

THE CONSTITUTION OF PERSONS BY BODIES: A CRITIQUE OF LYNNE
RUDDER BAKER'S THEORY OF MATERIAL CONSTITUTION

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0. Introduction

Lynne Rudder Baker and many others think that paradigmatic instances of one object constituting another — a piece of marble constituting a statue, or an aggregate of particles constituting a living body — involve two distinct (i.e., not numerically identical) objects in the same place at the same time.¹ Some who say this believe in the doctrine of temporal parts²; but others, like Baker, reject this doctrine.³ Such philosophers, whom one might call “coincidentalists”, cannot say that these objects manage to share space in virtue of sharing a temporal part confined to just that place and time. But what can or should coincidentalists say about the nature of constitution?

Some have analyzed the relation in ways that imply the sharing, “at some level”, of all and only the same parts.⁴ Most would agree, I suspect, that massive part-sharing is at least a central component and necessary condition of constitution. Baker's theory of constitution, however, makes *no* appeal to mereology. The leading idea in Baker's account is, instead, a modal one: objects belonging to constituted kinds are the *necessary* result of putting objects belonging to appropriate constituting kinds in the right circumstances, circumstances which the constituting objects *need not* have been in. So

putting a piece of man-shaped marble in the right circumstances (e.g., “uncovering” it by chipping away at the larger chunk of marble in which it is embedded, and then putting it on display in a temple) *necessarily* results in the existence of a second object, a statue, constituted by the marble; but the piece of marble *need not* have fallen into these circumstances or any others in which it would constitute a statue (e.g., it could have remained forever in the ground, seamlessly blending in with the surrounding marble).

This essay is a critical review of Baker’s modal theory of constitution, as set forth in *Persons and Bodies* (henceforth “P&B”). But I take into account subsequent refinements of the theory, such as occur in her contribution to this volume, “On Making Things Up: Constitution and its Critics” (henceforth “OMTU”).

My essay has three parts:

(1) Although Baker’s theory is a painstaking explication of the “modal side” of constitution, I argue that it does not give us the whole truth about constitution; that constitution is, at least in part, a mereological relation. Spatial coincidence of two things, even with Baker’s close modal connections, is not sufficient for the one’s constituting the other — unless plenty of controversial auxiliary clauses are brought in to insure that, from spatial coincidence, it follows that neither thing has a part that has no parts in common with the other. So why not just say so to start with?

(2) Every coincidentalists has to decide whether she thinks (a) that there is more than one thinker where I am, one for each coincident object, or (b) that there can be a huge difference in the psychological profiles (or lack thereof) of two things without any differences in the nature of their smaller parts and their arrangement and relations to the environment. The difficulty of the choice constitutes what Eric Olson has called the

objection from “too many minds”. Some coincidentalists take the first option, others (the majority) take the second. Baker seems to want to have it both ways, but in the attempt winds up with a coincidentalism afflicted with a disease I call “creeping dualism”.

(3) I close with some reflections upon Baker’s methodology.

1. Mereology’s revenge

The definition of constitution

Baker’s analysis of constitution in OMTU, only slightly modified from the form it took in P&B, runs as follows:

(C) x constitutes y at $t =_{df}$ There are distinct primary-kind properties F and G and G -favorable circumstances such that:

- (1) x has F as its primary-kind property and y has G as its primary-kind property;
- (2) x and y are spatially coincident at t ;
- (3) x is in G -favorable circumstances at t ;
- (4) $\Box \forall z \forall t [(z \text{ has } F \text{ as its primary-kind property and } z \text{ is in } G\text{-favorable circumstances at } t) \rightarrow \exists u (u \text{ has } G \text{ as its primary-kind property and } u \text{ is spatially coincident with } z \text{ at } t)]$;
- (5) $\Diamond \exists t [x \text{ exists at } t \ \& \ \sim \exists w (w \text{ has } G \text{ as its primary-kind property and } w \text{ is spatially coincident with } x \text{ at } t)]$; and

(6) If *y* is immaterial, then *x* is also immaterial.

The notions of “primary kind property” and “G(or F or H)-favorable circumstances” are described in detail in OMTU. To describe an object’s primary kind is to give its “sortal”, a property that implies a set of persistence conditions and serves as the best answer to the question, “What *is* this?”; to provide a set of “G-favorable conditions” for some primary kind *G* is to list a set conditions or open sentences satisfaction of which is not itself sufficient for a thing’s being (or constituting) a *G*, but satisfaction of which by a thing of a different primary kind *F* *is* sufficient for a thing’s being (or constituting) a *G*.

Although my remarks here will be mainly critical, I should note at the outset that I believe (C) to be an insightful way to spell out an often neglected modal aspect of the relation of constitution. It is not only an important contribution to the development of coincidental theories; suitably modified, it may also be pressed into service by noncoincidental metaphysicians interested in spelling out one sort of asymmetrical constitution relation that seems to be a part of a lot of commonsense reasoning about the physical world. There are reasons, however, to think that satisfaction of clauses (1) through (6) is a necessary but not a sufficient condition for constitution. And the failure can be traced to the absence of mereology.

Nowhere does her definition explicitly require any sharing of parts between the constituted and constituting things. But there are apparent counterexamples that seem to require the addition of a mereological clause. All the work done by (2), (6), and much

more work besides, could be taken care of by substituting for (2) and (6) a condition (6*), which makes use of the notion of a “complete decomposition”:

(CD) S is a complete decomposition of $x =_{df}$ Every member of S is a part of x , no members of S have any parts in common, and every part of x not in S has a part in common with some member of S

(6*) x and y share at least one complete decomposition.

(6*) is equivalent to saying that, “at some level”, x and y are made out of the same parts.

Here are my reasons for thinking that such a substitution is necessary.

Ectoplasm and Ghosts

I offered (in discussion and correspondence preceding publication of *Persons and Bodies*) a counterexample involving immaterial, or, anyhow, physically *penetrable* substances generated by living bodies. Suppose the spiritualists of the last century and animists of every era were right; suppose, that is, that living human bodies naturally generate “ghosts”, spirits made of some ethereal kind of stuff (call it “ectoplasm”) that is located right where our bodies are (astral projection aside!) until we die. Each clause of (C), with the possible exception of (6), would seem to be satisfied by a body and its ghost. They are coincident. Allowing the “ghost-favorable circumstances” to include facts about the natural laws governing the generation of ectoplasm by ordinary matter, the modal clauses come out true as well: Necessarily, if some matter is arranged as it is in this body and located in a world with these laws, then there will be a coincident ghost;

but a body like this could have existed without an accompanying ghost were the laws different, or had its higher brain functions been eradicated. (Let us suppose that these ghosts arise only when psychological states are present.) But surely her target notion of constitution should not allow for a ghost to be constituted by the body that merely sustains or produces or extrudes it.

Baker's original response to my counterexample (P&B, pp. 208-212) took the form of a dilemma. Either the ectoplasm can literally occupy precisely the same regions as the particles in my body, or it cannot. In the former case, it is immaterial in the sense intended by (6), and so body and ghost fail to satisfy (C) in virtue of violating that clause. If they cannot strictly coincide — i.e., if the ectoplasm must fill up only the interstices between the particles that constitute my body, — then the ectoplasm is not immaterial in her sense of the term; but then body and ghost are not *really* coincident after all; and so clause (2) is violated.

This response seems not to go to the root of the problem. If Baker is willing to take the possibility of (immaterial) ectoplasm and (immaterial) Cartesian souls seriously, she can hardly balk at the supposition that there are also Cartesian souls but that it is the ectoplasmic body that produces an accompanying Cartesian soul. Then a counterexample due to Anil Gupta⁵ may be reinstated with an immaterial (ectoplasmic) body falsely being said to constitute the *composite* of the immaterial body plus the Cartesian soul it generates. My original counterexample can be rehabilitated as well: One sort of ectoplasmic body might generate another made out of very different stuff; a blue ghost producing a red one, as it might be, so that together they appear purple until the blue one “dies” and the red one floats off alone. While they remain coincident, blue ghost

“constitutes” red (by her definition), despite the fact that they are made of different kinds of stuff and that one may be evil and the other benign.

Superposed particles

Perhaps somewhat less fancifully, imagine some kinds of particles (orange ones) that our physics treats as “point particles” but that can be made to break down into two other kinds point particles (reds and yellows) when subjected to bombardment in an accelerator. Oranges are, then, identical with reds and yellows in some sort of precisely superposed state. Whenever you have a thing made entirely of orange particles, there are two additional entities coincident with it: an aggregate of reds and an aggregate of yellows. You can only have a stable artifact or animal or person coincident with an aggregate of yellows if it is also coincident with reds (a yellow configuration by itself would fly apart, as would a red one); so one of the, e.g., person-favorable circumstances for an aggregate of yellows is their being coincident with reds, and vice versa. Each of the aggregates of particles — reds and yellows — qualifies as constituting any artifact, animal, or person made out of orange particles, according to Baker’s definition. But surely that is the wrong result. The aggregate of oranges may constitute the person made of orange particles; but neither the aggregate of reds alone nor the aggregate of yellows alone should count as constituting the person. This seems dead obvious to me — its obviousness pointing directly to the fact that a thing cannot constitute another unless, at some level of decomposition, all its parts at that level are parts of the constituted thing.

Perhaps one might deny the obviousness of my reaction to the case; why cannot an aggregate made of *half* the particles in a person’s body constitute the person, in the

person-favorable circumstances that include coinciding with the *other* half of the particles in her body? I would point out that, if the oranges were made of reds and yellows not spatially co-located but only *very, very close* to one another, then the person would not count as constituted by the aggregate of reds or the aggregate of yellows, according to (C). And why should this little difference make such a big difference? Whether or not they precisely coincide seems quite irrelevant to the question whether half the particles can constitute a whole made out of twice as many particles.

But if someone really saw a big difference here, and was willing to allow that the aggregate of yellows by itself constitutes the person made of oranges, I would not know how to answer, except to say that we seem to be working with a completely different notion of *constitution* — something I would not express by the words “constituting” but rather some combination of terms like “producing”, “giving rise to”, “sustaining”, “supporting”, or “subserving”. And this cannot be Baker’s target notion. Materialism is, she says, the view that everything is constituted, ultimately, by aggregates of physical particles (P&B, p. 216). “Emergent dualists” like Swinburne and Hasker⁶ are meant to satisfy her definition of “immaterialist”: one who thinks we have souls that can (perhaps only by a miracle) persist in the absence of any physical bodies (P&B, p. 216). Yet emergent dualists insist that souls are produced and sustained by the central nervous system, and this would be enough to make them materialists by her definition of “materialism” — at least, it would if “constitutes” meant something like “produces and sustains”.

Sider’s ghosts

Ted Sider has pointed out a related problem.⁷ Once possibly coincident aggregates of particles or possibly coincident types of ectoplasm are countenanced; then, whenever two coincident kinds of stuff constitute things of the same primary kind, (C) wrongly says that each aggregate of particles or portion of ectoplasm constitutes *both* of the constituted objects. If blue ectoplasm and red ectoplasm can interpenetrate without interference, there might be a sad ghost made entirely out of blue ectoplasm, and a happy ghost composed entirely of red ectoplasm; and the one might pass through the other with no effect upon the mood of either (though each might feel a little chill run down its ectoplasmic spine). At that moment, according to (C), the blue ectoplasm constitutes both the sad and the happy ghost, as does the red ectoplasm. Again, it seems obvious that what is needed to rule this out is something like (6*).

One might resist all of these by generalizing (6) to prohibit constituted and constituting objects having any parts not made of “the same kind of stuff”, be it material or immaterial. This is a bit better, and perhaps less *ad hoc* than (6). It still seems to me to be nothing more than a not-wholly-successful way to achieve the results one could get directly from (6*). For even this proposed generalization of (6) is not enough. Given the possibility of ectoplasmic immaterial stuff, distinct parcels of which can interpenetrate, then there should also be the possibility of parcels of ectoplasm that, when arranged in a certain way, generate more ectoplasm *of the same sort* in the same location. And then Baker would still reach the wrong conclusion: that the generating ectoplasm constitutes the new batch, with which it has no parts in common.

