

9. The Proposed Answer

What, then, *is* the answer to the Special Composition Question? When do we have a case of parthood? What must, or could, be done to cause objects to compose something?

I believe that the correct answers to these questions are radically different from what most philosophers have supposed. To begin with—though this is not so very radical—parthood essentially involves causation. Too many philosophers have supposed that objects compose something when and only when they stand in some (more or less stable) spatial relationship to one another. Very roughly speaking, this is the single error that underlies our four Simple Bonding answers to the Special Composition Question. It is true that these four answers involve more than the relative positions of the *x*s and that this additional element is a causal element. (It might be thought that being in contact requires only spatial juxtaposition and that there is therefore no causal element in *Contact*. But contact is in fact a causal relation. Suppose, for example, that a man and a ghost can overlap spatially without interacting causally. Suppose that John and James are shaking hands and are therefore in contact. If a ghost happens to occupy the same region of space as James, the ghost is not in contact with John, despite the fact that James and the ghost bear exactly the same spatial relations to John.) But even this additional causal element is in a way subordinate to spatial considerations, for what is it in each case but a requirement that the *x*s possess some sort of disposition to retain their relative positions?

Simply to say that parthood involves causation, however, is to say something that, if it is not wholly vacuous, is at any rate too abstract to be of much interest. *What* causal relations are involved in parthood? *What* multigrade causal relations must hold among the *x*s if they are to compose something? Here is the answer I propose:

($\exists y$ the x s compose y) if and only if

the activity of the x s constitutes a life (or there is only one of the x s).²⁹

I shall devote the present section to an exposition of this answer. The remainder of the book will be largely devoted to its defense. To understand this answer, it is necessary to understand what it is for the activity of certain objects to constitute a certain event, and it is necessary to understand what it is for an event to be a life.

I haven't too much to say about what it is for the activities of objects to constitute an event. I must leave this notion at a more less intuitive level and proceed by giving examples: the activities of the Household Cavalry and the Life Guards constituted the parade; the activities of the members of the Household Cavalry and the members of the Life Guards constituted the parade (thus the activities of the x s may constitute a certain event and the activities of the y s constitute that same event, even though nothing is both one of the x s and one of the y s); the activities of the candidates, the Board of Elections, and the electorate constituted the election; the activities of the cattle constituted the stampede; the activities of the water molecules in the pan constituted the cooling of the water in the pan. (The last example shows that I am using 'activity' in a sense that does not simply mean action: talking of the "activities" of things in this sense is no more than a way of talking about the changes they undergo.)

I will have little to say about the ontology of events. (We are of course talking of "events" that are individuals or particulars, like the fall of the Alamo, and not about "events" in any sense in which an event is something that can recur.) It is certainly no part of my purpose either to contend or to deny that events are "irreducible entities" or "ultimately real." If a philosopher wishes to maintain that sentences that are apparently about events are misleading expressions of facts that in reality involve only substances or continuants, I will not protest. I will simply ask him to understand those of my sentences that are apparently about events in the same way he understands any other sentences that are apparently about events.

There are three points about the constitution of events by the activities of objects that are perhaps worth making.

First, I do not presuppose that every event is constituted by the activities of objects. Perhaps there are "pure" events, changes that occur without anything to undergo them. But some events, at least, are constituted by the activities of objects.

Secondly, I do not presuppose that if the activities of the x s constitute a certain event at t , then that event is the only event they constitute at t . Perhaps the rotation of a certain sphere and the gradual cooling of that sphere are two distinct events, and perhaps the activity of the molecules that compose the cooling, rotating sphere constitutes both events.

Thirdly, I do not presuppose that, if the activities of the x s constitute a certain event, then just any change in the properties of some or all of the x s, or in the relations among some or all of the x s, is in any sense a part of, or contributes to, or is in any way relevant to, the occurrence of that event. A soldier marching in a parade may simultaneously be swinging his arms and becoming bored. The former change in the soldier is a "part of" the parade in a way in which his becoming bored is not. Or at least this seems a very reasonable thing to say, and the use I shall make of the notion of the constitution of an event by the activities of certain objects does not require me to deny it.

Let us now turn to the question of what is meant by a "life." I mean the word "life" to denote the individual life of a concrete biological organism. (But I use these words only to give the reader an intuitive sense of the extension that I am giving to the term 'life'. Ultimately, I shall have to explain what I mean by 'life' without making reference to composite objects like organisms.) Thus 'life', in my usage, will be a count-noun. Pope used this term in this sense (though fancifully) when he wrote of birds shot on the wing that they "leave their little lives in the air." Locke was probably using the word in this way when he wrote that the identity of a man consists "in nothing but a participation of the same continued life by constantly fleeting particles of matter."³⁰ (But the count-noun 'life' and the mass term 'life' are not clearly distinguished by Locke.) The Greeks sometimes meant by *psyche* what I mean by 'life', though I do not suppose, as some Greeks did, that a *psyche* can detach itself from the material whose activity had constituted it, after that material has become quiescent. (Insofar as I can make sense of the vitalism-versus-mechanism controversy, I am a mechanist.) It *should* go without saying that I am using 'life' in its most narrow, biological sense. But I have been asked questions about my position that indicate that this does not go without saying, so I shall say it. The word 'life' can certainly be used in such a way that, for example, the phrase 'Bertrand Russell's life' denotes something like the totality of Lord Russell's adventures or that event the course of which is narrated in his autobiography. But the word also has a perfectly legitimate sense according to which 'Russell's life' denotes a purely biological event, an event which took place entirely inside Russell's skin and which went on for ninety-seven years. It is in this sense that I use the word 'life'.

But what is a life? What features distinguish lives from other sorts of event? In the last analysis, it is the business of biology to answer this question, just as it is the business of chemistry to answer the questions 'What is a metal?' and 'What is an acid?', or the business of physics to answer the question 'What is matter?' (The ultimate answer of the biologists to the question 'What is a life?' will, I suspect, involve abstract thermodynamic concepts like entropy. I should not be surprised if it also involved much less abstract chemical concepts like "enzyme" or even "carbon atom.") But I think that I can say something useful in response to this question, though what I say must be rather abstract. I shall approach the question 'What is a life?' by constructing what I fear is a rather lengthy and elaborate analogy.

Imagine a club the new members of which are always shanghaied. When a new member is wanted, a press-gang is sent to find a suitable candidate. When one is found, he is dragged to the club's premises and forcibly inducted. The induction ceremony (we may imagine) is so impressive that members are fiercely loyal to the club as long as they remain members. But few if any members remain members long. When a member is exhausted by his efforts on the club's behalf, and after his resources have been appropriated and placed in the club's treasury, he is ruthlessly expelled. The membership of the club is therefore in constant flux. The one stable thing about the club is its constitution (which, of course, is not an identifiable object but rather a complex set of dispositions and intentions that is maintained by the assiduous indoctrination of new members). One important feature of this constitution is its prescription that whenever anyone ceases to be a member, a press-gang is to be sent out to capture a replacement for him, someone who is as much like the way he was when he was inducted as is possible. As a consequence, the club "looks" much the same from one year to the next, despite the continual replacement of its members. It is important to note that the relatively unchanging aspect of our club is due to what might be called "internal causation," to the causal relations its members bear to one another, and is not due to the actions of any external "policing" or monitoring or maintenance agency. The population of a jail may likewise present an unchanging aspect as the years pass, even if the average prisoner stays in the jail for only a few days. But the unchanging appearance of the population of the jail is not due to the causal relations the prisoners bear to one another—if those relations alone influenced the location of the individual prisoners, they would disperse very rapidly indeed—but on a plan or *telos* which exists independently of the prisoners and which controls the admission, organization, and discharge of the prisoners by the application of external forces. The stability of our club is therefore

unlike the stability of the population of a jail. The stability of a typical social organization, whether it is an organization like the jail or like the club or something intermediate between these two rather unusual extremes, is a dynamic stability. Some groups of people—one would not call them organizations—display a purely static stability. One might cite passengers trapped in a bus buried by a landslide (a case of stability imposed upon the members of a group by boundary conditions), or the inhabitants of a village that has lost its economic *raison d'être*, who stay on out of a disinclination to move, despite the fact that they do not much care for one another and are wholly lacking in civic *esprit de corps* (a case of stability due to the inertia of the individual members of the group). The stability of our club in no way resembles the stability of the trapped passengers or the apathetic villagers.

