Jiri Benovsky
Persistence Through Time, and Across Possible Worlds

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List of chapters

Foreword

David M. Armstrong nicely wrote : "Metaphysicians should not expect any certainties in their inquiries. One day, perhaps, the subject will be transformed, but for the present the philosopher can do no more than survey the field as conscientiously as he or she can, taking note of the opinions and arguments of predecessors and contemporaries, and then make a fallible judgement arrived at and backed up as rationally as he or she knows how" (Armstrong (1989b, p. 135)).

In this book, I am trying to follow this recipe. First, I shall try to 'survey the field as conscientiously as I can', and second, I dare to 'make a fallible judgement'. I see this work of mine then, as a guided tour of theories of persistence through time and possible worlds.

First, this metaphysical excursion will take us into the land of theories of persistence through time and will try to offer a detailed overview of the standard theories but also of some views that are more original and less widely present in literature. It will be argued that the two traditional accounts of persistence (namely, perdurantism and endurantism) and their variants have to be combined with two doctrines about time (namely, eternalism and presentism) to yield different views. This will turn out to be very important since, for instance, endurantism can very well be defended if one is a presentist, but is much less appealing under the eternalist hypothesis. What we shall arrive at in the end is a 'map' (see p. 12-13) that provides an overview of all of the views discussed here with their advantages and drawbacks. (This map is also supposed to play the role of a table of contents.)

After this first excursion shall begin the second : persistence across possible worlds. As in the case of persistence through time, each theory of persistence (trans-world identity, counterpart theory, modal perdurants) is evaluated under different ontologies of possible worlds (modal realism, fictionalism, abstractionism) and this will make us consider different theories, the traditional and well-known ones, but some original ones as well. And again, it will turn out that some combinations are attractive while others are to be rejected – for instance, trans-world identity is much more plausible for the abstractionist than for the modal realist. This yields also a 'map' (see p. 14-15) that gives an overview of all of the different

views with their pros and cons. One of the purposes of these 'maps' is to give the reader a synthetic look at what alternatives there are and let him or her decide which position's advantages outweighs its drawbacks, and vice versa. What I aim at here is to provide myself and my reader with tools that enable us to evaluate the cost-benefit ratio of the different views under consideration.

Is it possible, in the end, to reach a point where one view would come out of these evaluations as 'victorious', and, more importantly, as true ? And is it possible, by the way of evaluations and arguments, to arrive at a position that would be so objectively better than the others that everyone, when facing those arguments, would endorse it ? As frustrating as it can be, I believe this is not possible, perhaps in metaphysics in general, but certainly in the present case that interests me in this work.
I have already mentioned the first reason for this : the truth of many particular views about persistence through time and possible worlds *depends* on the truth or falsity of other views, especially views about the ontology of time and possible worlds. Trans-world identity, to repeat an obvious example, is defendable under abstractionism (actualism), but clearly false under modal realism. Or, to take a bit more controversial example, the truth of endurantism strongly depends on the truth of presentism – if presentism is false, endurantism is, I believe, very unappealing. So what we have are 'only' claims of the form : *if* such and such view is true, *then* such and such view is true – and I take it to be one of the main purposes of this work to provide such conditional claims. But of course, these don't tell us anything about what is the case, 'only' about the connections between different inter-dependent claims.
Second, there is a difficulty with intuitions – if one wants to reach a definite, 'objectively acceptable' (and perhaps true ?) result. The reason why intuitions yield difficulties, I think, is that (i) they play an important role in many cases, (ii) they cannot be easily refuted by arguments, and (iii) they are not, of course, universally shared. Examples of (i) abound in the chapters you are about to read : Parfit's case of fission, Kripke's objection to modal counterpart theory, the incredulous stare to modal realism – to note here only the most famous ones. And (ii) is true simply because if my intuition is that P, and yours is that non-P, then I can't say

that you're *wrong* in having such and such intuition – the best I can do, if I want to make you abandon your intuition, is to show that it is in conflict with other intuitions *you* have (but that I, perhaps, don't have). But this leads us back to the situation where very often we can only reach an agreement on claims of a conditional form.

To end these (unfinished and loose) considerations, let me simply state the meta-theoretical guidelines I followed to evaluate the different theories that I studied, and that I implicitly used to 'make a fallible judgement' in the end:

(i) internal consistency

(ii) explanatory power
(It is perhaps hard to see the appeal of this criterion if one wants to reach a metaphysical truth, for why would great explanatory power of a certain view be a good guide towards truth ? It seems conceivable that a theory could be of magnificent explanatory power, and could even be much stronger than all of its competitors, whilst it is simply false. But still, the criterion is a genuinely interesting one, since what we do in metaphysics in the first place is to build theories that describe at best the phenomena we encounter or that we appeal to in thought experiments – to give an explanation of these.)