Jekyll and Hyde

Anil Gupta raised an objection involving immaterial souls, and (6) took care of his original counterexample. But further epicycles are possible. On a dualist conception of persons, it is easy to see how a single body might be associated with two genuinely distinct persons, *à la* Jekyll and Hyde: Simply have two souls that share a single body. Such beings are not ruled out by her clause (6), since it merely says that if constituted thing is immaterial, then so is the constituting thing. The constituted thing in this case, a person who is a composite of soul and body, is not (entirely) immaterial, so the constituting thing need not be (entirely) immaterial; or, if Baker wants to say that the composite body-soul person counts as immaterial in virtue of having a part that is immaterial, then an aggregate of particles-plus-soul, or animal-organism-plus-soul that should be said to constitute the person *also* counts as immaterial. Either way, clause (6) is satisfied. Now suppose two immaterial and *spatially nonlocated* Cartesian souls are associated with a single body, both causally linked to it at all times but alternating in their manifestation. Let Jekyll be the person composed of the body and one soul, Hyde the person composed of the body and the other soul. Examination of (C) reveals that, with Hyde and Jekyll both *persons*, the one cannot constitute the other. But suppose Jekyll has but Hyde lacks a first-person perspective — that is why Hyde is mindlessly brutal, we may suppose: he is a (partially immaterial) animal, with animal appetites and no ability to reflect on his actions. Then, according to (C), Hyde constitutes Jekyll. But the constituting entity is a stupid, semi-conscious creature, incapable of reflection, and the person he constitutes is a clear-headed man. Indeed, if they alternate control, one always dormant, then neither is conscious when the other is. How could the one possibly

constitute the other? (6*) would block this result; Hyde cannot constitute Jekyll, since they do not share all their parts in common – each has a different soul.

Further, I suppose that, if Baker is right in thinking that there are *three* things linked by constitution relations in the case of organisms that are persons — (i) an aggregate of material particles, (ii) an animal body that could lack a first-person perspective, and (iii) a person), then there are three coincidents, or at the very least two, in the case of persons who are composites of body and soul. Even when Jekyll and Hyde are both full-fledged persons, there may well be three body-soul unions in each case, by Baker's lights. Consider Jekyll: (i) There is the mere aggregate of the shared body's matter plus Jekyll's soul, an aggregate that did not even have to compose an embodied person, and that will not compose an embodied person when they come apart at death; (ii) there *may* be a body-soul union that need not have been a person, but could have been a mere animal-with-a-soul (on the antiCartesian assumption that whether a soul is capable of a first person perspective depends upon the body it is associated with; contemporary "emergent dualists" often take this view); and then (iii) there is the body-soul union that is a person. But in the case of Jekyll and Hyde, there are two *at each level*, one for Jekyll, one for Hyde, with different souls as parts. Take, for instance, the aggregate of the shared body's matter plus Jekyll's soul. It is in the right circumstances to constitute a person (namely, Jekyll). But it is totally coincident with Hyde, and, by (C), constitutes Hyde.

Baker's responses: Modal skepticism

Baker considers two responses to counterexamples involving coincident entities: (1) modal skepticism, the view that our inclinations to find stories coherent does not count much, if at all, towards justifying their genuine possibility, at least when they have to do with “matters unrelated to the concerns of everyday life”⁸; and (2) retreat to merely defining “constitution-as-it-actually-is” (OMTU).

One might dismiss all fanciful stories about material or immaterial stuffs and particles, Cartesian ghosts and nonCartesian ectoplasm, either denying that anything other than good old actual-world matter is possible (the way the world is is the way it had to be), or at least denying the possibility of stuff *quite* so unlike the matter we know. I think my example of the orange, red, and yellow particles should still give one pause. And given her belief in *some* immaterial persons not located in space (God, angels), it is unclear what justification she could have for denying the possibility of the Jekyll-Hyde story outright (Baker is a Christian who affirms that there is at least one person who was the union of an immaterial substance and physical body, though she would argue that the sort of union in question was not much like the sort posited by the Cartesian). But what is needed to overcome all the counterexamples that seem to require mereology is the impossibility of immaterial substances like Cartesian souls, and of all kinds of coincident substances capable of constituting more complex things – the impossibility of coincident matter or immaterial stuff, of any kind of aggregates at the ‘bottom-level’ that constitute but are not constituted.

Why think any such stuff is possible, anyway? Well, there is the example of the interpenetration of “substantial fields”. But perhaps fields by themselves cannot constitute anything else; perhaps you have to have impenetrable particles to generate

them. (Although this would require the falsehood of certain “field theories” of particles, they are now out of favor anyway, and this fact might bolster one’s confidence.) So perhaps one can respond by denying the possibility of coincident stuff outright — particulate or gunky. But it would be slightly misleading to say that doing so in order to save her theory is merely *being skeptical about modality*. She *is* being skeptical about any modal intuitions we have *favoring* the possibility of interpenetrable materials; but for this skepticism to be justified, she must be simultaneously *unskeptical* about the modal implications of her own theory. Defusing the counterexamples by appeal to modal skepticism commits her to this: If the impossibility of interpenetrable particles or stuffs falls out of her theory, then intuitions to the contrary notwithstanding, interpenetrable substances are impossible. This deployment of modal skepticism is not a matter of *withholding belief* concerning the possibility of such stuff. To really say that the examples pose no threat, one would have to say that the positive impossibility of interpenetrable stuff is *acceptable*, that it is reasonable to believe as a direct consequence of the theory — assuming immediate consequences of a theory, once they are seen, must be reasonable if the theory itself is to remain reasonable. Once one is in the circumstances *we* are in, seeing the logical relations among the possibility of interpenetrable stuffs and her theory; then to withhold judgment about the possibility or impossibility of interpenetrable stuffs requires withholding judgment as to whether her definition is satisfactory.

And is this not just a detour, a way of getting the force of (6*) without having to explicitly mention parts? The impossibility claim, to work, must be a claim about the impossibility of interpenetrable fundamental kinds of matter — kinds of atoms or, in the

case of some sort of atomless, infinitely divisible stuff, kinds of “gunk”. And it has to be the case that constituted things can be counted upon to be made out of such stuff, if postulating impenetrability of constituting matter is to prevent distinct constituted objects from ever coinciding. So Baker must assume something like this principle affirming the presence of aggregates of matter underlying constituted things:

1. If x is a constituted entity, then there is a y such that: (a) x coincides precisely with y ; (b) y is an aggregate of atoms or portions of atomless gunk; and (c) x and y share a complete decomposition.

It follows immediately that:

2. If two constituted entities x and y precisely coincide, then there is an aggregate u of atoms or gunk that coincides with x , and an aggregate v of atoms or gunk that coincides with y .

Obviously, precise spatial coincidence is transitive:

3. If x precisely coincides with y and y precisely coincides with z , then x precisely coincides with z .

And transitivity, together with 2, implies coincidence of the constituting aggregates:

4. If two constituted entities x and y precisely coincide, then there is an aggregate u constituting x and an aggregate v constituting y , and u precisely coincides with v .

The thesis about which Baker is willing to be modally unskeptical, by virtue of its falling out of her theory, is the impossibility of penetrable fundamental substances:

5. If x and y are aggregates, and x precisely coincides with y , then x is identical with y .

From premise one and the impenetrability thesis, both of which are crucial to the “modal skepticism” response to the counterexamples, plus an obvious necessary truth about spatial coincidence, one can *almost* derive (6*), the mereological amendment I proposed:

6. If two constituted entities x and y precisely coincide, then there is a single fundamental aggregate u constituting both x and y . (From 4 and 5)
7. If two constituted entities x and y precisely coincide, there is a z such that: (a) z is an aggregate of atoms or portions of atomless gunk; (b) x shares a complete decomposition with z ; and (c) y shares a complete decomposition with z . (From 6 and 1)

To get all the way to (6*), one more principle about aggregates is needed — though it should not be a controversial one. An aggregate of matter, if it is the kind of matter that

consists of (genuinely simple) atoms, will admit of a single most complete decomposition S into the set of all its atoms. If x and y are constituted by an aggregate of atomic matter, then they must share at least this most complete decomposition. Aggregates of gunky stuff, though not divisible into a set of smallest bits, are divisible into smaller and smaller portions, admitting of decompositions arbitrarily small. Now someone might come up with some reason to think that, with x and y constituted by the same aggregate of gunky stuff, there could be some complete decompositions of the aggregate that were complete decompositions of x but not y . I am not sure what these reasons might be, but I have heard philosophers say stranger things! But never mind. Surely, for any particular pair of constituted objects x and y , one will be able to find decompositions of the constituting aggregate z they share; just decompose the stuff into nothing but extremely tiny portions of matter (as tiny as need be to arrive at bits they both have). This provides the final principle needed to obtain (6*):

8. If each of x and y shares a complete decomposition with an aggregate of atoms or portions of gunk, x and y share a complete decomposition.

So if two constituted entities x and y precisely coincide, then (6*) is true: x and y share at least one decomposition. (From 7 and 8)

So the “modal skepticism” strategy for escaping the counterexamples involving interpenetrable stuffs comes by way of rejecting a certain seeming possibility in order that satisfaction of the mereological clause (6*) will be entailed by her clause (2) — the

clause affirming spatial coincidence. In other words, the theory is saved by adding a controversial philosophical theory about spatial occupancy, a theory that is just strong enough to entail the complete sharing of parts, at some level, by things that satisfy (2). Why should it matter whether the mereological principle is a *theorem* or a part of the definition — especially since dubious auxiliary hypotheses must be brought in so that the theorem follows from the definition? Do not considerations of theoretical elegance and conservatism (e.g., “Do not deny the possibility of something that seems like it might be possible unless you absolutely must”) favor making the mereological clause part of the definition? We can reduce the number of clauses (crossing out (2) and (6)), and eliminate the entire budget of coincident-stuff and Cartesian-soul counterexamples in one fell swoop.

Baker’s responses: Defining “constitution-as-it-actually-is”

Alternatively, she has suggested that her theory might be taken to be a theory only concerned with “*constitution-as-it-actually-is*”, having nothing to say about constitution as it might be exemplified in worlds with alien kinds of stuff.

The strategy remains hostage to empirical fortunes, since it is far from clear that our actual fundamental particles occupy discrete locations; and if they do not, examples resembling the case of the superposed orange, red, and yellow particles may emerge as genuine possibilities for this-worldly stuff. (If their spatial locations are sufficiently objectively vague or “smeared”, the notion of coincidence used in her theory may have no clear application; and clause (6*) once again turns out to be far superior to the combination of (2) and (6).) But suppose Baker’s definition is adequate to all actual

cases of constitution; then, if ectoplasmic worlds and the like are metaphysically possible, and objects can constitute one another in them, the coincidentalists of Baker's stripe will likely think that the theory of constitution appropriate to those worlds is best analyzed along the lines of (C), but with (6*) in place of (6) to block the counterexamples. After all, it would be far better to modify the theory slightly than to say that nothing can constitute anything in those worlds, just because some interpenetrable substances are lurking. And, once (6*) is in place, *constitution-as-it-might-have-been* need not include clause (2), affirming coincidence, since it follows immediately from (6*). There would be a reason to suppose *constitution-as-it-might-have-been*, so defined, fails to be coextensive, in worlds with our sort of matter, with the constitution relation she defines if there could be cases of objects composed of *actual* matter in which a constituted object had a part that shared no particles in common with any part of a constituting object, or *vice versa*. I am confident that Baker agrees with me that this is impossible. In that case, the pairs of things in worlds like ours that satisfy Baker's definition of "constitution-as-it-actually-is" *also* satisfy the definition of "constitution" required in the worlds with alien stuff. And, since (6) and (2) follow from (6*), the alien theory of constitution could not *add* any pairs of things made of actual-world-matter to the extension of "constitution". Why artificially restrict the target of her analysis in this way when it can so easily be extended to cover every case that strikes us as a possible instance of the notion she is interested in? Why not just jump on the mereological bandwagon, and admit that sharing of parts is crucial to the notion of constitution?

"How I learned to stop worrying and love mereology"

Although Baker's face is set against making use of the notion of parthood in the definition of constitution, the source of her antipathy remains somewhat mysterious to me. She has three objections to using mereological notions: one is that "part" is not univocal ("Replies", OMTU); another is that "part" makes people think of "mereology", and the latter term has bad associations ("Replies", OMTU; P&B, pp. 179-183); the third is that the nature of personhood has nothing to do with parthood ("Replies", OMTU).

Is "part" not univocal? I am inclined to say that "part" means the same thing everywhere, but that not every kind of thing can have every kind of part. Abstract things have abstract parts, concrete things do not. A constituted entity partly dependent upon social conventions, such as a check, can have parts that are also dependent upon convention, such as signatures; while some simpler constituting thing, like a piece of paper, cannot. Yet the check itself can have both kinds, and I see no reason to suppose that we mean something different when we say that it does.

Compare the question whether the verb "to vote" is ambiguous. Not everyone can vote in every way in every election; a person can vote within her family, at a "family meeting", although she is not a citizen of the country in which she lives; but then she cannot vote for the president. A person might be able to vote in the presidential election, but not be able to vote for a congressional bill, because he is not a member of congress. And he might *be* there, in the House of Representatives, and seek to have his "Aye!" counted, but fail because he is not qualified. Similarly, a check and a piece of paper may be right here on the table, with the same ink on them, and the one be qualified to have a signature as part but the other not. "Voting" is not shown to be ambiguous between "congressional voting" and other sorts of voting by the inability of the congressional

visitor to vote by means of behavior that enables the member of congress to vote.

