

The Ontology of Persistence

by

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(Abstract)

In 1986, David Lewis offered what he thought would be the decisive objection against endurantism, showing it to be an implausible theory. The problem of temporary intrinsics stated that an object cannot have two complementary intrinsic properties while maintaining identity, as endurantists claim. Perdurantism, then, must be the more plausible theory, according to Lewis. The endurantists responded to this objection by formulating different versions of endurantism designed to avoid the problem. Subsequently, the endurantist tried to undermine the perdurantist position by arguing that a perduring object cannot undergo what is considered to be genuine change. As a result, endurantism is the more plausible theory. However, the perdurantist can show that endurantism seems to fail to provide an account of change as well. In what follows, I argue that the implicit ontological commitments of the endurantists and perdurantists have prevented the problem of temporary intrinsics and change from resolving the endurantist/perdurantist debate. I offer examples of plausible ontologies for the endurantist and perdurantist in order to emphasize this problem. I will argue that, in order to resolve the debate, one must ultimately examine the ontological accounts of each theory.

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Introduction

An important question in contemporary metaphysics asks how objects persist through time. Traditionally, there have been two sides to this debate- endurantism and perdurantism. Endurantism claims that an object persists if it is wholly present at each time it exists. For each time an object exists, those times share the object in common. In other words, an object persists by enduring if it is wholly present at t_1 and at t_2 and the object at t_1 and the object at t_2 are identical. By contrast, a perduring object is extended spatiotemporally and persists by virtue of parts of the object that exist at each time, *i.e.*, temporal parts. Thus, the object as a whole has time as an essential part. The object is not wholly present at any time; instead, its various parts exist at different times.

In 1986, David Lewis offered what he thought would be the decisive objection against endurantism, showing it to be an implausible theory. The problem of temporary intrinsics stated that an object cannot have two complementary intrinsic properties while maintaining identity, as endurantists claim. Perdurantism, then, must be the more plausible theory, according to Lewis. The endurantists responded to this objection by formulating different versions of endurantism designed to avoid the problem. Subsequently, the endurantist tried to undermine the perdurantist position by arguing that a perduring object cannot undergo what is considered to be genuine change. As a result, endurantism is the more plausible theory. However, the perdurantist can show that endurantism seems to fail to provide an account of change as well. In what follows, I argue that the implicit ontological commitments of the endurantists and perdurantists have prevented the problem of temporary intrinsics and change from resolving the endurantist/perdurantist debate. I offer examples of plausible ontologies for the endurantist and perdurantist in order to emphasize this problem. I will argue that, in order to resolve the debate, one must ultimately examine the ontological accounts of each theory.

In Chapter One, I argue that, if the problem of temporary intrinsics was going to resolve the debate, the participants in the debate must be working within the same ontological framework. I first present the problem of temporary intrinsics and the solutions Lewis offers to

it. Next, I discuss the different versions of endurantism offered in response to this objection and how each solves the problem of temporary intrinsics in addition to how perdurantism solves the problem. Since, however, none of these solutions is satisfactory to all, I present objections that are raised against each theory. Finally, I examine the implicit ontological commitments of each account to show their dissimilarity.

In Chapter Two, I argue that, in order for the problem of change to resolve the debate, endurantists and perdurantists must be using the same conception of change. I begin by presenting the problem of change, showing why it is thought to be a strong objection against perdurantism. I then show how each version of endurantism encountered in the first chapter attempts to account for change. Ultimately these accounts fail, however, and I will explain how in order to show that neither perdurantism nor endurantism is able to offer a satisfactory account of change. I will examine the implicit ontological commitments discussed in the first chapter to show what conception of change the endurantists and perdurantists are using and how they differ.

In Chapter Three, I argue that endurantists and perdurantists are considering essentially distinct things when they discuss how objects persist through time. I give an explication of what it means, to an endurantist, for an object to be wholly present and, to a perdurantist, for an object to have temporal parts. I offer examples of ontological accounts that are open to the endurantist and perdurantist. I will show how each of these accounts is strongly associated with either endurantism or perdurantism, illustrating further the difficulties the problems of temporary intrinsics and change faced in attempting to resolve the endurantist/perdurantist debate.

Chapter One: The Problem of Temporary Intrinsic

The most common objection to endurantism has been put in the form of the problem of temporary intrinsic. David Lewis proposed, in *On the Plurality of Worlds*, that the endurantists cannot assert identity of an object at different times if it has complementary temporary intrinsic properties. Alternative versions of endurantism, including presentism, have been constructed so that the problem of temporary intrinsic does not arise. However, neither these versions nor perdurantism is considered by all to be a satisfactory theory of how an object persists through time. Thus, the problem of temporary intrinsic has not yielded a resolution to the debate. I argue that an examination of the ontology of each theory may reveal the reason why the problem of temporary intrinsic is not the decisive objection Lewis thought it to be.

In this chapter, I will first discuss the problem of temporary intrinsic and introduce possible solutions, as they are discussed by Lewis. I will then discuss how different versions of endurantism, as well as perdurantism, (as they are presented in journals) attempt to solve the problem. I will discuss why one may not find these accounts of how objects persist through time satisfactory. Finally, I will look at the ontological commitments of each account, and compare the ontologies to show how their differences may be preventing the problem of temporary intrinsic from successfully resolving the endurantist/perdurantist debate.

I

Lewis claims that the problem of temporary intrinsic is the strongest objection against endurantism. The endurantist argues that an object is wholly present at a time, has different intrinsic properties, and maintains identity. The objection states that since an object can have certain intrinsic properties at one time and different intrinsic properties at other times, one cannot claim that the object maintains numerical identity between those times. For example, Betty has a bent shape when she sits and a straight shape when she stands. Given endurantism, Betty is wholly present at each time, when she is sitting and standing, and the times have in common one object- Betty. One way to view the situation is to say that there is one object- Betty-, and it is both bent and straight. Lewis argues, however, that this view is contradictory because an object

cannot be both bent and straight. One might try to avoid the contradiction by saying that Betty has one property at one time and the other property at the other time. Since these properties are not had at the same time, there is no contradiction. However, Lewis thinks that the price the endurantist pays is too high, for this violates the indiscernibility of identicals. The indiscernibility of identicals says that for two objects to be identical, they must have the same properties. So the objection goes, endurantists cannot hold both that an object has complementary temporary intrinsic properties and that it maintains numerical identity at different times.

Lewis discusses three possible solutions to this problem. An endurantist could argue that those properties that are usually referred to as intrinsic are in fact to be understood as relations holding between an object, a property, and a time. The solution calls for the underlying object to remain the same while having different relational properties as time passes, such that the object at two different times does not differ in ways that violate the indiscernibility of identicals. For example, if Betty is bent at t_1 and straight at t_2 , Betty stands in a triadic relation to bentness and t_1 and, separately, another triadic relation to straightness and t_2 . Betty remains intrinsically the same with different relational properties.

The second solution Lewis discusses denies that an object has properties that it does not have at the present time. This theory is often referred to as presentism. Presentists argue that the only time that exists is the present; the past is no longer, and the future is not yet. If an object had certain properties in the past, then those properties cannot contradict properties it has now because those properties no longer exist. For example, it is not the case that Betty is both bent and straight. If she has the property of being straight now, then the time at which she was bent no longer exists and thus Betty-bent no longer exists. This avoids the problem of temporary intrinsics since the temporary intrinsic property bentness no longer exists, *i.e.*, is not present, preventing contradiction with straightness.

The final solution Lewis discusses, perdurantism, is, he thinks, the most plausible solution. Perdurantists argue that objects are extended in space and time by virtue of temporal

parts. An object is not wholly present at any time; instead it has parts at times that combine to make a whole. These parts have intrinsic properties. While the object could be said to have the properties, it has them because the parts have them. Since there is no identity asserted between the parts, there is no contradiction in the object having complementary properties. Accordingly, Betty has one temporal part at t_1 that is bent and another temporal part at t_2 that is straight. Because these temporal parts are not identical to each other, the problem of temporary intrinsics does not arise for the perdurantists.

