

The Philosophy of Time

Lecture One

Time without Change

Rob Trueman
rob.trueman@york.ac.uk

University of York

Time without Change

Introducing McTaggart's Argument

McTaggart on Time and Change

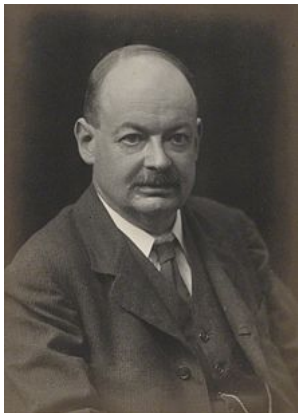
Shoemaker's Thought Experiment

Objection to Shoemaker (1): Freeze-Skips

Objection to Shoemaker (2): Causation

What Should McTaggart Say?

- McTaggart was born in 1866, and died in 1925
- He was a fellow of Trinity College, Cambridge
- However, he was not an **analytic** philosopher: he was a British Idealist, a tradition which came before the analytic
- He is most famous for arguing that **time is not real**



J.M. Ellis McTaggart

Overview of the Next Four Lectures

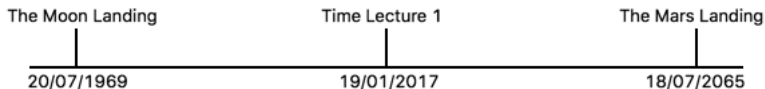
- Over the next four lectures, we are going to examine McTaggart's argument, and some responses to it
- There is a very good chance you will not be convinced by McTaggart's argument (few are)
- But it's actually **very difficult** to say what's wrong with it
 - McTaggart's argument can be very frustrating, because some of the steps look **obviously wrong**, but then when you look closer it becomes very hard to block them
- So even if you think McTaggart's argument fails, we will certainly learn something about time by seeing **why** it fails

Two Time Series

- Before we can present McTaggart's argument, we need to introduce a distinction between two different ways in which we can arrange events in a temporal series
- **The A-Series**
 - Past — Present — Future
 - The Moon Landing is in the past, this lecture is in the present, and the Mars Landing is in the future
- **The B-Series**
 - Earlier — Later
 - The Moon Landing happened earlier than this lecture, which happened earlier than the Mars Landing

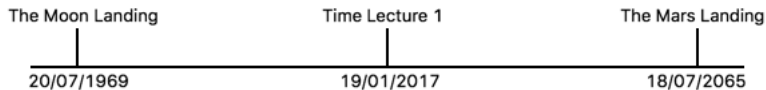
The B-Series

- 'Distinctions of [this] class are permanent' (McTaggart 1908: 458)
- If event x happened earlier than event y , then that has always been true, and will always be true
- It always has been true, and always will be true, that the Moon Landing happened earlier than this lecture



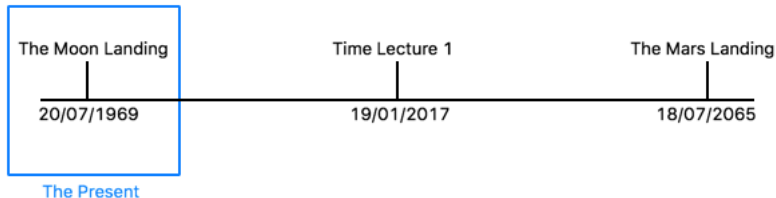
The A-Series

- Distinctions of this class **change**
- The Moon Landing was once in the future, then it became present, and now it is in the past



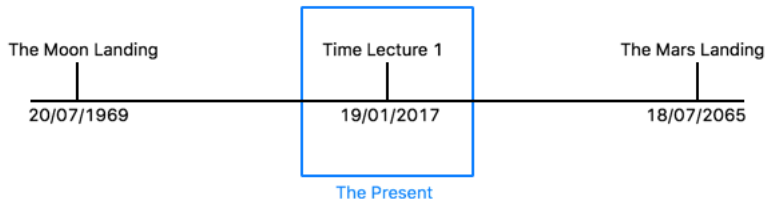
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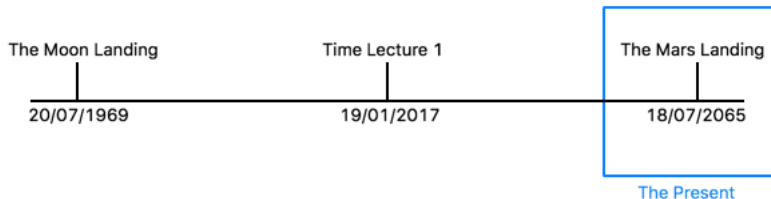
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The A-Series

