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McTAGGART ON TIME

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1.

McTaggart's argument for the conclusion that time does not exist is notoriously hard to understand.[1] C. D. Broad says that when properly interpreted, its main part can be seen to be "a philosophical 'howler'."[2] Others see things in it that they regard as true and important, or if not true, then anyway important. But I have not seen any interpretation of it that seems to me to get it exactly right. And I think that it pays to get it right: there are lessons to be learned from consideration of what goes on in it.

By way of reminder, McTaggart's argument has two parts. The first part aims at the conclusion that time does not exist unless the A series exists. The second part aims at the conclusion that the A series does not exist. It follows that time does not exist.

2.

What is the A series? We do better to begin with what McTaggart calls the B series.

Actually, we do best to begin with what McTaggart should be taken to mean when he talks about a series' existing or not existing. He does not say what he means, so we have to supply an interpretation.

McTaggart gives us descriptions of two series.[3] Both descriptions have the following form: the series such that (i) its members are the things that have property P, and (ii) one precedes another in the series just in case the one has the two-place relation Q to the other. It is clear enough that when he asks, rhetorically, whether a series so described exists, what he is asking is whether there is a series that satisfies the description. I suggest that we should take him to think that there is a series that satisfies the description if and only if there are things that have P, and for every pair of things that have P, one has Q to the other. I suggest that we follow him in this usage.

Consider the Happy Lion Series Description: the series such that (i) its members are the lions in my back yard, and (ii) one precedes another in the series just in case the one is happier than the other. Is there a series that satisfies that description? No. That is because there are no lions in my back yard. Consider the Happy Squirrel Series Description: the series such that (i) its members are the squirrels in my back yard, and (ii) one precedes another in the series just in case the one is happier than the other. Is there a series that satisfies that description? Well, there are squirrels in my back yard. Then there is a series that satisfies the description just in case for every pair of squirrels in my back yard, one is happier than the other.

It is worth noticing that opting for this account of the conditions under which there is a series that satisfies a description of the kind we are considering is compatible with opting for a (by now) familiar account of the conditions under which a series S is identical with a series S′. According to that account, S is identical with S′ just in case they have the same members, and their order in S is the same as their order in S′. The fact that these accounts are compatible emerges as follows.

Suppose that there are only two squirrels in my back yard, Alfred and Bert, and that Alfred is happier than Bert. Then there is a series that satisfies the Happy Squirrel Series Description. Call it the Happy Squirrel Series. Consider now the Fat Squirrel Series Description: the series such that (i) its members are the squirrels in my back yard, and (ii) one precedes another in the series just in case the one is fatter than the other. Suppose that Alfred is not merely happier than Bert but fatter than Bert. Then there is a series that satisfies the Fat Squirrel Series Description. Call it the Fat Squirrel Series. What is the relation between the Happy Squirrel Series and the Fat Squirrel Series? We are entirely free to say—as the familiar account of the identity conditions for series directs us to say—that they are one and the same series. Indeed, that they are both identical with the ordered pair ⟨Alfred, Bert⟩. Three series-descriptions but only one series.

We must of course allow that the following might have been the case: Alfred is happier than Bert but no fatter or thinner than Bert. If that had been the case, then there would all the same have been a series satisfying the Happy Squirrel Series Description; so on any view, the Happy Squirrel Series would have existed. But there would have been no series satisfying the Fat Squirrel Series Description; would the Fat Squirrel Series have existed? We are free to say that the Fat Squirrel Series would have existed, for we are free to say that it simply would not in that case have satisfied the Fat Squirrel Series Description. We are free to say, more generally, that unless P is an essential property of the things that have it, and Q such that if x has it to y then x necessarily has it to y, a series that in fact satisfies a description of the kind we are considering might have failed to do so.

Would McTaggart have accepted this (by now) familiar identity conditions for series? There is only one place at which it will matter whether he would have accepted it; we will get to it in section 5 below.

3.

Let us now turn to the B series. What are its members? McTaggart introduces us to the B and A series together: he says they are series of what he calls "positions in time"—I take these to be time points or chunks.

But he goes straightway on to say:

> The contents of any position in time form an event. The varied simultaneous contents of a single position are, of course, a plurality of events. But, like any other substance, they form a group, and this group is a compound substance. And a compound substance consisting of simultaneous events may properly be spoken of as itself an event. (10)

Presumably the compounding he has in mind is mereological fusion. And from here on, he throughout writes as if he meant us to suppose that the members of the B and A series are events. For example, he goes straightway on to say: "[t]he first question which we must consider is whether it is essential to the reality of time that its events should form an A series as well as a B series." (11) Let us say that an event is an E event if and only if it is the mereological fusion of all the events that occur at and only at a given time point. And let us say, then, that the members of both the B and A series are the E events.

What fixes which E events precede which in the B series? McTaggart tells us about the B series: "the terms have to be such that, of any two of them, either the first is earlier than the second, or the second is earlier than the first." (10) So we may take it that the following is McTaggart's description of the B series:

> (B Series Description) the series such that (i) its members are the E events, and (ii) one precedes another in the series just in case the one is earlier than the other.

This may well strike us as puzzling, however. It is not, of course, transparent what it is or would be for time to not exist, but it is intuitively very plausible to think that if there are events, some earlier than others, then time does exist.[4] So if there is a series that satisfies the B Series Description, and it is the B series, then doesn't the existence of the B series suffice for the existence of time? But if so, then what are we to make of the first part of McTaggart's argument? Why does the existence of time require the existence of the A series if the existence of the B series would suffice?

McTaggart does not make explicit what his answer is. There are two replies available to him.

He can reply, first, that that intuitively very plausible idea is mistaken. Thus he can say that the existence of events, some earlier than others, does not suffice for the existence of time. He can say that what the existence of time re-

quires is that there be time points. I am sure that many people do so use "Time exists" that it is true if and only if there are such entities as time points.

But it is clear that McTaggart would not make this first reply. If he had said that the B series is a series of events and the A series a series of time points, then perhaps it would be right to think he would make this reply. But as I said, he does not say this. I have pointed to reason to believe he intends the members of both series to be events.