In describing our imaginary club, I have talked as if there really *were* (in the story) such a thing as the club, a thing that persists through all its changes of membership. But it is arguable that I need not have talked that way. One might suspect that I could have laid out the same imaginary state of affairs by talking only of individual people and the causal relations they bear to one another and their common resolution that this set of relations shall continue in a more or less stable way, shall at any given future time be instantiated by *some* suitable set of people. Should I have left anything out if I had described matters with such ontological caution? That is a good question. In Section 12, I shall take up the corresponding question about lives and living organisms.

Let us now modify slightly the story of our club. The members of the club are, of course, human beings and are conscious and the possessors of intentional states. Let us replace them with unconscious automata, machines that never, literally speaking, intend anything. But let us suppose that in order effectively to predict the behavior of these machines, one would have to adopt toward them what Daniel Dennett calls the "intentional stance" and treat them as if they were members of a club and were cooperating in the endeavor to carry out the prescriptions of a constitution like the one I have imagined. In order to suppose this, we must suppose that there are many automata which are not "members of the club" and which are suitable for forcible induction. But let us change one feature of our story that pertains to this. Let us replace our press-gangs with hunting parties: parties of automata that are sent out not to find new members (for we now imagine that the ambient free automata are physically unsuited for membership) but to obtain parts—nuts and bolts and diodes and so on.³¹ When such a hunting party returns with a captured "wild" automaton, the club does not attempt to induct it. Rather, it is taken apart and various of its components and subassem-

blies are used to construct an automaton that is physically suited for membership. (We may also suppose that worn-out "members" are not expelled as in our original story. Rather, they are taken apart and various of their components and subassemblies are thrown out, while others are used in the construction of new members.) Let us also imagine that all the automata in our imaginary world are made ultimately of certain indestructible and immutable "standard components." There are, we may imagine, sixteen types of these, each token of each type being absolutely interchangeable with the others of its type. (But our automata do not build new members "from scratch," for standard components are far too small for them to manipulate individually. Instead, they break their victims down into subassemblies that are composed of thousands of standard components and then reassemble these in a different order to produce new members.)

Perhaps there is no need to add further details to this story. (The reader will, of course, have seen that I have been adumbrating a mechanical analogue of a living organism. The analogue is still far from adequate, but it is getting there.) We can understand our "club" well enough in a way by adopting the intentional stance. In a way. But let us not forget that we have stipulated that none of our automata literally possesses intentional states. What can we make of our club—but we must no longer call it a club—if we refuse to allow ourselves to pretend that the automata that compose it have intentions? Let us ask the question this way: What could a rational being who did not possess the concept of social organization say about our pseudo-club? Suppose none of the brute, physical facts of the situation was hidden from this being: Suppose he knew all about the standard components and such things. I think that if he wanted to say anything at all, he would have to resort to metaphor. He might use the metaphor of a storm:

What I am observing is an unimaginably complex self-maintaining storm of standard components. I would compare it with the Great Red Spot on Jupiter, which has been in existence for hundreds of years. (Or I might compare it with a wave, or the propagation of a wave, which is a sort of self-maintaining event that involves different particles of fluid at different times.) The surface of the world is littered with standard components assembled in various ways. This storm that I am observing moves across the surface of the world drawing swirls and clots of standard components into it and expelling others, always maintaining its overall structure. One might call it a homeodynamic event.

Now the events and processes that collectively constitute an organism's being alive might be described in similar terms by some disembodied intellect that knew its physics and chemistry but which had never heard of organic life and which was observing its first living organism:

What I am observing is an unimaginably complex self-maintaining storm of atoms. This storm moves across the surface of the world, drawing swirls and clots of atoms into it and expelling others, always maintaining its overall structure. One might call it a homeodynamic event.

This observation is an acute one. There are such events as these. They are what I call lives. (As I have said, I am not making any abstract, ontological point when I say that there are lives. I mean that there are lives if there are individual, concrete events at all.)

Lives, as seen by the innocent and immaterial eye of our disembodied intellect, are self-maintaining events. But not just any self-maintaining event is a life. A flame or a wave is a self-maintaining event, but flames and waves are not lives. It is, as I have said, the business of biology to tell us what lives are. But we may add a few notes to the abstract picture of what a life is that I have tried to draw by means of the analogy of a self-maintaining club of automata.

First, a life is a reasonably well-individuated event. There is often a reasonably clear answer to the question whether a life that is observed at one time (or observed in part at one place: imagine observing two waving tendrils that may or may not emanate from the same organism) is the same life as a life that is observed at another time (or place). This is because a life is a self-directing event. If a life is at present constituted by the activities of the *x*s and was ten years ago constituted by the activities of the *y*s, then it seems natural to identify the two events if there is a continuous path in space-time from the earlier to the present space-time location, along which the life of ten years ago has propagated itself. It is this feature of lives, their seeming to be well individuated, that made it possible for Locke to explain the identity of a man in terms of the identity of a life and thereby to offer something that we can at least take seriously as a possible explanation of human identity. If lives did not at least appear to be well-individuated events, Locke's explanation would not even be worth considering; we should all regard it as an explanation of the obscure through the no less obscure. A flame, though it is a self-maintaining event, does not seem to be nearly so well individuated as a life. For sentimental reasons we may want to say that the "eternal flame"

in some shrine has been kept burning for many centuries. But the content of such judgments is doubtful, if we think of cases in which a flame is allowed to go its own way. Was the flame constituted by the combustion of elements in the careless smoker's match the same flame as that constituted by the combustion of all the trees in the forest? If I light seven candles from one taper, has a spatially connected flame become a scattered flame, or have seven new flames come into existence? Presumably, there are no answers to these questions. (Suppose someone maintained that in addition to flames there were *fires*, substances or continuants that stand to flames as organisms stand to lives. Suppose he were asked for the principle of identity for fires. Suppose that, inspired by Locke, he answered, "Same flame, same fire." This would be an unhelpful explanation in a way in which Locke's explanation of the identity of a man is not unhelpful.) We should note in this connection that not every event that involves the spread of a type of life (in the mass-term sense of 'life') is a life. Some such events are more like flames. I am not thinking only of events like the growth of a certain population of multicellular organisms; there are events that involve at most one multicellular organism and are spreadings out of a certain type of life but are not lives. The growth of a tumor, for example. A tumor is not an organism (it is not a parasite), and there is no self-regulating event that is its life. The space occupied by a tumor is not filled by some one thing that fits exactly into it; it is a locus within which a certain sort of thing is happening: the spreading of a certain sort of (mass-term) life. This spreading may be a self-maintaining event, but it is not well individuated, and, despite its entirely biological nature, it is not a life.

There are self-maintaining events which are not lives but which might be described as reasonably well individuated. A wave, for example, can often be "followed" through various episodes of reflection, superposition, and refraction. (There are of course problem cases about waves; a wave, for example, can be split into parts that go their separate ways. But then there are also problem cases about lives.) I think that lives are much *better* individuated than waves, but there is an interesting and important feature of lives that is not shared by waves. Consider two waves (in water, say) which are moving in opposite directions and which pass through each other. A still photograph taken at the moment the waves coincide spatially will show what seems to be one wave whose amplitude is the sum of the amplitudes of the two coincident waves. I think we must say (always assuming that there are waves at all) that both the waves exist at the moment of superposition and that each is at that moment constituted by the activities of the same water molecules. We may describe this possibility—the possibility of two waves' being simultaneously con-

stituted by the activities of the same objects—by saying that a wave is not a *jealous* event. Lives, however, are jealous. It cannot be that the activities of the x s constitute at one and the same time two lives. Lives are, in fact, so jealous that only in certain special cases can two lives overlap: Only in certain special cases can there be x s and y s such that the activity of the x s constitutes a life and the activity of the y s constitutes a life and the x s are not identical with the y s and, for some z s, the z s are among both the x s and the y s. The only clear case, in fact, is the case in which one of the lives is subordinate to the other, as the life of one of my cells is subordinate to my life. (A case, that is, in which the activity of the x s constitutes a life and the activity of the y s constitutes a life and the y s are properly among the x s. And the only possible case of *this* kind, I think, would be the case in which the activity of the y s constitutes the life of a cell and the activity of the x s constitutes the life of a multicellular organism. I doubt whether there could possibly be x s and y s such that the activity of the x s constitutes a life, the y s are properly among the x s, and the activity of the y s constitutes the life of, say, a hamster.) The case of Alice and Beatrice that figured in our discussion of *Fusion* in Section 6 might be thought to show that it is possible for two lives to overlap without one's being subordinate to the other, but I think that this shows only that it is possible for the vague haloes of influence that surround lives to overlap. We shall return to this matter in Section 19.

