5

The doctrine of arbitrary undetached parts

Many philosophers accept what I shall call the Doctrine of Arbitrary Un-
detached Parts (DAUP). Adherents of this doctrine believe in such
objects as the northern half of the Eiffel Tower, the middle two-thirds of
the cigar Uncle Henry is smoking, and the thousands (at least) of over-
lapping perfect duplicates of Michelangelo's *David* that were hidden
inside the block of marble from which (as they see it) Michelangelo lib-
erated the *David*. Moreover, they do not believe in only *some* "unde-
tached parts"; they believe, so to speak, in *all* of them. The following
statement of DAUP, though it is imperfect in some respects, at least cap-
tures the *generality* of the doctrine I mean to denote by that name:

> For every material object[1] M, if R is the region of space occupied[2] by M
> at time *t*, and if sub-R is *any* occupiable[3] sub-region of R *whatever*, there
> exists a material object that occupies the region sub-R at *t*.

[1] I shall not define *material object*.

[2] I shall assume that the space we inhabit is a three-dimensional continuum of *points*. A
region is any set of points. Suppose we agree that we know what it means to say that a
given point in space *lies within* a given material object at a given moment. Then an
object *occupies* a certain region at a certain moment if that region is the set containing all
and only those points that lie within that object at that moment.

[3] A region of space is *occupiable* if it is possible (in what Plantinga calls "the broadly logical
sense") for it to be occupied by a material object. Presumably not all regions of space are
occupiable. Consider a ball-shaped region S; consider that sub-region of S that consists
of just the points within S that are at distances from the center of S that have irrational
measures: it is certainly hard to see how this sub-region could be occupied by a material
object. I shall not discuss occupiability further, however, since its exact nature is not
relevant to the issues that we shall be taking up. For an interesting proposal about
occupiable regions, see Richard Cartwright's fine paper "Scattered Objects" in *Analysis
and Metaphysics*, ed. Keith Lehrer (Dordrecht, 1975). If we accept Cartwright's account
of what it is for a region to be occupiable (to be what he calls a "receptacle"), then
DAUP is an immediate consequence of (though it does not entail) what he calls the
Covering Principle.

(It should be obvious that DAUP, so defined, entails the existence of the northern half of the Eiffel Tower[4] and the other items in the above list.) This definition or statement or whatever it is of DAUP has, as I have said, certain imperfections as a statement of the doctrine I wish to describe certain philosophers as holding. One was mentioned in footnote 4. Another is this: there are philosophers who hold what is recognizable as a version of DAUP who would not be willing to admit regions of space into their ontologies.[5] Here is a third: this statement entails that material objects have boundaries so sharp that they occupy regions that are sets of points; and no adherent of DAUP that I know of would accept such a thesis about material objects. But these defects are irrelevant to the points that will be raised in the sequel and I shall not attempt to formulate a statement of DAUP that remedies them. For our purposes, therefore, DAUP may be identified with my imperfect statement of it.

What I want to say about DAUP involves only two components of that doctrine: (i) the arbitrariness of the parts – a *part* of an object is of course an object that occupies a sub-region of the region occupied by that object – whose existence it asserts (". . . *any* occupiable sub-region of R *whatever* . . .") and (ii) the concreteness and materiality of these parts. The second of these features calls for a brief comment. A philosopher might hold that, e.g., the northern half of the Eiffel Tower exists, but identify this item in his ontology with some *abstract* object, such as the pair whose first term is the Eiffel Tower and whose second term is the northern half of the region of space occupied by the Eiffel Tower. (If this idea were to be applied to moving, flexible objects or to objects that grow or shrink, it would have to be radically elaborated; I mean only to provide a vague, general picture of how one might identify parts with

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[4] More precisely: DAUP entails that, for any time *t*, if the Eiffel Tower exists at *t*, and if the northern half of the space it occupies at *t* is then occupiable – and I think no one would want to deny *that* – then there exists an object at *t* that occupies that space, an object it would certainly be natural to call "the northern half of the Eiffel Tower." There is a thesis that DAUP intuitively "ought" to entail that my statement of it does *not* entail. Consider two times *t* and *t'*. Suppose that the Eiffel Tower exists and has the same location and orientation in space at both these times. Suppose that at both these times it consists of the same girders, struts, and rivets, arranged in the same way. The thesis: the thing that is the northern half of the Eiffel Tower at *t* is identical with the thing that is the northern half of the Eiffel Tower at *t'*. I regard the failure of my statement of DAUP to entail this thesis as a defect in that statement. (I *think* this entailment fails to hold. It certainly cannot be shown formally to hold. For all I know, however, there may be some feature of the concept of a material object in virtue of which it *does* hold.)

[5] Argle for example. See "Holes" by David and Stephanie Lewis, *The Australasian Journal of Philosophy* 48 (1970).

abstract objects.) This paper is not addressed to that philosopher's doctrine. It is addressed to DAUP, which holds that, e.g., the northern half of the Eiffel Tower is a concrete material particular in the same sense as that in which the Eiffel Tower itself is a concrete material particular.

II

The Doctrine of Arbitrary Undetached Parts is false. It is also mischievous: it has caused a great deal of confusion in our thinking about material objects. But I shall not attempt to show that it is mischievous. I shall be content to show that it is false.

