

P A R T V I

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PERSONS AND THE
NATURE OF MIND
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CHAPTER 16

MATERIAL PEOPLE

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1. INTRODUCTION: SENSIBLE MATERIALISMS AND ENTIA SUCCESSIVA

1.1 The Varieties of ‘Sensible Materialism’

DUALISM and materialism are competing answers to the question each of us may ask with the words ‘What am I?’ (spoken in a metaphysical tone of voice, with emphasis on the word ‘am’). The following (admittedly somewhat stipulative) working definition of ‘dualism’ will suffice for present purposes: the doctrine that no human being is an object composed entirely of the kinds of physical stuff that make up rocks and trees and the bodies of animals, but that each of us is, instead, something quite different—a substance that has sensory experiences, thoughts, and emotions, but shares almost nothing in common (except, perhaps, spatial location) with the

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physical objects that surround us or with their fundamental constituents (electrons, quarks, and so on).¹ By ‘materialism’, I mean the doctrine that each human being *is* an object all of whose parts are, ultimately, made of the same kinds of physical substances as rocks and trees and the bodies of animals.

Dualism is not entirely lacking contemporary defenders, including some very able philosophers.² In this chapter, however, I confine my attention to materialist theories about human persons. As shall appear, I find dualism considerably less unbelievable once the materialist alternatives are clearly articulated. In fact, most days of the week I am a dualist myself. But in today’s climate defending dualism is a Herculean, not to say Quixotic, task; for the moment, I leave it to others and adopt the assumption that some form of materialism must be true.

It would be an extreme understatement to say that, among philosophers, materialism is the more popular view. But there are many different versions of materialism, some just as unpopular as dualism. Descartes mentions some insane materialists who believe ‘that their heads are made of earthenware, or that they are pumpkins, or made of glass’ (Descartes 1984: 13). At least one otherwise sane contemporary philosopher has taken seriously the thesis that we are tiny physical particles lodged somewhere in our brains (see Chisholm 1998: 291–6 (reprints portions of Chisholm 1979); Quinn 1997). But more popular by far (and rightly so) are versions of what I will call ‘sensible materialism’.

Some parts of living bodies have more or less natural boundaries: they fall under biological or functional kinds, such as *heart, cell, nervous system, brain, cerebrum, cerebral hemisphere, complete organism* (that ‘part’ that includes every other). Call the ‘likely candidates’ for being human persons those objects with natural boundaries that include *all* the parts upon which our ability to think most immediately depends. A couple of examples will help make this notion clearer. An ‘object’ composed of an arbitrary assortment of particles taken from toenail and eyelash and tongue does not count as a likely candidate, since it lacks natural boundaries. The kidneys, although they have natural boundaries, are ruled out by the discovery that our thinking is only *indirectly* dependent upon them and their parts; a human being can go on thinking without them, at least for a short time.

The likely candidates are, I take it, the only really satisfactory physical candidates for being a thinker such as I am. They include: the complete organism a person often refers to as ‘my body’, the entire nervous system within it, the brain,

¹ Dualism, as I have defined it, is a doctrine about how actual human beings and actual kinds of stuff are related. It should not be taken to imply that it is not possible for there to have been chemical atoms with atomic weights differing from any actual atoms, or that if there were such atoms then dualism would be true.

² Defenders of dualism include Swinburne (1997); Foster (1991); Robinson (1989); Hart (1988); Hasker (1999); and Harwood (1998). (All are at least defenders of *anti-materialism* about the self; Foster and Robinson are defenders of dualism by day, but the last of the idealists by night. For Foster’s idealist tendencies revealed, see Foster 1982.)

the cerebrum, and perhaps one or the other single hemisphere of that cerebrum. *Sensible materialism*, then, will be the thesis that each human person is one of these likely candidates. (Note that identifying a human person with something having the boundaries of a human brain, or of a complete human organism, does not automatically imply that the person has purely biological persistence conditions—for example, it does not rule out the possibility of a person’s ‘switching bodies’ by means of a ‘brain state transfer’ device.) Perhaps George Graham is right to think that we are in a state of ‘strong ontic ignorance’—i.e. we do not know exactly what kind of thing we are.³ But I suspect that, if there is good reason to reject all versions of sensible materialism, then one of the better dualisms is at least as likely to be true as any *non-sensible* materialism.

1.2 Chisholm’s Entia Successiva Argument

Roderick Chisholm believed that one could answer few of the most interesting philosophical questions about persons without grappling with more general metaphysical questions.⁴ Chisholm raised the following objection to the thesis that we are *entia successiva*—‘successive entities’, things that gain and lose parts over time.

The body that persists through time—the one I have been carrying with me, so to speak—is an *ens successivum*. That is to say, it is an entity made up of different things at different times. The set of things that make it up today is not identical with the set of things that made it up yesterday or with the set of things that made it up the day before. Now one could say that an *ens successivum* has different ‘stand-ins’ at different times and that these stand-ins do duty for the successive entity at the different times. Thus the thing that does duty for my body today is other than the thing that did duty for it yesterday and other than the thing that will do duty for it tomorrow. But what of me?

Am *I* an entity such that different things do duty for *me* at different days? Is it *one* thing that does my feeling depressed for me today and *another* thing that did it yesterday and still another thing that will do it tomorrow? If I happen to be feeling sad, then, surely, there is no *other* thing that is doing my feeling sad for me. We must reject the view that persons are thus *entia successiva*. (Chisholm 1979)

If Chisholm’s argument is sound, then every form of sensible materialism must be rejected. For all the likely candidates are *entia successiva*.

Many have thought that Chisholm’s argument is easily resisted. He seems to be presupposing that there is, in addition to the living body (or other *ens successivum* candidate for being me), yet another thing (a ‘stand-in’, as he calls it) made of the same parts as the body but incapable of surviving the gain and loss of parts. But why

³ George Graham used the expression ‘strong ontic ignorance’ in discussion at the conference ‘The Self’, University of Arkansas, 10–12 Sept. 1999.

⁴ The conviction was not so widely shared back in the 1960s and early 1970s as it is today. Compare Chisholm (1969, 1970, 1976).

suppose there is any such thing? Why not simply say that there is the living body, and a host of tiny particles that constitute the body, but no *extra* thing made of the same particles but differing from the living body in that it cannot acquire new particles or lose its present ones?

Chisholm takes it to be obvious that there are such extra things.⁵ But not everyone finds them so obvious; and it would surely be a strike against such entities if countenancing them were to lead, as Chisholm's argument seems to show, to a quite bizarre conclusion. Chisholm's basic argument can, however, be further defended by appeal to the fact that *entia successiva*, such as artefacts and organisms, are made out of various kinds of material stuff; and that the stuff an artefact or organism is made of at one time is often not the same as the stuff it is made of at another. Mass terms—such as 'water', 'gold', 'cellular tissue', and the extremely general 'matter'—characterize kinds of stuff. And mass terms are used to form more complex terms that denote particular portions of stuff, or what some have called (following Locke 1985: II. xxvii⁶) 'masses' of stuff. I have in mind such singular terms as 'the water in the tub', 'the gold used to make my ring', 'the cellular tissue making up my liver', 'the matter of which my body is constituted'. Although some may doubt whether Chisholm's 'stand-ins' exist, we can hardly doubt that there are such things as these. We might argue about whether we should think of them as physical objects or as some other sort of thing; but we talk about them all the time, and surely much of what we say about them is true.

One truism about the water in the tub or the gold in the ring is that, if some of that water or gold were somehow destroyed, it would not be precisely the same water or gold that filled the tub or constituted the ring. Masses of stuff can, in general, undergo much less in the way of changes of parts than the *entia successiva* they constitute.⁷ If drink destroys some of the cellular tissue in my liver, my liver is no longer made of the same cellular tissue; and, most importantly for our purposes, as new matter is assimilated by my body and old matter is sloughed off, *the matter of which I am constituted* changes. So, right now, one mass of matter or heap of stuff 'does duty for' the *ens successivum* that is my brain or body; and another will 'do duty for it' later. But then Chisholm's argument may be reinstated:

- (P1) If I am a thing that gains or loses parts, such as a brain or human body; then, each time I undergo a change of parts, there is another thing where I am, a mass of matter distinct from myself but having all the same intrinsic characteristics—e.g. size, shape, mass, and even mental states, like *feeling sad*.

⁵ Kit Fine, Judith Jarvis Thomson, I, and many others agree with Chisholm about this (see Chisholm 1976; Fine 1994; Thomson 1998; Zimmerman 1995).

⁶ I adopt this terminology in Zimmerman (1995).

⁷ The relative mereological stability of constituting objects is exploited by Thomson in her definition of 'constitution'; cf. Thomson (1998).

(P2) But it is false that, where I am, there is something else with all the same intrinsic characteristics; there is only one thing here that feels sad, not two.

So I am neither a brain nor a human organism nor any other thing that changes parts—and therefore no version of sensible materialism can be true.

Accept the conclusion, and the only versions of materialism left are such outlandish theses as that I am a tiny particle lodged in my brain; or that I am some matter that is sad right now but that was and will soon be a non-conscious scattered thing, since the matter *now* in my body was spread throughout the biosphere and will soon be again. If materialism really is more plausible than dualism, then one of the premisses of this argument must be false. (One could, of course, accept the conclusion and reject both materialism and dualism; but only by doubting one's own existence—something even philosophers find difficult.)