II

In this section, I will present the alternative versions of endurantism offered in response to Lewis, as well as explain how each solves the problem of temporary intrinsics, and explore further perdurantism and its account of temporary intrinsic properties. The endurantist offers three possible solutions to this objection. The first two are versions of Lewis' first solution discussed above involving relations between objects, properties, and times. The first version argues that properties are time-indexed. Peter van Inwagen argues that the relation holds between the property and the time the property is had, *i.e.*, P-at- t . Properties, then, are time-indexed. Imagine a case where Betty is a philosopher, who is spatially extended. There is a region of time, T , in which Betty exists. At t_1 , Betty is sitting, or bent. At t_2 , Betty is standing, or straight. According to van Inwagen, T can be divided into instantaneous slices, such as t_1 and t_2 , and each of these slices is filled with the same spatially extended object, *i.e.*, the philosopher who is bent at t_1 is identical to the philosopher who is straight at t_2 . This is possible because when it is said that Betty is bent at t_1 , one is asserting that Betty has the property bent-at- t_1 and, likewise, the property straight-at- t_2 . Because of their time-indexed nature, the properties are not contradictory to each other.

When endurantism is revised to include time-indexed properties, we see that the problem of temporary intrinsics is solved. The problem of temporary intrinsics shows that endurantism, as it stands, is not a coherent theory. If there is simply an object, Betty, that is bent at one time and straight at another, then there can be no assertion of the identity of Betty between those

times, given the indiscernibility of identicals. However, if Betty has the property bent-at- t_1 and the property straight-at- t_2 , identity can still be asserted of Betty between the two times. The Betty that has the property bent-at- t_1 is identical to the Betty that has the property straight-at- t_2 because these properties are relational, and thus, they are no longer complementary, preventing the contradiction Lewis discussed.

Sally Haslanger argues for a second version of endurantism that corresponds with Lewis' first solution. Haslanger argues that there is another alternative that places the relation between the *having* of the property and a time instead of between the property itself and a time. Betty does not have the property bent-at- t_1 but has t_1 ly the property bentness. Likewise, she is t_2 ly straight. This theory is often referred to as the adverbialist account. Haslanger believes, as van Inwagen does, that the object, *i.e.* Betty, that exists at t_1 is identical to the object that exists at t_2 . This identity holds because the complementary properties are *had* in different ways, avoiding any contradiction.

Adverbialism solves the problem of temporary intrinsics in a different fashion than van Inwagen's time-indexed property version of endurantism. The adverbialist account avoids the problem by changing the nature of the relationship between the object's having a property and the time at which it is had. It is no longer the case that one might say of Betty that she is bent *simpliciter*, instead she is bent t_1 ly. Because Betty has the properties bentness and straightness in different ways, there is no contradiction to say that she has both. Thus, Betty at t_1 and Betty at t_2 are identical because they are both t_1 ly bent and t_2 ly straight, avoiding the problem of temporary intrinsics.

The third solution endurantists offer corresponds with the second solution Lewis discusses where one accepts a presentist's theory of time. Presentists claim that the present has an ontological privilege over past and future times, such that objects are wholly present at each time they exist, and the only objects that exist are those that exist in the present. This works analogously with parts and properties, such that any parts or properties an object has, it has at the present time. Presentism is considered a form of endurantism since it differs from endurantism

only in considering the present as ontologically privileged over past and future times. In fact, there are endurantists who argue that presentism is entailed by endurantism. Trenton Merricks argues that the only viable account of endurantism is a presentist account. He argues that any plausible theory of how objects persist through time should “allow for the exemplification of non-time-indexed and nonrelational properties like ‘being bent’” and the possibility of the exemplification of complementary properties, such as being bent and being straight.¹ In order for these conditions to be met, he argues that the only objects that exist are those that exist at the present because the only time that exists is the present. It can be the case that Betty can exemplify being bent and straight because, if t_2 is the present, Betty was bent and is now straight, *i.e.*, ‘Betty is bent’ *was* true and ‘Betty is straight’ *is* true. It cannot be the case that a property that exists at the present is contradictory to one that does not exist at the present.²

Presentism avoids the problem of temporary intrinsics by attacking a thesis underlying the objection. Dean Zimmerman argues that Lewis’ problem of temporary intrinsics rests on the “Persistence through change” (PC) thesis that states “[t]here are (at least) two different times; one at which [Betty is] bent, another at which [Betty is] straight.”³ Lewis takes (PC) to be obviously true and an expression of anyone who has a belief that there is persistence through

¹Merricks 1994, p. 168

²Endurantists may be able to respond to Lewis’ challenge of the problem of temporary intrinsic properties in a very different way. The problem of temporary intrinsics rests on Lewis’ conception of the indiscernibility of identicals. If one considers the indiscernibility of identicals in a different way, the problem is avoided. For example, one could argue that the indiscernibility of identicals calls for an object a and an object b to be identical if, if they exist at the same time, then they have all the same properties. This interpretation builds time into the identity instead of the having of the property. Accordingly, Betty being bent at t_1 and straight at t_2 causes no difficulties with the indiscernibility of identicals because Betty at t_1 and Betty at t_2 do not exist at the same time. I thank Bill FitzPatrick for this point.

This interpretation of the indiscernibility of identicals successfully gets the endurantist around the problem of temporary intrinsics. However, the endurantist doctrine seems complicated by this. The endurantist holds that an object can exist at one time and exist at another time, be wholly present at both those times, and maintain identity between those times. The last part of the doctrine is provided for by the indiscernibility of identicals as understood by Lewis. The indiscernibility of identicals is generally accepted as saying that for any properties and any two objects, the two objects are identical if they have the same properties. The endurantist may be correct in saying that there is no obvious reason why one might accept the generally considered interpretation, however; she also must be prepared to give an account of how Betty at t_1 and Betty at t_2 are identical.

³Zimmerman p. 213

change of posture. Because (PC) asserts that there exist two different times, presentism and (PC) are not compatible. However, Zimmerman argues that it is not obviously true as stated. He considers past and future times not just “temporally far” from the present, but, in the strictest sense, nonexistent. Presentism avoids Lewis’ objection to endurantism if (PC) is restated as a disjunction of propositions, such as:

Either [Betty] was bent and would become or had previously been straight, or [Betty] was straight and would become or had previously been bent, or [Betty] will be bent and will have been or be about to become straight, or [Betty] will be straight and will have been or be about to become bent.⁴

Thus, provided this disjunction is true, Betty can maintain identity while changing properties. While it may be the case that Betty *was* bent, she is straight now. Zimmerman feels that this restatement is acceptable since, although Lewis’ objection rests on this thesis, he does not accept (PC) as stated either. As we shall see in the next section, Lewis must restate (PC) to make it compatible with perdurantism, which he considers to be the most plausible theory.

In his third solution, Lewis argues that perdurantism is the most plausible theory of how objects persist through time. Perdurantists argue that objects are not wholly present at a time. Instead, an object is extended in time as well as space, such that the whole object is made up of parts, *i.e.*, temporal parts that exist at each time that the object exists. At a time, there is a spatially extended part of the object that has certain properties. These temporal parts combine to make a perduring object. An analogy can be drawn between a highway that runs between two towns and a perduring object. Consider a highway that runs between Smalltown and Littleville. If the highway is cut crosswise every quarter mile, one can see that there are parts of the highway in Smalltown, parts in Littleville, and parts in between the towns. These quarter-mile parts make up the whole highway that runs through the two towns. Likewise, the temporal parts of the object make up the object as a whole. At each time the object exists, there is a spatially extended

⁴Zimmerman p. 215

part of that object.⁵ Thus, if Betty is bent at t_1 , then Betty has a temporal part at t_1 that is bent. Accordingly, if Betty is straight at t_2 , then Betty has a temporal part at t_2 that is straight.

Perdurantism seems to be the most plausible theory, according to Lewis, because it is unaffected by the problem of temporary intrinsics. Recall that the problem of temporary intrinsics says that one cannot maintain the identity of an object between two times if the object has one temporary intrinsic property at t_1 and the complement of that property at t_2 , given the indiscernibility of identicals. Perdurantism does not suffer from this problem because perdurantists do *not* assert identity between the temporal parts. To say that Betty has a temporal part that is bent and another that is straight is to assert that there are (at least) two distinct parts to Betty, one which is bent and another which is straight. The object that is Betty is a spatiotemporally extended whole and is necessarily identical to itself. This does not violate the indiscernibility of identicals, and thus does not suffer from the problem of temporary intrinsics.

III

Thus far, we have seen that endurantists have several ways to respond to Lewis' objection. Properties can stand in a relation to time, or be time-indexed. Properties can also be *had* in relation to time. Alternatively, one can accept a presentist's theory of time and not advocate a relation between the object, the property and the time. Likewise, perdurantists can account for the problem of temporary intrinsics resulting in an impasse in the endurantist/perdurantist debate. I will now discuss why one may not find these theories sufficient to account for how objects persist through time.