As a first step towards showing this, I shall show that DAUP entails a thesis very close to *mereological essentialism*: it entails the thesis that it is impossible for an object to lose any of its parts; that is, it entails the thesis that if a part is removed from an object, and no new part is added to the "remainder," then that object must therewith cease to exist. This is a weaker thesis than mereological essentialism proper, which entails that if a part is removed from an object, then that object must therewith cease to exist *whether or not* any part is added to the remainder.[6] We may call this weaker doctrine *Mereological Near-Essentialism* (MNE). I shall not raise the question whether DAUP entails mereological essentialism proper; it will do for my purposes to show that it entails MNE. (A parenthetical note. We are speaking at a very high level of abstraction. I have not said what it would be for an object to "lose" a part. An adherent of DAUP may very well believe in the existence of "scattered objects," that is, objects that are not "in one piece."[7] Whether he does will depend on which regions he takes to be occupiable in the sense of footnote 3. Someone who accepts the existence of scattered objects might very well accept the following account of cutting a cake. If I cut a cake and separate the newly cut piece from the remainder, I have not caused anything to "lose a piece"; I have merely changed a certain cake from a non-scattered to a scattered object. Thus, in this context and at this level of generality, it is not clear just what "losing a part" may come

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[6] Mereological essentialism proper also entails that a thing could not have "started out with" different parts, which is not a consequence of the weaker thesis. For general discussions of mereological essentialism, see Roderick M. Chisholm, "Parts as Essential to Their Wholes," *The Review of Metaphysics* 26 (1973) and *Person and Object: A Metaphysical Study* (La Salle, Wisc., 1976), Appendix B.

[7] "Scattered objects" is Cartwright's term. See his article of that title (cited in fn. 3, above) for a precise definition of "scattered object."

down to. Still, the *annihilation* of a part would seem to be sufficient for the losing of it. In any case, the loss of parts is possible or it isn't. If it is, then MNE refers to just those possible cases that count as losses of parts, whether by separation or annihilation. If it isn't, MNE is a vacuously necessary truth and is thus entailed by DAUP.)

I shall now show that DAUP entails MNE. Assume that DAUP is true and MNE false. It follows from the falsity of MNE that there is a time (which for simplicity's sake I shall assume to be the present) such that there could be objects O and P such that P is a part of O at that time and such that O could survive the subsequent loss of P. Suppose such objects exist. By DAUP there is an object that occupies just that region of space that is the set-theoretical difference between the region occupied by O and the region occupied by P.[8] Call this object O-minus. O-minus is numerically diverse from O, since they occupy different regions of space and have different parts. Now suppose O were to lose P; for good measure let us suppose P to be annihilated, all other parts of O remaining unchanged, except for such changes in them as may be logically necessitated by the annihilation of P. It would seem that O-minus would still exist. Admittedly, this is not a formally demonstrable consequence of DAUP. Nevertheless, the proposition that a thing cannot cease to exist *simply* because something that was *not* a part of it is "detached" from it seems to be a sufficiently obvious conceptual truth that we may in good conscience use it as a premise. We have seen that O could (logically) have survived the annihilation of P. Let us suppose it has. What is the relation (now) between O and O-minus? Only one answer would seem to be possible: identity. "Each" is a material object, after all, and "they" now have the same boundaries, and, in fact, share all their "momentary" physical properties. Someone *might* say that O and O-minus are two material objects that now have the same size, shape, position, weight, or-

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[8] Here I assume the following principle: if A is a material object and B is (a material object that is) a part of A and if R_A is the region occupied by A and R_B is the region occupied by B, then R_A minus R_B is occupiable. If there is any doubt about this principle, it could be proved as follows. Imagine that B was annihilated and that all else remained the same. Then R_A *would be* occupied by a material object (even if it hadn't been before the annihilation of B). This principle is, strictly speaking, false if certain views about occupiability are correct, since it assumes that both "closed" and "open" regions are occupiable. (This is an implicit assumption of our little proof.) Those who care about such things will see that this assumption could be removed at the cost of a little elaboration that would not materially affect the use made of the principle in the body of the essay. Those who wish to deny the existence of "scattered objects" may wish to append the clause "if topologically connected" to the principle.

ientation in space, linear velocity, angular velocity, and so on, these two objects being numerically distinct simply in virtue of their having different histories. But this *I* cannot conceive of; if the meaning of "material object" is such as to allow the conceptual possibility of this, then I do not understand "material object" and therefore do not understand DAUP. We have reached the conclusion that O is now O-minus. But O and O-minus were once diverse (when P was a part of O) and thus we have arrived at a violation of the principle of the transitivity of identity. Hence we must reject our assumption that MNE is false, and we have shown that DAUP entails MNE.[9]

I should be the last to deny that there are disputable steps in this argument. In the next section we shall apply this general argument to a particular case, and I shall try to leave no disputable contention undefended. What I shall say may, I hope, be applied to the general case.

Let us agree for the nonce that I have shown that DAUP entails MNE. So what? Why shouldn't the proponent of DAUP simply accept MNE? No reason, I suppose. Unless there is some object that is known to be capable of surviving the loss of a part.

