

# Aristotelian Endurantism: A New Solution to the Problem of Temporary Intrinsic

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It is standardly assumed that there are three—and only three—ways to solve problem of temporary intrinsic: (a) embrace presentism, (b) relativize property possession to times, or (c) accept the doctrine of temporal parts. The first two solutions are favoured by endurantists, whereas the third is the perdurantist solution of choice. In this paper, I argue that there is a further type of solution available to endurantists, one that not only avoids the usual costs, but is structurally identical to the temporal-parts solution preferred by perdurantists. In addition to providing a general characterization of this new type of solution, I discuss certain of its anticipations in the literature on bundle theory, as well as provide a detailed development of it in terms of my own preferred metaphysics of ordinary objects—namely, a distinctive form of substratum theory tracing to Aristotle.

Ordinary objects persist. And on our ordinary conception of persistence, they do so by *enduring*—that is, by being *wholly* present at each of the times they exist. Thus, to say that Socrates persists is just to say that the whole of him is present at each of the times of his existence.

Many philosophers now reject our ordinary conception of persistence in favour of the doctrine of temporal parts. On the standard development of this doctrine, things persist not by enduring but by *perduring*—that is, by being *partially* present at each of the times they exist. Thus, to say that Socrates persists is just to say that a part of him (namely, one of his temporal parts) is present at each of the times of his existence.<sup>1</sup>

One of the best-known contemporary arguments for the doctrine of temporal parts is David Lewis's argument from temporary intrinsic.

<sup>1</sup> The doctrine of temporal parts is sometimes developed in such a way that things persist not by having temporal parts at each of the times they exist ('worm theory'), but rather by having counterparts at each of these times ('stage theory'). See Sider 2000 and 2002. In what follows, I focus on the standard (worm-theoretic) development of the doctrine.

This argument identifies an alleged problem for intrinsic change and then suggests that only the temporal-parts theorist has the resources for an adequate solution. To illustrate, suppose that Socrates is seated in the morning (and so bent), but later in afternoon decides to stand up (and so ceases to be bent and becomes straight instead). Such changes in shape are utterly familiar; but they might also seem impossible. For, from the claim that Socrates is seated in the morning, it seems to follow that he is seated; and from the claim that he is standing in the afternoon, it seems to follow that he is standing. (This on the general principle that if Socrates has a property at some time, he has it *simpliciter*.) But, of course, nothing can be both seated and standing. How, then, can one and the same object, Socrates, have such different shapes at different times? According to Lewis, there are only three solutions:

- ( $\alpha$ ) Embrace presentism
- ( $\beta$ ) Relativize property possession to times
- ( $\gamma$ ) Accept the doctrine of temporal parts

The first two solutions are open to endurantists, but their associated costs are so great, Lewis thinks, as to warrant their rejection in favour of the third solution.<sup>2</sup> Indeed, it is precisely for this reason that he famously described the problem of temporary intrinsics as the ‘principle and decisive objection against endurance’ (Lewis 1986, p. 204).

Few now share Lewis’s confidence that this problem unequivocally supports the doctrine of temporal parts. Even so, most continue to share his conviction that ( $\alpha$ )–( $\gamma$ ) exhaust the live options for resolving it. In what follows, I challenge the reigning consensus on this score. More specifically, I show that there is a further type of solution available to endurantists, one that not only avoids the usual costs, but is structurally identical to the temporal-parts solution preferred by Lewis and his perdurantist followers. For lack of a better name, I call this new type of solution ‘the constituent solution’, since according to it ordinary objects undergo intrinsic change by successively entering into larger wholes of which they and their temporary intrinsics are proper parts or constituents.

<sup>2</sup> Lewis’s original objections to the first solution were not particularly strong, and in fact denied that it was an endurantist solution at all. (See Lewis 1986, p. 204, where he explicitly says ‘This is a solution that rejects endurance, because it rejects persistence altogether’.) In later work, he still contrasts this solution with that of endurance, but also seems to recognize that endurantists can make use of it (see Lewis 2002, p. 2, esp. n. 3).

The constituent solution has been almost entirely overlooked by contemporary philosophers. I say ‘almost’ because there are at least some anticipations of it in the literature on bundle theory.<sup>3</sup> Bundle theorists have always faced the charge that their preferred metaphysics of ordinary objects is inconsistent with the phenomenon of contingent property possession, and hence with genuine change. And in response, they have sometimes developed their views in ways that, in effect, resolve the problem of temporary intrinsics. Even so, bundle theorists almost never explicitly connect their views to this problem, and even when they do, they make little effort to situate their solution systematically vis-à-vis the more familiar options mentioned above. This explains, I think, why the constituent solution continues to be ignored in contemporary discussions of temporary intrinsics.

My main purpose in what follows is to demonstrate that the constituent solution deserves to be considered along side the more familiar options, especially by those who regard the failure of standard endurantist solutions as providing some support for the doctrine of temporal parts. In order to prepare the way for my discussion, I begin (in Sect. 1) by briefly rehearsing the problem of temporary intrinsics and the standard solutions to it. I then turn (in Sect. 2) to a general characterization of the constituent solution, identifying its structural features and briefly discussing certain of its bundle-theoretic anticipations. Finally, I offer (in Sect. 3) a detailed development of the constituent solution in terms of my own preferred metaphysics of ordinary objects—namely, a distinctive form of substratum theory tracing to Aristotle. My aim in this final section is not only to further clarify the constituent solution, but also to highlight a form of Aristotelianism whose virtues have yet to be fully appreciated in the contemporary context. Elsewhere, Michael Rea and I have argued that such Aristotelianism provides an attractive solution to the problem of material constitution (Brower and Rea 2005; see also Rea 1998). My discussion here is intended to call attention to a further line of support.<sup>4</sup>

<sup>3</sup> See Simons 1994 and Paul 2002. I shall have more say about the specific nature of these anticipations in Sect. 2.