(iii) intuitiveness
(If a metaphysical theory is to be of any use to us, it should not be revisionary about those of our intuitions that we are not ready to abandon.)

(iv) parsimony
(If you can do it with less, don't do it with more. Unfortunately, clear-cut criteria that would enable us to decide what is 'less' and what is 'more' are still to be found, in many cases. Besides, similar worries as for (ii) appear : the 'cheapest' or simplest explanation is not necessarily the true one.)

(v) compatibility with current science
(This is perhaps also controversial. But to my mind, it seems that our metaphysical theories should be compatible with what empirical research tells us about the actual world.)

(vi) honesty

("Never put forward a philosophical theory that you yourself cannot believe in your least philosophical and most commonsensical moments." (Lewis (1986a, p. 135)))

Where did all this lead me ? As announced, this tour I am proposing is a *guided* one : at the end of the day, I do favour some of the views over others and dare to make the fallible judgement that those should be taken as the truth. In the temporal case, the favoured theory is the so-called 'worm view' version of four-dimensionalism, and in the modal case, it is the analogous theory of modal perdurants of which two versions will be examined. A global view of the nature of our world and possible worlds will be argued for : they are all worlds of perdurants.

I wish to thank Gianfranco Soldati for his guidance, his helpful comments, his time, and highly interesting discussions. For helpful comments on previous versions of parts of this book and for discussions I would like to thank Ondrej Benovsky, Davor Bodrozic, Fabrice Correia, Fabian Dorsch, Philipp Keller, Jan Lacki, Kevin Mulligan, Martine Nida-Rümelin, Etienne Parrat, David Stauffer, Juan Suarez, and Gian-Andri Toendury. I would also like to thank Achille Varzi and Josh Parsons for their stimulating talks on persistence given during summer 2003 in Montana, and discussions of great interest. Special thanks go to Marie and Vlastimil Benovsky for their support during the time I was writing this book.

	Objects persist by having different temporal parts at different times. (I.1.§2) (**Perdurantism**)
All times (past, present, future) are equally real. (I.1.§2) (**Eternalism**)	***Four-dimensionalism* (I.1.§4) *:*** **<u>Advantages :</u>** - answers satisfactorily many puzzle cases (I.6) : a) the lump of clay and the statue case (I.6.§2-3) b) the fission case (I.6.§5-7) c) the coincidence in the undetached parts argument (I.6.§8-10-) - avoids the objection from temporary intrinsics (I.4.§1-2) - gives a good treatment of cases of vagueness (I.6.§14) - deals better than other views with the Ship of Theseus case (I.7) - is supported by the view that time is space-like (I.5) **<u>Objections :</u>** - the view is simply incredible (I.9.§2); reply : I.9.§3 - the view is obviously false (I.9.§4); reply : I.9.§5 - temporal parts are unintelligible (I.9.§9); reply : I.9.§10 - the no-change objection (I.4.§3); reply : I.4.§4, see also I.5.§1 - the modal objection (I.10.§1); reply : I.10.§2-5 - objection to unrestricted mereological composition (I.9.§6); reply : I.9.§7-8 **Two versions of four-dimensionalism** Ordinary objects are instantaneous temporal stages. (I.8.§1) (**The stage view**) **<u>Specific advantages to the stage view :</u>** - deals even better than the worm view with the problem with temporary intrinsic properties (I.8.§2) **<u>Specific objections to the stage view :</u>** - its account of persistence is not satisfactory (I.8.§4-5) - it does *not* answer satisfactorily the no-change objection (I.8.§6) - it does not allow ordinary objects to do the things they do (I.8.§8) - forces us to endorse instantaneous temporal parts (I.9.§11) - in some cases it is required to use the worm view anyway (I.8.§7) - breaks the analogy between time and space (I.8.§3) Ordinary objects are four-dimensional wholes extended in time. (I.8.§1) (**The worm view**) **<u>Specific objections to the worm view :</u>** - there remains a semantic worry in the fission case (I.8.§3); reply : I.8.§3
Only the present time really exists. (I.1.§2) (**Presentism**)	***Presentist perdurantism* (I.1.§7) *:*** **<u>Advantages :</u>** - allegedly avoids the no-change objection (I.3.§2 and I.3.§5) - allows for a mixed ontology (I.3.§3) **<u>Objections :</u>** - inherits the objections to presentism (I.3.§4) - problem with parts that don't exist (I.3.§6) - crazy metaphysics objection (I.3.§7)

