THE SPECIAL COMPOSITION QUESTION

So far, in our discussion of all of these puzzles, we have made an assumption. This is an assumption that we now need to call into question as it has been the subject of much debate among metaphysicians in recent years. What we have been assuming all along is that individual particles (objects of the kind fundamental physics discovers like electrons, quarks, and so on) combine at least some of the time to form collections of atoms, lumps of clay, hunks of organic material. We have asked about particular collections of atoms, whether they constitute ships or people, but some philosophers think we need an argument that these collections of atoms themselves exist. As Peter van Inwagen notes in his 1990 book *Material Beings*, perhaps individual particles never combine to form composite objects, or perhaps they do sometimes but not always. Maybe, although some particles exist, there is no such thing as the collection of these particles.

In *Material Beings*, the question van Inwagen wants to address is: In what circumstances do some objects compose something? He calls this
The Special Composition Question, it is worth emphasizing how it is that our presentation of all of the earlier puzzles and paradoxes made one crucial assumption—that composition occurs at least some of the time. This is most obvious in the case of the first two puzzles (the Ship of Theseus and the Statue and the Clay). There we started by assuming in the first place that there were some planks of wood and that these compose a ship, or we assumed that there was a lump of clay and that at midnight this was sculpted to compose a statue. But even in our presentation of the Problem of the Many, we assumed that composition occurs at least some of the time. After all, we assumed that there were all of these collections of atoms, C, C-, C++, and so on. But to assume there is a collection of atoms is to say that the atoms have composed something, if only the collection. And what van Inwagen wants to makes us see is that perhaps there isn't any such thing as the collection of atoms, C, C-, or C++. Perhaps just the atoms exist, and these individual things never come together to form an object that is made of them, what we will refer to as their mereological sum or their fusion.

In order to state the Special Composition Question precisely and accurately, van Inwagen notes that it is necessary to introduce a new kind of logical apparatus, that of plural quantification (1990, pp. 22–25). To see the standard first-order quantificational apparatus is not able to give us a way to draw the distinctions we want, consider how it would have us translate the sentence ‘The electrons exist.’ We would be forced to translate this as:

\[ \exists x \text{ (x is the electrons).} \]

This entails there is such a thing as ‘the electrons’ and hence that composition occurs. Instead we should like a way to speak plurally about the electrons without assuming there is any one thing that they compose referred to by the expression ‘the electrons.’

Following van Inwagen then, we will use ‘\( \exists xs \)’ to mean the same as the English phrase ‘there exist some xs.’ We will also use plural variables ‘the xs’ to refer to these xs. This will allow us to speak of them plurally without automatically assuming that there is some thing (Gx) that is the sum or collection of the xs.\(^{11}\) This would assume already that composition does occur. We can then translate ‘The electrons exist’ as:

\[ \exists xs \text{ (the xs are the electrons).} \]

Then, the official formulation of the Special Composition Question will be:

For any xs, when is it true that \( \exists y \) (the xs compose y)?

We may state this in quasi-English as: For any xs, when is it true that there exists a y such that the xs compose y? Possible answers to this question will all be of the form:

\[ \forall xs \exists y \text{ (the xs compose y iff the xs ...)} \]
where the ellipsis ( . . ) is filled in by a condition one might argue is required to get any xs to compose something.\textsuperscript{12}

Note how general an issue this is. Answers to the Special Composition Question will tell us what it takes for any objects whatsoever to compose something. Some metaphysicists believe there is a particularly interesting class of objects, simples or mereological atoms. Simples are objects that have no proper parts, where some x is a proper part of another object y just in case x is a part of y and x is not identical to y. (Strictly speaking, every object is a part of itself.\textsuperscript{19}) An answer to the Special Composition Question will tell us what it takes for any things whatsoever to compose something, whether those things are mereological simples or mereologically complex objects (objects that are composed by objects other than themselves).

