them, they hold that two hands may be the same or different in handedness without the obtaining of this relation implying or being implied by any properties in the hands taken separately.  The relations of being the same in handedness and

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[68] In Broad's terms (1946), 4 gives expression to a theory that is adjectival rather than substantival, but also qualitative rather than relational and in that sense absolutist.

[69] Compare this version of Hume's Dictum: "'Tis evident, that the existence of one particle of matter, no more implies the existence of another, than a square figure in one body implies a square figure in every one" (*Treatise* 1.2.5.3).

being opposite in handedness are ultimate or ungrounded.  As Weyl once picturesquely put it, a

universe in which God created a left and then a right and a universe in which he created a right

and then a right would differ only after the second act.  See Fig. 1.

|  | Time 1 | Time 2 |
|---|---|---|
| World 1 | L | R |
| World 2 | R | R |

      Fig. 1

If God had rested after time 1 in world 2, the world he had created would not differ from world 1

as of time 1.

There is a more general reason for questioning the inference from 1 to 3 via 2, not dependent

on relationalism of Weyl's stripe.  For all that has been shown, 'handedness' might be an

incomplete symbol, like 'the average man'.  It might be a term that refers to nothing, but is such

that sentential contexts involving it (such as 'hand 1 is the same in handedness as hand 2') can

perfectly well be used, understood and provided with truth conditions.

The point generalizes.  Many other terms the easy ontologist might wish to take as standing

for entities might really be incomplete symbols.  A case in point is provided by Arthur Prior, who

introduces the locution 'the proposition that __ is the very same proposition as the proposition

that …' as a dyadic operator between sentences that can yield true instances even if there are no

such things as propositions for the fragment 'proposition' to refer to (1971, 53-54).

Prior cites another instructive case.  In Quine's theory of virtual classes (1971), we can say

that x is a member of the class {x:Fx} iff x is F.  Thomasson would say that principle authorizes

easy ontological inferences from 'the tomato is red' to 'the tomato belongs to the class of red

things' and from there to 'the class of red things exists'. In Prior's view, saying the middle thing ('the tomato belongs to the class of red things') is just an inflated way of saying the first thing ('the tomato is red') and authorizes no inference to the third thing ('the class of red things exists'). That remains true even if we can provide a Frege-style "principle of identity" for classes: {x:Fx} = {x:Gx} iff whatever is F is G and conversely. That Fregean principle involves only "fictitious or figurative" identity, says Prior, and the expression '{x:Fx}' is not a name of anything, but an inseparable part of larger expressions in which it occurs (Prior 1968, 191-94 in 1976).

I believe this possibility—that many terms purportedly referring to entities are really incomplete symbols or inseparable parts of larger expressions—is a possibility to which Thomasson is blind (or on which she systematically turns her back). Initial grounds for suspecting as much are provided by her saying that a statement of the form *Ks exist* holds iff the application conditions actually associated with 'K' are fulfilled (2015, 86). Now when one thinks of application conditions for a term, one naturally thinks of conditions under which the term applies *to* something. If this were always how Thomasson thought of the matter, it would be official: Ks exist iff there are things such that *they* are Ks, with no room for the possibility that 'K' is an incomplete symbol.

Does Thomasson always think of application conditions as conditions under which a term applies *to* things? Perhaps not. She says that a new law comes to exist when the legislature votes a certain way and the president signs the appropriate document; in this case, the application conditions for it are fulfilled and the term 'law' applies (2015, 101). She does not specify anything the term applies *to*. And in another place, she says that learning application conditions

is learning when it is appropriate to say 'this is a K' or 'there is a K' (93).  If her 'or' is an 'or' of

alternative possibility rather than of equivalent formulation, she is envisioning cases where you

can say 'there is a K' without being able to say '*this* is a K'—just what you would expect if 'K'

were an incomplete symbol.

But weighing down on the first side of the scale is the fact that Thomasson repeatedly says

that terms whose application conditions are fulfilled are referring terms (130-31, 144).  That

effectively decides things against there being any room in her program for incomplete symbols.

To summarize, I find two faults in the program of easy ontology.  First, its allegedly trivial

inferences sometimes lead to substantive conclusions that are reasonably denied by some

philosophers, as in my example of the debate over Kant's incongruent counterparts.[70]  Second,

Thomasson is not sufficiently attuned to the possibility that some terms for which we have

application conditions and can use correctly even in existentially quantified sentences might

really be incomplete symbols that refer to nothing.  They are pseudo-referring terms (Lewis

1998, 216-17) or defective nouns undeserving of objects (Quine 1960, 257).

