

Material objects:
composition &
constitution

Today we'll be turning from the paradoxes of space and time to series of **metaphysical paradoxes**.

Metaphysics is a part of philosophy, though it is not easy to say exactly which part. On one traditional definition, it is the attempt to say what reality, ultimately, consists in - what the "basic building blocks" of reality are.

So understood, it is obviously a very broad subject matter. Over the next four classes we will be discussing paradoxes which arise from metaphysical reflections on three topics: the existence of material objects; the nature of persons; and freedom of the will.

Our topic today - material objects - might seem an unlikely topic for a course on paradoxes. One might be willing to concede that difficult questions arise when we consider abstract questions about infinite divisibility; but surely, one might think, no paradoxes can arise from the existence of ordinary physical objects, like tables and chairs.

This, as we'll see, is a mistake. Some very difficult problems result from the ordinary view that such ordinary objects exist. One way to bring this out is via consideration of the following simple example:

Imagine a sculptor taking a lump of clay, and fashioning it into a statue. It seems as though the sculptor has brought something new into existence - namely, the statue. But it also seems as though the lump of clay, which pre-existed the sculptor's work, still exists. So it seems as though where there was formerly one thing, there are now two things. But this is very puzzling. After all, the two things are, for example, located in exactly the same location - and isn't it impossible for two distinct things to be in exactly the same place? What's going on here?

We can turn this example into an explicit paradox, as follows. (I use Sider's names for the various assumptions he discusses.)

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2	The lump of clay continues to exist after the sculptor's actions.	SURVIVAL
3	The statue comes into existence when the sculptor makes it.	CREATION
4	After the sculptor's action, the lump of clay and the sculpture have different properties: one existed before the sculptor's action, and one did not.	1, 2, 3
5	If x & y have different properties at the same time, then $x \neq y$.	LEIBNIZ'S LAW
6	The statue \neq the lump of clay.	4, 5
7	The statue and the lump of clay occupy the same location at the same time.	2
8	Two distinct objects never occupy the same location at the same time.	NO CO-LOCATION
9	The statue = the clay.	7, 8
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C	The statue = the clay & the statue \neq the lump of clay.	6, 9

The conclusion is a contradiction - which is as clearly false a claim as you can get. But the argument seems valid; hence one or more of the premises must be true.

The problem is that each of the premises looks pretty attractive.

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There are only five independent premises, all of which are given names in the argument above. Leibniz's Law, as its name suggests, is a premise which most philosophers take to be clearly true. Can you see why? What would it take for this premise to be false?

If we assume that Leibniz's Law is true, then responses to this paradox basically fall into two groups. One might either deny one or more of the (intuitively quite plausible) existence claims in premises 1, 2, and 3. The other strategy is to accept all of these claims and deny premise 8 - the No Co-Location premise. As we'll see, there are two quite different ways of doing this.

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But let's turn to the first strategy first. How could any of premises 1, 2, or 3 be denied?

Let's focus on premise 1, Existence.

How could one reasonably deny that before the sculptor's action, a lump of clay exists, and that after the action, a statue exists? The only way, it seems, is to simply deny that there are such things as statues and lumps of clay. After all, it seems, if there ever are such things as statues and lumps of clay, this is such a case.

But of course nothing special here depends on the example of clay and a statue; it might seem that an argument of the same sort could be generated for any type of material objects. Does this mean that if we deny Existence, we are forced to deny that there are **any** material things at all?

Not quite. The argument just given does depend on one important feature of statues and lumps of clay: namely, that they are made of parts. After all, the lump **becomes** the statue by re-arrangement of the parts of the lump of clay.

So it seems that we can deny Existence without denying that there are any material things; but it looks like we do have to deny that there are any composite material things - that is, any material things that have parts.

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This view - that there are no composite material objects, and hence no tables, chairs, buildings, etc. - is known as **nihilism**. The nihilist has an immediate resolution of our paradox - since, if nihilism is true, then premises 1 and 2 are false.

But of course, nihilism comes with a cost - and that is just that the view seems crazy. Can it really be true that there are no tables, chairs, etc?

One way to bring out the oddness here is by thinking about people. It seems that you (if you exist) are a composite material thing; so, if there are no composite material things, then you do not exist. But aren't you pretty sure that you exist?

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There's another sort of worry that one might have about nihilism, which is related to some of the paradoxes of space and time we have already discussed. One view which we've considered some arguments for is that space is infinitely divisible. But if space is infinitely divisible, then it might seem that anything which occupies space - like a material object - is infinitely divisible. But if material objects are infinitely divisible, that means that there are no simple material objects - since every such object that one might come up with is divisible (into, for example, a left and right half) and hence has parts.