It may help to note another way of understanding the Special Composition Question. Although van Inwagen insists this is not the official formulation of the Special Composition Question, he notes that this more "practical" formulation may help to see the issue at stake:

\begin{quote}
Suppose one had certain (nonoverlapping)\textsuperscript{14} objects, the xs, at one’s disposal. What would one have to do – what could one do – to get the xs to compose something?
\end{quote}

(van Inwagen 1990, p. 31)

Answers to the Special Composition Question fall under two types: moderate answers and extreme answers. Moderate answers are those that entail that at least some of the time some objects (xs) come together to compose a new thing, but also entail that this does not happen all of the time. Extreme answers to the Special Composition are those that entail either that composition occurs all of the time, for any xs whatsoever we consider, or that composition occurs none of the time (at least no distinct objects ever combine to form a new object; everything trivially composes itself). In the remaining sections of this chapter, we will introduce the various answers that have been proposed so that the reader may assess for him or herself what to think about this issue van Inwagen raises.

MODERATE ANSWERS TO THE SPECIAL COMPOSITION QUESTION

There are many different answers that are available to one who would like to answer the Special Composition Question in a moderate way – by giving an answer that entails that composition occurs only some of the time. Moderate answers are attractive to those who would like a metaphysics of material objects that lines up as much as possible with our pre-theoretic beliefs about when composition does and does not occur. For example, consider all of the objects of various sizes and complexity that exist here on Earth. Ordinarily, before we go too far in thinking about metaphysics, we think that some of these objects combine to compose more complex objects, while others do not. For example, the bricks that are piled neatly
on top of one another at 10 Downing Street in London, England, do compose something: the official home and office of the UK Prime Minister. On the other hand, the fleas on the fattest dog in Scotland and the Statue of Liberty do not combine together to compose anything. There is no such object that is composed exactly of the fleas on the fattest dog in Scotland and the Statue of Liberty. If we really wanted to, we could invent a name, 'Fleabert,' and insist that this name will be used to denote the object composed of the fleas on the fattest dog in Scotland and the Statue of Liberty. But this would just be a way of playing a game with language. Which objects exist is an objective matter and if there is no such object as 'Fleabert,' then inventing this name will not change that fact. So, one common motivation for seeking out a moderate answer to the Special Composition Question is to find an answer that fits well with our pre-theoretical intuitions about which objects exist. The home at 10 Downing Street does exist. Fleabert does not.

One natural attempt at answering the Special Composition Question with a moderate response is provided by the Contact answer. This says:

\[ \forall x \forall y \ (x \text{ composes } y \iff \text{the } x \text{ s are in contact}) \]

The rough idea is: if you have some things, to get them to compose some further object, all one needs to do is bring them next to each other so that they touch.

What is appealing about this answer is that it seems to do well at getting the cases right that are typically used to motivate moderate responses. According to the Contact view, the house at 10 Downing Street exists but Fleabert does not because while the bricks at 10 Downing Street are touching each other, the Statue of Liberty is not in contact with any of the fleas on the fattest dog in Scotland. However, even though there are some cases where the Contact view succeeds, there are other clear cases where it does not.

First, we often think that composition occurs in some cases even though the composing objects are not in contact. For example, the planets Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune together compose our Solar System and yet they are not in contact with one another. Indeed they are separated by great distances. Van Inwagen also notes that if we should accept any ordinary cases of composition involving medium-sized objects, it seems it first needs to be the case that the fundamental particles of physics come together to compose relatively basic objects like atoms and molecules. But there isn't good reason to believe that fundamental particles like electrons and quarks compose larger objects like nuclei, atoms, and molecules by coming into contact with one another (1990, p. 34).

In addition, van Inwagen notes that there are clear cases where objects are brought into contact and yet we don't think composition occurs. For example, what happens if you and I shake hands (1990, p. 35)? Now our bodies are in contact and yet there is no reason to think that a new object has come into existence that persists from the moment our hands meet to
the moment we let go. But this is a conclusion that is entailed by the Contact view. Thus, it seems we must find some other way of answering the Special Composition Question.

