DISCUSSION

THE NEW PARADOX OF TEMPORAL TRANSIENCE

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McTaggart\(^1\) raised a famed paradox regarding the \textit{transientist} conception of time, the idea that the present moves into the future to overtake future events (or, alternatively, that future events move into the present) and past events recede further and further into the past as time goes on. Schlesinger\(^2\) has recently attempted an ingenious transientist solution to McTaggart’s paradox. We will argue that Schlesinger’s solution to McTaggart’s paradox itself gives rise to a new, yet perfectly parallel, paradox which can only be resolved by abandoning the transientist view of time.\(^3\)

McTaggart draws a distinction between two types of temporal statement about events. On the one hand, we speak of events as being in the \textit{past}, in the \textit{present}, and in the \textit{future}; and, on the other hand, we speak of events as occurring \textit{earlier than}, \textit{simultaneous with}, or \textit{later than} one another. The former type of statement locates events within what McTaggart calls the ‘A-series’ and are, hence, ‘A-statements’; whereas the latter type locates events within the ‘B-series’ and are, hence, ‘B-statements’. What is characteristic of A-statements is that they undergo changes in truth value; for example, the statement that some event is future changes truth value when that event becomes present. But B-statements are, if true, always true and, if false, always false. Thus, the notion that time is \textit{dynamic} (the transientist view) is inextricably linked to the A-series. The idea, here, is that the \textit{now} in the A-series moves


\(^3\) A view similar to Schlesinger’s has been developed by John Bigelow, ‘Worlds Enough for Time’, \textit{Nous} 25 (1991), pp. 1–19. Although we will develop our arguments with respect to Schlesinger’s theory, we believe that it applies, \textit{mutatis mutandis}, to Bigelow’s theory as well.
along a sequence of events, with the motion of the now being from the past towards the future (as in Figure 1).

McTaggart generates his paradox by pointing out that the predicates ‘is past’, ‘is present’, and ‘is future’ are incompatible, since ‘x is past’ implies ‘x is neither present nor future’, ‘x is present’ implies ‘x is neither past nor future’, and ‘x is future’ implies ‘x is neither present nor past’. But, McTaggart argues, every event satisfies all of these predicates; that is, every event, E, is such that E is past, E is present, and E is future. This, however, generates a contradiction, since if E is present and E is past (and ‘E is past’ implies ‘E is neither present nor future’), it follows that E is both present and not present.

The seemingly obvious response to McTaggart’s paradox is to claim that there is no contradiction here, because E never satisfies all of these predicates at the same time. There are two ways in which one can make this move. The first is to relativize attributions of pastness, presentness, and futurity to different times in the A-series. Thus, for some event E which is present, one can claim that E is past in the future and that E is future in the past. This move does succeed in attributing pastness, presentness, and futurity to E at different times, but in so doing introduces a set of second-level temporal predicates. So, corresponding to each first-level predicate (‘is past’, ‘is present’, ‘is future’), there are three second-level predicates as follows:

<table>
<thead>
<tr>
<th>First-level</th>
<th>Second-level</th>
</tr>
</thead>
<tbody>
<tr>
<td>is past</td>
<td>(1) is past in the past</td>
</tr>
<tr>
<td></td>
<td>(2) is past in the present</td>
</tr>
<tr>
<td></td>
<td>(3) is past in the future</td>
</tr>
<tr>
<td>is present</td>
<td>(4) is present in the past</td>
</tr>
<tr>
<td></td>
<td>(5) is present in the present</td>
</tr>
<tr>
<td></td>
<td>(6) is present in the future</td>
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</tbody>
</table>
is future
(7) is future in the past
(8) is future in the present
(9) is future in the future

Now, although (3), (5), and (7) are compatible (and are those which were introduced above to avoid McTaggart’s paradox), McTaggart can point out that every event satisfies every second-level predicate. And some of these are clearly incompatible: consider, for example, (2), (5), and (8). Thus, this way of attempting to avoid McTaggart’s paradox merely shifts the paradox to the second-level predicates which were introduced to resolve the paradox with respect to the first-level predicates. Of course, one could introduce third-level predicates (of which there are twenty-seven) in a like effort to resolve the paradox with respect to the second-level predicates. But, McTaggart’s paradox arises with respect to these predicates as well. Hence, relativizing attributions of pastness, presentness, and futurity to different times in the A-series can never succeed in eliminating the paradox; consequently, this move does not constitute a genuine resolution of McTaggart’s paradox.