The time-indexed property version of endurantism may be objected to because it seems to eliminate intrinsic properties. Lewis raises the point that a theory that holds of properties that they stand in relation to a time precludes the possibility of there being any temporary intrinsic properties at all. It seems as though there are properties, such as shape and mass, that are not had relationally. To say of all properties that they are had relationally, according to Lewis, is

⁵I am using an analogy with spatial extension of a road for explanatory purposes only. It is not my intention to argue for perdurantism using this analogy, although some have.

counter-intuitive. However, Michael Rea raises the point that, although the property does stand in relation to a time, it still can be intrinsic in a way.⁶ There are relations, such as being-in-Princeton-at- t_1 , he explains, that are had because of certain other relations in which the object stands to other objects. In a situation like Betty's, this is not the case. Betty is bent-at- t_1 without standing in relations to other objects. While this yields a kind of intrinsic/relational distinction, it is not as strong as the straightforward distinction that the endurantist used prior to the time-indexed version of endurantism. Because this distinction is not as strong, it has not seemed to sway objectors.

On the other hand, Haslanger argues that adverbialism does not require that there be a triadic relationship between an object, a property, and a time, and so does not preclude objects from having temporary intrinsic properties. Rather, there is a diadic relation that holds between an object and a property and then a second diadic relation between the first relation and a time. Thus the property stands in relation to time, but the *having* of the property is a relation. Betty has the property bentness intrinsically, although she has it in at t_1 ly fashion. As E. J. Lowe points out, according to the adverbialist, properties are had *simpliciter* by an object, *i.e.*, the relation between the object and the property is diadic and discussion of it is not derived from another relation. This avoids Lewis' other concern that there are no temporary intrinsic properties when there is a relation to time.

However, Lewis argues that, metaphysically speaking, adverbialism makes little sense. According to this version, objects have properties only through a relation with time, making it appear as though the object itself is shapeless, *i.e.*, the object is neither bent nor straight. If the object is bent, then it, *i.e.*, that object, cannot be straight as well. Thus, it only has shape due to the relation it stands in with time. Haslanger agrees that to say of an object that it is intrinsically both bent and straight does result in contradiction. However, she does not believe this to be the case on her account. There is no contradiction in saying that an object is intrinsically bent at one

⁶This appears in a footnote to his article "Temporal Parts Unmotivated", p. 243.

time and intrinsically straight at another. The object is not shapeless. It must be discussed in terms of the shape it has at the time. Instead of accepting the view that a property is intrinsic when the object has the property independently of anything else, the endurantist must say that a property is had intrinsically when it is had *at that time* independently of anything else. However, one may not find it satisfactory to deny that to have a property intrinsically is independent of time. After all, if it is dependent on time, then it seems to lose its intrinsic nature, *i.e.*, it no longer can be had if the object having it is the only thing that exists.

One might disregard presentism, as Lewis does, because presentists appear to reject persistence, most likely because of (PC). Lewis finds it incredible to argue that an object persists through time if only one time exists. However, the presentist does not argue in this way. The presentist holds that the past did and the future will exist. But at the present, these times are like abstract objects. Whether one says they exist or not, they are not concrete objects of which one can speak. When one does speak of them, they are discussing abstract objects, rather than concrete. Thus, if t_2 is the present, then t_1 did exist, *i.e.*, ' t_1 is the present' was true. When t_1 is the present, Betty exists and is bent. It just happens to be the case that t_2 is the present, and Betty is no longer bent. Regardless, Betty persists. It is not obvious, however, that this solves the problem. To say that the past time no longer exists but an object that did exist then still does seems problematic. Thus, while presentists often feel their view is intuitive, this intuition does not appear to be shared by everyone.

One of the most common objections to perdurantism is that it is counter-intuitive to the way one thinks about an object. When one thinks about a chair, for example, it is generally considered that the whole chair is present at a time. There is no part of the chair that the chair does not have at the time it is being considered. Likewise, when one thinks about Betty, or Betty thinks of herself, she is considered to be wholly present at the time she is being considered. This is not the case if perdurantism is true. Only a part of Betty is being considered at a time, *e.g.*, t_1 , and that part is considered bent. The perdurantist will have to respond that our pre-philosophical intuitions about an object are simply mistaken, and this is demonstrated when one considers the

different possible theories more closely. One can imagine why this response is not easily accepted. One might find it more plausible to attempt to derive a theory that is compatible with one's intuitions rather than abandon them.

IV

Lewis offered the problem of temporary intrinsics as a decisive objection against endurantism and argued that, because of this problem, perdurantism is the only plausible theory of how objects persist through time. However, endurantists have offered alternative versions of their theory to account for this problem. While these theories are not accepted as satisfactory, they raise doubt as to whether perdurantism is indeed the most plausible theory. In addition, endurantists have not accepted perdurantism to be as obviously true as Lewis attempted to make it seem. Thus, the debate is not over. One must wonder why this objection was not sufficient to resolve the debate. I will show, in this section, that the proponents of the theories I have discussed are working with different ontological commitments. In addition, given that it is based on the "Persistence through Change" thesis, if the problem of temporary intrinsics was going to be able to bring an end to the debate, then each theory being discussed would have to have the same ontological commitments. Thus, the problem of temporary intrinsics is not sufficient to resolve the debate.

First, I will look at the ontological commitments of each theory and show the differences between them. We need to examine the ontological commitments of the proponent of time-indexed properties, in order to understand his version of endurantism. According to this version, properties are metaphysically tied to times. There is a relation that holds between properties and times that is primitive rather than the relation that holds when an object has a property *simpliciter*. Any discussion of an object having a property *simpliciter* will be derived from discussion of an object having a time-indexed property. This kind of endurantist must argue that there is a thing that has these properties. This may seem trivially true, but it is important to understand that the object has not just properties, but time-indexed properties. Thus, any property exemplified will be relational.

The adverbialist, by contrast, views the ontological relationship between an object, a property and a time differently. The adverbialist allows an object to have a property *simpliciter*. One can speak of an object having a property *simpliciter* without having to refer to any other relation. However, the relation that holds between the object and property has a metaphysical connection to time. There can be no instance of an object having a property without a relation holding to time. Thus, the object has-at-a-time a property. This motivates Lewis' objection above. In order to speak of an object separate from time, one must speak of an object that has no properties. The adverbialist responds that when one speaks of an object, there is always reference to time.

While both theories hold that there is an object that is wholly present at a time and has properties, the natures of the properties being had are dissimilar. On the time-indexed version, the properties are relational essentially. There are no properties *simpliciter* being had. By contrast, on the adverbialist theory, properties *simpliciter* are had in relation to time. Each theory requires a metaphysical tie with time, but this tie lies in different places. This is an important difference if one is an endurantist and wishes to decide between time-indexed properties and adverbial properties. In addition, this difference in ontological commitments plays a role in how one might interpret the "Persistence through Change" thesis. I will return to this point momentarily.

The presentist represents a different kind of difference in endurantist ontological commitments. On the presentist's account, there are objects that hold a metaphysical connection to properties like bentness and straightness. These properties are had *simpliciter* and without reference to time. However, the only objects that exist are those that exist at the present time. This seems to be a trivially true claim. How could an object exist that is not at the present time? It is not the trivial truth one might think it to be. This is a claim that assumes that the present time has ontological privilege over the past and future times. Thus, there was a time when Betty exemplified bentness. However, that time has passed. There may be a time in the future when Betty exemplifies this property again, but until then, one cannot speak of Betty being bent and

speak of something concrete. There is a metaphysical connection that holds between an object having a property and a time because the only time that exists is the present one. Thus, the ontology of presentism contains only those things that are wholly present at the present time and the properties had at that time.

While the non-presentist endurantists differ in their metaphysical distinctions about properties, presentists claim there are ontological privileges in time. If the present holds an ontological privilege over the past and future, then he may not need to make any other distinctions about a property or its relation to time. That distinction is important to the non-presentist endurantists insofar as it allows them to discuss the identity of the object that has the properties between the past and the future. If one were to accept a presentist's theory of time, one may not need to consider the nature of properties.