- Distinctions of this class **change**
- The Moon Landing was once in the future, then it became present, and now it is in the past



McTaggart's Argument — An Outline

- (1) The reality of time requires the reality of change
 - (2) The reality of change requires the reality of the A-Series
 - (3) But, the idea of a dynamic A-Series contains a contradiction,
so there can be no real A-Series
- ∴ (4) Time is not real

Taking a Closer Look

- McTaggart's argument is (I take it) **valid**
 - The conclusion follows from the premises
 - If all of the premises are true, then the conclusion must be true too
- So the only question is whether all of the premises are true
- It turns out that there's lots to say about **all** of these premises, so we will look at one premise per lecture
- This week, we will be looking at premise 1:
 - (1) The reality of time requires the reality of change

Time without Change

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Shoemaker's Thought Experiment

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What Should McTaggart Say?

McTaggart's View

Time involves change [...] A universe in which nothing whatever changed [...] would be a timeless universe.

(McTaggart 1908: 459)

It would, I suppose, be universally admitted that time involves change. [...] We say that something can remain unchanged through time. But there could be no time if nothing changed.

(McTaggart 1927: 11)

Observing Time and Observing Change

- There is time if and only if there is change (something changes)
- This doctrine has been accepted by many philosophers, and it seems initially plausible
- It seems to be supported by the fact that we only **observe** the passage of time by **observing** change
 - Moving hands on a clock face, or falling grains of sand in an hourglass, or...

No Reason to Believe in Time without Change

- We could imagine presenting the following kind of argument:
 - We could never observe the passage of time without there being any change
 - So we would never have any reason to believe that time has passed without there being any changes
 - So we should reject the whole idea of time without change
- This is **not** McTaggart's argument, but it is easy to imagine certain philosophers endorsing it
- However, in a paper from 1969 called 'Time without Change', Sydney Shoemaker argued that things are not quite so simple

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Shoemaker's Thought Experiment

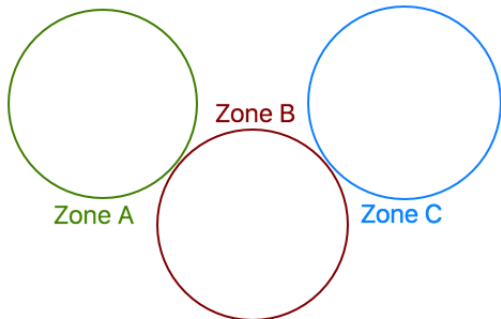
Objection to Shoemaker (1): Freeze-Skips

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What Should McTaggart Say?

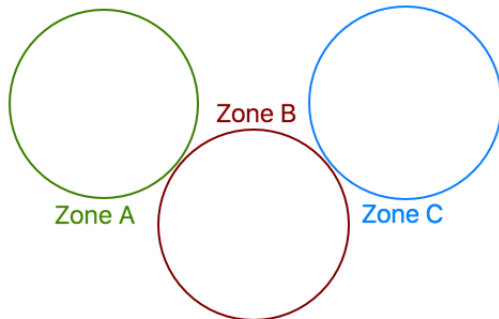
A World of Three Zones

- Imagine a world made of three zones



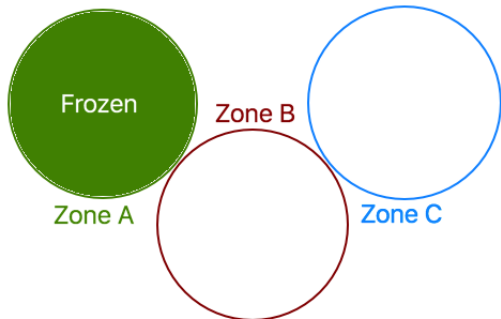
Periodic Freezes

- Each zone periodically 'freezes' for a year — during one of these freezes, nothing changes in the zone