If we think about the kind of activity that a life—as opposed to, say, a wave—imposes on the particles of matter whose activities constitute it, it is not surprising that lives are jealous events. When two waves impinge upon the same water molecules, the activities that each demands of those molecules, in order to secure its passage through the region the molecules occupy, sum neatly according to the rules of vector addition. No such automatic tolerance of one another's activities is possible for lives, however. A wave contributes energy to the particles of a fluid and then collects that same energy once more as it passes. (All this is metaphor, of course. A wave is a moving agent only in the sense in which the locus of disturbance in a row of falling dominoes is a moving agent. And energy is not a stuff.) A life, on the other hand, does not simply deposit and withdraw sequentially an invariant sum of energy from a series of "banks," like a nervous traveler making his way in stages across dangerous country. A life takes the energy it finds and turns it to its own purposes. If a wave is a nervous but law-abiding traveler, a life is a brigand. (This is obviously metaphor, but the metaphorical features of this comparison go deeper than its colorful surface: A life is no more a moving agent than a wave is. When our disembodied intellect sees a life as a moving storm, what it is seeing is the motion of the locus of a kind of

activity.) If this metaphor is apt, then it should be obvious why lives are jealous and waves are not. Two nervous, law-abiding travelers can simultaneously use the same bank; two bank robbers cannot.

Now that we have some sort of grasp of what is meant by a life, let us recall our proposed answer to the Special Composition Question:

($\exists y$ the x s compose y) if and only if the activity of the x s constitutes a life.

Suppose that something is such that certain objects compose it in virtue of their activity's constituting a life. Let us call such a composite object an *organism*.

What is an organism like? I think we know enough "principles of composition" (in the sense of Section 4) to have a fairly clear picture of organisms. A clear enough picture to maintain plausibly that organisms in the present sense have just the properties that we associate with the things we normally call "organisms." And this is not surprising, since we normally suppose that the things we call "organisms" have parts and that the properties of organisms are at least to some extent determined by the properties of their parts. The thesis that the properties of organisms are not wholly determined by, do not wholly supervene upon, the properties of their parts, is sometimes called holism. According to holism, even a complete and correct list of principles of composition would not enable a perfect reckoner—the Laplacian Intelligence, say—to reckon the properties of wholes from the complete truth about the intrinsic properties of and the relations that hold among the parts that compose the wholes. Whether holism is correct, I do not know. Like most of my contemporaries, I am strongly inclined to think it is not correct, though I can't put my finger on what my reasons for thinking so are. Fortunately, none of the questions I attempt to settle in this book will require a decision about the correctness of holism.

What about the thesis that was called *Uniqueness* in Section 4? Could it be that, for some x s, those x s simultaneously compose two organisms? I do not see how this could be. Since lives are jealous, those two organisms would have to share the same life. But if at a given moment the same particles compose them, and if the activity of those particles constitutes just one life, then what could individuate the two organisms? (Suppose that someone believed that in addition to waves, there were "swells": substances or continuants that stood to waves as organisms stand to lives. Since waves can serenely pass through one another, this person ought to believe that at a certain moment the x s might compose two

swells—at the same moment as that at which their activity constituted two waves. No such possibility seems to exist in respect of lives and organisms.) There are philosophers who will say this: My body and I are both organisms and, at any given time, have all the same proper parts (this case is logically similar to the case of the lump of gold and the gold statue). But, as I have said, I do not understand this sort of use of 'body'.

If, therefore, the particles of matter whose activities constitute lives thereby compose objects, it seems reasonable to identify the objects they compose with the objects ordinarily called organisms and to suppose that, for any x s, if the activity of those x s constitutes a life, then those x s compose exactly one organism. (This is a fortunate result, for, as an examination of the formal truths about composition laid down in Section 5 will show, the logic of parthood and composition is much simpler and more intuitive if *Uniqueness* is true.) We may note that if our answer to the Special Composition Question is correct, and if a thing is an organism just in the case that it is composed of objects whose activity constitutes a life, then the following biconditional (which is of the right logical form to be an answer to the General Composition Question) is true:

The x s compose y if and only if

y is an organism and the activity of the x s constitutes the life of y .

But this biconditional cannot in fact serve as an answer to the General Composition Question.

Consider the harmless-looking little word 'of'. It is this word and not the showier 'organism' that does the work that is required to turn our answer to the Special Composition Question into something formally suitable to be an answer to the General Composition Question. That 'organism' does no work toward that end can be seen from the fact that we could just as well have written the right-hand constituent of the biconditional like this: 'the activity of the x s constitutes the life of y '. But we cannot eliminate 'of' from this sentence—or only in favor of an essentially equivalent device, like the possessive case or some phrase containing 'have'. Now, what does 'of' mean here? Just this, I think: ' x is the life of y ' means 'there are z s such that the activity of those z s constitutes x and x is a life and the z s compose y '. Therefore, although I am willing to grant that the biconditional displayed above is true, I am unwilling to describe it as a satisfactory answer to the General Composition Question, for it contains, in disguised form, a mereological term.

We shall in the next five sections take up the question of the correct-

ness of our proposed answer to the Special Composition Question. We shall ask why one should suppose that the "if" part of the answer is right: Why should one suppose that in addition to the (presumably fairly minute) objects whose activities constitute lives, there are also the organisms that have or live them? And, of course, we shall ask why one should suppose that the "only if" part of the answer is right: Why should one suppose that the only composite objects are living organisms? It is, of course, the "only if" part of our answer that is likely to prove really controversial. Only a Nihilist is likely to be unhappy with the assertion that there are organisms. Let us for the moment assume the truth of the less controversial half of our answer: Let us assume that there are living organisms. In explaining what a life is, and having done so, in saying that the things called 'organisms' or 'living things' in everyday life are things that are composed of objects whose activities constitute lives in the sense explained, I have presented a certain picture, rather an abstract one, of the nature of a living organism. This picture is a philosophical picture (stripped of its atomism, it would be Aristotle's picture), but it is not a philosopher's picture. That is, it is not a picture that could only come to be as a product of the attempts of philosophers to deal with their peculiar preoccupations. Let me present two fine expressions of this picture, one by a biologist and one by a neurophysiologist. The first passage I shall quote (it is by J. Z. Young) has been quoted by David Wiggins, but it deserves to be quoted frequently.

The essence of a living thing is that it consists of atoms of the ordinary chemical elements we have listed, caught up into the living system and made part of it for a while. The living activity takes them up and organizes them in its characteristic way. The life of a man consists essentially in the activity he imposes upon that stuff.³²

The second passage is by Jonathan Miller:

The nature of the physical universe is such that the mere existence of a living organism, the mere fact that it is distinguishable from its environment, means that it is in a state of jeopardy. By the middle of the nineteenth century physicists were forced to acknowledge that the physical universe tends towards a state of uniform disorder, a leveling down of all observable differences, and that left to themselves things will cool, fall, slow down, crumble and disperse.

In such a world the survival of form depends on one of two principles: the intrinsic stability of the materials from which the

object is made, or the energetic replenishment and reorganisation of the material which is constantly flowing through it. The substances from which a marble statue is made are stably bonded together, so that the object retains not only its shape but its original material. The configuration of a fountain, on the other hand, is intrinsically unstable, and it can retain its shape only by endlessly renewing the material which constitutes it; that is, by organising and imposing structure on the unremitting flow of its own substance. Statues preserve their shapes; fountains perform and re-perform theirs.

