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Abstract Artifacts

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requirements for the degree Doctor of Philosophy
in Philosophy

by

David J Friedell

2014

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2014

ABSTRACT OF THE DISSERTATION

Abstract Artifacts

by

David J Friedell

Doctor of Philosophy in Philosophy

University of California, Los Angeles, 2014

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Say 'abstract objects' and the typical metaphysician thinks, 'numbers, sets, relations.' But what about a symphony? Or a novel? These abstract artifacts (i.e., created abstracta), unlike eternal abstracta, are brought into existence. Other examples include poems, plays, films, corporations, languages, words, and games. The literature tends to neglect these artifacts and focus on eternal abstracta. Because of this peculiar focus, we've missed out on all sorts of interesting ramifications that abstract objects have for our metaphysics and philosophy of language. I remedy this lacuna by developing a theory of abstract artifacts and showing that this view has important ramifications for debates about causation, debates about vague existence, and related issues.

In Chapter 1, I argue that abstract artifacts are causally efficacious. They can be affected and—more surprisingly—they affect other things. A paradigm case involves the novel *Uncle Tom's Cabin*. I argue it caused many Americans to support abolition. This conclusion counters the dominant view that abstracta are causally inert. I provide an original theory of object-

causation that reduces it to event-causation and supports my conclusion.

In Chapter 2, I present an original problem for the view that there are abstract artifacts. I argue it commits supervenientists and epistemicists about vagueness to the controversial view that ‘exists’ is vague. Some philosophers might take this problem as a reason to deny that there exist any abstract artifacts. Others, such as myself, will take this problem as a reason to accept that ‘exists’ is vague.

In Chapter 3, I present an original theory of abstract artifacts, on which they stand in extrinsic relations to the sorts of things that the literature often takes to be constitutive of, part of, or even identical to them. For instance, on my account, a symphony has a tonal structure, but this structure is neither part of, nor constitutive of, nor identical to the symphony. My theory accounts for the ways in which abstract artifacts change (for instance, when a corporation loses its employees or when a novel is revised). The theory also provides a unified account of many abstracta (including all of the artifacts mentioned above). In light of these advantages, the theory is a plausible alternative to current views of abstract artifacts.

Last, in Chapter 4, I apply some of the insights gained about abstract artifacts to concrete artifacts (e.g., statues, tables, chairs, and buildings). Some Aristotelian views of concrete artifacts conflict with ‘exists’ being precise. Once we accept that ‘exists’ is vague, these views become more plausible.

The dissertation of David J Friedell is approved.

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2014

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Introduction

Philosophers commonly discuss abstract objects, but the literature tends to focus on abstracta that exist eternally, such as numbers and mathematical sets. The literature tends to overlook the sorts of abstracta that come into existence, such as novels, plays, symphonies, languages, words, religions, fictional characters, corporations, and dissertations, including the one you are reading. It's intuitive that these objects come into existence. Beethoven's Ninth Symphony, for instance, intuitively did not always exist. It didn't exist until Beethoven created it, thereby bringing it into existence. I call such abstracta 'abstract artifacts'. Because of this gap in the literature—that is, the tendency to overlook abstract artifacts—we've overlooked many interesting ramifications that abstract objects have for metaphysics and philosophy of language. In this dissertation I try to fill in this gap by presenting an original theory of abstract artifacts and showing how this theory and other similar theories relate to debates about mereology, four-dimensionalism, vagueness, causation, and material constitution.

I should address two obviously key terms: 'abstract' and 'artifact'. It's notoriously difficult to define 'abstract'.¹ I won't attempt to do so here. The characterization I'm most sympathetic to is that abstract objects, unlike concrete ones (e.g., rocks, tables, buildings, donkeys, and protons), are not located in space. This is intuitively true of the paradigmatic abstracta: numbers. If you have three cups on a table, those cups are concreta that are located in space. But the three cups are not identical to the number three. The number three is not on the table. It's nowhere in space. Likewise, if you have a copy of *War and Peace* on a table, that copy is located in space. But the copy is not the novel. It's just a copy of it. Note that you can destroy

¹ See Lewis (1986: 81-6) and Rosen and Burgess (1999: 16-25) for discussion of various ways of characterizing abstract objects.

² This question is related to a rich debate in Aesthetics about whether abstract artworks (e.g., symphonies and

the copy without destroying the novel, which means that the two are distinct. The novel itself is also nowhere in space. I would say similar things about symphonies, plays, languages, words, fictional characters, religions, corporations, etc.

This characterization of ‘abstract’ is potentially problematic. Some theorists might think that *War and Peace* is a scattered object that is located wherever its copies are. I’ve also heard some Christian philosophers, such as Peter van Inwagen, claim that God is a concrete being that is not located in space. If this claim is true, or even if it is possibly true, then this is enough to reveal a problem with characterizing abstracta as not located in space. There are no doubt other important objections to the characterization. Still, it is useful. At the very least, the characterization should help the reader to understand how I am thinking about abstract objects.

This leaves the issue of what *artifacts* are. Paradigmatic examples include statues, tables, and chairs. Metaphysicians commonly understand ‘artifact’ to mean something like ‘an object that has been intentionally created’. This definition is problematic for me, given the things I’ve already labeled ‘artifacts’. For instance, I count languages and words as artifacts, but most of them have been *unintentionally* created and are thus on the above definition not artifacts. Of course, some words and artificial languages have been intentionally created. But I’ll use ‘artifact’ broadly to include even words, languages, etc. that haven’t been intentionally created. It’s crucial for this dissertation that the abstract objects under consideration are created and come into existence (as opposed to always existing); whether this happens intentionally is less important.

Fortunately, we need not get bogged down with such terminological issues. I’m using the terms ‘abstract’ and ‘artifact’ largely for the sake of convenience and because ‘Abstract Artifacts’ is a catchier title than ‘Novels, plays, symphonies, languages, words, religions, fictional characters, corporations, dissertations, and other related objects’. It’s important for the

reader to know what objects are under discussion and to know that I think they are not located in space and come into existence. The reader need not agree with how I've labeled these objects.

Here's how I will proceed. In Chapter 1 I will argue that abstract artifacts are causal. This goes against the orthodox view that abstract objects are causally inert. I will also introduce a supporting theory of object-causation (as opposed to event-causation). In Chapter 2 I will argue that accepting that there are abstract artifacts commits one to the view that 'exists' is vague. This presents us with a puzzle, as many think that 'exists' is precise. In Chapter 3 I present my own theory of abstract artifacts and claim that we should accordingly respond to the puzzle of Chapter 2 by accepting that 'exists' is vague. In Chapter 4 I explain how an acceptance of vague existence can potentially help to vindicate certain Aristotelian theories of *concrete* artifacts.

Before we begin, I want to share an embarrassing secret: although I've been talking thus far as if abstract artifacts exist, I'm not sure if there exist any abstract objects, let alone abstract artifacts. That's right. I've spent years thinking about and writing about things whose very existence I doubt. I guess that's one of the joys of being a philosopher, though. Despite my uncertainty, or perhaps because of it, I won't consider arguments for or against the existence of abstract objects. I'm simply going to suppose that they exist. I will accordingly set aside *nominalism*: the view that there do not exist any abstract objects. I will be exploring a full-fledged realism about abstracta. This is more than the idea that abstracta have a sort of Meinongian subsistence in which they are nonexistent objects. The idea is that abstracta exist just as much as anything else. Of course, that's not to say that abstracta are in space or are physical objects. They are different from concreta but not because they don't exist.

In addition to supposing without argument that there exist abstract objects, I'm also going to suppose without argument that some of them—those I call 'artifacts'—come into existence.

That any abstracta come into existence is controversial amongst even realists about abstracta. *Platonists* traditionally think abstract objects always exist (or think abstract objects exist outside of time). They deny that abstracta genuinely come into existence—that they go from not existing to existing. They think Beethoven did not create The Ninth Symphony. The symphony has always existed (if it exists at all) in a Platonic realm. Beethoven didn't create it. He *discovered* it, as mathematicians have discovered numbers. For now I will set aside Platonism. I will engage with Platonism in Chapters 2 and 3.

While I'm officially undecided about the existence of abstract artifacts, I'm sympathetic to the position that they do exist. And thus for ease of exposition I will write throughout as if they do.

There are many reasons why my project is valuable despite my uncertainty about the existence of abstract artifacts. Here are five reasons. First, if it turns out that abstract artifacts *do* exist, then it would obviously be good to have a theory of them and to know what ramifications this has for other areas of philosophy. This dissertation does that work. Second, and relatedly, the position that there exist abstract artifacts is *prima facie* plausible and thus worth exploring. Third, even if it turns out that abstract artifacts do not exist, this dissertation may be used by theorists to argue against their existence. For, as I show in Chapters 2 and 3, my theory and related theories of abstract artifacts are committed to 'exists' being vague. Those who think 'exists' is precise can accordingly argue against there being any abstract artifacts. Fourth, for readers who are undecided about whether there exist any abstract artifacts, this dissertation can help them to make a more informed decision.

Fifth, it's part of our everyday conception of the world that there exist abstract artifacts. Granted, you're not likely to hear the folk outright say 'there exist abstract artifacts', but you will

hear them say things like ‘I’m listening to the Ninth Symphony’, ‘*War and Peace* is my favorite novel’, and ‘There are thousands of languages’. They are committed to the existence of symphonies, novels, languages and the like. So, setting aside the question of whether abstract artifacts exist, this dissertation provides a theory of something the folk (and many philosophers) believe in. I’ve also found that the folk, with a little bit of philosophical prodding, will usually accept that symphonies, novels, languages, etc. are not located in space and that they come into existence. So this dissertation’s theory of abstract artifacts respects how the folk (with some reflection) are inclined to think about such things. I also show how this theory relates to various issues in metaphysics and philosophy of language. The dissertation is thus an intrinsically interesting exploration of a folk-friendly conception of abstract artifacts.

An illustrative example is David Lewis’s paper “Evil For Freedom’s Sake” (1993). Lewis, an atheist, takes very seriously free-will theodicy: the position that evildoing is consistent with God’s existence, because God gave us free will. Lewis’s paper is of interest to atheists, theists, agnostics, and those who, setting aside the question of God’s existence, are interested merely in a serious exploration of a popular Christian theodicy. I hope that the reader, no matter what they think about the existence of abstract artifacts, will similarly find this dissertation to be interesting and important.

Chapter 1

Abstract Artifacts are Causally Efficacious

1.1 Introduction

Many philosophers think that all abstract objects are causally inert—i.e., that they neither cause anything to happen nor are causally affected (e.g., Bach (1987: 12), Balaguer (2001: 1), Dodd (2000: 431), Dummett (1973: 493) Friedman (2005: 288) Parsons (2008: 1), and van Inwagen (2007: 200)). Some philosophers even think that causal inertness should be included in our definition of ‘abstract objects’. Friedman (2005: 288), for example, defines ‘abstract entity’ as “a *causally inert* entity having no specific spatiotemporal location” (emphasis mine). I will not discuss in this chapter whether some abstract objects are causally affected.² I will argue instead that abstract artifacts are *causally efficacious*—i.e., that they cause things to happen. I will also propose a supporting theory of object-causation, of what it is for an object (as opposed to an event) to cause an effect.

1.2 The Argument

Consider (1) and (2):

(1) *Uncle Tom’s Cabin* caused many Americans to support abolition.

(2) The Fifth Symphony caused Beethoven to be more famous.

² This question is related to a rich debate in Aesthetics about whether abstract artworks (e.g., symphonies and novels) are time-bound abstracta that artists *create* or are instead eternal abstracta that artists *discover*. It’s natural for someone who thinks abstract artworks are *created* to infer that they are thereby causally affected. Lin (2010) makes this inference. See Levinson (1980, 1990a) for a seminal defense of the view that abstract artworks are created. See Dodd (2000) and Kivy (1987) for important defenses of the view that they are discovered. The creation/discovery debate applies to abstracta beyond art, including recipes and languages. These issues are explored in depth in Chapters 2 and 3.

(1) ostensibly means that *Uncle Tom's Cabin*—the abstract novel—caused many Americans to support abolition. (2) ostensibly means that The Fifth Symphony—the abstract piece of music—caused Beethoven to be more famous. Accordingly, (1) and (2) both ostensibly entail that some abstract objects are causally efficacious. Supposing that relevant socio-historical facts obtain (e.g., facts about antebellum attitudes toward slavery and facts about Beethoven's fame), there is a commonsense intuition that (1) and (2) are true. These considerations motivate the following argument:

P1: (1) and (2) are true.

P2: If (1) and (2) are true, then some abstract artifacts are causally efficacious.

C: Some abstract artifacts are causally efficacious.

Many people won't be persuaded by this simple argument. Perhaps you are one such person.

You might be thinking something like the following: "I accept that people commonly *say* things like (1) and (2) but *that* doesn't show that some abstract artifacts are causally efficacious.

Perhaps sentences (1) and (2) are, strictly speaking, false—in which case P1 is false. Or, perhaps (1) and (2) are true, but, because they mean something different from what they appear to mean on the surface, they don't actually entail that some abstract artifacts are causally efficacious—in which case P2 is false. I'm unsure which premise is false, but I suspect that one of them is false and thus that the argument is valid but unsound. We shouldn't infer such a bold metaphysical claim from the fact that we talk in a certain way". This is a natural response, at least at first blush. It's also *neutral* in the sense that it doesn't say what exactly is wrong with the argument (i.e., which of P1 or P2 is false).

Ultimately, though, in order to evaluate the argument we need to examine both premises individually and gauge whether they are true or false. To this end I will imagine two kinds of less

neutral opponents. They both take an official stand on which of the argument's premises is false. I will call those who reject P1, but accept P2, 'error theorists'. The error theorists think that (1) and (2) are false, despite seeming true. I will call those who reject P2, but accept P1, 'paraphrasers'. The paraphrasers think (1) and (2) should be paraphrased in such a way that they do not actually entail that some abstracta are causally efficacious. I will set aside the view that *both* P1 and P2 should be rejected; it's a bizarre hybrid of both positions that, while consistent, is unmotivated and uninteresting as far as I can tell.

1.3 The Error Theorists

Let us discuss the error theorists first. In their opinion, various things that are closely related to *Uncle Tom's Cabin* caused many Americans to support abolition. For instance, the event of *Uncle Tom's Cabin* being published, various events of people reading it, and perhaps even physical copies of the novel all had this effect. Likewise, the event of The Fifth Symphony being composed, various events of people listening to it, and performances of the symphony all caused Beethoven to be more famous. But *Uncle Tom's Cabin* and The Fifth Symphony themselves did not cause anything to happen. (1) and (2) might *seem* true, but they are actually false. So the error theorists say.

The error theorists must justify their counterintuitive claim that (1) and (2) are false. They could adopt a strict view of causation, according to which only events (and perhaps also states or facts) are causally efficacious. It would soon follow that objects—concrete and abstract alike—are not causally efficacious.³ (1) and (2) would count as false.

³ For rhetorical purposes I am talking as if events are not objects. I think this coheres with at least one way the word 'object' is used.

Are only events causes? I don't think so. Granted, the literature emphasizes event-causation. David Lewis (1973, 1976), for example, explains causation in terms of counterfactual dependencies between *events*. Other theorists appeal to nomological and probabilistic relations between *events*.⁴ Even Lewis (1973: 558), however, ostensibly acknowledges that events are not the only causes. He writes elsewhere (1986b: 214) that “the icy road, the bald tire, the drunk driver, the blind corner, the approaching car, and more” all cause a car-crash. One might think that Lewis is mistaken or (more charitably) speaking loosely—and that, strictly speaking, icy roads do not cause crashes; rather, *events* of cars moving on icy roads cause crashes. Likewise, on this austere line, rocks don't cause windows to break. *Events* of rocks hitting windows have this effect.

I disagree with this austere view of causation. Object-causation is real. Icy roads cause crashes, and rocks cause windows to break. I concede, however, that events are the most fundamental causes. Object-causation occurs *in virtue of* event-causation. Rocks cause windows to break, on my view, in virtue of events of rocks hitting windows causing them to break. I'll say more about this later. But, here's the important point for our present purposes: object-causation is still real. ‘Rocks cause windows to break’ is, strictly speaking, true.

Crucially, regardless of whether the reader agrees with me about object causation, my intended opponents *do* agree with me. They accept that (strictly speaking) rocks cause windows to break and icy roads cause crashes. They think that *concrete* objects are causally efficacious and that at least part of what distinguishes *abstract* objects is that they are not. My opponents think that abstract objects are not causally efficacious in virtue of being *abstract*—not in virtue of being *objects*. After all, if it turns out that that no objects are causal, then why make such a

⁴ See (Kim, 1973) and Pearl (2000) for examples of nomological and probabilistic theories of causation, respectively.

fuss about abstracta not being causal? It would seem mean to pick on the abstract objects for being unable to do something that no object can do.

I will operate under the assumption, then, that there is object-causation. Any reader who denies object-causation may interpret me as arguing for a conditional: *if concrete objects are causally efficacious*, then abstract artifacts are causally efficacious, too. This conditional should still be of some interest to deniers of object-causation. If they ever come to accept that concrete objects are causally efficacious, they should accept that abstract artifacts are, too.

Back to the error theorists. Their task is to justify their counterintuitive claim that (1) and (2) are false in a way that is consistent with concrete objects being causally efficacious. I will consider three ways they can try to do this.

First, the error theorists can appeal merely to an intuition that novels cannot cause people to support abolition and symphonies cannot cause composers to become more famous. This intuition is strong enough, the error theorists might argue, to justify their belief that (1) and (2) are false. This move, however, is ineffective. We started with a commonsense intuition that (1) and (2) are true. It is not enough for the error theorists to express what is essentially an opposing intuition. They must give an independent reason for why their intuition is correct. Otherwise, they fail to adequately respect the commonsense intuition.

Second, the error theorists can appeal to a folk-scientific view that it's impossible for an object to cause an effect without touching or pushing, directly or indirectly, an object that is part of the effect. If this view were correct, then abstract objects—since they cannot touch anything—would be causally *inefficacious*. (1) and (2) would be false. The “pushing-touching” view of causation, however, is flawed. It rules out the very possibility of certain kinds of magical

causation—e.g., a voodoo doll being used to directly cause someone miles away to become sick. Magic of this sort seems extremely unlikely but not impossible.⁵

The error theorists might try to appeal to a weaker non-modal version of the pushing-touching view—one which doesn't say that it's *impossible* for causation to occur without touching or pushing but merely that, as a contingent matter of fact, all causation involves pushing or touching. This view contradicts quantum theories that state there is causation at a distance—a phenomenon where two causally connected objects are too far from each other for it to be possible for them to have directly or indirectly come into contact. (Causation at a distance, of course, conflicts also with the modal version of the pushing-touching view.) For these reasons, the error theorists should not embrace the pushing-touching view of causation.

Third, the error theorists can appeal to a philosophical view that in order for an object to cause an effect the object must transfer energy or momentum to an object that is part of the effect. Fair (1979) offers a seminal defense of this view. If the energy-transfer view were correct, then abstract objects, since they presumably cannot transfer energy, would be causally *inefficacious*. (1) and (2) would be false.

As with the pushing/touching view, the energy transfer view has two varieties: a modal and a non-modal version. The modal version—according to which it's metaphysically impossible for causation to occur without energy/momentum transfer—is false. For, it's possible for there to be magic causation that doesn't involve a transfer of energy. There's some possible world where a witch casts a spell that, given the (magical) laws of the world, causes a tornado to occur without any transfer of energy from the witch to the tornado.