Objects persist by being wholly present at different times. (I.1.§2)
(**Endurantism**)

Genuine endurantism* (I.1.§5) *:

Advantages :
- is allegedly an intuitive view

Objections :
- the objection from temporary intrinsic properties (I.4.§1, §7);
  replies and discussion : I.4.§8-25
- eternalism and endurantism are incompatible (I.4.§16)
- yields problems in some puzzle cases :
  a) the lump of clay and the statue case (I.6.§2-4)
  b) the fission case (I.6.§5-6)
  c) the undetached parts argument (I.6.§8-13)
- yields problems in the treatment of vagueness (I.6.§14)

Presentism* (I.1.§6) *:

Advantages :
- the view is compatible with non-determinism (I.2.§4)
- answers satisfactorily the objection from temporary intrinsic properties (I.4.§5-6)

Objections :
- problems with truths about the past (I.2.§1-4)
- the objection from special relativity (I.2.§5)

<table>
<tr><td></td><td></td><td>They persist by identity, an object existing in some possible world can be numerically identical to an object existing in some other possible world. (Trans-world identity)</td></tr>
<tr><td>Possible worlds exist, they are of the same kind the spatio-temporal actual world is, they are all equally real. (II.2) (Modal realism)</td><td><u>General objections :</u>
- problem with non-actual objects (II.2.§2); reply : II.2.§3
- problem with modal epistemology (II.7.§1)
- the incredulous stare (for instance, II.7.§3, II.7.§12); reply and discussion : II.7.§12</td><td><u>Objections :</u>
- straightforward trans-world identity is clearly unacceptable (II.3.§1)
- trans-world identity with overlap of worlds yields the objection from accidental intrinsics (II.3.§2)</td></tr>
<tr><td>Possible worlds exist, they are of a different kind than the actual world, they are abstract actual entities. (II.8-) (Abstractionism)</td><td><u>General advantages :</u>
- alleged advantage : is ontologically cheaper than modal realism (II.8.§1)

<u>General objections :</u>
- is not ontologically cheaper than modal realism, is perhaps even more costly (II.8.§1)
- embraces primitive modality (II.8.§4)
- problem with modal epistemology (II.8.§3)</td><td>The first picture is clearly unacceptable (II.9.§2)

The second picture is unacceptable (II.9.§3)

The third picture :

<u>Advantages :</u>
- can answer the problem with accidental intrinsics (II.9.§5)

<u>Objections :</u>
- forces us to embrace world-indexed properties (II.9.§5)
- requires primitive modality (II.9.§6)
- Cyrano and Roxane's puzzle (II.9.§8); reply : II.9.§9
- can force us to embrace haecceitism (II.9.§9-10)</td></tr>
<tr><td>Possible worlds don't exist, but we can pretend modal realism is true because it's useful. (II.6) (Fictionalism)</td><td colspan="2"><u>General advantages :</u>
- provides a better account of modal epistemology (II.7.§1-2)
- inherits some advantages of the preferred modal realist's view that serves as the fictionalist's fiction (II.7.§2)
- is the most intuitive view (II.7.§3)

<u>General objections :</u>
- modality is primitive (II.7.§4, also II.7.§6)
- inherits some problems of the preferred modal realist's view that serves as the fictionalist's fiction (II.7.§2)
- the incompleteness problem I (II.7.§5)
- the incompleteness problem II (II.7.§6)
- the incompleteness problem III (II.7.§7)
- arbitrariness of the fiction (II.7.§9)
- the Brock/Rosen objection (II.7.§10)
- Hale's objection (II.7.§11)</td></tr>
</table>