III

There is. We ourselves, we men and women, are such objects. Or at least we are if we *have* parts; whether or not we have parts is a question the correct answer to which depends on the correct answer to the general, theoretical questions raised in this paper. But, at any rate, we all

[9] A very similar argument can be found in Cartwright, "Scattered Objects," pp. 164–166. Someone might argue that if the above argument is sound, then it can be extended in the following way to prove not simply that MNE follows from DAUP but that MNE is true *simpliciter*: Either there are undetached parts or there aren't; if there aren't, then MNE is vacuously true; if there are, then our argument can be used to show that MNE is true. This reaction conflates DAUP with the thesis that there are undetached parts. Any argument like the one I have presented in the text would have to employ some principle that allowed the arguer to pass from the existence of the object O and the part P to the existence of the object O-minus. This is just what DAUP allows one to do. (Of course there are weaker principles that would legitimize this inference.) Therefore, if one rejects DAUP (and if one accepts no other principle that would legitimize the inference of the existence of O-minus from the existence of O and P), one can consistently believe in the existence of undetached parts that are not essential to their wholes. I, for example, believe that there exists a cell in my right hand that is an undetached part of me and such that I could survive the loss of it. I can consistently believe this because I do not think that there is any such object as "I-minus-that-cell"; that is, if R is the region of space I occupy and r is the region of space that cell occupies, I do not think that there exists any object that occupies the region R − r.

too frequently undergo, and often survive, episodes of the sort that it is correct to describe in ordinary speech as "losing a finger" or "losing a leg." I wish to examine in detail one such episode – a fictional one involving a real person – on the assumption that DAUP is true. (We shall reach an absurd result – that identity is not transitive – and we shall therefore have to conclude that DAUP is false.) We have already seen, in the preceding section, in abstract outline, what our examination of this episode will reveal.

Consider Descartes and his left leg.[10] (The adherent of DAUP is going to have a certain amount of trouble with Descartes's left leg: there are, according to DAUP, an enormous number of objects that are equally good candidates for the office of "Descartes's left leg." I shall not address this problem. I shall assume in the sequel that some one of these candidates has been chosen, by fair means or foul, to fill this office.) If DAUP is true, then at any moment during Descartes's life, there was a thing (problems of multiplicity aside) that was his left leg at that moment. Let us pick some moment, call it t_0, during Descartes's life, and let "L" designate the thing that was his leg at the moment. There *also* existed at that moment, according to DAUP, a thing we shall call *D-minus*, the thing that occupied at t_0 the region of space that was the set-theoretic difference between the region occupied by Descartes and the region occupied by L. Obviously, Descartes and D-minus were not the same thing (at t_0), since, at t_0, they were differently shaped. Now suppose that at t (shortly after t_0), L and D-minus became separated from each other; for good measure, let us suppose that L was then annihilated.

It would seem that after this episode – which I assume could be correctly described in the idiom of everyday life like this: Descartes's left leg was cut off and then destroyed – D-minus still existed. The survival by D-minus of its separation from L is not a formal consequence of DAUP. Still, how can we avoid this conclusion? It seems simply *true*, an inescapable consequence of the requirement of DAUP that the undetached parts of material objects be themselves, in the same sense, material objects. What "material objects" are may not be altogether clear. But if you can cause a thing to cease to exist by detaching from it (or even by destroying) something that was *not* one of its parts but simply part of its *environment*, while leaving the arrangement of all *its* parts wholly un-

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[10] The following reflections on Descartes and his left leg supersede those contained in my essay "Philosophers and the Words 'Human Body,'" in *Time and Cause: Essays Presented to Richard Taylor*, ed. Peter van Inwagen (Dordrecht, 1980).

changed, if you can do *that*, then, I maintain, you have not got anything that can properly be called a material object.

It would seem that after this episode, Descartes still existed. One can, after all, survive the loss of a leg.

But if both Descartes and D-minus survived the severance of L from D-minus at *t*, what was the relation between them immediately after *t*? Only one answer is possible: they were then identical. If they were not, then we should have to admit that there was a time at which there were two material objects having the *same* size, shape, position, orientation, attitude, mass, velocity (both linear and angular), and color. Someone *might* say this, I suppose, but I should not understand him and I suspect that no one else would either.

We may also reach the conclusion that Descartes and D-minus were identical after *t* by a slightly different route. Before *t*, D-minus was *ex hypothesi* a part of Descartes. At *t*, Descartes lost L and lost no other parts (save parts of him that overlapped L). Therefore, after *t* Descartes had D-minus as a part. But, clearly, after *t*, no part of Descartes was "larger" than D-minus – that is, no part of Descartes had D-minus as a *proper* part. Therefore, Descartes (after t) had D-minus as an improper part. Therefore, after *t*, Descartes and D-minus were identical.

Our argument has led us to this conclusion: that there was a time at which Descartes and D-minus were identical. And, as we have noted, there was an earlier time at which they were *not* identical. But if this is correct, then there was once an object that had earlier been two objects, which is a plain violation of the principle of the transitivity of identity. I mean it is a violation of the principle of the transitivity of identity *simpliciter*, by the way, and not of a principle that claims transitivity for some "specialized" version of identity like "identity through time." So far as I can see, there is no relation called "identity through time," unless those words are simply another name for identity *simpliciter*. We may represent explicitly the violation of the transitivity of identity I contend we have arrived at as follows. If our argument is correct then all four of the following propositions are true:

> The thing that was D-minus before *t* =
> the thing that was D-minus after *t*
>
> The thing that was D-minus after *t* =
> the thing that was Descartes after *t*
>
> The thing that was Descartes after *t* =
> the thing that was Descartes before *t*

> The thing that was D-minus before $t \neq$
> the thing that was Descartes before t.[11]

Thus our *reductio* has been accomplished, and we must conclude that there was never any such thing as D-minus. Therefore, DAUP is false, for DAUP entails that there was such a thing as D-minus.