## 9. Emergence and fundamentality

Jonathan Schaffer offers several arguments for monism—the view that the entire cosmos is the

only fundamental or basic entity, and all its parts are dependent on it.  The core of one of them is

as follows (2010, 55-56):

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[70] Here is one more case in which easy ontology leads to a substantive conclusion:  Thomasson's program endorses an argument for the existence of properties whose undisputed starting point is a tautology—either Mary's dress is red or it is not the case that Mary's dress is red.  From that disjunction Thomasson would infer by an allegedly trivial inference that there is such a property as being red.  (See p. 151 for a parallel argument for the existence of propositions.)  Now according to Aristotelians about universals, such as D.M. Armstrong, universals exist only if they are instantiated by something or other.  Thomasson gives as logically sufficient for the existence of redness a tautological condition that holds regardless of whether anything is red.  Therefore, her program decides that Plato and not Aristotle is correct about the nature of universals—they are transcendent, not immanent.

1. The cosmos has emergent properties.

2. Only fundamental entities have emergent properties.

3. Therefore, the cosmos is a fundamental whole.[71]

This is an interesting argument, and it will be worth our while to examine it further.

Let us begin by defining its terms. If P is an intrinsic property of a whole w, then P is an *emergent* property of w iff w's having P is not entailed by w's parts (under some decomposition of w) having such-and-such intrinsic properties and standing in such-and-such fundamental relations to one another; *a fortiori*, it is not the case that w has P *because* its parts have those properties and stand in those relations. Schaffer gives properties of entangled quantum systems as examples of emergent properties; a more traditional but also more controversial example would be the mental properties of complex organisms.[72] If you believe a zombie could have parts just like yours and related to one another just as yours are, but not be conscious, you would believe that consciousness is an emergent property. It is compatible with emergence in this sense that an emergent property be *nomically* (though not logically) implied by the intrinsic properties and interrelations of its possessor's parts.

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[71] The actual argument is subtler than this. Schaffer uses the premise that it is *possible* for the cosmos to have emergent properties and concludes that it is *possible* for the cosmos to be a fundamental entity. He then uses the premise that in matters of fundamentality, nothing is contingent, which enables him to reach the further conclusion that the cosmos actually *is* a fundamental entity.
 I think the subtler argument proves too much for Schaffer's purposes, since it is surely also possible that some *parts* of the cosmos have emergent properties, in which case they, too, would have to be fundamental.

[72] Galen Strawson cites liquidity as an example of an emergent property (2006), but his usage is idiosyncratic; I would regard liquidity as a paradigm of a nonemergent or reducible property. A thing is liquid if it is incompressible and its parts easily slide past one another; it is solid (or hard in Locke's sense) if its parts are locked in place. Strawson's further discussion makes it clear that he, too, sees liquidity as reducible, even though he chooses to speak in such cases of intelligible or non-brute emergence.
 Perhaps surprisingly, mass is an emergent property if it is only contingently true that mass is additive, as maintained in McQueen 2015.

A *fundamental* entity is an independent entity or substance as we have been using the term here. It is an entity that does not exist simply in virtue of some other entity's being F (for some F) or in virtue of some other entities' being related by R (for some R).

Under these definitions, Schaffer's second premise says that if an entity has some property that does not necessarily flow from the intrinsic properties of and relations among its parts, then it is not a dependent entity; it is not an entity that exists only because some other entity or entities are a certain way. Contraposing, if an entity x *is* an entity that exists only because some other entities (which we may be assume to be its own parts) are a certain way, then *all* of x's properties must necessarily flow from the properties and relations of its parts.

Schaffer's premise is by no means trivial; it is a substantive and interesting philosopheme. It amounts to this: something that owes its *existence* to its parts being a certain way also owes all its *properties* to its parts being a certain way (not necessarily the same way). Generalizing beyond things that are dependent on their own parts, it could be put like this: if $\exists R$(x exists because the ys stand in R), then for any F, if x is F, then $\exists R^*$(x is F because the ys stand in R*). R* could be a much more elaborate relation than R; it might be a large network of ways in which the ys are propertied and related.

