

Change and Persistence

Antony Eagle

University of Adelaide
<antony.eagle@adelaide.edu.au>

Metaphysics » Lecture 6

Contents

- Perdurantism
- The Puzzle of Change
- Endurance and the Problem of Temporary Intrinsic
- Presentism and Temporary Intrinsic
- Coincidence, Constitution, and Persistence

Perdurantism

Persistence

- › To **persist** is to be found at more than one time; to exist over time; to survive from one time to another; etc.
 - › *Found at* doesn't mean 'entirely present at' – more like, you can be found at a region when you are not entirely outside it. (More on this **next time**.)
 - › Arguably the sense in which the University can be found at each of its buildings.
 - › When we ask about identity over time, we are asking about persistence, about what principles describe the temporal structure of a persisting entity.
- › We might generalize the case of persons, but it's not obvious how to do that – what's the parallel to psychological continuity for an atom, or a galaxy?
- › The key idea is that a persisting thing is **not confined to an instant**, but instead exists throughout an extended interval.

Two Theories of Persistence

- › Two ideas about how to understand ‘not confined to an instant’:
 1. A persisting thing is **wholly present** at each instant in the interval; and
 2. A persisting thing is **partly present** at each instant in the interval, and wholly present only at the whole interval.
- › The two main accounts of persistence start from these ideas:

Let us say that something *persists* iff, somehow or other, it exists at various times; this is the neutral word. Something *perdures* iff it persists by having different temporal parts, or stages, at different times, though no one part of it is wholly present at more than one time; whereas it *endures* iff it persists by being wholly present at more than one time. (Lewis 1986a: 202)
- › Perdurantism says that **extending** through time (i.e., persisting) is like extending across space; objects do that by having different parts at each place.

Endurance

- › **Endurantism** says that an object persists by being **wholly present** at the various times at which it exists: ‘an object endures iff it is wholly present at multiple regions of spacetime’ (Rea 1998: 232).
- › It is perhaps the **commonsense** view. Think of the puzzle about **identity** that we addressed **last time**: what conditions ensure that an object picked out at one time is the same as an object picked out at another time?
- › At face value, that presupposes that you have picked out the same thing on each occasion, that you are pointing at the same **numerically identical** object, wholly present, in order to be pointed at, at each time – even if it has changed.
- › We will operate for now with this informal understanding of endurance.
 - ›› We will put this notion of ‘wholly present’ under greater scrutiny **next time**.

The Four-Dimensional Picture

- › Perdurantism – otherwise known as **four-dimensionalism** (though this is misleading, since it is a view about things, not space and time – see Parsons (2000)) – is widely defended (Smart 1963; Hawley 2001; Balashov 2010).
- › It is the natural approach to the persistence of **events**: a war has a duration, and battles and campaigns, etc., are parts of it that occupy briefer durations.
- › This analogy with events helps us understand perdurance:

Think of your life as a long story. ... Like all stories, this story has parts. We can distinguish the part of the story concerning childhood from the part concerning adulthood. Given enough details, there will be parts concerning individual days, minutes, or even instants.

According to the 'four-dimensional' conception of persons (and all other objects that persist over time), persons are a lot like their stories. Just as my story has a part for my childhood, so I have a part consisting just of my childhood. Just as my story has a part describing just this instant, so I have a part that is me-at-this-very-instant (Sider 2001: 1)
- › Obviously, this is exactly Lewis' view of persons as **aggregates of distinct person stages** (1976: 59) from **last time**.

Perdurance Illustrated

A singly located persisting thing with instantaneous temporal parts

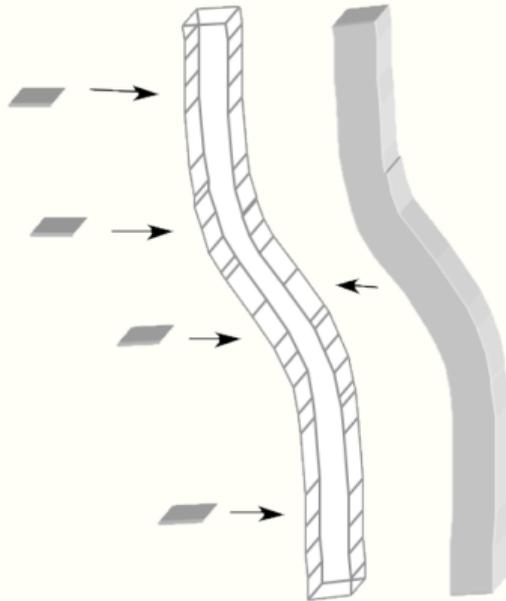


Figure 1: Perdurance illustrated. (Gilmore 2018: fig. 7)

An initial challenge: why think we can understand this framework?

Objection. I understand the illustration, which makes spatial and temporal parts look analogous (just rotate the diagram 90°). But I think there are disanalogies too: time just is different from space, and we cannot just assume that what appears to make analogical sense really is conceptually coherent. I understand the notion of a part; but that is a *spatial* notion (my parts are those things I contain; my hand, for example, which persists just as much as I do). I cannot understand the atemporal relation of parthood needed for *temporal parts* to make sense.