What costs are associated with the various possible ways of denying one or the other premiss? The attempt to answer this question shall provide the structure of my survey of recent developments in materialist theories of human beings.

1.3 Warning: Criteria of Personal Identity not Included

There is a rich, well-known literature on personal identity stretching back to the middle of the last century, including important papers and books by Derek Parfit, David Lewis, Sydney Shoemaker, Richard Swinburne, John Perry, David Wiggins, Bernard Williams, Anthony Quinton, H. P. Grice, and many others;⁸ and much of this debate is dominated by the propounding of competing 'criteria of personal identity', supported largely by appeal to intuitions about which sorts of mainly imaginary misadventures a person would or would not survive—what Mark Johnston (1987) has called 'the method of cases'. It is the method of John Locke (1985) in his famous chapter 'On Identity and Diversity', and a method that reaches its most sophisticated and sustained deployment in Peter Unger's *Identity, Consciousness, and Value* (Unger 1990).

By contrast, there will be almost no exploration, in this chapter, of competing criteria of personal identity—standardly subdivisible into 'psychological criteria' and 'physical criteria'. The rival materialisms I shall be surveying are on a higher level of abstraction than the alternatives in disputes pitting physical against psychological criteria. The target of the revised *entia successiva* argument is a very minimal materialism: that I am something with the boundaries of a brain or an organism (or some other likely candidate), something that

⁸ For seminal papers by Quinton, Grice, Williams, Shoemaker, Perry, and Parfit, see Perry (1975). See also Wiggins (1971, 1980); papers by Lewis, Perry, Parfit, and Wiggins in Rorty (1976); and Shoemaker and Swinburne (1984).

can gain and lose parts. It makes no difference to the argument whether one supposes that the brain-shaped or body-shaped entity in question satisfies a psychological or a biological criterion of identity. I shall often write as though the materialist's best bet were to suppose that a human person is a human organism, a thing shaped like my body and satisfying persistence conditions not unlike those of other animals—whatever exactly those are. But nothing turns upon this.

Much of the recent metaphysical literature on persons has focused upon the basic ontology of persons, and not the details of their persistence conditions.⁹ Peter van Inwagen's *Material Beings* (1990)—a watershed in recent discussions of the nature of persons—is typical of much recent work: it is a book predicated upon the assumption that it is impossible to answer very many of the most interesting philosophical questions about persons without taking sides in a host of purely metaphysical—indeed, ontological—debates. An impressive literature has been built up over the last twenty years that shares this assumption, much of it directly influenced by van Inwagen's way of framing the questions.¹⁰

1.4 To be Tender-Minded or Tough-Minded?

The fundamental puzzle about material persons that will be my focus is due simply to the fact that all the likely candidates for being me are things that gain and lose parts—something that ships and trees and dogs are generally thought to do as well.¹¹ (I shall sometimes call things that can gain and lose parts 'mereologically incontinent'; in organisms, artefacts, and the like, a certain amount of mereological incontinence is a good thing.) There is, then, great pressure to 'treat like cases alike'; to apply to persons whatever resolution one proposes to analogous problems for other mereologically incontinent objects—or, at the very least, to tell the same story about humans as one tells about non-human *organisms*.

⁹ Recent years have also witnessed increasing scepticism about the results of 'the method of cases' concerning personal identity and in philosophy more generally. Bernard Williams's criticisms of psychological criteria of identity might be seen as the beginnings of this trend (Williams 1973). For recent developments, see Johnston (1987); Wilkes (1992); Rovane (1997); Gendler (2000).

¹⁰ The papers collected in Rea (1997) are concerned with the more abstract ontological issues that have become the focus of much recent work about personal identity. The anthology serves as a splendid introduction to the debates I describe in this chapter. There is, of course, no sharp divide between the work I engage directly, and work concerned with specific criteria of personal identity; in fact, authors prominent in the latter debate—e.g. David Lewis, Sydney Shoemaker, and Derek Parfit—are among those most responsible for the 'metaphysical turn' the debate has taken.

¹¹ Several other difficulties concerning persistence through time of persons and other objects, and their potential resolutions, are explored in detail by Sally Haslanger in her contribution to this volume (Ch. 11).

Throughout my survey of approaches to the metaphysics of material persons, one should, therefore, consider whether reasons given for favouring or rejecting a view would have application to the metaphysics of plants and animals. Some of my objections to one or another version of materialism consist in pointing out counter-intuitive consequences for the thesis that *we* are such things as the view describes—consequences that would cause us little distress were the subject matter plants or ‘dumb’ animals. In the final section I sort these out, and call them ‘personal’ objections to sensible materialism. Those who would rely upon ‘personal’ considerations to support the view that we are special, metaphysically unlike non-human animals, will be charged with ‘tender-mindedness’—and with reason. But these epistemological issues cannot be seriously explored, let alone resolved, within a mere survey of the metaphysical terrain.

2. DENYING (P₂)

2.1 The ‘Too Many Minds’ Objection

I begin by considering the case of materialisms that deny (P₂). The problem with denying (P₂) is that doing so introduces ‘too many minds’: 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.

There are at least two relatively distinct problems posed here under the heading ‘too many minds’. First, denying (P₂) seems to introduce two or more pains, feelings of melancholy, etc., one for each coincident entity, where intuitively there should be only one. Call this problem ‘too many thoughts’. Secondly, there is the pressure to recognize two or three psychological subjects with first-person points of view, each subjectively just like the others, indiscernible ‘from inside’, unable to distinguish among themselves. Call this ‘too many thinkers’.¹² Materialists who would reject the second premiss must grapple with both aspects of the ‘too many minds’ objection.

¹² The second part of ‘too many minds’, what I call ‘too many thinkers’, is driven home with great force by Olson; see Olson (1997, esp. 106).

2.2 The Doctrine of Temporal Parts

One promising strategy for denying the second premiss presupposes the thesis that things have ‘temporal parts’.¹³ Consider the way a spatially three-dimensional object is generally thought to fill the region it occupies: namely, by having a different part filling each of the many subregions in the region occupied by the whole. My body, for example, fills the man-shaped region it does by having a part filling the head-shaped part of the region, two others filling the arm-shaped subregions, two others filling the leg-shaped subregions, and so on. Defenders of temporal parts claim that an object that lasts for a period of time is spread throughout that period in a similar fashion. For each instant, there is a distinct thing, a momentary ‘temporal part’ of the object, something that exists then and only then; and for each longer interval of time, there is a distinct *extended* temporal part of the object that exists just during that period and is composed of all the instantaneous temporal parts falling within the interval.¹⁴ (‘Perduring’ and ‘enduring’ are often used to mean ‘persisting by means of temporal parts’ and ‘persisting, but not by means of temporal parts’, respectively.¹⁵)

2.3 How Temporal Parts Help Block ‘Too Many Thoughts’

‘Too many thoughts’ gets its bite from the conviction that, in some sense, there must be just *one* pain or pleasure located where I am, just one instance of each conscious experience I have. But how could that be if the mass of matter and I are intrinsically identical, each in pain—as the denier of (P2) admits? The friend of temporal parts can say that, strictly speaking, there is only one thing located *just* here and now: my present temporal part. I am in pain only in virtue of *its* being in pain. And the

¹³ Many philosophers have used temporal parts to solve problems of coincident entities. Compare e.g. Quine (1960); Lewis (1976); Noonan (1989); Heller (1990); Hudson (2002); Sider (1997, 2001*b*). The doctrine of temporal parts is discussed in more detail by Haslanger in this volume (Ch. 11).

Warning: In the writings of contemporary philosophers, ‘four-dimensionalism’ sometimes means the doctrine of temporal parts, as in Sider (2001*b*); sometimes it stands for a thesis that is basically about the nature of truth—namely, that all truths are eternal truths; sometimes it means that presentism is false (e.g. in Michael Rea’s contribution to this volume: Ch. 9); and sometimes it seems to mean a combination of these views.

¹⁴ Though nothing here turns on the issue, one can affirm a general doctrine of temporal parts while denying the existence of literally instantaneous parts (see Zimmerman 1996*b*).

¹⁵ There is a lively and ongoing debate about how best to make the distinction between perdurance and endurance. The moral of the debate seems to me to be that there are several ‘packages’ of metaphysical views that stand opposed to a temporal parts metaphysics, united by their opposition to perdurance but disagreeing about a sufficient number of substantive theses to make it hard to state a common positive view about persistence acceptable to all parties. Compare Merricks (1995, 1999); Sider (1997, 2001*b*); and Lombard (1999). (The use of ‘perdurance’ for persistence by means of temporal parts, ‘endurance’ for persistence without them, is due to Mark Johnston, and has been widely adopted.)

mass of matter now making me up is in pain in virtue of its *sharing* this selfsame part with me. If First Avenue and Seventh Street each develop a pothole, this may not add two potholes to the number the city must fill—for it might be the same pothole, in their intersection. Just so with my pain and that of my constituting matter.

The doctrine of temporal parts seems not only to provide the best way to resist (P₂); it also seems to entail the denial of (P₂). If I exist at a given time entirely in virtue of having a part that exists *only* then, the intrinsic properties I have at that time really ought to be confined to the ones that temporal part has. And if something has a certain temporal part at a time, the intrinsic properties it has then should be the same as those the temporal part has then. I assume that there are components of my present psychological state that are qualitative and intrinsic to me-as-I-am-now, states that would be shared by intrinsic duplicates of me that lasted no longer than the psychological states themselves.¹⁶ If I have an independent contribution to make to the intrinsic characteristics I display, then I have a kind of independent presence here; there are two things here, I and my temporal part, and the contribution I make to what is happening here and now is different from that of my temporal part. Allowing that the intrinsic character of a thing at a time can be distinct from that of its temporal part at that time would lead directly to some of the apparent absurdities that bedevil the view I call ‘coincidentalism’ and discuss in detail below.

