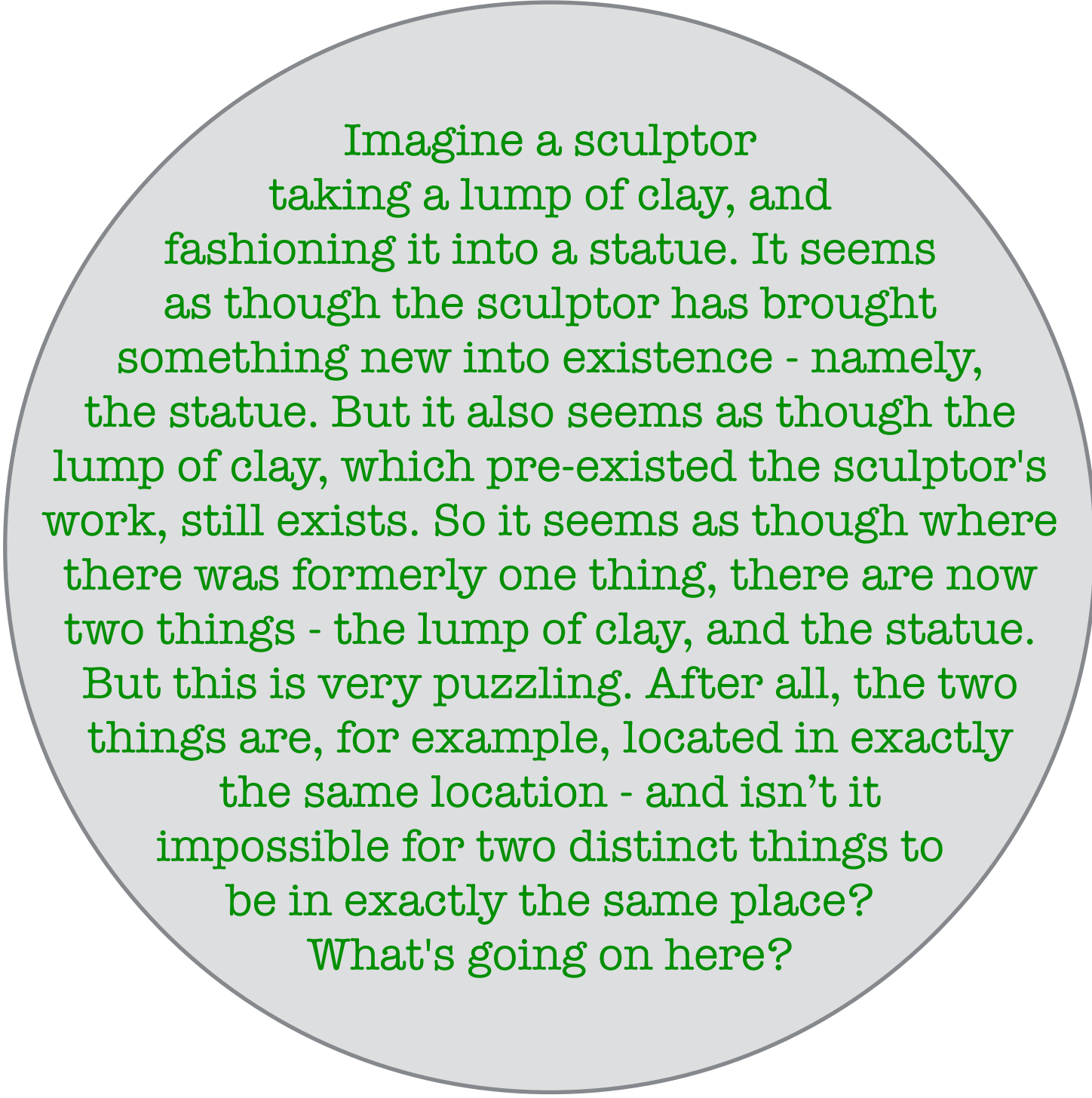


What is real?