They persist by having counterparts in different possible worlds. (**Counterpart theory**)	They persist by being stretched across possible worlds, they have different parts in different possible worlds. (**Modal perdurants**)
L-counterpart theory (II.4) : **Advantages :** - avoids the problems with world-bound individuals (II.4.§1) - solves the problem with accidental intrinsics (II.4.§1) **Objections :** - Kripke's objection (II.4.§2); reply II.4.§3 *B-counterpart theory (II.5) :* **Advantages :** - is ontologically less costly than L-counterpart theory (II.5.§2-3) - answers better than L-counterpart theory Kripke's objection (II.5.§12) **Objections :** - requires four-dimensionalism to be true (II.5.§8-9) - its reply to Kripke's objection, while better than the L-counterpart theory's, is still not satisfactory (II.5.§12) - a problem with origin (II.5.§13-16) - Lewis's objection (II.5.§17); reply : II.5.§18 - strange ontology : splits of worlds and individuals	*Modal perdurants under Lewisian modal realism (II.6) :* **Advantages :** - answers satisfactorily Kripke's objection (II.6.§2) - avoids the problem with accidental intrinsic properties (II.6.§1) - answers nicely a family of puzzles : a) the objection from undetached temporal parts (II.6.§3-4) b) the objection from undetached spatial parts (II.6.§5) c) the statue and the lump case (II.6.§6) **Objections :** - there is no common purpose to all modal parts of a single modal perdurant (II.6.§2); reply : II.6.§2 - pathology is everywhere (II.6.§8); reply : II.6.§9 - turns out to be equivalent to counterpart theory (II.6.§10); reply : II.6.§10 - difficulties with unification of the different modal parts (II.6.§11); reply : II.6.§11-13 *Bundle-bundle-bundle theory (II.12) :* - has many features in common with the theory of modal perdurants above (II.12.§14 and elsewhere in chapter 12) **Advantages :** - avoids problems that the abstractionist theories have because it is a one-category ontology (II.12.§1, §5-6) - avoids the problem of change (II.12.§3) - avoids the problem with accidental intrinsic properties (II.12.§4) - answers satisfactorily the objection from the Identity of Indiscernibles (II.12.§7-11) **Objections :** - individuals have to be 5D (II.12.§12) - primitive bundling relation, and the glue problem (II.12.§13)
Advantages : - answers the Cyrano and Roxane's puzzle (II.10.§1) **Objections :** a) the first picture : (i) a concrete entity cannot resemble an abstract entity (II.10.§2), (ii) concrete individuals could be abstract (II.10.§2) b) the second picture : is false (II.10.§3) c) the third picture : Cyrano doesn't have any counterparts at all (II.10.§4) *S-counterpart theory (II.10.§5-) :* **Advantages :**- answers Kripke's objection (II.10.§5) - solves some puzzle cases (II.10.§5) **Objections :** - has mysterious primitives (II.10.§6) - problems with representation (II.10.§6) - commits to a world-dependent conception of identity (II.10.§5-6)	**Advantages :** - answers the Cyrano and Roxane's puzzle (and others) (II.11.§1) **Objections :** a) the first picture : (i) objects do not have concrete and abstract parts (II.11.§2) (ii) the problem with unification becomes more acute (II.11.§2) (iii) concrete individuals could be abstract (II.11.§2) b) the second picture : (i) problem with parts that don't exist (II.11.§3) (ii) the problem with unification becomes more acute (II.11.§3) c) the third picture : misses its target (II.11.§4)
Objections : - suffers from a modified version of Kripke's objection (II.7.§8)	**Objections :** - the theory of modal perdurants is not an available option for the fictionalist (II.7.§8)

Part I
Persistence through time

Chapter 1, Introduction & definitions

§1. The question I want to address in the first part of this book is : how do objects persist through time ? Note that the question is about *how* persistence of material objects is to be explained, not *whether* material objects persist through time – I simply assume, following my strong common sense intuition, that they do. An answer to the question may force us to revise some of our commonsensical beliefs, but this one should certainly be preserved; a reply to the problem of persistence should not deny genuine persistence.

How do objects persist through time?

Traditionally, in contemporary literature, two accounts of persistence are in competition : endurantism and perdurantism. The terms have been introduced by David Lewis in this way : "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, p. 202)). But these two accounts of persistence, as defined here, do not exhaust the realm of possibilities. For, to yield a theory of persistence, endurantism and perdurantism must be combined with a theory about time; traditionally, there are also two rival accounts available : presentism and eternalism. I propose now to state the four views, and explore the possible accounts of persistence one gets by combining them.

§2. Let us start with the basic terms :

Definitions

- Perdurantism :
  The perdurantist's central claim is that a numerically one and the same concrete particular cannot wholly exist at more than one time; rather ordinary material objects are aggregates of *temporal parts* and it is by having temporal parts at different times that they persist (perdure) from one time to another.
- Endurantism :
  Contrary to perdurantism, the endurantist account of persistence insists on the fact that ordinary objects *are wholly there* at any time of their

existence – they persist (endure) through time by existing completely at different times and they don't have temporal parts (but they do have spatial parts).