Some philosophers have doubted that any component of my psychology is intrinsic in this way. Some believe that my current phenomenal states are dependent upon the functional role played by physical states of my brain (a role often partly determined by extrinsic factors), or the aetiology of their causal roles.¹⁷ It is unclear, to say the least, whether a physical state in a brief temporal part of me, e.g. a part lasting only one-hundredth of a second, should be said to play any sort of functional role in that fraction-of-a-second-long part in virtue of playing that role in longer temporal parts of me that contain it.

Although I do not find functionalism about the phenomenal to be very plausible, it is worth noting that temporal parts versions of such views entail the denial of (P₂), nevertheless. There will be ever so many temporal parts of me that include the brief proper subject of a brief experience like my one-hundredth-of-a-second-long pain; and ever so many of these temporal parts will be long enough (lasting for hours or days or years before and after the experience) to allow the physical state that (supposedly) *is* this mental state to play its role—i.e. long enough for there to be a stable cognitive architecture intermediate between stimuli and behaviour in which this physical state is typically caused by so-and-so and typically causes

¹⁶ Such a view would seem warranted by familiar arguments for anti-reductionism about qualia, e.g. those of Jackson (1982) and Chalmers (1996).

¹⁷ For recent overviews of varieties of functionalism, see Block (1996) and Lewis (1996).

such-and-such. Denying that the phenomenal is intrinsic for broadly functionalist reasons does not, then, provide the temporal parts metaphysician with a way to avoid (P2).

2.4 Rejecting Temporal Parts and Introducing Shared ‘Tropes’

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 (1953) called ‘tropes’,¹⁸ 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. Events, so conceived, must be at least somewhat independent of their subjects: they cannot be structured entities like Armstrong’s facts or Jaegwon Kim’s events, consisting simply of an object and a property it exemplifies (see Armstrong 1997; Kim 1976). If that were all there were to them, then the ‘too many thoughts’ dilemma would be as sharp as ever: either the person but not the aggregate is the subject-part of an event of something’s being in pain, or vice versa (in either case the view amounts to a denial of (P1), not (P2)); or else each subject exemplifies pain and there are two events of something’s being in pain. A metaphysics of shared property instances must add something to the mix besides subjects and properties.

Adopting a trope metaphysics may help with ‘too many thoughts’. But it faces a dilemma: a trope metaphysics either (i) collapses into a temporal parts view, or (ii) posits a strange sort of bare particular. Take the first horn; suppose objects are bundles or sums of tropes—presumably, the tropes of their intrinsic properties. Objects like persons are changing nearly-continuously, which requires a near-continuous change of tropes. When an object is constituted by a batch of tropes at one time, and by entirely different batches of tropes at neighbouring 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. But the view still has the stench of temporal parts about it; every object that changes continuously with respect to its intrinsic properties will be constituted, without remainder, by instantaneous items.

¹⁸ Williams borrowed the term ‘trope’ from Santayana (1942); but Santayana used it to stand for universal essences of events, identical in their instances—a kind of entity Williams eliminates from his ontology by means of his more concrete, unrepeatable tropes. (For a detailed discussion of tropes, see Peter Simons’s contribution to this volume: Ch. 12.)

If one takes the second horn, (ii), one must posit an underlying something or other in addition to the tropes; a thing that is red, say, in virtue of relations to its redness trope.¹⁹ Since redness tropes are supposed themselves to be instances of red ('that redness over there'), the underlying thing is red because of its relations to a red thing—a thing that is red in some other, more direct fashion. Repeat this for all the intrinsic properties of a thing, and the nature of the underlying thing becomes quite mysterious.²⁰

Even if a non-temporal parts trope metaphysics could be made coherent, 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', as indicated below. And, without temporal parts, the view becomes a version of coincidentalism, which will come in for a drubbing later on other grounds.

A plausible answer to 'too many thoughts' requires that there be a single instance of pain where I am. If a single trope of pain cannot be introduced as an independent extra entity for several subjects to share, the denier of (P₂) must posit a single primary subject of pain in virtue of which the several subjects can all be (derivatively) in pain. So I confine my attention in the rest of this section to temporal parts metaphysics.

2.5 'Too Many Thinkers' and Too Many Temporal Parts

I turn now to 'too many thinkers'. The doctrine of temporal parts may have cut down on the number of sadnesses, pains, pleasures, and other mental states going on where I and my current mass of matter are located: there is really just one thing here, my current temporal part that experiences sadness, pain, or pleasure 'for itself', as it were. My experience, and that of the mass of matter, are 'borrowed' from the temporal part we share. But the cost for the reduction in the number of *local* subjects of experience is a lavish outlay in *persisting* subjects of experience. Every whole made of temporal parts that shares this one with me and my current stuff also shares our pains and pleasures. Consider: the temporal parts from my first thirty-seven years constitute a persisting thing that will cease to exist sooner than I; likewise for my

¹⁹ This sort of trope theory is defended by C. B. Martin, who finds it in Locke's talk of substrata and modes. See Martin (1980).

²⁰ This 'bare substratum' objection to tropes-cum-underlying-subjects is quite different from the dubious 'bare substratum' objection typically lodged against traditional substance-attribute theories. Defenders of substance-attribute analyses of what it is for an object to be red will say that it is a matter of the object's standing in an exemplification relation to the property redness. But most will deny that the property redness is itself an instance of red, a red thing; and so they are not open to the 'bare substratum' objection I raise against tropes-cum-underlying-subjects. To insist that the substance-attribute philosopher posits a 'bare substratum', not 'red-in-itself' but only red 'in virtue of relations to something else', is simply to reject the proposed analysis.

temporal parts from this last year, or month, or day. In fact, there is a great host of beings here, each equally sad in virtue of sharing the one temporal part. Many strange consequences follow. As Eric Olson has emphasized, it is hard to see how I could be sure which one of them *I* am (see e.g. Olson 1997: 106–8). And it is odd that so many of the thinkers behave in seemingly irrational ways. When I make a small sacrifice now for a greater benefit to myself later, there are ever so many others who make the sacrifice with no hope of reward. The temporal parts metaphysics is borne down by the weight of this host of beings, each equally sad in virtue of sharing the one temporal part. Their existence leads to the absurd, or at least to things I find unbelievable.

To begin with, one should ask what the word ‘I’ means in the mouths of so many, and what it is that they refer to when they think first-person thoughts, such as they all do now when I say to myself, ‘I am sad’. Does my present temporal part, the shortest one capable of thinking a single thought, say to itself that *it* is sad? And likewise for the longer ones, and the mass of matter as well? The friend of temporal parts had better deny this, or the game is up. To accept this result would be to populate the world with beings who share my subjective point of view precisely, who believe all the things about themselves that I believe about myself, but who are mostly wildly mistaken. I believe that I have been around for many years, and will probably live for many more, and that I am conscious more often than not; but, on the view now under consideration, many things *wrongly* think these things *about themselves*—such things as my present temporal part, and the sum of today’s temporal parts, and the matter making up my body right now. But if I know that the vast majority of those who see the world just as I do now are terribly deceived, how could I possibly suppose that I know which one *I* am?

Not only should I be sceptical about my past and future, in such circumstances; I should be sceptical about what it is rational for me to do. Would not the mass of matter and today’s temporal part behave differently if only they knew how short their conscious lives will be? My present temporal part, and the matter making up my body now, and the parts constituting just my first thirty-seven years have much less reason to undergo present hardship willingly for the sake of benefits *I* will reap later on. But, fortunately, each one mistakenly takes himself to be me, and behaves accordingly!

To avoid this dead end, the temporal parts metaphysician must insist that, when my current stage thinks the thought I would express by saying ‘I am sad’, each of the many things that share that stage with me attributes sadness to *me*, not to *itself*. That is just how the first-person pronoun works, she may say: when a temporal part uses the first person in thought or speech, it automatically refers to the whole *person* within which the temporal part falls, nothing larger or smaller. Now, when the friend of temporal parts asks herself whether she has been a conscious person for many years, she need not worry about whether she is one of the many hapless short-lived sums of temporal parts sharing this thought with her. ‘*I* cannot be one

of them', she may reason, 'since it is just part of our conventions governing the use of "I" that its reference spreads to take in all and only temporal parts that belong to the *same person* as this current one.'