The persistence of a living organism is an achievement of the same order as that of a fountain. The material from which such an object is made is constitutionally unstable; it can maintain its configuration only by flowing through a system which is capable of reorganising and renewing the configuration from one moment to the next. But the engine which keeps a fountain aloft exists independently of the watery form for which it is responsible, whereas the engine which supports and maintains the form of a living organism is an inherent part of its characteristic structure.

The fact that the mechanisms responsible for maintaining life are virtually indistinguishable from the structures they support is one of the reasons why it took so long to identify their existence. Even primitive biologists knew that the maintenance of life was a strenuous labour, but in the ancient world work was invariably performed by laborious devices, so that when human beings first began to speculate about their own characteristic 'go', they understandably sought the explanation in the most unremittingly strenuous parts of the living body: those organs that seemed to go on their own, those physiological actions whose very spontaneity suggested that they were the prime movers of the living process. For more than 2,000 years, the heart, blood and lungs were regarded as the principal agents of life. Modern biology came into existence only with the recognition that the vital impetus was distributed throughout the living tissues of the body, and that the heart, lungs and blood, far from being responsible for life, were kept alive by biochemical processes which they shared with all other structures of the living body.³³

In connection with Miller's comparison of a living organism to a fountain, it is interesting to remark that the fountains that are ourselves flow a good deal faster than one might suppose. The "rate of flow" is different for different types of tissue; to take one example, only about half the

atoms that made up your liver five days ago are within your liver today. (We should remember that if our proposed answer to the Special Composition Question is correct, there are no such things as marble statues or fountains. I merely note this fact; a defense of this position is not a part of the project of the present section.) Professor Young says that an atom can become a momentary part of a living thing by being caught up into the life of that thing. I shall adopt this figure and I shall frequently talk of one object's being caught up in the life of another. (I say 'in' rather than 'into' because I shall have more occasion to talk about the ongoing state of a thing's being "caught up" than I shall have occasion to talk about the transition that resulted in that state.) We may spell out this way of talking in terms of the vocabulary we have already introduced: to say that x is caught up in a life is to say that there are y s whose activity constitutes a life and x is one of the y s. Given our answer to the Special Composition Question, it follows that x is a (proper) part of something if and only if x is caught up in a life.³⁴ (This is a stronger thesis than Young's, which at most commits him to the "if" half of this biconditional.) It follows, moreover, from our answer to the Special Composition Question and our identification of the things that have, or live, lives with "organisms," that the following biconditional holds:

x is a proper part of y if and only if

y is an organism and x is caught up in the life of y .³⁵

(We could drop the word 'proper' from the left-hand side if we added the words ' x is y or' to the right-hand side.)

I will close this section with a description of several episodes in which an object comes to be caught up in the life of an organism. It is my hope that this will give the reader an intuitive feel for the biological, or quasi-biological, concepts that I have introduced in this section.

Alice drinks a cup of tea in which a lump of sugar has been dissolved. A certain carbon atom that is part of that lump of sugar is carried along with the rest of the sugar by Alice's digestive system to the intestine. It passes through the intestinal wall and into the bloodstream, whence it is carried to the biceps muscle of Alice's left arm. There it is oxidized in several indirect stages (yielding in the process energy, which goes into the production of adenosine triphosphate, a substance that, when it breaks down, provides energy for muscular contraction) and is finally carried by Alice's circulatory system to her lungs and there breathed out as a part of a carbon dioxide molecule. The entire process—Alice began to do push-ups immediately after she had drunk her tea—occupied the span of only a few minutes.

Here we have a case in which a thing, the carbon atom, was (very briefly) caught up in the life of an organism, Alice. It is, if the position I have put forward in this section is correct, a case in which a thing became however briefly, a *part* of a larger thing when it was a part of nothing before or after. ("But didn't you say that the carbon atom had been part of a lump of sugar and became part of a carbon dioxide molecule?" I confess I did. I was speaking of parthood loosely, as I speak of motion loosely when I talk of the sun's "rising" or "moving behind the elms." In Section 11, I shall attempt to show how such loose talk can in principle be eliminated.) Moreover, I regard this case as a typical or central case of an object's becoming and then ceasing to be a part of an enduring thing. I would contrast it with the following case. Suppose the lump of sugar also contained a certain strontium atom ("contained" in the sense that the strontium atom was spatially inside the lump of sugar). This atom was also carried to Alice's intestine and, quite by chance, somehow passed into her bloodstream. It circulated within her many times and, owing to various chance encounters, participated in various chemical reactions. Several hours later, it was eliminated by Alice's excretory system. Despite the superficial similarity of the two cases, the strontium atom was never caught up into Alice's life and thus never became a part of her. A sufficient, but not a necessary, condition for this is the fact that strontium is not one of the sixteen or so chemical elements that are the only elements involved in those chemical reactions that collectively constitute the life of a human being. We must, as this example shows, distinguish between a thing's being caught up in the life of an organism and a thing's merely undergoing some complex series of motions or changes of state that are due to the effects upon it of the processes that constitute that life. (Consider once more our "club" of automata. A component that is first a part of a wild automaton, and then of a captured automaton, and then of a detached subassembly that had once been part of that automaton, and then a part of a newly constructed club member, and finally lies in the club's scrap heap, is a component that is analogous to an atom that is for a time caught up in the life of a living thing. A component that becomes accidentally wedged into a crevice in one of the club members and is carried about for a long while, undergoing a complex series of motions as a result, is analogous to our strontium atom.)

The story of our carbon atom is a close paraphrase of a story told by J. Z. Young. After telling this story, he says, "Can we say that [the carbon atom] has ever formed part of the living tissue of the body? Many people when asked this question quickly answer 'No' . . ." In my view, this quick answer derives from the fact that many people take human artifacts and their parts to be the typical or central cases of the part-whole relation. A

central goal of this book is to try to persuade people to adopt another "paradigm" of the part-whole relation.

Let us assume for the moment that our carbon atom *did* become a part of Alice. ("Well, just *when* and *where* did it become a part of her?" This is an important question to which we shall return in Section 17. It is not less important for being misconceived.) We have, then, a case in which an object becomes part of an already existing object. We may call such cases cases of *assimilation*. Formally, we may say that *x assimilates the ys at t* just in the case that the *ys* become parts of *x* at *t* and *x* exists throughout some interval that includes *t* but of which *t* is not the earliest member. (Not all cases of assimilation in the present sense involve digestion or respiration. Suppose, for example, that I am given an eye transplant. Then I assimilate the atoms and the cells that made up the transplanted eye.)

There is another way than by assimilation in which an object may become a part of a thing. We may call this second way *generation*. Formally, we may say that *x is generated out of the ys at t* just in the case that the *ys* come to compose *x* at *t* and *x* does not exist before *t* (or, if a thing can go out of existence and then once more come into existence: '*x* does not exist at any moment in some interval ending in *t*') and the *ys* do exist before *t*. (I am not going to bother about distinguishing between cases in which there is a last moment of a thing's nonexistence and cases in which there is a first moment of a thing's existence. Such distinctions are pretty, but they have nothing to do with physical reality.) At the moment at which Alice assimilated the carbon atom, the atoms that composed her at that moment came to compose her at that moment, since one of them at least had not composed her earlier. But she was not generated out of them at that moment, since she existed before that moment. If, however, God were to take certain atoms and, all in an instant, make a living cat out of them, then He would cause it to be the case that that cat was generated out of those atoms, and each of them would become a part of the cat—would be caught up in its life *ab initio*—without being assimilated by it. Or, to take a more common case, a sperm and an egg unite to form a zygote. Then the zygote is generated out of the atoms that had composed the sperm and the atoms that had composed the egg. (But the zygote is not generated out of the sperm and the egg, since the sperm and the egg do not come to compose the zygote.)

The opposite of generation is *corruption*. Formally: *x* is corrupted at *t* just in the case that, for some *ys*, the *ys* are two or more and the *ys* cease to compose *x* at *t* and *x* does not exist after *t* (or: *x* does not exist at any moment in some interval beginning with *t*) and the *ys* do exist after *t*. To

be corrupted, in other words, is to go out of existence by coming apart. If a thing ceases to exist but is not corrupted, then we shall say that it has been *annihilated*. Formally: x is annihilated at t just in the case that x exists at t and x does not exist after t (or: x does not exist at any moment in some interval beginning with t) and nothing that is a part of x at t exists after t (or: exists at any moment in some interval beginning with t).