The second way in which to claim that there is no genuine contradiction is to relativize attributions of pastness, presentness, and futurity to different times in the B-series. Thus, one can say that E is present at tₙ (in Figure 1), E is past at tₙ (for any time tₙ such that n > 4), and E is future at tₘ (for any time tₘ such that m < 4). By relativizing the satisfaction of these predicates to particular times in the B-series, however, one avoids McTaggart’s paradox only by transforming the original A-statements into B-statements as follows:

<table>
<thead>
<tr>
<th>A-statement</th>
<th>Translation</th>
<th>B-statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>E is past</td>
<td>E is past at tₙ</td>
<td>is equivalent to</td>
</tr>
<tr>
<td>E is present</td>
<td>E is present at tₙ</td>
<td>is equivalent to</td>
</tr>
<tr>
<td>E is future</td>
<td>E is future at tₘ</td>
<td>is equivalent to</td>
</tr>
</tbody>
</table>

This does succeed in avoiding the contradiction which McTaggart derives, since it claims that E is present at tₙ while E is not present at tᵢ (for all tᵢ such that i ≠ 4). By avoiding the contradiction in this way, however, one pays the price of denying the reality of the A-series. For the translations of the A-statements (being equivalent to B-statements) are always true; thus, since they do not undergo changes in truth value, they are not genuinely unreduced A-statements. Although McTaggart concludes from all this that time is unreal (since he maintains that the A-series is essential to time), some (e.g. Horwich⁴) have been content.

with this resolution of the paradox, claiming that all McTaggart’s paradox shows is that the A-series is unreal.

Such a resolution, however, is unsatisfactory to the transientist, who must find some other way of responding to McTaggart’s paradox. Thus, a transientist’s solution must not only avoid McTaggart’s contradiction, but must do so without relativizing the truth of A-statements to particular times in the B-series.

Schlesinger attempts just such a transientist solution. Schlesinger postulates a sequence of worlds which are identical in every respect except for the moment which is occupied by the now, as in Figure 2, where the heavy bar indicates the position of the now in each of the worlds W. Schlesinger’s idea is that we should not think of the now itself as moving along the sequence of events located in the B-series (as in Figure 1). Rather, in this new model, it is actuality which moves from world to world, and its motion is along the A-series in the direction of the future. So, since the now occupies moment m in world W, when actuality moves from world W to W, the events which occur at m become present occurrences. Similarly, when actuality moves from W to W, the events at m become past and the events at m become present. On this model, what distinguishes A-statements from B-statements is not that the former undergo changes in truth value, while the latter do not; rather, A-statements are those which are true in only some of the worlds.
in the model (in fact, statements attributing *presentness* to an event are true in only a single world), while B-statements are true in every world in the model.

The way in which Schlesinger believes this model can resolve McTaggart’s paradox, while retaining the transcientist view of time, is as follows. Rather than relativizing the contradictory ‘E is present’ and ‘E is not present’ to different times, Schlesinger claims that they should be relativized to different worlds. Thus, rather than saying that ‘E is present’ should be understood as ‘E is present at mₙ’ (referring now to Figure 2), it should be understood as ‘E is present in Wₙ’. To put it another way, Schlesinger argues that we should not understand ‘E is present’ to be true at mₙ, rather we should understand it to be true in Wₙ. This effects a different translation of the paradoxical A-statements from that considered above. On Schlesinger’s view, we get the following translations:

<table>
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<th>Translation</th>
</tr>
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<tbody>
<tr>
<td>E is past</td>
<td>‘E is past’ is true in Wₖ (for all worlds Wₖ such that k &gt; n)</td>
</tr>
<tr>
<td>E is present</td>
<td>‘E is present’ is true in Wₙ.</td>
</tr>
<tr>
<td>E is future</td>
<td>‘E is future’ is true in Wₘ (for all worlds Wₘ such that m &lt; n)</td>
</tr>
</tbody>
</table>

Thus, McTaggart’s paradox is avoided, since the statements ‘E is present’ and ‘E is not present’ are never both true in the same world.

However, a new, yet perfectly parallel, paradox arises as follows. For any world Wᵢ in Schlesinger’s model, by construction of the model, Wᵢ’s *being actual* is incompatible with any other world’s *being actual*; for to say that Wᵢ is actual is simply to say that no world Wₖ, such that k ≠ i, is actual. But, in Schlesinger’s model, every world is actual. It follows that every world in the model is both actual and not actual.