A more plausible version of the energy-transfer view states, instead, that it's merely a contingent matter that all causation involves energy/momentum transfer.⁶ Let's consider for now

⁵ Callard (2007, 350) makes a similar point, following (Dretske 2000, 111).

only this version of the energy-transfer view. What evidence is there for it? Merely reflecting on what we mean by ‘cause’ will not help. It’s not built into our concept of causation that it requires energy/momentum-transfer. The only way to justify the energy-transfer view is to gauge whether it correctly handles cases and is counterexample-free. Let us suppose for the sake of argument that whenever a concrete object causes an effect the object transfers energy or momentum to an object that is part of the effect. Still, one might think that we should not accept the energy-transfer view until we have evidence that it handles *all* cases, not just those involving concrete objects. If this is true, then my opponents cannot be justified in accepting the energy-transfer view unless they are *antecedently* justified in thinking that abstract objects cannot cause effects. But this is precisely what is at stake. Hence, it might seem as though my opponents beg the question if they invoke the energy-transfer view in order to argue that abstract objects do not cause effects (and thus that (1) and (2) are false).⁷

The error theorists might respond to this last objection as follows: “We are not begging the question. Instead, we have considered all uncontroversial real-life cases of object-causation. It just so happens that all of these cases involve concrete objects. And, all of these cases involve energy transfer. Inductive reasoning leads us to conclude that all cases of object-causation involve energy transfer.”⁸ Perhaps this response adequately deals with the question-begging objection I’ve raised. I’m unsure.

The energy-transfer theory, however, has a more pressing problem. As Schaffer (2000) points out, there are real-life cases of causation it cannot handle: cases involving what he calls “causation by disconnection”. I’ll borrow one of his examples. Suppose that Mary presses a

⁶ Fair (1979) accepts this non-modal version of the energy-transfer view.

⁷ The same is true of error theorists who, in defense of (1) and (2) being false, appeal to the aforementioned “pushing-touching” view of causation. For similar reasons, that might also beg the question.

⁸ I owe this idea to Sheldon Smith.

detonator button and then a bomb explodes (285-6). Mary's pressing of the button transmits an electrical current to the bomb that causes it to explode. If Mary hadn't pressed the button then the bomb wouldn't have exploded. Intuitively the event of Mary pressing the button causes the bomb to explode. Since we are presently focused on object-causation (rather than event-causation), let us focus on the fact that *Mary* (as opposed to an event involving her) causes the bomb to explode. This coheres with the energy-transfer theory. Mary has transferred energy to the bomb, and in doing so causes it to explode.⁹

So far, so good. But Schaffer presents another version of the example. Suppose now that Mary's pressing of the button "disconnects an electrical current that was inhibiting an independent source from triggering the explosion" (2000, 286). The bomb then explodes. And, as before, if Mary hadn't pressed the button then the bomb wouldn't have exploded. In this version Mary still intuitively causes the bomb to explode. But this version conflicts with the energy-transfer view. For, Mary hasn't transferred any energy to the bomb. This is a case of causation by disconnection.

One might doubt that in this second version of the example Mary's pressing of the button (and thus Mary herself) causes the bomb to explode. But it does seem intuitive that Mary is just as much a cause in the second version as she is in the first. One fact that supports this intuition is that the counterfactual—"if Mary hadn't pressed the button, the bomb wouldn't have exploded"—is true in both versions. We would also hold Mary morally responsible in either case for the bomb's exploding. We may even suppose, along with Schaffer, that in both versions

⁹ Anyone who worries that agent-causation is relevantly different from standard cases of object-causation can change the example so that instead of Mary pressing the button a meteorite or some other inanimate object presses the button. The point of this example doesn't rely on Mary's agency. All that matters for our purposes is that some object pushes the button. (Schaffer himself never mentions how the button is pressed.) We could also focus on the fact that the *button* causes the explosion. I choose to focus on Mary instead, because it is more natural to attribute causality to her.

bomb-explosions universally follow button pressings (Schaffer 2000, 285). For these reasons, I agree with Schaffer that Mary in the second version causes the bomb to explode.

Schaffer claims that these sorts of cases are fairly common. For instance, fatal cases of heart disease, he contends, involve causation by disconnection. A person's heart fails, *disconnecting* the flow of oxygen to their brain, causing them to die.

Textbook cases of omission pose the same problem for the energy-transfer theory. If I usually water my plant but forget to do so for a week and then it dies, my not watering the plant causes it to die. *I* cause it to die. I cause it to die not in virtue of transferring energy or momentum to it. Indeed, I cause it to die by depriving it of energy. (This is also, of course, a problem for the pushing-touching view.)

The energy-transfer theorist can respond to these sorts of examples in two main ways. First, they can deny that they are genuine cases of causation. Dowe (2004) takes this approach. I think we should reject this approach mainly due to our intuitions. It's intuitive that Mary causes the bomb to explode in the second version of the example. Likewise, it's intuitive that I cause the plant to die. Intuition, of course, is fallible. Many medieval thinkers intuited that the Earth was flat. But, such medieval thinkers were ignorant of crucial physical facts. We, on the other hand, are aware of all of the relevant physical facts concerning Mary and my plant. We know there's no transfer of energy from Mary to the bomb, or from me to my dead plant. Still, we have an intuition that Mary causes the bomb to explode and that I cause the plant to die. Since we're aware of all of the relevant physical facts, we seem to be in a good place to trust our intuitions about whether these cases involve causation. Such intuitions should guide our theorizing about causation.

Second, the energy-transfer theorist can accept that omissions and the like are causal and try to accommodate this into their theory. The only way to do this is to accept that not all examples of causation involve energy-transfer. Fair (1979) takes this approach. He accepts, on the basis of intuition, that omissions are causal and provides a counterfactual account of causal omissions. This results in a hybrid account of object-causation; he accounts for billiard-ball causation in terms of energy/momentum-transfer and causal omissions in terms of counterfactuals. Accordingly, his theory lacks unity.

A brief summary might be useful: the error theorists can try to justify their rejection of P1—the premise that ‘*Uncle Tom’s Cabin* caused many Americans to support abolition’ and ‘The Fifth Symphony caused Beethoven to be more famous’ are true—by adopting the (non-modal) energy-transfer theory. This might beg the question. Even if it doesn’t beg the question, it runs into problems with causation by disconnection and causal omissions. Apparently, the best way for the error theorist to accommodate such cases involves accepting an account of object-causation that lacks unity.

Disunity is not, by itself, a kiss of death. If no better alternative is available, then disunity might be something we are willing to live with. Fortunately, though, I think there is a unified account of object causation that can handle billiard-ball causation and disconnections/omissions. Later in this chapter I will introduce that theory. Since, as I will show below, it has the (purported) advantages of the energy-transfer view, without any of the disunity, we should reject the energy-transfer view in favor of my theory. With this promissory note in mind, I will now set aside the energy-transfer theory.

I can think of no other noteworthy way for the error theorists to try to justify their counterintuitive claim that ‘*Uncle Tom’s Cabin* caused many Americans to support abolition’

and ‘The Fifth Symphony caused Beethoven to be more famous’ are not true. It looks like we should accept P1. At least, the burden of proof rests with the error theorists to show why it should be rejected.

1.4 The Paraphrasers

Let us discuss the paraphrasers. They accept P1. But they reject P2. This premise states that if (1) and (2) are true, then some abstract artifacts are causally efficacious. As noted above, (1) ostensibly means that *Uncle Tom’s Cabin*—the abstract novel—caused many Americans to support abolition, and (2) ostensibly means that The Fifth Symphony—the abstract piece of music—caused Beethoven to become more famous. The paraphrasers, however, deny that (1) and (2) should be interpreted in this straightforward way.

How can the paraphrasers deny this? One thing they might say is that ‘*Uncle Tom’s Cabin*’ and ‘The Fifth Symphony’ in (1) and (2) are metonyms. (3) and (4) contain paradigmatic examples of metonymous singular terms.

(3) The ham sandwich forgot to pay the bill.

(4) The sax has the flu.

On the most natural readings of these sentences, ‘the ham sandwich’ and ‘the sax’ are metonymous. They refer to a sort of thing that differs from what they normally refer to. Instead of referring to a ham sandwich, ‘the ham sandwich’ in (3) refers to a person who ordered a ham sandwich. ‘The sax’ in (4) refers to a saxophonist instead of an actual saxophone. The paraphrasers might argue that ‘*Uncle Tom’s Cabin*’ and ‘The Fifth Symphony’ behave similarly in (1) and (2). On this line, in (1) ‘*Uncle Tom’s Cabin*’ refers to tokens (e.g., copies) of *Uncle Tom’s Cabin*. It doesn’t refer to the novel—an abstract object—itsself. In (2) ‘The Fifth

Symphony' refers to tokens (e.g., performances and recordings) of The Fifth Symphony. It doesn't refer to the symphony itself. The basic idea of this strategy is clear: although (1) and (2) ostensibly attribute causal powers to abstract objects, they actually attribute causal powers to things that are not abstract.

This strategy is flawed. Anaphoric data provides good reason to think that the relevant singular terms are *not* metonymous:

#(3a) The ham sandwich left a big tip; it was delicious.

(3b) The ham sandwich left a big tip; he won the lottery recently.

#(4a) The sax has the flu; it's covered in bacteria.

(4b) The sax has the flu; she'll be back next week.

In (3a) 'the ham sandwich' is metonymous, and it's infelicitous to follow it with a pronoun ('it') that purports to anaphorically refer to a sandwich. It's fine, however, to follow it with a pronoun ('he') that refers to a person who has ordered a ham sandwich. (4a) and (4b) exemplify a similar trend. To put the point generally: it is felicitous to use a pronoun to anaphorically refer to what its metonymous antecedent *actually* refers to in the present context; it is *infelicitous* to use a pronoun to anaphorically refer to the sort of object its metonymous antecedent *normally* refers to.

Contrast the above data with the following:

(1a) *Uncle Tom's Cabin* caused many Americans to support abolition; it was
the most popular novel of the 19th Century.

#(1b) *Uncle Tom's Cabin* caused many Americans to support abolition; many of
them have been lost and will never be found.

(2a) The Fifth Symphony caused Beethoven to be more famous; it is Sally's favorite symphony.

#(2b) The Fifth Symphony caused Beethoven to be more famous; they were virtuosic performances.

In (1a) 'it' clearly refers to the novel *Uncle Tom's Cabin*. In (1b) 'them' purportedly refers to tokens of the novel. If '*Uncle Tom's Cabin*' in '*Uncle Tom's Cabin* caused many Americans to support abolition' metonymously referred to tokens of the novel, we would expect (1a) to be infelicitous and (1b) to be felicitous. But the opposite is true. This suggests that '*Uncle Tom's Cabin*' in (1) refers to the abstract novel.¹⁰ For analogous reasons (2a) and (2b) suggest that '*The Fifth Symphony*' in (2) refers to The Fifth Symphony instead of to performances or recordings of it. All of the anaphoric sentences considered thus far provide good reason to think that '*Uncle Tom's Cabin*' and '*The Fifth Symphony*', unlike 'the ham sandwich' and 'the sax', are not metonymous.

My reasoning here relies on a principle I've already made explicit: it is felicitous to use a pronoun to anaphorically refer to what its metonymous antecedent *actually* refers to in the present context. Here's a potential counterexample:

#(5) Have you read Twain? Yes, I have read one/some of them.¹¹

One might think that 'Twain' is a metonym for 'books written by Twain'. If it were, then, given the above principle, the reply in (5) would be felicitous. But it is infelicitous. Therefore, one might conclude, (5) is a counterexample to the principle in question.

¹⁰ One might think that the culprit in (1b) is the inclusion of a plural pronoun, 'them', given that its antecedent, '*Uncle Tom's Cabin*', is a singular term. But it won't help to replace 'them' with a singular pronoun that purportedly refers to anything other than the novel *Uncle Tom's Cabin*. For instance, '*Uncle Tom's Cabin* caused many Americans to support abolition; much of it (=the total collection of copies of *Uncle Tom's Cabin*) has been lost and will never be found' is infelicitous, even though the anaphoric pronoun purports to refer to a single object (the *collection* of copies of the novel). The singular/plural issue is a red herring.

¹¹ I owe this example to James Van Cleve.

Nunberg (1995, 124) suggests a way to handle this sort of example. He contends that ‘Yeats is still widely read’ is ambiguous. On one reading ‘Yeats’ refers to Yeats and ‘is still widely read’ means something like ‘has books that are still widely read’. This is why ‘Yeats is still widely read, even though he has been dead for many years’ is felicitous. On another reading, says Nunberg, the predicate is interpreted normally and ‘Yeats’ is a metonymic mass-term that refers to Yeats’ work. This is why ‘Yeats is still widely read, even though most of it is out of print’ is felicitous. I’m unsure if Nunberg is right, but perhaps I can apply his idea to the Twain example. It’s not that ‘Twain’ metonymically refers to books (plural); rather it refers on its metonymic reading to a singular collection of books.

Here’s a different way I can respond to the Twain example. Instead of arguing that ‘Have you read Twain?’ is ambiguous, I can claim that it has only one natural reading. On this reading, ‘read’ is a metonym for ‘read writing by’ and ‘Twain’ refers straightforwardly to Twain. This explains why (5) is infelicitous, but it does run into another potential problem.¹² For,

(6) I have read Twain and the Bible.

is felicitous. But if ‘read’ is a metonym for ‘read writing by’ one might expect that the sentence would be infelicitous, as is the case with (7):

(7) I licked both my wrestling opponent and the stamp.

The sense in which one licks a wrestling opponent is different (typically) from the sense in which one licks a stamp. But the sense in which one reads Twain on the current proposal is also different from the sense in which one reads the Bible. How, then, is (6) felicitous?

The following sentences might provide a clue:

(8) Paul drove the Prius and his kids to school.

¹² Again I am indebted here to James Van Cleve.

(9) Mary flew the plane and all of the cargo to Cuba.

?(10) Peter heard both the news about the verdict and the crowd's reaction.

(8) expresses that Paul drove the Prius and drove his kids in different senses of 'drove'. (9) expresses that Mary flew the plane and flew the cargo in different senses of 'flew'. I think there might be a felicitous reading of (10) where it conveys that Peter heard the news about the verdict in a different sense of 'heard' from the sense in which he heard the crowd's reaction. The first sense of 'heard' is a "hearing-about" and the second is a brute physical hearing. Thus, perhaps, we can explain the felicity of (6) while still maintaining that 'read' means 'read something by'.

I'm not sure what is the best way to respond to the Twain-case. But I've outlined two promising approaches—Nunberg's ambiguity-proposal, and the second approach that takes (6) to be univocal. This issue is certainly worth further consideration, but I don't see any compelling reason to abandon my principle that it is felicitous to use a pronoun to anaphorically refer to what its metonymous antecedent *actually* refers to in the present context.

There is another problem facing the paraphrasers if they take the relevant proper names in (1) and (2) to be metonymous. According to the paraphrasers' proposal in question, (1) is synonymous with (1c).

(1c) Tokens of *Uncle Tom's Cabin* caused many Americans to support
abolition.

(1c), however, has different truth-conditions from (1). For example, imagine that one day an earthquake occurred that resulted in two copies of *Uncle Tom's Cabin* hitting someone in the head. The victim, completely unaware of the contents of the books and merely as a result of the blow to his head, suddenly became opposed to slavery and gave speeches that persuaded many other Americans to support abolition. (1c) in such a scenario would be true, but (1) would not.

Tokens of *Uncle Tom's Cabin* would have caused many Americans to support abolition, but it would be incorrect to say that *Uncle Tom's Cabin* had this effect. This is yet another reason to think that '*Uncle Tom's Cabin*' in (1) does not metonymously refer to tokens of the novel.

Even if the paraphrasers concede that the relevant singular terms in (1) and (2) are not metonymous, there is still room for them to reject P2. They can argue that 'caused' in (1) and (2) is metonymous. This is sometimes called "predicative metonymy" as opposed to "referential metonymy"¹³, the latter of which we have primarily been discussing. (11) arguably involves predicative metonymy.

(11) Frank is parked outside.¹⁴

(11) on its intended reading is consistent with Frank being indoors at a party while his car is parked outside. It means something like 'Frank's vehicle is parked outside'. But (11a) and (11b) suggest that 'Frank' refers to Frank instead of his vehicle.

(11a) Frank is parked outside; he is having fun.

#(11b) Frank is parked outside; it has a flat tire.

This data suggests that the semantically deviant expression in (1) isn't 'Frank' but rather the predicate 'is parked outside'. It seems to pick out a property one has whenever their vehicle is parked outside.

The paraphrasers might argue that the predicates in (1) and (2), repeated here for convenience, are metonymous.

(1) *Uncle Tom's Cabin* caused many Americans to support abolition.

(2) The Fifth Symphony caused Beethoven to be more famous.

¹³ Stallard (1993) is to my knowledge one of the first to use this terminology.

¹⁴ Nunberg (1995) highlights this sort of sentence as an example of predicative metonymy.

On this line ‘*Uncle Tom’s Cabin*’ refers to the novel *Uncle Tom’s Cabin*. But ‘caused many Americans to support abolition’ metonymously picks out something like the property that an object has whenever *tokens of it* caused many Americans to support abolition. Likewise, ‘*The Fifth Symphony*’ refers to *The Fifth Symphony*. But ‘caused Beethoven to be more famous’ picks out something like the property that an object has whenever *tokens of it* caused Beethoven to be more famous. (1) and (2) are true, on this line, and are genuinely about abstract objects; they simply don’t entail that those very objects were causally efficacious.

The paraphrasers must be careful about what properties the predicates pick out. It can’t be that ‘caused many Americans to support abolition’ in (1) picks out simply the property that something has whenever tokens of it caused many Americans to support abolition. The problem with this proposal is that it predicts (1) as being true in the earthquake-example mentioned above, but as we have seen it is false in that case. A more plausible proposal is that ‘caused many Americans to support abolition’ picks out the property that something has whenever tokens of it in virtue of being tokens of *it* caused many Americans to support abolition.

This more nuanced proposal handles the earthquake-example. In that example, although copies of *Uncle Tom’s Cabin* caused many Americans to support abolition, they did not cause that effect in virtue of being copies of *the novel*. They did so merely in virtue of being physical objects that hit someone in the head. Accordingly, the proposal under discussion predicts, correctly, that (1) will be false in the earthquake-example.

However, there still might be counterexamples to this proposal. Imagine that Harriet Beecher Stowe never produced physical copies of *Uncle Tom’s Cabin* but devised the novel in her mind. The novel’s plot infuriated her so much that she began giving speeches that persuaded many Americans to support abolition. In this example (1) is true, but it is arguably not the case

that tokens of *Uncle Tom's Cabin* in virtue of being tokens of the novel caused many Americans to support abolition. This is because it is arguable that *Uncle Tom's Cabin* has no tokens in this example. The paraphrasers might respond that Stowe has a mental token of the novel in her mind. It's unclear to me if novels can have mental tokens. I'll leave it open, then, whether this example is a genuine counterexample.

The paraphrasers' proposal under discussion faces another problem. According to this proposal, (1) is synonymous with (1d).

(1d) Tokens of *Uncle Tom's Cabin* in virtue of being copies of *Uncle Tom's Cabin* caused many Americans to support abolition.

The general strategy behind (1d) cannot be applied to all intuitively true causal reports that are ostensibly about abstract objects. Consider (12) and (13).

(12) Christianity causes many people to be hopeful.

(13) Sherlock Holmes causes some real-life people to become detectives.

The paraphrasers cannot argue that (12) means that tokens of Christianity in virtue of being such cause many people to be hopeful. Nor can they argue that (13) means that tokens of Sherlock Holmes in virtue of being tokens of that character cause some real-life people to become detectives. This is because religions and fictional characters, unlike novels, do not have tokens. Religious dogma has tokens; religions do not. Fictional characters are represented (e.g. pictorially), but they don't have tokens. The upshot is that we have reason to doubt that (1) is synonymous with (1d), since (12) and (13) can't be paraphrased in analogous ways.

I can think of no other noteworthy way for the paraphrasers to try to justify rejecting P2 (the claim that if (1) and (2) are true, then some abstract objects are causally efficacious). I think

we should accept P2. At least, the burden of proof rests with the paraphrasers to show why it should be rejected.¹⁵

1.5 The Argument Revisited

Now we can reflect on our original argument:

P1: (1) and (2) are true.

P2: If (1) and (2) are true, then some abstract artifacts are causally efficacious.