Moreover, there are many places in the text that show that he thinks the existence of the B series really would suffice for the existence of time. For example, having proved to his satisfaction that the existence of the A series is required for the existence of time, McTaggart says that the B series

> cannot exist except as temporal, since earlier and later, which are the relations which connect its terms, are clearly time-relations. So it follows that there can be no B series when there is no A series, since without an A series there is no time." (13)[5]

So I suggest that we should attribute to him the second response available to him, namely that the existence of the B series would suffice for the existence of time. He can also say that the existence of the A series is required for the existence of time: he need merely add that the existence of the B series would suffice for the existence of the A series. We will return to this idea in section 5 below.

4.

The members of the A series, like the members of the B series, are the E events. Under what condition does one member precede another in the A series? There is only one passage that explicitly answers this question, namely: the A series "runs from the far past through the near past to the present, and then from the present through the near future to the far future" (10). Let us help ourselves to the following complex two-place relation:

> x has the Temporal Perspective Relation to y just in case
> (1) x is past, and either y is nearer past than x is, or y is present, or y is future, or
> (2) x is present, and y is future, or
> (3) x is future, and y is farther future than x is.

Then we can say that the A series is the series that satisfies the following description:

> (A Series Description) the series such that (i) its members are the E events, and (ii) one precedes another in the series just in case the one has the Temporal Perspective Relation to the other.

5.

We now have before us characterizations of McTaggart's B and A series: if there is a series that satisfies the B Series Description, it is the B series, and if there is a series that satisfies the A Series Description, it is the A series. Whether there are series that satisfy these descriptions is a matter we will turn to in the following section. We might well want to ask first, however, how they are related to each other—supposing that they do exist.

Suppose they do exist. They have the same members: each has the E events as its members. Is the order of the events different in the two series? Surely it is obvious that an event x has the Temporal Perspective Relation to y just in case it is earlier than y. (McTaggart himself gives no hint of thinking otherwise.) Then the order of the events in the A series is the same as the order of the events in the B series. So if we opt for the familiar account of the identity conditions for series that I mentioned in section 2—namely that series S is identical with series S′ just in case they have the same members, and their order in S is the same as their order in S′—then we are committed to supposing that the A series just is the B series.

I asked, rhetorically, in section 2, whether McTaggart would have accepted this identity condition for series. We should notice now that if he did accept it, he could easily explain why the existence of the B series would suffice for the existence of the A series: the existence of the B series would suffice for the existence of the A series because the A series just is the B series.

On the other hand, he plainly thinks that the A series is not identical with the B series; so he did not accept this identity condition for series. So what should we take him to think marks the one series off from the other?[6] Perhaps that the relation being earlier than and the Temporal Perspective Relation are different relations, and therefore that the series whose order is fixed by the one is different from the series whose order is fixed by the other.

But it is easy to see that this won't do. Suppose there is a series of all E events such that one precedes another in the series just in case the one has the Temporal Perspective Relation to the other; call every such series an alpha series. Suppose also that there is a series of all E events such that one precedes another in the series just in case the one is earlier than the other; call every such series a beta series. Let us grant McTaggart that the Temporal Perspective Relation is not the same as the earlier than relation. Still, an event x is earlier than an event y just in case x has the Temporal Perspective Relation to y.[7] It follows that every beta series is an alpha series. Therefore McTaggart cannot have that every beta series is different from every alpha series in that their ordering relations are different.

So we really had better suppose that if there is such a thing as the A series, it is the B series. This supposition is not going to turn out to have been unfair to McTaggart, since, as we will see, his argument for the nonexistence of time

does not anywhere rely on there being a difference between the A series and the B series.

6.

Let us turn now to the first part of the argument; it aims at the conclusion that time exists only if the A series exists.

McTaggart says that time exists just in case some things change, and he argues that things change only if the A series exists.

Is McTaggart right to say that time exists just in case some things change? No doubt there is room to argue that he is not. Let us bypass that question: let us suppose that McTaggart is right to say this.

His argument to the effect that things change only if the A series exists is another matter, and needs a closer look.

What exactly is it for a thing to change? McTaggart invites us to agree that a thing changes just in case it has a property ("quality", "characteristic") at one time and lacks it at another.[8] We may well think this intuitively plausible.

But McTaggart would have us agree that it is not so easy to supply examples. Let us suppose that a certain poker was not hot until a certain Monday, hot on that Monday, and not hot thereafter. We might think that our supposition, together with McTaggart's account of change, entitles us to conclude that the poker changes. Not so, McTaggart says. He says:

> this makes no change in the qualities of the poker. It is always a quality of that poker that it is one which is hot on that particular Monday. And it is always a quality of that poker that it is one which is not hot at any other time. Both these qualities are true of it at any time—the time when it is hot and the time when it is cold. And therefore it seems to be erroneous to say that there is any change in the poker. (15)

McTaggart takes it that for the poker to be hot on and only on that Monday is for the following to be the case:

(S_1) The poker has the two-place relation being hot-at to that Monday and lacks it to all other days.

But he says that the truth of (S_1) does not suffice for the poker to change: after all, the poker always has that relation to that Monday, and always lacks it to all other days.

We might wonder why McTaggart does not take it that for the poker to be hot on and only on that Monday is for the following to be the case:

(S_2) The poker has, on that Monday, the property being hot, and lacks it on all other days.

If that is true, then his account of change yields that the poker does change.

I suggest that we must take McTaggart to think that there is no such property as being hot. Let us call a property a temporary property just in case it is possible that a thing has it at one time and lacks it at another. McTaggart thinks that things change just in case they have a property at one time and lack it at another. Thus things change only if there are temporary properties. I am sure McTaggart would say that if there were such a property as being hot, it would be a temporary property, and the truth of (S_2) would suffice for the poker to change. What I am suggesting is that we must take him to think that being hot is not a temporary property because there is no such property; and (S_2) is therefore false.