- › The perdurantist must show that the **concept of temporal part is coherent**. Having addressed this, we can then turn to whether temporal parts are **actually involved** in persistence.

Parts

- › Almost everyone believes that things have **spatial parts**: my hand is part of me, maybe cells are part of it (and, in turn, of me), molecules part of cells, and so on down to the smallest sub-atomic particles (if there are any – or maybe divisibility goes on forever).
 - › And I am part of myself, in a trivial sense – we stipulate for convenience that *part* is to be distinguished from *proper part*, which is to mean ‘part of **and** distinct from’.
- › These proper parts are smaller than me, but overlap me: ‘they are “cut out of” me along a spatial dimension’ (Sider 2001: 2).
- › They may not be **separable**, but they are still parts:

Talk of cutting and slicing must be taken with a grain of salt: the parts are there whether or not they are physically separated from the whole. (Sider 2001: 2)

Four-Dimensional Objects

- › The perdurantist argues that, exactly analogously, there are **temporal (proper) parts**: slices or segments of me along a temporal dimension.
- › To understand this, let's start with a four-dimensional manifold of space and time: a B-theoretic block universe.
- › Material things have **locations** in this spacetime.
 - › Indeed, we may define a **material object** as 'the material content of a [filled] region of spacetime' (Heller 1984: 325).
- › Persisting things have locations that are spacetime regions, extended in space **and** time.
- › A block universe picture permits us to understand four-dimensional objects in just the same sort of way we understand three-dimensional objects:

just as we might talk about the distance between two points along a line in space, we can also talk about the distance between two points in time. This allows us to understand the notion of temporal boundaries as analogous to that of spatial boundaries. Furthermore, there is an analogy with respect to the part-whole relationship. Just as a spatial part fills up a sub-region of the space occupied by the whole, a temporal part fills up a sub-region of the time occupied by the whole. (Heller 1984: 325)

Spatiotemporal Parts

- › Once we understand four-dimensional objects, we can understand their parts:

A four dimensional object is the material content of a filled region of spacetime. A spatiotemporal part of such an object is the material content of a sub-region of the spacetime occupied by the whole. For instance, consider a particular object O and the region R of spacetime that O fills. A spatiotemporal part of O is the material content of a sub-region of R . A spatiotemporal part, as long as it has greater than zero extent along every dimension, is itself a four dimensional physical object. A spatiotemporal part is not a set or a process or a way something is at a place and time. It, like the object it is part of, is a hunk of matter. (Heller 1984: 326)

Which Spatiotemporal Parts Are There?

- › We believe in a **plenitude** of subregions of a given region: a region is made out of points, and we might well believe, there is a region – perhaps disconnected or **scattered**, perhaps very weirdly shaped – corresponding to any subcollection of those points.
- › Two questions arise, over the truth of two principles.

Liberal View of Receptacles ‘All regions of space are ... possibly occupied by a material object’ (Uzquiano 2006: 427; see also Cartwright 1975).

Doctrine of Arbitrary Undetached Parts ‘For every material object M , if R is the region of space occupied by M at time t , and if sub- R is *any* occupiable sub-region of R *whatever*, there exists a material object that occupies the region sub- R at t ’ (van Inwagen 1981: 123).

- › Heller is sympathetic to DAUP and the Liberal view, but it is perfectly consistent with the perdurantist picture that only **some** subregions of O 's location are occupied by a part of O (Heller 1984: 327).

Temporal Parts

- › What is a temporal part? It is a spatiotemporal part which is smaller than the whole object along the temporal dimension, but **only** that dimension.
- › It is as large as the object spatially at the times at which both exist; but it is shorter lived, perhaps radically so.

a temporal part of O is the material content of a temporal sub-region of R .

'Temporal sub-region of R ' means spatiotemporal sub-region that shares all of R 's spatial boundaries within that sub-region's temporal boundaries. A temporal part of me which exists from my fifth birthday to my sixth is the same spatial size I am from age five to age six. (Heller 1984: 328)

Arguing for Perdurantism

[P]erdurantism has been recommended on the grounds that: (i) it solves several of the puzzles that raise the problem of material constitution; (ii) it is (at least) suggested by the special theory of relativity...; (iii) it is the only view that makes sense out of the possibility of intrinsic change; (iv) it is the only view consistent with the doctrine of Humean supervenience; and (v) it makes better sense than its competitor out of the possibility of fission. These are the primary and most powerful claims that have been made on behalf of perdurantism. (Rea 1998: 225)

- › We've tackled the fission argument **already**, and we'll look more closely at relativity **later**.
- › This time, we'll look at the **argument from change**; and at **puzzles of material constitution and coincidence**.
- › But we turn first to 'Humean Supervenience'.