- Eternalism :
  Eternalism is the doctrine about time which takes future and past objects to exist in the same way present objects do – there is no ontological difference between past, present and future; as Ted Sider puts it : "Just as distant places are no less real for being spatially distant, distant times are no less real for being temporally distant" (Sider (2001, p. 11)). In the eternalist's manner of speaking, future objects "exist", as well as present objects exist, in an atemporal sense of the verb; it is as if one were viewing the universe from a God's standpoint and could contemplate all that happened, happens and will happen laid before his eyes (Arthur Prior calls this "the tapestry view of time" (Prior (1996b, p. 47)). On this view, "now" is an indexical term as well as "here" is.
- Presentism :
  Contrary to eternalism, presentism claims that only presently existing objects are real – "to exist", then, amounts to "to exist now". Typically, presentists are also 'serious tensers' drawing an important distinction between saying that past objects once *existed* and future objects *will exist* but only current objects *exist*. One could think, at a first glance, that presentism, thus formulated, is a non-starter – for how is one to understand the presentist's central claim "The only things that exist are those that exist at present" ? It seems there are two possibilities : either the first occurrence of "exist" in this claim is tensed or it is not. If it is, then it seems that presentism is an uninteresting truth ("The only things that exist now are those that exist at present"), and if it is not – that is, if "exist" is to be taken as a tenseless form of the verb meaning something like "existed, exist, or will exist" – then presentism seems to be obviously false. But presentism certainly is not a trivial truth nor an obvious falsehood, it is a thesis about what there is : "[T]here is only one largest class of all real things, and this class contains nothing that lies in the past or future. Presentism is, in fact, a thesis about the range of things to which one should be ontologically committed" (Zimmerman (1998, p. 210)).

§3. So far for terminology. This leaves us with four options :

Four theories of persistence

(i) The eternalist perdurantist view
(ii) The eternalist endurantist view
(iii) The presentist endurantist view
(iv) The presentist perdurantist view

Let us examine these options more carefully.

§4. **(i) The eternalist perdurantist view : four-dimensionalism**

Four-dimension-alism

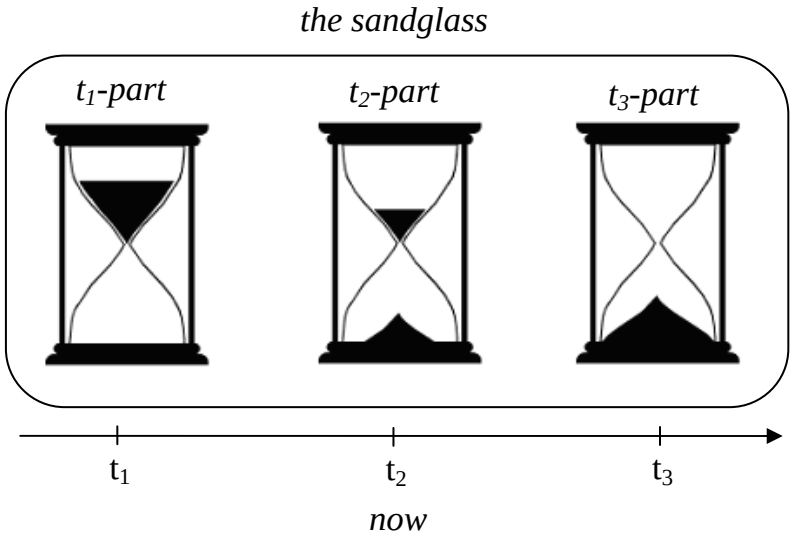
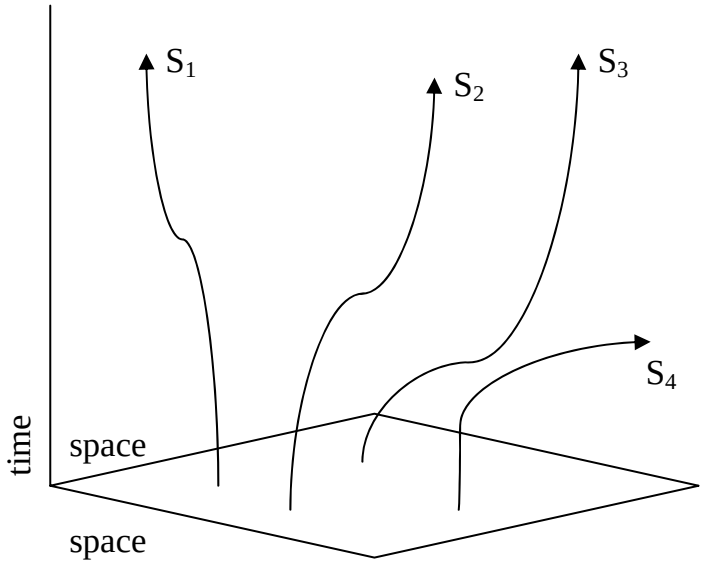


Fig. 1

According to this view, a sandglass, for instance, exists now (at t_2) by having a temporal part which exists at t_2 (and t_2 only). But it also exists at the past time t_1 and at the future time t_3 by having temporal parts at those times; it is by having those different temporal parts at different times that the sandglass persists from t_1 to t_3. That's why this view can be called *four-dimensionalism* since it claims that ordinary material objects are 'spread out' in time as well as in space – they have temporal, as well as spatial, extent; they are genuinely four-dimensional entities. Four-dimensionalism, as I just described it, is also sometimes called 'the worm view', since ordinary material objects turn out, on this account, to be like *space-time worms* extended in the four dimensions. When speaking about the 'worms' of the four-dimensionalist, one can also speak about an object's 'world line'.