We can, in fact, easily reach an even more striking conclusion: L does not exist either: there was never any such thing as Descartes's left leg. We need only one premise to reach this conclusion, namely that if L existed, D-minus did too. And this premise seems quite reasonable, for it would seem wholly arbitrary to accept the existence of L and to deny the existence of D-minus. In more senses than one, L and D-minus stand or fall together. If these things existed, they would be things of the same sort. Each would be an *arbitrary* undetached part of a certain man.[12] This fact may be disguised by our having (problems of multiplicity and vagueness aside) what is a customary and idiomatic name for L if it is a name for anything: "Descartes's left leg." But this is a linguistic accident that reflects our interests. (We may imagine a race of rational beings who raise human beings as meat animals. Suppose these beings, for religious reasons, never eat left legs. They might very well have in their language some customary and idiomatic phrase that stands to D-minus in the same relation as that in which the English phrase "Descartes's left leg" stands to L.)

If our argument against DAUP also leads to the conclusion that there never was any such thing as Descartes's left leg (which I am willing to grant), this may lead some people to think that there *must* be something wrong with the argument. Here is a leg (one is tempted to say) and here is another leg, and therefore van Inwagen is wrong. I am not entirely out of sympathy with this reaction. If a philosophical argument leads us to

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[11] The first and third of these four propositions I take to be trivial logical truths. Or, at least, to follow trivially from the propositions that D-minus existed before and after t and that Descartes existed before and after t.

[12] Perhaps I am wrong about this. If I am, if a leg is like a cell (say), and unlike the left half of a cell, in being a non-arbitrary part of a human being, then I am wrong about something that is of no great import, since I am not saying that there are *no* undetached parts (cf. fn. 9). But whether or not there was such a thing as L, there was certainly no such thing as D-minus. And the non-existence of D-minus is sufficient to refute DAUP. Nevertheless, I think I am right and that L did not exist. I will assert this rather than suspend judgment because I think that if my thesis about parts entails that L did not exist, then my thesis has an extremely counter-intuitive consequence and I do not wish to make my thesis look more plausible than it is by glossing over its more implausible consequences.

deny something that every human being in history has believed, then it is a pretty good bet that something is wrong with the argument. But I doubt whether in saying that there never was any such thing as Descartes's left leg[13] I am denying anything that has been believed, as the Church says, *ubique et ab omnibus*.[14] The proposition I mean to express by the words "There never was any such thing as Descartes's left leg" does not, as I see it, entail the falsity of, e.g., the proposition that Descartes scratched his left leg on the morning of his eleventh birthday. I think I could show this. To make good this claim, I should at least have to provide some reason for thinking that sentences that apparently involve reference to or quantification over the limbs of animals can be translated into sentences that don't even apparently involve such reference or quantification. I believe I could do this, but this is not the place for it. My purpose in the present paragraph is to explain what sort of position my position on the nonexistence of Descartes's left leg is, and not to defend that position. (My position is comparable to that of many other philosophers who have denied the existence of various objects in order to escape the paradoxical consequences that they thought, rightly or wrongly, would follow from the existence of such objects. Philosophers who have denied the existence of the material substrate have not, in general, denied the existence of tables and chairs; philosophers who have denied the existence of sense-data have not, in general, denied the existence of perception or even the existence of a distinction between appearance and reality; philosophers who have denied the existence of pains have not, in general, denied the existence of pain.)

Nonetheless, an argument that leads to the conclusion that there never was any such thing as Descartes's left leg is at least *prima facie* objectionable. But all the objections to this argument I know of involve principles or lead to conclusions that, in my view at least, are more objectionable than the proposition that Descartes's left leg did not exist. In the remainder of this section and in the two sections that follow I shall examine these objections.

There are four objections, or types of objection, that I shall simply dismiss.

I shall simply dismiss any objection that involves a denial of the principle of the transitivity of identity. People who take this line are, as Professor Geach would say, "not to be heard." Anyone who rejects the

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[13] There's the bit where you say it.

[14] There's the bit where you take it back.

principle of the transitivity of identity simply does not understand the difference between the number one and the number two.

I shall simply dismiss any objection that involves the contention that it would have been logically impossible for Descartes to survive the loss of a leg.[15] I do not know if anyone would say this, but if anyone would, he too is not to be heard.

I shall simply dismiss any objection that involves the contention that it would have been impossible for D-minus to survive being separated from L.

I shall simply dismiss any objection that involves the contention that it was possible for Descartes and D-minus to have been numerically distinct material objects having the same momentary physical properties. (I would not go so far as to say that such objections are not to be heard. I dismiss them because I cannot understand them and therefore have nothing to say about them.)

I know of two objections to my argument that are worthy of extended consideration. I shall call them the *Chisholm Objection* and the *Lewis Objection*. I will discuss them in the two sections that follow.