A World of Stages

- › **Humean Supervenience** is the view that there can't be distinct possible worlds that are exactly alike in 'the distribution of local qualities and their causal relations' (Lewis 1976: 77; see also Lewis 1986b: ix–xvii).
- › Lewis (1976: 76–77) argues that if Humean Supervenience is true, then things are made of temporal parts. The general argument form is something like this:
 1. Instantaneous objects that are just like the stages of persisting objects at each time are **possible**.
 2. Since they are **individually** possible, and don't **overlap** in space or time, we can **recombine** them into a new possibility (like making a **patchwork quilt**).
 3. By judicious recombination, we can construct a world of stages that, point-by-point across all of spacetime, **perfectly resembles** our world.
 4. But then that would be our world, by Humean Supervenience.
 5. So **instantaneous stages (=temporal parts) actually exist**.
- › Non-perdurantists will likely get off at step 1: why think instantaneous things are just like the stages of persisting things?

The Puzzle of Change

The Case of the Taper

Suppose I put a new 7-inch taper on the table before dinner and light it. At the end of dinner when I blow it out, it is only 5 inches long. We know that a single object cannot have incompatible properties, and being 7 inches long and being 5 inches long are incompatible. So instead of there being one candle that was on the table before dinner and also after, there must be two distinct candles: the 7-inch taper and the 5-inch taper. But of course the candle didn't shrink instantaneously from 7 inches long to 5 inches long: during the soup course it was 6.5 inches long; during the main course it was 6 inches long; during dessert it was 5.5 inches long. Following the thought that no object can have incompatible lengths, we must conclude, it seems, that during dinner there were several (actually many more than just several) candles on the table in succession. (Haslanger 2003: 315-16)

The Puzzle of the Taper

- › The conclusion – that there are **several** candles on the table – is inconsistent with our ordinary judgement, that there is **just one** candle on the table.
- › We want to say: the candle has **changed** in length, but that it is still the same candle.
- › The case as Haslanger presents it concludes that change leads to a **multiplicity** of candles; conversely, if you want identity over time, you had better not ascribe ‘incompatible properties’ to an object.
- › But what is change, except the **successive** possession of incompatible properties?

Assumptions Generating the Puzzle of Change

- Persistence condition** Objects, such as a candle, persist through change.
- Incompatibility condition** The properties involved in a change are incompatible.
- Law of non-contradiction** Nothing can have incompatible properties, i.e., nothing can be both Φ and not- Φ .
- Identity condition** If an object persists through a change, then the object existing before the change is one and the same object as the one existing after the change: that is, the original object continues to exist through the change.
- Proper subject condition** The object undergoing the change is itself the proper subject of the properties involved in the change; for example, the persisting candle is itself the proper subject of the incompatible properties. (Haslanger 2003: 316-17)

Seeing the Puzzle, Solving the Puzzle

- › It's easy to see what the **problem** is. If there are changes, they involve an **identical** object α before and after the change, which is itself the **proper subject** of **incompatible** properties, so that it is true that $\Phi\alpha$ and $\neg\Phi\alpha$. But this is excluded by **non-contradiction**.
- › We must accept that **there are changes**; that objects at least sometimes **survive them**, and **persist**; and that contradictions are not true.
- › That leaves the **Incompatibility** and **Proper subject** conditions up for grabs.
 - › Actually, so-called **stage-theorists** (or 'exdurantists') deny the Identity condition (Hawley 2001: 41–48; Sider 2001: 188–99): they say that ordinary objects are instantaneous stages, but that objects persist by being interestingly related to other instantaneous objects at other times.
 - › The stage theory says the questions we normally raise by asking *is this the same as that?* are best interpreted as concerning persistence, not identity – the debate over personal identity is genuine, but mislabelled, on their view.

Perdurantist Change: The Road Analogy

A person's journey through time is like a road's journey through space. The dimension along which a road travels is like time; a perpendicular axis across the road is like space. Parts cut the long way - lanes - are like spatial parts, whereas parts cut crosswise are like temporal parts. US Route 1 extends from Maine to Florida by having subsections in the various regions along its path. The bit located in Philadelphia is a mere part of the road, just as it is only a mere part of me that is contained in 1998.

A road changes from one place to another by having dissimilar sub-sections. Route 1 changes from bumpy to smooth by having distinct bumpy and smooth subsections. On the four-dimensional picture, change over time is analogous: I change from sitting to standing by having a temporal part that sits and a later temporal part that stands. (Sider 2001: 2)

Perdurantism and Change

- › A **changing object** exists over time; it will therefore be more than momentary. The doctrine of temporal parts then entails that it has distinct parts at those times.
- › Change in a temporally extended object therefore involves **having one temporal part with one property, and another temporal part with an another incompatible property**.
 - › Change is the temporal analogue of **spatial variation**: a polka-dot skirt varies in colour from place to place (here red, there white);
- › Perdurantism accepts Identity, Non-contradiction, Incompatibility, and Persistence.
- › But denies **Proper subject**, as the thing which actually **has** the properties directly are the temporal parts, not the persisting object – the object has the property only partly, or derivatively.