Does this strategy rid the world of hosts of irrational or at least strangely selfless beings; should it allay our sceptical fears? What prevents these many other subjects of experience from referring to themselves using the first person? Nothing but the conventions surrounding the English words 'I', 'me', 'myself', etc. Each *can* think thoughts that refer to itself; for instance, when I think that the mass of matter now constituting my body was once scattered over many miles, the mass of matter sharing that temporal part with me thinks a thought having *itself* for the subject. So, although it can refer to itself, it fails to care for its own fate; likewise, all the others allow their wills to be bent to mine. Perhaps an analogy will help convey the oddity of such passive behaviour. Suppose the emperor, hoping to encourage patriotism and self-sacrifice for the good of the empire, declares that first-person pronouns shall henceforth refer not to the speaker, but rather to the body politic—that is, to the citizens of the empire, collectively. The dutiful populace could obey the law without much trouble, at the expense of a bit of circumlocution. 'The part of me at the end of the counter needs a cup of coffee!' Now suppose that the new convention has its intended effect, rendering the individual subjects more willing to sacrifice themselves for the good of the whole. Would they have been given any *reason* to change their preferences in this way? The introduction of a new linguistic convention surely cannot by itself provide a reason for the change; it simply turned out to be a fact about the psychological laws governing these subjects that forcing them to talk in this funny way would make them more patriotic. Likewise, it is just a fact about the psychologies of short-lived temporal parts of humans, masses of matter overlapping with humans, and all the rest, that using 'I' according to present conventions prevents their taking any interest in themselves. There still seems to be a host of beings in the world who concern themselves entirely with my welfare, at the expense of their own.

Note that 'too many thinkers' makes trouble even for one who would deny (P2) and use tropes, not temporal parts, to answer 'too many thoughts'. Even if there is not an extra token thought when I think 'Which am I?', the question remains: Is the person or mass of matter the referent of 'I'? The token-thought trope belongs to both, so one must still ask whether the matter uses it to refer to itself, or to the person, or perhaps ambiguously (cf. Mills 1993; Ehring 1995). Admittedly, there need not be so many candidates, given coincident entities without temporal parts. However, there is still the oddity of a thinking thing that cares not for its own fate, though it can contemplate its future by thinking of itself as 'this portion of matter'. And it is hard to believe that I am constantly accompanied by beings with psychological points of view indiscernible from my own, but otherwise very different from me.

3. DENYING (P1)

3.1 Coincidentalism and Two-Category Theories

There are two radically different, initially plausible ways to deny the first premiss. One might deny either that there are two things where I am, or that both are sad if one is. I begin discussion of the rejection of (P1) by considering theories that take the latter approach.

The person who recognizes two things here, the one thinking, the other not, has a choice. She *may* say that each is a physical object composed, in more or less the same sense, of material particles. Then I call her a ‘coincidentalism’: someone who posits coincident physical objects differing in their characteristics but made, at some level, of all the same parts arranged in the same way; and who rejects the doctrine of temporal parts.²¹ But not everyone who recognizes two things where I am, with different properties, is what I call a coincidentalism; some say instead that either the human being or the matter is not *really* a physical object in the full-blooded sense of the word—that it does not have particles as literal parts, but ‘contains’ or ‘includes’ them in some other sense. Theories along these lines I will call ‘two-category theories’, since they imply that the coincident matter and person are really very different, belonging to radically different ‘ontological categories’—for example, one but not the other might be said to be really an event or process, or a mathematical function from times to physical objects, or a set of particles. Two-category views are adopted to help make the coincidence of matter and person easier to swallow; the two things have properties that go by the same names but are really quite different. I criticize coincidentalism first.

3.2 Coincidentalism: ‘The New Dualism’

On the coincidentalism view, the matter and the person do not share all their intrinsic characteristics. But, at the microphysical level, the two are intrinsically just alike. One might point out that one is a (mere) mass of matter while the other is a person or an organism. But why does the one get to be the one, the other the other, when they are so similar in every observable respect? What I find most puzzling is how things so alike in their *construction* could differ so radically in their *powers* and *potentialities*. The matter constituting a living body can survive being squashed by a steamroller, while the body cannot. The body can survive the gradual replacement of all its present constitutive atoms, while the mass of matter itself surely cannot.

²¹ Coincidentalists abound. See e.g. Wiggins (1980); Shoemaker (1999); Johnston (1992); Lowe (1996); Doepke (1996); Simons (1987); Baker (2000, 2002, 2003); and Thomson (1997).

What explains these differences in abilities? Nothing other than the fact that the one is an organism, the other a mere mass of matter; but this is a fact one could never discover by examining their construction (cf. Burke 1992). (Note that this objection applies as much to a coincidentalism with shared mental tropes that denies (P1) as to a coincidentalism that denies (P2).)

Furthermore, it is unclear how the one can be thinking and the other not, given their structural similarity. Certainly both the matter in my body and the organism itself are disposed, right now, to produce the same observable behaviour in the same circumstances—to emit the same sounds when my skin is burned, for instance, and generally to cause the same motions of molecules. If the one is in pain while the other is not, it is hard to see how pain could in any sense be ‘realized in’ microphysical states, since these are shared. On the functionalist account of realization, for example, a physical state realizes pain in a creature because of its causal role with respect to stimuli, behaviour, and other internal states intermediate between stimuli and behaviour. And, right now, my constituting matter and I share internal states poised to produce, in both of us, the same behaviour upon the same stimulus (cf. Olson 1997: 106–8).

One might, however, question the claim that our shared internal states really do play the same causal roles in each of us; the grounds for doubt are similar to those given earlier to show that sufficiently short temporal parts of me can exemplify a physical state that plays the pain role in *me* without its playing the pain role in *them*. The matter now making up my body is not disposed to react in *precisely* the same ways I am to physical stimuli. Chop off my toe, and Zimmerman-the-person is disposed to become smaller, and to remove all of himself from the scene; but the matter constituting me is disposed not to become smaller but to become scattered, and to remove only *part* of itself from the scene.²² But even though they are not precisely similarly disposed, matter and I are very similarly disposed *over the short term*; and the things the matter is disposed to ‘do’ and ‘say’ are very like paradigmatic displays of conscious behaviour. If the matter is not now capable of having states that, in it, play certain psychological roles, this will only be because it tends rather quickly to become too dispersed to qualify as the subject of a bodily action like running or sitting or speaking, despite the fact that *most* of the matter is still in my body, and is doing something *very much like* running or sitting or speaking.

I am willing to grant to the functionalist that the set of dispositions to behaviour that my constituting matter now exemplifies is much different from mine; and that many of my more complex mental states have causal roles that could not be played out in a thing that tended to scatter so quickly as a mere mass of matter does. But a thing need not have precisely *our* psychology to have psychological states; animals can feel pain and pleasure without many of the more complex dispositions we

²² For discussion of this objection, I am grateful to Leonard Katz, Judy Thomson, Ted Sider, and John Hawthorne.

display. And, on the functionalist view of the mind, creatures much like terrestrial animals but who happen always to live very short lives ought also to be capable of psychological states such as pain and pleasure—so long as they react much as terrestrial animals do to similar stimuli, and have functionally similar inner states intermediate between stimulus and behaviour. But the matter constituting my body right now *is just such a creature!* So, coincident with me is another psychological subject—one that may have very different psychological states from mine, one that may be much more like a monkey than a man.

Of course, some materialists about persons will reject functionalism and other views according to which the mental is realized in physical states shared by person and mass of matter. One might, then, deny that the pain is realized in a shared microphysical state, insisting instead that the pain is some further, irreducible property exemplified by the organism but not the constituting matter. Even so, the pain is surely *caused by* microphysical events (located inside my head) that happen to both matter and organism. These events somehow fail to cause pain in the physically indiscernible mass of matter, within which they also occur. But again, how can they fail to do so, since the two are intrinsically exactly alike and located at the same place? There would have to be laws governing causal relations between microphysical events and emergent mental properties, laws that are sensitive to differences in microphysical duplicates—a puzzling result, to say the least.

Michael Burke (1997) has dubbed coincidentalism ‘the New Dualism’. I agree with him that it is pretty much on a par with the old dualism.²³

3.3 Two-Category Theories: Processes and Logical Constructions

Two-category theories, like coincidentalism, accept the existence of both the matter constituting my body, and me, the constituted person. Unlike coincidentalism, they affirm that person and matter belong to radically different ontological categories—categories so different that the sense in which the person is happy or in pain or heavy or cool will be quite different from the sense in which the matter is. Below, I describe a kind of two-category theory according to which the matter is not a physical whole at all, but rather a mere set of particles; the only physical whole with those particles as parts is the person. In this section I explore two-category views that do not take this route—theories that admit that the matter of which I am constituted is more than a mere set or collection of particles.

The problem these two-category views are meant to solve is explaining how there can be two things where there seems only one. The explanation is that one of the two

²³ I examine two versions of coincidentalism in more detail in Zimmerman (forthcoming *b,c*).

is of a less fundamental sort; it is a dependent or derivative thing that automatically shows up when the other thing takes a certain form, or is in certain circumstances; and it inherits its properties in a way that allows one to say that there are not really two instances of a person's mental states. The coincidence is rendered benign and unsurprising by displaying it as an instance of a broader, more familiar coincidence that we routinely regard as unproblematic. The only two-category theories of this sort on offer are ones that take the matter to be a physical object composed of the particles, and the material person (or other constituted entity) to be a categorially different kind of thing that somehow supervenes upon the behaviour of the various portions of matter constituting the person at different times.

What categories of thing are there that might be thought to supervene unproblematically upon the behaviour of various masses of matter? The only ones anyone has thought of that are significantly different from a whole made of parts (and so the only ones yielding a view that does not collapse into coincidentalism) are: (i) a *process* or *event* passing through various parcels of matter, just as a hurricane is a meteorological process passing through various masses of air and water, or a long war is a process involving different groups of people, weapons, and vehicles at different times; and (ii) a logical construction out of masses of matter, such as a mathematical function that takes different masses of matter for its values at different times.