Which, on McTaggart's view, are the temporary properties? He says:

> The fact that it [the poker] is hot at one point in a series and cold at other points cannot give change, if neither of these facts change—and neither of them does. Nor does any other fact about the poker change, unless its presentness, pastness, or futurity change. (15)

He had just above said the same of events, thus that the death of Queen Anne, for example, is "in every respect but one" unchanging—the one respect in which it does change is this: it was far future, then nearer future, then present, then past, then further past. "Such characteristics as these are the only characteristics which can change. And, therefore, if there is any change, it must be looked for in the A series, and in the A series alone." (13)

He clearly thinks that the only temporary properties are being present, being past, and being future. (Perhaps we should we add: being far future, being far past, and so on. For brevity, I ignore them.) It follows that a thing changes just in case it has one of these three properties at one time, and lacks it at another.

Which are the things that might be thought to have one or other of the three at a time? Events, and only events.[9] So a thing changes just in case it is an event and has one of the three at a time, and lacks it at another. Consider the event (state of affairs?) that consists in the poker's being hot.[10] If there is such an event, then, given our original supposition, it has the temporary property being present on the Monday, and not on other days. So it is not the truth of (S_1) or (S_2) that would suffice for there to be change; it is rather the truth of

(S_3) The poker's being hot has, on that Monday, the property being present, and lacks it on all other days

that would. We need to keep in mind, however, that the truth of (S_3) would not suffice for change in the poker; what it would suffice for is only change in the event that consists in the poker's being hot.

We have not quite reached McTaggart's conclusion. We have reached the conclusion that a thing changes just in case it is an event that has one of the

three temporary properties at a time, and lacks it at another. I take it he would say that if any event has one of the three temporary properties at a time, then all events do, including the E events. I take it he would say that if any E event has one of the three properties at a time, then it has the others at other times. From here it is only a short step to the conclusion that there is change just in case for every pair of E events, one has the Temporal Perspective Relation to the other—and from here an even shorter step to McTaggart's conclusion that there is change only if the A series exists.

Should we accept this argument? Let us begin with temporary properties.

Are there *any* temporary properties? Suppose that "F(x)" stands for a property, and that "A" refers to something, and that in saying

F(A)

you would be predicating that property of A. It is a very natural idea that if you do say "F(A)" you assert a proposition, and moreover, that the proposition you assert if you say it at one time is the same as the proposition you assert if you say it at any other time.[11] For example, suppose that "$\text{Hot}_{3\text{AM},11/2/00}(x)$" stands for the property being hot-at-3AM,11/2/00, and that "the poker" refers to McTaggart's poker, and that in saying

$\text{Hot}_{3\text{AM},11/2/00}$(the poker)

you would be predicating that property of McTaggart's poker. It is very natural to think that if you do say "$\text{Hot}_{3\text{AM},11/2/00}$(the poker)" you assert a proposition, and moreover, that the proposition you assert if you say it at one time is the same as the proposition you assert if you say it at any other time. That is surely very plausible.

Now suppose that there is such a property as being hot. And suppose that "Hot(x)" stands for it, and that "the poker" refers to McTaggart's poker, and that in saying

Hot(the poker)

you would be predicating that property of McTaggart's poker. According to the very natural idea, if you do say "Hot(the poker)" you assert a proposition, and moreover, the proposition you assert if you say it at one time is the same as the proposition you assert if you say it at any other time. But the property being hot—if there is such a property—is a temporary property. That is, it is possible that a thing has the property at one time and lacks the property at another time. Therefore it may be that the proposition you assert when you say "Hot(the poker)" at one time is true and the proposition you assert when when you say it at another time is false. It follows that the proposition you assert at the one

time is not the same as the proposition you assert at the other time, and the very natural idea is therefore false.

A devotee of the very natural idea therefore concludes that there is no such property as being hot. And so similarly for all temporary properties: there aren't any. Similar reasoning yields that there are no temporary relations. For example, while there is such a non-temporary three-place relation as "x is taller than y at t", there is no such temporary two-place relation as "x is taller than y".

It may have been something like this very natural idea that led McTaggart to think that there is no such temporary property as being hot, and to say, therefore, that for the poker to be hot on a particular Monday is not for the poker to have, on that Monday, the (temporary) property being hot, but rather for it to have the (non-temporary) two-place relation being hot-at to that Monday.

But perhaps not. For if that very natural idea was what led him to think that there is no such temporary property as being hot, then it is puzzling that he should have failed to notice that the same holds of the (putative) temporary properties being present, being past, and being future. Surely one who says

Present(the poker's being hot)

at different times no more asserts the same proposition on both occasions than does one who says "Hot(the poker)" at a time at which the poker is hot and then again at a later time at which the poker is no longer hot. Thus if the very natural idea had been what led him to think that there is no such temporary property as being hot, then it is hard to see why he rejected being hot out of hand but took being present seriously.

We do not *have to* accept the very natural idea. There are alternatives on offer in the literature.[12] But there remains this to be said for McTaggart: anyone who wants to have that there are temporary properties and relations has to suppose that a satisfactory alternative is available or can be found.

There also remains this to be said against McTaggart: there is no good reason to distinguish among (putative) temporary properties as he does. If there are such temporary properties as being present, being past, and being future, then there is no good reason to reject such temporary properties as being hot.

Should we also say that if there are such temporary properties as being hot, then there is no good reason to reject such temporary properties as being present, being past, and being future? We might think that whether or not there are such temporary properties as being hot, there anyway are no such temporary properties as being present, being past, and being future. Or we might not. Let us not stop over the questions that arise here: let us grant McTaggart his favored temporary properties, and reserve criticism for the use he makes of them. If it helps, we can suppose the following. For an event to be present is for it to be occurring, or going on. For an event to be past is for it to be over, done, completed. For an event to be future is for it to be going to occur or go on.[13]

To return now to McTaggart on change. He invites us to accept two theses. The first, (I), says that a thing changes just in case it has a property at one time and lacks it at another. This yields that the truth of

(S_1) The poker has the two-place relation being hot-at to that Monday and lacks it to all other days

does not suffice for the poker to change, for the poker always has that relation to that Monday and always lacks it to all other days.

The second thesis, (II), says that the only temporary properties are being present, being past, and being future. This yields that

(S_2) The poker has, on that Monday, the property being hot, and lacks it on all other days

is false. However (II) leaves open that

(S_3) The poker's being hot has, on that Monday, the property being present, and lacks it on all other days

may be true.