Perdurance and the Proper Subject Condition

It is a disadvantage of the perdurance account that it sacrifices the proper subject condition. How? Consider again the candle's change from straight to bent. On the perdurance view, the proper subject of straightness is the early candle-stage; the proper subject of bentness is the later candle-stage. The candle composed of these parts is not strictly speaking both straight and bent (otherwise we would be left again with a contradiction), but is only indirectly or derivatively straight and bent by virtue of having parts that are. (Haslanger 2003: 331)

- › Many properties are had by extended entities in virtue of their parts non-derivatively having them.
 - › E.g., *being sunburnt* or *being in pain* is a predicate you satisfy typically in virtue of just part of you being burnt or in pain.
 - › Especially true of features ascribed from a **perspective**: e.g., *the ascent is challenging* may be truly ascribed of a mountain from one side, and falsely ascribed from another.
- › The perdurantist might say, when you say *the candle is 7in long* at time *t*, you are expressing a proposition about the **current temporal part**, e.g., that ⟨the candle-temporal-part-at-*t* is 7in long⟩.
 - › The candle itself, being a four-dimensional object, can't sensibly be assigned a purely **three-dimensional shape**.

Endurance and the Problem of Temporary Intrinsics

Endurance and Change

- › Endurance accepts Identity, Proper Subject, Persistence, and Non-contradiction. It must therefore **deny** that the properties involved in change are **Incompatible**. How?
- › We note that ascriptions of change are always **tensed**: the candle **was** 7 inches, **now is** 5 inches.
- › Two endurantist approaches exploit this:
 - ›› The A-theoretic approach says that the properties aren't incompatible, because they are **tensed**: the predicates *is 5 inches* and *was 7 inches* aren't incompatible.
 - ›› The B-theoretic endurantist construes properties as **relations to times**; to change is to stand in one relation – the **being 7 inches long** relation – to one time, and to stand in another relation – the **being 5 inches long** relation – to another time (Haslanger 2003, p. §5).
- › These approaches, given their different metaphysical backgrounds, need quite different treatment. We look now at the B-theoretic approach, turning to **A-theoretic endurantism** below.

Intrinsic Properties

A sentence or statement or proposition that ascribes intrinsic properties to something is entirely about that thing; whereas an ascription of extrinsic properties to something is not entirely about that thing, though it may well be about some larger whole which includes that thing as part. A thing has its intrinsic properties in virtue of the way that thing itself, and nothing else, is. Not so for extrinsic properties, though a thing may well have these in virtue of the way some larger whole is ... If something has an intrinsic property, then so does any perfect duplicate of that thing; whereas duplicates situated in different surroundings will differ in their extrinsic properties (Lewis 1983: 111-12)

- › So **weighing 500kg**, **being chromosomally XX**, **being a cuboid** are all plausibly intrinsic; while **weighing more than me**, **being a daughter**, and **being the same shape as this cardboard box** are extrinsic.

Genuine Change vs 'Cambridge' Change

- › One proposal: x changes iff there is a **predicate** Φ which is true of x at one time, and false of it at another.
- › Problem: what if the predicate is *is an aunt*? It seems that someone can become an aunt in virtue of a change in their sibling, but without (intuitively) changing themselves – or if they do change, they change only **derivatively**.
 - › This is known as 'Cambridge' change (Mortensen 2020: §2).
- › Solution: 'real' change must be alteration in an **intrinsic property**; an object changes directly when it has, then lacks, (or lacks, then has) an intrinsic property.
- › So it is necessary and sufficient for genuine change in x that there exist a predicate Φ expressing an intrinsic property, such that $\Phi(x)$ is true at one time and false at another.

Lewis on the Endurantist Alternative

[Maybe] shapes are not genuine intrinsic properties. They are disguised relations, which an enduring thing may bear to times. One and the same enduring thing may bear the bent-shape relation to some times, and the straight-shape relation to others. In itself, considered apart from its relations to other things, it has no shape at all. And likewise for all other seeming temporary intrinsics... The solution to the problem of temporary intrinsics is that there aren't any temporary intrinsics. This is simply incredible, if we are speaking of the persistence of ordinary things.... If we know what shape is, we know that it is a property, not a relation. (Lewis 1986a: 204)

An Argument From Temporary Intrinsic (Lewis 1986a: 202–4)

- (1) To **persist** is to exist at more than one time.
- (2) Human beings can persist through intrinsic change: for example, from having a sitting shape, to having an **incompatible** standing shape.
- (3) It is possible that a human being have **intrinsically** a sitting shape, and an incompatible standing shape. (1, 2)
- (4) An object can only have incompatible properties in one of two ways: (i) if the properties are **not really incompatible** or (ii) if the object has the properties **indirectly**, by proxy.
- (5) **Intrinsic** properties, if they are involved in change, really are incompatible.
- (6) An object can only have incompatible properties if the object has the properties **indirectly**, by proxy. (4, 5)
- (7) Therefore, human beings can persist through intrinsic change only if those properties are really intrinsic properties of proxy individuals: such as **temporal parts**. (3, 6)