The following figure (where, for simplicity, one of the three dimensions of space is left out) shows four sandglasses represented by the arrows that stretch out through time as well as through space. Each of the arrows is the *world line* of one sandglass, it is its path through space-time. So, if one thinks four-dimensionally, a sandglass is an object extended in all of the four dimensions, it is a space-time worm that crawls its way through a four-dimensional universe.

Fig. 2



An alternative to the worm view is 'the stage view' according to which ordinary material objects are the (temporal) stages rather than the four-dimensional wholes. The ontology of the two views is the same : both agree on what there is, both agree that there are space-time worms, but the stage view denies that these space-time worms are the ordinary objects we usually name and quantify over. For the time being, I only note that these two versions of four-dimensionalism exist (I discuss them in detail in I.7) and, when speaking about four-dimensionalism, it is always the worm view I shall have in mind.

Some proponents of four-dimensionalism are Yuri Balashov (2000a), Mark Heller (1990, 1992, 1993, 2000), D. M. Armstrong (1980), Robin Le Poidevin (2000), David Lewis (1983c, 1986a, 1988, 2002), W. V. O. Quine (1950), Ted Sider (1997, 1999a, 2000b, 2000c, 2001).

§5. **(ii) The eternalist endurantist view : genuine endurantism**

Endurantism

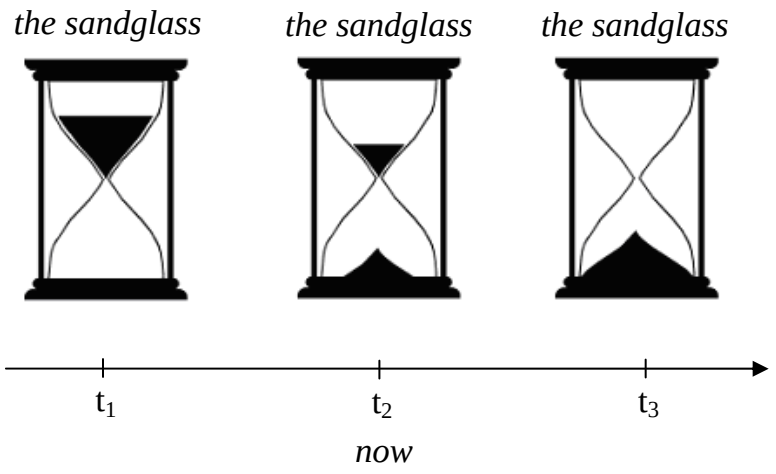


Fig. 3

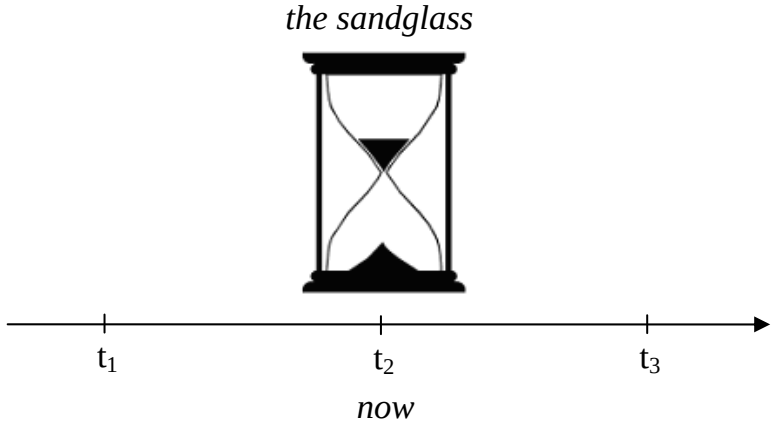
Genuine endurantism denies the temporal parts thesis : material objects do not have temporal parts, and are not temporally extended – this view is a three-dimensional one, since material objects are said to be extended in the three spatial dimensions only. They persist through time then, not by having parts at different times but by being wholly located at different times. As David Lewis puts it : "[According to genuine endurantism] a persisting thing is multiply located in time : the whole of it is at one time and also at another." (Lewis (2002, p. 2)). This is what the figure above (fig. 3) captures : the sandglass persisting from t_1 to t_3 exists, not partly but completely, at all times in this interval.