Malebranche held a thesis along these lines. He held that in sustaining me in being, God bestows all my properties upon me; that is one of his arguments for occasionalism. Since I get all my properties from the source of my being, I do not derive them from any other cause.[73]

I have found one contemporary writer, Louis deRosset, who secures our philosopheme almost by definition. He gives the following as a constraint on grounding:

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[73] *Dialogues on Metaphysics*, Dialogue 7, Section 6; 227-28 in 1992.

$e_1, \ldots, e_n$ are the entities that ground entity e if and only if e's existence and features are all explicable solely by reference to the existence and features of $e_1, \ldots, e_n$ (2013, 4 and n. 14)

He puts two conditions into one package: to be a grounded entity is to have your existence AND all your features metaphysically explained by (and thus entailed by) the existence and features of the grounding entities. What I have not seen demonstrated (and would love to see either demonstrated or refuted) is the connection between the two parts of the package—that if entity *e*'s existence is grounded in the existence and features of some other things, then all of *e*'s *properties* are likewise grounded in the existence and features of some other things.

With literal shadows, which according to me are mere logical constructions, it is as deRosset says it is with grounded entities. A shadow *exists* because the tree blocks the light from the sun that would otherwise be reaching my yard; likewise, all the *properties* of the shadow derive from properties of and relations among yard, tree, and sun. The shadow is growing because as the sun sinks, greater and greater portions of the yard are getting blocked off from the sun's light; it has its shape because the tree has the shape it does, and so on. The 'because' here is a deflationary 'because'. It does not mean 'x exists, and its existence is grounded in what the ys do'; it means 'although we say x exists, what is really going on is that the ys are doing such-and-such'.

If Schaffer's philosopheme is not true, his argument is inconclusive. It would be an open possibility that even though not all the properties of the cosmos derive from those of its parts, it depends for its existence on it parts and is therefore not fundamental.

I once gave an argument along the following lines, which is similar in structure to Schaffer's:

1. The self has emergent properties (being conscious of this or that).

2. If an entity has emergent properties, it must not be a mere mode.

3. Therefore, the self is not a mode, but a substance (Van Cleve, 1999, 179-80).

Like Schaffer's argument, mine is an argument from the possession of emergent properties to

fundamentality or substantiality.  Unlike Schaffer's argument, mine has for it second premise not

an unproved philosopheme, but something true by definition.  I was construing modes as logical

constructions, which by definition are things all truths about which are logically derivable from

truths about that upon which they are constructions.  Nonetheless, the gap in Schaffer's argument

recurs in mine as a gap between the negative and positive clauses of the conclusion.  If there can

be dependent entities that are not logical constructions, the divide between mode and substance

is not exhaustive.

   The question raised by Schaffer's argument and by mine is really the overarching question of

this paper:  can there be dependent entities that are not mere logical constructions, entities that

are more than shadows, but less than substances?

## 10. Is the world flat?

There is a familiar and attractive picture of the world in which it is arranged in layers—quarks or other fundamental entities at the bottom, subatomic particles one level up, then atoms, then molecules, then cells, then organisms, then persons, then societies.[74] This picture contrasts with an opposing picture Karen Bennett calls *flatworldism*, according to which nothing exists but the basic entities. She characterizes it as follows:

> Flatworldism is the view that nothing is built, that there are no nonfundamentalia, that everything is absolutely fundamental. Everything is metaphysically on a par. The world has no layered structure, but is instead flat. Nothing projects upward from the bottom. (Bennett 2017, 214)

Is that the upshot of views expressed here? And is it a tenable position?

My views do verge on flatworldism. If there are metaphysical atoms, one could hold that there are at least two levels—the atoms plus all the mereological sums of them.[75] But I do not rule out the possibility of gunk, and in a gunky world, I have suggested, parts and wholes would be co-fundamental, neither existing because the other does. In such a world there would so far be only one level.

There would be further levels if tables, ships, and nations were admitted as dependent entities in the 2a sense, not identical with mereological sums because the relations essential to their existence are only accidental to their parts. I have flirted with the idea that such entities should be regarded as logical constructions, existing only in a manner of speaking. To accept such a position wholesale would be to take a big step toward flatworldism.

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[74] Oppenheim and Putnam 1958 is a classic exposition of this scheme.

[75] Would there be more than two? Sums of sums of As are sums of As, so the question will turn in part on whether there can be autonomous intermediate levels despite the transitivity of the is-composed-of relation.