Neither is the ambiguity of “part” shown by the fact that one kind of physical object is unable to have parts of a certain kind despite an intimate relation between them, while a superficially similar but really quite different kind of object is enabled to have that kind of part by standing in the same intimate relation.

But even if one were to allow the parthood relation to proliferate with each new type of thing that could have parts of a new kind; still, constituted concrete individuals are constituted by some matter or some immaterial stuff, by some aggregate-or-other that is distinct from the constituted thing. Even a chain of constituters must bottom out in such stuff (except on the arguably incoherent supposition of infinitely complex matter: quarks made of “darks” properly arranged, “darks” made of “shmarks” properly arranged, *ad infinitum*). And I cannot imagine why one should say that there is variation in the sense in which different kinds of constituted objects have an atom or other bit of material (or immaterial) stuff as a part — whether or not the constituted object is of a kind that is dependent for its existence upon intentional states. At any rate, Baker has given us no reason to think so by means of her examples of kinds of parts that constituted things can have but that lower-level constituters cannot. So, even if one thought “part” was ambiguous, one could simply restrict the notion of parthood in (6*) to the one that holds between every whole and its fundamental constituents, a relation one might call “concrete parthood”.

The deeper reason for her antipathy seems to me to be the second one: “Part” conjures up the word “mereology” which conjures up all of the doctrines she mentions and from which she wants to dissociate herself: mereological essentialism, mereological

extensionality, mereological universalism (OMTU). But a theory may be mereological in the broadest sense — i.e., it includes theses involving the, or a, part-whole relation — without implying mereological essentialism or any of the other doctrines she rejects. Clearly, when she rejects a clause like (6*) because it makes her theory a partly mereological one, she is using the term “mereological” in this very broad sense. She is afraid that *any* talk of part-whole relations in her theory will mislead her audience into thinking she holds these (to her) distasteful mereological views.

But where there is a tendency to mislead, one can warn one’s audience about the misleading implications. If an audience is relatively smart (and anyone who has understood her book up to the definition of constitution *must* be), they will not be misled. However I do not even think there *is* a tendency to mislead by talk of parts and wholes, not in today’s climate, and within her intended audience. She says she rejects all the “standard mereological theses”: mereological supervenience, mereological essentialism, mereological extensionality, mereological universalism. But, at least among present day metaphysicians writing about parts and wholes and composition (the subject matter of mereology, in the broad sense of the term she employs), these theses are highly contentious.

There has been a lot of work on mereology, broadly conceived, in the last 30 years. Influential contributors to this literature include: David Wiggins, Peter van Inwagen, Kit Fine, Eli Hirsch, Eric Olson, David Sanford, Frederick Doepke, Judith Jarvis Thomson, Mark Johnston, Ernest Sosa, Michael Rea, Peter Simons (who could be said to have written the book on the subject: *Parts*, a monumental survey of mereological systems), Trenton Merricks, Michael Burke, and frequent co-authors Joshua Hoffmann

and Gary Rosenkrantz.⁹ But no person on this list accepts all of the theses she lists. And I could have gone on to extend the list almost indefinitely. Some, such as Merricks, reject *all* of her mereological theses.

Mereological supervenience, when it is understood as a sort of global supervenience of wholes upon the distribution of all the parts and potential parts in the universe, and their properties, is the least controversial of the lot; but then Baker accepts it too, or at least allows that it may be true (P&B, pp. 185-189). Perhaps she construes mereological supervenience as something stronger, something that would not follow from global supervenience alone — for instance, the doctrine that the nature of a whole supervenes entirely upon the *intrinsic properties* of its microphysical parts and their interrelations — extrinsic relations, including spatial relations to nearby particles, being irrelevant. But mereological supervenience, so understood, is widely doubted. No one on the above list accepts mereological essentialism. Only a couple are mereological extensionalists. Probably no more than half are mereological universalists: some explicitly reject the doctrine, others argue for it against assumed widespread opposition, and others have not said enough to clearly commit themselves one way or the other.

The only people I can think of who have written on the topic of parts, wholes, and composition in recent years who accept all of the repugnant doctrines are two of the friends of temporal parts, Michael Jubien and Mark Heller¹⁰; and, amongst those who doubt that there are temporal parts, only myself, James Van Cleve, the team of Roberto Casati and Achille Varzi, and (sometimes, but not always) Roderick Chisholm.¹¹ If anything, the friends of the whole batch of theses are a beleaguered minority among today's mereologists. Baker can hardly fail to be aware of this. In her book, she

discusses the work of twelve of the people on the list above; and I am the only philosopher she mentions anywhere in her work who actually holds all the mereological theses she rejects.

I very much doubt whether there is some *other* group of people in some *other* philosophical tradition using “part-whole” in such a way that all these contentious theses come out analytically true. And I do not think that merely using the term “part” in the way I suggest in (6*) will conjure up, in the minds of those *not* working in the field of mereology, all of the doctrines Baker rejects. So the worries she has about misleading people by using the word “part” in her definition seem to me to be totally unfounded.

The only other reason she gives for resisting “the apparently friendly amendment” (6*) is this:

I want to use the notion of constitution to understand the relation between persons and their bodies, and I do not think that that relation is illuminated by considering parts. The property of being a person, unlike the property of, say, being a steam engine, has nothing to do with parts or the relations among parts.¹²

It is important to keep in mind, however, that the question is not whether *parthood* illuminates *personhood*, but whether it illuminates *constitution*. The property of being a person may (I am willing to grant) have nothing to do with relations among parts. Since, by my lights, a substance could be *simple*, i.e. partless, and still be a person (e.g., God and angels, according to the theologians), personhood by itself implies nothing very definite about how many or what kind of parts a thing has. And it may well be that

sharing of parts has little to do with the aspects of the constitution relation in which she is most interested, and about which she has the most original things to say — i.e. the modal aspects of constitution. But, from the fact that some persons could be simple and constituted by nothing, or that some of the properties of persons are not analyzeable into properties of and relations among parts; it does not follow that, when the persons in question *are* complex entities, constituted *by* complex entities, the constitution relations in which they stand have nothing whatsoever to do with relations among the parts of constituted and constituting things. If she grants that the above stories about interpenetrable stuffs and Cartesian souls would, if genuinely possible, show the inadequacy of her analysis of constitution, and if appeal to the complete sharing of concrete parts at a sufficiently small level of decomposition would turn her necessary condition into a necessary and sufficient condition; then talk about parts *does* illuminate the relation she is interested in.

2. Creeping Substance Dualism

Several responses to “too many minds”

In this section, I argue that her theory of derivative and nonderivative exemplification threatens to turn her view into a kind of dualism. I consider alternative interpretations of her theory left open by its original presentation, and argue that, on any reading, her implementation of the derivative-nonderivative distinction to solve the “too many minds” objection turns her view into a bizarre form of substance dualism. I then consider a quite

different response she offers to “too many minds”: namely, that we count “nonseparately existing” but numerically distinct entities as one. This, too, fails to blunt the force of “too many minds”. Finally, I describe a way to avoid some aspects of the “too many minds” objection by appeal to a “trope metaphysics”; but then show that, given some things she believes about personal identity, pursuing this strategy would also result in a form of substance dualism.

Two interpretations of her theory of derivative and nonderivative exemplification

In stating her theory of derivative and nonderivative exemplification, Baker introduces a technical notion of “excluded properties”, which is used to limit the properties that may be had derivatively to just those that are temporally “local” (implying nothing about a thing’s past or future), contingent (or at least not analytically noncontingent), and not immediately implying something about constitution relations.¹³ In the version of her theory set forth in P&B, Baker affirmed each of the following biconditionals; but she had a choice about which to take as genuine definitions, and which notions to leave undefined; and which choice she preferred was not completely clear.

(I) *y has H at t independently of y’s constitution relations to x at t* iff:

- (a) H is not an excluded property;
- (b) y has H at t; and
- (c) Either:
 - (1) (i) y constitutes x at t, and
 - (ii) y’s having H at t (in the given background) does not entail that y constitutes anything at t; or

- (2) (i) x constitutes y at t, and
 (ii) y's having H at t (in the given background) does not entail that y is constituted by something that could have had H at t without constituting anything at t

(D) *x has H at t derivatively* iff:

- (a) H is not an excluded property; and
 (b) There is some y such that:
 (1) y has H at t independently of y's constitution relations to x at t; and
 (2) It is not the case that: x has H at t independently of x's constitution relations to y at t.

(N) *x has H at t nonderivatively* iff:

- (a) x has H; and
 (b) Either: (1) H is an excluded property; or
 (2) There is no y such that:
 (i) y has H at t independently of y's constitution relations to x at t; and
 (ii) It is not the case that: x has H at t independently of x's constitution relations to y at t.

(G) *x has H at t* iff either (a) x has H at t derivatively, or (b) x has H at t nonderivatively.

Baker could either try to turn these biconditionals into a reductive theory of the generic exemplification relation (the relation of which derivative and nonderivative exemplification are instances) or she could rest content with a nonreductive theory of this relation. It seems to me that, in P&B, it is not crystal clear whether she is best interpreted as offering a reductive or nonreductive theory; but the rival interpretations seem clear enough:

Reductive Interpretation:

- (1) “Has” in (Ib) — and, presumably, “having” in (Ic1ii) and (Ic2ii) — is the *nonderivative* exemplification relation.
- (2) (I), (D), and (G) are reductive definitions of derivative exemplification and generic exemplification in terms of the undefined notion of nonderivative exemplification and her definition of constitution.
- (3) (N) is a substantive axiom concerning the primitive relation of nonderivative exemplification.

Nonreductive Interpretation:

- (1) “Has” in (Ib) — and, presumably, “having” in (Ic1ii) and (Ic2ii) — and “has” in (Na) is the *generic* exemplification relation, something that holds between a thing and the properties it has both derivatively and nonderivatively.
- (2) (I), (D), and (N) are reductive definitions of derivative and nonderivative exemplification in terms of the undefined notion of generic exemplification and her definition of constitution.

- (3) (G) is a substantive axiom concerning the primitive relation of generic exemplification.

In her contribution to the present volume, she comes down squarely on the side of the nonreductive interpretation. But it is worth seeing what happens on the reductive interpretation. For one thing, it makes clear why some critics have accused her of substance dualism — an accusation she seems to find surprising, but which would have been quite justified on one natural reading of the theory as presented in P&B.

The revisionist reductive interpretation

If the “have” in (I) and (D) were in fact nonderivative having, then derivative having and a more general, generic notion of having could be reductively definable. But how are we to think of the generic notion so defined? Is it a new, technical one introduced by her but not otherwise in use, the ordinary notion of exemplification being equivalent to nonderivative having? In that case, it is *not what we ordinarily mean* when we talk about things having characteristics, and it is not part of the truth conditions for ordinary predications. Call this the revisionist version of reductionism.¹⁴ On the revisionist interpretation, she really does offer us a new kind of substance dualism, as Eric Olson has alleged.¹⁵ What we have meant up until now by statements like “I have a characteristic in common with that pile of rocks, namely, being six feet tall”, would have to be false, since ordinary attributions of properties involve nonderivative exemplification, and according to her theory I do not have my height nonderivatively. But (on the revisionist reductionist interpretation) she offers us a new way of talking that would make formerly

false sentences come out true by changing their meaning. (The newly defined sort of “having” could presumably also be used to show why statements made in the old lingo are well-founded and still are assertible by those who know better, despite the fact that they are not strictly true.)

Compare this view to that of a revisionist Cartesian who is willing to say that all of our attributions of physical properties to persons are strictly speaking false. When I say that I and the pile of rocks have at least one characteristic in common, e.g. our height, what I say is false. But the Cartesian can find a truth in the vicinity; he can go on to define an extended sense in which it is true that we have a common characteristic: I “have” the characteristic by being intimately united with a thing that *really* has it. What is the difference between such a Cartesian and Baker on the revisionist reductionist interpretation? The Cartesian denies that persons are in space or that they have bodily parts. While Baker says they can coincide with bodies, strictly speaking, they do not have bodily parts or spatial location except in a new, relational sense that has to be introduced by explicit definition. But what is worse is that statues and the like *also* turn out not to be six feet tall, heavy, etc. Of course this is the last thing Baker wants to say.