Among defenders of this view there are Mark Johnston (1987), Peter Simons (2000a, 2000b), D. H. Mellor (1998) and Josh Parsons (2000).

Presentism

§6. (iii) The presentist endurantist view : presentism

Fig. 4



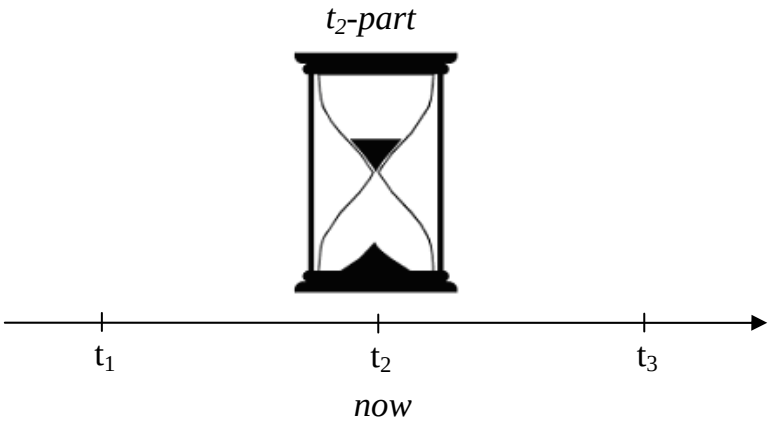
This presentist account combines the endurantist thesis according to which an object exists completely, and not partly, at any time at which it exists with the presentist claim that only present objects are real – this yields the view pictured above (fig. 4) : there is nothing existing at the past time t_1 nor at the future time t_3; the sandglass exists only at the present time t_2, and exists there wholly – all of its parts exist at t_2. This is why this view doesn't really deserve the label "endurantism" – remember how the label was introduced by David Lewis : "[something] endures iff it persists by being wholly present at more than one time" (Lewis (1986a, p. 202)). But nothing, according to presentism, exists at more than one time, since there is only one time which is real. This is why, despite the fact that the presentist view shares some features with endurantism (the three-dimensionality of material objects, the denial of the existence of temporal parts, the claim that objects are wholly present at any time at which they exist), I will not speak about endurantism here, and will call this view only "presentism". Also, it wouldn't be proper, although it is sometimes done, to call presentism "three-dimensionalism" – this would be ambiguous, since endurantism also holds the three-dimensionality thesis.

For a defense of presentism see, for instance, Trenton Merricks (1994, 1999) and Dean Zimmerman (1998).

§7. (iv) The presentist perdurantist view

Presentist perdurantism

Fig. 5



The presentist version of perdurantism claims, because of its perdurantist component, that at the present time t_2 the sandglass doesn't exist completely but exists there by having a t_2-part. Its other temporal parts, following perdurantism, exist at other times but, and here comes the presentist's claim, those other times don't exist. So material objects are not really four-dimensional in the sense that an eternalist perdurantist would claim, but they have four-dimensions "in the sense that they have an unfolding temporal dimension in addition to the three spatial ones" (Brogaard (2000, p. 343)).
The only defender of this view, as far as I know, is Berit Brogaard (2000). Short discussions are to be found in Haslanger (2003, p. 10-12) and Sider (2001, p. 68-73).

§8. Four general accounts of persistence of objects through time are available. The purpose of the first part of this book is to examine them and evaluate their advantages and drawbacks[1]. I shall begin by discussing the two presentist views.

[1] For a summary, see Annexe I.

Chapter 2, Problems with presentism

§1. When I say that a sandglass exists, the truth of what I say is grounded in, or accounted for, or made true by the way the world is : I am right if the world contains a sandglass, otherwise I am wrong. Whether one says that the role of what grounds such and such truth is played by a *way* the world is, or by a certain *fact* about the world, or by a *state* of the world at that particular time – this doesn't matter here. What matters is that there must *be something* which makes my statement true or false. There must be some entity to ground the truth of my sentence, and if my sentence is about a sandglass, this entity should preferably be a sandglass. Would the world be different, in respect to the existence of sandglasses, my sentence would be false; but it is actually true because, for instance, there is a sandglass on my desk. This view, namely that truths need grounding, seems perhaps quite obvious.