But wait a minute. The nihilist held that there are no composite material objects; if we are now saying that every material object is composite, it follows from nihilism that there are no material objects at all. And this seems even more clearly false than nihilism!

We'll return to nihilism below. But let's first consider some ways of escaping our paradox without giving up the idea that tables and chairs exist.

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Let's leave Existence alone, and turn our attention to premise 2, Survival. If this premise were false - if the lump of clay ceased to exist at the moment at which the sculpture was created - then this would provide us a way out of our paradox. In this case, after all, we would have no way of deriving the troublesome conclusion that the statue and the lump are in the same place at the same time, since there would be no time at which both the lump and the clay exist.

This is the view that Sider calls **takeover theory**, because the idea is that at a certain point the kind "statue" takes over for the kind "lump of clay", and at this point the statue exists and the lump of clay ceases to exist. Unlike the nihilist, the takeover theorist believes in composite objects; she just thinks that a given bunch of particles can compose at most one thing at a time.

Takeover theory is counterintuitive, because, as Sider says, we ordinarily think that the lump of clay "took on a new shape" rather than ceased to exist. But, as Sider also says, one might reasonably think that every response to this sort of paradox will involve saying something a bit surprising.

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However, the takeover theory is also open to some other objections. One is that a paradox quite similar to the example of the statue and the clay can be generated with which takeover theory offers no help. This is the paradox of the **Ship of Theseus**.

It is described in the following excerpt from Peter van Inwagen’s book, *Metaphysics*:

Let us consider the famous story (famous among metaphysicians, anyway) of the Ship of Theseus. The hero Theseus has a ship, which is entirely composed of wooden planks. Very gradually, over the course of years, the planks are removed from the ship and replaced. The replacement is so gradual that Theseus and his crew are able to be almost continuously at sea, engaged the while in a long series of adventures with a nautical setting. The planks that have been removed from the ship are not destroyed but are rather stacked in a certain field. When all of the original planks have been replaced, Stilpo the shipwright notices that the field contains all of the components needed to build a ship. Stilpo puts the planks together and puts them together in such a way that they are arranged exactly as they were when they composed Theseus’s ship on the day he first took command of it. Stilpo takes his new ship to sea for a shakedown cruise, and his ship and Theseus’s ship pass each other at sea.

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Let's introduce some names which will help us to talk about this story clearly.

Original Ship = the material object on which Theseus sets forth on the first day of our story.

Reconstructed Ship = the material object on which Stilpo is sailing when he passes Theseus.

Continuous Ship = the material object on which Theseus is sailing when he passes the Reconstructed Ship, piloted by Stilpo.

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What we want to know is: what is the relationship between the material objects named by these three names?

At least one thing is clear. Since a ship cannot pass itself at sea, we know that

Reconstructed Ship \neq Continuous Ship

How about Original Ship? One might think that the following principle seems pretty plausible:

If x and y are material things which have exactly the same parts, then $x=y$.

But if this principle is true, we know something else:

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But if this principle is true, we know something else:

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And this claim really seems quite plausible on its own. Imagine that the pieces of the Titanic were discovered on the ocean floor and that, through great effort, they were all taken to land and reassembled there exactly as they once were in the South Bend Nautical Museum. Wouldn't it be true to say that the Titanic - the boat which famously sank after hitting an iceberg - is the object which is in the South Bend Nautical Museum? And if this is true, why should the case of the Reconstructed Ship and the Original Ship be any different?

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But now imagine that the Titanic had not sunk, and indeed became the most famous vessel in the world, which sailed the Atlantic for a century. Over that time, of course, constant use would have taken its toll, and various parts of the boat would have needed replacement. Indeed, since it was so popular, over the course of the century **everything** would have needed replacement. Nonetheless, it seems clear that one could say truly to a friend, while on the ship's last voyage, "You know, **this ship** has been sailing the Atlantic for one hundred years."

The moral of this as applied to the case of the Ship of Theseus seems to be this:

Original Ship = Continuous Ship

But now we're again in trouble. After all, identity is transitive: if $x=y$ and $y=z$, then it follows that $x=z$.

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Hence our trio of plausible-seeming claims is inconsistent, and we are again left with a paradox.

What would the nihilist say about this case? Does nihilism offer a way out of the paradox?

How about the takeover theorist?

It seems that takeover theory offers no solution to this paradox; after all, takeover theory is about one kind "taking over" for another, and here we have just one relevant kind - the kind "ship."

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Now, the takeover theorist might simply say that the paradox of the Ship of Theseus needs a different solution than the paradox of the statue and the clay.