C: Some abstract artifacts are causally efficacious.

At this point both P1 and P2 look true. I cannot provide definitive arguments in support of either premise. I trust, however, that I have at least shown that the burden of proof rests with my opponents, regardless of whether they choose to reject P1 or P2. We should (perhaps cautiously) accept both premises and thus the conclusion that some abstract objects are causally efficacious.

1.6 Extending the Argument

We can extend the argument to abstracta other than novels and symphonies. I have already mentioned how one could argue that fictional characters and religions are causally efficacious

¹⁵ There are at least a couple of strategies available to paraphrasers that I haven't mentioned. One strategy is that '*Uncle Tom's Cabin* caused many Americans to support abolition' is equivalent to something like 'Tokens of *Uncle Tom's Cabin* caused many Americans to support abolition', not deriving from any equivalence between parts of the sentences. A paradigm case where this general sort of strategy might work is the sentence 'There's a 3-foot long shadow in my backyard'. An anti-realist about shadows might argue that the sentence is equivalent to something like 'In my backyard a 3-foot long patch of ground is dark and not lit by a light source, due to the presence of some intermediate object, and the surrounding area is lit by a light source.' The crucial idea is that this equivalence isn't due to any equivalence between parts of the two sentences. For instance 'a 3-foot long shadow' does not mean 'a 3-foot long patch of ground that is such-and-such', which is a good thing, since the relevant patch of ground was there long before the shadow appeared. The overarching strategy is radical in that it rejects the principle of compositionality. Still, it's certainly worth considering further. I owe the suggestion to James Van Cleve.

I owe a related suggestion to Sam Cumming. He has pointed to metaphor; 'Juliet is the sun' doesn't carry its literal meaning, but no paraphrase of it is quite right. Perhaps (1) and (2) are similar. Generic statements, such as 'Dutchmen are good sailors', provide another potential analogue. They seem literally true but are not easily paraphrased. I leave these issues for further research.

(see note 11). Similar arguments could be given for contracts, poems, languages, and even numbers. Consider (14) and (15).

(14) American Sign Language causes life to be more convenient for many deaf people.

(15) The number π caused the mathematician to lose sleep.

It's intuitive that (14) is true and that (15) can be true. Error theorists might respond that American Sign Language does not cause life to be more convenient; people using the language has this effect. Likewise, π cannot cause a mathematician to lose sleep; obsessing about π , memorizing thousands of its digits, or something of this sort can have this effect. Still, as is the case with (1) and (2), there seems to be no compelling reason to accept such an error theory. (14) and (15) also seem to entail that some abstract objects are causes. Paraphrasers might deny this, but I don't see why this strategy would work any better with (14) and (15) than with (1) and (2). These considerations suggest that languages and numbers are causally efficacious.

We can apply parallel reasoning to *any* kind of abstract object. We can argue, for instance, that sets can cause a mathematician to lose sleep and that properties can do the same for a metaphysician. There might be various numbers, sets, and properties that are impossible to think about and thus which could never be causally efficacious. Nonetheless, it seems like many abstract objects are causally efficacious and that many more of them can become causally efficacious.

1.7 Object Causation

Thus far I've argued that certain abstract objects are causally efficacious. I haven't, however, provided an account of object-causation. My argument would probably be more persuasive if it

were consistent with an independently plausible account of object causation. I will attempt to provide such an account here. In doing so I will explain object-causation in terms of event-causation and causal explanation. I will not provide an account of these latter notions. One should feel free to plug in their favorite theory of event-causation and causal explanation into my account. It's still a substantive claim that we can reduce object-causation to event-causation and causal explanation. And, as we will see, the details of this reduction are not trivial.

Let us start with a paradigmatic case of object-causation: Sara throws a rock at a window, resulting in the window's breaking. On my view the rock is causally efficacious in virtue of the fact that the event of Sara throwing the rock at the window caused it to break. This idea suggests the following account of object-causation:

(16) An object **o** causes an effect iff there is an event involving **o** that causes the effect.¹⁶

(16) purportedly explains object-causation in terms of event-causation. A problem with (16), though, is that it provides a condition that isn't sufficient for object-causation. Suppose that Sara holds a hammer in her left hand and throws a rock at a window with her right hand, resulting in the window's breaking. (16) predicts, incorrectly, that the hammer causes the window to break, since the event of *Sara holding the hammer and throwing the rock at the window* both involves the hammer and causes the window to break.

Why doesn't the hammer cause the window to break? Intuitively, the hammer, unlike the rock, does not play in some sense a *relevant* role in the event of Sara holding the hammer and throwing the rock at the window; the hammer's involvement in that event is not relevant to the window's breaking. This suggests another account of object-causation.

(17) An object **o** causes an effect iff

¹⁶ When I say that an object *causes* an effect this should be understood here and throughout this chapter as meaning merely that the object is *a* cause of the effect. The object need not be *the* cause of the effect.

(a) there is a causal explanation of the form ‘e, because c’, where e is a sentence that describes the effect and c is a sentence that describes an event that causes the effect such that c *relevantly* refers to **o** (where c *relevantly* refers to **o** iff the reference to **o** adds to the explanatory value of the causal explanation).¹⁷

This might look like a mess, but let’s unpack it with our paradigmatic example. This account predicts, correctly, that the rock causes the window to break. There’s a causal explanation—namely, ‘The window broke, because Sara threw the rock at the window’—that meets the criteria outlined in (17). This causal explanation *relevantly* refers to the rock, because its reference to the rock adds to the explanatory value of the causal explanation. In other words, the explanation’s reference to the rock helps to explain why the window broke. The account also predicts correctly that the hammer does *not* cause the window to break. For, the causal explanation ‘The window broke, because Sara held the hammer and threw the rock at the window’ does *not* *relevantly* refer to the hammer; its reference to the hammer does not help to explain why the window broke. Indeed, there’s no causal explanation of the window’s breaking that *relevantly* refers to the hammer.

This account still needs to be refined in light of a different kind of counterexample. Suppose my grandfather George Friedell saw The Statue of Liberty when he first arrived in the United States and that as a result he felt welcomed. Thus (18) is true.

(18) George felt welcomed, because he saw The Statue of Liberty.

Suppose that the Statue of Liberty is Obama’s favorite statue. (19) is thus also true.

(19) George felt welcomed, because he saw the statue that happens to be Obama’s

¹⁷ I’m going to assume throughout that all causal explanations are true. This is purely terminological.

favorite statue.¹⁸

The reference here to Obama adds to (19)'s explanatory value insofar as 'Obama' is part of a larger expression—'the statue that happens to be Obama's favorite statue'—that (relevantly) refers to the Statue of Liberty. (19) is thus a causal explanation of why George felt welcomed that relevantly refers to Obama (according, at least, to a reasonable interpretation of my characterization of *relevance* in (17)). Thus, the current proposal predicts that Obama caused George to feel welcomed. This is a problem. Obama did *not* cause George to feel welcomed. George first arrived in the United States long before Obama was born.

To avoid this sort of counterexample I need to introduce a notion of *replaceability*. A sentence *s* *replaceably* refers to an object *o* iff (a) *s* refers to *o*, and (b) there's a sentence *s'* that may be produced by replacing expressions in *s* with coreferential expressions such that *s'* does not refer to *o*. For example, 'Plato's greatest student wrote *The Nicomachean Ethics*' *replaceably* refers to Plato, since (a) it refers to Plato, and (b) the sentence 'Aristotle wrote the *Nicomachean Ethics*' doesn't refer to Plato and results from replacing 'Plato's greatest student' with a coreferential expression, namely 'Aristotle'. If a sentence refers to *o* and doesn't *replaceably* refer to it, then it *irreplaceably* refers to it. For example, 'Aristotle wrote the *Nicomachean Ethics*' *irreplaceably* refers to Aristotle because there's no sentence that may be produced by substituting coreferential terms, such that it doesn't refer to Aristotle.

This brings us to my account of object-causation:

OC: An object *o* causes an effect iff

¹⁸ (19) is an odd thing to say in most contexts. But, this is pragmatic, not semantic. (19), despite any oddness, is true. It might help to imagine a context in which (a) the speaker momentarily forgets the name 'The Statue of Liberty', and (b) it's salient for both the speaker and her audience that the statue—whatever it's called—happens to be Obama's favorite statue. In such a context it would be appropriate to say (19).

there is a causal explanation of the form ‘e, because c’, where e is a sentence that describes the effect and c is a sentence that describes an event that causes the effect such that c relevantly and *irreplaceably* refers to **o**.

OC predicts, correctly, that the rock causes the window to break. For, the causal explanation ‘the window broke, because Sara threw the rock at the window’ relevantly and irreplaceably refers to the rock. **OC** also predicts correctly that we should *not* infer from (19)—‘George felt welcomed, because he saw the statue that happens to be Obama’s favorite statue’—that Obama caused George to feel welcome. For, although (19) relevantly refers to Obama it does not *irreplaceably* refer to Obama. It replaceably refers to Obama, since (18)—‘George felt welcomed, because he saw the Statue of Liberty’—doesn’t refer to Obama and results from replacing ‘the statue that happens to be Obama’s favorite statue’ in (19) with a coreferential expression, namely ‘The Statue of Liberty’.

OC is a modal theory of object-causation, in the sense that that it tries to account for what object-causation is in all possible worlds, not just this one. To its credit, then, it coheres with our intuitions about cases of magic causation. In a case where a voodoo doll causes someone to be sick, the causal explanation ‘So-and-so got sick, because the voodoo practitioner pricked the voodoo doll’ relevantly and irreplaceably refers to the voodoo doll.

OC also coheres with the aforementioned cases of causation by disconnection. It predicts, correctly, that Mary causes the bomb to explode, even when she does so by disconnecting an electrical current that was inhibiting the bomb from exploding. For, in such a case, the causal explanation ‘The bomb exploded, because Mary pressed the button’ relevantly and irreplaceably

refers to Mary. Likewise, the causal explanation ‘My plant died, because I forgot to water it’ relevantly and irreplaceably refers to me.

Unlike the energy-transfer theory, then, **OC** offers a unified account of billiard-ball causation and causal disconnections/omissions. This seems like a good reason to prefer my account to the energy-transfer theory. Granted, unlike Fair, I have explained object-causation in terms of event-causation and causal explanation. (Fair does the opposite). So, whether **OC** is ultimately unified depends on whether there is an accurate and unified account of these latter notions that covers both billiard-ball causation and causal disconnections/omissions. I haven’t provided such an account here; I’ve left event-causation and causal explanation as unexplained explainers. Fortunately, there are extant accounts of these notions that achieve such unity. Probabilistic and counterfactual causal theories have no problems with causal disconnections and omissions (Schaffer 2000, 294). It seems we have no pressing reason to prefer the energy-transfer theory when there are alternatives that provide more unified accounts.

OC, then, captures our intuitions about a wide variety of cases: billiard-ball causation, magic causation, and causal disconnections and omissions. It does so without offering a hybrid theory. For these reasons, it strikes me as a plausible theory of object-causation. This independently plausible account of object-causation also happens to strengthen my argument for the causal efficacy of abstract artifacts. **OC** predicts that *Uncle Tom’s Cabin* caused many Americans to support abolition. For, the causal explanation ‘many Americans supported abolition, because they read *Uncle Tom’s Cabin*’ relevantly and irreplaceably refers to the novel. Likewise, **OC** predicts that the Fifth Symphony caused Beethoven to be more famous. For, the causal explanation ‘Beethoven became more famous, because the Fifth Symphony was very popular’ relevantly and irreplaceably refers to the Fifth Symphony. In this way, **OC** strengthens

my case for P1—the premise that ‘*Uncle Tom’s Cabin* caused many Americans to support abolition’ and ‘The Fifth Symphony caused Beethoven to be more famous’ are true. Given that we commonly speak as if abstract artifacts are causally efficacious, it shouldn’t in the end seem so bizarre that such speech reflects reality.^{19 20}

Let me close by addressing a tension the reader might be thinking about. One might worry that if I’ve succeeded in defining object causation, I’ve thereby provided the paraphrasers a way of paraphrasing away sentences like (1) and (2). The idea, roughly, is that (1) doesn’t mean that *Uncle Tom’s Cabin*, strictly speaking, caused many Americans to support abolition. It means instead there is a causal explanation of the form ‘e, because c’, where e is a sentence that describes many Americans supporting abolition and c is a sentence that describes an event that causes that effect such that c relevantly and irreplaceably refers to *Uncle Tom’s Cabin*. It’s important, though, to keep in mind that my opponents accept that concreta are causal. My

¹⁹ Katrina Elliott has pointed out the following issue with **OC**. We do not want to count everything that is relevantly and irreplaceably referred to in a causal explanation as causally efficacious. In particular we do not want to count *times* and physical *laws* as automatically causally efficacious. In certain contexts mentioning that Sara threw a rock at time t might help to explain why the window broke (if, say, the speaker’s audience knows that the window broke at a time shortly after time t). We shouldn’t infer from these explanations that *times* are causal. Likewise, many causal explanations will relevantly refer to physical laws. For instance, it might help to explain why paint left a spray can to mention Boyle’s Law. We shouldn’t infer from these explanations that Boyle’s Law *causes* paint to move. At least, it seems intuitive to me that times and laws aren’t causal in these sorts of cases.

I’m unsure of the best way to avoid these problems. One solution is to stipulate that an object causes an effect only if it is *part of an event* that causes the effect. There is some sense of ‘part’ (distinct probably from the strict mereological notion) in which objects are parts of events. In this sense a rock is part of a rock-throwing, but neither times nor laws are. Times are *properties* of events, or perhaps it’s better to say that events stand in *relations* to times. Either way, times are not parts of events. Likewise, laws *govern* events but are not themselves parts of events. (An exception would be an event of a scientist thinking about Boyle’s Law; the law is part of the event of the scientist thinking about it. This is different from an event being governed by Boyle’s Law.)

This solution also gets around a worry brought to my attention by Sam Cumming. Suppose that ‘The window broke because Sara threw a rock at it in an Obama-like way’ relevantly refers to Obama. It might seem as though **OC** predicts that Obama caused the window to break. If we stipulate that objects must be parts of events in order to be causally efficacious the problem disappears. For, Obama is not part of the event of Sara throwing the rock in an Obama-like way.

²⁰ I have been referring to OC as my “theory” of object-causation. It is probably more accurate to say that I have provided in this chapter a *schema* for building a theory of object-causation. In order to turn OC into a full theory one would need accounts of causal explanation and event-causation, which I haven’t provided here. It’s worth considering which theories of causal explanation are consistent with my conclusion that abstract artifacts are causally efficacious. I suspect that accounts on which causal explanations are gradable are consistent with my conclusion. I suspect that accounts on which explanations are all-or-nothing are inconsistent with my conclusion. I leave this for further research, and I thank Katrina Elliott for helping me to think about this issue.

opponents, were they to argue that I've helped the paraphrasers, would need to explain why I've provided a method of paraphrasing away causal language about abstracta but not about concreta. I'm unsure how such a story would go. It's more natural to think that I've provided a genuine theory of object-causation (as opposed to showing how to paraphrase away causal language) that applies both to abstracta and concreta.

Chapter 2

Abstract Artifacts and Vague Existence

2.1 Introduction

It's vague when many objects first exist. This is true of tables, mountains, cats, people and most other ordinary objects. It's vague, for instance, when the Eiffel Tower first existed. There's no time t such that the Eiffel Tower existed at t but not at a nanosecond before t . The paradigmatically vague word 'bald' is analogous; there's no number n such that someone with n hairs is not-bald but someone with $n-1$ hairs is bald. Vague existence, however, is more mysterious than vague baldness. Typically when it's vague whether someone is bald this can be explained by the fact that 'bald' is a vague word. If it's vague whether a particular object *existed* at a particular moment, it's less appealing to explain this by claiming that 'exists' is vague. Indeed, many philosophers think that 'exists', unlike 'bald', is perfectly precise. Perhaps the most influential proponents of this view are David Lewis and Ted Sider.

There's a challenge, then, for theorists who think 'exists' is precise to explain how it can be vague when objects first exist. The challenge isn't confined to *concreta*. It extends to *abstract artifacts*, such as novels, symphonies, corporations, languages, words, treaties, and fictional characters. It's ostensibly *vague* when such *abstracta* first exist. (I'll discuss this in detail later.) The ostensibly vague beginnings of abstract artifacts are—surprisingly—more problematic than that of *concreta*. At least, they are more problematic for certain philosophers, including Lewis and Sider. Both of them can reconcile the view that 'exists' is precise with *concreta* coming into existence; they cannot reconcile it with certain *abstracta* coming into existence.

I will first explain Lewis and Sider's theory of vagueness, their view that 'exists' is precise, and how they can account for concreta coming into existence. Next, I will explain why the Lewis-Sider approach cannot account for certain abstract artifacts coming into existence—and why it has at least serious difficulty accounting for others coming into existence. Some might take this as a reason to reject the Lewis-Sider approach and in particular the view that 'exists' is precise. Others may take this as a reason to deny that certain abstracta come into existence (or exist at all). I take no stand in this chapter on what is the best way to resolve the tension.

In discussing abstracta I will examine Jerrold Levinson's account of how certain abstracta are created. The underlying goal of this chapter, however, isn't to narrowly conclude that it's difficult for Lewis and Sider to accept Levinson's account (although I do reach this conclusion). Rather, I'm trying to reveal a broader tension between two attractive views—(1) that 'exists' is precise, and (2) that certain abstracta come into existence. My main concern is not with Lewis, Sider, and Levinson *per se* but rather with this tension.

Dan Korman has written an excellent forthcoming paper that independently addresses many issues that are similar to what I discuss here. I include at the end of this chapter an appendix that highlights key similarities and differences in our approaches.

I include a further appendix that addresses the importance of the view that 'exists' is precise. It's worth adumbrating that discussion here. Lewis (1986: 212-13) and Sider (2001: 121) rely on the view that 'exists' is precise in arguing for unrestricted composition: the view that any two or more objects compose an object. It has other uses. Sider's influential "Argument from Vagueness" for four-dimensionalism (2001: 120-39) relies on the view that 'exists' is precise. He claims it is "one of the most powerful" arguments for four-dimensionalism (2001: 120). Ned

Markosian (1998) relies on the alleged precision of ‘exists’ in arguing for brutal composition: the view that it is a “brute fact” when composition occurs. The view that ‘exists’ is precise supports rejecting some Aristotelian accounts of ordinary objects. Insofar as the problem I raise about abstract objects casts doubt on whether ‘exists’ is precise, it casts doubt on all of these positions (unrestricted composition, four-dimensionalism, brutal composition, and the rejection of some versions of Aristotelianism). It’s intrinsically interesting whether ‘exists’ is precise and whether certain abstracta come into existence. But much more is at stake.

2.2 Lewis and Sider on Vagueness

Lewis and Sider accept the linguistic view of vagueness. According to it, all vagueness is due to linguistic features. Vagueness isn’t due to indeterminacy in the world, as the metaphysical view of vagueness contends. Nor do vague sentences and terms have precise meanings of which we are (hopelessly) ignorant, as epistemicism contends.

Lewis and Sider accept a precisificational view of vagueness. On their view, vague sentences have vague terms. Vague terms have precisifications, admissible non-vague candidate meanings that are in the neighborhood of the term. Vague sentences have precisifications, admissible non-vague candidate meanings (propositions) that correspond to the various ways of making precise their vague terms. Vague sentences and terms lack precise meanings, because we haven’t assigned a particular precisification to them. As Lewis (1986: 212) puts it, “Vagueness is semantic indecision.”

An example might help. Consider a vaguely bald man, Frank. For Lewis and Sider there’s no vagueness in the world. The source of this case of vagueness is the sentence ‘Frank is bald’. It is vague. Its only vague term is ‘bald’ (let us suppose). ‘bald’ has multiple

precisifications. One is the property of having fewer than 100 hairs. Another is the property of having fewer than 101 hairs. And so forth. Each precisification of ‘bald’ corresponds to a precisification of ‘Frank is bald’. We haven’t decided which precisification of ‘Frank is bald’ is its meaning; we haven’t decided which proposition it expresses.