A slightly better reductionist interpretation

So nonderivative exemplification cannot be what we ordinarily mean by the “have” of predication. Nonderivative exemplification, on the reductive interpretation, would have to be a technical notion, apparently taken as a primitive, not the exemplification relation invoked in ordinary statements such as “I have a characteristic in common with the statue”.

On this more plausible reductionist interpretation, Baker would be attempting to preserve the truth of ordinary statements ascribing physical properties to persons, and first-person attitudes to (human) animals. Ordinary uses of the “to have” of property ascription are being analyzed disjunctively, so that they come out true whether a thing has the relevant property derivatively or nonderivatively. One problematic feature of the view would be that, since nonderivative exemplification is undefined, but also not the generic relation of exemplification detectable in ordinary talk about the having of properties, we would not know what it means without further help. Call the new relation “R”. All we know about R from the theory as set forth in P&B is that it is formally like generic exemplification (it holds between things and properties), that another notion called “derivative exemplification” can be defined in terms of it, one that basically means “stands in the constitution relation or its converse to something that stands in R to the property”. The reductive interpretation adds the claim that the generic notion “x has H” is to be analyzed as “x stands in R or is constitutionally related to something that stands in R to H.” But if R remains a mere undefined posit, it is open to various interpretations.

Consider, for example, a dualist such as William Hasker or Richard Swinburne,¹⁶ — an “emergent dualist” who supposes that human animal bodies, when properly functioning in worlds with the right laws about soul-production, naturally coincide with nonphysical souls. An emergent dualist will likely think that, although bodies do not have mental states, and souls do not have physical states; nevertheless, souls can be truly said to have physical properties by virtue of close association with bodies, and bodies can be truly said to have mental states by virtue of close association with souls. Such a Cartesian is free to interpret Baker’s undefined R in terms of a relation he will call “really

having”; souls *really have* mental properties but not physical properties, bodies *really have* physical properties but not mental ones; and the rest of Baker’s theory (on the nonrevisionist reductionist interpretation) proceeds as before. To derivatively have H will be to stand in a modally resilient coincidence relation (as defined in (C), and allowed to hold between body and soul by the emergent dualist) with something that *really* has H. This sort of emergent dualist advances the plausible hypothesis that the truth conditions for ordinary uses of the “have” of property ascription are disjunctive, at least when persons and their bodies are involved. Since it was not clear whether Baker advanced a reductive or nonreductive theory in P&B, and since the reductive version either *is* or *could well be* a form of substance dualism, it comes as no surprise that some have taken her to be a closet dualist.

The nonreductive interpretation

In OMTU, Baker wisely opts for the nonreductive version: The relation of generic exemplification — the one normally indicated by “have” or “exemplifies” in statements explicitly about properties or characteristics, like “Jones and I *have* many characteristics in common (or exemplify many of the same characteristics), such as being six feet tall and being rational” — is a disjunctive one, like “sibling”. To have or to exemplify a property is to either derivatively or nonderivatively exemplify it; but that is, now, a substantive claim, an axiom, not a definition of generic *having* (on pain of circularity). Presumably, the truth conditions of predications not explicitly about properties, like “Jones and I are six feet tall and rational” are similar: Jones is six feet tall iff Jones derivatively or nonderivatively has the property being six feet tall. At least, predications

in which the predicate corresponds to a property should obey this maxim. According to what is now her official, nonreductive account, “have” in the definiens of (I) and (D) is the ordinary, generic, disjunctive one. This need not prevent (I) and (D) from being real definitions. It only prevents them from serving as steps in a reductive definition of the more general, generic “having”. It could still be a necessary truth within a theory of exemplification that there are two species of exemplification, distinguishable by their different interactions with the notion of constitution.

As I noted, some (e.g. Olson) have claimed that her view is simply a new form of substance dualism, and that derivative exemplification is clearly second class, equivalent to “having in virtue of modally resilient coincidence relations to something that *really* has...”. Although rejecting the reductionist interpretation avoids one version of this objection, I believe that there is still a problem here.

Baker and the “truth-preserving dualist”

Consider what I shall call a “truth-preserving Cartesian dualist”, as opposed to the revisionist Cartesian considered earlier. The truth-preserving Cartesian wants to say that ordinary uses of the “to have” of generic exemplification, as in “I have several characteristics in common with that statue”, result in true statements, despite the fact that the thing referred to by “I” in some sense lacks all the empirical properties of the statue. The truth-preserving Cartesian must claim that the truth-conditions for many statements involving the “have” of property ascription allow for the borrowing of properties by things that, in some sense, do not really have them, but merely stand in certain relations to things that do.

Perhaps Chisholm's example is too much of a stretch to be literally true: "I'm down there on the corner of Jay Street without any Gasoline", as said to the gas station attendant, when it is really my car that is down the street.¹⁷ But certainly the borrowing of properties by a whole from its parts is legitimate enough. New York City can be said to have an indomitable spirit in virtue of a sufficient number of its citizens having indomitable spirits. But, if the tie between two things is intimate enough, we seem willing to ascribe the properties of one thing to the other, even when they share no parts in common. Few uncontroversial examples come to mind of distinct things as closely linked as the dualist thinks minds and bodies are. But consider hermit crabs, creatures that always have some shell or other, but do not grow their own shells and quite easily trade one for another. Though this is nowhere nearly as intimate a relationship as most present-day dualists posit between souls and bodies, already it appears that ordinary property ascriptions have truth conditions that allow for one-way borrowing. It seems clear to me that a hermit crab is not a compound having a shell as a part (whatever those who do not know much about hermit crabs might think). Shell and crab do not form an organic unity in either the literal or philosophical sense. Now suppose I name my hermit crabs Fred and Ethyl. Both people who believe the shells are not parts, and people who benignly think they are, will be willing, at least in most contexts, to say that Fred and Ethyl have the same color or size if their shells have the same color or size. And I do not think that we speak falsely when we say such things — for instance, when I ask the clerk at the pet store to sell me "the big gray one". If this is so, the truth conditions for "Fred has several features in common with Ethyl" will be satisfied if their *shells* have several features in common. (There are fairly obvious restrictions upon which features may be

borrowed in this way; historical properties, like coming into existence on the ocean floor, cannot be borrowed — and of course that is just the sort of “excluded property” Baker says cannot be borrowed by a person from her animal body.)

The truth-preserving dualist alleges that something similar goes on in our ordinary ascriptions of properties to persons. Ordinary property ascriptions to persons allow for the borrowing of certain physical properties from bodies by the souls intimately tied to them; so that there are two ways to have a property, a tight one, and a loose one — *really* having it, and having it by virtue of intimate relations to things that really have it. And the generic “have” of ordinary property ascription is disjunctive, satisfied by either sort of having. There is *a* sense in which, strictly speaking, a soul does not have a mass or height etc., even though it be united to a body as tightly as you can imagine. But, our ordinary ascriptions of height, mass, etc. to persons, even if persons were souls, would not be straightforwardly false — or so the truth-preserving dualist may plausibly claim. This sort of dualist wants “has” in our mouths, on ordinary occasions, to have truth conditions along the lines of “really has, or (if it is not an excluded property) is a soul united with something that really has...”; and, given the number of dualists among ordinary language users even today, and their hegemony in earlier eras when the same (or *very similar*) languages were used, it is not at all implausible to suppose that the actual truth conditions for ordinary property ascriptions, whatever they are, allow for the borrowing of physical properties by souls from their bodies — or they would allow this, if there were such things. (Many dualists have thought persons were composites of body and soul, and not merely in virtue of *borrowing* the property of having bodily parts from their bodies; but others have been more clear-sighted.)

A dualist can accept Baker's entire theory of constitution and derivative exemplification, as long as he is willing to allow that souls can coincide with their bodies, and so be spatially located where their bodies are. And if something can coincide with something else derivatively, in virtue of constitutional ties to something that nonderivatively coincides with the thing, then her theory can be accepted even by a radical (but truth-preserving) Cartesian dualist who believes in souls that are, in and of themselves, nonspatial. If derivative spatial coincidence is not enough to satisfy clause (2) of her definition, one could still be an emergent dualist who believes in spatially located souls generated by bodies. The sort of dualist I have in mind would say that persons are extended in space but also that, strictly speaking, they do not *really* have physical parts or any of the other physical properties the materialists take us to have — though we can be truly said to have many of them in ordinary contexts, in virtue of close ties to things that have them in a more robust sense. For such a dualist, the relation of nonderivative having, "R", is "really having", and derived having of a property H is defined by the rest of Baker's theory as a matter of standing in modally resilient coincidence relations with something that really has H. This dualist may suppose (with Hasker and, perhaps, Swinburne) that there is a law of nature to the effect that, when an organism reaches a certain complexity, a ghost appears right where it is, an object having no parts in common with the body. (And he could follow Baker in believing that, perhaps only by a miracle, the person who is this ghost could survive the complete destruction of all of the body's parts at once, making it even more ghost-like.) Including the laws among the ghost-favorable circumstances, the modal clauses of (C) come out right. The body constitutes the ghost, as long as they remain coincident. And even

adding a part-sharing clause, like (6*), will not bother this dualist, since derivatively having parts is a way to have parts — and in the generic, disjunctive sense, the ghost and body *do* have parts in common, the latter because it *really* has them, the former because it is so closely tied to something that really has them.

Olson may be construed as challenging Baker to show that *she* is not this dualist. Leaving “R” undefined, as in the second version of the reductive interpretation, would clearly play into the dualist’s hands; who is to say that the undefined, but technical notion “R” is not the relation of *really having*, with derivative having a kind of having by courtesy? But even if nonderivative having is not left undefined, but defined in terms of generic having as in the nonreductive interpretation, it does not follow that the theory on offer is not a version of dualism. The truth-preserving dualist thinks that generic exemplification has two species, “really having” and “having by being a soul tied to a body that really has”. Baker thinks that animal bodies borrow higher-level psychological properties from coincident persons; so, unlike the ordinary truth-preserving dualist, the Baker-style dualist adds a further species of derivative having: “having by being tied to a soul that really has” is an additional direction from which nonexcluded psychological properties may be borrowed. Most truth-preserving dualists countenance borrowing of physical properties from the body by a nonphysical soul, but not borrowing of mental properties from the soul by the body, and Baker allows both directions. But the emergent dualist will surely regard this as simply a question of semantics; do we, in fact, allow that bodies count as in pain, despite their strictly not being in pain, in virtue of ensoulment by a spirit in pain? Perhaps Baker is right about this, and the truth-preserving dualist has

something to learn from her. But is there any further difference between their views? If so, what is it?

The “too many minds” objection

Indeed, there is much pressure on Baker and other coincidentalists to posit, for mental states anyway, one primary, nonderivative exemplifier, and to treat any sense in which further coincidents have mental states as a mere borrowing by courtesy, not *real* having — just what the truth-preserving dualist insists upon! The pressure comes from Olson’s “too many minds” objection: If there are two or three thinkers here, then there are two or three pains that have to be taken into account in utilitarian calculations, for instance; and two thinkers thinking “I am in pain”. And that certainly seems wrong.

The problems posed under the heading “too many minds” are basically two: First, there is the pressure to admit the presence of two or three pains, feelings of melancholy, etc., one for each coincident entity, where intuitively there should only be one; call this problem, “too many thoughts”. Second, there is the pressure to recognize two or three psychological subjects, each with the same subjective point of view, indiscernible “from inside”, unable to distinguish amongst themselves; call this, “too many thinkers”. The “too many thinkers” part of “too many minds” is given forceful formulation by Eric Olson:

Because the human animal connected with you is a perfect duplicate of you, it is conscious and intelligent if you are conscious and intelligent. Whatever makes it

the case that you think and act rationally would seem to make it the case that the animal thinks and acts rationally as well. The animal speaks English, or at least a language homophonically indistinguishable from English. So if you can refer to yourself by saying ‘I’, the animal too should be able to refer to itself by saying that word. How could its merely having the wrong persistence conditions, which is all that makes the animal different from you, prevent it from thinking about and referring to itself? If you believe you are a person, the animal connected with you thinks it is a person as well. It thinks so for the same reasons that you think so; it has the same evidence as you have. ... It is mistaken, however, for it is not a person.¹⁸

“Too many thoughts” and “too many thinkers”

Here is one way to press home “too many thoughts”. One could inflict a certain amount of pain upon a semi-conscious feral child, incapable of first-person attitudes; and it would certainly seem that one could inflict the same amount of pain upon a semi-conscious but ordinarily self-aware person — a person nominally awake but stupefied by drugs, say.

Neither happens to be thinking a first-person thought, so in neither case is the pain ramified or amplified by reflection. Neither, let us suppose, will be able to recall this episode later (perhaps each is doomed, and we are certain of this); nor will anyone who cares deeply about one but not the other ever know which experienced the pain.