But at least some ways out of the Ship of Theseus paradox seem to lead to surprising consequences for takeover theory. For example, one might deny that Reconstructed Ship = Original Ship; perhaps if an object is disassembled and thus ceases to exist, and is later reassembled, the reassembled object is distinct from the original object. But now consider a lump of clay turned into a statue, and then smushed back into a lump of clay. According to the takeover theorist, the lump of clay ceases to exist while the statue exists. Does this mean that the takeover theorist - given the above response to the Ship of Theseus - is forced to say that the new lump of clay is distinct from the old one? But how could this be?

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Imagine a takeover theorist from Mars. Instead of sorts like *statue* and *piece of clay*, beloved of Earthly takeover theorists, Martian takeover theorists speak of sorts like:

outpiece: piece of clay located outdoors, no matter how shaped

inpiece: piece of clay located indoors, no matter how shaped

Earthly takeover theorists say that when a piece of clay is made into a statue, it stops existing and a statue takes its place. Of course, whether the clay is indoors or outdoors is irrelevant to what objects exist. Martian takeover theorists see things very differently. They view the world in terms of *inpieces* and *outpieces*, not statues and pieces of clay. When an *outpiece* is brought indoors, they say, the sort '*inpiece*' takes over, the *outpiece* goes out of existence, and a new *inpiece* comes into existence. This *inpiece* exists so long as the clay is indoors. Whether it is shaped into statue form is irrelevant to what object exists. But if it is taken outdoors, it stops existing and is replaced by an *outpiece*.

Sider thinks that there is something odd about the debate between Earthling and Martian takeover theorists. Why does he think that the possibility of this sort of dispute among takeover theorists casts doubt on the theory?

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Let's grant all of the commonsense existence claims expressed by 1, 2, and 3. If we grant these claims, then our only hope for escaping from the paradox is to deny premise 8: the claim that two distinct objects never occupy the same place at the same time.

As we'll see, there are two quite different ways of rejecting this premise.

Here's one thing you might say. Perhaps there can be two objects in one place at one time if the two objects are connected by a very special relation: the relation of **constitution**. The rule of no co-location is fine for objects which are not connected by constitution; but genuinely distinct objects can fit into one space when one constitutes the other.

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It should be clear that this is a very special relation indeed. Consider the following argument against the idea that the statue and the clay are distinct objects related by constitution:

The statue weighs 10 pounds. Now, if you pick up one thing which weighs 10 pounds, and pick up some other thing which also weighs 10 pounds, you have lifted a total of 20 pounds. But you can't pick up the statue without also picking up the clay. (Just try.) Hence whenever one picks up the statue, one picks up two things, each of which weigh 10 pounds. So one has lifted 20 pounds. But this is clearly incorrect.

The constitution theorist must say something analogous to what is said about the rule of co-location: if you pick up one thing which weighs 10 pounds, and pick up some other thing which also weighs 10 pounds, you have lifted a total of 20 pounds **unless the two objects are related by the constitution relation**.

To many people, this seems like wanting to eat your cake and have it too; the constitution theorist wants the statue and the clay to be like identical things for some purposes, but distinct for others. No doubt, this is convenient; but does it really make sense?

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To many people, this seems like wanting to eat your cake and have it too; the constitution theorist wants the statue and the clay to be like identical things for some purposes, but distinct for others. No doubt, this is convenient; but does it really make sense?

The view can also seem somewhat absurd. Suppose that I decide that we need a class mascot, and we name the statue as the mascot of this class on paradoxes. Does that mean that there are now three things in one place - the lump of clay, the statue, and the class mascot (after all, there was no mascot before I formed this intention, whereas there was a statue and there was some clay)? Would you say that the class mascot has been destroyed if we changed our minds, and voted my lectern as the class mascot?

Here's one thing you might say. Perhaps there can be two objects in one place at one time if the two objects are connected by a very special relation: the relation of **constitution**. The rule of no co-location is fine for objects which are not connected by constitution; but genuinely distinct objects can fit into one space when one constitutes the other.

There's also something sort of suspicious about the idea that the statue and the clay are, simply, distinct things. And this is that (during the time at which both exist) the only properties with respect to which they differ are properties to do with **how they will be** or **how they were**, or properties to do with **how they could be** - they do not differ with respect to any properties which are just about **how they are**.

One might deny this - isn't it true, for example, that the statue might be **fragile** even though the lump of clay is not? And isn't being fragile a way something is, rather than a way it was, will be, or could be? Not obviously. Being fragile is just being such that you **would break** under certain circumstances - and this is a matter of how you would be, rather than how you are.

