

Group #1 (pp.159–160) How are Space and Time different?

Group #1: Space and time are thought to be distinct in a variety of different ways. Explain three different ways in which space and time are commonly thought to differ.

What is the philosophical problem concerning the nature of time?

Group #2 & #3 (pp.160-162): What is McTaggart’s Argument?

There are three parts to McTaggart’s argument.

- Part 1: Terminology and Preliminaries
- Part 2: McTaggart’s Argument Against the Reality of Time
- Part 3: McTaggart’s Argument Against the A Series

To get clearer Part 1, (i) explain the two ways of distinguishing between positions in time and (ii) explain how a series of time is generated with these positions.

Part 2 is McTaggart’s argument against the reality of time. Here is the argument in short form:

MCTAGGART’S ARGUMENT AGAINST THE REALITY OF TIME	
1	Change is essential to time.
2	The A series (not the B series) is essential to change.
3	The A series is not real.
4	Therefore time is not real.

The rationale behind (1) is that if nothing changed, then there would be no time. That is, in a completely static universe, there would be no time (in other words, time is not absolute). The rationale behind (2) is change depends upon the A-series but not the B-series. To see this more clearly, consider the spatial relation between Texas and Maine. Maine is *north of* Texas, and Texas is *south of* Maine. Whether or not you are in Maine or Texas does not change this relation; the temporal relation of Maine being north of Texas is permanent (unless they move).

Analogously, in the B-series, temporal ordering is a lot like spatial ordering, i.e. a series of times are generated by their positions in relation to each other. According to the B-series, 2010 is earlier than 2011 and 2011 is later than 2010. Also note that these relations are permanent; it is not the case that 2010 has the property of being in the past.

So, if temporal relations in the B-series are permanent, then there is no way an event can gain or lose a temporal property. It can’t go from *being in the future* to *being in the present* to *being in the past*. In contrast, the A-series says that just these types of changes occur, 2010 goes from being in the future, to being in the present, to being in the past . There is real, genuine change occurring here.

Part 3 is McTaggart’s Argument against the A series. With respect to the previous argument, it is a defense of premise (3). Here is the argument:

MCTAGGART'S ARGUMENT AGAINST THE REALITY OF THE A-SERIES	
(3 _{P1})	If the A series is real, then each event <i>e</i> must possess all of the different temporal properties (<i>e</i> must be past, present, and future) that generates the A series.
(3 _{P2})	No event <i>e</i> can be past, present, and future.
(3)	Therefore, the A series is not real.

Rationale for Argument: The rationale behind (3_{P1}) is that *if* the A series is real, *then* any position in time must go from *being future*, to *being present*, to *being past*. In order for the A series to be real, then there must be a passage of time such that a moment comes in and out of existence. Thus, an event must be past, present, and future. The rationale behind (3_{P2}) is that the notion of past, present, and future exclude each other. The past is earlier than the present and future; and the future is later than the present and past. No event can be past, present, and future because no event can be earlier or later than itself.

To consider the reply to this, let's introduce some abbreviations:

e	event
P	Past
N	Now (present)
F	Future
&	And

Here is the original argument against the A series restated using the abbreviations above:

- (5) If the A series is real, then an event *e* has the temporal properties *P*, *N*, and *F*; therefore: *Pe* & *Ne* & *Fe*.
- (6) *P* & *N* & *F* are incompatible since an event *e* no event can be earlier or later than itself.
- (7) According to the A-series, every event *e* has these attributes. Contradiction!
- (8) Therefore, the A-series is not real.

Reply: Proponents of the A theory will reject (6). They claim that *P* & *N* & *F* are not incompatible since an event *e* has the properties *P*, *N*, and *F*, but it gains and loses these temporal properties (just like a green fence painted red gains the property of red and loses the property of green). A baseball game has the property of *being futural* (*F*), *F* is replaced by the property of *being present* (*N*), and *N* is replaced by the property of *being past* (*P*). Thus, an event can have every temporal property. Another way of putting this reply is that events have the following temporal properties: (i) *was future*, (ii) *is present*, and (iii) *will be past*. These properties are not incompatible with each other.

To condense this; the A-theory claims that an event *e* has the following properties:

- (1) *e* is present
- (2) *e* was future
- (3) *e* will be past

Here is McTaggart's rebuttal. The first step is to *de-tense* (1)–(3) by explicating (1)–(3) with specific moments in time t_1 , t_2 , and t_3 .

- (1) e is present at t_2
- (2) e is future at t_1
- (3) e is past at t_3

The next step is to note that t_1 , t_2 , and t_3 all entail that t_2 must be past, present, and future.

- (1) e is present at t_2 ; thus t_2 is present.
- (2) e is future at t_1 ; thus t_2 is future
- (3) e is past at t_3 ; thus t_2 is past

This seems to be a contradiction for how can a moment of time be both present, past, and future?