In his book, van Inwagen considers several other moderate answers to the Special Composition Question that he will ultimately reject. These are:

Fastening: \( \forall x s \exists y (\text{the } x s \text{ compose } y \text{ iff the } x s \text{ are fastened to one another, where the } x s \text{ are fastened when among the many sequences in which forces of arbitrary directions and magnitudes might be applied, at most a few of them would be capable of separating them without breaking or permanently deforming them}) \)

Cohesion: \( \forall x s \exists y (\text{the } x s \text{ compose } y \text{ iff the } x s \text{ cohere, where the } x s \text{ cohere when they cannot be pulled apart or moved in relation to each other without breaking}) \)

Fusion: \( \forall x s \exists y (\text{the } x s \text{ compose } y \text{ iff the } x s \text{ are fused, where the } x s \text{ are fused when they are joined together such that there is no boundary}) \)

All of these improve on the Contact account in some ways, in making the relationship that must obtain between the \( x s \) in order for them to compose something more stable. However, each suffers from new counterexamples.

**EXERCISE 3.5**

**Moderate Answers to the Special Composition Question**

For each of Fastening, Cohesion, and Fusion, give one example of a case of composition that would motivate this answer (a case in which composition occurs and the relevant condition is satisfied) and one case that would serve as a counterexample to this answer. The counterexample may either be (i) a case in which the condition is satisfied but composition does not occur, or (ii) a case in which composition does occur but the condition is not satisfied.

Given the difficulty of stating a satisfactory moderate answer to the Special Composition Question, at least one metaphysician, Ned Markosian, has proposed that we instead seriously consider the possibility that there is no good answer to the Special Composition Question. Markosian takes it to be obvious that composition only occurs in some cases and not always, but takes van Inwagen's discussion in *Material Beings* to support the claim that one can't formulate a true and interesting answer to this question. His conclusion is that when composition occurs, this is just a brute fact. There is no metaphysical account one can point to that would distinguish the
cases in which composition occurs from the cases in which it does not. The house at 10 Downing Street exists and Fleabert does not, but there is nothing more to be said about these bricks or those fleas and that statue that could explain why this is so. And so the only way one could give a true answer to van Inwagen's question would be either to say (trivially) that composition occurs when it occurs or to list one after the other all of the cases where composition does as a matter of fact occur. Markosian calls his position Brutal Composition. More precisely, it is the claim that there is no true, interesting, and finite answer to the Special Composition Question.

Before we can properly evaluate whether Markosian is right, we should try to see what other answers to the Special Composition Question have been proposed. Then, if at the end of all of this, we see reason to think any answer we attempt to give will fail, we might (reluctantly) come to accept that the facts about composition are brute.

According to van Inwagen, there is something in virtue of which certain xs come together to compose a new object, but this isn't to be understood in terms of the xs' spatial positions relative to one another. All of the accounts that make whether composition occurs rest on objects' relative spatial positions fall prey to counterexamples. Nonetheless, van Inwagen is certain that at least one meroologically complex material object exists, himself, and so there must be something about the objects that compose him that makes composition occur.

Van Inwagen believes that what makes some merological atoms compose him is that they participate in a kind of complex activity, the sort of complex activity that allows them to constitute a life (1990, p. 82). So van Inwagen's proposed answer to the Special Composition Question is:

\[ \forall x \exists y (\text{the xs compose y iff the activity of the xs constitutes a life}) \]

What it is for the activity of some xs to constitute a life is something that van Inwagen takes to be an empirical matter, something that will be settled by biology and what biologists say is required for some objects to constitute a life. Van Inwagen takes lives to only include those of concrete biological organisms. These arise through the unimaginably complex self-maintaining behavior of a group of constituents. These groups persist over time by taking in new constituents by ingestion or respiration, and by expelling old constituents.