IV THE CHISHOLM OBJECTION

It will not have escaped the reader's attention that my argument assumes that Descartes was a flesh-and-blood object that, when unmutilated, was shaped like a statue of Descartes. Many philosophers, including Descartes, would reject this assumption. Though I am myself convinced of its truth beyond all doubt and beyond all possibility of conversion by philosophical argument, I admit that it is highly controversial. To be sure, few philosophers would deny either that there was once a flesh-and-blood object shaped like a statue of Descartes or that that object was somehow intimately related to Descartes. But many philosophers would deny what seems evident to me: that he (that thing that thought) *was* that object. These philosophers would say that that object was not Descartes but rather his *body*. The philosopher who thus distinguishes between Descartes and his body and who wishes to accept the existence of D-minus may reply to the argument of Section III as follows:

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[15] Some philosophers distinguish between survival and identity. I have no idea what they mean by this. When I say that a certain person survived a certain adventure, what I say entails that a person who existed before the adventure and a person who existed after the adventure were the same person.

> I can accept the existence of D-minus, and I can accept the proposition that Descartes was capable of surviving the loss of a leg, and I can accept the principle of the transitivity of identity, and your arguments do not show that my acceptance of these things forces upon me the desperate expedient of admitting that it is conceptually possible for there to be two conterminous material objects. I need only say – and I *do* say it – that D-minus was not a part of Descartes but only a part of Descartes's *body*.

And this response is perfectly proper. But this is not the end of the matter, for certain consequences follow upon it.

First, though my imaginary philosopher has escaped the consequences of the assumption that D-minus was a part of Descartes, he must nonetheless face the consequences of conceding that D-minus was a part of Descartes's body. Here is one: that Descartes's body (that is, the thing that at any given moment was the body Descartes had *then*) could not have survived the loss of a part. This could be easily shown by a trivial modification of the argument of Section III. Moreover, since, as a matter of empirical fact, human bodies are (to speak with the vulgar) constantly exchanging matter with their surroundings, he must concede that Descartes is continually "changing bodies"; and not just every now and then, but hundreds of times every second. Well, perhaps he will be willing to say this. We have shown independently of any considerations involving persons and their bodies that DAUP entails MNE, and the continual changing of one's body is a consequence of the proposition that at any given time one has some body or other, together with MNE and certain empirical facts about the human organism.

There is, however, a much more serious and far-reaching consequence of our imaginary philosopher's objection to the argument of Section III. Of those philosophers I know of who have thought about these matters, only Roderick Chisholm has seen the inevitability of this consequence.[16] I therefore call the above objection to the argument of Section III the *Chisholm Objection*, provided that it is understood to include the consequence I shall set forth in the following paragraphs.

If DAUP is true, then a human being, if he lasts from one moment to the next, cannot during that interval lose any parts. This is simply a consequence of the fact that DAUP entails MNE. Now there may be some "everyday" material objects that endure for appreciable periods of time

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[16] My knowledge of Chisholm's views on this question comes entirely from a paper I heard him read in 1978. He has recently told me, however, that I have not misrepresented him.

according to the strict standards of endurance entailed by MNE. The Hope Diamond, say, or a fly in amber. But none of these observable, enduring material things is you or I. Therefore, if DAUP is true, and if you and I last from one moment to the next, we cannot be everyday material objects. I concede that there are observable material things other than the statue-shaped flesh-and-blood objects that *I* think you and I are that, according to reputable philosophers, are what you and I are. For example, some reputable philosophers think that you and I are living human brains. But such views are no more consistent with DAUP than is my own, for no such view is consistent with MNE and, therefore, no such view is consistent with DAUP. (Suppose for example that I am a brain. Surely I can survive the loss of some part of myself; a single cell, say. Let P be a part of me I can survive the loss of. Let B-minus be the object that occupies the region that is the set-theoretic difference between the region occupied by my brain – that is, by me – and the region occupied by P . . .)

It would seem, therefore, that (given our persistence through time, the transitivity of identity, and so on) it follows from DAUP that we are not observable material things, or, at any rate, that we are not material things of any sort that *has* so far been observed. Therefore, anyone who accepts DAUP must either accept the thesis that we are not material things or else accept the thesis that we are material things of a kind very different from any kind that has ever been observed.

The difficulties with the thesis that we are, contrary to all appearances, immaterial things, are well known.

Let us examine the thesis that we are material things of a sort that has never been observed. Anyone who accepts this may reasonably be expected to answer the question, *Why* have we so far gone unobserved? It cannot be for want of people's poking and prying inside human bodies. There are, I think, three possible answers.

(i)   We have gone unobserved because we are very small; perhaps as small as or smaller than a single cell. Presumably an object that small, or even a bit larger, might be located inside our bodies – inside our brains if anywhere, I should think – and have escaped the attention of the most assiduous physiologists.

(ii) We have gone unobserved because we are made of some sort of subtle matter (the "nameless and unknown" soul-stuff of Epicurus and Lucretius) that can affect gross, everyday matter – or else we should not have charge of our bodies – but which affects it to such a small degree that physicists have not yet taken note of its effects.

(iii) We have gone unobserved because we are far from our bodies, with which we interact at a distance.

We may note that (i), (ii) and (iii) are not exclusive alternatives: perhaps we are at once tiny, subtle, and far away.