Things

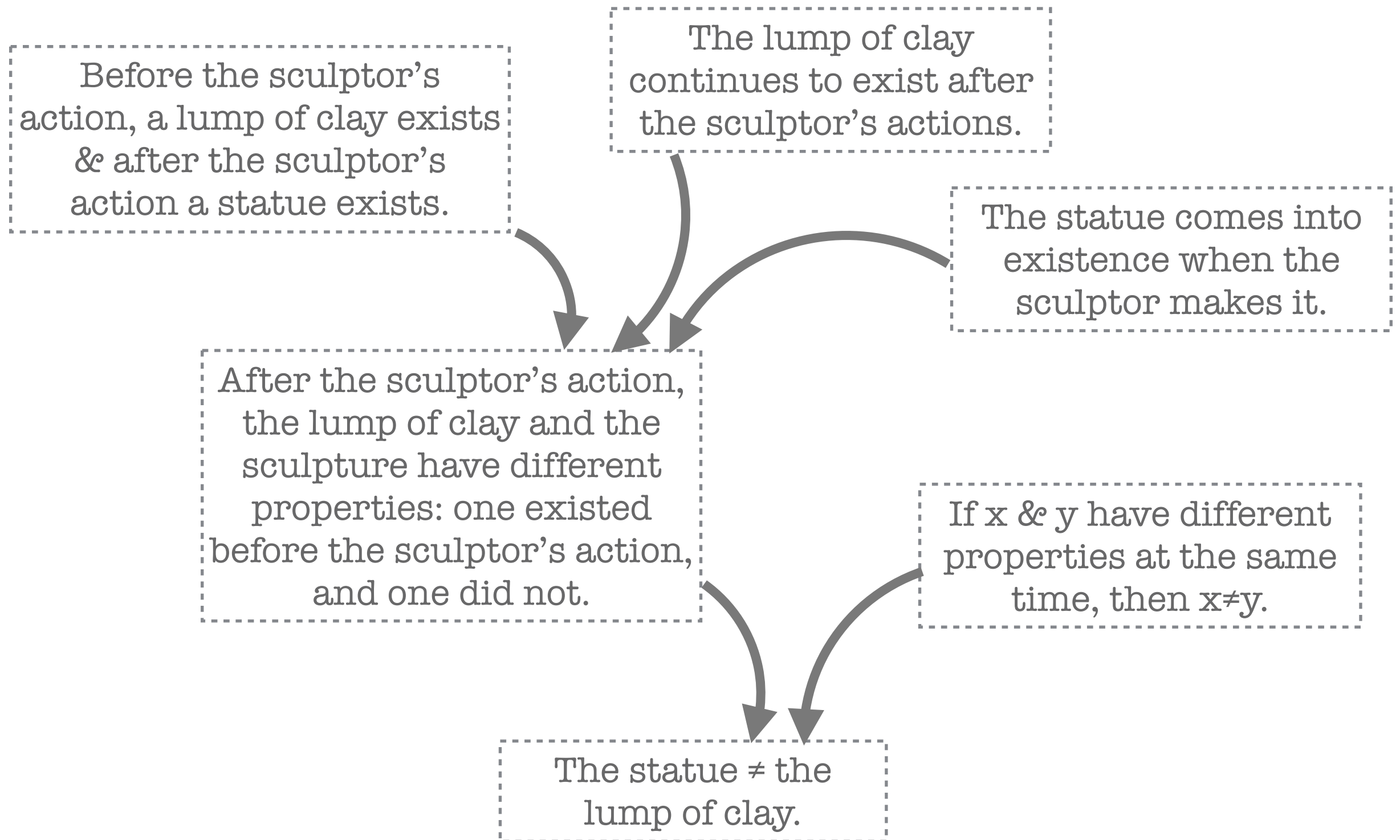


So far we have discussed the reality of space and time — we turn today to a puzzle about the reality of the things that occupy space and time: material objects.