So is flatworldism tenable?  Bennett argues no.

One of Bennett's arguments is not really an argument against flatworldism, but a criticism of an argument *for* flatworldism—the argument from parsimony.  She argues that parsimony favors a theory over its rivals only when it makes the theory more likely to be true than its rivals, and that a theory that embraces only fundamentals, though more parsimonious in numbers than a theory that embraces nonfundamentals as well, is not more parsimonious in the sense that matters.  That is because "built" entities on her account are entities whose existence is entailed by facts about the fundamentals, and it is a theorem of the probability calculus that if A entails B, B cannot be less probable than A (223-25).[76]

I accept Bennett's point about when and why parsimony is valuable.  I should think, though, that many who deny that this or that nonbasic entity exists would *deny* that its existence is entailed by what the fundamentals are doing.  The shadow paraphrases I accept are supposed to capture everything that is true in assertions of the existence of shadows without entailing that any shadows really do exist.

Bennett's other principal argument is the real bombshell.  She claims that a philosopher who denies the existence of dependent entities cannot even explain the *appearance* that things are otherwise (218-20).

Philosophers who deny the existence of some type of entity believed in by other philosophers or ordinary people generally give some account of the truth behind the appearances—some explanation of why it *seems*, either perceptually or intellectually, that entities of that type exist. A

[76] Actually, the relevant theorem is more often stated thus:  if B is logically implied by A, B cannot be less probable than A.  But I cannot see why the difference between logical implication and entailment or necessary implication more broadly should make any difference to probabilities.

good part of Hume's philosophy is devoted to delineating the mechanisms whereby we come to "feign" something that his philosophy says is unreal, such as objects that exist during intervals when we are not perceiving them. Though Hume offered his accounts simply as psychology, others have taken them as metaphysical accounts of the truth behind the appearances. In a similar vein, Roderick Chisholm gives his theory of *entia successiva* as the truth behind the appearance that some things change their parts (1976, chapter 3, esp. 97-104) and Peter van Inwagen gives his story of particles arranged tablewise as the truth behind the affirmation of the existence of tables (1990, chapters 10 and 11).

Here, then, is Bennett's bombshell: Suppose a flatworlder denies that there are such things as tables, but wishes to explain the appearance of the truth of sentence S (or proposition P) to the effect that there is a table in region R. What is the relation of there being certain particles arranged tablewise to the sentence S? It cannot be a matter of *making S true*, she says, for that would be a building relation; it would mean the table gets built, and hence there would be nonfundamental entities after all. In renouncing any nonfundamental entities, the flatworlder must renounce any attempt to save the appearances (219).

I believe the bomb can be defused. I have given several examples in this paper in which a certain sentence or proposition ostensibly about Ks is made true by the doings of various other entities, but made true only as a whole. Making a sentence true holophrastically need not be a matter of grounding the existence of entities ostensibly mentioned in the sentence. Sentences about shadows have been my running example, but let me give another: sentences about waves. Let the waves be stadium waves rather than water waves, though the two types behave analogously. A wave passes around the baseball stadium because the fans in one section stand up

and raise their arms, then their neighbors do likewise, and so on around several times. If you know the facts about how a stadium wave is produced, you will be tempted to say that nothing has really moved around the stadium. But if nothing has really moved around the stadium, then the wave that we speak of as having done so is a mere logical construction rather than a dependent entity. So not all truthmaking relations are building relations; you can make a sentence true without making exist entities purportedly referred to by it; the statement describing the truthmaker can state everything we know and everything that is really true when we say the entity in question exists. I believe that Schaffer, Thomasson, and Bennett all have the same blind spot when it comes to holophrastic truthmaking.[77]

## 11. Conclusion

I have offered a four-fold classification of entities and nonentities: substances or fundamental things, which do not depend for their existence on anything else; dependent things, which do depend for their existence on something else; logical constructions, which exist only in a manner of speaking, all truths ostensibly about them being paraphraseable away into talk of other things; and nonentities, like unicorns and round squares, which do not exist even in a manner of speaking. I adopted a further construal of independent entities as entities that do not exist just because some other entities have such-and-such properties or are related in a certain way.