Lewis and Sider endorse a widely held precisificational view: *supervaluationism*. A vague sentence is true iff all of its precisifications are true. It is false iff all of its precisifications are false. It is neither true nor false iff some of its precisifications are true and some are false.²¹

2.3 An Important Principle

Lewis and Sider think that ‘ \exists ’ and its natural language counterparts (e.g., ‘exists’) cannot have multiple precisifications. They conclude that such terms are not vague (Lewis 1986: 212-13; Sider 2001:129-130; Sider, 2003).²² There is a domain D that includes absolutely everything. ‘ \exists ’ *determinately* ranges over D. There aren’t multiple precisifications of ‘ \exists ’ that each correspond to a different domain. There is so to speak only one “everything”.

This picture commits Lewis and Sider to the following principle:

$$\forall \exists x Fx \rightarrow \exists x \nabla Fx$$

‘ ∇ ’ is a sentence operator that means ‘it is vague whether’. I stipulatively define ‘it is vague whether’ as follows: it is vague whether Φ iff_{def} Φ is neither true nor false due to its being vague.

The principle can be paraphrased as saying that if it’s vague whether there exists something that has a certain property, then there exists something such that it’s vague whether it has that

²¹ Sider (in [Braun, Sider 2003]) endorses a precisificational theory that is closely related to but actually differs from supervaluationism. He’s a semantic nihilist; any sentence with a vague term is neither true nor false. So he thinks that vague sentences with only true precisifications are strictly speaking untrue. But, he does claim that they are *approximately true*. Every supervaluationist claim regarding truth has a related nihilist claim regarding approximate truth. For the sake of simplicity I’ll focus here on supervaluationism.

²² More precisely, they claim that *unrestricted* existential quantification is precise, though they allow that *restricted* quantification is vague, as are other quantificational words, such as ‘many’.


property. This principle has *prima facie* plausibility. Typically, when the antecedent is true so is the consequent. It's vague whether there is a big city in South Dakota, and there is something (Sioux Falls) such that it's vague whether it is a *big city* in South Dakota. It's vague whether there is a ripe tomato in my kitchen, and there is a tomato that is vaguely a *ripe* tomato in my kitchen. To borrow an example from van Inwagen (1990: 271): if Socrates is the wisest person but is still only borderline-wise, then it's vague whether there is someone who is wise, and there is someone (Socrates) who is vaguely wise.

Here's why Lewis and Sider are committed to the principle.²³ Suppose its antecedent, ' $\forall xFx$ ', is true. Thus, ' $\exists xFx$ ' is vague. Given that vague sentences have vague terms, one of its terms is vague. ' $\exists x$ ' isn't vague (given that the existential quantifier isn't vague); thus, ' Fx ' is vague. Given that vague sentences have vague terms, a term in ' Fx ' is vague. ' x ' is a variable that is bound by an existential quantifier. It can't be vague. (How could it be?) Thus, ' F ' is vague. Since ' $\forall xFx$ ' is true, ' $\exists xFx$ ' is neither true nor false. Thus, it has some true precisifications (given supervaluationism). Since its only vague term is ' F ', ' $\exists xFx$ ' is true on some precisification of ' F '. Thus, on some precisification of ' F ', there is something in the domain of ' \exists ' that is F . Consider one such thing. It determinately exists (given that ' \exists ' determinately ranges over its domain) and, on some precisification of ' F ', is F . It isn't the case that this thing on all precisifications of ' F ' is F . Otherwise, ' $\exists xFx$ ' would be true, contradicting our antecedent. Thus, this thing on some precisifications of ' F ' is F and on others is not. Thus, there exists something, such that it is vague whether it is F . Thus, ' $\exists x\forall Fx$ ', the principle's

²³ Noonan (2010) offers a similar informal proof. See (Hawley 2001) and (van Inwagen 1990), especially chapter 19, for further discussion of ' $\forall xFx \rightarrow \exists x\forall Fx$ '.

consequent, is true. Since we can derive the consequent from the antecedent relying only on assumptions shared by Lewis and Sider, they are committed to the principle.²⁴

2.4 The Beginnings of Concreta

The beginnings (and endings) of ordinary concreta conflict with ' $\forall \exists x Fx \rightarrow \exists x \forall Fx$ '. Imagine a carpenter creates a table by connecting a leg to a top. It looks like this: . Initially the leg has an end made of wet glue. (For our purposes it's easier to treat the glue as *part* of the leg.) The carpenter connects the leg's gluey end to the top and waits for it to dry. Intuitively, it's vague when the glue dries enough for the table to exist. At many times it's true that the table does not *yet* exist, and at many later times it's true that the table *does* exist—but there is also an intermediate phase during which it's neither true nor false that the table exists.²⁵

Let's pretend no tables exist other than this one. God has annihilated all other tables. At some time t during the intermediate phase it's vague whether there exists a table. ' $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ' entails that at t something is vaguely a table. Plausibly, however, there is no such thing; there is a leg, a top, and indeterminately a table—but no further object that is vaguely a table. Arguably, then, this case is a counterexample to ' $\forall \exists x Fx \rightarrow \exists x \forall Fx$ '.²⁶

One might object that the leg and the top compose something (e.g., a “proto-table”) prior to there being a table. On this line, when it's vague whether a table exists *something* made of the

²⁴ The same goes for other theorists, even non-supervaluationists, who insist that the existential is precise. A version of the principle would apply to those epistemicists who don't regard us as ignorant of the semantics of the existential. I owe this point to Sam Cumming.

²⁵ One might think that as soon as the leg and the top come into contact the table exists. Even if this is right, the essential problem still arises, because it's vague when the leg and top come into contact.

²⁶ If the reader would prefer a more realistic example, they need not imagine God annihilating all tables. They can imagine the carpenter creating the table in a room with no other tables. Everything I say about the unrealistic example and the predicate 'is a table' applies to this realistic example and the predicate 'is a table in the room', *mutatis mutandis*.

leg and top is vaguely a table. Even if this is right, commonsense insists that at some time the leg and top didn't compose anything, such as when they were produced in separate factories (let us suppose). Later they went from composing nothing to composing *something*—a table or proto-table, etc. Whatever that first mereological sum was, it's problematically vague when it first existed. As long as one accepts the commonsense view that the leg and top went from composing nothing to composing something, the table-case poses a problem for ' $\forall \exists x Fx \rightarrow \exists x \forall Fx$ '.²⁷

Lewis and Sider can preserve ' $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ' via *unrestricted composition*: their view that any plurality of objects compose an object. A consequence of this view is that all of the atoms in my computer compose an object. A more bizarre consequence is that my nose and the Eiffel Tower compose an object. Interestingly enough, the view that 'exists' is precise leads Lewis and Sider to unrestricted composition.²⁸ Unrestricted composition suggests a quick story about the table. Whenever the leg and the top exist they compose something. When it's vague whether there exists a table, an object composed of the leg and top is vaguely a table. ' $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ' remains intact. No problem arises about the leg and top going from composing nothing to something; they always composed something.

Lewis and Sider essentially accept this story about the table. Their accounts are more complicated, however, since they accept four-dimensionalism. This can be characterized as the view that objects have instantaneous temporal parts at all the times they exist, where x is an

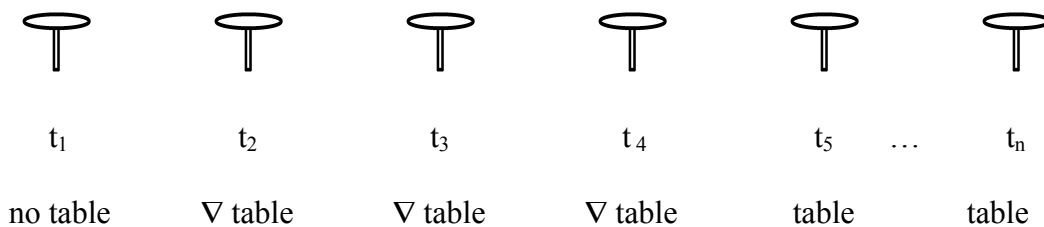
²⁷I presuppose that, contra Lewis, ' \exists ' ranges over only actual objects. This precludes the defense of ' $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ' that, although at t it's vague whether there is an actual table, something is vaguely a merely possible table and vaguely an actual table. I also presuppose that, contra Lewis, unrestricted quantification is present-tensed. This precludes the defense of ' $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ' that since there is a *future* table it isn't vague at t whether there is a table. One who attributes possibilist or tenseless quantification to ' $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ' should consider a variant principle that explicitly ranges over only all actual and present objects. Lewis would agree that such restrictions add no vagueness and so would be committed to such a variant. One who insists the quantifier ranges over future objects should consider a world that suddenly ends while a carpenter has indeterminately created a table.

²⁸ See this chapter's appendix for details.

instantaneous temporal part of an object y at time t iff (1) x exists at, but only at, t , (2) x is part of y at t , and (3) x overlaps at t everything that is part of y at t . (Sider 2001: 59). This contrasts with three-dimensionalism, according to which objects are “wholly present” whenever they exist.

Lewis and Sider think that any two or more instantaneous objects, even those at different times, compose an object. Instantaneous objects from different times compose *worms*. Lewis is a worm theorist. He thinks ordinary objects (e.g., tables, mountains, rocks, and cats) are worms. Sider (1996, 2001) is a stage theorist. He thinks ordinary objects are *stages*—instantaneous parts—of worms.²⁹

I’ll now describe how Lewis and Sider would handle the table-case. Recall that the carpenter makes the table by connecting the leg’s gluey end to the top. Consider the following representation:



At time t_1 the glue has insufficiently dried.³⁰ No table exists. At t_2 - t_4 it’s vague whether the glue has sufficiently dried. It’s vague whether a table exists. At t_5 the glue has sufficiently dried. The table exists. t_n is the last moment the table exists.³¹ At every time between t_5 and t_n it exists.

Here’s how Lewis would describe the situation. At every time from t_1 to t_n there is an instantaneous object that is composed of a temporal part of a leg and a temporal part of a top.

²⁹ One obvious objection to Sider’s stage theory is that it doesn’t allow for the persistence of ordinary objects since stages exist only momentarily. Sider (1996) addresses this issue by including a counterpart theory. Stages, strictly speaking, are not identical to any objects that exist at earlier or later times. They have temporal properties, such as “will exist in the future” and “was a table in the past”, in virtue of counterpart relations with future and past stages.

³⁰ A better artist would stifle the reader’s imagination by representing the glue (and having it get drier from left to right).

³¹ Realistically it’s vague when the table stops existing, but we can pretend this happens immediately after t_n .

These composite objects look more or less like tables. Any two or more of them compose a worm. One worm is composed of all table-looking instantaneous objects that exist at times t_5 - t_n . Another worm is composed of all such objects that exist at t_4 - t_n . And so forth. These worms first exist whenever their first temporal part exists. For example, the worm composed of all table-looking instantaneous objects from t_3 - t_n first exists at t_3 . No issue arises about these worms vaguely coming into existence. It's vague merely which worm is the table. This idea resembles Lewis' pithy story about the outback:

The reason it's vague where the outback begins is not that there's this thing, the outback, with imprecise borders; rather there are many things, with different borders, and nobody has been fool enough to try to enforce a choice of one of them as the official referent of the word 'outback'. (1986: 212)

Likewise, Lewis would think it's not that there's this thing, the table, that indeterminately exists at certain times; rather there are many worms with definite durations, and it's vague merely which worm belongs to the extension of 'table'. Nobody is fool enough to settle that matter.

Here's how Lewis would defend ' $\forall \exists x Fx \rightarrow \exists x \forall Fx$ '. Recall that the table is a potential counterexample, since arguably during the intermediate phase, say, at t_3 (a) it's vague whether there exists a table, but (b) nothing is vaguely a table. Lewis accepts that at t it's vague whether a table exists. He also thinks that worms exist at every moment their temporal parts exist. So, at t_3 there is something, namely a worm that extends from t_3 to t_n , that is vaguely a table. Indeed, at any moment when it's vague whether there exists a table, there exists a worm that is vaguely a table. For Lewis, then, the table is not a counterexample to ' $\forall \exists x Fx \rightarrow \exists x \forall Fx$ '.

Sider's defense differs only slightly. As mentioned above, he is a stage theorist. For him, at each moment when it's vague whether there exists a table, there exists an instantaneous object

(composed of a leg and a top)—a stage of a worm—that is vaguely a table. For Sider, the table is not a counterexample to ' $\forall xFx \rightarrow \exists x\nabla Fx$ '.

These Lewisian and Siderian accounts apply to all ordinary objects. Whenever it's vague whether there exists a mountain in such-and-such a place, there exists a worm (for Lewis) or a stage (for Sider) that is vaguely a mountain in such-and-such a place. When it was vague whether there existed a tower designed by Gustave Eiffel, there existed a worm (for Lewis) or a stage (for Sider) that was vaguely a tower designed by Eiffel. And so forth. ' $\forall xFx \rightarrow \exists x\nabla Fx$ ' remains intact.

2.5 The Beginnings of Abstracta

Although Lewis and Sider can reconcile ' $\forall xFx \rightarrow \exists x\nabla Fx$ ' with the beginnings of concreta, a more serious problem is raised by the beginnings of abstracta. I'll start with corporations. It's natural to think that corporations are abstract. An alternative position is that they are identical to their employees or headquarters, both of which are concrete. But this is incorrect, since a corporation can survive changing its employees or its headquarters. It's also natural to think that corporations are created. It seems that Larry Page and Sergey Brin, for example, created Google. None of this settles the matter, but I will suppose that corporations are abstracta that are created.³²

These suppositions pose a problem for ' $\forall xFx \rightarrow \exists x\nabla Fx$ '. Consider Google. When did it first exist? Sections 200a and 200c of the California Corporations Code are relevant:

- (a) One or more natural persons, partnerships, associations or corporations, domestic or foreign, may form a corporation under this division by executing and filing articles of

³² Searle (2010) and Cole (2012) share this view of corporations.

incorporation.

(c) The corporate existence begins upon the filing of the articles and continues perpetually, unless otherwise expressly provided by law or in the articles.

According to this statute, a corporation first exists when certain papers—the articles of incorporation—are filed. In practice one submits the paperwork to the California Secretary of State. If approved, the paperwork is stamped. California thereby (it's difficult to determine exactly when) recognizes the paperwork as having been filed and the corporation as existing.³³

The question 'When did Google first exist?' remains difficult for two reasons. First, it's difficult to pinpoint even vaguely when corporations first exist. Is it when the articles of incorporation are stamped? Is it when an official makes a record of this happening? Is it when the paperwork is approved? There's no easy answer. This difficulty is one of ignorance. We are ignorant (or at least I am) about what sort of action brings corporations into existence.³⁴

The second difficulty, more important for our purposes, is one of vagueness. Regardless of which event brought Google into existence, it's vague when that event happened. It's vague even when the articles of incorporation became stamped, despite how quickly that happened. There's no time t such that at t the paperwork had been stamped and at a nano-second before t it hadn't. If an ultra-advanced video camera were to film the process at a billion frames per-second, and we were to watch the tape frame-by-frame, no frame would strike us as the first to represent

³³ I owe my understanding of this process to [Clark, Wertlieb 2013], in particular section 53, and personal communication with Neil Wertlieb and an anonymous employee at the California Secretary of State's Office.

³⁴ One enigmatic feature of the process is that California counts the day the paperwork is received as when a corporation first exists. If we take California at its word, backwards causation is real; government officials approve and stamp the paperwork, causing a corporation to have existed when the paperwork, before being approved and stamped, was received. A more reasonable construal is that, rather than making a corporation exist in the past, California assigns a corporation rights and responsibilities which pertain to past events.

the paperwork as stamped. Analogous facts obtain about any event that may have produced Google. Accordingly, it's vague when Google first existed.

For some time t around Google's creation, it's vague whether Google existed at t . At t it was vague whether there existed a corporation led by Page and Brin. ' $\forall xFx \rightarrow \exists x\nabla Fx$ ' entails that there existed *something* that was vaguely a corporation-led-by-Page-and-Brin. What was it? It wasn't Google, since it's vague whether Google existed at t . It seems nothing at t was vaguely a corporation-led-by-Page-and-Brin. It seems we have a counterexample to ' $\forall xFx \rightarrow \exists x\nabla Fx$ '.

The source of the problem is that Page and Brin created Google *ex nihilo*. Before Google exists there is nothing there, so to speak. Since it's vague when it first exists, it's vague when there is *anything* there (so to speak) in a way that conflicts with ' $\forall xFx \rightarrow \exists x\nabla Fx$ '. Tables, towers, and other concrete artifacts, on the other hand, are (at least reasonably) mereological sums of preexistent objects; so, in the case of their creation—when it's vague when they first exist—Lewis and Sider can reasonably claim that there's some mereological sum that is vaguely the sort of object in question. Since corporations come into existence *ex nihilo*, this sort of explanation about their vague existence is unavailable to Lewis and Sider. In the case of Google there's no preexistent "stuff" to compose a relevant mereological sum. There's nothing and then all of the sudden Google (vaguely) appears.

A couple of caveats: first, one might object that before Google is a corporation a "proto-corporation" exists. When it's vague whether there exists a corporation-led-by-Page-and-Brin, something is vaguely a corporation-led-by-Page-and-Brin and also vaguely a proto-corporation.

Even if this is right, there must be a first abstract object that Page and Brin made in this process. Whatever it is, it was created *ex nihilo*, and it's problematically vague when it first existed.³⁵

The second caveat is that perhaps Page and Brin in filing the articles of incorporation didn't *create* anything. Perhaps they turned a pre-existing business (Google) into a corporation (Google Inc.). (Analogously, medical schools don't *create* doctors. They turn non-doctors into doctors.) Sometimes, however, people create corporations by filing the articles of incorporation with clearly no pre-existing business. We could focus on such a case if we wanted. Moreover, even if Google once was an unincorporated business, it's vague when such businesses begin. The problem I've posed for corporations applies equally to unincorporated businesses.

It seems that Lewis and Sider cannot reconcile ' $\forall xFx \rightarrow \exists x\forall Fx$ ' with the beginnings of corporations. The problem straightforwardly applies to abstracta that are naturally categorized, along with corporations, as *organizations*: e.g., charities, clubs, universities, and governments. Rather than examine organizations further, I'll discuss a different kind of abstracta: symphonies.

It's natural to think that symphonies are abstract structures (or sequences) of sound-types (e.g., the sound a violin makes when it plays a middle-C). This idea, however, has a well-known problem. Intuitively, composers *create* symphonies. Beethoven, it seems, created The Ninth Symphony. It's implausible, however, that composers *create* sound-structures, since sound-structures seem to always exist or at least to exist long before composers engage with them. Platonists about music, including Peter Kivy [1987] and Julian Dodd [2000, 2002], accept that musical works, conceived as sound-structures, do not get created. Musical works exist eternally in a Platonic realm waiting to be *discovered*. Beethoven discovered The Ninth Symphony, just as

³⁵ The essential problem arises whether one thinks of proto-corporations as preceding, and distinct from, corporations or as corporations in a nascent stage. Analogously, one can think of acorns either as distinct from their succeeding trees or as trees in a nascent stage. On either conception of proto-corporations it's problematically vague when there first existed the first abstract object Page and Brin created in the process of creating Google.

mathematicians discover theorems. Creationists about music, including Jerrold Levinson [1980, 2013] and Simon Evnine [2009], disagree. They defend the intuition that composers *create* musical works. I will suppose that symphonies are abstracta that get created.