Counting aggregates, as well as animals and persons, there are only *two* physical objects feeling pain in the case of the feral child but *three* in the case of the person. However we make sense of counting pains, whether it is by counting subjects that really exemplify

them (as opposed to standing in intimate relations to things that really exemplify them) or by counting concrete entities like events or tropes or instances of pain, I submit that there should be the same amount of pain in both cases. That is to say, there must not be reason to prefer one state of affairs to the other *on the basis of the amount of pain inflicted*. The derivative and nonderivative exemplification of *being in pain* must not, then, generate two equally genuine subjects of pain. If exemplifications generate events, there must not be a second event in each case, at least not one that is itself a second feeling of pain. (Further *relational* events, like coming to coincide with a thing in pain, or coming to coincide with a thinker, would not be a problem.)

One might attempt to divorce the number of pains or the amount of pain from the number of subjects feeling pain by supposing that pains are not individuated by their subjects, but are rather distinct individuals themselves — what D. C. Williams called “tropes”, property instances that have a kind of independent existence. There might, then, be just one of these pain-individuals, indifferently related to however many subjects happen to be in its vicinity. The kind of independence of events, so conceived, need not be too great. But at least they must not be *made out of* the individuals to which they occur — i.e., they cannot be structured entities like Armstrong’s facts¹⁹ or Jaegwon Kim’s events²⁰, constituted by an object and a property it exemplifies. If they were, then the “too many thoughts” dilemma would be reinstated: Either just one of the person, animal, and aggregate is the real subject of pain, part of the real event of something’s being in pain; or each subject exemplifies pain and there are three events of something’s being in pain.

This sort of move may help with “too many thoughts”; but it will not (I argue below) help with “too many thinkers”. It also presupposes a metaphysics that may lead to trouble, at least for Baker. Typically, a metaphysics with tropes in it also builds concrete substances out of collections of tropes. And this move leads pretty directly to a temporal parts metaphysics, since the events happening to an object — at least, the empirically detectable events with which an object is most naturally identified, namely those involving the exemplification of intrinsic properties such as shape, mass, charge, internal structure, and so on — may be changing continuously. When an object is constituted by a bunch of instantaneous tropes at one time, and by entirely different batches of instantaneous tropes at neighboring times, is there any alternative but to say that it persists by means of temporal parts? I suppose one might say, of some object *x*, that it is the sum of tropes *A*, *B*, *C* at one time, and tropes *D*, *E*, *F*, at another time, but that there does not exist a third and fourth thing, *y* and *z*, *y* being a sum of *A*, *B*, *C* that exists just at the first time, and *z* being a sum of *D*, *E*, *F* that exists just at the second time. This still smells like a temporal parts view to me, since every continuously changing object would be constituted, without remainder, by instantaneous items.

Since Baker is, I believe, an opponent of temporal parts, she would have to hold a quite different sort of trope metaphysics, such as has been advocated by C. B. Martin²¹: There are “chunky” individuals that are genuine, concrete substances, on the one hand; and thinner individuals (“junior substances”²²), the tropes that are events happening to those substances, on the other. Then both person, animal, and aggregate of matter could be distinct substances sharing (as parts, or by means of some other relation of association) many of the same tropes. Although there may be something to be said for a metaphysics

with substances and tropes as distinct categories of entities; nevertheless, in the context of a coincident objects metaphysics, and deployed in order to cut down on the number of events, it may lead to some special difficulties of its own. I consider this hypothesis in greater detail below, under the heading “Three Objects with but a Single Trope”. There I show how, in conjunction with other views of Baker’s, a Martin-style metaphysics of tropes leads to a kind of substance dualism. Since the only non-temporal-parts-inducing trope theory leads to dualism, a trope metaphysics of events will be neglected until the argument of that section.

Setting aside trope-theories of events means setting aside views that treat events as something less than a complex structure consisting of a substance’s having a property at a time. These complex structure views are less friendly to a coincidentalists of Baker’s stripe, as shall appear. For they require that one count events with different constituents as different things, multiplying events with the addition of coincident entities. Although I shall assume the complex structure theory of events for the next several sections, my defense of “too many minds” is unfinished until I address the more coincidentists-friendly trope theory of events in the sequel.

Solving “too many thoughts” by downgrading derivative exemplification

It would be tempting to respond to both parts of “too many minds” by downgrading derivative having, insisting that there is always only *one* thing that is *really* in pain, or *really* referring to itself — namely, the thing that is nonderivatively in pain or nonderivatively referring to itself. The problem with this move, of course, is that it plays directly into the dualist’s hands. Nevertheless, in P&B, and in her discussion of first-

person thought there and in OMTU, Baker often seems to be relying on just this sort of strategy. Here is her initial response, in P&B, to “too many thoughts”.

She agrees that “duplication of mental states is implausible. But no such duplication follows from the Constitution View. I have the thought nonderivatively; the animal that constitutes me has it derivatively — solely in virtue of constituting something that has the thought nonderivatively” (P&B, p. 102). Suppose I and the organism that is my body are both in pain; this “does not imply that the organism that constitutes me has one pain and I have another” since one of us has the pain derivatively.²³ And she insists in several places upon the “nothing-but-ness” of derivative having: “The fact that *y* has a property at *t* derivatively just *is* the fact that at *t* *y* is constitutionally related to some *x* that has the property at *t* independently of being constitutionally related to *y* at *t*” (P&B, p. 55); the fact that *y* has certain properties derivatively “is not a different fact from the fact that *x* has them at *t* and *x* constitutes *y* at *t*” (P&B, p. 58).

And she presses these claims into the service of a response to “too many thoughts”. Eric Olson alleges that, if thoughts are realized in brains, then both animal and person must be thinkers, and thoughts are duplicated, since animal and person both have the same brain. Baker responds:

This is a false dilemma. For any of my mental states that require a first-person perspective, I have them nonderivatively and the animal that constitutes me has them derivatively. For any of my mental states that do not require a first-person perspective, I have them derivatively and the animal that constitutes me has them nonderivatively. But this does not amount to duplication because to

have a property derivatively is nothing other than to be constitutionally related to something that has it nonderivatively... (P&B, pp. 102-103).

If Baker claims to have cut down on the number of subjects of pain by insisting that, in each case, only one of the coincident things has pain nonderivatively, she will only have cut down on the number of pains if derivative having is second-class — only if it is mere having-by-virtue-of-relations-to-something-that-*really*-has. In the midst of responding to the “too many thoughts” objection, Baker emphasizes the indirect, relational nature of derivative exemplification, playing it down as *less real than* nonderivative exemplification. But elsewhere, when she is protesting against the charge that she is a closet dualist, she de-emphasizes the indirectness, and stresses the fact that she is quite willing to say that both animal body and person *have* (derivatively or nonderivatively) physical properties.

She realizes that “[t]he idea of having properties derivatively walks a fine line.

On the one hand, if x has H derivatively, then x really has H — piggyback, so to speak. Assuming that persons are constituted by bodies, if I cut my hand, then *I* really bleed.... I have the property of bleeding derivatively, but I really bleed. But that fact that I am bleeding is none other than the fact that I am constituted by a body that is bleeding. So, not only does x really have H by having it derivatively, but also — and this is the other hand — if x has H derivatively, then there are not two independent instances of H: for x 's having H is entirely a matter of x 's

having constitution relations to something that has H nonderivatively (P&B, pp. 177-8).

It appears to me that derivative having does not just walk a fine line; to switch metaphors, it is (derivatively?) having one's cake and eating it, too. If derivative having of the pain by the semi-conscious person (in my earlier example) is not to generate an extra subject of pain, one more thing experiencing pain than there would have been had the subject of pain been the feral child, then derivative having of pain must not be real having of pain, but just standing in some relation to something that really has it. But then the dualist interpretation of R is the correct one after all. On the other hand, if the person and the person's body are each subjects of pain in an equally robust sense, injuring the feral child results in fewer creatures in pain, and is, to that extent, preferable. And that result seems to me to be absurd.

Solving "too many thinkers" by downgrading derivatively referring

Baker offers a similar response to "too many thinkers". Olson alleges that the proliferation of subjective points of view generates an unlikely skepticism in the face of the question: "How do I know which is me?" Baker asserts that "I" always refers to the person nonderivatively, to the body derivatively. I take it this means something like: the person has, nonderivatively, the property *being referred to by this use of 'I'*, while the body has it derivatively (OMTU). How does this help? Is the question one asks oneself: "Do I, nonderivatively, refer to a mere body or a person with this use of 'I'?" If that were the question that was supposed to produce puzzlement, then she would have given an

answer: According to her, each refers, and (because of conventions governing our use of “I”) can apparently *only* refer, nonderivatively anyway, to the person. So there should be no nagging doubts about the answer.

But if the question were, instead, “Which one has the property of being referred to by this use of ‘I’?”, and both nonderivative *and derivative* exemplification of a property were good enough for a thing to really and truly have the property (as Baker insists when she wants to affirm that her persons *really do have* the physical properties that their bodies have nonderivatively); then *each* subject would succeed in referring to itself (the animal referring derivatively to itself, the person referring nonderivatively to itself) as well as to the other when I ask myself whether I am the animal body or the person. In other words, if derivative and nonderivative reference were treated as she treats derivative and nonderivative fatness or smartness, then “I”-thoughts would have disjunctive satisfaction conditions: x is a subject referred to by an “I”-thought iff x is either derivatively or nonderivatively referred to by “I”. And then Olson’s question really does have skeptical bite.

Notice, too, that the use of shared mental tropes to cut down on the number of thoughts does not hold much promise as a resolution to “too many thinkers”. Whether or not there is an extra mental particular when I think “Which am I?”, a “token” of the act of thinking shared by all subjects present, the question is about the referent of “I” when this “token thought” occurs. If the token-thought trope is shared by many, one must still ask whether each uses it to refer to itself, or to one of the others; or whether the situation is better described as some more complicated pattern of nonderivative reference to one,

derivative reference to others. The alternatives remain unchanged on the tropes metaphysics.

To sum up: If the distinction between derivative and nonderivative reference is to draw the skeptical fangs of the question “Which one do I refer to when I say ‘I’?”, the word “refer” must ordinarily mean the same thing as Baker’s expression “refer nonderivatively”. But this implies implausible results about uses of “referring to” in sentences like “When I say ‘I’, I’m referring to a person not an animal” and, presumably, also in more ordinary contexts such as “When I said ‘Bush’ I was referring to the current president”. Her answer requires that a word *x* refers to a thing *y* only if it nonderivatively refers to *y*. So, what she calls derivative reference must be an *extended* sense of reference, and not the one we are ordinarily interested in; it is not reference in the strict and literal sense. Is not the dualist right, then, to conclude by parity of reasoning that her more general notion of the derivative having of properties, such as the derivative having of physical properties by persons, is an extended sense of “having” — less real, by courtesy? If not, then she should make use of some other distinction than that between derivative and nonderivative exemplification in her response to “too many thinkers”.

Widespread creeping dualism

The derivative-nonderivative distinction leads to a bizarre form of dualism when pressed into service to solve these problems. It is bizarre because her theory of constitution is so comprehensive. If derivative having is downgraded to a mere “having by courtesy” in order to answer “too many minds”, it is downgraded throughout the (supposedly) material world. She defends herself against the charge of dualism by pointing out that,

on her account, the relation between animal and person is the same as that between marble and statue. But does this show us that she thinks persons are material objects or rather that statues are a funny kind of immaterial object?

If derivative exemplification dissolves “too many thinkers”, then things that are only derivatively in pain or only derivatively thinking about themselves are not *really* in pain or *really* thinking about themselves; and statues that are only derivatively marble or heavy are likewise not *really* marble or *really* heavy. It will not do for her simply to insist that the relation of derivative exemplification she has in mind is one that only holds between an object and a physical property if the object really is a physical object — like a statue, for instance. That would be like saying: “Derivative having of physical properties is enough for a thing to be physical because it is *a part of my theory* that things having physical properties derivatively must be physical.”

“Counting by separate existence”

But there is a quite different line of response to “too many minds” that Baker also employs; and I suspect that this second response is much closer to the spirit of her view than the attempt to solve “too many minds” by downgrading derivative exemplification. It is the doctrine I shall call “counting by separate existence”: The view that, when one is talking about a property F that can be shared by constitutionally related entities (i.e., a property that is not an “excluded property”), one counts two or more things that are F as *one F* if the several things are constitutionally related. This is the essence of her definition (Same-F),²⁴ and the accompanying claim that it captures our ordinary ways of counting. Notice that there is no significant use of the notions of derivative and

nonderivative exemplification in this characterization; all that is needed is a distinction between the “excluded properties”, the ones that are not automatically shared by constitutionally related things.