Let us run through this argument formally, and a little more slowly, for the sake of perspicuity. Let ‘A’ be a one-place predicate meaning ‘is actual’, and let ‘w’ (with numerical subscripts) be a variable ranging over Schlesinger’s worlds. The premises are as follows:

(i) \((w₁)(Aw₁ → ∼ (∃w₂)(Aw₂ & w₁ ≠ w₂))\)
(ii) \((w₁)Aw₁\)

If we instantiate both premises to Wₙ, by *modus ponens* we get:

(iii) \(∼ (∃w₂)(Aw₂ & Wₙ ≠ w₂)\)
From (iii) by quantifier exchange, instantiation to \( W_{n+1} \), and DeMorgan we get:

(iv) \( \sim AW_{n+1} \lor W_n = W_{n+1} \)

However, by construction of Schlesinger’s model, \( W_n \neq W_{n+1} \). Thus, by disjunctive syllogism we get:

(v) \( \sim AW_{n+1} \)

But if we instantiate (ii) to \( W_{n+1} \), conjoin it with (v), and universally generalize, we get:

(C) \( (w_i)(Aw_i & \sim Aw_i) \)

that is, every world is both actual and not actual.

There is, of course, an obvious way for Schlesinger to avoid this contradiction: that is to point out that no two worlds are actual at the same moment; for \( W_n \) is actual at \( m_n \), \( W_{n+1} \) is actual at \( m_{n+1} \), and so on. Thus, to avoid the contradiction, Schlesinger need only relativize statements about the actuality of worlds to the moments at which they are actual. Rather than saying, for any world \( W_i \), that \( W_i \) is actual simpliciter, Schlesinger need only say instead ‘\( W_i \) is actual at \( m_i \)’. This move does succeed in avoiding the contradiction, but in so doing transforms statements about the actuality of worlds into B-statements, that is, statements which relativize the actuality of worlds to moments in the B-series.

The problem this poses for Schlesinger’s attempted transientist solution to McTaggart’s paradox is as follows. Schlesinger wants to avoid the contradiction which McTaggart derivs by relativizing statements about the present to worlds in which they are true. Thus

(P) ‘\( E \) is present’

becomes:

(1) ‘\( E \) is present’ is true in \( W_n \)

and

(N) ‘\( E \) is not present’

becomes:
(2) 'E is not present' is true in every world \( W_i \) such that \( i \neq n \).

But since what makes (1) true is the fact that the moment at which \( E \) occurs is now only when \( W_n \) is actual, and since \( W_n \)'s being actual ensures that the moment at which \( E \) occurs is now, (1) is equivalent to:

(3) 'E is present' is true when \( W_n \) is actual.

But to avoid the above paradox about actuality, (3) becomes:

(4) 'E is present' is true when \( W_n \) is actual and \( W_n \) is actual at \( m_n \)

which, with respect to Schlesinger's model, is equivalent to:

(5) 'E is present' is true at \( m_n \).

And (5) is a paradigmatic B-statement.\(^5\)

There is, though, a possible response to this argument, which is to claim that the move from (3) to (4) is illegitimate.\(^6\) The rationale is that the moment \( m_n \) extends through each of the worlds in Schlesinger's model. Thus, the moment \( m_n \) occurs, for example, in \( W_{n+1} \). However, \( W_n \) is not actual at the occurrence of \( m_n \) in \( W_{n+1} \); the only occurrence of \( m_n \) at which \( W_n \) is actual is that occurrence which is present. So (4) could be replaced with:

(4*) 'E is present' is true when \( W_n \) is actual and \( W_n \) is actual when \( m_n \) is present.

Again, however, with respect to Schlesinger's model, (4*) is equivalent to:

(5*) 'E is present' is true when \( m_n \) is present

which, in turn, is equivalent to:

(6*) \( E \) is present when \( m_n \) is present.

But this latter is equivalent to:

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\(^5\) It should be pointed out that it does not really matter at this point whether one uses McTaggart's or Schlesinger's criterion for distinguishing A-statements from B-statements. For, on either account, a statement which relativizes the presentness of an event to a particular moment in time is a paradigmatic B-statement.

\(^6\) When a version of this paper was presented to Schlesinger's NEH Seminar on the philosophy of time (Summer 1991), this response was suggested by Harriet Baber and subsequently adopted by Schlesinger (in correspondence) as an official response to this argument. It is worth pointing out, however, that this response constitutes a retraction from the position Schlesinger advanced in his paper. For Schlesinger explicitly licenses the inference from (3) to (4) when he says that 'at \( m_n \), \( W_n \) is actual, while at \( m_{n+1} \), \( W_{n+1} \) is actual' ('*E Pur Si Muove*, p. 430).
(7*) E is simultaneous with m

which, again, is a paradigmatic B-statement. Now while it is obvious that (6*) entails (7*), it may not be as obvious that (7*) entails (6*); so it might be thought that they are in fact not equivalent. But to see that they are, note that (7*) entails that, no matter whether E and m
occur in the past, present, or future, if one of them occurs in the past, present, or future, the other does as well. Consequently, (7*) does in fact entail:

(8*) E is past when m
is past and E is present when m
is present and E is future when m
is future.