Levinson’s creationist account is the most prominent. He agrees with Platonists that there are eternal sound-structures. He calls them “pure” sound-structures. But, he claims, symphonies are not pure sound-structures. He thinks a composer creates a symphony by *indicating* a pure sound-structure. This produces a new entity, an indicated sound-structure. The pure sound-structure still exists, but the indicated sound-structure—which is the symphony—is distinct.³⁶

Levinson does not state what exactly an indicated sound-structure is. Later I’ll discuss this notion further. For now, let’s set aside such details and suppose that Levinson’s theory, as just sketched, is correct. A problem arises for ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’. When Beethoven indicated a sound-structure that corresponds to the Ninth Symphony he brought into existence a new indicated-structure—the Ninth Symphony itself. Pretend he wrote the symphony’s last note with a pen. When did he indicate the relevant sound structure? Is it when he decided to add the note to the symphony? It’s vague when that happened. Is it when his pen finished drawing the note? That, too, is vague. There’s no time t such that at t , but not a nano-second before, Beethoven indicated the sound-structure. Thus, at some time t , around when Beethoven is indicating the sound-structure, it’s vague whether the Ninth Symphony exists. It is Beethoven’s only choral symphony. Thus, at t it’s vague whether there exists a Beethovenian choral symphony. ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’ entails that at t something is vaguely a Beethovenian choral symphony. What thing is it? It isn’t the sound structure itself, because that object (given Levinson’s theory) is distinct

³⁶ Levinson’s view is more nuanced than presented here. Musical works for him are not merely indicated sound-structures but are instead indicated sound/performance means structures. The basic idea is that it’s built into the musical work not only how it sounds but how it is performed, including paradigmatically what instruments are used to perform it. I set aside this complication (as Levinson himself often does).

from the symphony. It seems that nothing at t is vaguely a Beethovenian choral symphony. It seems we have another counterexample to ' $\forall xFx \rightarrow \exists x\forall Fx$ '.

One who believes in “proto-symphonies” might argue that before the Ninth Symphony is a symphony something is vaguely a proto-symphony and vaguely a Beethovenian choral symphony. This runs into the same problem that proto-corporations do. There must be a first abstract object produced in the process of creating the Ninth Symphony. Whether this object is a symphony or a proto-symphony etc., it seems that it’s problematically vague when it first exists.

The problems I’ve raised involving corporations and symphonies are obviously similar. There’s an important difference, however. Whereas corporations, as mentioned above, are created *ex nihilo*, symphonies are arguably created in some sense *from* pre-existent sound-structures. One can try to use this fact to reconcile ' $\forall xFx \rightarrow \exists x\forall Fx$ ' with creationism about symphonies. I’ll now consider some attempts to do precisely that.

2.5.1 A Perdurantist Proposal

Perdurantists (e.g., Lewis [1986]) are four-dimensionalists who think ordinary objects persist by *perduring*—by having temporal parts at every moment they exist. It makes sense for perdurantists to think that sound-structures, despite being abstract, also perdure. Accordingly, here’s a perdurantist account of symphonies: a symphony is a mereological sum composed of a sound-structure’s temporal parts that exist after the symphony’s composer indicates the sound-structure. Perdurantists have similar views about concreta. They commonly think a clay statue is composed of a lump of clay’s temporal parts that exist after the statue’s sculptor appropriately

shapes the clay (until the clay is no longer appropriately shaped).³⁷

This proposal coheres with ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’. At some times it’s vague whether Beethoven has indicated The Ninth Symphony’s sound-structure. Suppose these times are t_1 - t_{100} . Call the sound-structure ‘s’ and the last time s exists ‘ t_n ’. There is a sum composed of s’s temporal parts from t_1 - t_n . Another sum is composed of s’s temporal parts from t_2 - t_n . And so forth. Whenever it’s vague whether there exists a Beethovenian choral symphony, there exists something, namely one of these mereological sums, that is vaguely a Beethovenian choral symphony. These sums have definite durations. It’s vague merely which one ‘The Ninth Symphony’ refers to. No conflict arises with ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’.

This proposal, however, is flawed. Imagine we live in a mirror world: a world with “a symmetry in the mosaic of events with respect to some spatial axis” [Hawthorne 2007: 249]. When Beethoven indicates s so does his atom-for-atom duplicate, Mirror-Beethoven. The two composers are far apart and unaware of each other. It’s determinate that they simultaneously indicate s; although it’s vague when their indications occur, on every precisification of ‘indicate’ their indications are simultaneous. On the perdurantist proposal the composers’ symphonies are identical sums, composed of the same temporal parts of s. They have unknowingly collaborated on one symphony. This is odd. Things get even stranger. Imagine another scenario: everything is the same as before, except a quantum miracle causes Beethoven to compose his symphony a nano-second before Mirror-Beethoven composes his. On the current proposal the composers compose two distinct symphonies that sound exactly alike. The symphonies are distinct sums that share most but not quite all of the same temporal parts; Mirror-Beethoven’s symphony is a

³⁷ A symphony after being created, on the current proposal, exists as long as its sound-structure exists. Some creationists think symphonies cease to exist when there is no record or memory of them. Such theorists can offer a variant: a symphony is composed of a sound-structure’s temporal parts that exist after a composer indicates the sound-structure *until* there is no record or memory of the appropriate kind. My remarks apply also to this variant.

proper part of Beethoven’s. These results when taken together are especially odd. It’s reasonable to think, as creationists do, that people far apart may compose distinct symphonies that sound exactly alike. It’s also reasonable to accept the Platonist view that when people compose symphonies that sound exactly alike they merely *discover* the same symphony. It seems *unreasonable*, however, to accept that whether the composers compose one or two symphonies depends on whether they indicate *s* at *exactly* the same time. A nano-second shouldn’t affect the number of symphonies. This provides a reason to reject the perdurantist proposal. The problem is not unique to mirror worlds. It arises in any world where two composers, unaware of each other, simultaneously compose symphonies that sound exactly alike.³⁸

2.5.2 Aristotelian Proposals

On Aristotelian accounts, symphonies are *constituted* by, but distinct from, sound-structures—just as many theorists think clay statues are constituted by (i.e., made of) clay. Evnine [2009], inspired by Levinson, thinks when Beethoven indicated *s* (The Ninth Symphony’s sound-structure) he made a symphony that was constituted by, but distinct from, *s*. Evnine’s account conflicts with ‘ $\forall xFx \rightarrow \exists x\forall Fx$ ’. The source of the problem is that, for Evnine, constitution doesn’t always occur. *S* goes from constituting nothing to constituting something when someone (e.g., Beethoven) does something substantial to *s* (e.g., indicates it). Since it’s vague when that happens, it’s vague when *s* first constitutes anything in a way that conflicts ‘ $\forall xFx \rightarrow \exists x\forall Fx$ ’. At some time, around when *s* first constitutes something, it’s vague whether there is something

³⁸ One might worry I’ve illegitimately invoked simultaneity, given Einstein’s theory of special relativity. But special relativity doesn’t resolve the problem. If we fix a frame of reference, the number of symphonies depends on whether Beethoven and Mirror-Beethoven simultaneously indicate *s* (relative to that frame of reference). This is no less weird than the result considered above. Also, relative to some frames of reference—but not to others—Beethoven and Mirror-Beethoven will count as simultaneously indicating *s*. Some spatiotemporal locations will “have” two symphonies, and others will “have” only one. How many symphonies there are depends on *where* you are!

that *s* constitutes without there existing anything that is vaguely constituted by *s*.

Some Aristotelian theories, however, cohere with ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’. Kit Fine (1982a) offers one. He thinks that for every property an object possesses it automatically constitutes a “qua object”. The Eiffel Tower-qua-tall and The Eiffel Tower-qua-famous are distinct qua objects. Each is constituted by, yet distinct from, The Eiffel Tower. It’s natural for Fine to think that a symphony is a sound-structure-qua-having-been-indicated-by-composer-c.^{39 40}

Consider a time *t* when it’s vague whether Beethoven has indicated *s*. At *t* it’s vague whether there exists a Beethovenian choral symphony. ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’ entails that something at *t* is vaguely a Beethovenian choral symphony. On the Finean proposal there *is* such a thing. At *t* it’s vague whether Beethoven has indicated *s* or merely done something close to indicating it. Call whatever he’s done ‘indication*’. Thus, at *t* there’s a relevant qua object: *s*-qua-having-been-indicated*-by-Beethoven. This object is vaguely a Beethovenian choral symphony, in accordance with ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’. No problem arises about when *s* first constituted something; Fine thinks, contra Eynine, that *s* has always constituted something.

This Finean proposal echoes the Lewis-Sider story about tables. The latter explains a table’s beginning by appeal to unrestricted composition; the former explains a symphony’s beginning by appeal to, shall we say, unrestricted *constitution*: the view that for any property an object has it constitutes something else. The main issue with the Finean proposal is that it accepts *many* more objects than commonsense allows. There is the Eiffel Tower-qua-taller-than-.01-feet, the Eiffel Tower-qua-taller-than-.02-feet, and so forth. Many will deem this too high of a cost.

³⁹ Fine [1982b: 131], inspired by Levinson, suggests something very similar about stories. He writes: “Now when an author creates a story, he will bear a certain relation, what we may call ‘indicating’, to the abstract content of the story. We may then say the story is the abstract content under the description of having been indicated, in the way it was, by the author.” Fine thereby suggests that stories are qua objects.

⁴⁰ Eynine [2009] reasonably suggests interpreting Levinson as thinking that symphonies are qua objects. In response, however, Levinson [2013: 56] denies that symphonies are qua objects.

2.5.3 Concluding Remarks about Symphonies

Symphonies are arguably made in some sense *from* their sound-structures. This nuances the problem they pose for ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’. The problem still admits of no easy solution. The perdurantist proposal encounters simultaneity-problems. Some Aristotelian proposals, such as Evnine’s, conflict with ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’. Other Aristotelian proposals, such as the Finean one, preserve ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’ but involve radically inclusive ontologies.

None of these proposals have analogues for corporations, since corporations are created *ex nihilo*. So, even if one accepts, for example, the Finean proposal about symphonies, this will not resolve the conflict between ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’ and corporations.

Symphonies seem ontologically similar to many other abstracta. Novels, poems, plays, treaties, cookbooks, and speeches are plausibly indicated *verbal*-structures (Levinson 2013). Films are plausibly indicated sound/image structures. Words are plausibly indicated sound-structures (in the case of spoken words) and indicated shape-structures (in the case of written words). Languages are plausibly indicated functions from sound and shape-structures to truth-values.⁴¹ I suspect the problem raised by symphonies applies to all of these abstracta.⁴²

⁴¹ Lewis [1975] offers a Platonist account on which languages are functions from sound and shape-structures to truth-values. He thinks a community’s behavior determines which languages they use. Creationists about languages might think this part of Lewis’s account describes how communities *indicate* pre-existing functions.

⁴² Fictional characters are also an interesting case. Creationists about fictional characters [e.g., van Inwagen (1997), Kripke (2013), Salmon (1998), Searle (1979: 71-72), and Thomasson (1999)] think fictional characters are abstracta that authors create. One might think fictional characters (e.g., Sherlock Holmes) are created from pre-existent character traits or properties (e.g., being-a-detective, being-very-smart, and lives-in-London). Along these lines, one might think Holmes is an indicated set of character traits. If this is right, then the problem with fictional characters is analogous to the problem posed above for symphonies. An alternative position (and one I’m more sympathetic to) is that fictional characters are created *ex nihilo*. Holmes, on this view, is associated with character traits but is not made from these traits. If this is right, then the problem with fictional characters is analogous to the one posed above for corporations. Either way, there is pressure on creationists about fictional characters to reject ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’.

2.6 Conclusion

Lewis and Sider, given supervenience and the view that ‘exists’ is precise, are committed to ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’. They can reconcile the principle with the beginnings of ordinary objects. They cannot reconcile it, however, with creationism about corporations and related abstracta: e.g., charities, clubs, universities, and governments. It’s difficult to reconcile ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’ with creationism about symphonies, novels, poems, plays, treaties, cookbooks, speeches, films, words, and languages. One can reconcile ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’ with creationism about these things if one accepts a Finean account on which they are qua objects. This, however, requires accepting a radically inclusive ontology. And such a solution won’t apply to corporations.

Some philosophers may take these problems as a reason to reject ‘ $\forall \exists x Fx \rightarrow \exists x \forall Fx$ ’ and the view that ‘exists’ is precise. Others might take the problems as a reason to reject creationism about certain abstracta. I take no stand here on what is the best way to resolve the tension. In Chapter 3 I’ll claim that that ‘exists’ is vague. But my main concern now is just to reveal the tension.

Appendix 1: Korman’s Approach

Korman (2014) independently raises a problem that is very similar to the central problem I’ve raised. He focuses on Sider’s vagueness argument for unrestricted composition (2001: 121), which was inspired by Lewis (1986: 212-13). The argument goes roughly as follows. If it could be vague whether two or more objects compose something, then it could be vague how many concreta exist. But, for any number n , there is a sentence using only logical vocabulary and a concreteness-predicate that states that there exists exactly n concreta. For example, ‘ $\exists x \exists y (x \neq y$

$\& Cx \& Cy \& \forall z(Cz \rightarrow (x = z \vee y = z))$ ' is a formal way of saying that there exists exactly two concreta. Since all vague sentences have vague terms and no term in such numerical sentences is vague, such sentences aren't vague. Thus, it can't be vague how many concreta exist and thus that it can't be vague whether composition occurs. Since the only plausible restrictions on composition are vague, composition is unrestricted.

Korman claims that any proponent of Sider's argument should adopt a parallel argument that denies there could be *abstract artifacts* (i.e., created abstracta). This argument goes roughly as follows. If it could be vague whether someone creates an abstract artifact, then it could be vague how many abstract artifacts exist. But, for any number n , there is a sentence using only logical vocabulary and an abstract artifact-predicate that states that there exists exactly n abstract artifacts. For example, ' $\exists x\exists y(x \neq y \& Ax \& Ay \& \forall z(Az \rightarrow (x = z \vee y = z)))$ ' is a formal way of saying that there exist exactly two abstract artifacts. Since all vague sentences have vague terms and no term in such numerical sentences is vague, no such sentence is vague.⁴³ Thus, it can't be vague how many abstract artifacts exist and thus it can't be vague whether someone creates an abstract artifact. But it's implausible that anyone could create a particular abstract artifact at an exact time, and so there cannot be abstract artifacts.

Korman doesn't endorse either of these arguments. He aims to show that they stand or fall together—that proponents of Sider's argument must deny that any abstracta are created. My analogous conclusion is that proponents of ' $\forall \exists xFx \rightarrow \exists x\forall Fx$ ' must deny that certain abstracta are created. Sider's argument and ' $\forall \exists xFx \rightarrow \exists x\forall Fx$ ' both rely on the assumption that 'exists' is precise. In our own ways, then, Korman and I both invoke abstract artifacts to apply pressure to

⁴³ One might object that 'A' is vague. Although Korman nicely addresses this complication, it's worth noting that this complication does not arise for my formulation of the problem, given my focus on ' $\forall \exists xFx \rightarrow \exists x\forall Fx$ ' instead of on the number of abstract artifacts. This might be a reason to prefer my formulation of the problem.

this assumption.

Our discussions of specific abstracta have important similarities and differences. Korman focuses on Richard Dawkins creating the word ‘meme’. He supposes that Dawkins created it by thinking *this process is sort of like mimesis* and subsequently *I’ll call them ‘memes’*. It’s vague when this activity created ‘meme’ in a way that is problematic for Sider; Korman and I agree about this. But the above Finean proposal, not mentioned by Korman, applies here. One could take ‘meme’ to be a qua-object: the concatenation of ‘m’-‘e’-‘m’-‘e’-qua-having-been-indicated-by-Dawkins. This view of ‘meme’ could be part of a story that reconciles the Dawkins-case with Sider’s views about vague existence. Such an approach would be analogous to how Fine can reconcile ‘ $\forall xFx \rightarrow \exists x\forall Fx$ ’ with the creation of symphonies, as illustrated above.

Korman also doesn’t mention the related distinction between abstracta created *ex nihilo* and those created *from* something else. For reasons provided above, the former (including plausibly corporations) avoid many complications surrounding the latter (including plausibly symphonies and words). Accordingly, this chapter indicates, in ways that Korman’s discussion does not, that a fruitful way to grapple with issues he and I both raise involves thinking deeply about the ontology of specific abstract artifacts.

Appendix 2: The Importance of the View that ‘Exists’ is Precise

In this chapter’s introduction I mentioned four reasons why the view that ‘exists’ is precise is important:

- (i) Lewis and Sider rely on it in arguing for unrestricted composition.
- (ii) Sider relies on it in arguing for four-dimensionalism.
- (iii) Ned Markosian relies on it in arguing for brutal composition.

(iv) It supports rejecting at least some versions of Aristotelianism about ordinary objects.

The previous appendix elaborated on (i). I will elaborate on (iv) in Chapter 4. Here I will elaborate on (ii) and (iii).

Sider's "Vagueness Argument" for Four-dimensionalism

Sider's "Vagueness Argument" for Four-dimensionalism is similar to his argument for unrestricted composition. It goes roughly like this:⁴⁴ Many three and four-dimensionalists will agree that certain objects gain and lose parts—that they are composed of different objects at different times. Sider (2001: 133) asks a related question: given specific times and specific objects corresponding to each, under what conditions is there an object that (a) at the various times is composed by the corresponding objects and (b) exists at only those times? Sider thinks there is always such an object. It's false that there is never such an object, because I, for instance, am such an object; given certain times (the times at which I exist) and certain objects corresponding to those times (the parts of me at those times), I (a) am at those times composed by the corresponding objects and (b) exist at only those times. Furthermore, it's false that there is sometimes but not always such an object. If it's restricted when there is such an object, then, since the only plausible restrictions are vague, it can be vague how many objects exist. But, as we've seen, Sider thinks it's impossible for it to be vague how many objects exist. Thus, his answer to the above question is "there is always such an object".

This answer commits one to the claim that there is an object composed of all my current parts and which exists at only this moment. To be that just is to be an instantaneous temporal part of me. Indeed, answering the above question "there is always such an object" commits one to the

⁴⁴ For the sake of space I omit many details. Sider (2001: 120-39, especially 134-39) presents the argument thoroughly. See Koslicki (2003) for further discussion.

view that all objects have instantaneous temporal parts at every moment they exist. This view, for Sider, amounts to four-dimensionalism or at least to something that is very friendly to four-dimensionalism.

Markosian and Brutal Composition

Ned Markosian (1998) agrees with Lewis and Sider that nihilism—the view that objects never compose anything—is false. He rejects unrestricted composition, however, on the grounds that it's highly implausible to believe that there are, for instance, objects composed out of noses and towers. This leaves one option: that objects sometimes but not always compose an object.

Markosian thinks that, other than providing a list of all possible cases in which composition occurs and doesn't occur—a list that would be infinitely long—there's no way to informatively say when composition occurs. Markosian accepts this, because he thinks that the only plausible and finite informative claims about when composition occurs entail that it is sometimes vague whether composition occurs (1998: 232). Like Lewis and Sider, he denies that composition can be vague. Indeed, Markosian (1998: 220-32) accepts this position on the basis of the Lewis/Sider argument. Markosian's conclusion is that, since there's no finite informative claim about when composition occurs, it's simply a "brute fact" when composition occurs. That is, when composition occurs it occurs not in virtue of anything else. Insofar as Markosian relies on Lewis and Sider's reasons for the claim that composition cannot be vague, he inherits their reliance on the view that 'exists' is precise.

Chapter 3: A Theory of Abstract Artifacts

3.1 Introduction

In this chapter I propose a new theory of abstract artifacts. I start by examining the paradigm case for my theory: corporations. I then explain reasons to prefer my theory to its competitors. My theory, however, like many creationist theories from Chapter 2, conflicts with ' $\forall xFx \rightarrow \exists x\nabla Fx$ '. I handle this issue by accepting that 'exists' is vague.

3.2 Corporations and Other Organizations

Following Searle (2010) and Cole (2012), I think corporations are abstract artifacts. Accordingly, I reject three alternative views: (i) anti-realism about corporations (the view that there exist no corporations), (ii) Platonism about corporations (the view that they are eternal abstracta), and (iii) the view that corporations are concrete.

I'll set aside (i)—anti-realism about corporations—without argument. Granted, realism about corporations is controversial. Even some realists about other abstracta (e.g., numbers and symphonies) might doubt whether corporations exist. Still, I take it as a starting point that corporations exist. It's an attractive and reasonable view.