When one looks at the ontological commitments of the perdurantist, one sees important differences from that of the non-presentist endurantist. The perdurantist is committed to the existence of temporal parts. The object has many parts at different times with spatial extension, each numerically distinct from the others. It is the temporal parts of the object that have properties. Thus, properties, on this view, are not relational in any way, nor is their intrinsic nature dependent on time. The t_1 part of Betty has the intrinsic property of being bent. One can say that Betty has that property because her t_1 part does, just as the endurantist may say Betty has the property of redness if her face is sunburned. According to the perdurantist, no thing can be considered an object unless it is extended in space and time.

The important distinction between the perdurantist's ontological commitments and those of the endurantists is what it is at a time that has a property. The thing that has a property, on the perdurantist's account is the temporal part of the object, not the object itself. While the endurantist argues that there is an object that is wholly present that can have different properties, the perdurantist is arguing that there are distinct temporal parts that have different properties. The metaphysical connection is different from that of the endurantist because of the differences in the metaphysical accounts of an object at a time.

Second, if the problem of temporary intrinsics was going to bring an end to the debate, then the theories considered in the debate must have the same ontological commitments. Zimmerman pointed out that Lewis' problem of temporary intrinsics rests on the "Persistence through Change" thesis. As we recall, this thesis states "There are (at least) two different times; one at which [Betty is] bent, another at which [Betty is] straight". As Zimmerman points out, this thesis denies presentism by asserting the existence of two different times. It cannot be the case that two different times are both present; and, since presentists hold that the only time that exists is the present, it is not compatible with presentism. In addition, the thesis implicitly asserts that when Betty is bent, Betty is wholly present. If this is the case, then it cannot be applied to perdurantism, as stated. The perdurantists would have to rephrase the thesis to say that the temporal parts are bent or straight. Finally, the endurantists argue that there is a metaphysical connection to time, even though they disagree where this connection lies. The thesis does not say that there are two times, one at which Betty is bent-at-a-time, another at which Betty is straight-at-a-time. Nor does it state that Betty is-at-a-time bent and is-at-a-time straight. In order to examine which theory is better, based on the problem of temporary intrinsics, each theory would have to rephrase the thesis to account for their respective ontological commitments making it inapplicable to any other theory. Thus, the problem of temporary intrinsics rests on a thesis that does not allow for the metaphysical differences implicit in the theories, preventing it from resolving the debate.

In conclusion, I have argued that the problem of temporary intrinsics has been unable to resolve the debate on how objects persist through time, as Lewis thought it would. Endurantists tried to construct alternative theories that avoid the problem or solve it. Some endurantists maintained their theory on time and altered the nature of a property or the way it is had. Some endurantists solve the problem by accepting a presentist's theory of time. Neither of these theories nor perdurantism has been commonly accepted as a suitable account of how an object persists through time. I have shown that the ontological commitments of the proponents of these theories are sufficiently dissimilar that the problem of temporary intrinsics is unable to resolve

the endurantist/perdurantist debate.

Chapter Two: The Problem of Change

In addition to explaining temporary intrinsic properties, any account of how an object persists through time will need to be able to account for change. Just as the problem of temporary intrinsics was supposed to be a decisive objection against endurantism, the problem of change, sometimes referred to as the no-change objection, has been offered by endurantists as a sufficient reason for one to reject perdurantism. I will show, however, that endurantists fare no better in explaining change. If this is the case, then, once again, an important objection has failed to bring the debate to an end. I will, thus, argue that endurantists and perdurantists have differing ideas on what it means for an object to change preventing the problem of change from resolving the endurantist/perdurantist debate.

In this chapter, I will first present the problem of change and explain why it is thought to be a strong objection against the perdurantist. In order for this objection to resolve the debate, the endurantists must be able to give an account of change. I will then show how the different versions of endurantism discussed in Chapter One might achieve this. Next I will show why it is the case that these accounts do not work. Finally, I will analyze their ontological commitments to show that change is something different on each version precluding the problem of change from showing that any one theory is adequate.

I

It seems that no one would deny that things change and persist through that change. The trees outside that had leaves on them six months ago are bare now, and within several weeks, the trees will have leaves again. However, I do not consider the tree outside my window now to be a different tree from the one six months ago. Likewise, consider a case where Paul awakens one day and decides to shave the beard he grew five years ago. Paul, who is now clean-shaven, is not numerically distinct from the person who was present the night before he shaved. In both cases we believe that there is persistence of a thing, *i.e.*, the tree or Paul, through change.

Generally change is considered the gain and/or loss of properties. When an object has one property at one time and a different property at another time, it is said that the object has

changed. There are some implicit claims in this statement that, once unpacked, lead to our problem. The first is that in order to have one property at one time and another property at another time, the object must persist between those two times. It is also thought that in order to persist, it must be the same object at the earlier time as it is at the later time. Thus, we have an object that persists between at least two times, loses and gains properties between those times and is thought to be the same object at each time. However, as we saw in Chapter One, objects are only identical if they have the same properties. If identity is maintained through having the same properties, then it seems problematic for an object to gain or lose properties at the same time as maintaining identity. The problem of change, then, arises from incompatible intuitions that an object can maintain identity and gain and lose properties while doing so.

This problem is commonly raised as an objection against perdurantism. Endurantists argue that, in order for something to persist through change, there must be one thing that exists before and after the change. The perdurantist rejects the idea that there is any one thing that endures. Rather, the perdurantist argues that at one time there is a temporal part of an object that has certain properties, and at a later time, there is a different temporal part. Before and after a change, there are different things that exist. Again, consider Paul who had a beard for five years and then impulsively decided to shave it off one morning. To say that Paul is bearded is to say that the temporal part of Paul at t_1 is bearded. Accordingly, to say that Paul is clean-shaven is to say that the temporal part of Paul at t_2 is clean-shaven. There is no inconsistency in saying that there is one thing, Paul-at- t_1 , that is bearded and another, Paul-at- t_2 , that is clean-shaven. Because these two things are not purported to be identical, there is no conflict with the indiscernibility of identicals. However, because the properties are had by the temporal parts of an object, and not the object itself, there is, it would seem, no perduring object that could undergo genuine change.

In “Persistence, Change, and Explanation”, Haslanger develops the objection by drawing a distinction between simple successions and alterations. When the object persists, change is considered an alteration. However, if one object is destroyed and another is created when

properties are gained or lost, *i.e.*, there is no identity maintained, then the change is a simple succession of distinct objects. Haslanger thus argues that, according to perdurantists, Paul does not actually gain or lose a property. Instead, one thing that has a property is destroyed and another is created with a different property. It is a simple succession of different things, not a change of properties of one and the same thing. Thus, Paul has not undergone what we think of as genuine change.

Perduring objects seem to be a series of simple successions. Because it is the temporal parts that have properties and each temporal part exists at only one time, no temporal part loses or gains properties. Thus, because change is considered to be one object losing “old” properties and gaining new ones, perdurantism seems to face a serious problem when attempting to explain how change is possible.

II

By contrast, the proponents of the different versions of endurantism feel that they can adequately explain how an object undergoes change. For example, endurantists who hold that properties are time-indexed, such as van Inwagen, will argue that they do allow for our intuitions about change to be maintained. Paul has the property bearded-at- t_1 and then has the property clean-shaven-at- t_2 . He maintains his identity because these properties are relational, yet changes because he gains and loses them. Even one who wants to introduce intrinsic properties, such as Rea, can account for change. Time-indexed properties have an intrinsic nature since they are had without reference to any other *thing* in the world. Rea used the example of being-in-Princeton-at- t to show that this is a property that is purely relational because the person stands in a certain relation to Princeton. This is not always the case, however. In the case of Paul’s beardedness, Paul does not need to stand in relation to any other *thing* in order to be bearded. When he loses the property bearded-at- t_1 , he changes. He has lost the intrinsic relational property bearded-at- t_1 . Likewise, he has gained the intrinsic relational property clean-shaven-at- t_2 . Because Paul is maintaining his identity through this change, our intuitions about change are kept intact.

Adverbialists believe that they can explain change as well. Adverbialists argue that

objects undergo change when they gain adverbial properties as time passes. Paul is-at- t_1 bearded, or bearded t_1 ly. He has intrinsic properties that are *had* in relation to time. Accordingly, if we consider Paul at t_1 , he is bearded t_1 ly. Suppose t_1 is a time a little over five years prior to t_2 , and he had not yet grown his beard. He was clean-shaven t_1 ly. At t_1 , then, Paul is bearded t_1 ly and clean-shaven t_1 ly. He is not, however, clean-shaven t_2 ly quite yet because time t_2 has not come. At t_2 , Paul gains a property he did not have before. He is now clean-shaven t_2 ly, bearded t_2 ly, and clean-shaven t_2 ly. If it is the case that there is a difference in properties between t_1 and t_2 , then the adverbialist can say that Paul has changed.

