

## Perdurance and endurance

Thomas Bittner

## Theories of persistence over time

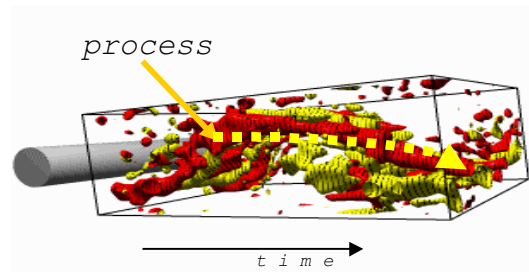
Perdurance theories      Endurance theories



## Perdurance theories

- Objects persist in time in virtue of possessing temporal parts
  - Begin of the class, middle part of the class, end part of the class
- Only part of a persisting object, its **current part**, is present at any one time of its existence
  - We are in the middle of the lecture

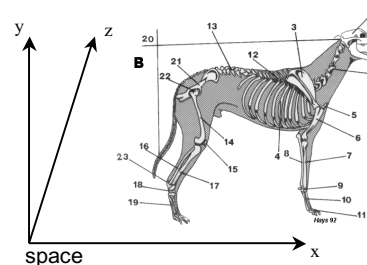
## Perduring entities



## Endurance theories

- An object persists through time in virtue of being **wholly present** at every time at which it exists at all.
  - I exist in full now
  - No part of me is missing
- Endurants do **not** have temporal parts

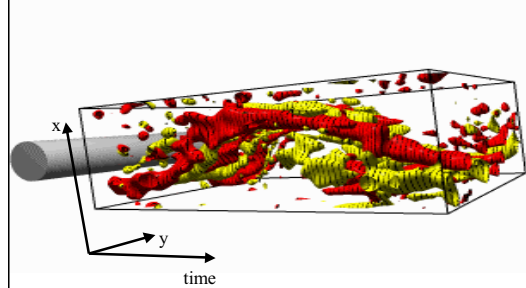
## Enduring entities



### Perdurance theories or four-dimensionalism

- Time is treated as a dimension akin to and inseparable from the three dimensions of space
- Temporal parts are like spatial parts
- Persistent objects are four-dimensional entities
- Persistent objects have four dimensional parts, one dimension of which is time

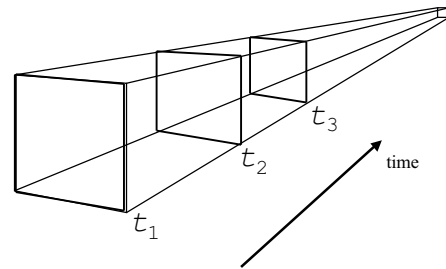
### Time is just another dimension



### Three-dimensional 'cross-sections'

- We only ever perceive four-dimensional objects as they are at a moment of time
- Therefore we only encounter in experience the momentary three-dimensional 'cross-section' of objects.
- That is why we get the **false** impression that the objects themselves are three-dimensional and extended only in space

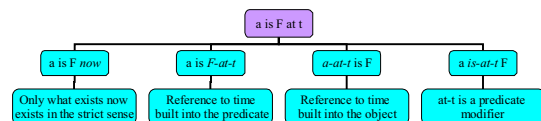
### Three-dimensional cross-sections



### Processes as prototypical four-dimensional objects

- Processes
  - your life with temporal parts like childhood, adulthood, your-college-years, ...
  - A theater performance with scenes, acts, early, middle, and late parts as temporal parts
- Events as boundaries of processes
- **But:** there are not only processes!

### Which solutions to the problem of qualitative change are endurance/perdurance theories ?



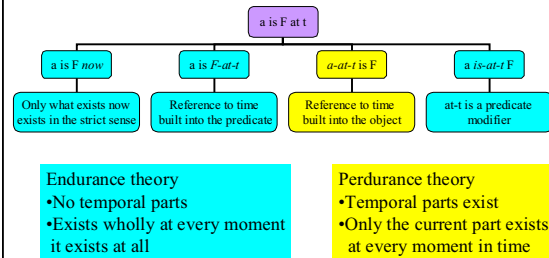
#### Endurance theory

- No temporal parts
- Exists wholly at every moment it exists at all

#### Perdurance theory

- Temporal parts exist
- Only the current part exists at every moment in time

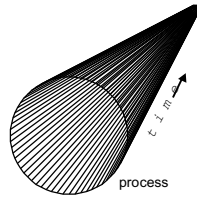
## Solutions to the problem of qualitative change



## Processes and persisting objects

- Persisting objects: You, BC, a tree, a banana
- Are related to processes:
  - You vs. your life
  - BC vs. BC's time as president
  - The lives of a banana, tree, etc.
- **But**
  - You are not identical with your life
  - BC is not identical with his being-the-president