McTaggart therefore invites us to agree that there is change only if the likes of (S_3) are true.

I have suggested that if there are such temporary properties as being present, being past, and being future, then there is no good reason to reject such temporary properties as being hot. We should therefore reject thesis (II).

We should also reject thesis (I). Suppose you accept the very natural idea that I described, and therefore conclude that there are no temporary properties. Are you really committed to thinking that nothing changes? That is hard to believe. (The very natural idea is an idea about what a person asserts by saying certain sentences. How could it plausibly be thought to yield the metaphysical conclusion that nothing changes?) In particular, you might well say that the truth of (S_1) does suffice for change—indeed, change in the poker. You might well say, more strongly, that for there to be change just is for the likes of (S_1) to be true. It is not in the least obvious why this should be thought a mistake.

A further alternative is available, which some would say is preferable. McTaggart believes that there is no such temporary property as being hot because there is no such property as being hot. Other philosophers would agree with McTaggart that there is no such temporary property as being hot, but for a different reason: on their view, there is such a property as being hot but it is non-temporary. David Lewis is an example.[14] On his view, it cannot be the case that a thing has being hot at one time and not at another. He therefore concludes that we should accept the metaphysic of temporal parts. In particu-

lar, that we should say that for the poker to be hot on and only on that Monday is for

> (S_4) The poker's that-Monday temporal part has the (non-temporary) property being hot, and the poker has temporal parts prior to its that-Monday part, and temporal parts after its that-Monday part, and all of them lack the (non-temporary) property being hot

to be true, and that the truth of (S_4) suffices for change—once again, change in the poker. Lewis would say that for there to be change just is for the likes of (S_4) to be true.

I find this idea unsatisfactory for a variety of reasons, one of which I will draw attention to in section 9. Meanwhile, however, it supplies us with a second way of understanding change that is incompatible with McTaggart's thesis (I) that a thing changes just in case it has a property at one time and lacks it at another.

In sum, the first part of McTaggart's argument does not succeed.

7.

The second part of McTaggart's argument aims at showing that the A series does not exist. If there is a series that satisfies

> (A Series Description) the series such that (i) its members are the E events, and (ii) one precedes another just in case the one has the Temporal Perspective Relation to the other,

where

> x has the Temporal Perspective Relation to y just in case
> (1) x is past, and either y is nearer past than x is, or y is present, or y is future, or
> (2) x is present, and y is future, or
> (3) x is future, and y is further future than x is,

then it is the A series. Following McTaggart, we are supposing that the A series exists if and only if there are E events, and for every pair of them, one has the Temporal Perspective Relation to the other. McTaggart now argues for the conclusion that nothing can have the property being present, or the property being past, or the property being future. If that argument succeeds, then nothing has the Temporal Perspective Relation to anything else, and the A series does not exist.

He gives more than one argument for his conclusion. I bypass the first since I am not at all sure I have understood it. McTaggart himself says that the

second points to "a more positive difficulty" facing the idea that x might have one or other of the three properties we are concerned with, so let us turn to it.

The argument is a reductio. Let us assume

(1) M is past.

McTaggart says:

> If M is past, it has been present and future. If it is future, it will be present and past. If it is present, it has been future and will be past. Thus all three characteristics belong to each event. (20)

So if (1) is true, so also is

(1*) (a) M is past, and
(b) M is present, and
(c) M is future.

But (1*), he says, is self-contradictory.

He knows perfectly well that his opponent has an answer. McTaggart says:

> It is never true, the answer will run, that M *is* present, past, and future. It *is* present, *will be* past, and *has been* future. Or it *is* past, and *has been* future and present, or again *is* future, and will be present and past. The characteristics are only incompatible when they are simultaneous, and there is no contradiction to this in the fact that each term has all of them successively. (21)

Thus (the answer runs): "what follows from (1) is not (1*) but only

(2) (a) M is past, and
(b) M was present, and
(c) M was future.

And unlike (1*), (2) is not self-contradictory."

McTaggart asks:

> But what is meant by "has been" and "will be"? And what is meant by "is," when, as here, it is used with a temporal meaning, and not simply for predication? (21)

His answer is:

> When we say that X has been Y, we are asserting X to be Y at a moment of past time. When we say that X will be Y, we are asserting X to be Y at a moment of

> future time. When we say that X is Y (in the temporal sense of "is"), we are asserting X to be Y at a moment of present time. (21)

Now "M is (temporal sense) past" is of the form "X is (temporal sense) Y." So (2)(a) says "M is past at a moment of present time." More precisely, it says "M is past at a t such that t is present." But all three characteristics belong to each moment of time just as all three belong to each event; thus if t is present it is also past and future. So if (2) is true, so also is

(2*) (a) M is past at a t such that t is present, and t is past and t is future, and
(b) M...,

which is self-contradictory.

We can see how it goes on. McTaggart's opponent now says "No, no. What follows from (2) is not (2*), but only

(3) (a) M is past at a t such that t is (temporal sense) present and t will be past and t was future, and
(b) M...,

which is not self-contradictory." Aha, says McTaggart, the second clause of (3)(a), namely "t is (temporal sense) present", is of the form "X is (temporal sense) Y", so what it says is "t is present at a moment of present time." More precisely, what it says is "t is present at a t′ such that t′ is present." But all three characteristics belong to each time t′; thus if t′ is present it is also past and future. So if (3) is true, so also is

(3*) (a) M is past at a t such that t is present at a t′ such that t′ is present and t′ is past and t′ is future, and
(b) M...,

which is self-contradictory.

As I said, we can see how it goes on. McTaggart now says:

> Such an infinity is vicious. The attribution of the characteristics past, present, and future to the terms of any series leads to a contradiction, unless it is specified that they have them successively. This means, as we have seen, that they have them in relation to terms specified as past, present, and future. These again, to avoid a like contradiction, must in turn be specified as past, present, and future. And, since this continues infinitely, the first set of terms never escapes from contradiction at all. (22)

His idea is this. If (1) is true, so also is (1*), which is self-contradictory. We try to escape from contradiction by declaring that what follows from (1) is not

(1*) but only (2). But (2) is tensed; properly interpreted, it can be seen to yield (2*), which is self-contradictory. We try to escape from contradiction by declaring that what follows from (2) is not (2*) but only (3). But (3) is tensed; properly interpreted, it can be seen... .And so on. So we never escape from contradiction.