<sup>4</sup> Although I describe my preferred form of substratum theory as ‘Aristotelian’, and do think it ultimately traces to Aristotle, I owe my understanding of it largely to Thomas Aquinas, one of Aristotle’s greatest commentators. Elsewhere I hope to show that this form of substratum theory is, in fact, Aquinas’s own.

## 1. Standard solutions to the problem of temporary intrinsics

In order to appreciate the constituent solution to the problem of temporary intrinsics, we must first be clear about how the standard solutions to this problem are arrived at. To this end, let us return to our example involving Socrates and, following a standard convention, introduce a pair of technical terms—‘Socrates at  $t_1$ ’ and ‘Socrates at  $t_2$ ’—to refer, respectively, to Socrates when he is seated and to Socrates when he is standing. In that case, we can make precise the problem to which our example gives rise in terms of the following argument:

Argument A

- (1) Socrates at  $t_1$  is bent, whereas Socrates at  $t_2$  is straight
- (2) Socrates at  $t_1$  = Socrates at  $t_2$  = Socrates
- ∴ (3) Socrates is both bent and straight

The truth of premiss (1) seems to follow immediately from the general principle mentioned earlier, which we can state more perspicuously as follows:

- (P) For any object  $x$  and any property  $F$ , if  $x$  is, was, or will be  $F$ , then  $x$  is  $F$ <sup>5</sup>

Moreover, since the terms ‘Socrates at  $t_1$ ’ and ‘Socrates at  $t_2$ ’ just appear to be alternative names for Socrates, the truth of premiss (2) would seem to follow as well. But, of course, the conjunction of (1) and (2) immediately gives rise to the absurdity at (3). Hence the problem.

Since Argument A is valid, the only way to avoid the absurdity to which it gives rise is to reject one of its premisses. But which one should we reject? It is generally assumed that endurantists have no choice but to reject the first. For given endurantism, it is hard to see what terms like ‘Socrates at  $t_1$ ’ and ‘Socrates at  $t_2$ ’ could refer to, if not to Socrates himself (see Merricks 1994). But what could be wrong with premiss (1) from the endurantist perspective? There are two—and apparently only two—answers: (a) it presupposes a mistaken philosophy of time or tense; and (b) it presupposes a mistaken view of property possession. The first answer corresponds to the presentist

<sup>5</sup> See Rea 2003, esp. Sect. 2. This principle is at least initially plausible on eternalism.

solution, whereas the second corresponds to the relativizer solution. Let us look briefly at each.

*The presentist (or better, serious-tenser) solution:* According to presentism, only the present is real. Hence, the only properties that ordinary objects have are those that they have in the present. Suppose it is now morning. In that case, it is true that Socrates is bent (since now he *is* sitting), but false that he is straight (since he is not yet standing, though later he *will be*). By contrast, if it is now afternoon, then it is true that Socrates *is* straight (since now he *is* standing), but false that he is bent (since he is no longer sitting, though earlier he *was*). And similar remarks apply to Socrates at other times. In short, given presentism, it is never true that Socrates *is* (*was*, or *will be*) both bent and straight. Hence, endurantists who embrace this doctrine can allow persisting objects to possess genuinely incompatible properties at different times without contradiction precisely because they reject the general principle at (P).

Strictly speaking, the rejection of (P) does not require embracing presentism. On the contrary, to reject (P) one need only take tense seriously — that is to say, accept the view that the fundamental truths about the world are all tensed. But since one can, in principle, do that without embracing presentism, the presentist solution is best thought of as a species of a more general type of solution — what we might call ‘the serious-tenser solution’. Even so, since the rejection of (P) apart from presentism is often thought to be unmotivated, this complication is often ignored.<sup>6</sup>

*The relativizer solution:* Not all endurantists are willing to reject (P). But how do those who accept it avoid saying that Socrates is both bent and straight? The short answer is by relativizing the possession of such properties to times. Some insist that the temporal relativization traces to the properties themselves (e.g. Mellor 1981, pp. 110–14). Others insist that it traces not to the properties but to the nature of their possession (e.g. Johnston 1987). And yet others insist that it traces neither to the properties nor to their possession, but rather to the nature of the states of affairs or propositions into which objects enter by virtue of possessing such properties (e.g. Haslanger 1989). But however the temporal relativization is explained, the basic solution is the same. Premiss (1) of Argument A fails to get off the ground precisely because it assumes that properties are had *simpliciter* rather than *relative to* times.

<sup>6</sup> See Zimmerman 1998 and Rea 2003 for discussion of non-presentist forms of the serious-tenser solution and the problems they face.

Both of the standard endurantist solutions just described preserve the coherence of intrinsic change, but only at a significant cost. The presentist solution appears to be inconsistent with our best science and to violate the thesis that truth supervenes on being (see Rea 2003 and Sider 2001).<sup>7</sup> And the relativizer solution appears to flout fundamental intuitions about property possession. Intuitively, objects possess at least some of their properties *simpliciter*—so that, say, Socrates just is bent or straight (full stop).<sup>8</sup> It is, of course, precisely these sorts of cost that have led Lewis and his perdurantist followers to reject endurantism in favour of the doctrine of temporal parts. Since accepting this doctrine constitutes the other standard solution to the problem of temporary intrinsics, we must consider it briefly as well.