Let us call an object a *Chisholm Object* if it is a concrete particular that thinks and wills and is the cause of the voluntary movements of a human body and is in practice unobservable, either because it is immaterial (a Cartesian ego) or, if material, tiny or made of subtle matter or remote from the human body it controls.

We may now state the Chisholm Objection more adequately:

> Your argument has a false premise: that D-minus was a part of Descartes. Moreover, there is no true proposition that you could use in place of the proposition that D-minus was a part of Descartes in some reconstructed argument against DAUP, for Descartes was a Chisholm Object; if he ever lost a part, he lost it in 1650 (the year of his death) or later. Moreover, in the strict, philosophical sense (to borrow Bishop Butler's fine phrase) of *same* it is very unlikely that there was any appreciable interval throughout which Descartes had the same body.

I think that this is the only possible objection to my argument that is not demonstrably wrong. I have nothing to say against it except that I do not believe a word of it. But that is a psychological report, not an argument. Doubtless there are philosophers who find equally incredible my contention that, in the strict, philosophical senses of *was* and *thing*, there never was any such thing as Descartes's left leg.

I think that the arguments of this section and the preceding section show that anyone who accepts DAUP should also accept the proposition that every person is a Chisholm Object. For my part, I say so much the worse for DAUP. At any rate, I am fairly sure that few philosophers would find acceptance of the propositions the Chisholm Objection commits its adherents to an acceptable price to pay for DAUP.

V THE LEWIS OBJECTION

One philosopher who balks at paying this price and who is nevertheless attracted to DAUP is David Lewis.[17] Lewis argues, *à la* Gaunilon, that

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[17] Lewis holds that "persons and their bodies are identical." See his "Counterparts of Persons and Their Bodies," *The Journal of Philosophy* 68 (1971).

my reasoning must be faulty since parallel reasoning leads to an obviously false conclusion.[18]

Consider the Austro-Hungarian Empire in, say, 1900. In 1900, Austria existed and Hungary existed and these two countries composed the Empire. That is, they did not overlap and the portion of the earth's surface occupied by one or the other was just exactly the portion of the earth's surface occupied by the Empire. Thus in a very obvious sense, these two countries stood to the Empire as L and D-minus (if such there were) stood to Descartes. Now (the Lewis Objection runs) consider the following argument:

> Suppose that the Martians had totally destroyed Hungary and had left the territory occupied by Austria untouched. We can only suppose that Austria would have survived this destruction of Hungary. We can only suppose that the Austro-Hungarian Empire (whose capital at Vienna of course escaped destruction) would also have survived the destruction of Hungary. (True, "the Austro-Hungarian Empire" might not have been a very good *name* for it thereafter; but the example of the Holy Roman Empire shows that the name of an empire need not be a *good* name.) Empires and other states can increase and decrease in extent and can gain and lose parts without losing their identities (consider, for example, the fact that the United States survived the admission into the Union of Alaska and Hawaii). The act we have supposed the Martians to have performed would have caused the Empire to lose a part without causing it to cease to exist. Now what would have been the relation between Austria and the Empire after the destruction of Hungary? We can only suppose that it would have been identity, for what distinction would there have been between them? Moreover, Austria would have been the largest part of the Empire, and, according to any acceptable mereology, the largest part of a thing is its sole improper part, itself. But this is to suppose that the Empire might have been Austria at one time and not at another, which would be a violation of the principle of the transitivity of identity. Since the principle of the transitivity of identity is a necessary truth, only one conclusion is possible: Austria did not exist in 1900. Moreover, since Hungary existed in 1900 if and only if Austria did, Hungary did not exist in 1900 either.

Since the conclusion of this argument is absurd, there must be something wrong with the argument. But the argument is sound if and only if our earlier *reductio* arguments are sound. Therefore they are not sound.

I reject the Lewis Objection. I believe it contains a false premise: that

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[18] This argument was communicated to me in a letter. The wording of the argument in the text is mine. It is my fault and not Lewis's that the political details of the example are inaccurate. I should like to apologize to anyone who cares about the constitution of the Dual Monarchy.

after the destruction of Hungary, Austria and the Empire would have been identical. I say they would merely have occupied the same territory. They would have differed in many of their properties. Two examples would be historical properties (the Empire would have had the property *having had Hungary as a part*; Austria would not have had it) and modal properties (the Empire would have had the property *possibly having Bavaria as a part*; Austria would not have had it).

As to the "largest part" argument, though one politico-geographical entity may correctly be said to be "part" of another, "part" in this sense does not obey the laws of any mereology I know of.[19] Call this relation the *PG-part relation*. It would seem that it should be defined as follows: A is a PG-part of B if the territory occupied by A is a part (in the standard, spatial sense) of the territory occupied by B. If this definition is accepted – and what are the alternatives? – then there would seem to be only one natural definition of "A is a larger PG-part of B than C is" and only one natural definition of "A is a proper PG-part of B"; in fact, these definitions are so natural it would be pedant to state them. But it follows from these natural definitions that there need be no such thing as the largest PG-part of the politico-geographical entity, and, moreover, that a politico-geographical entity may have improper PG-parts other than itself. Take, for example, the City of Washington and the District of Columbia. Each of these is an improper PG-part of the other, and yet, by the principle of the non-identity of discernibles, they are numerically diverse. For example, the District of Columbia has the properties *having been the same size throughout its existence*, *not being a city*, and *having had Georgetown as a PG-part in 1850*; Washington has none of them. If matters had gone as we imagined with Austria and the Austro-Hungarian Empire, then this would have been just their situation: each would have been an improper PG part of the other.