At this point, I am sure the reader will notice that this view entails quite a surprising ontology. It follows from van Inwagen's answer to the Special Composition Question and the assumption that there are some mero logical simples that the only material objects that exist are mero logical simples and living creatures. Human beings exist, electrons exist, but tables and chairs, planets and solar systems do not because they are neither simples nor lives. Certainly this result is surprising, perhaps too it is counterintuitive if one places weight on the examples usually used to motivate the search for a moderate answer to the Special Composition Question. However in philosophy just like in science, we often find that the evidence points us in the direction of what is initially counterintuitive. That a view
does not agree with our initial intuitions is not a decisive reason against it, but must rather be weighed with all of the other reasons in favor of and against it.

Before moving on to discuss the two extreme answers to the Special Composition Question, it is worth remarking that van Inwagen has gone some way towards trying to show that even though his view may look surprising at first, it does not necessarily need to conflict with the majority of statements we make in our everyday lives. For van Inwagen notes there is a very simple way to paraphrase statements that might look to commit one to the existence of mereologically complex objects that are not living (such as tables and chairs) into statements that do not so commit one (1990, pp. 108–111).

For example, consider the sentence ‘There are at least two chairs in this room.’ At first glance, this seems to commit us to the existence of chairs, and since chairs are mereologically complex material objects that are not living, this seems to commit us to cases of composition violating van Inwagen’s answer to the Special Composition Question. A natural first-order symbolization is:

\[ \exists x \exists y (((x \text{ is a chair } \land x \text{ is in this room}) \land (y \text{ is a chair } \land y \text{ is in this room})) \land x \neq y) \]

But there is a paraphrase available. This paraphrase allows us to see the original sentence as only committing us to simples (entities in which van Inwagen does believe) arranged in certain ways:

\[ \exists x \exists y (((\text{the xs are arranged chairwise } \land \text{ the xs are in this room}) \land (\text{the ys are arranged chairwise } \land \text{ the ys are in this room})) \land \text{ the xs } \neq \text{ the ys}) \]

This regimentation fails to commit one to the existence of chairs. It only commits one to things arranged chairwise. It is not too hard to see how one might extend this analysis to all other sentences that appear at first to quantify over complex yet inanimate material objects. Van Inwagen may replace talk of tables with talk of simples arranged tablewise, talk of planets with talk of simples arranged planetwise, and so on. In this way, van Inwagen need not say that any of our ordinary beliefs or statements are false. They appear to commit one to complex inanimate material objects, but when understood properly, they do not.
EXERCISE 3.6

Van Inwagen’s Proposed Answer and the Method of Paraphrase

How would van Inwagen propose we regiment the following sentences into the language of first-order predicate logic so that they are consistent with his answer to the Special Composition Question?

A. There are planets made of iron.
B. Some tables are heavier than some chairs.
C. Some tables are heavier than some people.
D. It is not the case that some tables are heavier than some planets.

MERE'OLOGICAL NIHILISM

We now turn to consider the last two answers to the Special Composition Question. These are the two extreme answers, and it is fair to say these are the most common responses one finds defended in the philosophical literature. Let’s begin with mereological nihilism (hereafter, nihilism). If one is a nihilist, one answers the Special Composition Question in this way:

Mereological Nihilism: \( \forall x \exists y (\text{the xs compose y iff the xs are exactly one}) \).

Strictly speaking, the nihilist doesn’t say composition never occurs. The nihilist will allow that any simple object is such as to compose itself. But when the xs are two or more, there is never anything that the xs compose. In other words, everything that exists is a mereological atom, a simple.

Extreme though it is, there are reasons to find nihilism compelling. The most obvious point in favor of the position stems from Ockham’s Razor. If we are confident that a fundamental scientific theory will give us an account of the world just by appealing to some elementary objects without parts, then these objects will be simples. Since a fundamental scientific theory, when it is finished, by definition is one that will be able to give a complete explanation of everything that happens at our world, Ockham’s Razor directs one not to posit in addition to these simples mereologically complex objects composed out of them.