*The temporal-parts solution:* According to Lewis, the problem with Argument A comes not with premiss (1) but with premiss (2):

- (2) Socrates at  $t_1$  = Socrates at  $t_2$  = Socrates

Once we have rejected the other solutions, Lewis thinks, we have no choice but to accept that bentness and straightness are genuinely incompatible properties possessed by distinct objects.<sup>9</sup> Since we have stipulated, in the context of Argument A, that the object possessing bentness is Socrates at  $t_1$  and the object possessing straightness is Socrates at  $t_2$ , it follows that we must reject premiss (2) on that grounds that these objects are distinct. But what, then, are these objects and what is their relationship to Socrates, whom we have been assuming is the object that persists throughout the change? The answer, according to Lewis, is that Socrates at  $t_1$  and Socrates at  $t_2$  are temporal parts of Socrates, who is himself a four-dimensional space-time worm—that is to say, an object that persists by perduring (rather than enduring).<sup>10</sup>

<sup>7</sup> But see also Bigelow 1996 for an account of how truth could supervene on being for a presentist.

<sup>8</sup> This is not to deny that Socrates can have bentness or straightness at particular times. Rather, it is to say that, intuitively, his bentness or straightness at these times is to be understood in terms of his bentness or straightness *simpliciter*, together with his existence at the times in question. See Merricks 1994.

<sup>9</sup> See Lewis 1986, p. 204: ‘Third solution: the different shapes, and the different temporary intrinsics generally, belong to *different things*’ (emphasis added).

<sup>10</sup> See Lewis 1986, p. 204: ‘Endurance is to be rejected in favour of perdurance. We perdure; we are made up of temporal parts, and our temporary intrinsics are properties of these parts, wherein they differ from one another.’

Initially, this solution might appear to avoid the contradiction of a single thing possessing incompatible properties only at the cost of denying intrinsic change altogether. For if Socrates at  $t_1$  and Socrates at  $t_2$  are the only objects which possess the properties of bentness and straightness, in what sense can Socrates himself be said to change with respect to these properties? The answer, according to Lewis, is that while it is true that only Socrates' temporal parts possess bentness and straightness in the primary or proper sense (because only they possess these properties *simpliciter*), none the less Socrates himself can be said to possess these same properties in a derivative (or relative) sense. Indeed, just as a road can be said to be derivatively both bent and straight, in virtue of possessing spatial parts that are bent or straight *simpliciter*, so too in the case of Socrates and his temporal parts.<sup>11</sup>

Famously, this answer opens Lewis up to a *tu quoque* charge, namely, that his solution does no better than the relativizer's in preserving fundamental intuitions about property possession (see Haslanger 1989). As already noted, our ordinary intuitions are that Socrates possesses bentness *simpliciter*, not by virtue of standing in some relation to it (say, by having its possessor as a temporal part). To say otherwise, as Lewis sometimes puts it, is to *alienate* objects from their properties. But, then, is such alienation not equally a problem for Lewis's temporal-parts solution? Lewis denies that it is — and this for two reasons. First, unlike the relativizer solution, which alienates all objects from their properties, he claims that his still allows for at least some objects (namely, temporal parts) to possess their properties *simpliciter*. Second, and once again in contrast to the relativizer solution, he claims that his does not fully alienate even ordinary objects from their properties. For given the special relationship between such objects and their temporal parts, there is a sense in which we can say that even they possess their properties *simpliciter*.

In talking about what is true at a certain time, we can, and we very often do, restrict our domain of discourse so as to ignore everything located elsewhere in time. Restricting the domain in this way, your temporal part at  $t_1$  is deemed to be the whole of you. So there is a good sense in which you do, after all, have *bent simpliciter*. The protagonist of endurance cannot say the same. (Lewis 2002, p. 5)

<sup>11</sup> See Lewis 1988, p. 66: 'To be sure, my shapes belong *in the first instance* to my stages [or temporal parts], and *in a derivative, relational way* to the whole of me. Persisting thing  $x$  is bent at time  $t$  iff some stage of  $x$  is at  $t$  and is bent' (emphasis added).

I do not want to pause here to evaluate the success of Lewis's replies or the alleged superiority of his temporal-parts solution over the standard endurantist alternatives.<sup>12</sup> Instead, I shall proceed directly to showing that, contrary to what Lewis here suggests and others habitually take for granted, it is possible to develop a type of endurantism that enjoys all the benefits of the temporal-parts solution without its chief cost—namely, the rejection of our ordinary conception of persistence.

## 2. A new solution to the problem of temporary intrinsics

The key to Lewis's temporal-parts solution is a certain account of intrinsic change. According to this account, change has a specific structure. First of all, there are the temporary intrinsics, properties such as bentness and straightness, which are genuinely incompatible and that with respect to which persisting objects change. Secondly, there are the primary bearers of these properties, such as Socrates at  $t_1$  and Socrates at  $t_2$ , which possess such properties *simpliciter*. Third and finally, there are the persisting objects themselves, such as Socrates, which possess these properties only derivatively or by virtue of standing in an appropriate relation to their primary bearers. For the sake of clarity we can illustrate this structural account of intrinsic change as I have in Fig. 1.

It is important to see that this structural account does not, by itself, give us a full-blown theory of intrinsic change. For that, it must be supplemented with an account of the nature of both (i) the different types of object involved in any given change (namely, the primary property bearers and persisting objects), and (ii) the relationship between these different types of objects that explains why one of them (namely, the persisting objects) possess the relevant temporary intrinsics only derivatively. It is here, of course, that Lewis's doctrine of temporal parts becomes relevant, for it provides just the sort of supplementation needed. Thus, as we have seen, Lewis identifies the primary property bearers with temporal parts, persisting objects with complex (four-dimensional) objects composed of such parts, and the relevant relation with parthood.

<sup>12</sup> But see Sider 2000 and 2002 for a stage version of temporal-parts theory designed to avoid the alienation objection.