Where do wholes belong in this scheme of things? If their own parts are considered as "other entities," they would arguably be dependent entities, existing only because their parts are related to one another in a certain way. But if the "other entities" must be items mereologically distinct

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[77] Admittedly, 'truthmaking' may be a misleading term for me to use, insofar as on most accounts, what makes it true that P entails that P. What I am calling holophrastic truthmakers entail (e.g.) that there are shadows, but they do not entail that there is anything such that *it* is a shadow. Perhaps instead I should speak of the logs or *logoi* of section 4.

from the whole, lying wholly outside it, wholes could be classified as substances. And even if a thing's own parts do count as things relevantly distinct from it, some wholes will retain their classification as substances if they do not depend on their parts' standing in accidental relations.

I argued that shadows are a paradigm case of logical constructions; talk about them is logical shorthand for truths that may be expressed in terms of things that are not shadows. In this I was explicitly opposing the account of shadows advanced by Roy Sorensen, who takes them to be dependent entities. I argued that if shadows are construed as dependent entities, they give rise to many questions without good answers; they also violate Hume's dictum that there cannot be necessary connections between distinct existents.

To shed further light on the distinction between genuine entities (whether dependent or substantial) and mere constructions, I explored two ways in which entities of one type may be reduced to those of another. In the way of identity, the "reduced" entities are identified with something already unproblematically in one's ontology. In the way of paraphrase, there is no such identification, but it is claimed that all truths about the entities in question are paraphrasable into terms referring only to already allowed entities. I cited an observation of Moore's as a suggestive way of bringing out one important difference between the ways: in both ways you may say if you like that there are Ks, but only in the way of identity may you say of anything that *it* is a K. Moore's remark sounds paradoxical, but it makes respectable sense in conjunction with Russell's teaching on incomplete symbols.

I entertained sympathetically the thesis that ordinary tables as well as much of the other "furniture of the earth" has the same ontological status as shadows. In an extreme version of the

thesis, anything that depends on some other things' standing in some accidental relation—even if the "other things" are just the things own parts—is better construed as mere construction.

Does the extreme thesis lead to absurd results? Composite entities are often thought to exist only because their parts are arranged in a certain way. The extreme thesis might therefore be thought to have the consequence that nothing exists but the simple; in case there are no simples but only ever smaller parts (the gunk hypothesis), there would be the further consequence that nothing exists at all! But in fact that result need not follow. The extreme thesis enjoins treating as constructions only entities whose constitutive relation is accidental, and under the mereological universalism I advocate, the constituting relation for composites is mere coexistence, which is *not* accidental. Even if compounds of matter and essential form move into the construction column, mereological aggregates may stay within the substance column.

Does the gunk hypothesis imply that the grounding relation is not well founded? Only if wholes are grounded in the existence of their parts; not if wholes and parts are co-fundamental.

Dependence can be either specific or generic. There can be a specific thing Y such that X depends on Y's being a certain way, or X can merely depend on there being something or other that is that way. Some of the misgivings I raise against dependent entities apply only to specifically dependent entities. Entities that are only generically dependent, including Aristotelian universals and Brentanian boundaries, may remain in my otherwise austere ontology.

That ontology is nonetheless too austere for many, certainly so for those who go to the opposite extreme, as in the permissivism of Jonathan Schaffer or the easy ontology of Amie Thomasson. These philosophers think that many existence claims follow trivially from

undisputed truths, such as the existence of numbers from 'I just ate two bagels', the existence of tables from 'there are some particles arranged tablewise', and the existence of laws from 'the legislature just passed a law'.  Such things may not be fundamental, but they exist.  Against Schaffer and Thomasson, I cited a number of cases in which their views would mandate believing in the genuine existence of Ks even though anyone would be hard pressed to find the required *it*—something such that *it* is a K.

Schaffer and I disagree on another point:  he is a monist, maintaining that the entire cosmos is the only fundamental entity, whereas I am a pluralist, believing that the parts of any whole are at least as fundamental as the whole itself.  One of his arguments employs the premise that nothing but a fundamental entity can have an emergent property.  I expose what I believe is a hitherto unnoticed presupposition of that premise, interesting if true, but which ought to be demonstrated before anything is built on it:  that dependence for *Sein* (existence) and dependence for *Sosein* (having certain properties) always go hand in hand.