We must therefore reject our assumption

(1) M is past;

that is, it cannot be the case that M is past. Similar reasoning yields that it cannot be the case that M is present or that M is future. So no event can have any of the temporary properties being past, being present, and being future. It follows that the A series does not exist.

What is crucial to this argument is obviously McTaggart's idea that if an event M, or a time t, is past then it is also present and future. His reason for thinking this lurks in a passage I quoted above, namely

> But what is meant by "has been" and "will be"? And what is meant by "is," when, as here, it is used with a temporal meaning, and not simply for predication? (21)

When we say "M is past", we may be using "is" with a temporal meaning. That is, we may mean "M is now past". But we may instead be using "is" simply for predication. That is, it may be that what we assert is what we would have asserted if we had instead said "Past(M)", in saying which we would simply be predicating pastness of M.

How did he get from here to his idea that if an event M, or a time t, is past then it is also present and future? I suggest that his route went as follows.

In saying "Past(M)" we are simply predicating pastness of M. But that "simply" should be properly understood. In saying "Past(M)" we do assert a proposition. The role of that "simply" is simply to indicate that in saying "Past(M)" we are not asserting that M is past at the time of our speaking. We are not asserting anything about when M is past.

It follows that the proposition we assert if we say "Past(M)" at one time is the same as the proposition we assert if we say it at any other time.

[What has surfaced here is what I called the very natural idea in the preceding section.[15] You might have thought that McTaggart would therefore conclude that there is no such temporary property as being past, and a fortiori, that there is no such thing as predicating 'it' of M. For don't we assert a false proposition if we say "Past(M)" at a time before M is past but a true one if we say it at a time when M is past? (Compare the argument I set out to show that there is no such temporary property as being hot.) Note that there being no such temporary property as being past—and also no such temporary properties as being present and being future—would have been good enough for his pur-

poses: no event would have the Temporal Perspective Relation to any other, and it would follow that the A series does not exist. But McTaggart does not conclude that there is no such temporary property as being past. What he does instead is to deny that we assert a false proposition if we say "Past(M)" at a time before M is past but a true one if we say it at a time when M is past. To return to McTaggart:]

Suppose that M is at some time past. Then the proposition we assert if we say "Past(M)" is true—true whether or not M is past at the time of our saying "Past(M)". For remember: in saying that sentence, we are not asserting anything about when M is past.[16]

But if M is at some time past, it is also at some time present and at some time future. So the propositions we assert if we say "Present(M)" and "Future(M)" are also true. Destination reached: if an event M is past then it is also present and future. Similarly for any time t.

It pays to notice that if McTaggart's reductio succeeded, a similar argument would succeed in showing that nothing that is ever hot and ever cold can be either hot or cold. That is, while I began with "M is past," I could as well have begun with "McTaggart's poker is hot", for a route analogous to the one I suggest that he took to "If an event M is past then it is also present and future" would have taken us to "If McTaggart's poker is hot then it is also cold." It might have been thought (and I think that some people have thought) that what started the regress was the fact that in saying "M is past," we predicate a mysterious property. Not so. Or not so unless a property's being temporary itself suffices for it to be mysterious.

In any case, the combination of ideas at work in McTaggart won't do. If P is a temporary property then there is no such thing as 'simply predicating' it of a thing. And in sum, the second part of McTaggart's argument is no more successful than the first.

8.

Michael Dummett says that those who think McTaggart's argument for the nonexistence of time is a "trivial sophism"—as some people do—have failed to see what is really going on in it.[17] Dummett asks the good question why McTaggart did not go on to supply an analogous argument for the nonexistence of space. Dummett himself thinks that there is an important difference between time and space that emerges when we contrast McTaggart's argument against time with its analogue against space.

What Dummett focuses on in McTaggart's argument is its first part. (He says it contains "the heart of" McTaggart's argument for the nonexistence of time.) As I interpreted it in section 6, McTaggart there argues that there is no change unless things acquire and lose the temporary properties being present, being past, and being future. Dummett interprets it differently. According to Dummett, McTaggart there argues for the following conclusion:

> a description of events as taking place *in time* is impossible unless temporally token-reflexive expressions enter into it, that is, unless the description is given by someone who is himself in that time. (354)

Let us call this the Time Thesis. According to Dummett, McTaggart does not argue for the analogous Space Thesis since McTaggart thinks it is not true. What is the analogous Space Thesis? Dummett does not spell it out, but we may take it to say:

> a description of physical objects as occupying places *in space* is impossible unless spatially token-reflexive expressions enter into it, that is, unless the description is given by someone who is himself in that space.

According to Dummett, it is because McTaggart thinks the Time Thesis is true and the Space Thesis is not true that McTaggart goes on to argue that time does not exist and does not argue in the same way that space does not exist.

Why does thinking the Time Thesis true lead McTaggart to think that time does not exist? According to Dummett, McTaggart is implicitly appealing to a prejudice that lies very deep in many people, namely that "there must be a complete description of reality; more properly, that of anything which is real, there must be a complete—that is, observer-independent—description." (356) Thus presumably a description that token-reflexive expressions do not enter into.

Dummett himself thinks that the Time Thesis is true and the Space Thesis false. Moreover, he says that he is himself very strongly inclined to accept the prejudice he says McTaggart is appealing to. But he thinks that McTaggart is mistaken in concluding that time does not exist, and that this shows we must abandon the prejudice.

Dummett says that in any case, it is this deep issue that McTaggart's argument for the nonexistence of time draws our attention to, and that McTaggart's argument is therefore quite certainly not a trivial sophism.

Let us bypass the question whether Dummett has interpreted McTaggart correctly. What is more interesting is the question whether the views Dummett attributes to McTaggart are correct.