(ii)—Platonism about corporations—is *unreasonable*. Contrast this with Platonism about symphonies. That theory, while also wrong on my account, is at least reasonable. It's reasonable to think The Ninth Symphony is eternal; it's *unreasonable* to think Google is eternal. This is because it's reasonable (albeit wrong in my opinion) to identify The Ninth Symphony with an eternal sound-structure. There's no analogue with corporations. There's no eternal object that one can reasonably identify with Google. It's especially implausible that a plethora of unknown

corporations that have not yet been “discovered” have always existed in a Platonic realm.

This leaves alternative (iii): the view that corporations are concrete. The most obvious concreta one might identify with a corporation are its employees (or some subset thereof) and its headquarters (or some comparable location or buildings). None of these things, however, *is* a corporation. Imagine a corporation, Solo Inc., with only one employee, Anne. Anne is Solo’s jet-setting owner and carries out company business via computer while in airports, hotels, coffee shops, etc. Intuitively, no location or group of locations *is* Solo. Nor is Anne identical to Solo. Otherwise, Leibniz’s law would license bizarre conclusions—e.g., that when Anne sneezes Solo sneezes, too. These considerations indicate that corporations are distinct from their headquarters and employees.⁴⁵ Furthermore, as noted in Chapter 2, a corporation can survive *changing* its employees and its headquarters. This provides further support for distinguishing corporations from their employees and headquarters.

These considerations, however, are consistent with a more nuanced proposal: that corporations are concreta that are *constituted* by, yet distinct from, their employees. Aristotelians think clay statues are concreta that are constituted by, yet distinct from, their clay. Most Aristotelians think a statue’s clay can change. Accordingly, the previous point that a corporation can survive changing its employees is consistent with corporations being *constituted* by employees. Moreover, since the current proposal is that corporations are constituted by but *distinct from* employees, this proposal is consistent with corporations and employees having different properties. For example, if Anne constitutes but is *distinct from* Solo Inc., then it’s consistent with Leibniz’s law for Anne to sneeze without Solo sneezing. After all, Aristotelians think clay statues and their lumps of clay have different properties, notably temporal and modal

⁴⁵ Mark Balaguer (p.c.) has pointed out a potentially similar real-life example: the boxer Sugar Ray Leonard and his corporation Sugar Ray Leonard Inc. My intuitions are clear that the two are distinct.

ones. An example of a temporal difference is that a statue's clay typically exists prior to the statue. An example of a modal difference is that typically a statue's clay—but not the statue—has the property *can-survive-being-squashed*.

There's a crucial difference, however, between statues and corporations. Although a clay statue and its clay plausibly have different temporal and modal properties, they share most if not all of their physical properties. They have the same size, shape, weight, color, spatial location, texture, smell, etc. Contrast this with corporations and their employees. If Anne is 1.7 meters tall, weighs 70 kg, and has a latitude/longitude of 48° 51' 32" N and 002° 17' 45" E, we wouldn't say that Solo Inc. is 1.7 meters tall, weighs 70 kg, and has a latitude/longitude of 48° 51' 32" N and 002° 17' 45" E. The reason we wouldn't say these things, I think, is because they would be false. Corporations and employees share relatively few properties. Thus, if corporations are constituted by employees, then it's a phenomenon that is radically different from standard cases of constitution. This gives us reason to doubt that employees constitute corporations. I can't think of any other reasonable view of corporations on which they are concrete. So, I shall set aside the position that they are concrete.

Having explained why I set aside alternatives (i)-(iii), I'll now explain my view. Corporations are artifacts. Brin and Page *created* Google, more or less in the way described in Chapter 2. Corporations are also abstract. Accordingly, they are neither identical to nor constituted by employees (who are concrete). Employees are also not mereological parts of corporations.⁴⁶ Corporations are in some sense distant from their employees. Corporations *have* employees (and often a headquarters), but the way in which they have employees is more like the way in which I have a dentist than the way in which a table has a leg. My dentist is neither

⁴⁶ It's controversial whether constitution is a mereological relation—whether 'x constitutes y' entails 'x is a part of y'. Johnston (2006), for example, thinks so. Baker (2000) disagrees. I take no stand here on this issue.

identical to me, nor constitutive of me, nor part of me. Still, I stand in some having-relation to my dentist, just as corporations stand in some having-relation to their employees.

Other abstract organizations—e.g., charities, clubs, universities, governments, and nation-states—are similar. For instance, consider the nation-state of France. It's an artifact. France didn't eternally exist waiting to be discovered by the French. It's also abstract. It *has* citizens and land, both of which are concrete, but they are neither identical to, nor constitutive of, nor part of France.

The way we talk about corporations and nation-states doesn't always reflect these truths. The CEO of a small corporation might say to a room full of employees, 'I'm glad the entire corporation could be here today'. We shouldn't infer that the employees in the room *are* the corporation. If the CEO continues by saying 'You are all important parts of this corporation', we shouldn't infer that the employees are mereological parts of the corporation. Likewise, we commonly say things like 'Most of France can speak at least some English' and 'France is north of the Mediterranean Sea'. We shouldn't infer that France is its citizens (most of whom can speak at least some English). Nor should we infer that France is its land (which is north of the Mediterranean Sea). There are more innocuous explanations for our linguistic practices. Perhaps we sometimes speak loosely and say false things about nation-states. Perhaps we sometimes use words like 'France' to refer to things other than nation-states (e.g., France's citizens and land). I'm unsure what is the right account of the linguistic data, but there's no compelling reason to think the data is inconsistent with my view.

We've seen how my theory applies to corporations and nation-states. Corporations are abstract artifacts that have employees and (in some cases) headquarters that are neither identical to, nor constitutive of, nor part of them. Likewise, nation-states are abstract artifacts that have

citizens and land that are neither identical to, nor constitutive of, nor part of them. I haven't presented knockdown arguments in support of these views, but they should at least seem reasonable. Now I will extend the theory to symphonies and related objects: e.g., novels, poems, plays, films, languages, and words.

3.3 Symphonies and Related Objects

As we saw in Chapter 2, Platonists think symphonies are eternal sound-structures. Levinson thinks they are *indicated* sound-structures. On my theory a symphony is not a structure of any kind. I agree with Platonists and with Levinson that there are eternal sound-structures. Indeed, I'm perfectly willing to say that a symphony *has* such a sound-structure. But the way in which a symphony has a sound-structure is more like the way in which I have a dentist than the way in which a table has a leg. Symphonies stand in some important relation to their sound-structures, but sound-structures are neither identical to, nor part of, nor constitutive of symphonies. Symphonies are thus in some sense distant from their sound-structures.⁴⁷

I agree with Levinson that composers *create* symphonies. They create abstract objects that *have* preexistent sound-structures. I think composers do this by engaging with sound-structures, through a process that is more or less what Levinson calls 'indication'. I also agree with Levinson that two composers at different times may coincidentally create distinct symphonies that sound exactly alike (Levinson 1980, 10). Such works would *have* the same sound-structure. That's possible, just as it's possible for distinct people to have the same dentist.

⁴⁷ I also think that sound-structures are not set-theoretic members of symphonies. It's controversial whether this follows from my view that sound-structures are not part of symphonies. Caplan and Matheson (2004), as well as Caplan, Tillman, and Reeder (2010), think that a set's members are part of it. Lewis (1991) disagrees; he thinks a set's only parts are its subsets. I take no stand here on this issue.

I differ from Levinson—at least on some plausible interpretations of him—in that I think symphonies are created *ex nihilo*. Composers create symphonies *by* indicating pre-existent sound-structures, but composers don't create them *from* sound-structures—at least not in the way Aristotelians think clay statues are created *from* clay. By indicating a sound-structure, a composer creates a brand new abstract object. This is a remarkable power that the composer possesses. But it shouldn't seem so strange once we reflect on the case of corporations. They, too, after all are created *ex nihilo*. And that is the only plausible way to think about their creation. (What would they be created *from*?) So, once we are willing to accept that corporations are abstracta that are created *ex nihilo*, it's not much of a leap to think that the same is true of symphonies.

My theory applies to many other kinds of abstracta. Novels, poems, and plays are abstract artifacts that have verbal-structures. These structures are neither identical to, nor parts of, nor constitutive of their respective artworks. Films are created abstracta that have analogously separate image/sound-structures. Languages are created abstracta that have lexicons, syntactic rules, and semantic rules. Words are created abstracta that have shape-structures (in the case of written words), sound-structures (in the case of spoken words), and meanings.⁴⁸ Games, such as chess, are created abstracta that have rules. In each case things stand in a *having*-relation without standing in a relation of identity, parthood, or constitution. And all of these abstract artifacts are not created *from* the things they have. They are all created *ex nihilo*.

What exactly is this having-relation I keep alluding to? I have characterized the relation negatively by saying that it is not an identity, parthood, or constitution relation. I have also compared it to the way in which I have a dentist, but not too much should be read into this. This comparison serves mainly to emphasize the negative point—that in the case of a symphony, for

⁴⁸ Kaplan (1990, 2011) offers an attractive positive view of words on which they are created.

instance, the relation it stands in to its sound-structure is neither identity, parthood, nor constitution. To put it more positively: I stand in an extrinsic relation to my dentist, and so does a symphony to its sound-structure.

Of course, we have some idea of what it is for a person to *have* a dentist. It involves the dentist professionally doing dentistry for that person. The dentist works for the person who has the dentist. It would be nice if I could say something further about what it is for a symphony to *have* a sound-structure, or for a novel to *have* a verbal-structure, or for a corporation to *have* a headquarters, etc.

I'll try to do that. First of all, I doubt that there is just *one* having relation at play here. What it is for a symphony to have a sound-structure is probably very different from what it is for a corporation to have employees and a headquarters—although in both cases the relevant relation is not one of identity, parthood, or constitution. I think something like the following is true: a symphony has a particular sound-structure *s* iff an ideal performance of the symphony (i.e., a performance without flaws) would be a token of, or instantiation of, *s*. Likewise, a novel has a particular verbal-structure *s* iff an ideal copy of it (i.e., a copy without typos) would be a token of, or instantiation of, *s*. To put it another way: roughly, a symphony's sound-structure is the sound-structure that is *associated* with the symphony. A novel's sound-structure is associated with the novel. A corporation's *having* is different. A corporation has an employee when that employee is tasked with doing work for the corporation. This, of course, *is* very similar to the way in which I have a dentist. Indeed, that might just be what it is for someone to have a dentist.

3.4 Some Advantages of My Theory

One advantage of my theory is that it provides a unified account of all the abstract artifacts

mentioned above: corporations, charities, clubs, universities, governments, nation-states, symphonies, novels, poems, plays, films, languages, words, and games. Each of these objects is created *ex nihilo* and has some pre-existing object. Some have pre-existing *concreta*; e.g., corporations have employees and headquarters. Others have pre-existing *abstracta*; e.g., novels have verbal-structures. Either way, though, all of these objects have pre-existing objects that are neither identical to, nor constitutive of, nor part of them. There is strength in such unity.

None of the theories considered in Chapter 2 offer this breadth. Platonism, as we've seen, although reasonable (yet problematic) when applied to symphonies is *unreasonable* when applied to corporations. Likewise, Levinson cannot extend his theory of indicated-structures to corporations. It's implausible that there was a preexistent object that Page and Brin indicated when creating Google. There's simply no preexistent object that could plausibly play such a role. Corporations are not indicated objects of any kind.

It's worth examining more abstract artifacts that my account covers—for instance, government positions. Suppose that President Obama decides to create a new position in the federal government. He announces at a press conference: "There are many unique challenges facing higher education in this country. There should be a member of my cabinet who focuses on these issues. And, so, I am pleased to announce a new position: The Secretary of Higher Education. In the coming weeks we will decide who will be the first Secretary of Higher Education." In making this proclamation, or perhaps in previous conversations with his advisors, Obama creates a new government position: The Secretary of Higher Education. I don't think the Platonist can account for this example; it's implausible that the government position has always existed. Levinson/Evnine cannot handle it easily as well. It's implausible that Obama has created the post by *indicating* anything. What would he have indicated? Furthermore, it's implausible

that the post is constituted by anything. What would constitute it? It isn't constituted by a person occupying the office; for the position exists, even though it is not yet occupied by anyone.⁴⁹ It seems, then, that Obama has created the position *ex nihilo*. Just as God, according to legend, created light *ex nihilo* by saying 'Let there be light', Obama has created a government position *ex nihilo* by declaring it so. This is an awesome power: to create abstract artifacts from nothing through mere declaration. But this strikes me as the only plausible account of government positions, as long as one is a realist about such things. Accordingly, my account of abstract artifacts, unlike Platonism and Levinson's theory, extends to government positions.

To be fair to Levinson, his account may achieve unity in ways that mine cannot. Evinine, as mentioned in the previous chapter, takes Levinsonian indicated sound-structures to be constituted by sound-structures. In ways that will be elaborated in Chapter 4, he accounts for concrete artifacts—e.g., tables, statues, and buildings—in the same sort of way. They are constituted by yet distinct from their matter. Thus, Evinine achieves a unified account of certain abstract and concrete artifacts. My account, on the other hand, does not extend to the concrete artifacts. I highly doubt that tables, statues, and buildings are created *ex nihilo*. It seems much more plausible that they are made in some sense *from* other concreta. (Unlike Evinine, I currently don't have an account of concrete artifacts). In any event, both Levinson/Evinine and I achieve unity but along different dimensions. My account covers diverse kinds of abstract artifacts, from symphonies to corporations to government positions. It does not cover concrete artifacts. Levinson/Evinine, on the other hand, can handle many abstract and concrete artifacts but not corporations and government positions. In the end it's still an advantage of my theory that it can

⁴⁹ One might think that government positions exist only when occupied. But, this view has many counterintuitive results. It entails that Obama has not successfully created a government position in the example since he hasn't assigned a particular person to occupy it. The view entails also that government position cease to exist when an official resigns without a replacement. Neither of these results seem satisfactory to me.

account for things like corporations, but it's worth keeping in mind its limitations.

Another advantage of my theory is that it elegantly accounts for abstracta changing. When France acquires new land or Google expands, their *relational* properties (e.g. having such-and-such land and having such-and-such employees) change. Their intrinsic properties (e.g. being abstract) stay the same. Likewise, when chess acquired the *en passant* rule in the 15th Century and when the word 'awful' went from meaning *awe-inspiring* to *very bad*, these abstracta acquired new relational properties. There's nothing particularly problematic about these sorts of changes, just as there's nothing particularly problematic about me getting a new dentist (metaphysically speaking).

Similar cases involve abstract artworks. Suppose that moments after creating The Ninth Symphony Beethoven slightly altered the melody of the final variation of the third movement. The symphony thereby changed. But only its relational properties (e.g. having such-and-such a sound-structure) changed. Of course not anything goes. The Ninth Symphony couldn't have gone from having its initial sound-structure to moments later having the sound-structure that corresponds to Michael Jackson's *Thriller*. But we do tolerate slight changes in abstract artworks (at least during their infancy), and my view provides a framework for making sense of this.⁵⁰

Other theorists can account for abstract artworks changing in the intuitive ways that they do. Evinine (2009, 209) thinks symphonies change by being *constituted* by different sound-structures at different times. Levinson would probably agree. Platonists, however, deny that abstract artifacts change in these ways. Since they identify symphonies with their sound-structures, they cannot allow for a symphony's sound-structure to change. According to them, each revision Beethoven makes to a symphony or an author makes to a novel—no matter how

⁵⁰ We accept that some musical works, including certain folk songs, may change years after they are created by, e.g., by acquiring new lyrics or even acquiring or losing entire verses.

minor the revision—constitutes a discovery of a brand new artwork. This view is coherent but less attractive than one that allows an abstract artwork's structure to change.

Somewhat ironically, though, my account respects the traditional Platonist idea that abstracta are immutable. My account respects this aspect of the tradition, insofar as I allow for only extrinsic properties of abstract artifacts to change. Even the Platonist would allow, generally speaking, for that sort of change. A mathematical Platonist, for example, will allow that π hasn't always had the property *being-thought-about-by-Leibniz*. It wasn't until sometime after Leibniz's birth that it acquired this property. This change is no threat to Platonism, since it's an extrinsic change. These Platonist-friendly changes are the only sorts of change, on my view, that abstract artifacts undergo.

Even though abstract artifacts may change, their origins are essential to them. At least, that is what seems intuitive to me. Suppose Beethoven created The Ninth Symphony at time t by engaging with a particular sound-structure s . The symphony couldn't have existed without this scenario, or some very similar one, occurring. Only Beethoven could have created it. It plausibly could have existed a second before t but not twenty years prior.⁵¹ Moreover, it couldn't initially have had a sound-structure very different from s . Analogously, Kaplan (118) suggests that, although the referent of the word 'Hesperus' may change, it couldn't initially have referred to anything but Venus. (Note that this is different from the claim that there couldn't have been another word spelled the same as 'Hesperus' that referred to something other than Venus.) Similar things are true of all abstract artifacts. For instance, Google is free to abandon web-search and devote all of its resources to selling pizza, but it couldn't have begun as a pizza company. France couldn't have begun with all of its land on the Moon.

⁵¹ Eynine (2009, 216) agrees. I'm assuming that Beethoven in the actual world didn't start composing the symphony many years prior to when he completed it. If, in the actual world, Beethoven started composing the symphony twenty years before he completed it, then it *could* have been completed twenty years before it was actually finished.

That the Ninth Symphony essentially had its initial sound-structure is not evidence for the latter being a *part* of the former. After all, if Kripke is right, then there's no way I could have been born to different parents. I was essentially born to Steven and Ellen Friedell. This, of course, doesn't mean that Steven and Ellen are *parts* of me or vice-versa. We are extrinsically related but in essential ways. The same is true of the Fifth Symphony and its sound-structure. Upon the symphony's creation it had its sound-structure essentially but not as a literal part of it. It shouldn't seem so bizarre that abstract artifacts have essential extrinsic properties, since it's plausibly true of concreta as well.

3.5 Why not Constitution?

It's reasonable to ask why we should prefer my theory to Evnine's (or some similar theory), according to which symphonies, novels, films, and the like are *constituted* by preexistent abstract structures. Both theories, unlike Platonism, preserve the intuition that such abstracta are created as opposed to discovered. Both theories are consistent with such abstracta changing in the ways in which they intuitively change. Both theories achieve their own kind of unity, albeit along different dimensions. My theory extends to corporations and other organizations, as well as to things like government positions. Evnine's extends to concrete artifacts. So, why should we prefer one to the other? In what follows I will explain why I find my view more attractive. By no means do I think Evnine's view is crazy. It strikes me as a reasonable alternative. Even if I cannot persuade the reader to prefer my view, I hope to show that my view is also a reasonable option.

It's difficult to see how symphonies are related to their sound-structures. Equating symphonies with sound-structures leads us to Platonism. I want to avoid that result for

Levinsonian reasons; I have a strong intuition that composers create symphonies. Levinson's idea that symphonies are *indicated* sound-structures is obscure. I think I understand, more or less, what it is for a composer to *indicate* a sound-structure. At the very least, I'm fine with using 'indicate', along with Levinson, to refer to whatever it is that composers characteristically do to a preexistent sound-structure when they compose a symphony. But the idea of an indicated sound-structure—as something distinct from a sound-structure that has been indicated—is what is obscure. For Evnine, the indicated sound-structure is constituted by the sound-structure. The composer thereby makes the symphony *out of* its sound-structure. This is an admirable interpretation/extension of Levinson. Evnine makes Levinson's idea intelligible insofar as it relates it to Aristotelian ideas about constitution.