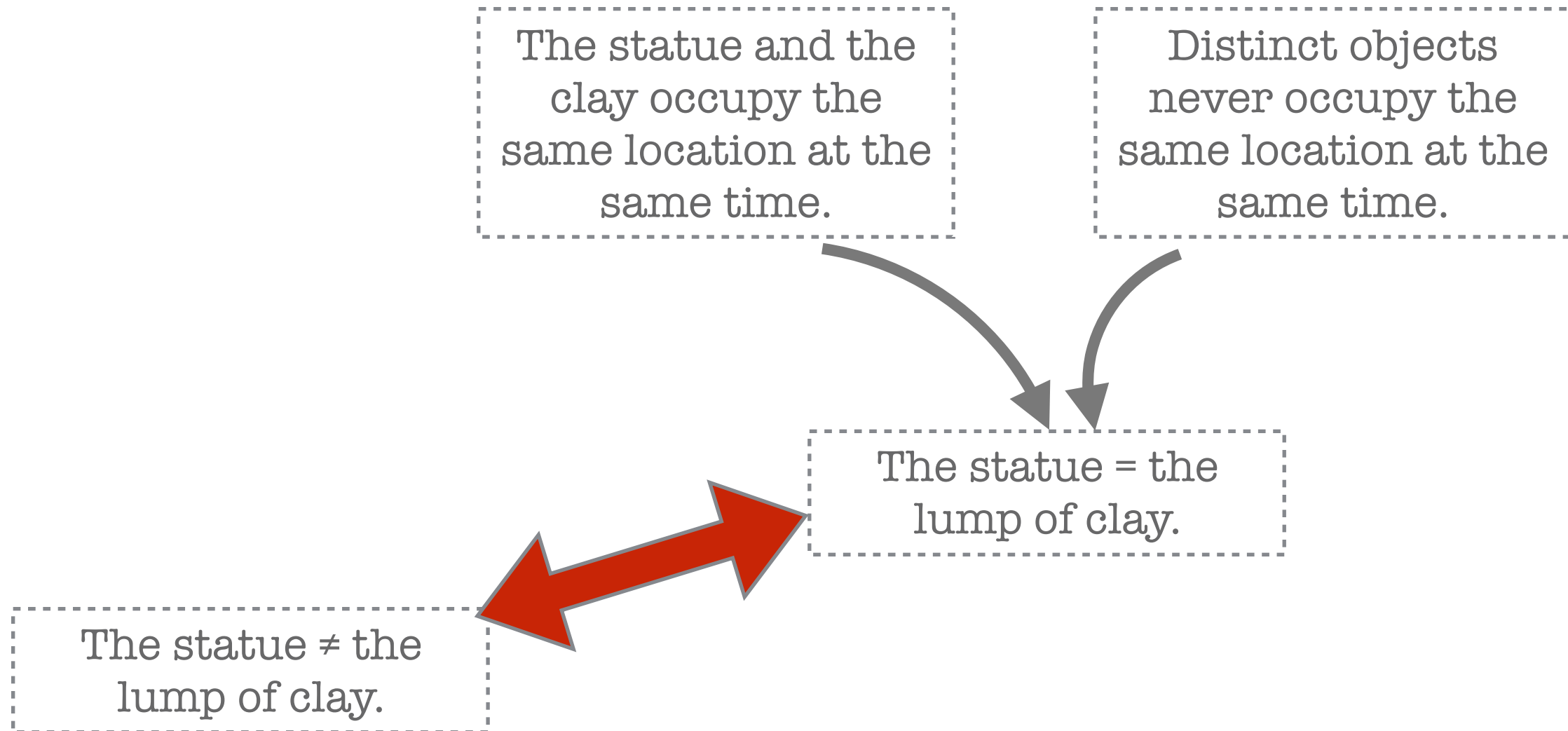


Imagine a sculptor taking a lump of clay, and fashioning it into a statue. It seems as though the sculptor has brought something new into existence - namely, the statue. But it also seems as though the lump of clay, which pre-existed the sculptor's work, still exists. So it seems as though where there was formerly one thing, there are now two things - the lump of clay, and the statue. 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?

Let's make explicit the reasoning used to generate this puzzle.



The problem is that we can generate a plausible argument for the opposite conclusion as well.



We can put this in the form of an argument, with names for the key assumptions, as follows.

1. Before the sculptor's action, a lump of clay exists & after the sculptor's action a statue exists. (**EXISTENCE**)
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 clay occupy the same location at the same time. (2)
8. Distinct objects never occupy the same location at the same time. (**NO CO-LOCATION**)
9. The statue = the lump of clay. (7,8)

C. The statue \neq the lump of clay & the statue = the lump of clay. (6,9)

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The argument appears to be valid, and has a false conclusion — so it must have a false premise. But which one?