Endurantist Response: Redefine *Intrinsic*

- › Must an endurantist reject intrinsic properties?
- › Perhaps they can **redefine** *intrinsic*, so that relations to times can count as intrinsic in the relevant sense (and hence (5) is false):

A relation to a time R is intrinsic iff for all x and y , and any times t_1 and t_2 , if x at t_1 is a duplicate_E of y at t_2 , then either $R(x, t_1)$ and $R(y, t_2)$, or $\neg R(x, t_1)$ and $\neg R(y, t_2)$. (Eddon 2010: 608)

- › Or relativise **instantiation** to times, rather than the intrinsic properties that are temporarily instantiated.
- › But this move, and others like it, still runs afoul of the intuition:
The endurantist may contrive a sense in which her ephemera are intrinsic and monadic, but nonetheless these properties seem unacceptably relational. (Eddon 2010: 608–9)
- › **Next time** we will consider some more sophisticated B-endurantist responses to the problem of temporary intrinsics.

Presentism and Temporary Intrinsic

Change and Time

- › Perdurantist and endurantist views we've considered so far are compatible with the **B-theory**.
- › This has led some to object that **none of these accounts yield genuine change** (Haslanger 2003: 331–34).
 - › For a static B-theory world, of many relations to different times, or many permanently unchanging stages, doesn't seem to be a world of dynamic change at all.
- › On the other hand, if we allow for genuine A-theoretic change in how things are, we might be able to **sidestep** the whole problem of change (Haslanger 2003: 336–40).
- › As long as we can make sense of dynamic change over time in which facts are absolutely and fundamentally true, then we can say that at one time, it fundamentally and absolutely is the case that $\Phi\alpha$ and $WILL(\neg\Phi\alpha)$; and at some other time $t' > t$, fundamentally and absolutely, $\neg\Phi\alpha$ and $WAS(\Phi\alpha)$.
- › Yet at most one of those times is present, so **at most one** of those times represents accurately how things really are. There is no incompatibility at that time, and any incompatibility over time is avoided by the tense operators.
 - › Though it **was** the case that the candle is 7in long, that is not a way of **being** 7in long – so nothing has (i.e., has presently) incompatible properties.

Zimmerman's Presentist Response

I am willing to grant Lewis's assertion that, once someone admits that I have more properties than just those I have now, she must choose between [treating properties as relations to times, or perdurantism]. What I want to question instead is the very first move: Why suppose that I must have more than just the properties I have now? (Zimmerman 1998: 207-8)

- › If objects only have their **present** properties, then premise (1) of Lewis' argument is false: whatever we might wish to say about persistence, it **cannot** involve an object being at more than one time, and having incompatible properties – at most, objects **are** at one time, and **were/will be** at other times.
 - › This line of thought has generally been pursued by presentists, but any A-theory that says the present truth value of intrinsic property ascriptions is **privileged** as the **absolute** (though temporary) truth will also invalidate premise (1).
- › This kind of response is obviously hostage to the fortunes of the A-theory. But even setting that aside, does it give a good account of change?

The Most Fundamental Kind of Change

the presentist could not very well regard all the fundamental truth-bearers as eternally true, corresponding to tenseless statements. For, she says, one of the truths is that wholly future things, like my first grandchild, do not exist - and such truths had better be susceptible to change (Zimmerman 1998: 211-12)

- › The proposal is: perhaps the basic kind of change is **change in truth value of a proposition** (rather than the change in the applicability of a predicate).
- › If we 'take tense seriously' - i.e., are **A theorists** - then we will understand that propositions have their truth values only **temporarily**. One and the same proposition can change its truth value; but that had better **not** mean that it has **incompatible truth values**.

Haslanger on Temporary Truth

But there is still a question about how it is, abstracted from its changing history, i.e., abstracted from its variation from time to time. We cannot describe the enduring object in these terms as simply bent or straight; so it could only be shapeless... although a description of the enduring object which abstracts from its changing history does not include a particular shape as part of that description..., such a description is incomplete; most importantly, it doesn't include all of the intrinsic properties of the object because some of the intrinsic properties of the object are had at some times and not at others. ... The endurance theorist denies that the description which characterizes the object 'timelessly' is the description which captures all of the intrinsic properties of the object. The enduring object is bent and then straight; it is not a shapeless blob. (Haslanger 1989: 124)

- › The endurantist ought to respond: there is no way a thing is 'abstracted from' how it is at times; for there simply is no **view from nowhen** that presents things as they atemporally are.
 - ›› We could give an incomplete account of how something is, one that cites only its permanent properties – but then Haslanger would be pointlessly complaining of an intentionally incomplete account that it is incomplete.

Do Presentists Reject Persistence?