Two-category theories try to explain away the problems associated with distinct but coincident entities by treating the mass of matter and the human being as very different kinds of things—so different that, for any property we should be loath to attribute to *both* of them, only *one* of them could have it in the most fundamental way, the other one either lacking it altogether or possessing it only derivatively.

Although I think process and logical construction theories deserve more attention than they have received, I shall say no more about them here. A few eminent philosophers have articulated theories of these sorts;²⁴ but, to my knowledge, they are without living defenders.²⁵ They lack the theoretical elegance of a temporal

²⁴ For process views, see Chisholm (1986: 66–7) and Broad (1925: 34–8). Grice was willing to describe person as series of mental events; but it is not clear what the rest of his metaphysics was like, and whether he recognized non-events to which mental events happen; see Grice (1941). Earlier, Chisholm offers an eliminative logical construction. The constructed mereologically incontinent entities, his *entia successiva*, are in fact fictions: all apparent quantification over tables, human bodies, and any other thing that can gain or lose parts is paraphrased away in favour of a language in which variables range only over objects characterized by a strict mereological essentialism. Cf. Chisholm (1976, ch. 3 and app. B). The 'Port-Royal Logic' of Arnauld and Nicole is also committed to the eliminative reduction of mereologically incontinent objects in terms of mereologically stable masses of matter. Cf. Arnauld and Nicole (1964, pt. 2, ch. 12). According to Richard E. Grandy, an ostensibly part-changing object 'is to be considered as a set of pairs consisting of bits of matter and times' (Grandy 1975: 224). See also Chandler (1971) and Montague (1979).

²⁵ Toomas Karmo, in his elegant two-page article 'Disturbances', affirms that living things are processes passing through various tracts of matter, just as storms are processes passing through various

parts metaphysics (a one-category theory, after all); they are open to most of the objections facing theories utilizing temporal parts, since there are ever so many distinct processes and functions involving the matter in my body now but different matter at other times; and they seem to make the matter that constitutes a person more fundamental than the person, so that it is unclear why the person should have *any* properties in a fundamental or non-derivative fashion. On the other hand, process and logical construction theories seem to me to be much less problematic when applied to a ship or plant and its constituting matter; they only really begin to chafe when more complicated constituted creatures arrive upon the scene—particularly creatures with mental states among their local, empirical properties. The objections to two-category theories mainly fall, then, under the heading of what I shall call (in the final section) ‘personal objections’.

3.4 No Such Things as Masses of Matter

Coincidentalism and the two-category views accept the part of (P₁) that says there are two things where I am, but deny the part that says they are psychologically indiscernible. The other way to deny (P₁) is to say that there is only *one* thing here; and since I am exploring sensible materialisms, that thing must be, not a mere mass of matter, but rather a human organism (or other likely candidate) that feels sad, say. There is simply no such thing as a mass of matter distinct from myself but present in the same location, threatening to feel sad if I do. This approach to problems of coincidence has been gaining steam of late. Since van Inwagen’s influential *Material Beings* (1990), Michael Burke has published an impressive and original series of papers defending a rather different no-coincidents view (Burke 1992, 1994*a,b*, 1997); and, more recently, several younger metaphysicians—including Eric Olson (1997), Trenton Merricks (2001), and Michael Rea (1998, 2000)—have emerged as impressive defenders of views inspired by van Inwagen and Burke. But, given the obvious fact that there *is* matter in the universe, in this room, in my body, how can they deny that there is such a thing as the matter constituting my body now, something that was once scattered, and will soon be again?

At least this much seems undeniable: There are ‘fundamental’ (so far as we can tell now) particles (which may or may not persist ‘identically’ through time). To be made of some of this world’s matter is, if these particles are ultimate, to be made of some batch of such particles; if they are not ultimate, but are in turn made of smaller, *truly* fundamental particles, then to be made of our kind of matter is to be made of a batch of these smaller things; and if what we now think of as ‘fundamental particles’ are made instead of some infinitely divisible stuff that comes pre-packaged

masses of gas and water (Karmo 1977). Although Karmo is alive and well, he has pursued a career outside philosophy.

as extremely tiny solids, then to be made of some earthly matter is to be made of some portion of *that* stuff. Can one deny the existence of a thing called ‘the matter now constituting my body’, without denying such truisms as these?

3.5 Van Inwagen’s Theory, and a Modified Version

Peter van Inwagen offers one strategy for doing so. He points out that an expression can refer to some *things* without referring to some *thing*. On his view, ‘the matter making up my body’ does not refer to any *single thing*, not even a single *set* of things; it is, rather, a plural term referring to some particles, on the order of plural referring expressions like ‘Larry, Moe, and Curly’ or ‘the Three Stooges’ (Boolos 1998). Consequently, when ostensibly singular descriptions of the form ‘the matter now constituting my body’, ‘the matter within a radius of 3 miles from the earth’s centre of gravity’, etc. succeed in picking out some matter, the way they do this is by referring to a number of fundamental particles but not by referring to a further thing, the set of those particles (van Inwagen 1990). This enables van Inwagen to deny that there is such a thing as the matter constituting this or that object, while respecting the truisms above. To say that there is matter in the universe, in my body, etc. is to say that there are particles in the universe, in my body, etc.

The appeal of van Inwagen’s approach should be obvious to those who share his antipathy to coincidentalism—those who think that, at any one time, at most one object could be made out of a single collection of fundamental particles like those now in my body. Why not suppose that the one object, in the case of these particles, is my body—an organism which, according to sensible materialism, is identical to me? Granted, in some sense, there is something else, namely the matter now constituting me. But why not simply say that ‘the matter constituting my body now’ refers collectively to some fundamental particles—all the particles in my body now? Why distinguish between these and the matter now constituting my body; why suppose that talk about matter is talk about a physical *object*?

Van Inwagen, then, offers us a way to deny (P1) *not* by denying that the mass of matter and the person are psychologically alike, but by denying that there are two things. Van Inwagen remains agnostic about whether, for every successful use of a term like ‘the matter in my body’ to refer collectively to some particles, there is also such a thing as the set of those particles. However, the implications of his theory are more easily explained on the assumption that there *are* such sets, and that ‘the matter in my body’ is as singular a term as its form suggests, referring to the set containing all and only the fundamental particles that are parts of my body. This modification of van Inwagen’s view turns it into a two-category theory, one according to which there is such a thing as the matter now composing my body, a thing that belongs to a category of entity quite unlike the one to which persons belong: The matter in

my body and the living body itself both ‘contain’ the same particles, but the former is a *set* with the particles as *members*, while the latter is a *physical object* with the particles (and other wholes made of those particles) as its *parts*. Those who find set theory unproblematic are not likely to have any complaints about the modification, and it makes no difference for my purposes. Wherever I ask ‘Which set of things does “the matter constituting my body” refer to?’, one might just as well ask ‘Which *things* does “the matter constituting my body” refer to?’ And the problems I find for answers to the former will be problems for answers to the latter.

A van Inwagen-inspired view handily dispatches all threatened doubling up of properties. The sense in which a plurality or a set can be said to have mass, shape, spatial location, electrical charge, and so on must be a highly derivative one.²⁶ Strictly speaking, sets are the wrong sorts of things to have weight, or mass, or shape, in the most fundamental way.²⁷ And the idea that a mere set could exemplify distinctively personal properties such as mentality sounds a bit ridiculous.²⁸

3.6 Persons Made of Atomless Gunk

The problem with this rather appealing strategy is that its smooth application to all possible varieties of constituted persons depends upon a dubious assumption: that, necessarily, all constituted persons are ultimately composed of batches of simple atoms—i.e. partless particles, not divisible into any further particles or portions of stuff. To deny this assumption is to admit the possibility of what David Lewis has dubbed ‘atomless gunk’, matter of the sort postulated by Aristotle, Descartes, and perhaps even Newton.²⁹ Some philosophers have argued that, if three-dimensionally extended, solid objects are possible *at all*, then there must be some infinitely divisible,

²⁶ A set has a mass of 200 kg. derivatively—entirely in virtue of the fact that its members each have a mass and their individual masses add up to 200 kg. The idea should not seem puzzling or unfamiliar; consider the parts of my car. A certain set of parts came off widely separated assembly lines; those parts weighed 2 tons, altogether, even before they were assembled; and they now *still* weigh 2 tons while being coincident with a car that *also* weighs 2 tons. The parts do not constitute two objects, each weighing 2 tons; the set of parts only weighs 2 tons in virtue of having members that have individual weights that add up to this amount (members that do not overlap). For a more rigorous attempt to spell out a sense in which a set of objects can have a mass of n kg., see Zimmerman (1995: 59–60 n. 19).

²⁷ One might attempt to express the asymmetry by saying that, if no non-set had mass, no set would either; but a physical particle could have a mass even if there were no sets. Since set theory is, plausibly, necessarily true (if true at all), the latter claim is intended as a ‘counter-possible’—so this way of putting things requires that counterfactuals with impossible antecedents are not all trivially true.

²⁸ Compare van Inwagen’s insistence that, for psychological states, there must be a single subject (van Inwagen 1990: 194–210). The only philosopher I know to affirm, on the contrary, that a psychological state may be a relation exemplified by a plurality is Cian Dorr (see Dorr 2002; see also Dorr and Rosen forthcoming).

²⁹ Newton may have held that matter is infinitely divisible stuff that takes the form of extremely tiny extended spheres. This was Boscovich’s interpretation, at any rate: Newtonian atoms are made of cohesive parts within parts within parts . . . and, though not divisible by any ordinary physical process,

partless matter.³⁰ If they are right, denying the possibility of atomless matter would be tantamount to denying the very possibility of three-dimensional solids.