I ended by considering whether I am (in the vivid phrase of Karen Bennett) a "flatworlder," one who does not believe in entities occupying many levels, but only in the fundamental entities at the bottom.  I am not a flatworlder, but I come closer than many.  I question whether one can make sense of more than *two* levels, the independent and the dependent, since I doubt that there is a good principle of stratification for drawing further distinctions among dependent entities. And I regard many allegedly dependent entities as mere constructions, not occupying their own level at all.  What there is in addition to substance is mostly just shadow.[78]

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REFERENCES

I refer in the text to items below by their earliest date of publication, but if there is a reprint listed below, my page references are to the reprint.

Adams, Robert. 1999. *Leibniz: Determinist, Theist, Idealist*. Oxford: Oxford University Press.

Aristotle, 1963. *Aristotle's Categories and De Interpretatione*, edited with notes by J.L. Ackrill. Oxford: Clarendon.

Armstrong, D.M. 1978. *Universals and Scientific Realism,* Vol. 1 *(Nominalism and Realism)*. Cambridge: Cambridge University Press.

Armstrong, D. M. 1989. *Universals: An Opinionated Introduction*. Boulder: Westview Press.

Ayer, A.J. 1946. *Language, Truth, and Logic*. 2d edition. New York: Dover, 1952.

Barnes, Elizabeth. 2018. "Symmetrical Dependence." In *Reality and Its Structure*, edited by Ricki Leigh Bliss and Graham Priest, 50-69. Oxford: Oxford University Press.

Bennett, Karen. 2011. "By Our Bootstraps." *Philosophical Perspectives*, 25:27-41.

Bennett, Karen. 2017. *Making Things Up*. Oxford: Oxford University Press.

Broad, C.D. 1923. *Scientific Thought*. London: Routledge and Kegan Paul.

Broad, C.D. 1946. "Leibniz's Last Controversy with the Newtonians." *Theoria*, 12:143-68.

Carnap, Rudolf. 1928. *The Logical Structure of the World*. Berkeley and Los Angeles: University of California Press, 1967.

Casati, Roberto, and Achille Varzi. 1994. *Holes and Other Superficialities*. Cambridge, Mass.: MIT Press.

Chisholm, Roderick M. 1976. *Person and Object*. La Salle, Ill.: Open Court.

Chisholm, Roderick M. 1978. "Brentano's Theory of Substance and Accident." In *Brentano and Meinong Studies* (Amsterdam: Rodopi, 1982), 3-16. Originally published in *Grazer Philosophische Studien*, 5 (1978).

Chisholm, Roderick M. 1983. "Boundaries." *Grazer Philosophische Studien*, 20 (1983). Reprinted in Chisholm, *On Metaphysics*, 83-89 (Minneapolis: University of Minnesota Press, 1989).

Correia, Fabrice, and Benjamin Schnieder. 2012. "Grounding: An Opinionated Introduction'. In *Metaphysical Grounding*, edited by Fabrice Correia and Benjamin Schnieder, 1-36 (Cambridge: Cambridge University Press).

Cotnoir, A.J., and Donald M. Baxter. 2014. *Composition as Identity*. Oxford: Oxford University Press.

Dasgupta, Shamik. 2009. "Individuals: An Essay in Revisionary Metaphysics." *Philosophical Studies*, 145:35-67.

Davidson, Matthew. 2024. *About Haecceities: An Essay in Ontology.* London: Routledge.

DeRosset, Louis. 2013. "Grounding Explanations." *Philosopher's Imprint*, 13:1-26.

Fine, Kit. 1995. "Ontological Dependence." *Proceedings of the Aristotelian Society*, 95:269-90.

Hawthorne, John. 2006. "Plenitude, Convention, and Ontology." In *Metaphysical Essays*, 53-69. Oxford: Clarendon Press.

Hirsch, Eli. 1976. "Physical Identity." *The Philosophical Review*, 85:357-89.

Hirsch, Eli. 2005. "Physical-Object Ontology, Verbal Disputes, and Common Sense." *Philosophy and Phenomenological Research*, 70:1-30.

Hoffman, Joshua, and Gary S. Rosenkrantz. 1994. *Substance among Other Categories*. Cambridge: Cambridge University Press.

Hume, David. 2000. *A Treatise of Human Nature*, edited by David Fate Norton and Mary J. Norton. Oxford: Oxford University Press. Cited in the text as *Treatise* with book, part, section, and paragraph numbers.

Jackson, Frank. 1977. *Perception*. Cambridge: Cambridge University Press.