Baker calls numerically distinct things that are not constitutionally related “separately existing” things; while numerically distinct things that *are* constitutionally related (along with truly identical “things”) are “nonseparate”.²⁵ Since we count distinct but nonseparate things as one for all ordinary purposes, it is simply false to conclude that there are two thinkers here, or two creatures in pain, from the fact that I am a thinker or in pain, my body is a thinker or in pain, and I am numerically distinct from my body. Those premises are all true, but, in the ordinary sense of expressions like “two thinkers”, “two creatures in pain”, etc., constitutionally-related entities are not counted as two; and so the conclusion does not follow, if it is intended to mean what we would ordinarily mean by the words “two thinkers”, “two creatures in pain”, etc. Only “in a Pickwickian way” can two entities that are constitutionally related be said to be two in number. I take it that this means something like: Only in a context such as that of the philosophy seminar room can it be truly and appropriately said that a person and a body and an aggregate of matter are not identical, but are three things constitutionally related (it had better be true in some contexts, since she herself says as much!). In the ordinary course of things, these distinctions are rightly and properly ignored, constitutionally related things are presumed to count as one, and those who violate this presumption speak falsely or at least in a misleading way.

The idea that we generally count constitutionally-related things as one is a plausible addition to any coincidental theory. If true, it would be an instance of a

widespread phenomenon, that of ignoring certain *F*s when counting *F*s. When counting *animals in the zoo*, we do not ordinarily count the individual fleas on the backs of the hyenas, or the unwanted moles living underneath the camels' enclosure. But, strictly speaking, they are after all animals living, permanently, in the zoo. In some contexts our attention can be brought to bear upon individuals we otherwise neglect in our counting; so for instance, if engineers are told to seal up the zoo under some sort of dome, creating an artificial environment for its flora and fauna, it could become highly relevant that many more animals are living in the zoo than show up on the usual count. This phenomenon of the contextual shiftiness of standards for counting is important to Baker; without it, her official theory becomes flat out contradictory, implying that person, body, and aggregate of matter are three but also one. The claim that they are three is formulated in the context of doing metaphysics, where distinctions become salient that are properly ignored in everyday life.

Contexts of counting

But does this “counting by separate existence” thesis really solve the problems posed by “too many minds”? I have argued that if Baker downgrades derivative exemplification, her view becomes a strange sort of dualism about persons (strange because so many other paradigmatically material objects also become relatively immaterial, material only by virtue of relations to the *real* material objects). To avoid this result, an animal body and the person it constitutes must both, then, really be in pain, and really be thinking the same thought, if either one is, however we are to understand the derivative-nonderivative distinction. Does the mere fact that, ordinarily, we count distinct subjects of pain or

thinkers of thoughts as one when they are constitutionally related make it more plausible to admit that, strictly speaking, there are (at least) two subjects of pain and two thinkers here? Does it cut down on the number of pains, or the number of things with a subjective point of view? Not by itself.

Suppose the car salesperson says, “The new Caravan and the new Windstar are the most popular minivans on the market; I have both on the lot, you can drive either one home today.” I ask, “Those are the only two vans you have?” And she says, “If you’re interested in new vans, yes, I only have those two.” I might ask about emissions, being environmentally conscious, and she might say: “The Caravan emits x amount of carbon dioxide, on average, over the life of the vehicle, and the Windstar emits y .” But if she sells every Windstar and Caravan on the lot, they may produce hundreds of times more carbon dioxide than just $x + y$ over their lifetimes. Everything in her statements might be true, none of it even misleading, despite the presence of hundreds of new vans in the car lot. In the context of the original conversation, counting all the Caravans as one and all the Windstars as one makes perfect sense. If she were to sell all the vans to a rental company, and were then accused of facilitating massive carbon dioxide production, it would be quite disingenuous of her to say, “I only sold two vans, a Windstar and a Caravan; how much environmental damage could two vans do?” In that context, counting all the Windstars as one and all the Caravans as one is no longer appropriate.

One might object that the salesperson counts all the Windstars as one because she is counting *types* of van, and not “token-vans”; and that the sort of “counting as one” that Baker advocates cannot be construed as an instance of this phenomenon. But there are similar cases that could not possibly be ambiguous between counting types and counting

tokens. Consider Peter Geach's example of the pope's crown, which consists of three crowns; and imagine a case displaying four examples of crowns worn by the pope. Were one to ask the curator of the exhibit how many crowns are on display, she would doubtless answer "Four" — the crowns that are mere parts of larger crowns being properly ignored in most contexts. A group of twelve children left unattended in the museum, however, might be delighted to discover that (after a little work) there is exactly one crown for each child. Only the pedant (e.g., the philosopher) will disagree with *both* curator and children, and answer "sixteen" when asked "How many crowns?"

Now suppose that, tragically, all four of the pope's crowns somehow become radioactive, each emitting the same amount of radiation. One crown might be radioactive in virtue of each constituent crown's being slightly radioactive; another might be radioactive in virtue of just one of its constituent crown's being *very* radioactive; but surely it is a substantive question in each of the four cases which of the smaller constituent crowns are radioactive, and which are not. Granted, for most purposes, it is inappropriate to count the three crowns in a larger crown separately when answering questions about the number of crowns, including the question how many crowns are radioactive. And, in such contexts, if any smaller crown is radioactive, then the crown that contains it counts as one radioactive crown, however many of its smaller crowns are radioactive. But in other contexts we attend to the individual crowns; and the question which are radioactive is not settled by the fact that the three *larger* crowns are equally radioactive. So, for example, we might be glad, for the sake of some of the mischievous children, that many of the twelve crowns were not radioactive at all.

Similarly, though we may count persons and animals and aggregates of matter as one for certain purposes; if each has the same amount of pain, then for the purposes of figuring out how much pain there is in the world, one must multiply by three. If not, then only *one* of the coincident entities *really* has the pain, the other two only have it by courtesy, in virtue of their intimate relations to *it*. (Recall that, at present, I am ignoring trope theories of property exemplification that would not individuate events by their subjects but exalt them to the status of separately countable “junior substances”). To say that someone calculating amounts of pain need only count entities that nonderivatively have pains forces the meaning of “nonderivatively having” inexorably towards “really having”, and “derivatively having” towards “having only in virtue of an intimate relationship to something that really has”. But, again, to solve the “too many minds” objection in that way is to become some sort of dualist.

Does the objection “beg the question”?

Baker claims that it is “question-begging” to infer “there are two thinkers” or “there are two pains” or “there are two persons” from the numerical distinctness of two things that are thinking or in pain, or that are persons:

I have gone to some lengths to show that the term ‘nonidentity’ (or ‘numerical difference’) subsumes two different relations — constitution and separate existence. (Again: Numerical identity is not at issue here. It is the *denial* of numerical identity that I think fragments into two.) Where there is the “separate existence” variety of nonidentity, then there are twice as many Fs. But where

there is the constitution variety of nonidentity, then there are not twice as many Fs as we thought. Since this is my view (like it or not), an argument that depends on an inference from the nonidentity of x and y to there being two Fs just rests on the prior assumption that the view is false (OMTU).

Again: no argument that *assumes* or stipulates that there is no “third way” between identity and separate existence can non-question-beggingly be used against the Constitution View (OMTU).

Of course no one can deny that, in one sense, numerical difference “fragments” into more than one relation. There is being a pair of nonidentical mammals and being a pair of nonidentical things at least one of which is not a mammal. Or being a pair of nonidentical human beings and being a pair of nonidentical things at least one of which is not a human being. Or being a pair of nonidentical human beings of the same gender and being a pair of nonidentical things that are not similarly-gendered humans. Or being a pair of nonidentical but genetically identical human siblings and being a pair of nonidentical things that are not human twins. And then there is being a pair of constitutionally related but nonidentical human persons (such as me, nonderivatively a human person; and my body, derivatively a human person) and being a pair of nonidentical things that are either not constitutionally related or at least not both human persons. Call the first member of each of these pairs of relations the “nonseparate distinctness” member of the pair. Notice that there is what might be called an increase in the “degree of nonseparateness” or “closeness” as one moves from earlier to later forms

of nonseparate distinctness on my list. If x and y are nonidentical humans, it is insured that they share very many properties in common, many more than is insured simply by the fact that x and y are mammals; and if x and y are twins we can infer that they are alike in ever so many ways, at least in genetic make-up. Similarly, from the fact that x and y are nonseparate but distinct in Baker's sense of nonseparate, or in the final sense in my series of nonseparate distinctness relations (the same as her notion, but restricted to human persons), we can infer that they share a great many *more* properties. But what does this tell us about the amount of pain in the world, or the number of things thinking thoughts, when x and y are nonseparate but distinct creatures in pain, or thinkers? Does it tell us more than we would learn by hearing that x and y are both in pain but stand in one of the *other* nonseparate distinctness relations I defined?

Whether we generally count nonseparate things as one does not by any means settle the matter. In the context of a study of the effects of a certain drug on individuals with different genetic profiles, the fact that x and y are distinct individuals but identical twins might require counting them as one when reporting results. But if the tests were painful, these "nonseparately distinct" individuals added twice as much pain to the world as did the "pairs" of nonseparate but identical subjects. Granted, Baker is able to define a relation that ought to be compatible with nonidentity, that entails massive property sharing, and that is sometimes close enough for us to count nonidentical things so related as one for many purposes; and, granted, it makes sense to call this a kind of "nonseparateness". But it still needs to be shown that there are not two thinkers or two pains when there are two things thinking or in pain but nonseparate in her sense. And it cannot be shown simply by *calling* the relation "nonseparateness" and insisting that it is

part of one's theory that nonseparate things in pain do not add more pain to the world than a single thing in the same sort of pain.

One way to show there is no doubling would, of course, be to show that only one of the nonseparate but distinct things is in pain or thinking in the most basic sense, the other only being in pain or thinking in virtue of relations to something that is *really* in pain or thinking. But, obviously, that way lies dualism.

Exemplification by sums of constitutionally related entities

Another possible response to “too many minds” — though not one unequivocally endorsed by Baker — would be to argue that neither aggregate nor animal nor person is the full-fledged subject of pain or thought; that, instead, their *sum* or *union* exemplifies these properties; and that its several parts — aggregate, animal, person — are in pain or thinking in virtue of being parts of a thing that is in pain or thinking. This move might be read into remarks like: “Meeting your neighbor on the street, you meet a person-constituted-by-a-body, not a person and a body”; “...if x constitutes y at t, there is a unified individual whose identity is determined by the primary kind of y. If a piece of marble constitutes a statue, the piece of marble does not cease to exist, but (I can only put it metaphorically) its identity is encompassed or subsumed by the statue. The unified individual is the statue-constituted-by-a-piece-of-marble.... The constituted thing has ontological priority over its constituter” (OMTU). And, in responding to Olson’s claim that the person and the body each refers to itself when she thinks an “I”-thought, she says: “The word ‘I’ has a single referent here — this nonderivative person, myself-constituted-by-my-body” (OMTU). Talk of a statue or person as a unified individual,

“the statue-constituted-by-a-piece-of-marble”, “the person-constituted-by-her-body”, suggests that the real referent of “I”-thoughts, and the real subject of properties, is something like the *sum* or unified *whole* composed of marble-plus-statue or person-plus-body.

I do not claim that this is a move she actually makes. But these phrases do evoke the notion that there is a further thing composed of *all* the coincident entities, somehow “subsuming” them, and standing as the genuine and primary subject of *all* their properties. And she seems to me to be using these admittedly metaphorical descriptions of the unification of the coincident things so as to downplay the derivativeness of the way in which each thing has some of its properties. So, although I do not think *she* has the right to put much weight on these ways of speaking, there does seem to me to be a view in the vicinity worth exploring.

Three objects with but a single trope

One version of such a view could be put in terms of the trope theory of events mentioned earlier: For each state of either aggregate or body or person that does not involve the having of an excluded property, there is an additional individual, a trope or property instance, to which all three are indifferently related. To say that all three have the one trope is, in effect, to say that their sum has the property of which the trope is an instance; or at least that the aggregate’s having the trope, and the body’s having it, and the person’s having it are not distinct instances of exemplifying this property.

A trope theory of events provides a strategy for preventing a multiplication of pains and feelings and thoughts, without having to decide which of the constitutionally-

related entities is the primary bearer of which properties. But, given other commitments of Baker's, I doubt whether it could fully absolve her of the charge of dualism.

The way in which persons would be related to the tropes of their physical properties would have to be considerably less tight than, for example, the ways in which her statues are related to the tropes of their physical properties. She believes that a person, unlike a statue, can survive the complete destruction, all at once, of all the physical parts that it (derivatively) has. For she thinks that our bodies can be utterly destroyed by nuclear explosion or ordinary decay, and that we may yet find ourselves still alive, with different bodies, in heaven.²⁶ So a person can continue to exist without any of her present (derivatively possessed) physical properties playing any causal role in her continued existence. Surely neither a mere aggregate of matter nor the organism that is my body could survive under these circumstances.