If atomless kinds of stuff are possible, as they seem to me to be, then there would seem to be no impossibility in there being living creatures made of atomless gunk—or at least in there being gunky things that are ‘lifelike’ in their macrophysical structure and behaviour. Surely such creatures would be constituted by different masses of matter at different times, just as we are. Call persons whose bodies are superficially like ours, but made of persisting portions of atomless gunk, ‘mereologically incontinent humanoids’. (Call them ‘humanoids’ and not ‘human beings’, so as not to rule out the possibility that it is essential to humans that we be made of matter consisting of ultimate, indivisible particles.) If there were such creatures, there would still be a fact of the matter concerning whether one is made of the same matter as another, whether one has continued to be constituted by the same matter throughout a given period, and so on.

Given the possibility of atomless gunk, it is but a short step to recognition of the possibility of atomless gunk that is *infinitely malleable* in the following sense: for any size bit of it you like, a mereologically incontinent humanoid could be composed of a portion that size. The existence of organisms made of *our* sort of matter supervenes, presumably, upon the powers of and spatial relations among things like protons, neutrons, and electrons. Pretend, for the moment, that these are the only particles relevant to the existence of organisms. Now suppose that there are bits of gunky stuff that come in three shapes: e.g. pyramids, cubes, and spheres. And suppose that their behaviour relative to one another mirrors perfectly that of our protons, neutrons, and electrons—i.e. they have similar powers of attraction and repulsion, relative to one another, as measured from the geometrical centre of each particle. Would not such particles admit arrangements upon which the existence of organisms would supervene?³¹ Once this is granted, the possibility of creatures of arbitrary size follows almost immediately—so long as the stuff is infinitely divisible, and the relative powers are proportionate to size. Where does the impossibility creep into this scenario, if not at the first step: the positing of infinitely divisible gunk?

But admitting such stuff lands a van Inwagen-style theory in severe difficulties.³² A mereologically incontinent humanoid made of infinitely malleable gunk will

they are nonetheless divisible in principle—if only by a miracle. So conceived, a certain portion of Newtonian matter would be, not a set of atoms, but something that could survive the (miraculous) division of an atom.

³⁰ I argue for this conclusion in Zimmerman (1996c). My argument there is criticized in Sider (2000) and Mason (2000). Although I am not convinced by their objections, I am less impressed with my original argument than I once was. For discussion of others who have argued for this conclusion, see Zimmerman (1996a).

³¹ Again, if one thinks, for some reason, that organisms are a natural kind that could not exist in the absence of our sort of matter, then call these ‘organism-like creatures’.

³² This difficulty is raised in Zimmerman (1995). For a similar criticism, see Sider (1993).

have parts that are not organisms.³³ The inorganic parts must themselves have parts—indeed, infinitely many, since there are no atoms. If the van Inwagen strategy is to be applied here, ‘the matter constituting the humanoid now’ must refer to a set of these inorganic parts. But which one? Given infinite malleability of the stuff, it does not matter how small the parts are that one picks to be in the set; there will still be trouble in supposing that ‘the matter of which the humanoid’s body is constituted at time t ’ refers to some set of parts.

Let S be any candidate set of parts to serve as ‘the matter constituting the humanoid at t ’. Every member of S is further decomposable into parts that could be rearranged so as to constitute or become a smaller mereologically incontinent living thing, with no gain or loss of matter. Suppose some member x does so at t^* . If the smaller living thing remains a part of the humanoid (e.g. if x comes to constitute a new cell within its body), then the humanoid may be constituted by the same matter at t^* despite the transformation of x . But then either x , the original inorganic part, would continue to exist after the change, coinciding with a new thing at t^* , an organism; or x would go out of existence. The former is not an option in this context, since we are exploring ways of rejecting (P2) by denying that an organism coincides with any other physical whole. So x would have to go out of existence by t^* . But then the original set S would no longer exist at t^* either, having lost a member—this despite the fact that the humanoid could still be constituted by the same matter at t^* . And if it is possible that the humanoid be constituted of the same matter at t and t^* , although S does not exist at both times, then the matter constituting the humanoid at t cannot simply be identified with S .

3.7 A More Complex Analysis of ‘Consisting of the Same Matter’

Although *identifying* the matter with a certain set of parts does not work, there remains a promising strategy for analysing ‘ x is constituted at t by the same matter that constitutes y at t^* ’ in terms of shared sets of parts. The trick is to make use of sets of parts that *as a matter of fact* do not gain or lose any proper parts, while denying that any particular set of parts is the referent of a term like ‘the matter constituting x at t ’. One could be sure that an object x and an object y are made of the very same mass of matter if one knew that there were *some* set of parts S such that: (i) S constitutes both x and y , without remainder; and (ii) the members of S

³³ I assume the creature is not infinitely complex, with every part composed of further living creatures inside of living creatures, ad infinitum. Perhaps such things are possible, perhaps not; but, in any case, surely one could make a humanoid out of some kinds of atomless gunk without having to create infinitely many living creatures to serve as parts.

do not gain or lose any parts at all. The idea can be made more precise by appeal to the notion of a ‘complete decomposition’:

- (D1) S is a complete decomposition of x at $t =_{df}$ At t , 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 .
- (D2) The matter constituting x at t is the same as the matter constituting y at $t^* =_{df}$ There is a set S such that: (i) S is a complete decomposition of x at t ; (ii) S is a complete decomposition of y at t^* ; and (iii) if $t \neq t^*$, then no member of S has gained or lost any parts during the period between t and t^* .

Restricting attention to objects made of matter that breaks down into partless atoms, (D2) implies that x is constituted by the same matter at t as constitutes y at t^* if and only if they share the same complete decomposition into atoms. So, absent worries about atomless gunk, there would be no problem with the original, van Inwagen-inspired theory about the referents of expressions like ‘the matter that . . .’. If everything were, of necessity, constituted without remainder by partless particles, then the matter constituting something could be identified with a set of particles, and sameness of matter could be analysed in terms of identity of constituting sets. But atomism is not true of necessity (or so I believe); and the more complex analysis is necessary.

I also assume that nothing weaker than (D2) will suffice to ensure sameness of matter—i.e. that being constituted by the same matter requires that there be some set of parts that make up the whole of x and of y , and that have not been gaining and losing bits in between times.³⁴ So the difficulties I derive from the proposed analysis are, by my lights, unavoidable consequences of the possibility of atomless gunk.

3.8 Atomless Gunk Leads to Michael Burke’s Theory

The matter constituting some object can outlast the object; more generally, it can continue to exist despite its not constituting anything at all, distinct from itself. This truism can be captured straightforwardly on the van Inwagen-inspired theory that identifies the matter with a single set of atoms: The set of particles constituting an object continues to exist while not constituting the object or any object at all. (D2) analyses ‘is constituted by the same matter as’ without identifying ‘the matter’ with anything in particular; so how is one to make use of this analysis and also make sense of the truism that the matter can exist without constituting anything? The answer is obvious: The matter continues to exist if there remains a set of parts of the

³⁴ In other words, I shall not take seriously the idea that ‘constituted by the same matter as’ is a primitive notion, implying nothing about the sharing of parts at sufficiently simple levels.

sort that, if they were to constitute an object, it would be an object constituted by the same matter as the original object, in the sense of (D2). It follows that, for any mereologically incontinent humanoid x constituted at t by some atomless matter, there must be a set S such that (a) S is a complete decomposition of x ; and (b) as long as the matter now constituting x exists, the members of S continue to exist without change of parts.

But, given infinite malleability, each of the members could have come to constitute an organism. Presumably, an organism cannot exist before the beginning of its own organic life. So either the member of S would have come to coincide with a new object; or it would have been ‘crowded out of existence’, replaced by the organism when its parts were rearranged so as to form a living thing.³⁵ Neither option is a happy one. Van Inwagen dislikes coincidentalism for reasons like those I have given, and in any case the goal here is to discover a way to deny (P1) by denying that the matter is a physical whole. But supposing that a mere hunk of matter should go out of existence owing to rearrangement of parts is also a bit troubling.

A living thing can be destroyed by rearranging its parts so that it can no longer keep itself alive (e.g. by damaging an animal’s heart); an artefact can be destroyed by rearranging its parts so that it is no longer functional, and cannot be rebuilt (e.g. by crushing an automobile into a cube of scrap metal). That one can destroy a mere hunk of matter simply by rearranging its parts seems less obvious.³⁶ But what is particularly odious about accepting this result is that a common way for some stuff to come to fully constitute an entity is for it to start out as a large part of an organism that shrinks; in which case, by destroying something that is merely attached to the mass of matter one causes it to cease to be. It seems especially hard to believe that the sorts of things in question here should go out of existence owing to extrinsic changes. The parts in S are not living things, nor are they artefacts; they are mere hunks of matter, devoid of any essential structure, and thus (it would seem) capable of surviving all sorts of rearrangements and changes in surroundings.