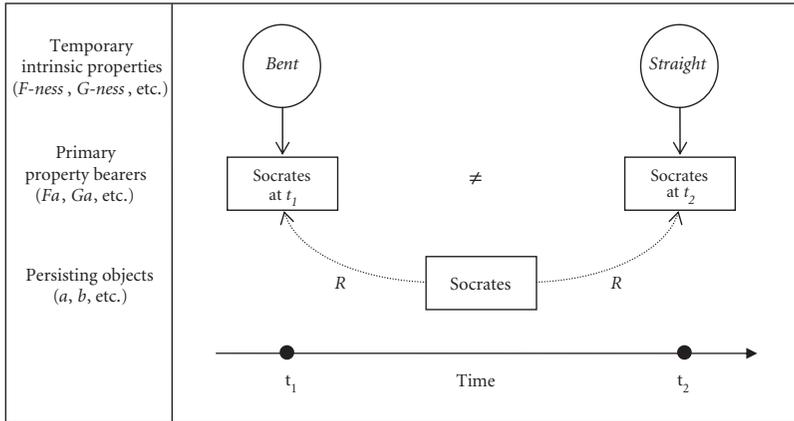


Fig. 1. Lewis's structural account of intrinsic change

There can, I think, be little doubt that the doctrine of temporal parts provides us with *one way* of filling out Lewis's structural account of intrinsic change. The important point for our purposes, however, is that it does not provide *the only way* of doing so. On the contrary, there is nothing in this structural account to prevent us from identifying persisting objects with enduring objects, provided we think of such objects as possessing their temporary intrinsics derivatively, and hence by virtue of being related to distinct objects which themselves possess the same properties *simpliciter*. Of course, we will not be able to think of these distinct objects as temporal parts. Still, there is nothing to prevent us from appealing to the relation of parthood to account for the fact that persisting objects possess their temporary intrinsic properties derivatively. Indeed, if we think of the primary property bearers as complex objects having persisting objects as proper parts or constituents, we will have a type of solution that is both endurantist and structurally identical to Lewis's. In order to clarify the point, let us return one last time to our Argument A and consider how the proponent of such a constituent solution would reply.

#### Argument A

- (1) Socrates at  $t_1$  is bent, whereas Socrates at  $t_2$  is straight
- (2) Socrates at  $t_1$  = Socrates at  $t_2$  = Socrates

$\therefore$  (3) Socrates is both bent and straight

*The constituent solution:* According to the constituent solution, ordinary objects persist through intrinsic change by successively entering into larger wholes of which they and their temporary intrinsics are proper parts or constituents. Moreover, it is only these larger wholes which have the relevant properties *simpliciter*, whereas ordinary objects come to have these same properties only by entering into such wholes as parts. Thus, in the particular case of Socrates, an enduring object (namely, Socrates himself) derivatively possesses the properties of bentness and straightness at different times solely by successively being part of two distinct objects (namely, Socrates at  $t_1$  and Socrates at  $t_2$ , respectively), which possess these properties in the primary or proper sense.

As even this brief description should make clear, the proponent of the constituent solution agrees with Lewis (against both presentists and relativizers) that premiss (1) of Argument A is true and that premiss (2) is false, even while rejecting the doctrine of temporal parts in favour of endurantism. We might expect this sort of solution to appeal to Lewis. For even if we grant that his temporal-parts solution is superior to the standard endurantist solutions, he himself regards it as counterintuitive enough to ‘welcome a fourth solution’:

If the third solution alone is tenable, then our common-sense belief in persisting things commits us implicitly to perdurance—and this despite the fact that some of us firmly reject the notion of temporal parts (except of events or processes) and many more have never heard of it! It would be better not to impute such surprising commitments to common sense. (Lewis 1988, p. 67)

As I noted at the outset, there is a kind of precedent for the constituent solution among bundle theorists. According to bundle theory, ordinary objects (such as Socrates) are to be identified with complex objects or ‘bundles’ of properties—namely, those possessed by the objects in question. One common objection to this type of theory is that it cannot account for our common-sense intuition that ordinary objects have at least some of their properties contingently, and hence are capable of undergoing change. For such bundles would seem to be individuated by their properties, and hence to possess them essentially; thus, to say that a particular bundle (such as Socrates) acquires or loses a property over time is apparently just to say that one such bundle ceases to exist and another, distinct bundle comes to exist.

In response to this objection, some bundle theorists have suggested that we identify ordinary objects (such as Socrates) not with the

bundles composed of all their properties, but only with a proper subset of them — say, the ‘sub-bundle’ that common sense takes to include their essential properties. Peter Simons (1994) has developed a trope-nominalist variation on this suggestion, referring to it as ‘the nuclear theory of objects’ and spelling out the special relation that unites the properties constituting the relevant sub-bundle or *nucleus* in terms of the notion of foundational dependence. Again, Laurie Paul (2002) has developed a realist variation on this suggestion in terms of her broader theory of ‘logical parts’, identifying ordinary objects (and hence the relevant sub-bundle) with highly specified *kinds* or repeatable properties. Either development would seem to give us all we need to avail ourselves of the constituent solution. For in either case we can say that Socrates, a certain bundle of properties, changes by successively entering into larger bundles of properties. And since it is presumably whole bundles (rather than their proper parts or sub-bundles) that have the properties of which they are composed, it follows that their proper parts or sub-bundles will have the same properties only derivatively. Thus, to say that Socrates is bent will presumably just be to say that he is a proper part of a bundle which has bentness *simpliciter*.

Although Simons does not specifically connect his discussion of bundle theory with the problem of temporary intrinsics, Paul does. Indeed, she explicitly points out that her theory of logical parts allows us to sidestep the standard endurantist solutions thereby ‘making available a new account of endurance and change’ (Paul 2002, p. 587). Paul does not, however, go on to provide a systematic comparison of her preferred solution with the standard options; nor does she spell out the structural similarities between her account of change and that of Lewis. Finally, neither she nor Simons has anything explicit to say about the crucial notion of derivative property possession.