Despite this benefit in ontological parsimony, there are two arguments one typically finds against nihilism. The first is the one that van Inwagen
himself uses to reject the view and it has already been alluded to above. Van Inwagen presents the following argument (1990, p. 73):

*Van Inwagen's Argument against Mereological Nihilism*

1. I exist.
2. I am not a mereological simple.

Therefore,

3. At least one object exists that is not a mereological simple.

Therefore,

4. Nihilism is false.

Nihilists, if they are to maintain their position, must find some way of rejecting this argument. Since the validity of the argument is not questionable, this means finding a way to reject at least one of either premises (1) or (2). When it comes to premise (2), it is difficult to accept that van Inwagen is a material entity of some kind and yet not complex. If van Inwagen is to be identified with any kind of material object, he surely isn't a simple object like an electron or quark, but something that has parts and exists due to the complex behavior of these parts. One possibility is to adopt some form of *mind-body dualism* according to which you and I and van Inwagen are not material objects at all, but rather immaterial minds or souls. This is one way to reject premise (2), but won't be appealing to the naturalist or physicalist philosophers who believe that minds are themselves parts of the material world, arising from complex processes of physical matter. Another option for the nihilist is to deny (1) and say the same thing about van Inwagen as he himself says about tables and chairs. The nihilist can then say while this claim is false:

*Van Inwagen exists,*

this claim is true:

*There exist some simples arranged van-Inwagen-wise.*

That is, for all claims van Inwagen accepts that look to commit him to his own existence, the nihilist can produce paraphrases that show them only to be committed to simples.

This itself is controversial. However, debate on this topic continues. The second argument that many have found to give a good reason to deny nihilism has to do with the fact that for all we know, there might be no bottom level of reality. After all, how can we be sure right now that there really exist some objects that are as a matter of fact mereological simples? Given today's physics, we may think that electrons and quarks are
mereological simples; they don't have any proper parts. But time and again, throughout the history of physics, when physicists thought they had reached some realm of ultimate mereological atoms, it turned out that there was more structure to discover. Indeed, traditionally the word 'atom' refers to what is indivisible (a-tomos). In the early nineteenth century, John Dalton introduced the term to refer to what he then thought were the mereological atoms, and the term stuck. We now know however that these objects, what we today call 'atoms,' are not really simple at all. And so, what reason is there to think the basic entities of today's physics are the real mereological atoms?

The problem this causes for nihilism is that if there are no mereological simples, but everything is ultimately mereologically complex all of the way down, then it follows from the nihilist's view that no material objects whatsoever exist. After all, the nihilist's view is that only simples exist. This seems problematic. We might question whether there are ultimately only electrons and quarks or whether there are tables and people too, but surely there are material objects of some kind. If nihilism is right, then maybe this isn't so.

We should note that a similar problem obtains for van Inwagen's view as well. If it turns out that there are no simples and van Inwagen's view is correct, then the only things that will exist are living things. There will be no electrons, quarks, tables, or chairs. The only things that will exist are those things that are alive. Since we know this scenario to be false and yet we don't know whether matter is infinitely divisible, it appears we must conclude that van Inwagen's view is false as well.

**MERELOGICAL UNIVERSALISM**

The last answer to the Special Composition Question we will consider is what is arguably the most common response (although it looks mad to many others). This is:

\[ \forall x \forall y (x \text{ compose } y \iff \text{ the } x \text{ are disjoint}). \]

To say the \(x\)s are disjoint is to say that they do not spatially overlap (i.e., their spatial locations are entirely distinct). This is a view that has been given an influential defense by David Lewis in his book *On the Plurality of Worlds* (1986). Lewis states the position this way:

I claim that mereological composition is unrestricted: any old class of things has a mereological sum. Whonover there are some things, no matter how disparate and unrelated, there is something composed of just those things.