Van Inwagen himself rejects the possibility of things that cease to be owing to extrinsic change (van Inwagen 1990: 12–13). So he must either deny the possibility of infinitely malleable gunk, or hazard the following conjecture: that no bit of atomless inorganic matter could possibly become a whole organism just by having something

³⁵ I here ignore temporary identity or relative identity solutions to problems of constitution. The former is the view that the hunk of inorganic matter is temporarily identical with the organism after having been numerically distinct from it; the latter is the rejection of any such relation as numerical distinctness coupled with the thesis that the inorganic thing is the-same-matter-as but not the-same-organism-as the living thing. For defence of such ‘devious’ accounts of identity, see Gallois (1998) and Geach (1997). For criticism, see Sider (2001c) and John Hawthorne, Ch. 4 in this volume.

³⁶ Michael Burke finds this conclusion much less implausible than do I. See Burke (1994a: 138–9).

detached from itself. Then he could still hope to maintain that no *merely* extrinsic change (no mere ‘Cambridge change’) would ever result in a substantial change.³⁷

But what restriction upon inorganic hunks of matter will prevent this seeming possibility from being realized? Van Inwagen might insist that a mere hunk of matter must *fill a connected region*; so that, as soon as a portion of inorganic matter is divided up into scattered bits, it ceases to be. A humanoid made of atomless gunk, if it is remotely like us in construction, has huge numbers of disconnected parts, and so has no part that is both a spatially connected mass of matter and anywhere nearly as big as itself. But if the only restriction on composition for inorganic hunks of matter is that the parts fill a connected region, then the above conjecture would require the impossibility of ‘blobs’, creatures that can survive the gain and loss of parts and can (at any time) be wholly constituted by a quantity of stuff that fills a connected region. Such blobs are not as far-out as one might at first think. If bodily fluids were genuinely continuous, filling up most of the space inside a creature’s body (as was once believed to be the case), ‘we’ would have been blobs in this sense. Do we really want to offer a radically different ontological story about the persistence of such creatures? Or can we say with confidence that they are metaphysically impossible? Perhaps there is some more plausible restriction upon composition that will prevent mere hunks of stuff from ceasing to exist simply by virtue of coming to constitute the whole of a thing, after a part is detached. But it is not at all obvious what the restriction could be.

One might always reject the very possibility of infinitely malleable gunk, insisting that any type of substance that could constitute a living thing *must* consist, ultimately, of partless simples.³⁸ The denial of the possibility of infinitely divisible, atomless matter might seem rather far from anything we care about. Many philosophers will, nevertheless, be reluctant to solve a philosophical puzzle in this way. It implies that the physics of Aristotle, Descartes, and (on one reading) Newton are not merely empirically falsified but proven, by a priori philosophical argument from the metaphysician’s armchair, to be *impossible*.

³⁷ This is how Arda Denkel puts the objection (see Denkel 1995). Joshua Hoffman and Gary Rosenkrantz have proposed a view that allows for both organisms and lumps of matter and rejects coincident entities. On their view, a lump has to be relatively rigid, so that the whole can be moved by pushing and pulling parts of it, though it need not be strictly connected, as on the view I am developing in the text to offer van Inwagen. They think that being a lump and being a living thing are incompatible, since living things have to have lots of loose parts (lots of parts that are quantities of various liquids, for one thing)—a strategy similar to the one suggested here. See Hoffmann and Rosenkrantz (1996); see also my review of their book (Zimmerman 1999b). Chisholm once held that the only wholes there are fill connected regions; see Chisholm (1976, app. B).

³⁸ See also Dorr and Rosen (forthcoming), where the necessity of atomism is alleged to be an unproblematic consequence of the metaphysical thesis that only simples exist.

3.9 Michael Burke and the Case of the Disappearing Matter

Atomless gunk was driving van Inwagen towards accepting objects that cease to be owing to extrinsic changes. Michael Burke has developed a metaphysics that embraces this result. Like van Inwagen, he denies (P₁) by denying that ‘the matter that now constitutes my body’ refers to anything like a mere hunk of stuff—a physical object that was widely scattered and shall be again. But what about other cases, such as ‘the matter that is located within 3 miles of the earth’s centre of gravity’? Michael Rea, who defends a view much like Burke’s, is willing to allow that expressions like ‘the matter that . . .’ fail to refer to mere masses of matter *only* when there is danger of coincidence with something that is *not* a mere mass of matter.³⁹ On this view, the matter within 3 miles of the earth’s centre is a physical object exactly filling a spherical region of 3 miles radius at the earth’s core—a mere aggregate of material particles that can become scattered, once was scattered, and cannot persist through the gain or loss of constituent bits of matter. Burke himself is willing to grant, as a fallback position, that ‘the matter within 3 miles of the earth’s centre’, and other such expressions, refer to mere aggregates when the matter in question constitutes nothing else. Officially, he would like mass terms of this sort to be plural terms (as on van Inwagen’s account); but he admits that this cannot be a general solution to problems of coincidence, owing to atomless stuff kinds; so he suggests that, although the atomless stuff constituting a thing may not be a plurality, ‘perhaps it is not *an* (one) object either’ (Burke 1996: 14; see also Burke 1994*a,b*). I have argued that he has no choice but to use his fallback position: expressions like ‘the matter within 3 miles of the earth’s centre’ typically refer to a mere aggregate that cannot survive gain or loss of any bits of matter; they only fail to do so when admitting this would lead to coincident objects (Zimmerman 1997).

The matter that, though now scattered, will constitute my body in ten years’ time is a thing that is not in danger (now) of coinciding with a living thing; so there is no block to ‘the matter that will constitute my body in ten years’ time’ referring, now, to a single thing—a mere mass of matter. But when ten years roll around, and I am composed of the same matter as this now scattered mass of matter, how can there be just one thing where I am? There would seem to be just two options. (1) There are not two things there because the living body *is* the mass of matter, and was scattered a short time ago and shall become scattered again—but that is not a *sensible* materialism. (2) The once scattered matter that comes together to form my living body literally *ceases to be* when, as we would normally say, ‘it’ comes to constitute my body—and this is the alternative Burke accepts (when forced to accept

³⁹ Michael Rea certainly accepts this conclusion (see Rea 1998, 2000).

masses of matter) (Burke 1996: 15–16; Zimmerman 1997). When a mass of matter is about to take on the shape of a human being, it suddenly ceases to be, replaced by an organism.

Burke's picture has its problems. If the matter now constituting my body is not the same as the matter that ceased to be as it came to constitute me, what is it and where did it come from? Either there is really no such thing as the matter now constituting me; or else 'the matter now constituting my body' is just another name for my body, this human organism that can survive the gain and loss of parts.⁴⁰ On either alternative, to make something out of some matter is really to cause the matter to be replaced by something that is *not* constituted by *it*, since it is no more. On the face of it, neither alternative does justice to the obvious facts: that there is some matter constituting my body now and that this very matter does not have a human form at every time it exists.⁴¹

If Burke is to make sense of his position, it is imperative that he recover *some* sense in which the matter that just went out of existence because it came to constitute me can be said to be the same as the totality of the matter making up my body—some extended relation of 'same matter as' that is compatible with non-identity and that does not hold between that old matter and anything smaller or larger than the totality of my body now. (D2) can be used to provide Burke with a sense in which, though a mass of matter ceases to exist when it comes to constitute something, the new thing 'consists of the same matter as' the original mass of matter. But Burke's metaphysics still suffers from commitment to the thesis that, by rearranging the parts of a mere hunk of matter, or worse yet by simply detaching something from it and leaving it intrinsically unchanged, one can cause it to cease to exist.

4. CONCLUSION: AN ARGUMENT FOR DUALISM?

4.1 Exhausting the Ontological Options

The survey of responses to my revised version of Chisholm's *entia successiva* argument has elicited a finite number of possible views about the relation between objects that can change parts (i.e. are 'mereologically incontinent') and the various portions of matter (or, more generally, stuff, e.g. the ectoplasm of ghosts or merely

⁴⁰ This is, I believe, Burke's official view. See Burke (1996) and Zimmerman (1997).

⁴¹ Perhaps, owing to the ephemerality of particles obeying quantum statistics, this matter only exists for an instant; but then, once again, it is not at all like the body it constitutes.

possible sorts of matter obeying different physical laws) that constitute them at different times. But is there reason to think that, for each way of denying the premisses, the range of plausible views about the relation has been exhaustively surveyed, albeit at a very high level of generality? Here is an argument for the affirmative—for the conclusion that these are all of the even halfway plausible metaphysical theories about the constitution of material people.

How many ways are there to respond to the revised *entia successiva* argument? One may deny (P1) or (P2). To deny (P2) with any plausibility, the number of pains, pleasures, etc. must be kept down despite the admitted multiplicity of subjects that feel pain, pleasure, etc. Either there is a different instance of pain, pleasure, etc. for each subject, or there can be a single instance shared by many. The latter course offers individual ‘tropes’ of pain, pleasure, etc. that can be shared among coincident entities; adopting this strategy while eschewing temporal parts was considered and rejected. Those who take the former course, admitting instances for each subject, must reconcile the multiplicity of subjects, each feeling pain or pleasure, with the fact that, *really*, there is only one pain or pleasure. Temporal parts metaphysicians effect the reconciliation by identifying a primary subject of pain or pleasure (a temporal part that lasts just so long as the pain or pleasure in question), and ascribing feelings to the other subjects in virtue of their relations to it. But any view positing one primary subject and more than one secondary subject will face the sorts of objections I lodged against the temporal parts account. The possibility of doing without tropes, denying temporal parts, and simply positing more than one psychologically indiscernible subject was not considered; but such a view would inherit the defects of coincident objects metaphysics and temporal parts metaphysics, with none of the advantages. Since the doctrine of temporal parts entails the denial of (P2) (or so I argued), rejecting all attempts to deny (P2) means leaving temporal parts behind. There remain, then, only the various ways of rejecting (P1) without recourse to temporal parts.