Second solution: the only intrinsic properties of a thing are those it has at the present moment. Other times are like false stories; they are abstract representations, composed out of the materials of the present, which represent or misrepresent the way things are. When something has different intrinsic properties according to one of these ersatz other times, that does not mean that it, or any part of it, or anything else, just *has* them – no more so than when a man is crooked according to the *Times*, or honest according to the *News*. This is a solution that rejects endurance; because it rejects persistence altogether.... In saying that there are no other times... it goes against what we all believe. No man, unless it be at the moment of his execution, believes that he has no future; still less does anyone believe that he has no past. (Lewis 1986a: 204)

- › This is contentious: if the distinction is made between believing *I have a past*, and believing *I had a past*, it is not so clear that no-one believes the former to be false.

Is Persistence Incompatible with Presentism?

- › Lewis thinks this is 'obviously true':

(PC) There are ... two different times; one at which I am bent, another at which I am straight (Zimmerman 1998: 213)

Does this commit me to the existence of times other than the present? Well, when I ask myself whether I think that my childhood exists, ..., the answer comes back a resounding No. Is it just that I feel that past and future things and events can be regarded as nonexistent because they are 'temporally far' from me? I think not - the past is no more, and the future is not yet, in the strictest sense. And so those who share this judgment begin the work of philosophical paraphrase, trying to find plausible construals of statements like ... (PC) that capture what is meant but do not involve direct reference to nonpresent times, individuals, and events (Zimmerman 1998: 214-15)

Zimmerman's Paraphrase of (PC)

So, for instance, (PC) can be taken as a tenseless statement expressing a disjunction of tensed propositions: Either I was bent and would become or had previously been straight, or I was straight and would become or had previously been bent, or I will be bent and will have been or be about to become straight, or I will be straight and will have been or be about to become bent. Surely this tensed disjunction is true if (PC) is true; furthermore, it contains no mention of anything like a nonpresent time. So, given the presentist's desire to avoid ontological commitment to nonpresent times, this tensed statement provides a perfectly sensible paraphrase of my conviction that I can persist through change of shape (Zimmerman 1998: 215)

The General Project of Paraphrase

The large-scale project of paraphrasing truths ostensibly about nonpresent times and things is as complex and difficult as the counterpart project concerning nonactuals. Ways must be found to capture all truths about past and future things without the appearance of ontological commitment to such things (Zimmerman 1998: 215)

- › The general project isn't really about **paraphrase**, if that involves reformulating a claim to 'say the same thing' – for of course, the presentist doesn't want to say the same thing as the B-theorist about future moments.
- › Rather, the idea is that paraphrase in a more extended sense **saves the appearances**: it gives us a way of understanding the sentence (PC) as true, even though read B-theoretically it ought to be false.
- › It is an open question if such paraphrases can be carried out for the A-theory; but this is not really a question specifically about change any more.
- › If the A-theory is true, then I think there are viable A-theoretic accounts of change and persistence. So the question is, in the end, a familiar one: *is the A-theory a good account of time?* – a question we have **discussed already**.

Coincidence, Constitution, and Persistence

Another defence of perdurance: theoretical utility

How might the four-dimensional conception be supported? One way is by appeal to its utility in defusing certain classic puzzle cases about identity over time. ... From [considering] traditional puzzles about identity over time, a powerful case emerges for postulating a four-dimensional world of temporal stages. If we believe in **perdurantism**, we can dissolve these and other puzzle cases; if we do not, we are left mired in contradiction and paradox. (Sider 2001: 4-10)

- › We'll look at three puzzle cases about coincidence and material constitution:
 1. Statue and Lump;
 2. The Ship of Theseus;
 3. Body/Body-minus, aka Tib/Tibbles: Wiggins (1968: 94).
- › The case of Body/Body-minus we leave to **next time**, when we have a better idea about parthood.

Statue and Lump

Suppose that on Monday an artist obtains a lump of clay, and on Tuesday forms a statue using that clay. It is natural to say that the artist has *created* something.... After the act of creation, let us name the lump of clay (which is now in statue form) Lump; and let us name the statue Statue. Lump and Statue *seem* to be one and the same object. But if they are to be identical, Leibniz's Law requires them to share all of their properties. Lump and Statue *do* share many properties: they have the same mass, the same shape, the same location, and are made up of the same subatomic particles. But if we turn our attention to *historical* properties, we find differences. Since the statue was created on Tuesday, it did not exist on Monday, but the lump did exist on Monday. Therefore, Statue \neq Lump, since only Lump has the property *existing* on Monday. But how can this be? (Sider 2001: 5)

The Perdurantist Response to Statue and Lump

- › Statue and Lump are four-dimensional objects.
- › That they differ historically shows that their four-dimensional sizes are different, and hence that they are **non-identical**.
- › But that doesn't mean that, in this region right now, are two **coincident** entities, one a statue, and the other a lump, made from the same stuff and exactly qualitatively alike in all intrinsic respects.
- › Rather, the statue and the lump exist today **in virtue of** having a part here: and they appear to coincide because the present part is part of **both**.
- › Recall Lewis on coincident roads – the case is just the same!