(Lewis 1986, p. 211)

This view entails that for any material objects whatsoever (simple or complex), as long as they do not overlap spatially, there is something that these
objects compose. Some philosophers, for example, Markosian, argue that
this view should be rejected for coming into too much conflict with our
background beliefs about when composition occurs and when it doesn't.
To return to our earlier examples, there is no such thing as Fleabert; there
is no such thing as the object composed of the atoms making up you and
me when we shake hands. Mereological universalists (universalists, for
short) typically dismiss this sort of worry by insisting that we shouldn't rely
so heavily on our pre-theoretic intuitions about when composition occurs
and when it doesn't. We shouldn't use our intuitions to guide our reasoning
about what sorts of things do and do not exist when we have no reason to
believe our intuitions will lead us toward the truth. Would following our
intuitions have ever led us to quantum mechanics or general relativity, the
most well-confirmed theories we have ever had?

But it is worth pointing out that even if the appeal to intuitions is not in
general a reliable method of coming to the truth about what exists, in this
particular case, there is something to be said for respecting them. The
reason is that what universalists are asking us to believe is that composition
occurs no matter which group of material objects we consider. And yet the
way we come to understand what it is for some things to compose some
other thing in the first place has always involved us drawing distinctions
between the cases in which it occurs and the cases in which it does not.
But what could it mean to say that every case in which some objects exists
is a case of composition? Could we ever even understand such a claim?
Doesn't this require giving up on our usual understanding of what 'composi-
tion' means? And if so, is this really an answer to the Special Composition
Question or just a change in topic?

In addition to these worries about the conflict of the view with our
intuitions, there is of course the fact that the position involves a considerable
cost in ontological parsimony. The universalist's ontology is enormous and
certainly larger than that of any view about material objects we have consid-
ered up until now. Still, there is at least one argument that motivates many
metaphysicians to endorse it.

This argument relies on the premise that if one doesn't say that com-
position always occurs (or never occurs, but for now let's set aside nihilism),
then one is forced to admit the existence of cases in which whether
composition occurs or not is vague. But if it is vague in a given case whether
composition occurs, then it is vague how many things there are. After all,
when we are considering a case of composition involving multiple xs, if the
xs compose y, then there will be an additional object y that is the sum or
fusion of the xs. If it is vague whether y, a given fusion, exists, then it is vague
how many things there are: the number of xs or the number of xs plus one.

Why would someone with a moderate view (i.e., a view that rejects both
universallism and nihilism) have to admit that there are cases where it is
vague whether or not composition occurs? The reason is that every mod-
erate answer that has been proposed to the Special Composition Question
uses vague concepts. Contact, fastening, cohesion, fusion, involved in a
life: all of these are vague notions. And since they are vague, we can con-
ceive of cases where it is indeterminate whether or not an object satisfies
them. Let's examine this for the concept of fastening. Recall, by definition, objects are fastened when among the many sequences in which forces of arbitrary directions and magnitudes might be applied, at most a few of them would be capable of separating them without breaking or permanently deforming them. Who is to say what counts as "a few of them"? All of the other notions are vague as well. Indeed van Inwagen concedes that the concept of a life is vague. There are boundary cases in which there is no objective fact about whether some xs constitute a life or not. To see this one only need consider the earliest stages of an organism after conception. At what point does the life begin?

Indeed one of the main reasons why metaphysicists have been skeptical about moderate answers to the Special Composition Question is that these answers all involve vagueness. Of the responses to the Special Composition Question, only the extreme answers (nihilism and universalism) and the Brutal Composition view eliminate vagueness about when composition occurs (and so how many objects exist) by saying that composition always occurs, it never occurs, or it is simply a brute fact when and where it occurs. Since this issue of vagueness is so central to debates about composition and indeed many others in metaphysics, we will devote the next section of this chapter to the topic.