10. Why the Proposed Answer to the Special Composition Question, Radical Though It Is, Does Not Contradict Our Ordinary Beliefs

The thesis about composition and parthood that I am advocating has far-reaching ontological consequences: that every physical thing is either a living organism or a simple. (For suppose there is something that is neither a simple nor an organism. Since it is not a simple, it has proper parts. Since it is not an organism, then, if the thesis I am advocating is correct, it has no proper parts.) We might, in fact, think of simples as degenerate organisms, in the sense of 'degenerate' in which, for instance, a line segment is sometimes called a degenerate ellipse. An organism may be thought of as a thing whose intrinsic nature determines how it is to change its parts with the passage of time. Thus, a table could not be an organism since, if there were tables, they could change their parts purely as the result of the application of external forces. (An organ transplant is *not* a case of organism's changing its parts purely as the result of the application of external forces. See Section 15.) A simple fits this abstract characterization of what it is to be an organism: its intrinsic nature determines that it is always to be composed of the *same* parts. If we adopt this way of talking, we can say that all physical objects are organisms, either degenerate or living.³⁶

The Proposed Answer, therefore, is consistent with the existence of simples. Does it *require* the existence of simples? That is, does it entail that organisms are composed of simples? There would seem to be two ways to avoid this conclusion. First, one might suppose—it can be argued that this is Aristotle's view of the matter—that organisms have no proper parts, that they are entirely composed of absolutely continuous stuffs. (Strictly speaking, this does not entail that there are no simples, but rather that living organisms are simples, albeit they are continuously assimilating and eliminating matter.) I take it, however, that we now know empirically that living organisms are not composed of absolutely continuous stuffs. Secondly, one might suppose that organisms have

proper parts and that every proper part of an organism has proper parts. It is easy enough to propose models on which this thesis is true. Suppose, for example, that space is continuous and that every region of space that lies within the boundaries of an organism (or every such region topologically suitable for occupation by an object) is occupied by a part of that organism. I have argued elsewhere³⁷ that this supposition is false, but, true or false, it is not consistent with the proposed answer to the Special Composition Question. It is obvious that, while some regions of space inside an organism may be occupied by organisms, some of them are not. A second model, one that does not face that difficulty, is this: An organism like a man or a cat is composed of smaller organisms, cells; and cells in their turn are composed of "subcells" (whose activity constitutes the life of the cell); "and so ad infinitum." Again, however, I take it that we know empirically that this is false. I know of no model for the mereological structure of organisms that is consistent both with the thesis that there are no simples and with the empirical facts. (And, anyway, current physics strongly suggests that quarks and leptons and gluons and photons have no proper parts and that all organisms are composed of quarks and leptons and gluons and photons.)³⁸ I shall, accordingly, assume that if the proposed answer to the Special Composition Question is correct, then all organisms are composed of simples. That is, I shall suppose that, for every organism, there are χ s such that the χ s are simples and the χ s compose that organism. Note that this does not entail that, for every organism, and for any χ s, if those χ s compose that organism, then those χ s are simples.

Most philosophers I have talked about these matters with think that my ontology contains too few objects. One philosopher (Peter Unger) thinks it contains too many. In the present section, I shall attempt to take some of the sting out of the charge that I believe in too few objects. (I shall put off till Section 17 the less pressing problem of answering the charge that it contains too many.) I shall show that my view, though radical, is not so far from being rational that it does not deserve a hearing.

Before I do this, however, I want to do what I can to disown a certain apparently almost irresistible characterization of my view, or of that part of my view that pertains to inanimate objects. Many philosophers, in conversation and correspondence, have insisted, despite repeated protests on my part, on describing my position in words like these: "Van Inwagen says that tables are not real"; "... not true objects"; "... not actually *things*"; "... not substances"; "... not unified wholes"; "... nothing more than collections of particles." These are words that darken counsel. They are, in fact, perfectly meaningless. My position vis-à-vis tables and other inanimate objects is simply that there *are* none. Tables

are not defective objects or second-class citizens of the world; they are just not there at all. But perhaps this wretched material mode is a part of the difficulty. Let us abandon it. There are certain properties that a thing would have to have to be properly called a 'table' on anyone's understanding of the word, and nothing has all of these properties. If anything did have them, it would be real, a true object, actually a *thing*, a substance, a unified whole, and something more than a collection of particles. But nothing does. If there were tables, they would be composite material objects, and every composite material object is real, a true object, actually a *thing*, a substance, a unified whole, and something more than a collection of particles. But there are no tables. I hope I have made myself clear.

Is my thesis absurd? Why? The argument, I think would be something like this:

According to your proposal, there are no such things as tables or chairs or rocks or mountains or continents or stars. But there just obviously are such things as these. Therefore, your theory is wrong. In fact it's so obvious that there are such things as these that your theory is absurd.

Now these words can be interpreted in various ways. I believe that the strongest argument that can be found in them is the following, an argument that was invented, or at least made famous, by Moore:

Your position, if it rests on anything at all, rests on certain arguments. But the premises of these arguments, whatever they may be, could not possibly be so worthy of belief as what you are denying, viz. that there are such things as tables and stars.

Is this really true? What it *would* be true to say is this:

... the premises of these arguments, whatever they may be, could not possibly be so worthy of belief as the thesis that when English-speakers, immersed in the ordinary business of life, utter sentences like, 'There are two very valuable chairs in the next room' or 'There are stars larger than the sun', they very often say true things.

But I do not deny this. In fact, I affirm it. "Now, *look*. 'There are two very valuable chairs in the next room' entails 'There are chairs', which is what you deny." The objection is misconceived. 'There are two very valuable chairs in the next room' and 'There are chairs' are sentences, not propo-

sitions. Therefore, they neither entail nor are entailed and they are not the objects of affirmation and denial. Moreover, any of the propositions that an English speaker might express by uttering 'There are two very valuable chairs in the next room' on a particular occasion—there are, of course, many such propositions, owing to the indexical elements in the sentence—is, I would argue, consistent with the propositions that I, as metaphysician, express by writing the words 'There are no chairs'.

This reply may strike some philosophers as a desperate, ad hoc evasion of a very cogent point. But, really, whatever the merits of the present case may be, this sort of maneuver is common enough. Here are three examples of similar cases. (1) I am a vociferous defender of the Principle of Noncontradiction. You ask me whether it's raining. I answer, "Well, it is and it isn't." You remind me of my allegiance to the Principle of Noncontradiction. I reply that the proposition I expressed by saying "It is and it isn't" is consistent with the Principle of Noncontradiction. (2) I deny that there are sense data, after-images, pains, or other objects of immediate sensory awareness. One day you hear me complain of a nagging pain in my left shoulder. You say, "There—you admit that there are pains!" I reply that the proposition I express when I say "There's a nagging pain in my left shoulder" is consistent with my denial that there are objects of immediate sensory awareness. (3) I accept the Copernican Hypothesis. One day you hear me say, "It was cooler in the garden after the sun had moved behind the elms." You say, "You see, you can't consistently maintain your Copernicanism outside the astronomer's study. You say that the sun moved behind the elms; yet, according to your official theory, the sun does not move." I reply that the proposition I expressed by saying "It was cooler in the garden after the sun had moved behind the elms" is consistent with the Copernican Hypothesis. This last example is particularly instructive. When I speak the words 'the sun moved behind the elms', I am reporting a fact. I am reporting a real alteration in the relations of external objects. Perhaps the words I use constitute what is in some sense a misleading description of this fact, but they do at least get one thing literally right: Taken literally, they report an alteration in the spatial disposition of external objects and an alteration in the spatial disposition of external objects really does occur and is the basis for the report. Thus, 'The sun moved behind the elms' is not, even from the point of view of the most fanatical astronomical literalist, a report of a nonexistent, fabricated, or imaginary event; it is not like, say, 'The sun moved rapidly back and forth across the sky'. It may describe an actual event in a misleading or loose or even a wrong way, but the event it describes or misdescribes is there to be described or misdescribed. Something similar may be said about 'There are two very valuable chairs

in the next room'. This sentence, when it is successfully used to report a fact, does report a fact about the existence of *something*. This much is shown by the fact that if the next room were wholly empty of matter, then what was expressed by this sentence would be false by anyone's standard. We may say that this sentence is "essentially existential," meaning that it can be used to report a fact, and that a correct paraphrase—correct by the most pedantic and literalistic standards—of this sentence into the language of formal logic must start with an existential quantifier. (In a similar spirit, we could say that 'The sun moved behind the elms' was "essentially alterational.") In Section 11 we shall take up the question of what literally correct paraphrases of sentences like 'There are two chairs in the next room' should look like. I believe that the fact that such sentences can be used to say what is true and the fact that they are essentially existential together account for the *feeling* we have of making an assertion of existence, one that is objectively correct, when we utter them in appropriate circumstances. But from the three premises, (1) a certain man has said (using the words in their standard English senses) "There are two chairs in the next room," (2) what he said was true, and (3) what he said must be represented formally as an existential quantification, we cannot infer that there are chairs.