Presentists argue that they can account for identity and change. Presentists claim that the only objects that exist are those that exist at this time, *i.e.*, the present. Likewise, objects have only those parts and properties that they have at the present time. As we saw in Chapter One, if an object only has the properties it has at the present, then there is no contradiction with the object having had a complementary property when a past time was present. In the same manner, they say that change is possible because if something *was* the case and now something else *is* the case, then there is change. Accordingly, if t_2 is the present time, then Paul is clean-shaven. It may be the case that ‘Paul is bearded’ *was* true when t_1 was present. However, it is the case that ‘Paul is clean-shaven’ *is* true. Presentists not only maintain that they can give an account of change that keeps our intuitions about change but they actually appeal to them. Change occurs when something was one way and is now another. Thus, because Paul was bearded and now is not, he has changed.

III

In this section I will argue that contrary to initial appearances, no version of endurantism can account for change. If we look at the time-indexed version of endurantism, we will find that, according to this version, an object does not undergo genuine change. Initially one might object to the time-indexed version because, if we consider what happens when an object gains or loses relational properties, we do not think that the object has changed. If we relocate the tree from being outside my window on campus to outside my window at my apartment, we will not say

that the tree itself has changed, but instead that its location has changed. Likewise, if Paul is next to a door at one moment and away from the door at another, we do not say that Paul has changed because the relational properties he holds to the door are different.

If one accepts Rea's qualification of the time-indexed properties, however, then this objection falls flat. If the properties are intrinsic relational properties, then the object is not gaining and losing relational properties, but properties that are, in part, intrinsic. However, if time-indexed properties are thought to have an intrinsic nature, as Rea suggests, then the proponent of this theory is faced once again with the problem of temporary intrinsics. Even if the property bearded-at- t_1 is relational with respect to time, it is intrinsic because there need not be anything else that exists for Paul to have this property. It seems, then, that Paul is both bearded and clean-shaven, resulting again in contradiction. Regardless of the fact that they stand in relation to time, if these properties are intrinsic and complementary, then they cannot both be had by the same object. The time-indexed version of endurantism, then, can either solve the problem of temporary intrinsics (even without Rea's qualification) or maintain that objects change, but without identity.

The adverbialist faces a similar problem with respect to change. Adverbial properties are not properties that are lost. For example, at t_1 Paul has all of the adverbial properties he has had up to t_1 . At t_2 , then, Paul is bearded t_1 ly and clean-shaven t_2 ly. The adverbialist holds that at t_2 Paul gains the property clean-shaven t_2 ly resulting in his changing. However, if it is granted that Paul changes because he gains a property at t_2 that he did not have at t_1 , then, once again, the adverbialist must face the problem of temporary intrinsics. If the adverbialist argues that Paul is altered merely by gaining properties, then she must be prepared to account for identity. Paul at t_1 will lack a property that Paul at t_2 has. This is not compatible with the indiscernibility of identicals. Thus, it seems that the non-presentist endurantist, in order to account for identity, is forced to deny that an object can undergo genuine change.

Likewise, the presentist cannot give an adequate account of change. The presentist's account rests on a claim that past and future times do not exist. While an object that exists at the

present may have existed when a past time was present (and may exist when a future time is present), that time in the past no longer exists, nor does the exemplification of a property by that object. When t_1 was present, Paul was bearded. But t_1 no longer exists nor does Paul's exemplifying that property. In order to argue that Paul has changed from being bearded at t_1 to being clean-shaven at t_2 , there must be a relation that holds between those two times. When saying that something has changed, we must be able to claim that what is at the first time has a connection to what is at the second time. Imagine someone saying that the Magna Carta changed when the Emancipation Proclamation was signed. That seems to be non-sensical. There is no relation between the monumental document that changed English government in 1215 and the one that freed slaves in America in 1862. Thus, we would not want to say that Lincoln signing the Emancipation Proclamation changed the Magna Carta. We do, however, want to say that Paul's shaving at t_2 changed Paul because there seems to be a connection between t_1 and t_2 . However, it seems counter-intuitive to draw a relation between a time that exists and one that does not. It seems problematic to make this sort of connection between an existent thing and a non-existent thing. In addressing this issue, Zimmerman admits that presentists do need to be able to understand statements about relations between those things that are present and past and future times. He uses the example of a causal relation. The presentist must be able to explain how it is that something in a time that no longer exists has causal influence on something in the existing present time. I believe that this can be extended to claims about change (and identity). If this is so, the presentist cannot account for change.

IV

The endurantist claimed that perdurantism is not a plausible theory because it does not allow objects to undergo genuine change. The endurantist offers attempts at explaining how an object undergoes genuine change. However, the endurantist does not escape this problem as easily as she might have hoped. In this section, I will argue that, if the problem of change was going to resolve the debate, the participants would need to have the same ideas about what it means for something to change. However, this does not seem possible, given their ontological

commitments. Therefore, the problem of change is not able to determine what is the most promising account of how objects persist through time.

The perdurantist argues that the no-change objection is motivated by a misunderstanding of the perdurantist ontology. In his article “Things Change,” Mark Heller argues that the no-change objection to perdurantism seems to be based on an incorrect assumption that the temporal parts of an object are ontologically privileged over the object itself. The endurantist imagines that a perduring object is one where instantaneous objects are constantly replacing other instantaneous objects. To illustrate this, Heller tells a story about a shelf in God’s workshop. On the shelf is a series of “near doppelgangers” beginning with an infant and ending with an octogenarian. At some moment God places the infant on earth. No sooner than he has done this does he replace it with the next doppelganger on the shelf. This continues until the last doppelganger on the shelf has been placed and removed from earth. There is no one object, but instead there are many objects that are in a constant state of being replaced. There is no real unity among these near doppelgangers, and thus there is no object that changes properties over time.

Heller explains that the endurantist has misunderstood the temporal parts ontology. The temporal parts are in no way more fundamental than the whole object. It is true that the parts constitute the object just as my body parts constitute my body. This does not result in the object being any less real anymore than my body is less real because it depends on its parts for existence. According to perdurantism there is a region of spacetime that Paul fills. This region can be broken into sub-regions that the temporal parts fill. The endurantist gives a similar explanation when he discusses a road that runs between two towns. There is a region of three-dimensional space that the road fills that can be broken into sub-regions filled with spatial parts of the road. If one extends this picture to encompass a fourth dimension, *i.e.*, time, then one can properly understand the relation between the temporal parts and the object they construct. The object has certain properties because the temporal parts have them. Paul is bearded because Paul’s temporal part (or parts) is bearded. Imagine a three-dimensional object that has different

spatial parts with different properties, for example a human body. From head to foot, that human body has different parts with different properties. Each foot has five smaller appendages while the head has two eyes, a nose and a mouth. Just as the body has different parts with different properties, a perduring object has different parts with different properties. Accordingly, just as a body changes properties from head to foot, a perduring object changes over time.

However, one might argue that this is not really change, but only difference. Consider a road that is paved at one place and dirt at another. While people say that the road changes, it is hard to say what it changes from or to because it depends on the direction one is traveling in. Instead, one might just say that the two parts of the road are different because it can be viewed from either direction. It is the same in the case of viewing a body. One can look from head to foot or foot to head. Because of this, there is not change between the two parts, only difference. And one might say it is the same in the case of a perduring object, *i.e.*, that there is only difference between temporal parts, not change.

This objection overlooks an important element of the perdurantist's ontology. An object, according to the perdurantist, is necessarily extended in time such that one cannot speak of it without at least implicit reference to time. It is the same with a spatially extended object and space. One cannot talk about an object, *e.g.*, a ball, without an implicit assumption that the object has spatial extension. However, there is a disanalogy between spatially extended and spatiotemporally extended objects. In the case of spatially extended objects, one can view them from different directions. This is not the case with perduring objects. There are no options in the direction with which we view perduring objects. Time passes in only one direction, and we must view time, and perduring objects, in that direction.