In light of the foregoing, it should be clear that bundle theorists have all the resources necessary to avail themselves of the constituent solution, though more would have to be said to fill out their particular way of developing it in any detail. Instead of pursuing bundle theory any further, however, I want to develop the constituent solution briefly in terms of my own preferred metaphysics of ordinary objects. This development will, I hope, not only further clarify the constituent solution, but also highlight some of the advantages that a broadly Aristotelian metaphysics has over traditional substratum theory.<sup>13</sup>

<sup>13</sup> For an argument that bundle theory and traditional substratum theory are equivalent on many important metaphysical matters, including change, see Benovski 2008.

### 3. Aristotelian endurantism

The point of departure for my preferred development of the constituent solution is the Aristotelian doctrine of hylomorphism. According to Aristotle, the familiar objects of experience (such as plants, animals, human beings) are all ‘hylomorphic compounds’ — that is, objects that exist in virtue of and just so long as some matter (*hyle*) possesses a certain kind of form (*morphe*). Forms, for Aristotle, are complex organizational properties, and properties are immanent universals (or tropes). The matter of an object is not itself individual, but rather something that combines with a form to make an individual — it is, in other words, what some contemporary philosophers refer to technically as ‘stuff’ (e.g. Markosian 2004). Thus, for Aristotle, a human being such as Socrates exists just in case some matter (or stuff) possesses the complex organizational property *humanity*, and so is appropriately viewed as a composite whose parts (at one level of decomposition) just are his matter and form. And, of course, similar remarks apply to other such familiar objects.

Even from this brief description, we can, I think, appreciate some of the advantages Aristotelian hylomorphism has over traditional substratum theory. According to the latter, familiar objects are to be analysed not in terms of matter and form, but rather in terms of bare particulars and the properties instantiated by them. At one time, it was common for traditional substratum theorists to identify familiar objects with bare particulars themselves — so that, say, Socrates just is the substratum for his properties. But this seems to conflict with such common-sense intuitions as:

- (a) Socrates is an immediate object of experience
- (b) Socrates possesses at least some of his properties essentially

In order to avoid this conflict, many substratum theorists now prefer to say that familiar objects are not bare particulars, but rather complex objects that exist in virtue of bare particulars instantiating properties. Thus, David Armstrong distinguishes between *thin particulars* (i.e. bare particulars or substrata) and *thick particulars* (i.e. concrete states of affairs that exist in virtue of bare particulars instantiating properties) and identifies familiar objects only with the latter.<sup>14</sup> But

<sup>14</sup> See Armstrong 1997, pp. 123–26 and Armstrong 1989, p. 60. Armstrong prefers the term ‘thin particular’ to ‘bare particular’ on the grounds that his substrata cannot exist independently of all properties or relations, and hence are not truly bare. But the denial of such a

even this modified version of substratum theory is seriously at variance with common sense in certain respects. For in addition to the intuitions mentioned at (a) and (b), we also have intuitions such as:

- (c) Socrates possesses at least some of his properties contingently or non-essentially
- (d) Socrates is human, but not composed of anything distinct from himself which is human

And even the modified version of traditional substratum theory conflicts with (c) and (d). For given that concrete states of affairs have their constituent properties essentially, it would seem to follow that familiar objects have all of their properties essentially, and hence that Socrates is not only essentially human, but also essentially a certain colour, shape, and size. Again, on this theory it would seem that both thin and thick particulars possess the properties associated with ordinary objects. Thus, in so far as Socrates' bare particular instantiates humanity, it would seem to be human. And in so far as Socrates himself is human and composed of this particular, he would seem to be composed of a distinct object that is human.<sup>15</sup>

It is an advantage of Aristotelian hylomorphism that it avoids all of these problems. Like the modified version of traditional substratum theory, it identifies familiar objects with complexes of substrata and properties, and hence preserves the intuition at (a). Unlike this form of substratum theory, however, it does not require familiar objects to possess all of their properties essentially, but only those that it has as constituents; hence it also preserves the intuitions at (b) and (c). (More on the Aristotelian account of contingent or non-essential property possession below.) Finally, because Aristotelian hylomorphism takes the substrata of familiar objects to be matter, rather than bare particulars, it can preserve intuitions like that at (d). For matter, as we have seen, is best conceived of as non-individual stuff, and hence is of the wrong ontological type or category to be human. Only *individuals* can be human. Hence, even if both Socrates and his matter possess humanity, only Socrates can *be* human. We can put the point more generally by saying that, on Aristotelian hylomorphism, not

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possibility does not distinguish Armstrong's views from most bare particular theorists, who would agree with him on this score—though see Sider 2006 for an exception.

<sup>15</sup> Armstrong explicitly denies (c) and often speaks as if he is perfectly comfortable with the denial of (d). See the references cited in the previous note.

everything which possesses a property is *characterized* by that property (where an individual *a* is characterized by some property *F*-ness only if *a* is *F*). On the contrary, Aristotelian hylomorphism distinguishes sharply between two different types of property possession—one associated with hylomorphic compounds, and another associated with matter or substrata. Thus, hylomorphic compounds possess properties via *constituency*—that is, a relation holding between a whole and one of its proper parts—whereas matter or substrata possess properties via *inherence*—that is, a relation that holds between distinct parts of a common whole. And only the former sort of property possession is directly connected with property characterization. Indeed, to be *characterized* by a property, on Aristotelian hylomorphism, just is to possess that property *as a constituent*.<sup>16</sup>

So far we have been focusing only on Aristotle's account of paradigmatic hylomorphic compounds—namely, organisms such as plants, animals, and human beings. In addition to these, however, Aristotle also admits the existence of other types of hylomorphic compound, including books, caskets, beds, thresholds, hands, hearts, and various other non-organisms. Like organisms, moreover, Aristotle thinks that each of these compounds exists in virtue of and only so long as some matter possesses a particular complex organizational property.<sup>17</sup> Indeed, he even countenances what Gareth Matthews (1982) calls 'kooky' objects—objects like 'seated-Socrates', which comes into existence when Socrates sits down and which passes away when Socrates ceases to be seated.