My position, therefore, is that when people say things in the ordinary business of life by uttering sentences that start 'There are chairs . . .' or 'There are stars . . .', they very often say things that are literally true. ('Literally'? What does that mean?" Well, they can be *right*, in whatever sense someone can be right if he says that the sun traversed 59 minutes of arc during our conversation.) I can say this because I accept certain theses in the philosophy of language. Some people, I suppose, would reject these theses. These people would say that when I said "It is and it isn't" and "The sun moved behind the elms," I said something false. If I agreed with them, I could not reply to the Moore-style objection to my ontology in the way that I have. Since I do not propose to defend my philosophy of language in the present work, I think it is worth pointing out that even if I did accept the austere philosophy of language that ascribes falsity to typical utterances of 'The sun moved behind the elms', I could nevertheless respond to "Moore's gambit" in a way that is very much like the way I have responded to it. If someone maintains that 'The sun moved behind the elms' expresses a falsehood, he must still have some way to distinguish between this sentence and those sentences (like 'The sun exploded' and 'The sun turned green') that the vulgar would regard as the sentences that expressed falsehoods about the sun. He will require what we may call a "term of alethic commendation" which he can correctly apply to 'The sun moved behind the elms' and withhold

from 'The sun exploded'. Let us suppose that his term of alethic commendation is 'expresses a falsehood that for most practical purposes may be treated as a truth'. (It will make no real difference what term of alethic commendation we consider.) If, I say, I accepted this austere philosophy of language, then I should be more cautious about what I granted to a philosopher who attempted to refute my position by an argument in the style of Moore. I should not be willing to say that people who uttered things like 'There are two very valuable chairs in the next room' very often said what was true. I should be willing to say only that they very often said what might be treated as a truth for all practical purposes.

Mention of Moore brings to mind "common sense." Does my position not fly in the face of common sense? I do not think so. This is not because I think that my position is in accord with "common sense," but rather because I do not think that there is any such thing as the body of doctrine that philosophers call common sense. There is common sense: Common sense tells us to taste our food before we salt it and to cut the cards. It does not tell us that there are chairs. Now, in addition to common sense there is what we might call Universal Belief: that body of propositions that has been accepted by every human being who has ever lived, bar a few imbeciles and madmen; which is accepted even by Spinoza and Bradley when the madness of philosophy is not upon them. Is the existence of chairs—or, at any rate, of things suitable for sitting on, like stones and stumps—a matter of Universal Belief? If it were, this would count strongly against my position, for any philosopher who denies what practically *everyone* believes is, so far as I can see, adopting a position according to which the human capacity for knowing the truth about things is radically defective. And why should he think that his own capacities are the exception to the rule? It is far from obvious, however, that it is a matter of Universal Belief that there are chairs. In fact, to say that any particular proposition that would be of interest to philosophers belongs to the body of Universal Belief is to put forward a philosophical thesis and no trivial one. It is difficult to settle such questions, in part because there are a lot of things that one might express by uttering "philosophical" sentences like 'There are chairs', and some of them might be things that are irrelevant to the concerns of ordinary life. Moreover, the distinctions among various of these things may be subtle: It may be that the intellectual training provided by dealing with ordinary matters ill equips one to appreciate them.

In my view, my general thesis about what there is—that the only physical things are simples and living organisms—is not inconsistent with anything believed *ubique et ab omnibus*. In my view, my metaphysic

does not shut me off from Universal Belief. I shall try to show why I think this is so by telling a fable, the story of the bligers.

When the first settlers arrived in the hitherto unpeopled land of Pluralia, they observed (always from a fair distance) what appeared to be black tigers, and they coined the name 'bliger' for them. "Bligers" were even more shy of human beings than ordinary tigers, and they were never suspected of harming human beings or even of carrying off a chicken. The Pluralians were an intensely practical race of farmers who never hunted for sport, and, since nothing needed to be *done* about bligers, bligers were seldom in their thoughts. Occasionally, Pluralians would make idle remarks along the lines of 'There's a bliger crossing that field', and that was about the extent of their interaction with bligers. A few centuries after the settlement of Pluralia, however, a foreign zoological expedition discovered that, in a way, there were no bligers. "A bliger (*Quasi-Tigris Multiplex Pluralianus*)," their report read, "is really six animals. Its 'legs' are four monkey-like creatures, its 'trunk' a sort of sloth, and its 'head' a species of owl. Any six animals of the proper species can combine temporarily to form a bliger. (Combinations lasting for several hours have been observed telescopically.) The illusion is amazing. Even a trained zoologist observing a bliger from a distance of ten meters would swear that he was seeing a single, unified animal. While the purpose of the combination is doubtless to protect its members from predators by producing the illusion of the presence of a large, dangerous carnivore, we can only guess at the evolutionary history of this marvelous symbiosis."

Are there any bligers (in the story)? I think not. But I do not suppose that a Pluralian says anything false if he says "There is a bliger crossing that field," any more than I would suppose that he says something false when he says "The sun is rising" or "That cat is sharpening its claws." But what do I mean when I say that there are no bligers? I am obviously not denying that there are occasions on which six animals arrange themselves in bliger fashion (as we might say). But it does not follow from this fact that there are bligers. That is, it does not follow that six animals arranged in bliger fashion compose anything, and that is what I mean to deny when I say that there are no bligers. Or put my thesis this way. Consider six animals arranged in bliger fashion; consider the region of space that they collectively occupy; there is no one thing that just exactly fills this region of space.

What I mean by saying that there are no chairs is precisely analogous to what I mean by saying that there are no bligers. To make things as simple as possible, let us suppose that chairs—if there are any—are made entirely of wood and let us suppose (though nothing remotely like

this is true) that any object that is "made entirely of wood" is composed of simples called 'wood-particles'. Now consider those regions of space that, according to those who believe in the existence of chairs, are occupied by chairs. Call them chair-receptacles. One of these chair-receptacles is beneath me as I write. Call it R. I concede the truth of this proposition:

- (A) The chair-receptacle R is filled with rigidly interlocking wood-particles; the regions immediately contiguous with R contain no wood-particles; the wood-particles at the boundary of R (that is, the wood-particles within R that are not entirely surrounded by wood-particles) are bonded to nearby wood-particles much more strongly than they are bonded to the non-wood-particles immediately outside R; the strength of the mutual bondings of wood-particles within R is large in comparison with the forces produced by casual human muscular exertions.

What my answer to the Special Composition Question entails the denial of is not (A), but rather the two following theses (and, therefore, the proposition that either of them is entailed by (A)):

- (B) There is something that fits exactly into R.
- (C) There is something that the wood-particles within R compose.

Now if either (B) or (C) were true, there would be a chair. If either of them is false, then there are no chairs. (Or, at least, there is no chair in R.) Because it is (B) and (C) that I deny, and not (A), I am a metaphysician and not a madman. (I once actually met a madman who denied the existence of the moon. But I deny the existence of the moon, since it is neither an organism nor a simple. I deny that anything is a sphere of rock two thousand miles in diameter. What makes the man I met a madman and me a mere metaphysician? Part of the answer, no doubt, is that my denials are more systematic and coherent than his: he thinks that there's a *special* reason for denying the existence of the moon. But even in the particular case there are differences. He thinks that there is nothing in the "lunar receptacle." I say that the lunar receptacle contains untold myriads of things; I simply deny that these myriads compose a single thing. Moreover, I think that when people say "Men have walked on the moon," they say something true. He thinks they say something false; in fact, he will not even grant that what they say expresses a falsehood "that for most practical purposes may be treated as a truth.")