I think we do suppose that something like what Dummett calls the prejudice is true—that, as Dummett also puts it, "reality must be something of which there exists in principle" a description free of token-reflexives, or that, as he also puts it, "[t]he description of what is really there, as it really is, must be independent of any particular point of view." Surely it is not enough for there to really be a cylindrical gray rock on Cambridge Common that it looks to me, from where I now stand and in the prevailing light, that there is one there.[18]

Let us set the prejudice aside for the time being and return to the Time Thesis and the Space Thesis. You might well think it long over-due that I say something about what Dummett means by them, since that is hardly transpar-

ent. To find out what he means we need to look at the reasons he gives for thinking the one true and the other false.

Dummett begins by inviting us to suppose a person is in process of observing a sequence of events. Dummett then says:

> Then even if he knows both what he has observed and what he is going to observe, he cannot give a complete description of his observations without the use of temporally token-reflexive expressions. He can give a complete narration of the sequence of events, but there would remain to be answered the question, 'And which of these events is happening *now*?' (354)

This suggests that what Dummett means by the Time Thesis is: you cannot give a "complete description" of a series of events that you are in process of observing unless it includes "Event M is happening now".

What does he mean by the Space Thesis? He thinks it is false, and we can see what he means by it when we see why he thinks it is false:

> By contrast, the use of spatially token-reflexive expressions is not essential to the description of objects as being in a space. That is, I can describe an arrangement of objects in space although I do not myself have any position in space. An example would be the space of my visual field. In that space there is no here or there, no near or far: I am not in that space. We can, I think, conceive, on the strength of this analogy, of a being who could perceive objects in our three-dimensional physical space although he occupied no position in that space. He would have no use for any spatially token-reflexive expressions in giving a description of the physical universe, ...[19] (354)

This suggests that what he means by the Space Thesis is what was to have been expected, namely that you cannot give a "complete description" of an array of physical objects that you are observing unless it includes "Object O is here". The Space Thesis, then, is the spatial analogue of the Time Thesis, and Dummett thinks the Space Thesis false and the Time Thesis true.

I have flagged Dummett's expression "complete description" in my statement of the two theses for the obvious reason: it is not at all clear what Dummett can mean by it. What could it come to for there to be a complete description of a thing?

There was another place at which Dummett used that expression. His first statement of the prejudice was this: "there must be a complete description of reality; more properly, that of anything which is real, there must be a complete—that is, observer-independent—description." There are two ways of interpreting the final clause of that sentence. We can take the clause to say "there must be a description that is complete in the sense of being observer-independent". But this way of understanding the expression will not do for Dummett's purposes, since there are observer-independent descriptions of events just as there are observer-independent descriptions of physical objects. Alternatively, we can

take the clause to say "there must be a complete description that is observer-independent". But this is no help to us: it leaves us still confronted with the expression "complete description".

Perhaps we should give up on that expression, and so also on my interpretations of the Time Thesis and the Space Thesis. Perhaps what Dummett has in mind is not a difference between possibilities of description, but rather a difference that he might express in the following way:

(i) We can conceive of a being who could perceive objects in our three-dimensional space although he occupied no position in that space,

but

(ii) We cannot conceive of a being who could perceive events in our one-dimensional time although he occupied no position in that time.

I extracted (i) from the passage I quoted just above. Dummett went on to say there that the being described in (i) "would have no use for any spatially token-reflexive expressions in giving a description of the physical universe"; thus he would have no use for such descriptions as "The poker is here" and "The poker is nearer to me than the piano is." Surely something stronger had better be true: since the being described in (i) is not in the same space as the poker and the piano, those descriptions would be at best false, and perhaps nonsense.

This helps us understand (ii), for we can take it to say that if a being is perceiving a sequence of events that includes event M, then it must be that he speaks truly if he now says either "M took place before now," or "M is taking place now," or "M will take place after now." Never mind whether he must say one or other of those things if he is now to give a complete description of the sequence he is perceiving; it is enough for the difference Dummett is pointing to—on this interpretation of him—that one or other of those descriptions must be true.

It is plausible enough to suppose that (ii) is true. But I can see no good reason to accept (i), and there is good reason to reject it. The being described in (i) is described as *perceiving* objects in our three-dimensional space although he occupies no position in that space. But to be perceiving physical objects, say a poker and a piano, is to be perceiving them from a certain angle, and thus from within the space they occupy.

Dummett had suggested that we should accept (i) on the strength of an analogy with one's visual field: in his visual field, he says, "there is no here or there, no near or far: I am not in that space." Well, I am not in among the things that are in my visual field. (If I am in the dining room looking into the living room, then I am by hypothesis not in among the things in the living room.) But it is nevertheless true that some of the things in my visual field (as,

for example, some of the things in my living room) are nearer to me than others are.[20]

It is of course conceivable that there should be an array of physical objects whose space I am not in since I do not exist. But so also is it conceivable that there should be a sequence of events whose time I am not in since I do not exist.

In sum, I have found no way of interpreting the views Dummett attributes to McTaggart under which they could be thought to point to a metaphysically significant disanalogy between time and space—or indeed, to any disanalogy between them at all.

9.

There are plenty of disanalogies between temporal and spatial descriptions, of course; it might pay to mention one that is familiar to all of us but that is nevertheless of interest for present purposes.

What I have in mind is a certain difference between our use of "now" and "here". Suppose that there was, a few years ago, a series of powerful earthquakes in and around Dedham. Standing in Dedham, I say to you "The countryside is hilly here now." Presumably I mean to be telling you that the countryside is hilly in the place in space that I indicate (the Dedham area) at the place in time that I indicate (the time of my speaking). So far so good. Now suppose that standing in Dedham, I say to you "This tomato is soft here now." Do I mean to be telling you that the tomato is soft at the place in space that I indicate (the Dedham area?) at the place in time that I indicate (the time of my speaking)? What would it come to for the tomato to be soft in the Dedham area?

When I say to you "This tomato is soft here now" I typically accompany my remark with a gesture; and what I mean to be telling you is that the tomato is now soft at the place, not in space but on the tomato, that I indicate. What I mean to be telling you, alternatively put, is that a part of my tomato is now soft, namely the part that I indicate.