If a thing has a certain property — at least, an empirically significant, nonexcluded property, such as having a certain mass or shape, or being in pain — there will be causal powers associated with that property, powers that are conferred upon anything that has the property. And, as Shoemaker has pointed out, many of these powers have to do with what will happen to *that very thing*, the thing that has the property, under various circumstances.²⁷ Things that “have” such a property in some sense that allows for fewer consequences, that allows for more freedom from the constraints associated with other things that have the property, do not *really* have it, or only have it in virtue of law-like but contingent connections to something that does.

Consider some of the physical properties animal bodies have, such as shape and mass and internal structure, and the consequences of these properties for the animals that

have them. An animal body cannot discontinuously change shape or mass (except by gaining or losing larger parts, but even then it must acquire the mass of the part that was already there, or acquire the mass of itself plus that of the new part). This is not merely a lawful but contingent regularity; it is an exceptionless principle of change for physical organisms, one that puts limits upon the possible changes in physical properties that they can undergo. If an animal has a certain mass, it cannot just jump to any old mass you like; it can only get to a larger mass by gradually acquiring new parts that add to its mass, or decrease in mass by losing parts that are not too big, whereupon it comes to have the mass of the remainder (plus the mass of whatever new matter it has taken on board in the meantime). One of Baker's persons, on the other hand, can come to have a larger mass in a way that is not simply a matter of acquiring a part equal to the new mass minus the old, and a person can decrease in mass in a way that is not simply a matter of coming to have the mass of a proper part that was already there and has become an improper part. For one of her persons can jump from this body to a completely different one, all at once, with no continuity of matter. Granted, it would take a miracle. But not even a miracle would be enough to carry off the impossible feat of causing an organism, still less an aggregate of matter, to lose all its parts at once and come to have all new ones at some later time, ones that are not directly causally connected to the physical parts it has here and now.²⁸ To use van Inwagen's analogy, that would be like supposing that an original manuscript in Augustine's own hand could be burnt up completely, *and then*, by a miracle, recreated by God. If the causal history of the original piece of paper ended in ashes, no subsequently created piece of paper, however similar to the original, could be the original manuscript.²⁹ There is, then, a very different relationship between a person

and her physical properties, on the one hand; and between her body and these properties, on the other. The restrictions physical properties put on the changes open to aggregates of matter and animal bodies restrict persons only contingently — only so long as they are associated with (constituted by) the aggregates and bodies.

Baker would, I have little doubt, deny that a marble statue can jump into a completely different piece of marble the way she thinks a person can jump into another body (whatever way that is — she remains wisely agnostic about ways and means, merely affirming the possibility, she knows not how). And I assume she would agree with me about the impossibility of an animal body performing the sort of miraculous jump into the hereafter she thinks persons can make; an animal body could not come to be made of entirely different stuff, after its causal history has ended in death and decay here and now. Assuming a trope metaphysics, it follows that there is a big difference between, on the one hand, the way in which statues and animal bodies are related to the tropes of their physical properties; and, on the other hand, the way in which persons are related to the tropes of their physical properties. The tropes of physical properties enter into the “inner workings” of statues and animal bodies, constraining their possible histories in quite narrow ways; the way in which they constrain the histories of persons is exhausted by the fact that a person is, necessarily, always constituted by some body or other — i.e., coincident with it and modally tied to it in the way described in her definition.

Consider the hermit crab again. The crab can go from being bright white to being dark brown all at once, without benefit of paint or bleach or the gain or loss of any of its parts, simply by casting off its shell and crawling into a new one. The white shell it

inhabits, and in virtue of which it is white, cannot change so suddenly, at least not in the absence of the typical causes of color changes. The thing that *really* has the color properties in this case is the thing that has more restrictions placed upon its ability to change color; the thing that is not as constrained by its present color is the thing that merely borrows its color from something with which it is intimately united. Given the differences Baker posits in the possible histories of persons and bodies, the physical properties of bodies and persons, even if they are tropes closely related to both, are much more tightly tied to the bodies; they enter into the very nature of the bodies, constraining the possible changes they can undergo. The nature of a person, however, is relatively independent of the particular physical properties its body happens to have at any given time; there are ever so many radically different, causally unconnected sets of physical properties a *person* could come to acquire, once the contingent connection between it and its present body is broken. The body, then, has its physical property tropes in the way the crab's shell has its color and size and shape; it cannot easily change them, and it certainly cannot change them discontinuously with no regard for their present values. The person has these physical property tropes the way the crab has its color and size and shape; it can change them without aid of the normal causal mechanisms, and can change them without working from their present values. So the attempt to use tropes to solve "too many minds" does not, given Baker's other views about persons, provide her with the tools to rebut allegations of dualism.

The dilemma of “too many minds” for coincidentalists

To sum up, then: I do not claim that the coincidentalists cannot escape substance dualism. A coincidentalists can always either accept that there are many minds, and learn to live with the results (e.g., the half-conscious person introduces more pain into the world than the feral child undergoing the same type of pain); or she can deny that coincident entities besides the person really have mental states while affirming that the person really has the physical properties of its constituters. But Baker does not seem to me to have decisively chosen one of these alternatives rather than the other, and the result is a theory afflicted with creeping dualism.

3. Baker vs. the “Serious Metaphysicians”

Folk ontology and folk physics

Baker begins P&B, and concludes OMTU, with some provocative remarks about her philosophical methodology and the ways in which it differs from that of other metaphysicians, those she characterizes as engaged in what they think of as “serious metaphysics”. I conclude this essay with the suggestion that, given her own (serious) aims, she is not so different from them as she might like to be, but only differs with them over the question how seriously to take certain general principles — but principles that are widely held by philosophers and common folk alike, not arcane deliverances of pure metaphysics.

There used to be a lot made of the distinction between “descriptive metaphysics” and “prescriptive metaphysics”.³⁰ The former was supposed merely to describe a scheme

of very general categories that are implicit in ordinary thinking, a kind of natural way of carving up the world at a high level of generality — to describe the scheme without necessarily advocating it. In our day, some philosophers and cognitive scientists are drawn to explore what they call our “folk ontology”; and they offer a similar characterization of their project: delineating the (or perhaps only *a?*) natural, preanalytic, commonsense view of the world at a very high level of generality.³¹ Both projects yield categorial schemes involving notions like those of event, process, substance, property, part, etc.

It is instructive to compare these pursuits with the efforts of cognitive scientists and psychologists to elaborate and codify “naive physics”.³² Naive physics is supposed to be a kind of default, useful, but in some ways admittedly seriously flawed theory about how physical objects behave — a theory we all nevertheless have a strong tendency to fall into or believe implicitly, holding onto even some of the more mistaken elements long after we should know better. You might study the subject out of simple curiosity, with no interest in how well it describes the real world. You might study it for personal amusement. (By now, most philosophers have enjoyed hearing about how ordinary folk think that a ball swung around on a string will take off in ever larger spirals if the string breaks — at least we enjoy such stories until we become the butt of one of the jokes!) You might study it in order to figure out how to better teach *regular* physics, looking for the most resilient false aspects of naive physics. Many who study naive physics do so with the conviction that it will illustrate useful shortcuts in our reasoning about the physical environment — shortcuts that could someday be implemented in robots, for instance, cutting down on computing time. But, though there are many reasons for

interest in naive physics, belief in its reliability as a guide to the strict and literal truth about the physical world is not one of them.

Now one might pursue descriptive metaphysics, or the teasing out of a “folk ontology” from what we ordinarily say and from ordinary forms of inference, for similar reasons: interest in uncovering actual psychological mechanisms, or amusement at just how confused people can be, or the desire to uncover hidden assumptions (“blind spots”) that might be misleading us, or the hope that folk ontology will provide clues to the efficient development of artificial intelligence. But there is another reason many philosophers are interested in something like “folk ontology” or “descriptive metaphysics”: They think that there is a presumption in favor of its *truth* — that any departure from it requires substantial justification if we are to accept the alternative as true instead. Of course many others are skeptical about this claim, or skeptical about whether there *is* any unified scheme of commonsense categories to be discovered. However, if one does not think there is some presumption in favor of descriptive metaphysics, then one had better have one of these other reasons to engage in it. And it would be sad indeed if one still thought that, despite there being no presumption in its favor, it remains terribly important that the folk ontology ends up truly describing reality!

Sometimes Baker’s portrayal of *her* goals for metaphysics, and of her methodological stance of “practical realism”, sounds like advocacy of a merely descriptive approach to metaphysics, the teasing out of a folk ontology from ordinary habits of thought and talk. And perhaps her method has much in common with others who advocate such things. But I cannot believe that Baker is merely exploring our folk ontology or describing our proto-metaphysical categories for theoretical aims divorced

from the search for the truth in any of the ways I have described. After all, one of the benefits she thinks her views have over others is that they retain the things that *really matter* to us. It is terribly important, she thinks, that our metaphysics implies that persons and artifacts really exist and really are pretty much as we take them to be; that they not be swept away by reductive metaphysics, militant and triumphant. Given this emphasis on the importance of preserving certain things in the metaphysics resulting from implementation of her methods, I feel sure that she intends to be “limning the true categories of reality”, not merely describing categories we happen to use but that may not truly apply to anything. In some sense, then, she certainly conceives of herself as doing “serious metaphysics” — serious in that it aims to get at truths that matter.

Speaking things into being

But then the objections of Sider she describes at the end of OMTU do have some bite, more than she is willing to admit. For, if we want our metaphysics to be true, and not just an adequate description of our minds, we cannot ignore other things we take to be true that conflict with some of the deliverances of her method. For many of us, there are such things, including general principles about the mind-independence of at least certain portions of reality; principles that are, I think, shared widely enough to *also* count as part of commonsense, or at least as part of what most people who spend any time reflecting on such matters find themselves believing. Some of us continue to take such principles seriously even when conflicts arise within the totality of our beliefs about ordinary objects. She is more quick to let them go. This seems to be at the bottom of her complaints about some of the rest of us who do “serious metaphysics”. But I do not think

it represents a terribly deep methodological divide. And it is not hard to elicit commonsensical-seeming intuitions supporting principles about physical objects that conflict with her view. Here are some examples of perfectly commonsensical lines of thinking that take us directly into just the sort of “serious metaphysics” she seeks to avoid.

Baker thinks we sometimes bring things into existence by thinking about them — at least, this follows from her view if objects can become artifacts (tools and works of art and monuments, for instance) simply by our thinking of them as such. A piece of conveniently shaped driftwood becomes a coffee table by being brushed off and brought into the house, a urinal becomes a sculpture when hung on a wall in a museum and given a title, a boulder becomes a boundary marker or memorial when it is up-ended and used for either purpose. But do we really believe that anything new comes into existence when we do such things? One problem is that these acts are on a spectrum with creative activities that seem really to result in something new; and that the idea of a sharp cut-off somewhere on the spectrum is both hard to believe in, yet necessary if we do not want to allow for things that only sort-of-exist — another difficult notion, for surely if *there are* such things, well, then there they are, existing after all!

Artifacts like trains can survive radical rearrangements and replacements of parts; the Orange Blossom Special can get a new engineer, a new engine, new cars, etc. What is the difference, in principle, between this “new thing”, the Orange Blossom Special, that exists right where the aggregate of cars and engines is located, and derives its physical properties from them, on the one hand; and things we do not yet recognize but could have recognized or could come to recognize, on the other? Some of what we say

about the president of the U.S. suggests that “it” is a thing much like the train: With a few exceptions, including a period during the War of 1812, the president has always lived in the White House; the president has always been a man, but ought someday be a woman; etc. We pull back from this appearance of hypostatization, denying that the president is a thing that lasts for hundreds of years, always located just where some numerically distinct man is; that he is someone who jumps discontinuously several feet during the inauguration ceremony, etc. How ridiculous!

But a little reflection makes many of us pull back in the case of the train as well: Suppose the stationmaster says, “Wait, Casey Jones, we found a leak in the boiler; take that other engine and those other cars on track number nine instead of the ones you were going to use to load up all those oranges”. Did a train, the Orange Blossom Special, a physical object made of iron and steel, jump discontinuously from one track to another? Apparently so, if we take artifacts as seriously as Baker would like us to. And how differently must we talk or behave before something like the train comes into existence? How differently would we have to talk and act before G. W. Bush, the man, would come to coincide with another thing, a person (derivatively) who is (nonderivatively) commander-in-chief of the armed forces, etc. but who will outlive the man G. W. and always be president?

