7 Time

7.1 Introduction

Space is not like time. For one thing, there is no intrinsic direction – no metaphysical grain – to any dimension of space. Instead, every spatial dimension is perfectly symmetrical. For another thing, space does not exhibit any movement or flow; unlike time, there is no dynamic aspect to the dimensions of space. And for a third thing, space is ontologically indiscriminate. It doesn't matter whether you're located right here or over there in space, since all spatial locations are equally real. Space just sits there: a gigantic, three-dimensional continuum, static and homogeneous, with nothing but their contents to distinguish one spatial region from another.

Time is different. Time has pizzazz. For starters, there is a distinctive direction to time, sometimes called time's arrow, which points always toward the future. Also, time is dynamic: each moment of time approaches inexorably from the future, enjoys its brief heyday in the spotlight of the present, and then ever after recedes serenely into the shadowy realm of the past. Not only that, but your temporal location does matter, ontologically speaking: for the past is the domain of has-beens, and the future is a land of mere potential. Only the present is truly real.

Or so it might seem. But many have thought otherwise. A large number of philosophers and scientists, especially in the last hundred years, have defended the view that time, despite appearances to the contrary, is one of four more or less similar dimensions of the universe. The direction, the passage, and the ontological inequality of time are all mere appearances, on this view, each one a function of the way we happen to perceive the world.

This issue – the degree to which time is similar to the dimensions of space – has figured prominently in recent philosophical discussions of

time. And most of the people involved in those discussions have been, directly or indirectly, responding to McTaggart's famous argument against the reality of time, first published in 1908.[1] So that is where we will begin.

7.2 McTaggart's argument

McTaggart's argument has two main parts. The first is meant to show that times and events cannot possess properties like *pastness*, *presentness*, and *futurity*. The second part of the argument builds on the first part, and is designed to show that time is not real. We'll look at both parts in detail, but first we need to be clear about some important terminology that McTaggart uses in his argument.

McTaggart says there are two ways of distinguishing positions in time. In the first place, we can say that each position is *earlier than* some positions and *later than* others. For example, 2009 is earlier than 2010 and later than 2008. Distinctions of this first kind are permanent. But in the second place, we can say that each position is either *past*, *present*, or *future*; for 2008 is past, 2009 is present, and 2010 is future. Moreover, distinctions of this second kind are temporary. (Note that there are metric variants on these ways of distinguishing positions in time: *three-days-later-than*, *two-days-past*, and so forth.)

Here then is one way to generate a series of times: order the times according to whether they are past, present, or future, and also according to how far into the past or future they are. This method produces what McTaggart calls the *A series*.

And here's another way to generate a series of times: order the times according to how they stand to other times in terms of the *earlier than* and *later than* relations. This alternative method of ordering times produces what McTaggart calls the *B series*.[2]

[1] McTaggart, "The Unreality of Time."

[2] An odd feature of McTaggart's characterization of the A series and the B series is that they end up being identical. For a series is nothing more than some specific items in a particular order, and the A series and the B series, as defined by McTaggart, turn out to consist of the same items in the same order. Luckily for our purposes, this odd feature of McTaggart's characterization of the 'two' series does not affect the soundness of his arguments.

So much for preliminaries and terminology. We now turn to the first part of McTaggart's argument. It begins by noting that each moment in time must possess all of the different properties that generate the A series (including *futurity*, *presentness*, and *pastness*), if the A series is real. For if the A series is real, then each moment has to go from being future to being present to being past. (Not to mention all the metric variants: *being two days future*, *being one day future*, *being present*, *being one day past*, and so forth.) The argument then continues with the observation that *pastness*, *presentness*, and *futurity* (and in fact any two of the different A-series-generating properties) are incompatible properties. For no time is both past and present, or present and future, and so forth. The upshot of this first part of the argument is that the A series cannot be real.

There is a possible objection to this argument. You might object to the claim that if the A series is real, then each moment of time is past, present, and future. For you might deny that a given moment of time *is* past, present, and future (even on the assumption that the A series is real, that is). Instead, you might say, what is true of the present moment, for example, is that it *will be* past, *is* present, and *was* future.

McTaggart is well aware of this objection, however, and feels that he has a devastating reply to it. According to McTaggart, to say of the present moment that it *will be* past is to say that it is past *at a moment of future time*, and to say that it *was* future is to say that it is future *at a moment of past time*. And, as McTaggart points out, both of these additional moments (the moment of future time at which the present moment is past, and the moment of past time at which it is future) must also be past, present, and future (if the A series is real, that is). So the incompatible characteristics have merely been passed on, like a baton in a relay race, to another generation of times; and thus the contradiction remains. In fact what really happens, according to McTaggart, is that the incompatible characteristics get passed on, like an eternally multiplying series of batons in a strange relay race in which more and more runners are added to each team at each stage of the race. Which means that, instead of solving the original problem, you have actually compounded it by generating an infinite series of contradictions. And that's not good.

The second part of McTaggart's argument starts with the claim that change is essential to time. After all, Aristotle said that time is the measure of change; and in any case, without change, there would be no time. (Or

so it seems, and so many people have argued.) Yet, according to McTaggart, the A series is essential to change.

To make this point, McTaggart asks us to compare his fireplace poker (which is hot on a particular Monday and cold at every other time) to the meridian at Greenwich. The meridian, says McTaggart, doesn't change in virtue of being in the UK at one latitude and outside the UK at another latitude, any more than a fence changes in virtue of being white at one end and red at another end. These aren't cases of real change, says McTaggart, and neither is the case of his poker. For it is always true that the poker is hot on that particular Monday, and it's always true that the poker is cold at all other times.

To get real change, says McTaggart, you need an A series. If you have an A series, then you have times and events changing from being future to being present to being past. So you have the poker's being hot changing from being future to being present (this change is also known as the poker's becoming hot), not to mention the poker's being hot changing from being present to being past (also known as the poker's ceasing to be hot). And if you have all of that, says McTaggart, then you have real change.

So change is essential to time, says McTaggart, and the A series is essential to change. But the A series (according to the previous argument) is unreal. So time is unreal.

7.3 The A Theory and The B Theory

There have been two main responses to McTaggart's pair of arguments. Some philosophers have accepted McTaggart's argument against the A series, while rejecting McTaggart's argument against the reality of time. These philosophers have maintained (roughly) that time is real, but consists of just the B series. They are sometimes called 'B Theorists' (or 'detensers' because they want to say that 'tense' is not a genuine feature of objective reality).

Other philosophers have rejected both McTaggart's argument against the A series and McTaggart's argument against the reality of time. These philosophers have maintained that 'A properties' are real properties of times and events – properties that change as time passes. Such philosophers are sometimes called 'A Theorists' (or 'tensers', because they want to say that tense is a genuine feature of objective reality).