<sup>16</sup> Could the proponents of the modified version of traditional substratum theory (including Armstrong himself) preserve (d) by adopting some version of the distinction between property possession via constituency and property possession via inherence? Yes, but it is hard to see how such a move could avoid being ad hoc (at least in the present context). As we have seen, the Aristotelian has a clear rationale for drawing this distinction (given the nature of matter). But it is hard to see what could motivate the proponents of the modified version of substratum theory to draw a similar distinction, apart from the specific desire to preserve (d).

Again, since Aristotelian matter does not possess any properties as constituents, does it not follow that it cannot be characterized by any of the properties it possesses? Yes, but note that this is not to say that matter cannot be characterized at all. Obviously it can be—it is, after all, *matter* or *stuff*, *non-individual*, *existent*, *identical-to-itself*, etc. The point is just that not all characterization is to be explained in terms of property possession. On the contrary, in some cases the fact that an entity can be characterized in a certain way is to be explained by the entity itself (rather than by its possession of a distinct property). Thus, Aristotelian hylomorphism presupposes a sparse (as opposed to an abundant) conception of properties. See Sider 2006.

<sup>17</sup> See e.g. *Metaphysics* H2, 1042b15–25.

Now as Aristotle sees it, the paradigmatic examples of hylomorphic compound are all substantial unities or substances—that is, unified objects that exist by virtue of some matter’s possessing a substantial form (i.e. a kind-defining or essential property of substances). By contrast, all of these further examples of hylomorphic compound are accidental unities—that is, unified objects that exist only by virtue of a substance’s possessing an accidental form (i.e. a contingent or non-essential property of substances). Thus, in a hylomorphic compound such as seated-Socrates, what plays the role of matter is a substance, Socrates (which, of course, unlike matter properly so-called, is a pre-existing individual), and what plays the role of form is an accidental property, *seatedness* (or better, *bentness*). We can, if we like, distinguish substantial and accidental forms in terms of the nature of their subject or possessor. Thus, substantial forms are those which combine with matter or stuff to make individuals (i.e. substances), whereas accidental forms are those that combine with individuals to make further individuals (i.e. accidental unities). This way of drawing the distinction helps to make sense of the Aristotelian idea that some accidents, the so-called *propria*, can be non-contingently possessed.

Note that accidental unities bear a certain resemblance to the stages or temporal parts of Lewis’s perdurantism. Like such stages or temporal parts, accidental unities are essentially characterized by the properties that they possess *simpliciter*. Unlike them, however, accidental unities are not proper parts of ordinary objects. On the contrary, they are complex wholes of which ordinary objects are proper parts.

By now the relevance of all of this to intrinsic change will, perhaps, be obvious. According to Aristotle, the familiar objects of experience undergo intrinsic change by successively entering into distinct accidental unities. Thus, when Socrates goes from being bent (when he is sitting) to being straight (when is standing), he does so by successively entering into distinct hylomorphic compounds which themselves possess the properties of *bentness* and *straightness* as constituents—compounds that we can once again refer to as ‘Socrates at  $t_1$ ’ and ‘Socrates at  $t_2$ ’, respectively.<sup>18</sup>

But how, it may be asked, is this account supposed to explain how Socrates himself changes? After all, to say that he successively enters into the relevant accidental unities is just to say that he successively

<sup>18</sup> On this account of change, enduring objects have some affinities to what Karmo (1977) calls ‘disturbances’.

plays the role of matter with respect to each. But on Aristotelian hylomorphism, as we have seen, it is not the matter of a compound that is characterized by the properties it possesses, but rather the compound itself. Hence, even if Socrates comes to possess the property of *straightness* at some time (via inherence), it would seem that he himself no more comes to be straight than his matter comes to be human by taking on the property of *humanity* (via inherence). Admittedly, we do not have the same obstacle here that we had for saying that Socrates' matter can be characterized by the relevant property. For unlike Socrates' matter, which is not of the right ontological category to be human, Socrates himself seems perfectly suited to be straight (or bent or pale or wise, etc.). Even so, the problem remains. How are we to maintain that Socrates himself comes to be *F* when he merely comes to possess *F-ness* by way of inherence, given that on Aristotelian hylomorphism it is only property possession *via constituency* that is directly associated with characterization?

To resolve this problem, we must look at one final Aristotelian doctrine—the so-called doctrine of accidental sameness. At various places in his writings, including his *Physics* and *Metaphysics*, Aristotle suggests that entities such as seated-Socrates and Socrates, or musical-Coriscus and Coriscus are *one in number but not in being*.<sup>19</sup> Or again, that such entities are distinct, but to be counted as one.<sup>20</sup> In some of these texts, Aristotle even seems to extend the doctrine to distinct accidental unities that share a common substance (so that, for example, seated-Socrates and musical-Socrates are not only numerically the same as Socrates, but also numerically the same as each other). Because Aristotle takes the sameness in these particular cases to hold only contingently or accidentally—on the grounds that the relevant substances can exist without the accidental unities of which they are a part—commentators habitually refer to this doctrine as one of ‘accidental sameness’.<sup>21</sup> It seems to me more illuminating, however, to describe this doctrine as one of ‘numerical sameness without identity’, since the sameness in question is clearly a variety of *numerical*

<sup>19</sup> *Topics* A7, 103a23–31; *Physics* A3, 190a17–21, 190b18–22; *Metaphysics* D6, 1015b16–22, 1016b32–1017a6; *Metaphysics* D9, 1024b30–1.