Local Freezes

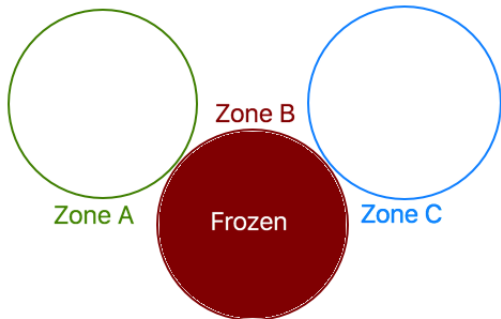
- Zone A freezes once every three years



Year 3

Local Freezes

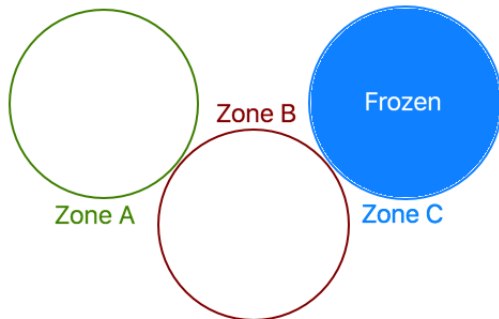
- Zone B freezes once every four years



Year 4

Local Freezes

- Zone C freezes once every five years



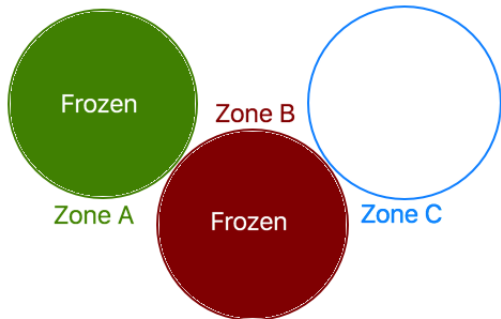
Year 5

No Trouble Yet...

- Now so far, none of this threatens the idea that the passage of time requires change
 - In Year 3, there are no changes in Zone A, but there are changes in Zones B and C
 - In Year 4, there are no changes in Zone B, but there are changes in Zones A and C
 - In Year 5, there are no changes in Zone C, but there are changes in Zones A and B
- But if this pattern carries on like this, then the freezes will start to overlap

Overlapping Freezes

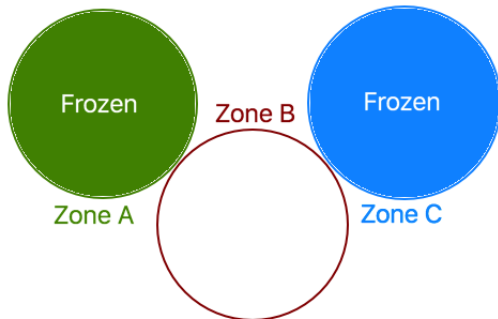
- Zones A and B freeze together once every twelve years



Year 12

Overlapping Freezes

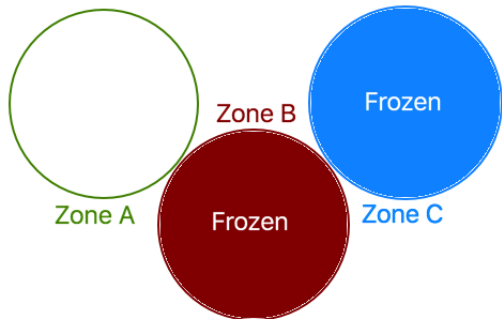
- Zones A and C freeze together once every fifteen years



Year 15

Overlapping Freezes

- Zones B and C freeze together once every twenty years



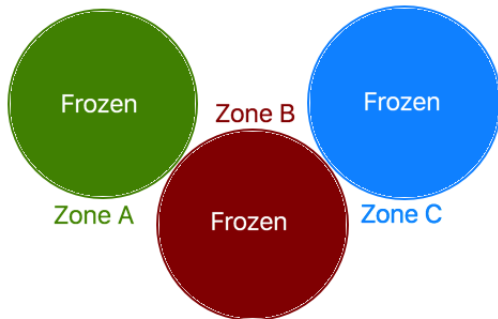
Year 20

Still No Trouble...