The countryside has parts too, of course. So perhaps when I say to you "The countryside is hilly here now," I am not indicating a place in space (the Dedham area), and what I mean to be telling you is not that the countryside is now hilly at that place; perhaps I am instead indicating a part of the countryside (its Dedham area part) and what I mean to be telling you is that *it* is hilly now.[21]

There remains a disanalogy. The countryside has a Dedham area part; the tomato has no Dedham area part.

Suppose that the tomato is now lying on the Dedham-Needham line, half in Dedham, half in Needham. Then the tomato has a part that is now in Dedham. But the countryside does not have a part that is *just* now in Dedham. Tomatoes move around, the countryside does not. And the familiar difference between

our use of "now" and our use of "here" is due to the very fact that so many of the physical objects that we are interested in do move around.

But how is this 'moving around' to be understood? Motion is a species of change, so we are now brought back to a question about change that I left open at the end of section 6.

Let us focus on motion.[22] Suppose we carried our tomato from Chatham to Dedham. Then our tomato moved from Chatham to Dedham. What marks *it* as having moved from Chatham to Dedham?

A friend of the metaphysic of temporal parts (MTP) says this: the tomato had a series of discrete but spatio-temporally continuous temporal parts, the first of which was in Chatham, and the last in Dedham.

But he needs to do something more: he needs to convince us that none of the members of the series were themselves tomatoes. For consider a series of what according to MTP were discrete but spatio-temporally continuous five-minute temporal chunks of our tomato. Suppose that what really happened was this:

(Story) Each of the five-minute members of the series was itself a five-minute, entirely new tomato—new skin, new tomato-flesh, new seeds, new particles composing it.

If Story is true, then surely no tomato moved from Chatham to Dedham when we thought that ours was doing so.

It won't do for the friend of MTP to say, simply, "Well, if Story is true, then your thought was false: your tomato did not move from Chatham to Dedham." For it had better not be left a chancy business whether or not a tomato (or anything else) ever moves from one place to another.

It also won't do for the friend of MTP to say "No surely about it! Story *is* true since every (cross-sectional) temporal part of a tomato is itself a tomato. So your tomato is the fusion of a great many tomatoes. And it *did* move from Chatham to Dedham since one of the tomatoes was in Chatham and a later one in Dedham." It is an odd idea that a tomato should be the fusion of many tomatoes, and not one offered us by the typical friend of MTP. Not surprisingly. No tomato moved through a short time unless at least some of the skin, the tomato-flesh, the seeds, the particles it was composed of at the start still compose it at the end. If Story is true, however, then the second five-minute tomato shares no skin and so on with the first, and the third shares no skin and so on with the second or the first, and... . So no tomato moved even through the fourth to the sixth minute, much less through all the time it took us to get to Dedham.

The friend of MTP must therefore show that Story is false. We do not have the burden of proving it true or even possible. He has the burden of proof, for he is the one who told us that for our tomato to move from Chatham to Dedham is for new things to be coming into existence throughout that time—new red, bulgy, juicy things, which in all respects other than their short lifespan behave

exactly like tomatoes. But I can see no way in which he can show that Story is false.

Similarly for other species of change. A tomato might change from hard to soft. If what followed a five-minute hard tomato was a new five-minute soft tomato, then no tomato thereby changed from hard to soft. Similarly of course for sheer endurance. If what followed one five-minute tomato is another, then no tomato thereby lasted from the one time to the other.

If we reject MTP, we still have three of the four alternatives I drew attention to in section 6. According to McTaggart, only events change, so tomatoes in particular do not. It hardly needs saying that that fact counts conclusively against the alternative he offers us.

That leaves us with two of the four alternatives, each of which allows us to have that the tomato changes. First, we can appeal to temporary properties. We can say that the tomato changes because it has the temporary properties being in Chatham and being hard, at one time and not at another. Second, we can appeal to non-temporary relations. We can say that the tomato changes because it has the non-temporary relations being in-Chatham-at, and being hard-at, to one time and not to another. I suggest that the very fact that these two alternatives allow us to have that the tomato changes counts in favor of them.

10.

McTaggart's dark discussion of time is like a Rorschach blot. Some have seen a frog in it. Others a prince. Still others a clash of armies by night. I have thought it worth trying to be clear about the features of the blot itself.[23]

Notes

1. Until indicated otherwise, numbers in parentheses are page numbers in McTaggart (1927).
2. See Broad (1938).
3. In fact he describes three, but I will discuss the third only briefly, in footnote 5.
4. G.E. Moore famously thought he had refuted McTaggart's thesis that time does not exist by drawing attention to the fact that he had breakfast before he had lunch.
5. Another passage appears later. Having proved to his satisfaction that time does not exist, McTaggart says that there nevertheless exists something he calls the C series, whose members are what we are really observing when we (mistakenly) think we are observing a time-series. The C series, he tells us, includes "as terms everything which appears to us as an event in time, ... And although Mr. Russell's time-series (which is identical with our B series) has a one-to-one correspondence with the C series, still the two series are very different. The terms of the B series are events, and the terms of the C series are not." (31) If he had thought that the B series could exist even though time does not, he would have had no need for the C series.

   And what an odd business that C series is! For what are we to suppose its members are? What would an entity be like which "appears to us as an event in time" but

is not an event? And which members precede which? McTaggart deals with these questions at length in later chapters; I will not try to summarize his answers.