What I differ from most philosophers about (though perhaps most philosophers have not thought about material objects in just these terms) is this: They believe that (A) entails (B) and (C) and I do not. But whether this entailment holds is a very subtle metaphysical question. I do not think it is absurd to suppose that (A) might be true and (B) and (C) false. The possibility is at least worth examining.

I have been arguing that my position is not absurd and is not at variance with Universal Belief. A good many philosophers may feel that it is absurd for all that, and at variance with Universal Belief as well. They may want to accuse me of a philosophical ploy that Saul Kripke has described in these words:

The philosopher advocates a view apparently in patent contradiction to common sense. Rather than repudiating common sense, he asserts that the conflict comes from a philosophical misinterpretation of common language—sometimes he adds that the misinterpretation is encouraged by the 'superficial form' of ordinary speech. He offers his own analysis of the relevant common assertions, one that shows that they do not really say what they seem to say. . . .

Personally, I think such philosophical claims are almost invariably suspect. What the claimant calls a 'misleading philosophical misconstrual' of the ordinary statement is probably the natural and correct understanding. The real misconstrual comes when the claimant continues, "All the ordinary man really means is . . ." and gives a sophisticated analysis compatible with his own philosophy.³⁹

I would make two points.

First, my view is not in patent contradiction with common sense, because, as I have said, there is no such body of extra-philosophical belief as "common sense." There are, of course, various philosophies like "the Scottish philosophy of common sense" or "Moore's philosophy of common sense" that my view contradicts, but then they contradict one another. (There may be some sort of problem of self-reference here. I can imagine a philosopher telling me that my assertion that there is no such thing as what philosophers call common sense is in patent contradiction with common sense.)

Secondly, I am not proposing an analysis of common language. I am offering a metaphysical theory. The only thing I have to say about what the ordinary man really means by "There are two valuable chairs in the next room" is that he really means that there are two valuable chairs in the next room. And we all understand him perfectly, since we are native speakers of our common language. In my view, this sentence is suffi-

ciently empty of metaphysical commitment that the proposition it typically expresses is consistent both with the thesis that (A) entails (B) and (C) and with the thesis that (A) does not entail (B) or (C), and that is all I have to say about the meaning of sentences of ordinary language. In a similar vein, I would say that what is ordinarily expressed by 'It was cooler in the garden when the sun had moved behind the elms' is consistent with both Ptolemaic and Copernican astronomy. (It may be that the word 'moved' occurs in the idiom this sentence exemplifies because the first people to use this idiom accepted some geocentric account of the apparent motion of the sun. But that would not entail that an astronomical theory was built into the *meaning* of this idiom.)

I will close this section with a remark about the ordinary man. If you were to tell the ordinary man that I thought that there were no chairs, he would probably think I was mad. But you would have misled him about my thesis. He would understand you to be saying—given his education and interests, what else could he understand you to be saying?—something that implied that whenever anyone uttered a sentence like 'There are two valuable chairs in the next room', that person was under an illusion of some sort. He would think that I regarded utterers of this sentence as he (perhaps) regards utterers of the sentence 'There are two horrible ghosts in the next house'. But my assertion (and yours and his) that there are no ghosts is not like my assertion that in Pluralia there are no bligers. My assertion that in Pluralia there are no bligers is not meant to deny that reports of bligers are reports of a real and unified set of phenomena. My assertion that there are no ghosts is meant to deny that reports of ghosts are reports of a real and unified set of phenomena. When people say they see ghosts, I believe (and I presume you do, too) that either there is nothing there, or, if there is something there, it's not the same sort of thing on each occasion. When Pluralians say they have seen a bliger, there generally is something there, and it's generally the same sort of thing. My assertion that there are no chairs is like my assertion that there are no bligers. But that is something that you will not convey to the ordinary man when you tell him that I think that there are no chairs, just as you would not have conveyed to the sixteenth-century ordinary man what Copernicus believed about the motion of the sun if you told him that, according to Copernicus, the sun does not move.

11. The Topic of the Previous

Section Continued: Paraphrase

If I am right, then all facts of the sort that most philosophers would say were facts about artifacts, and about nonliving "natural" objects like stones, are facts about the arrangement of simples. If this position is, as I have been arguing, not absurd, then it should be possible to paraphrase the sentences of ordinary language that most philosophers would say expressed facts about things like chairs in language that refers to no material things but simples.

I shall try to make it seem plausible that such paraphrasis is always possible by showing how to accomplish one reasonably difficult case of it. I should, of course, like to be able to show that such paraphrasis is always possible. But to do that, I think, it would be necessary to discover a general, universally applicable way of paraphrasing ordinary sentences of the kind we are interested in. And to do that, I should require a much more systematic understanding of these ordinary sentences than I (at any rate) possess. I am not even sure how to characterize with any precision the class of sentences I wish to be able to paraphrase.

The really difficult problems of paraphrasis will be the ones that involve either multiple quantification, identity through mereological change ('This is the house that Jack built'), or accident and essence ('This table might have been longer than it is'). I shall leave the problem of paraphrasis of sentences apparently implying the identity of an artifact through a change of parts or accidents till we look systematically at the topic of artifacts in Section 13. The problem of paraphrasing multiply quantified sentences will be sufficiently taxing for the moment.

* We owe to Quine the general methodological insight that a philosopher who denies the existence of objects of a certain sort had better be prepared to give an account of multiply quantified sentences, some of whose existential quantifiers bind variables that apparently range over

objects of that sort. Before Quine's studies in the methods of ontology enjoyed their present salutary influence, a philosopher who denied the existence of, say, properties, would tell us what to do about sentences like 'This is a square, red block'; nowadays, if he knows his trade, he will tell us what to do about sentences like 'There is a color and there is a shape such that no block of that color is of that shape.' Let us consider the problem of how to paraphrase the sentence 'Some chairs are heavier than some tables' in language that does not appear to make reference to, and does not appear to presuppose the existence of, anything material besides simples. I shall help myself to three variably polyadic predicates: 'are arranged chairwise', 'are arranged tablewise', and 'are heavier than'. The *x*s are arranged chair- (table-) wise if they fill a chair- (table-) receptacle and satisfy certain other conditions that can be gleaned from an inspection of proposition (A) of the preceding section.⁴⁰ For the *x*s to be arranged chairwise is as much a matter of their contrast with their surroundings as it is of their distribution in space. Thus, the simples occupying a chair-shaped and chair-sized region of space that falls entirely within a certain tree are not arranged chairwise, though they would be if the rest of the tree were stripped away. Simples arranged chairwise do not, of course, compose a chair or anything else (unless there should be chair-shaped living things). The third predicate, which could also be written 'are collectively heavier than', seems to me to be unproblematical. There is nothing unclear about such sentences as 'The weights on the left-hand balance are (collectively) heavier than the weights on the right' and 'The pebbles in the jar are heavier than the jar and the lid'.

We are now ready to consider a paraphrase of 'Some chairs are heavier than some tables':

There are *x*s that are arranged chairwise and there are *y*s that are arranged tablewise and the *x*s are heavier than the *y*s.

(We may note that this paraphrase does not presuppose the existence of material objects of any particular kind. Therefore, it satisfies the requirement that it presuppose the existence of no material objects other than simples. Of course, if our proposed answer to the Special Composition Question is right, then it is doubtless true that, for any *x*s, if those *x*s are arranged tablewise or chairwise, then those *x*s are all simples.) This paraphrase involves plural quantification. But anyone who feels more at home with sets and ordinary quantifiers than with plural quantifiers could write instead:

- There is an x such that x is a set and the members of x are arranged chairwise and there is a y such that y is a set and the members of y are arranged tablewise and the members of x are heavier than the members of y .

