Our common assumptions:

1. Things persist through time.
2. The familiar objects and persons with which we interact on a regular basis persist from day to day.
3. We ourselves are the same person as the one who existed yesterday and the day before.

The issue: What is it for a thing to persist through time?

Two theories:

[A]. strict identity (one and the same thing) of wholly present things

For an object to persist through time is for it to exist whole and entire at each of several different times.

Temporal persistence is a matter of strict identity: where something persists through time, a thing existing wholly and completely at one time is numerically identical with a thing existing wholly and completely at another time.

Endurantism

[B]. continuity among various temporal parts

A thing persists by having different parts (temporal parts) existing at different times.

Perdurantism
§ Perdurantism (Four-Dimensionalism)

1. Concrete particulars are extended not merely in the three spatial dimensions, but also in the temporal dimension.
2. They not only have spatial parts, they also have temporal parts.
3. The temporal parts of the particular object are very bit as concrete, every bit as particular as the object itself.
4. Each of these temporal parts has its properties (and the different temporal parts will not share all the same properties).
5. The concrete object is simply the “aggregate” of all its temporal parts.

B-theory of Time:

1. Time is just another dimension on a par with the three spatial dimensions.
2. All times and their contents are equally real, just as all spatial contents are real.
3. The relations of times and their contents are characterized by the B-properties: earlier than, later than, and simultaneous with.
4. This temporal order (the B-series) is fixed and permanent.

Eternalism:

1. All times and their contents are equally real.
2. A familiar particular object is a four-dimensional space-time worm, and its persistence through time is simply its being extended along the temporal dimension via having temporal parts at different times.

* theory of scattered objects

The perdurantists typically think that the Tony Blair of the year 2000 enter into countless other objects all equally as real as the whole Tony Blair. So, for example, the Tony Blair of the year 2000, the Roman Forum of the year 63 B.C., the Atlantic Ocean during the third millennium, and the Empire State Building in 1963, can all become a part of a gerrymandered thing.

1. Since all times and their contents are equally real, there can be countless gerrymandered objects, which are aggregates of various temporal parts from different objects, that are fully real, fully existent.
2. What commonsense recognize as objects – things like tables, chairs, cats, persons, etc. – are no more real than those other gerrymandered objects.
3. Commonsense objects are simply based on such relations as spatiotemporal proximity, relations of similarity, and relations of causation.
§ Endurantism (Three-Dimensionalism)

1. Familiar objects are exclusively three-dimensional beings – things extended only in the three spatial dimensions.
2. They are wholly present at any given moment of their existence.
3. There are no temporal parts; the only things that count as parts of an object are its spatial parts.
4. One and the same thing can exist at different times.
5. Hence, persistence is just the numerical identity of a thing existing wholly and completely at one time with a thing existing wholly and completely at another time; namely, self-identity.

A-theory of Time

1. Presentism: Only the present is real. What really exists is what currently exists.
2. The only things that can be parts of an ordinary object are things that exist now.
3. There can be no spatiotemporally scattered objects.

Q: How to Engage in the Debate?
___ Since Endurantism agrees with our pre-philosophical intuition, the burden of proof seems to lie on the side of Perdurantism.

§ Arguments for Perdurantism

I. The Argument from Relativity

Only perdurantism squares with our current scientific understanding of the world, because the four-dimensional conception of the world is presupposed by the physics of relativity theory.

II. The Argument from the Indiscernibility of Identicals
___ How is change possible for identity over time?

[Note]: The Paradox of Change (Irving Copi)

If a changing thing really changes, there can't literally be one and the same thing before and after the change.

However, if a changing thing literally remains one and the same thing (i.e., retains its identity) throughout the change, then it can not really have changed.
___ Stanford Encyclopedia of Philosophy
1. The principle of the indiscernibility of identicals states that: necessarily, if an object \( a \), and an object, \( b \), are numerically identical, then every property of \( a \) is a property of \( b \) and vice versa.

2. By an endurantist’s account, a thing, \( x \), persists from a time, \( t \), to a later time, \( t' \), and it is one and the same thing at \( t \) and \( t' \).

3. Therefore, under endurantism, \( x \)-at-\( t \) = \( x \)-at-\( t' \).

4. Suppose that at some time between \( t \) and \( t' \), \( x \) loses a property \( \phi \). So \( x \)-at-\( t \) has \( \phi \), but \( x \)-at-\( t' \) lacks \( \phi \).