Anti-Coincidence

One nice ramification of these considerations is that an object and a proper part of that object do not, strictly speaking, exist in the same space at the same time. An object is not coincident with any of its proper parts. Intuitively, the problem with coincident entities is that of overcrowding. There is just not enough room for them. But an object and a part of that object do not compete for room. There is a certain spatiotemporal region exactly occupied by the part; the whole object is not in that region. There is only as much of the object there as will fit - namely, the part. (Heller 1984: 329)

Goliath and Lumpl

I make a clay statue of the infant Goliath in two pieces, one the part above the waist and the other the part below the waist. Once I finish the two halves, I stick them together, thereby bringing into existence simultaneously a new piece of clay and a new statue. A day later I smash the statue, thereby bringing to an end both statue and piece of clay. The statue and the piece of clay persisted during exactly the same period of time. (Gibbard 1976: 191)

- › There is no easy perdurantist solution here; nor is there an easy endurantist solution.
- › We need to appeal to a purely **modal** differences – e.g., that Lumpl, but not Goliath, could survive being squished – to ground the distinction between Goliath and Lumpl.
 - ›› But how could there be **ungrounded** modal distinctions between things that differ in no actual respect (Bennett 2003)?

Ship of Theseus

Imagine replacing The Ship of Theseus's planks one by one until all the original planks are gone, and christen the final ship 'Replacement'. Since replacement of a single plank does not destroy a ship, we obtain a series of true identity statements... By the principle of the transitivity of identity ..., The Ship of Theseus = Replacement. ... But now imagine that each plank removed during this process was saved in a warehouse. After enough planks accumulated, we began assembling them into a new ship. ... We now face a difficult question: which ship is the same ship as the original Ship of Theseus? We argued via the transitivity of identity that Replacement is The Ship of Theseus; but Planks also has a powerful claim since it contains all the original planks. Surely a ship could be transported over land by disassembly and subsequent reassembly; the case of The Ship of Theseus and Planks seems parallel. (Sider 2001: 6-7)

The Perdurantist Response to Ship of Theseus

- › Perdurantists often accept this principle:
Unrestricted Mereological Composition 'For any things whatsoever, the xxs , there is a thing which has all and only things amongst the xxs as parts, the **fusion** of the xx ' (Lewis 1991: 72–87).
- › So there **are** such things as Planks and Replacement.
- › And there are even such things as arbitrary **spacetime worms**, including these two: (i) one that begins with the Ship of Theseus, and end in Planks, and has the scattered fusion of Planks' planks as its temporal part at every time; and (ii) another that also begins with the Ship of Theseus, ends in Replacement, and has a ship in various stages of repair as its temporal part at every time.
- › Which **really is** the Ship of Theseus though?

Conceptual vs Metaphysical Questions

Perhaps our concept of a ship does not emphasize sameness of planks, and applies to spacetime worms that continue in ship form even if they exchange planks. The replacement worm rather than the original planks worm would then count as a ship, and the correct answer to the question would be Replacement. ...

On the other hand, perhaps it is a feature of our concept of a ship that ships must retain the same planks. The original planks worm, rather than the replacement worm, might then count as a ship. ...

... the *metaphysical* puzzle has been dissolved. We have a perfectly clear metaphysical picture of what happens: the world contains spacetime worms corresponding to both answers to our question. The only remaining question is the merely *conceptual* one of which of these spacetime worms counts as a ship. (Sider 2001: 9-10)

Return to Goliath and Lumpl

- › This idea of a conceptual question might help with Goliath and Lumpl too.
- › Consider the idea of a **counterpart**:

Where some would say that you are in several worlds, in which you have somewhat different properties and somewhat different things happen to you, I prefer to say that you are in the actual world and no other, but you have counterparts in several other worlds. Your counterparts resemble you closely in content and context in important respects. They resemble you more closely than do the other things in their worlds. But they are not really you. For each of them is in his own world, and only you are here in the actual world. (Lewis 1968: 114)

- › According to **counterpart theory**, a modal claim like ‘Lumpl could survive being squashed’ is true iff there is some possible **counterpart** of Lumpl that is (in another possibility) squashed.

Counterparts in Context

- › A counterpart ‘resembles you... in important respects’; but since similarity and importance are both context-sensitive notions, one and the same object can have multiple counterpart relations, depending on which of its features we emphasise (Sider 2001: 223).
 - › Similar to the Ship of Theseus case, which features are emphasised might depend on the name we use – use *Goliath*, and we invoke statue-esque counterparts; use *Lumpl*, and we invoke lump-y counterparts.
- › Counterpart theory, plus context sensitivity, allows us to say that *Lumpl could survive being squashed* is true in context *c* (because Lumpl has a squished counterpart lump); that *Goliath could survive being squashed* is false in context *c'* (because Goliath lacks a squished counterpart statue); and Goliath = Lumpl:

By contrast with the space-time worms, statues and pieces of [clay] are not purely extensional entities. For while they are nothing over and above their parts according to four-dimensionalism, the salient counterpart relations depend on how we conceive of those parts, whether as a statue, a piece of [clay], or some other way. ... that conception ... determine[s] what we can truly say – what we may predicate – of the piece of [clay]. (Eagle 2007: 161)