Broadly speaking, there are only two ways out of (P1): denying that the matter and the organism (or other likely candidate) are two in number; or denying that they are psychologically similar. One who adopts the first strategy can hardly deny that there is a certain portion of the world’s matter that has come to constitute my body and will soon cease to do so. One might claim that the ‘portion’ is not a real thing, and that ‘the matter that just came to constitute my body’ is a plural term for a bunch of particles. This is van Inwagen’s official position; but it closely resembles the view that ‘the matter that just came to constitute my body’ is a singular term referring to the *set* of particles now ‘in’ my body—and the criticisms I lodged against that view apply to van Inwagen’s official view as well. There is only one *other* way, so far as I can see, to affirm the existence of the organism while denying the existence of the portion of the world’s matter which (obviously! in some sense!) constitutes it: Burke’s strategy, which is to admit that there *was* such a thing, though it has been crowded out, for the time being, by the body it came to constitute. And so, to reject

the first premiss by denying that there are two things, one must admit either: (i) that the matter, though not *one* thing, is many things; or (ii) that, though it does not exist, it *did* and is divisible into portions that continue to exist and jointly compose the body. And either approach was shown to lead to the problematic conclusion that masses of matter can go out of existence owing to merely extrinsic changes.

The other way to reject (P₁)—accepting two things, but denying that they are psychologically similar—admits a richer variety of approaches, and it is harder to be sure that all have been catalogued. But here is why I suspect that the alternatives have been exhausted in this case as well.

A metaphysics of the material world will posit some paradigmatic, persisting macrophysical objects: space-occupying wholes persisting through time and made out of matter, whatever matter turns out to be like.⁴² These paradigmatic physical objects should at least possess the *potential* to persist; with the doctrine of temporal parts out of the picture,⁴³ there should be no temptation to identify them with any instantaneous items. The paradigms, and anything else that is a complex persisting whole composed of physical parts, but not persisting by means of temporal parts, can rightly be said to belong to a common ontological category—call them ‘enduring objects’.⁴⁴

Some anti-temporal parts metaphysicians regard *organisms* as enduring objects. Some (or at least one—this one!) so regard *the matter* constituting an organism—together with the other portions of matter I have been calling ‘masses of matter’.⁴⁵ And some metaphysicians regard *both* organisms *and* masses of matter as enduring objects. These are the coincidentalists. The alternative to coincidentalism is to regard either just the organism (or other likely candidate) or just the matter as belonging to the ontological category of enduring object. Since the only views remaining to be considered under the denial of (P₁) admit the existence of both matter and organism, in either case something must be done about the less paradigmatic of the two persisting physical things—i.e. the one that is not an enduring object. How is it related to the object with which it shares its spatial location? What other ontological categories are there into which it might fall, besides *enduring object*?

⁴² For every obvious truth, there is a philosopher who denies it; for the denial of the existence of composite objects of any sort, see Dorr (2002).

⁴³ Recall that the doctrine of temporal parts may be ignored when considering ways to reject (P₁). I also neglect views according to which physical objects are not, strictly, *space-occupying* because they are to be identified with regions of space-time; such views are, for all intents and purposes, variations on the doctrine of temporal parts.

⁴⁴ There is no need to deny that this category may be further divisible along, broadly speaking, ontological lines—for instance, on the basis of the fact that some can gain or lose parts, and others cannot.

⁴⁵ As noted earlier, portions of matter might well be ephemeral, hardly persisting at all, because of contingent physical facts about the identity over time of particles; but, so long as the doctrine of temporal parts is in abeyance, masses of matter still belong in the same category as enduring objects, since masses of matter consisting of truly persisting bits would be enduring objects.

The alternatives I considered were these three: (i) sets of enduring objects; (ii) functions from enduring objects to times, or some other sort of ‘logical construction’ out of enduring objects; and (iii) physical events or processes happening to the enduring objects—‘modes’ of them, or ‘tropes’ inhering in them.

Although I have no proof that these are the only feasible candidates for being one or the other of the two physical things in question, I know of no other proposals for an alternative ontological category into which they might fit. One could always *posit* a further category; but, barring a conceptual revolution enabling us to see a category of physical entity to which our predecessors have been blind, to posit such a category would be to solve the problems of material persons by retreat into mystery.

These, then, are my reasons for thinking the metaphysical alternatives have been exhausted; that the *entia successiva* argument has driven out into the open the full range of ontological options for material people. This conclusion constitutes premiss 1 of the following argument—an expansion of the *entia successiva* argument. Of the remaining premisses, 3, 5, and 10 were ones I defended (with varying degrees of conviction) in the course of the chapter. And 7 strikes me as eminently plausible: it is the thesis that the metaphysics of humanoid–matter relations when the matter is gunky should not be radically different from the actual metaphysics of human–matter relations.

- (1) Necessarily, if a mereologically incontinent object x is constituted by some matter y , then either:
 - (a) x is a sum of temporal parts that shares temporal parts with many different masses of matter, including y ;
 - (b) x and y are both enduring complex physical objects (i.e. neither x nor y is a logical construction, process, set, or sum of temporal parts); and at some level of decomposition, x and y share all parts in common (that is, coincidentalism is true);
 - (c) y is a set of parts, and the set is a complete decomposition of x ;
 - (d) x is a logical construction (e.g. a function from times to many masses of matter, with y as its present value);
 - (e) x is a mode or process or disturbance passing through many different masses of matter, one that is now ‘happening to’ y ; or
 - (f) for x to be constituted by y is for y to cease to exist just as it is about to coincide with x .
- (2) Necessarily, if x is a mereologically incontinent object similar to one of the ‘likely candidates’ (x is a ‘humanoid’) and x is constituted by a mass of atomless gunk y , then either: (a), (b), (c), (d), (e), or (f). (Instance of 1)
- (3) It is not possible that there be a mereologically incontinent humanoid x that is constituted by a mass of atomless gunk y and either: (b), (c), or (f).
- (4) So, necessarily, if a mereologically incontinent humanoid x is constituted by a mass of atomless gunk y , then either: (a) or (d) or (e). (2 & 3)

- (5) It is possible that there be a mereologically incontinent humanoid constituted by a mass of atomless gunk.
- (6) So it is possible that there be a mereologically incontinent humanoid x and a mass of atomless gunk y such that either: (a) or (d) or (e). (4 & 5)
- (7) If it is possible that there be a mereologically incontinent humanoid x and a mass of atomless gunk y such that either: (a) or (d) or (e); then, necessarily, if x is instead one of the likely candidates, and y is the mass of matter constituting x , then either: (a) or (d) or (e).
- (8) So, necessarily, if x is a mereologically incontinent likely candidate, and y is the mass of matter constituting x , then either: (a) or (d) or (e). (6 & 7)
- (9) So, necessarily, if I am a mereologically incontinent likely candidate constituted by a mass of matter, then either:
- (a) I am a sum of temporal parts that shares temporal parts with many different masses of matter;
 - (d) I am a logical construction, such as a function from times to masses of matter; or
 - (e) I am a process passing through many different masses of matter. (Instance of 8)
- (10) But I am not a logical construction or a process or a sum of temporal parts! (Stamp foot or pound fist)
- So, I am not a mereologically incontinent likely candidate constituted by a mass of matter. (9 & 10)

I have divided the rejection of the various possibilities (a)–(f) into two stages (premisses 3 and 10) for a reason. The arguments I gave for rejecting (b), (c), and (f) were, in general, purely metaphysical in nature. These three alternatives were rejected because they were incompatible with various metaphysical theses. The arguments did not have anything much to do with preserving our self-conception; they were based instead upon modal claims concerning impersonal matters—the possibility of intrinsically identical objects with different persistence conditions, or the possibility of infinitely malleable atomless gunk, or the possibility of a hunk of matter’s ceasing to be simply owing to rearrangement of its parts or changes in its surroundings. I believe premiss 3, if I do, because I trust my metaphysical instincts, my modal intuitions; so premiss 3 represents ‘metaphysical objections’ to sensible materialism. The reasons I gave for rejecting (a), (d), and (e), on the other hand, had more to do with preserving aspects of my self-conception: ‘This time, it’s personal!’ I found it very hard to believe that I could be borrowing my mental states from other things that also had them, or that I could be psychologically just like a non-person who accompanies me. Premiss 10 represents the ‘personal objections’ to sensible materialism.

Perhaps my belief in premiss 10 is born of hubris. Why think I am so special, and not just one of many psychologically identical beings? On the other hand,

perhaps my modal intuitions have been badly misfiring, and premiss 3 is false. In other words, perhaps atomless gunk, at least infinitely malleable gunk, is impossible after all; or perhaps there *can* be coincident objects which, though microphysically indiscernible, are nonetheless radically unlike one another; or perhaps there are portions of matter that can survive all sorts of radical rearrangements of parts, but sometimes go out of existence merely because of changes in their environment.

In any case, each premiss of the expanded *entia successiva* argument is, to one degree or another, defensible. To reject any would involve saying some hard things about persons or matter; or making some unintuitive, a priori claims about the nature of the physical world. Given the complexity of the trade-offs among these alternatives, debates about the metaphysics of material people are not likely to die down anytime soon.

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