The perdurantist argues that at each time the object exists there is a temporal part of that object. The object exists at different times just so long as it has a temporal part at each time. Time, then, is inseparable from the object, that is, there is no discussion of the object existing without time. Change, according to the perdurantist, occurs when temporal parts have different properties. This is aided by the fact that we can view this difference in only one direction- that

of time- *i.e.*, we can examine a perduring object starting at the last time it exists moving backwards unless through memory. Accordingly, Paul changes and persists through that change because he has a temporal part at t_1 and another at t_2 , those parts have different properties, and that difference can be viewed in only one direction. Therefore, perdurantism does allow for an object to undergo change.

The account of change given by the endurantist will depend on what version of endurantism she accepts. The time-indexed version of endurantism argues that an object that is wholly present at a time has a property linked, necessarily, to time. What time it is linked to is contingent, but the property cannot be had *simpliciter*. As we saw earlier, for the proponent of the time-indexed version to say that the object changed because it has different relational properties is problematic. In addition, if the object has property, P-at- t , one might want to say that the object still has this property at t^* . On the time-indexed version, then, it must be said that when a different property is exemplified, the object has changed. Accordingly, Paul changes when the property bearded-at- t_1 ceases to be exemplified and the property clean-shaven-at- t_2 begins. This happens by virtue of time passing. Change is not a case of gaining or losing properties, relational or not, but a difference of which property is exemplified at what time.

The adverbialist's account of change will be similar. The adverbialist allows for a property to be had *simpliciter* by a wholly present object. There is a link between this having and the time at which it is had. According to adverbialism, any properties had by an object are always had by that object. If an object has *t*ly a property, the object will always have *t*ly that property. Paul is t_1 ly bearded at t_2 and t_3 . Change, then, cannot be a matter of one property being exchanged for another. Instead, change will have to be a difference in exemplification of properties. It may be the case that, at t_2 , Paul is bearded t_1 ly. However, he is clean-shaven t_2 ly and thus exemplifies the property of clean-shavenness. At first glance this would appear no different from the time-indexed version of endurantism. Both claim change is a result of a difference in property exemplification. However, they each have a different metaphysical account for where the relation to time lies. The difference is a matter of whether one wishes to

adhere to properties *simpliciter* being had in relation to time or to properties being relational instead of intrinsic.

The presentist has a slightly different conception of change from the non-presentist versions of endurantism. According to the presentist, the only time that exists is the present. If an object exists, then it is wholly present at the present time. This object can have a property *simpliciter* at this time. Whereas the non-presentist versions of endurantism argue that the object cannot be discussed as having a property without reference to time, the presentist makes no such claim. After all, if the object has a property (and the present is the only time that exists), then it goes without saying that the property is had in the present. Change, then, according to the presentist involves an object having a property that it did not have when a past time was present. Accordingly, Paul is clean-shaven, for example, because t_2 is the present. It may have been the case that, when " t_1 is present" was true, Paul was bearded. That is no longer the case, thus Paul has changed.

In order for an examination of how each theory accounts for change to resolve the endurantist/perdurantist debate, each theory would have to be using the same idea of persistence through change. When the endurantist considers change on the perdurantist's account, she uses her own conception of change. If the object is not wholly present at each time, it cannot change. Likewise, when the perdurantist considers change, he does not consider the thing that exists at a time as persisting through the gain and/or loss of properties. When perdurantists and endurantists argue as to which account can or cannot account for change, they are using different notions of change. It would seem, then, that, when discussing change, each side of the debate is talking past the other. This is unacceptable if one expects for this issue to resolve the debate.

In conclusion, I have argued that the no-change objection against perdurantism is not sufficient to resolve the endurantist/perdurantist debate. Endurantists argue that perdurantism is incapable of accounting for change, unlike endurantism. I have shown why one might not think the accounts of change each version of endurantism might offer are satisfactory. Furthermore, I have argued that the endurantists and perdurantists have dissimilar ideas of what it means for an

object to undergo change, given their ontological commitments. This dissimilarity has resulted in the problem not resolving the debate. In the next chapter, I will explore possible ontological accounts for each theory and show that an examination of these is what is needed in order to resolve the endurantist/perdurantist debate.

Chapter Three: The Problem of Ontology

Discussions of temporary intrinsic properties and change have dominated the endurantist/perdurantist debate for fifteen years. Yet the debate continues. While both endurantists and perdurantists can give accounts of how objects maintain identity while having complementary temporary intrinsic properties, the perdurantists find the endurantist solutions implausible, just as the endurantists find the perdurantist solution implausible. Neither the perdurantists nor the endurantists can give accounts of change that are considered satisfactory by the other side. I have argued that the implicit ontological commitments of the endurantists and perdurantists have prevented the problems of temporary intrinsics and change from resolving the debate. I argue now that endurantists and perdurantists are discussing fundamentally different things when they discuss how objects persist through time. I also argue that, while the problems of temporary intrinsics and change are important, one must ultimately examine the ontological accounts of each theory in order to resolve the endurantist/perdurantist debate.

In this chapter, I will first look at how an object exists at a time according to the endurantist and perdurantist. I will then discuss different theories of ontology. In the final section I will argue that each of the ontological accounts I present is associated strongly with only one theory of persistence or the other and demonstrate this by showing how each ontological account explains for temporary intrinsic properties and change. If this is the case, then, in order to resolve the endurantist/perdurantist debate, the focus of the debate would have to turn to an examination of the ontologies of each theory. I will also show, in this section, that these ontological accounts can help to illustrate the difficulties the problems of temporary intrinsics and change had in resolving the debate.

I

First, it is necessary to discuss what kind of thing endurantists and perdurantists believe to exist at a time. I have shown in the previous chapters that the different ontological frameworks have gotten in the way of endurantists or perdurantists finding a satisfactory account of how objects persist through time. Before looking at possible ontological accounts that may be

adopted, one must be aware of certain requirements that need to be met for an ontology to be compatible with endurantism or perdurantism. Specifically, the endurantist claims that there is an object that is wholly present at each time it exists, while the perdurantist claims that objects have temporal parts at each time the object exists. In this section, I will give an explication of what ‘wholly present’ and ‘temporal parts’ mean.

Endurantists, non-presentist and presentist alike, argue that objects are wholly present at each time they exist. Any ontological account of endurantism, then, will have to offer a definition of ‘wholly present’. According to Merricks, “An object *O* is *wholly present* if and only if all of *O*’s parts exist.”¹ Merricks argues that presentism is the only viable form of endurantism, and this is reflected in his definition. He explains that for any time that *O* exists, all of *O*’s parts exist. If *t* is present, then all of the parts *O* has exist. If *t* is not present, then *O* may have parts at *t* that do not exist. That is, if *O* has a part *P* at *t* and *t* is not present, then *O* may not have *P* as a part. Thus, to say that *O* is *F* at *t* does not entail that *O* is *F*. This definition enjoys the advantage that endurantism does not entail mereological essentialism, *i.e.*, any part of an object at any time is a part of that object at every time it exists. Sider, although a perdurantist, proposes a different definition of wholly present, one that does not presuppose presentism, in an attempt to explicate the endurantist doctrine. His definition stipulates that an object is wholly present at a time *t* if and only if “everything that is at any time part of [*O*] exists and is part of [*O*] at *t*.”² To say that *O* is *F* at *t*, then, entails that *O* is *F*. One might reject this definition, however, because it entails mereological essentialism. Sider and Merricks both point out that mereological essentialism is generally not a doctrine that endurantists want to accept, making Merricks’ definition appear more plausible. By accepting a presentist’s theory of time, Merricks is able to say that the only parts an object has are those it has at the present time, avoiding claims about parts an object might have had in the past or may have in the future and, thus, mereological

¹Merricks 1994, p. 181.

²Sider 1997, p. 210.

essentialism. I will argue later that Sider's definition of wholly present, and its implications of mereological essentialism, may be more attractive because it is compatible with a plausible ontological theory available to the endurantist.

Perdurantists argue that, at a time, objects have temporal parts that exist. In order to understand what a temporal part of an object is, perdurantists have often relied on the analogy between spatial extension and spatiotemporal extension that I have used in previous chapters. We think of roads as something that can be broken into parts. Part A of the road runs in front of my house, whereas part B of the road runs in front of my neighbor's house. The entire road can be cut into parts and described this way. These parts are combined to make the road. To say that x is a temporal part of y at t is simply to say that y is extended spatiotemporally and x is the part of y that exists at t . The temporal part x is not a distinct object from any of the other temporal parts as the workshop illustration in Chapter Two might suggest. Instead, the temporal parts are related and unified by each being a part of y at a time. Thus the whole object does not exist at a time, but parts of the object exist at different times.