Problem with truth-makers

But it appears that it cannot be accommodated by the presentist. There are, of course, no difficulties in providing grounds, or truth-makers, for propositions like "A sandglass exists"; the problem arises when we consider propositions about past objects or past events (and, similarly, future ones). For if I say "A sandglass existed" there is nothing, according to presentism, to make this proposition true – or, more accurately, there is no *sandglass* which could serve as a truth-maker – remember that, according to presentism, all there is, is present; quantifiers wide open and entirely unrestricted. The eternalist would not be troubled by such propositions : the existential quantifier involved ranges over all times, past, present and future, and thus it is possible to pick one of the past sandglasses to ground the truth that a sandglass existed. But since, according to presentism, reality does not include past objects, even in the most unrestricted sense, there is no sandglass available to us now to ground the truth of the proposition "A sandglass existed".

Another way to put it, as for instance Parsons does (Parsons (2002c, p. 9)), is to note that the eternalist can say what would be different about the world as a whole had the proposition "A sandglass existed" been false. The presentist, unlike the eternalist, seems to have a puzzle to solve here.

And as Markosian (2002, p. 3) puts it, there is more : it seems difficult, under the presentist hypothesis, to see how anything could stand in any

relation to past (or future) objects. If, for instance, I admire Socrates, it seems difficult (maybe not impossible, but certainly difficult) to see how this could be – how there could be a relation that lacks one of its relata, how I can be related to something that does not exist.
The problem is that it seems impossible for the presentist to be able to assert any proposition like "∃x ∃y (Admires(x,y))" where x and y exist at different times, because the presentist's quantifiers range only over things that exist at the present time, which is only *one* and so cannot range over things existing at *two different* times.
(Such a problem, of course, does not appear if one endorses eternalism for in that case unrestricted quantifiers range over existing past and future times and entities as well as they range over the present ones, and thus provide all the truth-makers for propositions about the past (and the future) we need. This is perhaps one of the main reasons to happily endorse eternalism.)

Rejecting the need for grounding

§2. As a general strategy, one could reply that it is not presentism but the truth-making principle, or the principle that truths need grounding, that must be rejected, for other independent problem cases may arise : for instance, negative statements. If I say "There are no dragons" what grounds the truth of this proposition ? Certainly not a dragon, and certainly not a state of the world which would contain dragons !
But this does not mean that the grounding principle should be abandoned. Surely, there are some problem cases concerning the truth-making principle, but here one does not have to have in mind some version of a strict correspondence theory of truth; it is sufficient to use the general principle according to which truth is supervenient on being; this is enough to make clearer what the grounding of truths is : truths supervene on what objects there are and what properties they have – it is thus impossible for there to be a difference in what is true, without there being a difference in what there is (see Sider (2001, p. 36), Crisp (2003, p. 4), and Lewis (2003)).
If the presentist takes this line of response, then he or she accepts that there really is *nothing* to ground or make true propositions about the past (whether positive or negative), and he or she simply endorses it. Such a strategy does not seem to be an appealing one, for again, it *does* make

sense to ask what difference there would be in the world, if the proposition "A sandglass existed" were false. (Besides, the problem with relations between present and non-present objects would call for additional theorizing to be solved.)

§3. Another possible strategy a presentist could offer to answer the objection is the following (see Sider (2001, p. 37)) : *presently*, the world instantiates the property of *previously containing sandglasses* and this provides the missing ground for a presentist's account of the truth of "A sandglass existed". Thus, presently exemplified, but tensed, properties are said to ground past, and presumably future truths.

A presentist's reply : tensed properties

As far as I understand the proposal, the picture it provides is the following. There is a sandglass S on my desk. Suppose it is the last of all sandglasses in the world. Suppose that right now (say, at t_n) I smash it and destroy it. So the world at t_{n+1} exemplifies the property of previously containing S, and also the property of presently not-containing S. Its having the latter has a metaphysical ground : the world, and no sandglass S in it. But its having the former does not seem to have any such ground – or should we claim that the debris of S ground the world's having the property of previously containing S, and so, that such tensed properties are reducible to properties about what there (presently) is (debris of a sandglass, fossils of dinosaurs, history books, …) ? Such a proposal is certainly not very palatable. And it would be an even more difficult position to hold for many other truths ("Socrates had a beard") and would not be applicable to propositions about the future (which perhaps would not be a worry for presentists who hold the view that propositions about the future lack truth-value). The problem here is that the presentist taking this line of argument just seems to postulate *ad hoc* properties to alleviate a difficulty in his theory – what independent reasons could a *presentist* have to postulate them ? (An *eternalist*, of course, has independent reasons to postulate such properties (if he accepts tensed properties at all) : for instance, the past sandglass S that exists at t_{n-1}, in the atemporal sense of the verb.)

Every theory has its primitive. But if those tensed properties are the presentist's primitives, then his theory really loses some of its appeal.