<sup>20</sup> *Topics* A7, 103a23–31; *Metaphysics* D6, 1015b16–22, 1016b32–1017a6.

<sup>21</sup> See F. Lewis 1982 and Matthews 1982, as well as the further sources cited in Cohen 2008.

sameness and speaking of such sameness as *accidental* might suggest that it always holds contingently, whereas we have seen that Aristotle allows for accidents that are non-contingently possessed (i.e. necessary accidents or *propria*).

But however we describe this Aristotelian doctrine, the typical reaction to it is one of bewilderment. What could it possibly mean to say of distinct things that they are numerically one and the same object? Such bewilderment, however, is unwarranted. For there is a perfectly straightforward answer to the question: to say of two (or more) distinct things that they are numerically the same is just to say that they share all of their matter (or stuff) in common at a time, which in turn is just to say that they are numerically one and the same material object. More precisely:

(Numerical sameness without identity)

For any distinct hylomorphic compounds  $x$  and  $y$ , and any time  $t$ ,  $x$  is numerically the same material object as  $y$  at  $t$  if and only if  $x$  and  $y$  share all of their matter in common at  $t$

So understood, the doctrine is not only perfectly intelligible, but it provides an attractive solution to a familiar philosophical puzzle—namely, the problem of material constitution. To illustrate, let us consider a bronze statue of the Greek goddess, Athena, and ask ourselves how many objects there are in the region filled by this statue. If we are honest, we are likely to be pulled in two directions. One the one hand, our common-sense intuitions pull us in the direction of saying ‘there is one—and only one—object in this region’. For in accordance with common sense, we count objects by their matter (if we were selling the statue, for example, we would not charge for the statue *and* the lump, but only for a *single* object). On the other hand, our rational intuitions pull us in the direction of saying ‘there are at least two objects in this region’. For in accordance with reason, it seems clear that our region is filled by a statue *and* a lump, where these are distinct objects (since the latter, but not the former, can survive being melted down and recast in a different form).

One of the advantages of the doctrine of numerical sameness without identity is that it provides a way of reconciling these apparently inconsistent intuitions. For it allows us to say that the statue and lump are distinct *hylomorphic compounds* (since they involve different forms), but numerically one and the same *material object* (since they share all the same matter). Admittedly, this doctrine has some

counterintuitive costs.<sup>22</sup> But it must be kept in mind that the same is true of any solution to the problem of material constitution. And for those who are committed to respecting both our common-sense and our philosophical counting practices, the particular costs of this solution may well be worth paying.

For present purposes, however, the important point is that the doctrine of numerical sameness without identity gives us a way of resolving our problem about how substances can come to be characterized by properties distinct from those they possess via constituency. For it enables us to say that although subjects are only characterized *simpliciter* by the properties they possess as constituents, none the less when they come to be numerically one with something else, they come to be characterized *derivatively* by the constituent properties of this other thing.<sup>23</sup> The intuitive idea here is that matter-sharing is such an intimate relation that, by virtue of coming to bear it to something else, a subject takes on or inherits that other thing's properties (in the sense of coming to be characterized by them).<sup>24</sup> Thus, even if it is true that only hylomorphic compounds such as seated-Socrates or standing-Socrates are characterized by *bentness* or *straightness simpliciter*, since only these objects possess the properties as constituents, none the less when Socrates comes to share the same matter as one of these objects (which he can do merely by coming to possess *bentness* or *straightness* by inherence), he himself will come to be characterized by the relevant property *derivatively*. To state these notions of property characterization more precisely:

(Primary property characterization)

A hylomorphic compound *a* is characterized by a property F-ness *simpliciter* if and only if *a* possesses F-ness as a proper

<sup>22</sup> For example, it requires us to distinguish those sortals (such as 'hylomorphic compound') that permit counting by identity from those sortals (such as 'material object') that do not. For further discussion of such costs and their acceptability, see Brower and Rea 2005.

<sup>23</sup> See Cohen 2008 which provides textual grounds for attributing this sort of view to Aristotle. See also Baker 2000 for a different account of 'derivative property possession'.

<sup>24</sup> Strictly speaking, one does not have to accept the doctrine of numerical sameness without identity to accept this point. A subject's coming to share all the same matter (or stuff) as another thing would by itself seem to be sufficient for the subject to inherit that other thing's properties (whether or not we agree with Aristotle that complete overlap of matter is sufficient for a type of sameness without identity). For ease of exposition, however, I will continue to speak as if it were numerical sameness that is important.

part or constituent — or, better, as an immediate proper part or constituent<sup>25</sup>

(Derivative property characterization)

A hylomorphic compound *a* is characterized by a property F-ness derivatively if and only if *a* is numerically the same as (but not identical to) another hylomorphic compound *b* that is characterized by F-ness *simpliciter*

Earlier I said that to be *characterized* by a property, on Aristotelian hylomorphism, just is to possess that property *as a constituent*. As we can now see, however, this point needs to be qualified; it should really be stated in terms of *primary* property characterization. For in addition to being characterized *simpliciter* by their own constituent properties, hylomorphic compounds can also be *derivatively* characterized by the constituent properties of any other compound with which they are numerically the same (but not identical).<sup>26</sup> By now it should also be clear that primary property characterization is always essential, whereas derivative property characterization can be (and, except for the special case of necessary accidents or *propria*, always is) contingent.