- So far, there **still** isn't a threat for the idea that the passage of time requires change
 - In Year 12, there are no changes in Zones A or B, but there are changes in Zone C
 - In Year 15, there are no changes in Zones A or C, but there are changes in Zone B
 - In Year 20, there are no changes in Zones B or C, but there are changes in Zone A
- But if this pattern carries on like this, then **all the zones will eventually freeze together**

A Global Freeze!

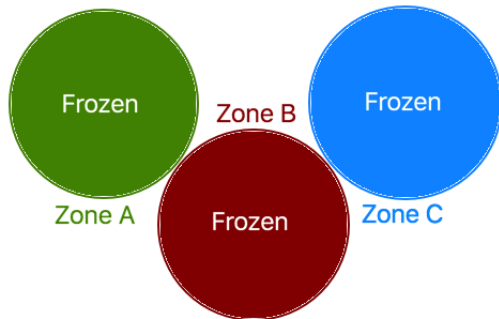
- Zones A, B and C will all freeze together (a **global freeze**) once every sixty years



Year 60

A Global Freeze!

- During one of these global freezes, absolutely no change would happen anywhere in the Universe



Year 60

What does Shoemaker's Thought Experiment Show?

If all of this happened, I submit, the inhabitants of this world would have grounds for believing that there are intervals during which no changes occur anywhere.

(Shoemaker 1969: 371)

- Suppose the inhabitants of the Universe observe the pattern of regular freezes for 59 years
- Surely by then they will have good reason to think that the series will continue in the same way
- And in that case, they will have good reason to think that on Year 60, there will be a global freeze

What does Shoemaker's Thought Experiment Show?

- As Shoemaker makes clear (1969: 368), he has not proven that it is **really possible** for there to be a global freeze
- His example merely shows that in certain circumstances, there would be good, rational reasons to believe in global freezes
- But sometimes we have good reasons to believe in things which turn out to be impossible
 - Example: at one time in our history, we might have had good reasons to think that lightning occurs without there being any electrical discharge, but that's not really possible

What does Shoemaker's Thought Experiment Show?

- But importantly, showing that we could have good reason to believe in the passage of time without change is all Shoemaker needed to do
- Shoemaker is arguing against those (like McTaggart) who think that 'There's time iff there is change' is an **analytic** or **conceptual** truth
- All Shoemaker is trying to show, then, is that the **concepts** of time and change can come apart, not that time and change **themselves** can

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What Should McTaggart Say?

Freeze-Skips

- Why would it be rational for the people in Shoemaker's Universe to think that the pattern of freezes carries on in the simple pattern Shoemaker describes?
- Why not just say that once every 60 years, we skip a freeze: a freeze was scheduled for Zones A, B and C, but since that would lead to a global freeze, none of the zones freeze
- If that is what the inhabitants should say, then they would not have reason to believe in time without change after all

Simplicity

- An initial response: the 'skip-free theory' is **simpler** than the 'skip theory', and our standard scientific practice is to prefer simpler theories
- Still, it has to be admitted that the skip-free theory is not that much simpler than the skip theory
- So Shoemaker complicates the case, to make the skip-free theory more obviously preferable to the skip theory
 - Remember, all Shoemaker is trying to do is convince you that there **could be** a situation in which we would have good reason to believe in the passage of time without change

A More Complex Case

- Imagine that:
 - Freezes vary in length
 - There are advance signs before freezes (e.g. things start to slow down)
 - Features of the advance signs correlate in some simple way with freeze length (e.g. the advance signs last for one tenth of the length of the freeze)
- If all this happened, then a skip theory would have to be a lot more complicated than a skip-free theory
- It would then seem like we really would have good reason to believe in global freezes

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What Should McTaggart Say?

What Causes a Global Thaw?

- As Shoemaker acknowledges (1969: 375), there is a good question about how things **get going again** after a global freeze
- What **causes** the thaw?
- In the case of local freezes, this is not such a pressing question:
 - When A is the only frozen zone, things are changing in all the rest of the Universe; we can imagine that these changes somehow cause the thaw
- But if nothing is happening anywhere in the Universe during a global freeze, what could possibly cause a global thaw?