Kim, Jaegwon. 1984. "Concepts of Supervenience." *Philosophy and Phenomenological Research*, 45:153-176. Reprinted in Kim, *Supervenience and Mind: Selected Philosophical Essays*, 53-78 (Cambridge: Cambridge University Press, 1993).

Leibniz, G.W. 1956. *The Leibniz-Clarke Correspondence*, edited by H.G. Alexander. Manchester: Manchester University Press.

Leibniz, G.W. 1995. *Philosophical Writings*, edited by G.H.R. Parkinson. London: Everyman's Library.

Lewis, Clarence I. 1946. *An Analysis of Knowledge and Valuation*. LaSalle, Illinois: Open Court.

Lewis, David, and Stephanie Lewis. 1970. "Holes." *Australasian Journal of Philosophy*, 48: 206-12. Reprinted in *Metaphysics: The Big Questions*, edited by Peter van Inwagen and Dean W. Zimmerman, 22-28 (Oxford: Blackwell, 2008).

Lewis, David. 1983. *Philosophical Papers*, Volume 1. Oxford: Oxford University Press.

Lewis, David. 1986. *On the Plurality of Worlds*. Oxford: Blackwell.

Lewis, David. 1991. *Part of Classes*. Oxford: Blackwell.

Lewis, David. 1998. "A World of Truthmakers?" In *Papers in Metaphysics and Epistemology*, 215-23. Cambridge: Cambridge University Press, 1999.

Linsky, Bernard. 2019. "Logical Constructions." *The Stanford Encyclopedia of Philosophy* (Summer 2019 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/sum2019/entries/logical-construction/>.

Locke, John. 1975. *An Essay Concerning Human Understanding*, edited by Peter H. Nidditch. Oxford: Clarendon Press.  Cited in the text as *Essay* with book, chapter, and section numbers.

Lowe, E.J. 2002. *A Survey of Metaphysics*. Oxford: Oxford University Press.

Malebranche, Nicolas. 1992. *Philosophical Selections*, edited by Steven Nadler. Indianapolis: Hackett.

McQueen, Kelvin J. 2015. "Mass Additivity and A Priori Entailment." *Synthese*, 192:1373-1392.

Moore, G.E. 1918. "Some Judgments of Perception." *Proceedings of the Aristotelian Society,* XIX (1918-19). Reprinted in *Perceiving, Sensing, and Knowing*, edited by Robert J. Swartz, 1-28 (Garden City, N.Y.:  Doubleday Anchor Boooks, 1965).

Moore, G.E. 1962. *Commonplace Book, 1919-1953*. London: George Allen & Unwin.

Ogden, C.K. 1932. *Bentham's Theory of Fictions*. London: Kegan Paul. Digitalized by Routledge in 2002.

Oppenheim, Paul, and Hilary Putnam. 1958. "Unity of Science as a Working Hypothesis." In *Minnesota Studies in the Philosophy of Science*, 2, edited by Herbert Feigl, 3-36. Minneapolis: University of Minnesota Press.

Prior, A.N. 1957. *Time and Modality*. Oxford: Oxford University Press.

Prior, A.N. 1968. "Intentionality and Intensionality." *Proceedings of the Aristotelian Society, Supplementary Volume* 42:91-106. Reprinted in *Papers in Logic and Ethics*, edited by P.T. Geach and A.J.P Kenny, 187-201 (Amherst: University of Massachusetts Press, 1976).

Prior, A.N. 1971. *Objects of Thought*. Oxford: Clarendon Press.

Quine, W.V. 1960. *Word and Object*. Cambridge: MIT Press.

Quine, W.V. 1971. *Set Theory and Its Logic*, revised edition. Cambridge, Mass.: Belknap Press.

Quine, W.V. 1981 "Five Milestones of Empiricism." In *Theories and Things,* 67-72. Cambridge, Mass.: Harvard University Press.

Rabin, G.O., and B. Rabern. 2016, "Well Founding Grounding Grounding." *Journal of Philosophical Logic*, 45:349-379.

Rayo, A., and Yablo, S. 2001. "Nominalism through De-nominalization." *Nous*, 35,74-92.

Rosen, Gideon. 2010. "Metaphysical Dependence: Grounding and Reduction." In *Modality: Metaphysics, Logic, and Epistemology*, edited by Bob Hale and Aviv Hoffmann, 109-35. Oxford: Oxford University Press.