## Enduring and perduring entities



## Categorical distinction between processes and persisting objects

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Processes have duration</li> <li>• Goes on for a time</li> <li>• Does not exist in full at a single moment</li> <li>• Your live does not exist at full now</li> </ul> | <ul style="list-style-type: none"> <li>• Enduring entities endure, last</li> <li>• Do not go on</li> <li>• Exist in full at every moment they exist at all</li> <li>• You do exist in full now</li> </ul> |
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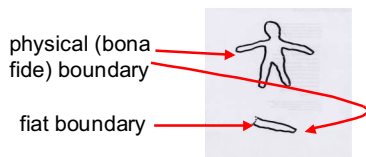
## Processes and persisting objects (2)

- Four-dimensionalists
  - The categorical distinction between enduring objects and processes is superficial and a matter of our conceptualization and language
- Opponents:
  - Endurants like you and me do really exist

## Temporal parts are like spatial parts (1)

- Temporal parts have fiat boundaries and are therefore existentially dependent on their wholes.

## Fiat spatial boundaries

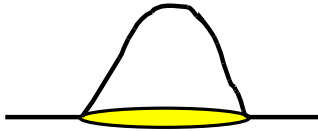


## Examples

- **of bona fide boundaries:**
  - an animal's skin, the surface of the planet
- **of fiat boundaries:**
  - the boundaries of postal districts and census tracts

## Mountain

- bona fide upper boundaries
- with a fiat base:



## Your nose is a fiat part of you



## Fiat *temporal* boundaries

- The boundaries between first, second, third, and fourth quarter of the game
- Are the beginning and the ending of a football game bona fide or fiat boundaries
- Are there bona fide temporal boundaries?

## Temporal parts are like spatial parts (2)

- Temporal parts are fiat boundaries and are therefore existentially dependent on their wholes.
- Therefore fiat parts do not **compose** wholes (like engine, wheels, etc. compose a car) since they cannot exist independently of the whole they are parts of.
- Therefore wholes do not **consist of** fiat parts.

### Temporal parts are like spatial parts (3)

- However from a four-dimensionalist perspective an object persists through time in virtue of possessing, or **consisting of**, temporal parts which are **fiat** in their nature.

### Circularity ??

- A persistent object  $O$  persists through time through possessing different parts each existing at different times, i.e.,  $O$  is identified with the sum of its parts
- If a persisting object,  $O$ , has a temporal part  $p$  at time  $t$ , then  $p$  can only be identified in terms of its relations to  $O$
- Therefore:  $p$  can only be identified if  $O$  can be identified independently.
- But:  $O$  was identified in terms of its parts

### Are there bona fide temporal boundaries?

### Temporal parts as theoretical entities

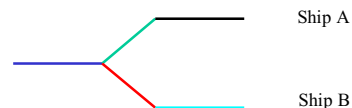
- Temporal parts are like electrons
- Belief in their existence is justified by the explanatory success or utility of the theories which postulate them
- Perdurant theories solve so many metaphysical problems so economically that we are justified in believing in temporal parts

### Temporal parts as theoretical entities

- All we need to understand about temporal parts is that they possess the properties which the perdurance theories require them to possess in order to serve their explanatory purposes

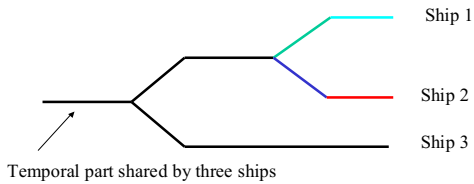
### Perduring entities as sums of temporal parts

- Two enduring entities are numerically identical if and only if they have the same temporal parts

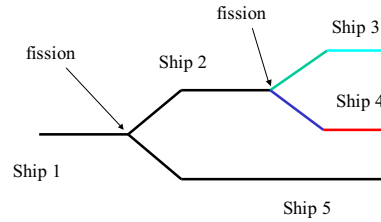


### Is the explanation as good as we think it is?

- Unless we know the future course of events we cannot tell with how many ships we are confronted with in a single space at a given time

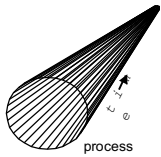


### Fission

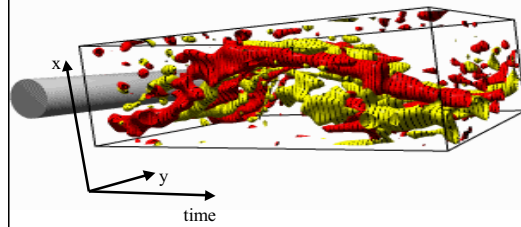


### Summary: two categories of entities

- **Processes**
  - have duration
  - Does not exist in full at a single moment
- **Enduring entities**
  - Exist in full at every moment they exist at all



### Four-dimensionalism: Time is just another dimension



### Three-dimensional cross-sections