Therefore, the Lewis Objection fails, since the "parallel" argument Lewis produces, though it indeed has an absurd conclusion, is not really parallel to the *reductio* arguments of Sections II and III. In a nutshell, the

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[19] By a "politico-geographical entity," I mean an entity that (i) is a political entity – is brought into existence by human beings' entering into political relations with one another – and (ii) extends over part of the Earth's surface. (Strictly speaking, this is a definition of a *terrestrial* politico-geographical entity.) Thus the Caspian Sea is not a politico-geographical entity because it fails to satisfy condition (i). The Congress of the United States fails to satisfy condition (ii). The United States, the British Commonwealth, Paris, Nova Scotia, and the territorial waters of Peru are politico-geographical entities.

reason is this: "parts" of material objects and "parts" of politico-geographical entities do not work the same way. If an "improper part" of a material object is a material object that occupies the same region of space as that object, then every material object has exactly one improper part: itself. If an "improper part" of a politico-geographical entity is a politico-geographical entity that occupies the same territory as that entity, then every politico-geographical entity has *at least* one improper part: itself; but some have more.

<div align="center">VI</div>

The Chisholm Objection I cannot accept. The Lewis Objection fails. I therefore find no reason to doubt the soundness of our *reductio* arguments, and I conclude that, though (I have no doubt) there are undetached parts, there are not "just any" undetached parts. That is, I conclude that DAUP is false. In this, the final section, I will show how what has been said in the earlier sections may be applied to another sort of "part."

Some philosophers would call "parts" of the sort we have been talking about, "spatial parts." They would oppose them to *temporal* parts. I fully accept the arguments of Chisholm and Geach for the conclusion that the idea of a temporal part is incoherent.[20] I simply do not understand what these things are supposed to be, and I do not think this is my fault. I think that no one understands what they are supposed to be, though of course plenty of philosophers think they do. (If anyone who thinks he does understand temporal parts feels inclined to charge me with conceptual arrogance, I invite him to consider the following list: the Absolute Idea; impossible objects; Cartesian egos; bare particulars; things-in-themselves; pure acts of will; simple, non-natural properties; logically perfect languages; sense-data. I think it very likely that he will find that there is at least one item on this list that he has no glimmering of an understanding of. Yet each of them has been believed in by great philosophers. Anyone, therefore, who fails to understand some item on this list is no less conceptually arrogant than I.) But if I do not understand temporal parts, I at any rate understand what parameters are supposed by most philosophers who say they believe in them to individuate them: to each persisting object and each occupiable interval of time such that that object exists at every

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[20] See Geach's British Academy Lecture "Some Problems about Time," reprinted in *Logic Matters* (Oxford, 1972) and Appendix A to Chisholm's *Person and Object*.

moment in that interval, there corresponds a *concrete* particular that is a temporal part of that object.[21] (Of course if some philosopher wishes to call an object-interval pair a "temporal part" of its first term, I have no objection.) So far as I know, no philosopher who believes there are *any* temporal parts thinks that there could be some occupiable sub-interval of the interval during which a given object exists that is *not* occupied by a temporal part of that object. That is to say, all philosophers who accept the existence of (proper) temporal parts, would accept what might be called the Doctrine of Arbitrary Temporal Parts (DATP):[22]

> For every persisting object P, if I is the interval of time occupied by P and if sub-I is *any* occupiable sub-interval of I *whatever*, there exists a persisting object that occupies the interval sub-I and which, for every moment *t* that falls within sub-I, has at *t* exactly the same momentary properties[23] that P has.

This doctrine is formally very similar to DAUP. (The differences in structure can, I think, be traced to the fact that there are three spatial dimensions and only one temporal dimension.)

There is at least one philosopher, the author of this paper, who thinks that while there *are* undetached spatial parts, comparatively few of the occupiable regions that fall wholly within a given material object are occupied. (See footnote 9.) *I* think this because I think that the cells living things are made of are, in a sense I cannot here explore, *unitary* things, things having an entelechy; in this respect they are like the men, women, and dogs (Thurber's list) of which they are parts. It is very hard to see how anyone could take a similar attitude toward temporal parts. I reject the Doctrine of Undetached Arbitrary (Spatial) Parts. But if there were temporal parts, then they would *all* be "arbitrary": there are no temporal analogues of cells.

Or perhaps this is wrong. Perhaps there is one sort of temporal part such that one could affirm the existence of parts of this sort and, without

[21] An object *occupies* a set of moments of time if it exists at every moment in that set and at no other moments. A set of moments of time is an *occupiable interval* if it is possible in the broadly logical sense for there to be some object that occupies it. Presumably not all sets of moments of time are occupiable intervals. Cf. fn. 3.

[22] I do not say "*undetached* temporal parts." A detached temporal part of a thing, presumably, would be something that *used to be* a temporal part of that thing. None of the friends of temporal parts, so far as I know, has found any use for such a notion.