Russell, Bertrand. 1905. "On Denoting." *Mind*, 14:479-93. Reprinted in *Logic and Knowledge*, edited by Robert C. Marsh, 39-56 (London: Allen & Unwin, 1956).

Russell, Bertrand. 1918. "The Philosophy of Logical Atomism." In *Logic and Knowledge*, edited by R.C. Marsh, 175-281 (London: Routledge, 1956). The quotation in my epigraph is from pp. 179-80. This work is also reprinted in *The Philosophy of Logical Atomism*, edited by David Pears, 35-155 (La Salle, Ill.: Open Court, 1985).

Russell, Bertrand. 1924. "Logical Atomism." In *Logic and Knowledge*, edited by R.C. Marsh, 321-43 (London: Routledge, 1956); also reprinted in *The Philosophy of Logical Atomism*, edited by David Pears, 157-81 (La Salle, Ill.: Open Court, 1985).

Schaffer, Jonathan . 2009. "On What Grounds What." In *Metametaphysics*, edited by David Chalmers, David Manley, and Ryan Wasserman, 347-83. Oxford: Oxford University Press.

Schaffer, Jonathan. 2010. "Monism: The Priority of the Whole." *Philosophical Review*, 119:31-76.

Schnieder, Benjamin. 2006. "A Certain Kind of Trinity: Dependence, Substance, Explanation." *Philosophical Studies*, 129:393-419.

Sorensen, Roy. 2008. *Seeing Dark Things: The Philosophy of Shadows*. Oxford: Oxford University Press.

Spinoza, Baruch. 1982. *The Ethics and Selected Letters*, translated by Samuel Shirley. Indianapolis: Hackett.

Stebbing, Susan. 1930. *A Modern Introduction to Logic*. London: Methuen.

Strawson, Galen. 2006. "Realistic Monism: Why Physicalism Entails Panpsychism." *Journal of Consciousness Studies*, 13:3-31.

Tahko, Tuomas E. and E. Jonathan Lowe, "Ontological Dependence," *The Stanford Encyclopedia of Philosophy* (Fall 2020 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/fall2020/entries/dependence-ontological/>.

Thomasson, Amie. 2013. "Fictionalism vs. Deflationism." *Mind* 122:1023-1051.

Thomasson, Amie. 2015. *Ontology Made Easy*. Oxford: Oxford University Press.

Thomson, Judith Jarvis. 1969. Introduction to John Wisdom, *Logical Constructions*, 3-39. New York: Random House.

Van Cleve, James. 1985. "Three Versions of the Bundle Theory." *Philosophical Studies*, 47:95-107.

Van Cleve, James. 1986. "Mereological Essentialism, Mereological Conjunctivism, and Identity Through Time." In *Midwest Studies in Philosophy*, Vol. 11, edited by Peter A. French, Theodore E. Uehling, Jr., and Howard K. Wettstein, 141-56. Minneapolis: University of Minnesota Press.

Van Cleve, James. 1987. "Right, Left, and the Fourth Dimension." *The Philosophical Review*, 96:33-68.

Van Cleve, James. 1994. "Predication Without Universals? A Fling with Ostrich Nominalism," *Philosophy and Phenomenological Research*, 54: 577-90.

Van Cleve, James. 1999. *Problems from Kant*. Oxford: Oxford University Press.

Van Cleve, James. 2008. "The Moon and Sixpence: A Defense of Mereological Universalism." In *Contemporary Debates in Metaphysics*, edited by J. Hawthorne, T. Sider, and D. Zimmerman, 321-40. Oxford: Blackwell.

Van Cleve, James. 2023. "There Are No Necessary Connections Between Distinct Existences." In *Oxford Studies in Metaphysics*, vol. 13, edited by Karen Bennett and Dean W. Zimmerman. Oxford: Oxford University Press.

Van Inwagen, Peter. 1990. *Material Beings*. Ithaca, NY: Cornell University Press.

Weir, Ralph. 2021. "Bring Back Substances!" *Review of Metaphysics*. 75:265-308.

Winkler, Kenneth. 1989. *Berkeley: An Interpretation*. Oxford: Clarendon Press.

Wisdom, John. 1931. "Logical Constructions (I)." *Mind*, 40:188-216. Reprinted in Wisdom, *Logical Constructions* (New York: Random House, 1969).

Yablo, Stephen. 2001. "Go Figure: A Path through Fictionalism." *Midwest Studies in Philosophy* 25:72-102.