II

Next, I will discuss two different ontological theories that are open to the endurantists and perdurantists as possible ontologies. Michael Loux discusses bare substrata as a possible theory of substance.³ Substance, according to Loux, is generally thought of as an object, or person, with properties. An analysis of substance often results in the idea that there is something that has these properties and can exist independently of them. It is not a thing that can be identified with or depicted by properties, since it is the bearer of properties. There is an assumption, explains Loux, that if there is an exemplified property, P , the possessor of P can be thought of independently of it. The possessor can be considered without presupposing the possession of P and is called a bare substratum, *i.e.*, a substance with no properties.

In order to understand the relationship between a bare substratum and the properties it

³See Loux 1978.

possesses, Loux develops an example. Consider a small red ball, he says. This ball has certain properties, such as the properties of being red, smooth, and spherical. Imagine that it is two inches in diameter and weighs five ounces. In addition, because it is made of rubber, it has that odor given off by rubber. When we consider the assumption above, we must come to the conclusion that whatever it is that has the property of redness, the color of the ball, that thing is not, itself, red. The property of red is had by, or added to, the thing resulting in our characterization of it as red. In addition, for something to be the color red, we consider it to be, more generally, something colored. The bare substratum, then, cannot be colored. Likewise with the other properties of texture, shape, odor, size and weight we associate with the ball. The question naturally arises as to what we can say of the ball. It seems that the ball, *i.e.*, the piece of rubber, is the thing that has these properties. We are forced into the claim that the piece of rubber has none of these qualities itself, but exists independently of them. However, that the ball is made of a piece of rubber is a quality that we must take away from the ball to reach the possessor of the qualities. We are left, then, with an indescribable thing, the bare substratum, that exists independently of any property that we might attribute to the ball.

One common criticism of bare substratum theories is that one cannot know the substrata. No qualities can be attributed to it because it is what has the qualities. There is no real way of talking about bare substrata beyond saying that it is what has the qualities that we attribute to an object. Bare substrata are also referred to as bare particulars. It is thought that they do not have any parts because they would then possess certain properties and no longer be *bare* particulars. So we can only speak of an indivisible individual with no properties. I will argue in the last section that this may be just what is needed to understand endurantism.

Alternatively, one might accept an ontology of events. In his article, "Events", Lewis describes an event as a property of a spatiotemporal region. An event occurs in a spatiotemporal region and corresponds to a property of the region. For each spatiotemporal region, there is a property that belongs to that region. This property corresponds to the event in every possible world in which it occurs, and events only occur contingently in any world in which they occur.

According to Lewis, when a region has a property, it is a member of a class, such that in all regions where a certain event occurs, the property corresponds to the event. It is possible for two separate events to occur in the same region. In this case, there are two properties, one per event. No event occurs in every possible world, and events are not repeatable, *i.e.*, the same event does not occur in two different regions of one possible world. Properties of regions that meet certain criteria are formally eligible, and these properties are events. However, this eligibility is not sufficient for an event to occur. Lewis admits that he is unable to give specific necessary and sufficient conditions for this eligibility.

The most relevant description to the endurantist/perdurantist debate that Lewis offers of events is that events can be parts of other events. If events are classes of regions, then there may be regions that are spatiotemporal regions of one another as well. One event, *e*, may be essentially a part of another event, *f*, if *f* occurs in a region in which *e* occurs in a subregion of that region. Likewise, this can work with accidental parts. It may be the case that *e* occurs in a region that overlaps with the region of *f*. There is an example of someone writing the name 'Larry'. The writing of 'rr' is a part of the writing of 'Larry' and is a subregion of the region in which 'Larry' is written.¹ However, the same applies to the writing of 'Larr' and 'rry'. The regions of these two events overlap. Thus, one event could be the summation of other events. A war might be a summation of many battles. A football game might be a summation of many different plays. This is dependent on whether there is some unity to the summation. If one was able to take some unspecified events and create a summation event, then there would be no restriction on how large and disunified an event might be. For example, if one took the battle at Gettysburg from the Civil War, the birth of Adolf Hitler and the signing of the Declaration of Independence to create a summation event, then there would be no unity in the resulting event preventing it from being a summation event. On the other hand, the invasion of Normandy, the bombing of Pearl Harbor, and the bombing of Hiroshima do result in a summation event,

¹Lewis 1986b, p. 259. He takes this example from Kim's article "Causes and Counterfactuals".

i.e., World War II (or at least part of it), because there is unity among the constitutive events.²

In this section, I have summarized two different kinds of ontologies. The bare substratum theory, has a non-specific substance or matter that possesses the properties that are attributed to objects. For a different kind of ontology, I have given an explanation of events as Lewis describes them. Events are occurrent properties of spatiotemporal regions that can be described essentially and can be parts of one another. In the next section, I will show how accepting one of these theories leads naturally to a choice about a theory of how objects persist through time.

III

I will now show that if one accepts a bare substratum theory of ontology, then one will most naturally choose endurantism as a theory of persistence. Likewise, if one accepts an events ontology, then one will most naturally choose perdurantism as a theory of persistence. I will then argue that this emphasizes the differences in what the proponent of each theory believes exists at a time. If this is the case, then, in order to resolve the endurantist/perdurantist debate, the focus of the debate must turn to an examination of the ontologies of each theory.

If one accepts either a bare substratum theory, one accepts that there is an object, *i.e.*, the substance or matter, that has all of its parts at each time it exists. Properties adhere to this substance somehow such that one can discuss the object through these properties. This is compatible with the presentist and non-presentist endurantists' argument that there is an object that exists with all of its parts at a time. The endurantist argues that the object has some kind of properties, and this object is the bare substratum. The proponent of time-indexed properties claims that this substratum has properties that stand in relation to time, while the adverbialist argues that the properties are had by the substratum in relation to time. The presentist argues that the properties are had *simpliciter* and the substratum only has a property at the present time,

²One might be able to describe this unity as causal relations. However, there would need to be some further articulation of what kind of causal relations these are. The bombing of Hiroshima may have caused the war to end preventing my grandfather from engaging in battle, allowing him to return to America and subsequently have a family. If this is the case, can we lump the bombing of Hiroshima in with the birth of his daughters as a summation event? An argument to do so would probably be weak. Whatever relations result in the unity of a summation event would need to be stronger than those. But that is a project for another time.

because the past and future do not exist. Because the bare substratum is a whole object itself, one can see that bare substrata theory is coupled with endurantism.

Furthermore, one can see how a bare substratum ontology can account for the problems of temporary intrinsics and change. One can accept the bare substratum theory and Sider's definition of wholly present, *i.e.*, everything that is at any time part of an object exists and is part of that object at t . The objection to this definition was that it leads to mereological essentialism. However, by accepting bare substrata, mereological essentialism works in favor of the endurantist. If the bare substratum is wholly present in Sider's sense, then it can maintain identity through time. For each time it exists, it necessarily has exactly those parts it had a previous times and will have in the future. The bare substratum, then, remains the same while the properties it possesses are different, hence allowing change to occur. The endurantist would have to argue that the bare substratum does not change because it is what maintains identity, but it does gain and lose properties such that we say that the object changes. Consider Paul who was bearded at t_1 and clean-shaven at t_2 . Paul is a bare substratum that remains the same while it loses the property beardedness and gains the property clean-shavenness, *i.e.*, changes. This solves both problems discussed earlier. One can still accept Merricks' definition of 'wholly present' without any conflict with bare substrata. However, if one does not want to accept presentism, Sider's definition, along with an ontology like bare substrata, allows for non-presentist endurantism.

Events, by contrast, have spatiotemporal extension and are properties of regions. Because perdurantists argue that a perduring object is spatiotemporally extended by virtue of being constituted by its temporal parts we can see that there is a connection between events and perdurantism. A perduring object would be a summation of events where the temporal parts are the constitutive events. Each event has causal relations to other distinct events, *i.e.*, events outside of the summation of which it is a member. The summation event is located in a spatiotemporal region with subregions for the smaller events. Each event is identified by the properties of the region in which it is occurring. Thus, to say that an object has temporal parts is

to say that it is made of events. To say that these parts have certain properties is to identify these events.