This is kind of puzzling. How could two objects be just alike in how they are, but differ in how they were, will, or could be? And why are objects which stand in the constitution relation like this? Constitution theory seems to provide no answer to these questions.

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This theory is best introduced by considering a very unconvincing paradox:

Consider the locations “Notre Dame's campus” and “DeBartolo Hall”. These are clearly distinct objects, as is shown by the fact that Lafortune is a part of one, but not the other. **And yet both of these things are right here**. So ND's campus and DeBartolo Hall are distinct things which exist in the same place. But how could this be?

The solution to this paradox is pretty obvious: both of these objects are indeed in the same place, but is because **part** of both of these objects is here. And there's no puzzle about the idea that genuinely distinct things could overlap in their parts.

The key idea of four dimensionalism is that what goes for spatial parts also goes for **temporal parts**. Just as things which are spread out in space do so by having different spatial parts in different locations, so things which are spread out in time - i.e., which exist at more than one time - do so by having distinct temporal parts which occupy different times.

Looked at in this way, the case of the statue and the clay looks no more puzzling than the case of DeBartolo and ND's campus. One can think of the lump of clay as the following series of temporal parts:



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The lump of clay is the collection of all 5 of these temporal parts; the statue is just the third temporal part. (Of course, this is a simplification - the career of the statue will itself consist of many temporal parts.)

This is no more puzzling than the overlap of Notre Dame's campus and DeBartolo Hall. **Of course** the statue and the clay can be in the same place at the same time - since they are objects which have a temporal part in common.

However, four-dimensionalism also gives rise to some puzzles. One of these involves temporal parts themselves. What are these things? They must be objects which exist instantaneously, and are constantly popping in and out of existence. (If they existed over a period of time, they could give rise to a "statue and clay" problem - so if four-dimensionalism is to be a solution to that problem, they had better not.) But is it really true that every material object is composed only of material things which exist for just an instant?

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A second, very different worry about four-dimensionalism arises when we apply it to the case of persons.

Consider your left hand and your right hand. These are distinct objects. Do they stand in any special relationship? In a way yes, and in a way no. They are related by both beings parts of your body; but there is a sense in which this relation is **extrinsic** to their identities. One might, speaking loosely, say that they are “the same body”, but really they are distinct things which stand in a certain spatial relationship.

But now consider yourself now, and yourself one second ago. Is it really true that those items - you-now and you-then - are distinct things which just stand in a certain temporal relationship? Many people have a strong inclination to say “no”, because they think that you-now and you-then are **really, genuinely, in the most fundamental sense, the same thing** - not distinct things which are parts of some further thing. You-then and you-now are not, if this view is correct, related only in the extrinsic way that your two hands are related. But it is hard to square this sort of thought with four-dimensionalist views of change.

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A more worrying objection to four-dimensionalism in the present context is that it seems that there are versions of the “statue and clay” problem that four-dimensionalism alone will not solve. (The example which follows is due to Allan Gibbard.)

A sculptor is interested in making a clay sculpture of Goliath. However, he has quite an odd method of working; he first sculpts the left half out of some clay, and then the right half out of some other clay, and then presses them together until they are joined. Let’s call the resultant statue “Goliath”, and let’s call the resultant lump of clay “Lumpl.”

It seems that $Goliath \neq Lumpl$. After all, Lumpl has this property which Goliath lacks: it could survive being smushed. So, by Leibniz’s Law, they must be distinct, despite their occupying the same location.

The interesting part about this case is that it seems that it cannot be solved by appeal to different temporal parts since, crucially, **Lumpl and Goliath have all of their temporal parts in common**. Does this show that there is something incomplete about the four-dimensionalist resolution of the problem of the statue and the clay?

After introducing the crazy-sounding nihilist view, we’ve discussed takeover theory, constitution theory, and four-dimensionalism. After thinking about the problems that these views face, you might begin to think that nihilism is not so crazy after all.

To many people, the worst aspect of nihilism is its claim that you, and I, do not exist. So the best thing might be to come up with a view which denied the existence of tables and chairs, but did not deny the existence of things like you and me.

Roughly speaking, there are two ways of doing this. First, you might deny that you and I are material things at all — you might think, for example, that we are immaterial souls.

Or you might think that persons — and perhaps other living organisms — are composite material things, but are the only composite material things, so that people and dogs and flowers exist, but tables and chairs do not. To some people, this seems unprincipled — sort of like the distinctions made by the takeover theorist. But it’s interesting that it is not clear that we can construct statue/clay type problems with living things. Could you, for example, make one living thing into another living thing, while first continued to exist?

Next time we’ll pursue this topic — the metaphysics of persons — in more depth.