In general, if we employ a method of paraphrasis that does not involve plural quantifiers, then we shall have to press some sort of object into service to enable us to keep track of the items in our domain of quantification. There are, we suppose, no tables; we philosophers who supposed that things sometimes added up to tables were mistaken. There is, we maintain, no table over there, but only certain things arranged tablewise. But if we are going to refer to those things in lieu of referring to a table, we shall need to call them something—say, 'those things over there that are arranged tablewise'. And if we are going to translate multiply quantified sentences involving physical-object common nouns like 'table' into sentences involving no physical-object common nouns, or none but 'simple', then we shall have to employ some device that allows us to "mimic" the quantificational structure of the original sentences—for it is almost certain that a successful paraphrase (whatever our standards of success may be) of a multiply quantified sentence will have a quantificational structure that in some way corresponds to the quantificational structure of the original. There would seem to be two ways to accomplish the sort of paraphrasis that is our current interest. We can either employ plural quantifiers, or else we can introduce some sort of nonphysical object that automatically, by its nature, sorts physical objects and thus allows us to keep track of them. Sets are obviously qualified for this work, since a set automatically sorts things into those things that belong to it and those that don't. But we could use other kinds of nonphysical object—such as regions of space, each of which automatically sorts things into those that fall within it and those that don't. If, for example, one wanted to paraphrase sentences apparently about artifacts into sentences that did not appear to be about artifacts and did not wish either to employ the apparatus of plural quantification or to assert the existence of sets, one might render 'Some chairs are heavier than some tables' in this way:

- There is an x such that x is a region of space and the things that fall within x are arranged chairwise and there is a y such that y is a region of space and the things that fall within y are arranged tablewise and the things that fall within x are heavier than the things that fall within y .

Which of these paraphrases is "best" is a question which does not much interest me and which I shall not pursue. I prefer the first, but only because the use of plural quantification enables the paraphraser to avoid having to make a seemingly arbitrary choice between objects of singular quantification—between sets and regions—to perform a function that is essentially one of bookkeeping. (And there are doubtless other objects than sets and regions that might perform this function.) But this is not a strong or fundamental reason for preferring the first paraphrase. One might point out, in defense of the second, for example, that ordinary quantification and set theory are much more studied and much better understood than plural quantification.

The main logical feature that unites our three paraphrases and separates them from the original is that, where the original, at least when it is translated into the quantifier-variable idiom in the obvious way, contains ordinary predicates like ' x is a table', the paraphrases contain variably polyadic predicates like 'the x s are arranged tablewise'. (In the first paraphrase a plural quantifier binds the free plural variable in these predicates. In the other two paraphrases the free plural variable is eliminated in favor of an open plural referring expression—for example, 'the members of x '—containing a singular variable bound by an ordinary quantifier.) What does this feature do for us? Why is it a good thing? In short, why bother to construct paraphrases that have it? Well, our present purpose is only to argue (by example) that such paraphrase is possible. Our answer to the Special Composition Question entails that there are no material objects but organisms and simples, and our suggested technique of paraphrasis enables us to escape some of the more embarrassing consequences of this position. When someone says "Some tables are heavier than some chairs," there is obviously something right about what he says. Our technique of paraphrasis enables us to capture what it is that is right about what he says—or such is my hope. To say this much, of course, is not to point out an advantage of our paraphrases over the originals, but only to point out why someone who accepts my answer to the Special Composition Question finds it expedient to have such a technique at hand. An appreciation of the *advantages* of the paraphrases over the originals must wait on an examination of the application of this technique to such problems as the Ship of Theseus. We shall devote Sections 13, 14, and 15 to this examination. I anticipate what will be said there by saying this much: If there are no artifacts, then there are no philosophical problems about artifacts: If situations that, according to the common philosophical view, involve the persistence of artifacts through a change of parts in fact involve no artifacts at all but

only rearrangements of simples, then there are no problems about the persistence of artifacts.

Having, I hope, made it seem plausible that in a large class of cases it is possible to paraphrase sentences that contain artifactual common nouns into sentences that contain no physical-object common nouns (and, a fortiori, no physical-object common noun but 'simple'), I shall sometimes make assertions by writing sentences that contain terms like 'table' and 'chair'. Whenever I do this, I am to be taken as claiming to be able to produce a paraphrase of the sentence I have written that, but for considerations of space and English prose style, I should be willing to put in its place. I shall sometimes apologize for my apparent reference to and quantification over things I deny the existence of by describing these things as "virtual objects."⁴¹ And I shall talk of the "virtual parts" and "virtual properties" of virtual objects. I am not to be taken as thinking that virtual objects are a type of object, any more than the nominalist who allows himself apparent reference to "virtual classes" is to be taken as thinking that virtual classes are a type of class. (My position and that of the nominalist of the preceding sentence are not strictly parallel, by the way. He can allow himself apparent reference to virtual classes but not even apparent quantification over them; I can allow myself apparent quantification over virtual objects.)

Before leaving the topic of paraphrase, I will revert briefly to a topic touched on in the preceding section and emphasize that paraphrases are not supposed to capture the meanings of their originals. (My use of the word 'paraphrase' is therefore somewhat loose, but I do not know of a word that would be better.) When the ordinary man utters the sentence 'Some chairs are heavier than some tables' (in an appropriate context, and so on and so on), he expresses a certain proposition, and one that is almost certainly true. But I do not claim that this proposition *is* the proposition that, for some *x*s, those *x*s are arranged chairwise and for some *y*s, those *y*s are arranged tablewise, and the *x*s are heavier than the *y*s. If these are two distinct propositions, what is the relation between them in virtue of which the latter is a "paraphrase" of the former (or the sentence expressing the latter is a paraphrase of the sentence expressing the former)? An analogy will show how I conceive this relationship. Consider the two sentences

- The sun moved behind the elms.
- Owing to a change in the relative positions and orientations of the earth and the sun, it came to pass that a straight line drawn between

the sun and this point (which is on the surface of the earth) would have passed through the elms.

The first of the two sentences is a sentence of ordinary language. And there is certainly some sense in saying that this sentence appears to imply that the sun moves. And it does not appear to me to be wholly unintelligible to say that the second sentence "describes the same fact" as the first. But the second sentence does not even appear to imply that the sun moves. For that matter, it does not even appear to imply that the earth rotates. It is consistent with both Ptolemaic and Copernican astronomy. (Unlike 'Owing to the diurnal rotation of the solar sphere, it came to pass that a straight line . . .' or 'Owing to the diurnal rotation of the earth, it came to pass that a straight line . . .') It therefore not only "describes the same fact" as 'The sun moved behind the elms', but, like that ordinary sentence (*I* contend that the ordinary sentence has this feature), is neutral with respect to competing astronomical explanations of the apparent motion of the sun. For all that, it does not seem right to say that the two sentences are identical in meaning or express the same proposition.

My position is that the relation of the paraphrase of 'Some chairs are heavier than some tables' to that sentence is precisely analogous:

- (A) The paraphrase describes the same fact as the original.
- (B) The paraphrase, unlike the original, does not even appear to imply that there are any objects that occupy chair-receptacles.
- (C) The paraphrase is neutral with respect to competing metaphysical theories, viz. the "received" theory, that there are objects that occupy chair-receptacles, and the theory I have proposed, according to which there are no such objects.
- (D) The original, though it doubtless does not express the same proposition as the paraphrase, has the feature ascribed to the paraphrase in (C): It is neutral with respect to the question whether there are objects that fit exactly into chair-receptacles.

It is in virtue of these properties of the relation between the paraphrase and the original that I call the paraphrase a "paraphrase" of the original.

No doubt many philosophers will dispute (D). They will want to say that 'Some chairs are heavier than some tables' (or the proposition

expressed by typical utterances of this sentence) *does* entail that there are objects that fit exactly into chair-receptacles. And some philosophers may want to say that 'The sun moved behind the elms' (or the proposition expressed by typical utterances of this sentence) *does* entail that the sun moves. (That is, does entail the thesis asserted by a Ptolemaic astronomer when he utters the sentence 'The sun moves' in the course of an astronomical debate with a Copernican.) Philosophers of these two persuasions and I disagree on a point of the philosophy of language. Whichever side in this disagreement may be right, it should now be clear what I am claiming for the sentences I call paraphrases.