Furthermore, one can see how this event ontology can explain how a perduring object can maintain identity and change. The object is the event which is the summation of the events located in the spatiotemporal subregions. To say that this event maintains identity is to say that it is the same event throughout the region. It has parts where the parts of the region are different, but the region where the object (event) is remains the same. Change, then, occurs when there is an event in a subregion that has something changing throughout it. Accordingly, Paul is bearded at t_1 means that there is an event located at t_1 that is a Paul being bearded. When Paul changes to being clean-shaven, there is an event that involves a change from being bearded to clean-shaven. These events are all subregions of the event that is Paul, so there is identity. When the event occurs that involves the change throughout that subregion, Paul has changed.

The differences between the endurantist and perdurantist can be seen more clearly with these ontologies. Each member of the debate has his own conception of what it is that exists at a time and how this relates to the object's persistence through time. The ontology that is most naturally associated with endurantism is bare substrata. There is a whole substance that has properties at each time. An events ontology, by contrast, is associated with perdurantism. Temporal parts are events. These things are fundamentally different.³ Any theory of how an object persists through time will have to be able to account for temporary intrinsics and change. But these are not sufficient to determine which account is satisfactory. In order to resolve the endurantist/perdurantist debate, there must be an examination of these ontologies.

This point can be seen more clearly when we examine the difficulty the problems of temporary intrinsics and change had in resolving the debate. In Chapter One, I showed the implicit ontological commitments of the various forms of endurantism and perdurantism are

³I have offered common theories of ontologies here to demonstrate what sort of theory would be compatible with endurantism and perdurantism. Other options may need to be explored. This is a much larger project than what I was trying to undertake here.

dissimilar, preventing the problem of temporary intrinsics from being the decisive objection it was intended to be. The proponent of time-indexed properties and the adverbialist agree that an object is wholly present at a time and that there is a relation that stands between a property had by the object and a time. Their disagreement arises when one decides what metaphysical relation time stands in with respect to the property. Whereas the presentist agrees that the object is wholly present, he claims that the present holds an ontological privilege over the past and future. This privilege results in no strong metaphysical connection between the property and time being necessary since the only properties an object can have are those it has at the present. This differs significantly from the perdurantist's ontological commitments. The perdurantist makes no assertions about a link between a property and a time. Instead, there is a link between the object and a time that comes in the form of temporal parts. A temporal part, or an object-at-a-time has certain properties.

An appreciation of these differences can be heightened when one examines the theories of ontologies I have offered. If an object is a bare substratum then there would be a need for referencing the time when a property is had. A bare substratum can have complementary properties and remain identical to itself, but it cannot have them at the same time. Thus, one must have a way of knowing when one property is had and when the complement of that property is had. However, there is no need for this on an events ontology. The property had, and the time it is had at, is part of the event. These events are unified to make a summation event, or an object. I argued in the first chapter that in order for the problem of temporary intrinsics to resolve the debate, the endurantists and perdurantists needed to be working within the same ontological framework because the objection is based on the "Persistence through Change" thesis. The thesis asserts "There are (at least) two different times; one at which [an object is] bent, another at which [the object is] straight." Given these different theories of ontology, we can see that for an object to be bent according to the endurantist is different from what it means for an object to be bent according to the perdurantist. The endurantist would explain that this thesis is actually saying that there is a substratum that has the property of being bent. The

perdurantist would argue that there is an event that corresponds to the property of a being bent within a spatiotemporal region. When either makes assertions about the “Persistence through Change” thesis, then, we can see that their ontological theories are preventing them from making assertions about the same thing.

Furthermore, one can see how these ontologies can further demonstrate the dissimilarity between the endurantist’s and perdurantist’s conceptions of change. Given the implicit ontological commitments discussed in Chapter One, I argued in Chapter Two that proponents of both versions of non-presentist endurantism would have to argue that change is a result of a difference in property exemplification. The way this exemplification occurs differs, that is one would argue that the properties being exemplified are time-indexed while the other would argue that they are adverbial. The presentist argues that change occurs simply because properties that were once had when the past was present are no longer had now that it is not. It is not a matter of property exemplification, but, instead, it is a matter of an object losing a property because the past is no longer present. By contrast, the perdurantist argues that change occurs when two temporal parts have different properties. Because a perduring object is extended in time, the object loses a property when the temporal parts that are at the present time advance. Once again, this difference is only clarified by examining the ontologies. When the endurantist discusses change, he is assuming that there is an object, *i.e.*, the bare substratum, that loses and gains properties or the exemplification of properties. However, according to the perdurantist, there is an event that is a change. This event is a subregion of the region containing the summation event, or object. There is an event at one time of a having of property P and a later time with an event of a having of property P*. Between those two times there is an event that is a changing from P to P*. The endurantist objects that perdurantism cannot account for change because the endurantist examines perdurantism by looking for an object exemplifying two different properties, as a result of their fundamentally different ontological theories.

In conclusion, I have shown what kind of thing the endurantist and perdurantist believe an object is at a time. I have offered two theories of ontology and shown their association with

endurantism and perdurantism, including how each can account for temporary intrinsics and change. I have argued that these ontologies emphasize the differences in the objects at a time and help to demonstrate the difficulties we saw in earlier chapters with objections resolving the debate. Because the proponents of each theory are referring to fundamentally different things at a time when they discuss how an object persists through time, I have argued that our attention must turn to these ontologies in order to resolve the endurantist/perdurantist debate.

Conclusion

In the first chapter, I argued that the problem of temporary intrinsics was insufficient to resolve the debate because of the differing implicit ontological commitments of the endurantists and perdurantists. Each form of endurantism argues that there is an object that is wholly present at a time and has properties. The time-indexed version of endurantism argues that these properties are relational. The properties are necessarily linked to the time at which they are had. The adverbialist argues that these properties are *had* in relation to time, maintaining their intrinsic nature. By contrast, the presentist argues that properties *simpliciter* are had and with no reference to time, since the present is the only time that exists. The perdurantist argues that there are temporal parts of an object, and it is these that have properties. Because of these differing ontological commitments, each theory has a different interpretation of the “Persistence through Change” thesis upon which Lewis’ objection is based. As a result, the problem of temporary intrinsics is incapable of resolving the debate.

In the second chapter, I argued that the conceptions of change that the non-presentist endurantists, presentist endurantists and the perdurantists used are sufficiently dissimilar as to prevent the no-change objection from resolving the debate. Both the time-indexed version of endurantism and the adverbialist has ontological commitments that result in change being a difference in exemplification of properties, even though the nature of these properties is different. The presentist, however, argues that change is the result of an object having had a property when a past time was present and lacking it at the present time. As opposed to the non-presentist forms of endurantism that argue that the object still possesses the property although it is not exemplified, the object simply no longer possesses the property according to the presentist. It may have possessed it when a past time was present, but that is no longer the case. The perdurantist does not consider change to involve an object that is wholly present at each time with different properties or exemplification of properties. According the perdurantist, change occurs when different temporal parts have different properties. Because time is an essential part of a perduring object, one can only view this difference in the direction that time passes,

resulting in change. These different conceptions of change prevent the no-change objection from resolving the debate because, when the endurantist poses the objection to the perdurantist, she uses her own conception of change. Likewise, when the perdurantist argues that the endurantist fares no better in offering a satisfactory account of change, he is using his own conception of change.

In the third chapter, then, I showed that these implicit ontological commitments can be better illustrated when certain ontological accounts are associated with each theory of persistence. The endurantist will adhere to an ontological account such as a theory of bare substrata. An object is a bare substratum, *i.e.*, it is a substance with no properties or parts. This allows for the substance to maintain identity while possessing, or exemplifying, different properties over time. The perdurantist will adhere to an events ontology. Each temporal part is an event or property of a spatiotemporal region. These regions are actually subregions of a larger region that is the whole object, or summation event. Thus, at a time, the endurantist is discussing a bare substratum that possesses different properties while the perdurantist is considering different events.

In order to resolve the endurantist/perdurantist debate, the discussion must turn to these ontological accounts. Any theory of persistence will need to be able to offer an account of temporary intrinsics and change. However, examination of these issues alone has proven unfruitful. The ontologies of each theory must be examined with respect to these issues and to their overall viability. Thus, while the discussions of temporary intrinsics and change that developed after Lewis' objection fifteen years ago have illuminated these issues, our attention must shift to the underlying ontologies in order to find the answer.

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Vita

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