So far as I can see, the only differences here are, once again, on a spectrum; and they are differences primarily in how we *talk* about things — though also in how we are disposed to react to things in nonverbal ways, by saluting, for instance, or obeying orders. But I think the importance of nonverbal responses can be minimized dramatically, at least in many cases. If timetables for trains omitted all use of names like “The Orange

Blossom Special” and “The Empire Builder” and so on, telling us instead simply where to find some train cars when, and where they will go; then our nonverbal interactions with pieces of metal would likely be almost exactly the same, though we would be refusing to recognize trains as a kind of entity that can change tracks at the stationmaster’s command. The major difference between the situation just described and our actual interaction with trains is almost entirely a matter of how we talk about them, how we describe them on posted schedules, and so on. If what we *actually* do is sufficient to introduce such things in addition to aggregates of cars and engineers, and the situation I described would *not* be, it really does appear that we can bring concrete physical objects into existence simply by changing our dispositions to talk in certain ways.

If she denies that the Orange Blossom Special is an artifact, it surely lies on a spectrum that segues smoothly from things she does recognize, like buildings and automobiles and computers, towards things that increasingly owe their existence to little more than changes in our verbal and nonverbal behavior towards certain other things. There seems no choice but to do some serious metaphysics here: either treat all the cases alike (resulting in either an explosion of entities or an extreme reductionism), or admit that there *are* things that do not (quite) exist, or search (hopelessly, by my lights) for some precise cut-off. I expect Baker to resist each of these metaphysical enterprises; but doing so requires giving up on convictions that are widely held, and not just rejecting dogmas peculiar to a perverse breed of serious metaphysicians.

One possible response to these challenges would be this: “Why should I allow myself to be dragged into your metaphysical quagmire? All I am doing is descriptive

metaphysics, mapping the contours of the categories implicit in unreflective ordinary thought and talk; I do not have to believe that there really *are* such things as the Orange Blossom Special in order to find this pursuit worthwhile.” This response is not open to Baker; clearly, she means to be doing more than this, to be offering an account of how things *really are*. And in that case, her ontological profligacy counts as a serious strike against her view, at least for the many of us who share some of the reactions I have just tried to elicit — for instance, powerful resistance to the idea that changes in our ways of talking about things, even coupled with simple changes in some of our nonverbal reactions to things, could by themselves bring any concrete physical object into existence.³³

NOTES

¹ Baker's theory is set forth most completely in her *Persons and Bodies* (Cambridge: Cambridge University Press, 2000). Revisions occur in her "Replies", *Philosophy and Phenomenological Research* 64 (2002); and "On Making Things Up: Constitution and its Critics", *Philosophical Topics*, this volume.

² Temporal parts are advocated in this context by W. V. O. Quine, *Word and Object* (Cambridge, MA: MIT Press, 1960); David Lewis, "Survival and Identity" and "Postscripts to 'Survival and Identity'", *Philosophical Papers*, Vol. 1 (Oxford: Oxford University Press, 1983), pp. 55-77; Harold Noonan, *Personal Identity* (London and New York: Routledge, 1989); Hud Hudson, *A Materialist Metaphysics of the Human Person* (Ithaca, N.Y.: Cornell University Press, 2002); and (in a curious, temporal-counterpart-theoretic way) Theodore Sider, *Four-Dimensionalism* (Oxford: Oxford University Press, 2002).

³ Coincidentalists abound. See, e.g.: David Wiggins, *Sameness and Substance* (Cambridge, Mass.: Harvard University Press, 1980); Sydney Shoemaker, "Self, Body, and Coincidence", *Proceedings of the Aristotelian Society, Supplementary Volume* 73 (1999), pp. 287-306; Mark Johnston, "Constitution Is Not Identity", *Mind* 101 (1992), pp. 89-105; E. J. Lowe, *Subjects of Experience* (Cambridge: Cambridge University Press, 1996); Frederick C. Doepke, *The Kinds of Things* (Chicago and La Salle, Illinois: Open Court, 1996); Peter Simons, *Parts: A Study in Ontology* (Oxford: Oxford University Press, 1987). Given her rejection of temporal parts and her openness to masses of atoms and portions of stuff (see "Parthood and Identity Across Time", *Journal of Philosophy* 80 (1983), pp. 201-220; and "The Statue and the Clay", *Noûs* 32 (1998), pp. 149-173), Judith Jarvis Thomson is a coincidentalists; but, unlike Baker, she does not believe that persons are some further physical object constituted by organic human bodies; see Thomson, "People and their Bodies", in *Reading Parfit*, ed. by Jonathan Dancy (Oxford: Basil Blackwell, 1997), pp. 202-229.

⁴ See, e.g., Sydney Shoemaker, in Sydney Shoemaker and Richard Swinburne, *Personal Identity* (Oxford: Basil Blackwell, 1984), pp. 113-114; Mark Johnston, "Constitution Is Not Identity", p. 93; Frederick C.

Doepke, *The Kinds of Thing*, Ch. 7; Judith Jarvis Thomson, “The Statue and the Clay”. Though not a coincidental myself, compare my analysis of constitution in “Theories of Masses and Problems of Constitution”, *Philosophical Review* 104 (1995), pp. 53-110.

⁵ See P&B, p. 43.

⁶ See Richard Swinburne, *The Evolution of the Soul* (Oxford: Oxford University Press, 1986); and William Hasker, *The Emergent Self* (Ithaca, NY: Cornell University Press, 1999). Compare also my “Should Christians Be Mind-Body Dualists?”, in *Contemporary Debates in Philosophy of Religion*, ed. by Michael Peterson (Oxford: Basil Blackwell, forthcoming).

⁷ See Theodore Sider, Review of Lynne Rudder Baker, *Persons and Bodies*, *Journal of Philosophy*, forthcoming.

⁸ See the section entitled “Criticisms of the Idea of Constitution”, in OMTU; and her “Replies”. The quoted phrase is from Peter van Inwagen, “The Problem of Evil, of Air, and of Silence”, in his *God, Knowledge and Mystery: Essays in Philosophical Theology* (Ithaca: Cornell University Press, 1995), p. 85; see also van Inwagen, “Modal Epistemology”, *Philosophical Studies* 92 (1998), pp. 67-84.

⁹ Wiggins, *Sameness and Substance*; van Inwagen, *Material Beings* (Ithaca: Cornell University 1990); Kit Fine, “Compounds and Aggregates”, *Noûs* 28 (1994), pp. 137-158; Eli Hirsch, *The Concept of Identity* (Oxford: Oxford University Press, 1982); David Sanford, “The Problem of Many, Many Composition Questions, and Naive Mereology”, *Noûs* 27 (1993), pp. 219-228; Doepke, *The Kinds of Things*; Thomson, “Parthood and Identity Across Time”; Johnston, “Identity Is Not Constitution”; Sosa, “Subjects among Other Things”, in James Tomberlin, ed., *Philosophical Perspectives*, 1, Metaphysics (Atascadero, CA: Ridgeview Publishing Company, 1987); Rea, “The Problem of Material Constitution”, *Philosophical*

Review 104 (1995), pp. 525-552; Rea, “Constitution and Kind Membership”, *Philosophical Studies* 97 (2000), pp. 169-193; Simons, *Parts*; Merricks, *Objects and Persons* (Oxford: Oxford University Press, 2001); Burke, “Dion and Theon: An Essentialist Solution to an Ancient Puzzle”, *Journal of Philosophy* 91 (1994), pp. 129-139; Burke, “Preserving the Principle of One Object to a Place: A Novel Account of the Relations Among Objects, Sorts, Sortals, and Persistence Conditions”, *Philosophy and Phenomenological Research* 54 (1994), pp. 591-624; and Hoffman and Rosenkrantz, *Substance: Its Nature and Existence* (London: Routledge, 1997).

¹⁰ Michael Jubien, *Ontology, Modality, and the Fallacy of Reference* (Cambridge: Cambridge University Press, 1993); and Mark Heller, *The Ontology of Physical Objects: Four Dimensional Hunks of Matter* (Cambridge: Cambridge University Press, 1990).

¹¹ James van Cleve, “Mereological Essentialism, Mereological Conjunctivism and Identity Through Time”, in P. French, T. Uehling, and H. Wettstein, eds., *Midwest Studies in Philosophy XI*. (Minneapolis : University of Minnesota Press, 1986); Achille Varzi and Roberto Casati, *Parts and Places: The Structures of Spatial Representation* (Cambridge, MA, and London: MIT Press, 1999); Roderick M. Chisholm, *Person and Object: A Metaphysical Study* (La Salle, Illinois: Open Court Publishing Co., 1976), Appendix B; Chisholm, “Parts as Essential to Their Wholes”, *Review of Metaphysics* 26 (1973), pp. 581-603; and Chisholm, “Mereological Essentialism: Further Considerations”, *Review of Metaphysics* 28 (1975), pp. 477-484.

¹² Baker, “Replies”.

¹³ For a more detailed characterization of “excluded properties”, consult OMTU.

¹⁴ In a version of “On Making Things Up” delivered at the University of North Carolina, 2001, Baker advocated what seemed to be a revisionist reductionism, calling nonderivative exemplification the “old

way” to have a property, and derivative exemplification the explicitly, reductively defined “new way” to have a property.

¹⁵ Olson, Review of *Persons and Bodies: A Constitution View*, *Mind* 110 (2001), pp. 427-430.

¹⁶ Hasker, *The Emergent Self*, and Swinburne, *The Evolution of the Soul*.

¹⁷ Roderick M. Chisholm, “Is There a Mind-Body Problem?”, *Philosophical Exchange* 2 (1978), pp. 25-34.

¹⁸ Olson, *The Human Animal* (New York: Oxford University Press, 1997), p. 106.

¹⁹ See David M. Armstrong, *A World of States of Affairs* (Cambridge: Cambridge University Press, 1997).

²⁰ See Kim, “Events as Property Exemplifications”, reprinted in his *Supervenience and Mind* (Cambridge: Cambridge University Press, 1993).

²¹ Martin, “Substance Substantiated”, *Australasian Journal of Philosophy* 58 (1980), pp. 3-10.

²² A. J. Ayer characterized sense-data as “junior substances”; but the term seems to fit tropes just as well.

²³ P&B, p. 102. In fact, Baker assigns pain, and other mental states open to mere animals, to the body; only thoughts that require that a thinker have a first-person perspective are assigned to the person.

²⁴ OMTU; compare her definition (S), P&B, p. 174.

²⁵ P&B, p. 174; see also OMTU.

²⁶ P&B, pp. 141-145; I also rely on a paper she read before the Pacific regional meeting of the Society of Christian Philosophers (Pasadena, CA), in April, 2000.

²⁷ See, for instance, Sydney Shoemaker, "Identity, Properties, and Causality", in P. French, T. Uehling, and H. Wettstein, eds, *Midwest Studies in Philosophy*, Vol. 4 (Minnesota: University of Minnesota Press, 1979), pp. 321-342. One need not buy into the whole nonreductionist package Shoemaker defends here in order to accept the moral that many properties imply things about what will happen to objects that have them under various circumstances.

²⁸ Elsewhere, I explore a way of attempting to allow for direct causal relations between a dying organism and a resurrection body, so that the appearance of the complete petering out of the effects of the organism's physical properties is only an illusion. Baker could make use of this, as well, if she liked; but it would be a way of allowing for the *organism* to continue, not a way of allowing for the organism to genuinely perish but the *person* to continue to exist without the same animal body. See my "The Compatibility of Materialism and Survival: The 'Jumping Elevator' Model", *Faith and Philosophy* 16 (1999), pp. 194-212.

²⁹ Van Inwagen, "The Possibility of Resurrection", reprinted in *The Possibility of Resurrection and Other Essays in Christian Apologetics* (Boulder, Colorado: Westview, 1997).

³⁰ The *locus classicus* for the distinction is P. F. Strawson, *Individuals* (London: Methuen and Company, 1959).

³¹ For discussion of this literature, see Barry Smith, "Formal Ontology, Common Sense and Cognitive Science", *International Journal of Human-Computer Studies*, 43 (1995), pp. 641-667.

³² The inspiration for much of the naive physics project may be found in Patrick J. Hayes, “The Naive Physics Manifesto” in D. Michie, ed., *Expert Systems in the Micro-Electronic Age* (Edinburgh: Edinburgh University Press, 1978). For subsequent developments, see J. R. Hobbs and R. C. Moore, eds, *Formal Theories of the Common-sense World* (Norwood: Ablex, 1985). And for philosophical discussion of the project, consult Barry Smith and Roberto Casati, “Naive Physics: An Essay in Ontology”, *Philosophical Psychology* 7 (1994), pp. 225-244.

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