We now have before us all the elements of our Aristotelian solution to the problem of temporary intrinsics. Moreover, its resemblance to Lewis's own solution should be clear, since it merely provides us with an alternative way of filling out his structural account of change. Recall how that account went: see Fig. 1 above.

As we have seen, Lewis fills out this structural account by identifying the primary property bearers with temporal parts, persisting objects with complex wholes composed of such parts, and the relation at R with that of parthood. As we can now see, the Aristotelian fills out the account in a similar way — he or she also identifies R with parthood but reverses its direction, with the result that it is complex wholes (namely, hylomorphic compounds) that are the primary

<sup>25</sup> Let us that that *x* is an immediate proper part of *y* if and only if (i) *x* is a proper part of *y*, and (ii) there is no *z* such that *x* is a proper part of *z* and *z* is a proper part of *y*.

<sup>26</sup> And this is true whether the compounds in question are substances, such as Socrates, or accidental unities such as seated-Socrates or musical-Socrates. Thus, just as we can say of Socrates that he is human *simpliciter*, but seated and musical only derivatively, so too we can say of seated-Socrates that he is seated *simpliciter*, but human and musical derivatively, and of musical-Socrates that he is musical *simpliciter*, but human and seated derivatively.

property bearers, and certain of their proper parts (namely, substances) that are the persisting objects.

The structural similarity of these two solutions enables the proponent of the Aristotelian solution to reap all of the benefits of Lewis's while at the same time avoiding its chief cost — namely, its rejection of our ordinary conception of persistence. Note in particular that the two solutions are on a par when it comes to the alienation objection. Like Lewis's, the Aristotelian solution can preserve the intuition that at least some objects possess their properties *simpliciter* (and hence avoid the alienation of all objects from their properties). And like Lewis's solution, it can also preserve the intuition that even ordinary persisting objects possess their properties *simpliciter* (and hence avoid fully alienating even these objects from their properties). For in so far as ordinary objects (such as Socrates) are numerically one and the same as objects that possess their properties *simpliciter* (such as seated- or standing-Socrates), there is a clear sense in which they just *are* the objects possessing properties in this way.<sup>27</sup>

The fact that the Aristotelian solution enjoys all these benefits, while at the same time preserving our ordinary (endurantist) conception of persistence, gives it a distinct advantage over perdurantism. And the fact that it automatically brings with it a solution to another outstanding problem in metaphysics — namely, the problem of material constitution — gives it a distinct advantage over the standard forms of endurantism. Or so it seems to me. But quite apart from these stronger claims, it should be clear that the costs and benefits of the constituent solution in general, as well as of Aristotelian endurantism in particular, deserve to be considered alongside those of the other standard solutions to the problem of temporary intrinsics.

#### 4. Conclusion

At the outset, I noted that it is standardly assumed, in the contemporary literature, that there are three (and only three) types of solution to the problem of temporary intrinsics — two open to endurantists, and a third requiring commitment to temporal parts. If my argument

<sup>27</sup> Indeed, as Michael Rea and I have argued elsewhere (2005), Aristotelian hylomorphism enables us to distinguish the 'is' of ordinary predication from the 'is' of numerical sameness, the latter of which appears to be implicated in many ordinary assertions of the form 'a is (an) F'.

is correct, however, this assumption is mistaken. There is a fourth type of solution—one that is not only open to endurantists, but also immune to the standard perdurantist objections and capable of a particularly powerful development in terms of Aristotelian ontology. Of course, not everyone will find my preferred development of this constituent solution attractive. But as I have emphasized, bundle theorists (and perhaps even more traditional substratum theorists) are in a position to offer their own distinctive developments of it. And even for those who would reject any form of constituent solution, the mere possibility of developing it reveals that much more work needs to be done before the problem of temporary intrinsics can be decided in favour of any of the standard alternatives.

Before concluding, let me note one final consequence of the constituent solution I have described. As I pointed out earlier, the standard endurantist solutions to the problem of temporary intrinsics appeal either to presentism (or better, seriousness about tense) or to some sort of relativization strategy. Interestingly, the temporal-parts solution can also be thought of as employing a sort of relativization strategy. Admittedly, the proponents of the latter solution do not think of *property possession* as relativized to times (as endurantist relativizers do). But they do think of *objects* as relativized to times (temporal parts directly, and ordinary objects indirectly via their temporal parts)—and this would seem sufficient to qualify even temporal-parts theorists as relativizers of a sort. If this is right, then we can think of the standard solutions as providing us with just two fundamental categories of solution, and our constituent solution as providing us with a third, in line with the following taxonomy:

Types of solution to problem of temporary intrinsics:

- (1) Serious-tenser solutions
  - (a) Endurantists who embrace presentism
  - (b) Endurantists who are mere serious tensors
- (2) Relativizer solutions
  - (a) Endurantists who relativize properties, property possession, or propositions to times
  - (b) Perdurantists (or temporal-parts theorists) who relativize objects to times

- (3) Constituent solutions
- (a) Endurantists who identify ordinary objects with bundles of properties that successively enter into larger bundles of which they are proper parts or constituents
  - (b) Endurantists who identify ordinary objects with complexes of substrata and properties that successively enter into larger complexes of which they are proper parts or constituents

Setting out the possible solutions in these terms not only clarifies the relationship of constituent type solutions to the more familiar options, but also serves to emphasize their most attractive feature — namely, that they appeal neither to presentism, which is often regarded as extravagant, nor to relativization strategies of any kind, which appear to conflict with common sense. No doubt, solutions belonging to this third category all have special costs of their own. We have already seen some of these in the case of Aristotelian endurantism. Even so, it is significant that one can be an endurantist without thereby incurring the costs of any of the standard endurantist or non-endurantist solutions.<sup>28</sup>

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