There is, however, a lingering dissatisfaction I feel when thinking about Evnine's account. Is it really true that a symphony is created *from* its sound-structure in (generally speaking) the same way that a statue is created from its clay? I have my doubts. When a sculptor makes a statue from clay the clay is shaped in a certain way. The sculptor touches and affects the clay. Nothing like this seems to happen when Beethoven composed the symphony. Evnine might respond: "No, a composer *is* like a sculptor making a statue from clay. Just as a sculptor shapes clay, a composer indicates a sound-structure. Both sorts of activity bring about new artifacts. It doesn't matter that the sculptor's creative process is physical and that the composer's creative process is mental or intellectual. What's crucial is that they both intentionally do things to preexistent objects." Still, my dissatisfaction lingers. Part of the reason for this, I think, is that it's difficult to understand how an *abstract* object can constitute another. Constitution is generally thought to be a relation between concreta that share a spatial location. I have a hard time extending the notion literally to the case of abstracta. Although this problematic issue with

Evine's view is subtle, I still think it's false that symphonies are constituted by sound-structures.

3.5.1 Duchamp's Fountain

It will help to consider the famous case of Marcel Duchamp's *Fountain*. This example illustrates where Evnine and I disagree. Now, it's unclear whether Duchamp was sincere in his presentation of *Fountain* or whether he originally intended for it to be a prank. For the sake of simplicity, let us suppose that Duchamp sincerely presented a urinal, intending for his activity to result in a genuine artwork: a sculpture named '*Fountain*'. Let us also suppose that Duchamp didn't change the urinal in ostensibly any physical way. He didn't change its color, shape, size, or texture. He changed only its location. Here I am again bending the facts of the actual case. Duchamp made at least one minor change to the urinal; he signed it with the pseudonym 'R. Mutt'. Let's set that aside and not let the facts get in the way of a philosophically rich example.

Here's my understanding of the example. I think Duchamp took a preexistent object—a urinal—and gave it a special status. He made it an artwork. This is what I have always found so amazing and interesting about the example. Duchamp turned a lowly urinal into a piece of art! But—and this is a crucial point—in doing so, he did not *create* an artwork. He instead turned a non-artwork into an artwork—a non-sculpture into a sculpture. Likewise, medical schools don't *create* doctors. They turn non-doctors into doctors. Duchamp's non-creation of *Fountain* is reflected in the fact that he labeled it and similar artworks 'ready-mades'. He didn't create it; it was already made. He also defined 'ready-made' as "an ordinary object elevated to the dignity of a work of art by the mere choice of an artist."⁵² This suggests that it is the urinal itself that is

⁵² The entry for 'Ready Made' in André Breton and Paul Eluard (eds), *Dictionnaire abrégé du surréalisme* (Paris: GalerieBeaux-Arts, 1938), 23. Translated by Hector Obalk in his 'The Unfindable Readymade', *tout-fait* 1 (2000),

elevated to being an artwork. There is not a new object that is made from the urinal. Of course, we shouldn't read too much into etymology or into Duchamp's own definition. Etymology can mislead, and even Duchamp may be wrong about the metaphysics of ready-mades. Still, my intuition is that *Fountain* is a urinal and an artwork.

Evnine analyzes the case differently. Unlike me, he is neutral about whether *Fountain* is a genuine artwork—about whether it is a sculpture. He thinks *Fountain* might be a urinal that is merely being used *as if it were* a sculpture. He offers an example that helps to explain this idea (2013, 415). Imagine that my papers are at risk of blowing away in the wind and that I cover them with a sandwich to prevent this from happening. Evnine reasonably believes that I haven't brought a paperweight into existence; I haven't made the sandwich constitute a brand new paperweight. Furthermore, I haven't even made the sandwich become a paperweight; it is not a sandwich undergoing a paperweight-phase. He thinks there is no paperweight. I am merely using the sandwich *as if it were* a paperweight. Likewise, Evnine thinks that it's possible that Duchamp has merely used a urinal as if it were a sculpture, in which case there is no genuine sculpture. But this is just one possibility. The other possibility that Evnine allows for (and which is more important for our purposes) is that there is a genuine sculpture. But—and this is the crucial point of disagreement between us—he thinks that if there is a sculpture then it is constituted by yet distinct from the urinal. My view is that Duchamp made the urinal become a sculpture; Evnine thinks if there is a sculpture at all, then it is a brand new object above and beyond the urinal.⁵³

How should we settle this disagreement? I could try to point to a reason for my view that

ch. 1 <http://www.toutfait.com/issues/issue_2/Articles/obalk.html> accessed 13 July 2014. I learned about this definition from Evnine's (2013) discussion of it.

⁵³ Interestingly, Evnine even suggests an alternative reading of the above definition of 'ready-made'. On this suggested interpretation, 'an ordinary object elevated to the dignity of a work of art' should be read as including hyphens; 'an-ordinary-object-elevated-to-the-dignity-of-a-work-of-art' is taken to be a single noun phrase that may refer to something distinct from what 'an-ordinary-object' may refer to (2013, 413). This is different from the more natural interpretation, according to which 'an ordinary object elevated to the dignity of a work of art' refers straightforwardly to an ordinary object.

Duchamp did not create a new object. The most obvious candidate is that Duchamp didn't change any physical properties of the urinal, other than its location. It looks like this cannot be the whole story, though. For, I accept that Michaelangelo *created* his sculpture of David, despite the fact that the human-shaped hunk of marble currently resting in Florence at The Galleria dell'Accademia did not undergo (let us suppose) any change in physical properties when Michaelangelo worked on the sculpture.⁵⁴ He “merely” chipped away at a bigger hunk of marble. Now, Michaelangelo might think I've erred in attributing the power of creation to him. He is famously quoted as saying: “*David* was always there in the marble. I just took away everything that was not *David*.” This is a beautiful thing to say. But I don't think it's, strictly speaking, true. *David* wasn't always there. Michaelangelo brought it into existence.

How, then, can I deny that Duchamp *created* Fountain (a genuine artwork) but accept that Michaelangelo created *David*? What's the difference between the two cases? Duchamp didn't change the shape, size, color, or texture of the urinal; Michaelangelo didn't change the shape, size, color, or texture of the hunk of marble that now rests in Florence. This is not an easy challenge to meet. Still, I think the two cases are different. There seems to be a significant difference between, on the one hand, Michaelangelo masterfully chipping at a large hunk of marble to reveal a smaller hunk of marble that is in the shape of *David* and, on the other hand, Duchamp employing no craftsmanship and merely presenting a urinal as a piece of art.

I concede, though, that distinguishing these two cases is a problem for me. I should try to appeal to some principled reason for distinguishing them. I'll consider ways of doing this later. For now, though, I'll try to be very clear about my intuitions. I think that someone looking at *Fountain* speaks the truth if they say “This famous sculpture was once just a urinal.” Conversely,

⁵⁴ I say ‘let us suppose’, because I am setting aside for now various complications, including the fact that relevant atoms in the marble have always been changing.

my intuition is that someone looking at *David* says something false if they say “This famous sculpture was once just a hunk of marble (covered by a larger hunk of marble).” That is, I think the urinal and *Fountain* have the same temporal properties; the urinal is *Fountain*. *David* and its corresponding hunk of marble have distinct temporal properties; the hunk of marble predates *David*.

Evnine offers clear reasons for why he thinks that if *Fountain* is a sculpture (as opposed to a urinal being used *as if it were* a sculpture) then it is distinct from and constituted by the urinal. He relies on a distinction between substantial and phasal kinds (2003, 412). Roughly, a kind is substantial iff objects of that kind are essentially so. *Person* is a substantial kind, since (plausibly) persons are essentially persons. Things belonging to a phasal kind are in a mere phase and are not essentially of that kind. *Doctor* is a phasal kind, since doctors are not essentially doctors. They are persons who have entered a phase of being a doctor. Evnine’s own examples of substantial kinds include *lion* and H_2O . His examples of phasal kinds include *pet* and *ice* (412). A pet lion is a lion essentially but is not essentially a pet. It can cease to be a pet but cannot cease to be a lion. A frozen collection of water is essentially H_2O but ceases to be ice when it melts.

Evnine thinks that *sculpture* and all other artefactual kinds (e.g., *ship*, *table*, *chair*) are substantial kinds. Sculptures, accordingly, are essentially sculptures. Suppose (as I believe is true) that *Fountain* is a sculpture. It follows, according to Evnine, that *Fountain* is essentially a sculpture. This means that when there was only a urinal and no sculpture *Fountain* wasn’t there. Otherwise, sculpture would be a phasal kind. Thus, Evnine concludes, if *Fountain* is a sculpture (as opposed to a urinal being used as if it were a sculpture) then it is a new object above and beyond the urinal. If there is a sculpture Duchamp created it.

Evnine’s reasoning relies on a crucial assumption that *sculpture* and all other artefactual

kinds are substantial kinds. I think this assumption is incorrect. I think *sculpture* is neither a substantial nor a phasal kind. Some sculptures are essentially sculptures and others are not. Or, as Evnine (2013, 416-17) would express the idea, the kind *sculpture* has some substantial instances and some phasal instances. In any event, *Fountain*, on my view, is a sculpture that is not essentially one. It is merely in a sculpture-phase. *The Statue of Liberty*, on the other hand, is essentially a sculpture. It was designed as such by Frédéric Auguste Bartholdi and will thus always be a sculpture for as long as it exists.

It shouldn't seem all that peculiar that *sculpture* is neither a substantial nor a phasal kind. For, this is true of other artefactual kinds. Consider the artefactual kind *desk*. I think we can make a table become a desk. Judith Jarvis Thomson (1998, 166) agrees. It seems very easy to do. In many cases it involves merely stipulating that a particular table is a desk.⁵⁵ In contrast, whenever a carpenter makes a desk by carefully gluing pieces of wood together with the intention of making a desk, then the resulting desk is a brand new object above and beyond the portion of wood. When a table *becomes* a desk, the desk is not essentially a desk. It was once merely a table. When a carpenter makes a desk out of wood, the resulting desk is essentially a desk. Even if it will not always be *used as* a desk it will, thanks to the carpenter's creative intentions, always *be* a desk. So, just as some but not all sculptures are essentially sculptures, some but not all desks are essentially desks.

Evnine, of course, would disagree. He would say that we cannot make a table become a desk. We merely can use a table as if it were a desk. This seems less attractive, though, than his aforementioned claim that I may use a sandwich as if it were a paperweight without making the sandwich become a genuine paperweight. In any event, he would hold onto his claim that

⁵⁵ Thomson (166) says 'And when we make a desk out of a table, the table becomes a desk.' I think her use of the phrase 'make a desk out of a table' is somewhat unfortunate because we don't make a desk in this case, at least not in the sense of bringing a new desk into existence.

sculpture and *desk* are substantial kinds—that all sculptures are essentially sculptures and that all desks are essentially desks.

Here's another potential counterexample to Eynne's claim that all artefactual kinds are substantial. I once saw an interesting table at a bar in Jamaica, near the border of the parishes of St. Thomas and Portland. My metaphysical instincts compelled me to take this photo:



This is a genuine table that, presumably, someone created with an intention for it to be a table. The object is not merely being used as if it were a table. Moreover, the base of the table is a tree stump. The base is not a further object made from a tree stump. Nor is it the case that there is no base; it is not the case that there is merely a tree stump being used as if it were a base. If this *were* the case, then something odd would follow: there would somehow be a genuine table lacking a genuine base. So, I conclude, we have a table with a base that is a tree stump. The table-base is not essentially a table-base. It was once just a stump. In contrast, some table-bases are essentially table-bases. If a carpenter constructs an elaborate table-base with the intention of

creating a table-base the resulting artifact is essentially a table-base. As long as it exists it will always be a table-base, no matter what it ends up being used as. Even if, say, a religious leader one day uses the base as an idol for prayer and is completely oblivious to its historical origins, it would *still* be a table-base. The religious leader would be praying, unknowingly, to a table-base. So, *table-base* is neither a substantial nor a phasal kind.⁵⁶ Rather, some table-bases are essentially so and others (e.g. the tree-stump) are not.

So, it seems there are artefactual kinds that are neither phasal nor substantial—e.g., *desk* and *table-base*. My view that the kind *sculpture* is neither phasal nor substantial is thus not so unusual. I'm not taking *sculpture* (or *artwork*) to be some sort of weird exception. Of course, Eynine still has ways to defend his view that *sculpture* is a substantial kind—and I've highlighted here some of the ways he might try to do that. But my view that *Fountain* is non-essentially a sculpture (while other sculptures are essentially sculptures) should at least seem reasonable.

There's still the question of how to distinguish *Fountain* from Michaelangelo's *David*. How can I justify my view that *Fountain* is a urinal but *David* is not merely a hunk of marble?

Thomson (1998) suggests (but does not endorse) a principle that might be of use. It is the principle that artifacts cannot constitute other artifacts (166). If this principle were correct it would follow that *Fountain* is not constituted by the urinal, for the urinal is itself an artifact. This would accordingly support my view that *Fountain* is identical to the urinal. And, this is consistent with *David* being constituted by (but distinct from) a hunk of marble, since the hunk of marble is not an artifact.

⁵⁶ Eynine, in personal communication, has suggested that he might be inclined to think that table-base is a phasal kind. This seems like a tricky position to defend for the reasons provided here. It might help to further imagine a table-base factory that produces only table-bases and sells them to carpenters. Intuitively the bases this factory produces would essentially be table-bases.

But I suspect that artifacts can constitute other artifacts. Suppose one Monday morning an artist, with the intention of producing an artwork, places a copy of that day's *New York Times* in an otherwise empty space in an art gallery. The following day the artist replaces that copy with the Tuesday edition. And so forth for a week up to and including Sunday. The artist calls the installation '*Newspaper*'. *Newspaper*, I think, is a genuine artwork. And, plausibly, each day *Newspaper* is constituted by a different artifact, a copy of that day's edition of the *Times*. Certainly, *Newspaper* isn't identical to any individual copy.⁵⁷

If this is right, then I shouldn't appeal to the principle that artifacts cannot constitute other artifacts. I'll need another way to distinguish *David* from *Fountain*. The case of *Newspaper* makes salient the notion of *change*. A reason why it's plausible that on Monday *Newspaper* is constituted by but distinct from Monday's edition is that the following day the artwork will undergo a big change. Monday's edition will no longer be there. Only Tuesday's will be. Similarly, *David* can undergo changes. If we remove *David*'s right thumb, *David*, although tragically vandalized, will survive. We could even very gradually replace bit by bit small pieces of *David*'s marble with other pieces of marble, so at the end we are left with a statue that has none of the marble that is there now. If we are careful and slow enough with this process I think we would still be left with *David*.⁵⁸ Plausibly, then, a sign that *David* is constituted by its current hunk of marble is that the hunk of marble (like Monday's edition of the *Times*) is replaceable. In contrast, *Fountain*'s urinal is not replaceable. My intuition is that we can't destroy the urinal

⁵⁷ I owe this example to Sam Cumming. He suggested it to me in another context. I once thought that a reason to think nation-states are not constituted by their land is that a nation-state's land can quickly and radically change, such as when the United States doubled in size thanks to the Louisiana Purchase. We can imagine cases where a nation-state quickly gives up all of its existing land and immediately acquires new land; e.g., due to global warming the United States relinquishes all of its current land and settles entirely on the moon. We don't allow for such changes to a clay statue. Its material can change only more gradually. As the example of *Newspaper* shows, however, some concrete artifacts can undergo radical non-gradual changes to their material.

⁵⁸ Let's set aside the serious Theseus-ship problem of what happens if meanwhile someone has been using the original marble to put together something that looks exactly like *David*.

(even gradually) without destroying *Fountain*. You can't have *Fountain* without the urinal.

More will probably need to be said, though, about why Duchamp, unlike Michaelangelo, doesn't create anything. I'll have to leave that for further consideration. My goal here has mainly been to show that my views about *Fountain* and *David* are reasonable. Not only are these views intuitive (at least for me), but it looks like there might be some principled way of distinguishing the two cases—perhaps one that appeals to a notion of change.

So, I think *Fountain* is a urinal—a urinal with a special status, that of being a piece of art. *Pace* Evnine, it is not constituted by a urinal. This coheres with my view that symphonies, novels, films and the like are not constituted by preexistent abstract structures. Just as Duchamp's mere presentation of a urinal as a piece of art did not result in making something *from* the urinal, Beethoven's mere indication of sound-structures did not result in making something *from* the sound-structure. Hopefully, then, this digression about *Fountain* has served to motivate where I disagree with Evnine about abstract artifacts. If it has not convinced you that I am right, I hope it has at least illustrated our point of disagreement. It's a subtle disagreement but a real one nonetheless.

At this point I can imagine a Platonist entering the conversation to give the following speech:

“Aha! So you agree that Duchamp didn't create *Fountain*. He merely elevated a urinal to the special status of being an artwork. But, then, why not accept that Beethoven did that with the Ninth Symphony? That is, why not accept that he merely elevated a particular preexistent sound-structure to the status of being a symphony, of being an artwork? On this view the Ninth Symphony wasn't always a piece of art, but it still always existed. So, why don't you accept this Platonist view and eschew altogether creationism about

symphonies and related abstracta?”

This is a serious speech. It suggests that *Fountain* is a real trouble-case for me. If I accept that *Fountain* is distinct from the urinal this pushes me toward Eynine’s theory of symphonies and the like. If I accept that *Fountain* is identical to the urinal this pushes me toward Platonism about symphonies.

Nonetheless, I reject Platonism and Eynine’s theory. My theory of abstract artifacts is a third option. It is a way to (a) uphold the intuition that composers *create* symphonies and (b) deny that symphonies are constituted by preexistent sound-structures. The moral I glean from *Fountain*, then, is not that symphonies *are* sound-structures but rather that they are not constituted by them.

3.6 Vague Existence

My theory of abstract artifacts, like many such theories considered in Chapter 2, faces a challenge: it conflicts with ‘ $\forall \exists xFx \rightarrow \exists x \forall Fx$ ’. All of the abstract artifacts mentioned in this chapter, on my view, are genuinely new objects that are created *ex nihilo*. It’s vague when this happens. For instance, it’s vague when Beethoven created the Ninth Symphony. And, in conflict with ‘ $\forall \exists xFx \rightarrow \exists x \forall Fx$ ’, when it was vague whether The Ninth Symphony existed—and thus whether a Beethovenian choral symphony existed—there existed nothing that was vaguely a Beethovenian choral symphony. The beginnings of all abstract artifacts considered in this chapter similarly conflict with ‘ $\forall \exists xFx \rightarrow \exists x \forall Fx$ ’.

Supervaluationists committed to the view that ‘exists’ is precise (such as Lewis and Sider) are, as shown in Chapter 2, committed to ‘ $\forall \exists xFx \rightarrow \exists x \forall Fx$ ’. Many of them would likely

respond to the conflict by rejecting my theory of abstract artifacts. I think we should instead reject the view that ‘exists’ is precise. One could also reject supervenience. I won’t choose that option. Although I’m unsure whether supervenience is correct, one needn’t be a supervenience theorist to be committed to either ‘ $\forall xFx \rightarrow \exists x\forall Fx$ ’ or a similar principle. Even some *epistemicists* who think ‘exists’ is precise, for example, are committed to a variant of ‘ $\forall xFx \rightarrow \exists x\forall Fx$ ’ that conflicts with my theory of abstract artifacts. So, rather than pick on supervenience, I’ll discuss what I think is the real culprit: the view that ‘exists’ is precise.

It will help to consider a precedent found in Peter van Inwagen’s work. In *Material Objects*, he poses a radical mereology. He thinks simples (objects without any proper parts) never compose a sum unless they compose a living thing. He thereby denies the existence of tables, bicycles, rocks, mountains, etc. Instead of tables there are merely “simples arranged table-wise”. The only concreta he accepts are simples and living things.⁵⁹

Consider a cat that is dying on a mat. Van Inwagen would say that when the cat is alive there are simples in the vicinity of the mat that compose the cat.⁶⁰ Later, after the cat has died the simples compose nothing. There isn’t even a corpse for van Inwagen; there are merely simples arranged corpse-wise. Suppose the cat weighs well over an ounce and that the relevant simples individually weigh much less than an ounce. When the cat exists there exists something (the cat) that is on the mat and weighs over an ounce. When the cat has died there is (for van Inwagen) nothing on the mat that weighs over an ounce. It’s vague when the cat dies. Thus, at some time t it’s vague whether there exists something on the mat that weighs over an ounce. ‘ $\forall xFx \rightarrow$

⁵⁹ This might be incorrect, since van Inwagen also accepts the existence of God and thinks that God is concrete. I’m unsure if he thinks God is living.