Developing this Causal Objection

- Shoemaker presents a 'commonly supposed' principle, which we can simplify as:
 - (P) If event e occurs at t , then every interval leading right up to t contains a **sufficient cause** of e
 - (Roughly, a is a **sufficient cause** of b iff: if a were to occur, so would b)
- As Shoemaker recognises, (P) is inconsistent with there being a global freeze and then a global thaw, because the end of a freeze is just like all of its earlier stages
- So if Shoemaker's thought experiment is to work, it must be possible to reject (P)

Action at a Temporal Distance

- Shoemaker calls causation which does not obey (P) **action at a temporal distance (ATD)**
- In this terminology, theories which say that there are global freezes can be saved only if ATD is possible

One Kind of ATD

- When we try to imagine a case of ATD, this is the sort of thing that most readily comes to mind:
 - Event c occurs at t_1 , and event e occurs at t_2
 - Event c causes event e
 - There is a temporal gap between t_1 and t_2 during which there are no causes of e
- Shoemaker calls this **delayed-action** causation, and it seems very strange
 - Ordinarily, we assume that if c occurs before e , then the only way c can cause e is by kicking-off a chain of causes-and-effects which leads right up to e
- And even Shoemaker himself says that he is ‘inclined to believe that’ himself (1969: 378)

Another Kind of ATD

- However, Shoemaker also thinks that there is another kind of ATD
 - Something explodes at t **because** it has been red for an hour [unchangingly one shade of red]
(Here we have to imagine that there are law-like correlations between redness and explosions)
- Here the cause of the explosion runs right up to its effect, but (P) is still violated
 - At no moment before t do we have a **sufficient** cause for the explosion: the object had to be red **for the full hour**
- Applied to the Zones: the Zones thaw after a global freeze simply because they had been frozen for a year
- **Question: What do YOU think about this kind of ATD?**

The Barcan Marcus Objection

- In fn. 10 (p. 380), Shoemaker notes an objection from Ruth Barcan Marcus
- If the zones all thaw **because** they were frozen for a year, then the passing of time itself seems to be a 'genuine' change
- More accurately: *coming to be such as to have been frozen for a year* looks like a genuine change in a Zone: it is a change which has **causal effects**
- So there is a type of change that happens in a global 'freeze' after all!



Ruth Barcan Marcus

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What Should McTaggart Say?

A Quick Re-Cap

- McTaggart presented an argument for the unreality of time, and it had three premises:
 - (1) The reality of time requires the reality of change
 - (2) The reality of change requires the reality of the A-Series
 - (3) But, the idea of a dynamic A-Series contains a contradiction, so there can be no real A-Series
- We have focussed on (1) today
- Shoemaker presented a thought experiment which was meant to show that we could have good reason to believe in the passage of time during which there are no changes
- However, we also saw that his thought experiment got into trouble with action at a temporal distance

Is McTaggart Really In Any Trouble At All?

(1) The reality of time requires the reality of change

- It is natural to understand McTaggart's (1) as saying that whenever time passes, there is change
- When we understand it like that, Shoemaker's thought experiment is obviously a threat
- But we do not **have** to understand it like that
- Here is what McTaggart **needs** to get his argument going:

(1') In a universe in which there is no change, there is no time

Is McTaggart Really In Any Trouble At All?

(1') In a universe in which there is no change, there is no time

- This is all McTaggart needs because he argues that if there is no A-Series, then there will be no change **at any time or place** in the Universe
- And clearly, Shoemaker has not given us any reason to think that there could be a Universe in which there was time, but no change
- So, it seems, McTaggart good happily concede the possibility of global freezes, and still run his argument!

For the Next Lecture

- Required Reading for the next Lecture:
 - Mellor 1998 — item 12 in the reading pack
 - Section 3.7 of Dainton 2001 — pp. 38–40 of item 13
- **Please Note:** these are also the required readings for the seminar (26/01/17) **along with the readings for this lecture.** See the VLE for more information

References

- McTaggart (1908) 'The Unreality of Time', *Mind* 17: 457–74
- — (1927) *The Nature of Existence* vol. 2 (CUP)
- Shoemaker (1969) 'Time without Change', *The Journal of Philosophy* 66: 363–81