6. Some commentators fix on a dark footnote (10–11) which suggests that we may think of one of the two series as "sliding along" the other, and if this is true, then the A and B series really are two series. But series don't in fact *slide*. And McTaggart says in the opening sentence of the footnote that the idea that these series do is (mere) metaphor.
7. We might well think that this is not merely true, but necessarily true. On some views, however, even that is compatible with the idea that the Temporal Perspective Relation is not the same as the earlier than relation.
8. Peter Geach says that meeting this condition is sufficient for 'Cambridge' change but not for real change. (For Socrates meets it if Theaetetus grows.) See Geach (1969), pp. 71–2. McTaggart would have been untroubled by that objection. He says: "if anything changes, then all other things change with it. For its change must change some of their relations to it, and so their relational qualities. The fall of a sand-castle on the English coast changes the nature of the Great Pyramid." (11–12) For McTaggart's purposes here, a Cambridge change is as good as a real change.
9. This is not quite right, for McTaggart will later take seriously the idea that time points have them. (See section 7 below.) But our taking that idea seriously now would merely introduce unnecessary complication.
10. McTaggart does not distinguish between events and states of affairs. The poker's being hot is his own example of an event.
11. I think of this as a Fregean idea. My informant on Fregeana, Michael Glanzberg, tells me that while Frege never explicitly asserted it, he would have accepted it without a second thought.
12. I mention two, a stronger and a weaker. The stronger says that there is no such thing as (just) predicating a property of a thing. On this view, to predicate a property (whether temporary or non-temporary) of a thing is always to assert that the thing has it at a time. From this view, however, it follows that we do not know what proposition is asserted by a person who says "F(A)", "$(\exists x)Fx$", and "$(\forall x)Fx$)" unless we know what time he meant—the time of his speaking? or 3AM, 11/2/00? Some people might therefore regard this alternative as too costly.

    The weaker (and cheaper) alternative says only that to predicate a temporary property of a thing is always to assert that the thing has it at a time.

    Sally Haslanger draws attention to alternatives to the very natural idea in Haslanger (1989).
13. Notice that sentences containing these predicates take tenses. We may say of an event M, "M is now occurring" or "M did occur" or "M will occur". So also "M is now over" or "M was over" or "M will be over". So also "M is now going to occur" or "M was going to occur" or "M will be going to occur".

    Many of McTaggart's commentators take him to think that once we have helped ourselves to the predicates "past," "present," and "future", then we need nothing further in the way of an account of tense—thus that those predicates could somehow do double duty as tenses. [Michael Dummett is an example. See Dummett (1960), reprinted in Dummett (1978).] They can't, of course; no predicates can. And I think we should agree that McTaggart does not think they can. McTaggart goes on to give an account of tense in terms of those predicates, but it does not consist in mere identification. We turn to it in section 7 below.

14. Lewis believes that the property being hot is a non-temporary property because he thinks it an unintelligible idea that it is a temporary property. See Lewis (1986), pp. 203–4.
15. C.D. Broad, whose interpretation of McTaggart seems to me closest to correct, does not see the attractiveness of that very natural idea. See Broad (1938).
16. We are also not asserting that there is a time at which M is past. If in saying "Past(M)" we were asserting that there is a time at which M is past, then so similarly for "Present(M)" and "Future(M)"; and "Past(M) and Present(M) and Future(M)" would not be self-contradictory. McTaggart's reductio would therefore fail at its first step. I thank Selim Berker for drawing my attention to this point.
17. From here on, numbers in parentheses are page numbers in Dummett (1978).
18. I adapt this example from Dummett's own:

> I can make drawings of a rock from various angles, but if I am asked to say what the real shape of the rock is, I can give a description of it as in three-dimensional space which is independent of the angle from which it is looked at. The description of what is really there, as it really is, must be independent of any particular point of view. (356)

19. The final sentence of the passage reads in toto: "He would have no use for any spatially token-reflexive expressions in giving a description of the physical universe, and yet that description might be a perfectly correct description of the objects of the universe as arranged in space." I omitted its final clause in quoting the passage because of the appearance in it of "correct description" rather than "complete description". The possibility of a (merely) correct token-reflexive free description of the physical objects in an array cannot be what he has in mind, since a (merely) correct token-reflexive free description of the events in a sequence is entirely possible too. What clearly matters to Dummett is complete token-reflexive free description, which he thinks is possible for space but not for time. I go on to comment on Dummett's notion 'complete description' shortly.
20. Can it be that what Dummett intends for us to suppose is in his visual field is not, as it might be, his living room furniture, but rather an array of sense-data? Certainly he is not in their space; but that is because they are not in any space.
21. On one view, that had better be what I mean to be telling you. The view emerges as follows. Let us give the name temporally partial properties to what I have been calling temporary properties. Let us call P a spatially partial property just in case it is possible that a part of a thing has P and another part lacks P. Now as we know, there are people who think that there are no temporally partial properties: thus that while there is such a property as being hot, it is not temporally partial. They may well say, and *for the same reason*, that while there is such a property as being hilly, it is not spatially partial. It follows that when I say "The countryside is hilly here now," I speak truly only if what I mean is that a part of the countryside (the part I indicate) is hilly now. Or indeed: I speak truly only if what I mean is that a certain temporal part of that part of the countryside is hilly.

    By contrast, there are people who welcome temporally partial properties. They may be expected to welcome spatially partial properties too.

    Still others (McTaggart, perhaps?) may be expected to think that there is no such property as being hilly just as there is no such property as being hot, and that for the countryside to be hilly now in the Dedham area is for the countryside to

have the three-place relation hilly-in-at to the Dedham area and the time at which I write.

22. I thank Adam Elga for criticism of an earlier version of the following material on motion.
23. I am grateful to Michael Glanzberg for helpful discussion along the way. I am also grateful to Catherine Elgin for comments on an early draft, and to the members of the seminar in metaphysics given by Ned Hall and me in fall, 2000, for comments on a later draft.

References

Broad, C.D. (1938), *Examination of McTaggart's Philosophy*, Volume II, Part I, Cambridge: Cambridge University Press.

Dummett, M. (1960), "A Defense of McTaggart's Proof of the Unreality of Time," *Philosophical Review*, vol. LXIX.

Dummett, M. (1978), *Truth and other enigmas*, Cambridge MA: Harvard University Press. [This reprints Dummett (1960).]

Geach, P. (1969), *God and the Soul*, New York: Schocken Books.

Haslanger, S. (1989), "Endurance and Temporary Intrinsics," *Analysis*, Vol. 49.

Lewis, D. (1986), *On the Plurality of Worlds*, Oxford: Basil Blackwell Ltd.

McTaggart, J.M.E. (1927), *The Nature of Existence*, Volume II, ed. C.D. Broad, Cambridge: Cambridge University Press.