5. Therefore, endurantism violates the principle of the indiscernibility of identicals.

**Motivation for perdurantism:**

The principle of the indiscernibility of identicals is not a problem for self-identity at the same time. It is a problem for identity over time. Isn’t this because identity over time does not hold? If we separate existence over time into temporal parts, then the problem is removed:

\[ x \text{-at-} t \neq x \text{-at-} t' \]

They are temporal parts of one and the same four-dimensional whole, \( x \).

**The endurantist’s comeback:**

Proposed solution one:
- Identify properties as “time-indexed” properties: having-\( \phi \)-at-\( t \); having-\( \phi \)-at-\( t' \)
- If it is now \( t \), then \( x \) has \( \phi \); if it is now \( t' \), then \( x \) lacks \( \phi \). It is not the case that \( x \) both has \( \phi \) and lacks \( \phi \).

\( Q \): Is this solution satisfactory? Can you suggest any other solution?

**III. The Argument from Change of Physical Parts**

We believe that things can lose parts. Suppose this happens to Descartes. Suppose that Descartes loses his left hand at time \( t \).

**Facts and Stipulations:**

1. Let’s call Descartes without left hand “Descartes-Minus”.
2. Descartes can survive the loss of his left hand. But Descartes-Minus too survives the amputation.
3. Both Descartes and Descartes-Minus take up the same spatial region after \( t \); they are made up of the same matter.
4. Thus, Descartes and Descartes-Minus after \( t \) must be identical.
5. But since Descartes and Descartes-Minus after \( t \) are the same person as Descartes and Descartes-Minus before-\( t \).
6. So, Descartes-before-\( t \) and Descartes-Minus-before-\( t \) are the same. But they don’t have exactly the same spatial region.
7. Here we have a puzzle: how can two different things to identical?

Under endurantism, we will have:

1. Descartes-after-\(t\) = Descartes-before-\(t\)
2. Descartes-Minus-after-\(t\) = Descartes-Minus-before-\(t\)
3. Descartes-after-\(t\) = Descartes-Minus-after-\(t\)

By transitivity of identicals (if \(a = b\), and \(b = c\), then \(a = c\)), we get

4. Descartes-before-\(t\) = Descartes-Minus-before-\(t\)

However, Descartes-before-\(t\) has left hand, but Descartes-after-\(t\) does not.

5. It is not the case that Descartes-before-\(t\) = Descartes-Minus-before-\(t\)
6. We have the contradiction between (4) and (5).
7. Therefore, an endurantist account of persistence through change in physical parts leads to a contradiction.

Motivation for perdurantism:

The perdurantist will reject both (1) and (2).

The perdurantist will say that while numerically distinct, Descartes-before-\(t\) and Descartes-after-\(t\) are temporal parts of a single space-time worm, Descartes.

Likewise, while numerically distinct, Descartes-Minus-before-\(t\) and Descartes-Minus-after-\(t\) are temporal parts of a single space-time object that is Descartes-Minus.
The perdurantist will accept (3): We have two numerically distinct four-dimensional objects sharing their temporal parts after \( t \). The two objects *merge* (or *coincide*).

There is no contradiction.

\[
\begin{array}{c|c|c|c}
\text{Descartes-before-}\ t & \neq & \text{Descartes-after-} t \\
\text{Descartes-Minus-before-} t & & \text{Descartes-Minus-after-} t \\
\end{array}
\]

**The endurantist’s comeback:**

Proposed solution one:
___ Reject (3). [Reject the thesis of Uniqueness and embrace Plentitude.] They insist that \( \text{Descartes-after-} t \) and \( \text{Descartes-Minus-after-} t \) are numerically different objects that happen to occupy one and the same region of space for a time.

Proposed solution two:
___ **Mereological essentialism:** All of a thing’s parts are essential to it. An object cannot lose any of its physical objects and still be the same object.
___ They will typically concede that Descartes survives the amputation, but they will deny that the physical object that is Descartes’ body is Descartes.

Proposed solution three:
___ Reject such thing as \( \text{Descartes-Minus} \). They deny that we can gerrymander the world this way creating objects willy-nilly by our mere stipulation.
___ Since the truth of (2) and (3) presuppose that we do this, the perdurantist argument does not go through.

**Q:** Are these solutions satisfactory? Can you suggest any other solution?