And, of course, by simplification, (8*) entails (6*). Thus, (6*) is in fact equivalent to (7*).

So, Schlesinger avoids McTaggart’s paradox by relativizing statements about the present to worlds in which they are true; but this relativization itself generates a precisely parallel paradox, which can be resolved by relativizing the actuality of a world to a moment in the B-series. Consequently, paradox can be avoided by indirectly relativizing statements about the present to the moments in the B-series at which they are true. Once this move is made, however, we no longer have unreduced A-statements; we have B-statements. Thus, Schlesinger’s model does not actually succeed in providing a transientist solution to McTaggart’s paradox.

Schlesinger could avoid this consequence, however, by arguing that the A-series in his model is significantly different from the A-series in McTaggart’s model; so the problem that arises with respect to relativizing to the A-series on McTaggart’s model would not arise with respect to relativizing to the A-series in Schlesinger’s. Thus, rather than relativizing the actuality of Wn to a moment (or the presence of a moment) in the B-series (namely, m
), Schlesinger could attempt to relativize the actuality of Wn to the A-series, a move which parallels a standard way of attempting to avoid McTaggart’s paradox. But, in Schlesinger’s A-series, there are no positions (as there are in McTaggart’s A-series). Consequently, if the actuality of Wn is to be relativized to Schlesinger’s A-series, the relativization must be relational. This would proceed as follows. There are two senses of ‘before’ in Schlesinger’s model: a B-series ‘before’ (which means simply ‘earlier than’) and an A-series ‘before’, which is an ordering relation for the sequence of Schlesinger’s worlds.

Schlesinger could point out that $W_n$ is actual before $W_{n+1}$ is actual. But, of course, $W_{n-1}$ is actual before $W_{n+1}$ is actual as well. Thus, if the relativization to the A-series is to be effective in assigning the actuality of $W_n$ a unique place in the A-series, Schlesinger would have to say that $W_n$ is actual right before $W_{n+1}$ is actual, where the right before relation would be analysed as follows:

A world $W_i$ is right before a world $W_k$ in the A-series if, and only if, (a) $W_i$ is before $W_k$ in the A-series and (b) there is no world $W_m$ such that $W_m$ is before $W_i$ in the A-series and $W_i$ is before $W_m$ in the A-series.\footnote{It might be noticed at this point that a right before ordering relation appears to presuppose that time is discrete rather than continuous (as is commonly supposed). This, however, is precisely Schlesinger's view. For Schlesinger maintains that the actuality of each world 'endures a mere fraction of a second only, ... being at a maximum $10^{-1}$ seconds length and at a minimum of $10^{-2}$ seconds length' ('E Pur Si Muore', p. 430). Thus, the ordering of worlds in the A-series is in fact an ordering of discrete elements.}

Employing this A-series right before relation, Schlesinger could resist the move from (3) to (4*) made above and, instead, say that the paradox of actuality which arises with respect to (3) should be resolved by:

(4**) 'E is present' is true when $W_n$ is actual and $W_n$ is actual right before $W_{n+1}$ is actual.

Again, however, with respect to Schlesinger's model, (4**) is equivalent to:

(5**) 'E is present' is true right before $W_{n+1}$ is actual.

And the paradox of actuality arises again with respect to (5**), for $W_{n+1}$ is both actual and not actual. Schlesinger could, of course, point out that $W_{n+1}$ is actual right before $W_{n+2}$ is actual. So, he could resolve the paradox with respect to (5**) by introducing:

(6**) 'E is present' is true right before $W_{n+1}$ is actual and $W_{n+1}$ is actual right before $W_{n+2}$ is actual.

But, of course, this merely transplants the paradox to the actuality of $W_{n+2}$; it does not resolve the paradox.

Therefore, if Schlesinger relativizes the actuality of the worlds within his model to particular moments in the B-series, he has not succeeded in providing a transientist solution to McTaggart's paradox. And if he relativizes the actuality of the worlds within his model to the A-series,
he has not provided a solution to McTaggart's paradox at all, since a new, yet perfectly parallel, paradox appears within the purported solution which remains unresolved.  

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