[23] It is well known that grave difficulties attend the notion of a "momentary" property. But I do not see how to state DATP without using it. I shall not exploit these difficulties in what follows, however, and thus *I* am under no obligation to explain momentary properties.

appearing to be placing wholly arbitrary restrictions on one's ontology, deny the existence of all other (proper) temporal parts. I am thinking of *instantaneous* temporal parts, those that occupy a mathematical instant of time, an interval of measure 0. In what follows, I am going to adopt the arguments that were employed earlier in this paper against DAUP to the task of showing that DATP is false. I think that anyone who, perhaps impressed by my argument, rejects DATP and who wants to believe in *some* temporal parts has only one possibility open to him: he must believe in the improper temporal part of an object (i.e., the object itself) and he must believe in all the instantaneous parts of the object and in no other parts. He must, for example, believe in Descartes and he must believe in the part of Descartes that occupied *t*, where *t* is any *instant* of time at which Descartes existed, and he must *not* believe in the part of Descartes that occupied the year 1625. I shall offer no arguments against *this* doctrine of temporal parts.

I said in the preceding paragraph that I should argue that DATP was false, I spoke loosely. DATP is not false. It is meaningless because the notion of a temporal part is meaningless. Or, at any rate, *I* don't understand it. But I *can* give an argument that *would* be an argument for the falsity of DATP if that doctrine made any sense. I can do this because, as I said above, though I do not understand the notion of a temporal part, I know what parameters are supposed to individuate temporal parts. Moreover, I can justifiably assume that discourse about temporal parts must satisfy certain formal constraints that I am familiar with from my understanding of parts *simpliciter*. But this self-justification is too abstract to convey much. Let us turn to the argument.

Our argument against DAUP depended on its being possible for a thing to lose its parts, or, more accurately, for its parts to become separated or to be annihilated. Nothing like this can figure in an argument about temporal parts: no one would suppose that two "adjoining" temporal parts of a thing might become separated or that a temporal part of a thing might cease to exist. (I *think*. I'm feeling my way about in the dark, you understand. The chair I'm sitting on is supposed to be a temporal part of itself and *it* could cease to exist.) At any rate, I won't assume this is possible. But one can assume, I think, that adjoining temporal parts of a thing might not have been in "contact"; not, perhaps, that there might have been an interval between them, but, at any rate, that one of them might not have existed. Take Descartes, for example. Let L be the temporal part of Descartes that occupied the last year of Descartes's

existence.[24] Let D-minus be the temporal part of Descartes that occupied the interval from Descartes's birth (or conception or whenever it was he began to exist) to the moment exactly one year before Descartes ceased to exist. Though L and D-minus were in fact "joined" to each other, there would not seem to have been any necessity to this: there are surely possible worlds in which D-minus exists and L does not, either because *no* temporal part of Descartes adjoins D-minus or because some part other than L does.

Now if this is so, then it is easy to adapt our earlier methods to the task of deducing an absurdity from the proposition that there was such a thing as D-minus. If there was such a thing as D-minus, then there was such a thing as L, and the relations that held between D-minus, L, and Descartes are those that were described in the preceding paragraph. In that case, obviously, D-minus and Descartes were not identical. But suppose, as seems possible, that Descartes had ceased to exist exactly one year earlier than he in fact did; or, if you like, suppose, as seems possible, that D-minus had not been "attached to L" or "continuous with L" (or however one should put it). What then would have been the relationship that held between D-minus and Descartes? What could it have been but identity? To suppose otherwise is to suppose that a thing might have had two improper temporal parts. But if D-minus and Descartes could have been identical, then there are two things that could have been one thing. This is not only a violation of an obvious *modal* principle about identity ("$x \neq y \supset \Box\, x \neq y$"), it is a violation of the principle of the transitivity of identity *simpliciter*. This may be seen from inspection of the following four propositions (in which "t" denotes the moment exactly one year before the moment at which Descartes ceased to exist):

> D-minus = the thing that would have been D-minus if Descartes had ceased to exist at t
> The thing that would have been D-minus if Descartes had ceased to exist at t = the thing that would have been Descartes if Descartes had ceased to exist at t
> The thing that would have been Descartes if Descartes had ceased to exist at t = Descartes
> D-minus ≠ Descartes.[25]

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[24] Some people believe that Descartes has never ceased to exist. The argument I shall present does not really require that we assume that Descartes has ceased to exist but only that we assume that it is *possible* for him to cease to exist.

[25] The first and third of these four propositions I take to be trivial logical truths. Or, at least, to follow trivially from the propositions that D-minus existed and would have

I have not presented any explicit argument for the conclusion that all four of these propositions can be derived from the assumption that D-minus exists (and would have existed if Descartes had ceased to exist at *t*). I should do so if this paper consisted solely of an attack on DATP. But I have devoted a good deal of space to an argument showing that DAUP entails a violation of the principle of the transitivity of identity, and I believe the reader will find it an easy task to construct the arguments I *would* give (if pressed) for the conclusion that DATP entails a violation of that principle.

I conclude that DATP fails for much the same reason that DAUP fails. More exactly, I conclude that if anyone ever does provide some explanation of the notion of a temporal part (thus bringing DATP into existence: at present there is no such doctrine), then DATP *will* fail for much the same reason that DAUP fails.[26]