References

References

- Balashov, Yuri (2010) *Persistence and Spacetime*. Oxford University Press.
- Bennett, Karen (2003) 'Why the Exclusion Problem Seems Intractable, and How, Just Maybe, to Tract It', *Noûs* 37: 471–97. doi:[10.1111/1468-0068.00447](https://doi.org/10.1111/1468-0068.00447).
- Cartwright, Richard (1975/1987) 'Scattered Objects', in *Philosophical Essays*: 171–86. MIT Press.
- Eagle, Antony (2007) 'Reply to Stone on Counterpart Theory and Four-dimensionalism', *Analysis* 67: 159–62. doi:[10.1111/j.1467-8284.2007.00667.x](https://doi.org/10.1111/j.1467-8284.2007.00667.x).
- Eddon, M (2010) 'Three Arguments from Temporary Intrinsics', *Philosophy and Phenomenological Research* 81: 605–19. doi:[10.1111/j.1933-1592.2010.00371.x](https://doi.org/10.1111/j.1933-1592.2010.00371.x).
- Gibbard, Allan (1976) 'Contingent Identity', *Journal of Philosophical Logic* 4: 187–221. doi:[10.1007/bf00693273](https://doi.org/10.1007/bf00693273).
- Gilmore, Cody (2018) 'Location and Mereology', in Edward N Zalta, ed., *The Stanford Encyclopedia of Philosophy*. Metaphysics Research Lab, Stanford University. <https://plato.stanford.edu/archives/fall2018/entries/location-mereology/>.
- Haslinger, Sally (1989) 'Endurance and Temporary Intrinsics', *Analysis* 49: 119–25. doi:[10.1093/analys/49.3.119](https://doi.org/10.1093/analys/49.3.119).

References (cont.)

- Haslanger, Sally (2003) 'Persistence Through Time', in Michael J Loux and Dean W Zimmerman, eds., *The Oxford Handbook of Metaphysics*: 315–54. Oxford University Press.
- Hawley, Katherine (2001) *How Things Persist*. Oxford University Press.
- Heller, Mark (1984) 'Temporal Parts of Four Dimensional Objects', *Philosophical Studies* **46**: 323–34. doi:[10.1007/bf00372910](https://doi.org/10.1007/bf00372910).
- Lewis, David (1968) 'Counterpart Theory and Quantified Modal Logic', *Journal of Philosophy* **65**: 113–26. doi:[10.2307/2024555](https://doi.org/10.2307/2024555).
- Lewis, David (1976/1983) 'Survival and Identity', in *Philosophical Papers*, vol. 1: 55–77. Oxford University Press.
- Lewis, David (1983) 'Extrinsic Properties', *Philosophical Studies* **44**: 197–200. doi:[10.1007/bf00354100](https://doi.org/10.1007/bf00354100).
- Lewis, David (1986b) *Philosophical Papers*, vol. 2. Oxford University Press.
- Lewis, David (1986a) *On the Plurality of Worlds*. Blackwell.
- Lewis, David (1991) *Parts of Classes*. Blackwell.

References (cont.)

- Mortensen, Chris (2020) 'Change and Inconsistency', in Edward N Zalta, ed., *The Stanford Encyclopedia of Philosophy*. Metaphysics Research Lab, Stanford University.
<https://plato.stanford.edu/archives/spr2020/entries/change/>.
- Parsons, Josh (2000) 'Must a Four-Dimensionalist Believe in Temporal Parts?', *The Monist* **83**: 399–418. doi:[10.5840/monist200083319](https://doi.org/10.5840/monist200083319).
- Rea, Michael C (1998) 'Temporal Parts Unmotivated', *Philosophical Review* **107**: 225–60.
doi:[10.2307/2998484](https://doi.org/10.2307/2998484).
- Sider, Theodore (2001) *Four-Dimensionalism: An Ontology of Persistence and Time*. Oxford University Press.
- Smart, J J C (1963) *Philosophy and Scientific Realism*. Routledge.
- Uzquiano, Gabriel (2006) 'Receptacles', *Philosophical Perspectives* **20**: 427–51.
doi:[10.1111/j.1520-8583.2006.00114.x](https://doi.org/10.1111/j.1520-8583.2006.00114.x).
- van Inwagen, Peter (1981) 'The Doctrine of Arbitrary Undetached Parts', *Pacific Philosophical Quarterly* **62**: 123–37. doi:[10.1111/j.1468-0114.1981.tb00051.x](https://doi.org/10.1111/j.1468-0114.1981.tb00051.x).
- Wiggins, David (1968) 'On Being in the Same Place at the Same Time', *The Philosophical Review* **77**: 90–95. doi:[10.2307/2183184](https://doi.org/10.2307/2183184).

References (cont.)

Zimmerman, Dean W (1998) 'Temporary Intrinsic and Presentism', in Peter van Inwagen and Dean W Zimmerman, eds., *Metaphysics: The Big Questions*: 206–19. Blackwell.