⁶⁰ He actually wouldn’t say this since he doesn’t believe in mats. He would instead adopt a paraphrase, along the lines of ‘there are simples, in the vicinity of simples that are arranged mat-wise, that compose a cat’. For simplicity’s sake, I’ll continue talking about *the mat* in this section.

$\exists x \nabla Fx$ entails that at t there exists something that is vaguely over-an-ounce-and-on-the-mat.

But, on van Inwagen's view there exists no such thing. The only thing the relevant simples may compose is a determinately-on-the-mat-and-determinately-more-than-an-ounce-cat; they can't compose anything that is vaguely on-the-mat-and-more-than-an-ounce. Due to such cases van Inwagen rejects ' $\nabla \exists x Fx \rightarrow \exists x \nabla Fx$ ' and the view that 'exists' is precise.⁶¹

Van Inwagen thinks this commits him to rejecting the linguistic view of vagueness. The vagueness of 'exists', according to him, is due to vagueness in the world. I'm unsure whether he needs to go this far. Suppose that van Inwagen's extreme mereology is correct. Now, imagine a world with exactly n simples. Suppose it's vague whether there is a living being composed of some of the simples. So, it's vague whether there is a living thing in the world without there existing anything that is vaguely a living thing. It's vague whether there are exactly n things (the simples) or n+1 (the simples plus a living thing). (Suppose that at most there is only one living thing in the world.) I'm unconvinced, though, that this means there is ontic vagueness. Perhaps the vagueness is still linguistic.

Suppose two metaphysicians who adopt Inwagen's mereology have a disagreement about the world in question. One thinks there is no living thing and thus that there are definitely n things in the world. The other metaphysicians thinks the simples compose a living thing and thus that there are definitely n+1 things. Now, both are wrong (according to van Inwagen), since there are neither definitely n things nor definitely n+1. Still, do they have a *substantive* disagreement about the way that the world is? One might think that their disagreement is not substantive. They agree about the spatial position of the simples and all of their other physical

⁶¹ A minor difference lies in our treatment of ' ∇ '. For van Inwagen, ' ∇ ' means simply 'it is neither true nor false whether', whereas I use it to mean 'it is vague whether', where this means roughly 'due to vagueness, it is neither true nor false whether'. My version explicitly excludes others sorts of indeterminacy, such as the alleged indeterminacy of future contingents.

properties: speed, color, weight, size, etc. All they disagree about is whether they compose something, about whether there are n or $n+1$ objects. This may be construed as some sort of verbal dispute about the domain of the existential quantifier: about whether the domain includes n or $n+1$ objects. On this line, the metaphysicians ultimately have a disagreement about how to *describe* the world in question—not about how the world is.

This idea is similar to what deflationists, such as Carnap (1950) and Hirsch (2002), would say about standard mereological debates between nihilists and realists. Nihilists (e.g., Dorr, 2002) say there are no tables; there are only simples arranged table-wise. Realists say there are tables composed of simples. Deflationists say the nihilist and the realist are having a non-substantive dispute.

Regardless of whether van Inwagen is right about his case, what should we say about the case of abstracta? Does my theory of abstract artifacts force us to accept vagueness in the world? Consider a time t when it's vague whether Google has come into existence. On my view it's vague at t how many abstract artifacts exist (supposing there is a finite amount). Call the (finite) amount of abstract artifacts that definitely exist at t ' n '. Thus, it's vague whether there exist n or $n+1$ abstract artifacts. Suppose that two metaphysicians, Andrew and Ashley, are having a dispute. Andrew thinks there are n abstract artifacts; he thinks Google has not yet come into existence. Ashley thinks there are $n+1$; she thinks Google already exists. On my view, they are both wrong. But are they having a substantive debate? I have a feeling—and this is just a feeling—that their disagreement *is* substantive.

To explain why I feel this way it's useful to contrast the nihilist/realist dispute with Ashley and Andrew's debate about Google. One might offer the following as a reason for why the former is not substantive: there are many different candidate ontologies of a particular

world—i.e., lists of things that exist at that world. Some ontologies are better than others. For instance, an ontology of the actual world that includes unicorns is, all things being equal, worse than an ontology that doesn't include unicorns. But there's no single privileged ontology for a given world. There are some that are equally good but no *best* ontology. Furthermore, for the actual world, ontologies that include tables are just as good as ontologies that include merely simples-arranged-tablewise. The nihilist's ontology that includes n objects is no better or worse than the realist's that includes $n+1$ objects. Both theorists carve the world equally well, albeit differently. Their disagreement isn't substantive, because they are merely carving the world in different yet equal ways.

My point is not that this deflationist story about mereology is correct. My point, instead, is that I doubt such a story applies to Ashley's and Andrew's debate about Google. It seems less reasonable to think that Ashley and Andrew are carving the world in trivially different ways. Ashley's ontology includes Google; Andrew's doesn't. Andrew doesn't include in his ontology anything that is analogous to the nihilist's inclusion of simples-arranged-tablewise. Andrew, for instance, doesn't believe there are simples-arranged-Googlewise (whatever that would be). He simply believes that Google hasn't arrived yet. This seems analogous to a disagreement I might have with someone who believes in sasquatches. I don't believe in the existence of sasquatches. This isn't because I believe there are merely simples-arranged-sasquatchwise. I reject the existence of sasquatches in a way that places me in a substantive disagreement with a believer in sasquatches. Likewise, Andrew's denial of the existence of Google at time t seems to place him in a substantive disagreement with Ashley. They aren't merely carving the stuff of the world in different ways; they're disagreeing about what stuff there is.

So, I suspect that anyone who accepts my theory of abstract artifacts should accept not

only vague existence but also *ontic* vagueness—that vague existence is sometimes due to indeterminacy in the world. This will be unsettling to some theorists. It's worth emphasizing, though, that abstract artifacts on my view are not fundamental objects of the world. They depend on concreta for their existence. Google wouldn't have existed without the creative activity of Sergey and Brin. The Ninth Symphony wouldn't have existed without Beethoven. Perhaps some will find it more palatable to attribute vague existence to *non-fundamental* objects, even if such vagueness is ontic.

Chapter 4

Concrete Artifacts and Vague Existence

4.1 Introduction

I will now shift my focus from abstract artifacts to concrete artifacts. A key lesson learned from examining the former—namely, that there is ontic vague existence—can be applied to the latter. Just as my theory of abstract artifacts and others like it (e.g., Evine’s theory) commit one to vague existence so, too, do most Aristotelian theories of *concrete* artifacts. The goal here isn’t to argue for any particular version of Aristotelianism. In fact, I shall remain neutral about whether Aristotelianism is right at all. My goal instead is to show how my theory of abstract artifacts can potentially help to vindicate certain versions of Aristotelianism. To this end, I will examine various versions. Some of them are committed to ontic vagueness. Others are not.

I use ‘Aristotelian’ to describe theories according to which there exist objects that are constituted by (i.e., made of) but distinct from something. (In discussing such theories of artifacts, some theorists use ‘Neo-Aristotelian’ instead of ‘Aristotelian’, as Aristotle himself thought that artifacts had a lower ontological status than natural objects, such as organisms.) The paradigmatic example is a clay statue made of a lump of clay. Aristotelians think that the statue is constituted by but distinct from its clay. Commonly held reasons for this are alleged differences in temporal and modal properties between the statue and the clay. Aristotelians also typically take constitution to be, unlike identity, neither symmetrical nor reflexive (e.g., Baker (2004)). Although the clay constitutes the statue, the statue doesn’t constitute the clay. And the statue isn’t constituted by itself. Both claims are intuitive.

Some Aristotelian theories are restricted, in the sense that they place restrictions on when concrete objects constitute other objects. Other theories are unrestricted; they entail that any concrete objects always constitute other objects. Restricted theories of constitution, unlike unrestricted ones, are typically committed to vague existence.

I think most Aristotelians if pressed on that matter would admit to accepting a restricted theory of constitution. It's the most intuitive position. Consider a brick wall with no glue or any other substance to keep the bricks together. For the Aristotelian the wall is an object that is distinct from the bricks that constitute it. For some Aristotelians (e.g., Thomson (1983)) the bricks wholly constitute the wall; i.e., the bricks and nothing else constitute the wall. For other Aristotelians (e.g., Koslicki, 2008) the wall is constituted by both its bricks and something like the Aristotelian form they undertake when the wall exists. Either way, it's intuitive that the bricks (or the bricks plus a form) didn't always constitute a further object. Intuitively there was once just a scattered plurality of bricks that didn't constitute anything else.⁶² Something had to happen for them to constitute something else. Although it would be fair to attribute this sort of restrictive account to most Aristotelians, many of them are less than explicit. Their official theories, although perhaps charitably interpreted as including restrictions on constitution, are technically neutral on the issue.

4.2 Fine's Accounts

Kit Fine (1982a) puts forward two explicitly unrestricted accounts. As mentioned in Chapter 2, he offers an account of qua objects. When he first presented this account (1982) he suggested that a clay statue is a qua object. It is the clay qua in a particular shape *s*. The clay qua in shape *s*

⁶² The issue of whether there is something constituted by but distinct from a scattered collection of rocks is different from the issue of whether there is a mereological sum composed of the bricks. One can accept unrestricted composition but deny that the bricks constitute anything when they are scattered.

is distinct from the clay. The clay qua weighs heavier than an ounce is distinct from both of those. And so forth. Every property an object has automatically results in a qua object. And qua objects are constituted by but distinct from their *bases*—those objects that have the relevant properties that result in the qua object existing. The statue is a qua object that is distinct from its base—the clay.

A problem with this approach is that a qua object's base cannot change. The clay qua in shape s will always have the same clay as its base. It's problematic to identify statues with qua objects, then, since intuitively a statue's matter can change, at least gradually, over time. A small piece of a clay statue might be replaced with a copper part. The statue can survive this process and thereby come to be constituted by not only clay but by copper as well. Fine (1982) was aware of this problem and later (1999) suggested an alternative account to handle the problem.

His newer account is one of both *rigid* and *variable embodiments*. Rigid embodiments are objects that are necessarily constituted by the same object(s) at every time of their existence. Qua objects are one kind of rigid embodiment—those are those constituted by only *one* object. Rigid embodiments result whenever an object has a property or objects stand in a relation to each other over time. Variable embodiments are objects that may be constituted by different objects at different times. Fine thinks some material objects are rigid embodiments and others are variable embodiments. He suggests a ham sandwich, constituted by two slices of bread and a piece of ham, is a rigid embodiment.⁶³ He suggests a car with its many parts, each capable of being replaced, is a variable embodiment. Every variable embodiment has a corresponding function. The function ranges over times with objects as its values. In the case of a car its function ranges over every time the car exists. Its values are the objects that constitute the car at every time it

⁶³ He's aware this is controversial, since arguably even this sandwich can survive one its slices of bread being replaced. He notes (63, fn.2) a water molecule might be a better example.

exists. Fine happens to think that these objects, in turn, are rigid embodiments. At a time t when a car exists, its function's value is the rigid embodiment that results from all of the car's parts at time t standing in a suitable *car-like* relation to each other.

The key point for our purposes is that Fine's theories are unrestricted. According to his initial proposal, every property an object has results in a qua object. According to his second proposal, every way that objects are related to each other results in a rigid embodiment. His second proposal also allows that for every case involving different objects that exists at different times, there is a corresponding variable embodiment with a function that ranges over those times and whose values are the objects that exist at those times.

Due to Fine's radical inclusiveness he avoids any conflict with ' $\forall xFx \rightarrow \exists x\forall Fx$ '. Take the example of car being made in a factory. Suppose that it is the only car in the factory. At some time t around when it's being created it's vague whether the car exists. It's vague whether there exists at t a car in the factory. ' $\forall xFx \rightarrow \exists x\forall Fx$ ' entails that something at t is vaguely a car in the factory. On Fine's account of variable embodiments there is such an object. There is some function whose value at t is (a rigid embodiment of) all of the relevant car-parts and whose values at all the times the car determinately exists are the objects that constitute the car at those times. This function corresponds to a variable embodiment that exists at t . It's vague whether this variable embodiment is a car and thus vague whether it is a car in the factory. ' $\forall xFx \rightarrow \exists x\forall Fx$ ' remains intact. Similar things could be said about how to reconcile the principle with Fine's account of rigid embodiments (and qua objects). For Fine, there are indefinitely many qua objects, rigid embodiments, and variable embodiments. They determinately exist at various times; it's vague merely which of these are the ordinary objects we normally concern ourselves with.

4.3 Restricted Theories

Judith Jarvis Thomson (1998, 157) offers an account of constitution:

x constitutes y at time t iff

(1) x is part of y at t , and y is part of x at t

(2) there is a part of x at t that is essentially a part of x , such that no part of the part is essentially a part of y

(3) it is not the case that y has a part that is essentially part of y , such that no part of the part is essentially a part of x

Thomson thereby accounts for constitution in terms of parthood.

Let's apply this account to the clay statue. According to Thomson, for all times at which the statue is constituted by the portion of clay, the statue is part of the clay and vice versa.

Condition (1) is satisfied. This might seem odd. Many theorists would be uncomfortable saying that the clay is *part* of the statue and especially uncomfortable saying that the statue is part of the clay. We can make more sense of Thomson's position, however, by considering her account of parthood. Following her previous account (1983) she defines parthood relative to a time:

x is part of y at t iff the space occupied by x at t is part of the space occupied by y at t
(1998, 155).

With this understanding of 'part' it follows trivially for Thomson that the statue and the clay are parts of each other. She thinks the statue and the clay at any particular time are located in the same space. Accepting such co-location of two distinct entities is a characteristic (and controversial) feature of Aristotelianism.

Condition (2) is satisfied as well. For, the portion of clay has sub-portions that are essential to it that have no parts that are essential to the statue. If the statue is, say, a statue of a person and loses a finger that is subsequently destroyed, then the statue remains. But in such a

case the original portion of clay would not survive. We would be left with a similar but smaller portion of clay. (It's important that the finger is destroyed, because otherwise the portion of clay would arguably remain as a scattered portion of clay). Thus, the clay composing the finger is an essential part of the clay, but none of its parts are essential parts of the statue. Moreover, condition (3) is satisfied, because no essential part of the statue has parts that are not essential to the clay. Any potentially essential part of the statue would also be an essential part of the clay.

I won't critically evaluate Thomson's theory here. Rather I want to show how it is connected to vague existence. Thomson is not entirely explicit about all the relevant details. She is clear that the clay doesn't constitute a statue until the sculptor shapes it in a particular way. As far as I can tell, though, she is silent about whether there is a time when the clay doesn't constitute *anything*. Suppose she thought there was such a time (e.g., a time before the sculptor encounters the clay). She would then be committed to vague existence, as long she held it to be vague when the clay goes from constituting nothing to constituting something. For, then she would be committed to there being a time t when it's vague whether there exists anything that is constituted by the clay without there existing anything that is vaguely constituted by the clay. Note that this isn't true for Fine. He is committed to saying that the clay always constitutes indefinitely many rigid and variable embodiments.

It would be surprising if Thomson agreed that the clay always constitutes something. It's such a radical idea one would think she would have said this if she believed it. So, although it's technically speaking left open by Thomson, I think it's fair to say that she thinks the clay goes from constituting nothing to constituting something. Her account, most charitably, is a restricted account of constitution and as such she is committed to vague existence.

Evnine and Lynn Rudder Baker are in the same sort of position, although they provide

richer explanations of when constitution occurs. I'll start with Evidentiary. In Chapter 2 I mentioned his Aristotelianism as it relates to abstract artifacts. His general account of artifacts (which includes both abstract and concrete artifacts) relies on a distinction between two senses of 'made out of': a "dynamic" and a "static" sense (2009, forthcoming). 'The sculptor made a statue out of clay' involves the dynamic sense. 'The statue in the museum is currently made out of clay' involves the static sense. If x is made out of y in the static sense, then x is constituted by y. Evidentiary's basic idea is this: we can explain why an artifact (e.g., a statue) is made out of some objects (e.g., a lump of clay) in the static sense by appealing to the fact that someone made it out of those objects in the dynamic sense.

This isn't exactly the picture, though, since Evidentiary accepts that artifacts can undergo changes of parts; they can lose, gain, and have parts replaced. So, the parts that my car is currently made out of (static) might not be the same as those that it was made out of (dynamic) at the factory. To get around this issue, Evidentiary offers a more nuanced account. The basic idea is that an artifact is made out of some objects at time t in the static sense if either someone made it out of those objects at time t or if someone made something out of objects at a previous time and the current artifact is linked by a chain or sequence of replacements to the previous one. (I'll leave this idea about a chain or sequence of replacements as intuitive.)

The crucial point is that for Evidentiary there's always a reason for why constitution takes place, for why an object is constituted by matter that it is distinct from. In the case of artifacts (which are his paradigm case) the reason is that someone made something out of the matter (or related matter). This typically involves an intentional activity on behalf of the creator. (It might not involve intention in the case of an unintentionally created path.) So, Evidentiary rejects the radical inclusivity of Fine. The existence of an arbitrary function that ranges over times and has

objects that exist at those times as it values is not enough of a reason for there to be an object that is constituted by those objects at those times. Clay typically doesn't constitute anything.⁶⁴ It's not until a sculptor does something to clay that constitution occurs. Since it's vague when this happens, it's vague when the clay constitutes anything in a way that conflicts with ' $\forall xFx \rightarrow \exists x\nabla Fx$ '.

Baker (2004, 2007) offers an account of constitution that relies on the notion of primary kinds. An object's primary kind is the kind that it is most fundamentally. An object's primary kind is also essential to it. A statue's primary kind is statue, and it cannot exist without being a statue. A statue resting on a table does not have resting-on-a-table as its primary kind. It could exist without resting on a table. For Baker an object can be constituted by another only if they are of different primary kinds. When an object undergoes certain circumstances, which depend on the sort of object it is, it comes to constitute another object that inherits many of the same properties. When a sculptor molds clay in a particular way with a particular intention the clay comes to constitute a statue that has many of the same properties of the clay.

I'm omitting many details Baker includes about constitution. But the basic idea should be clear. And, as with Thomson and Eynine, I think it's most charitable to interpret Baker as positing a restricted theory of constitution. Objects don't always constitute other objects. They must undergo certain circumstances and the circumstances are different for different objects. Since, presumably it's vague when objects undergo these sorts of circumstances, it's vague when constitution occurs in a way that conflicts with ' $\forall xFx \rightarrow \exists x\nabla Fx$ '.

Those who insists that 'exists' is precise will likely take these observations as reasons to accept a Finean account of constitution or reject Aristotelianism altogether. But one need not

⁶⁴ In fact, Eynine's account is even more restricted than most Aristotelian accounts. He denies the existence of non-biological natural entities, such as mountains and meteors.

make this move. After all, we've seen that many theories of abstract artifacts, including my own, are committed to vague existence already. Thomson, Eynine, and Baker may choose to accept vague existence as well.

Such an acceptance seems to commit these theorists to ontic vagueness. For, they are realists about constitution. As Baker puts it: "constitution makes an ontological difference" (2004, 100). A disagreement about whether there exists something constituted by a portion of clay is more like a typical disagreement about whether sasquatches exist (a substantive dispute) than it is like a disagreement about whether a drink of vodka and an olive is a martini (a verbal dispute). So if it's vague whether constitution occurs it seems like this commits us to not only 'exists' being vague but to the source of the vagueness being the world itself. Perhaps we can come to live with such ontic vagueness. After all, as is the case with abstract artifacts, constituted objects are not fundamental. They are grounded in the things that constitute them. Perhaps, as I suggested at the end of the last chapter, it is acceptable to allow for ontic vagueness regarding things that don't exist fundamental.

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