Most philosophers think that Leibniz's Law is true — can you see why?

That leaves four premises which we might reject: Existence, Survival, Creation, and No Co-Location. The problem is that each looks pretty plausible.

Let's consider four ways out of this mess.



Nihilism

Takeover
theory

Constitution
theory

Four
dimension-
alism

The nihilist denies all of Existence, Creation, and Survival.

The takeover theorist denies only Survival.

Constitution theory and four-dimensionalism provide two different ways of denying No Co-Location.



Nihilism

The Nihilist denies (among other things) Existence. But if we deny this, then it seems like we must deny that there ever are such things as lumps of clay and statues — for, if there are ever such things, the case described in our story seems to be a case in which a statue and a lump of clay exist.

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.



Nihilism

The main objection to Nihilism is just that it seems crazy. Surely, if at all possible, we should want some response to the puzzle of the statue and the clay which does not involve denying that tables and chairs exist.

There's another sort of worry that one might have about nihilism, which is related to Zeno's paradoxes. As we've seen, a case can be made 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!



Nihilism

One might reply to this either by denying that it is possible for space to be infinitely divisible, or by adopting a view which is a close cousin of Nihilism — which Sider calls the ‘Just Matter’ theory.

But either way of proceeding leaves in place the apparently outlandish suggestion that there are no such things as, e.g., sandwiches or buildings. Let’s look for a solution to our problem which does not have that consequence.



Takeover theory

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 both 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 that might still seem better than nihilism!

Takeover theory


Sider's central objection to Takeover theory is based on the following example:

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*.



Takeover theory

The Takeover theorist also faces problems which are somewhat analogous to our example of the Ship of Theseus. 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, and then a lump of clay comes into existence when the statue is smushed.

But what is the relationship between the lump of clay that existed pre-statue, and the lump of clay that existed post-statue? It is hard for the Takeover theorist to deny that these are distinct lumps of clay. But how could this be?



Nihilism


Takeover
theory

Constitution
theory

Four
dimension-
alism


So far we have discussed two of our four responses to the puzzle. Each tried to avoid the conclusion that there is a time at which both the statue and the clay exist, and so avoid the conclusion that distinct things are located in the same space.

Our last two responses take a different approach. They grant that the statue and the clay exist at the same time, and grant that they are distinct — they just, in different ways, deny the principle of No Co-Location.



Constitution theory

The constitution theorist says that 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.




Constitution theory

This must be a very special relation indeed. To see why, consider the following argument against the Constitution theory:

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. According to the Constitution theorist, the statue and the clay are distinct things. But every time you pick up one, you also pick up the other. (Just try to pick up the statue but not the clay.) So, if the Constitution theory is right, anyone who lifts the statue has lifted 20 pounds.

This is an attempted *reductio* of the Constitution theory. In response, the Constitution theorist must say something like this: 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.**



Constitution theory

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?

Here's a related argument against the view. Suppose that I decide that we need a class mascot, and we name the statue as the mascot of this class. 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 an object has ceased to exist if we changed our minds, and voted not to have a mascot any more?



Four dimension- alism

A different way of denying premise 8, No Co-Location, is a theory we have already encountered in our discussion of the nature of persons: four dimensionalism. This is best introduced by considering a very unchallenging variant on the puzzle of the statue and the clay:

Consider the locations “Notre Dame's campus” and “Hesburgh Library”. 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 Hesburgh Library 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.

Four dimension- alism

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:



Four dimension- alism

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 - they are objects which have a temporal part in common.





Four dimension- alism

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?

A second puzzle, which we have already discussed, pertains to whether four-dimensionalism can give an adequate account of the sense in which you really exist at multiple times.



Four dimension- alism

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 $\text{Goliath} \neq \text{Lumpl}$. 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?



Nihilism

Takeover
theory

Constitution
theory

Four
dimension-
alism

The puzzle we have discussed is very simple, and yet surprisingly deep and difficult to solve. It calls into serious question our most basic beliefs about the composite material objects which (apparently) are all around us.

You should think about which of these views — or some other view — is the right response to the problem of the statue and the clay.