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The Consistency of Tense

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McTaggart (1908) famously argued that time is unreal. His argument pivots on a supposed proof that the common sense notion of *tensed* time, where events and the moments of time when they occur have the intrinsic, transitory properties of being past, present and future, is either inconsistent or leads to a vicious infinite regress.

The claim that *tense* is inconsistent is still being seriously defended nowadays by regarded metaphysicians (e.g. LePoidevin and Mellor, 1987; Oaklander, 1996; Mellor, 1998), though those writers are not following McTaggart in concluding that *time* in unreal. What contributes to the fact that McTaggart's proof is still appealing is that the defenders of tense have apparently not been able to refute it without using tense in their arguments and hence incur a regress.

In the following I will argue that the followers of McTaggart beg the question when claiming that tense either is inconsistent or leads to an infinite vicious regress. But contrary to other opponents of McTaggart I will try not to appeal to tensed notions and hence to avoid a regress in my argument.

McTaggart's proof of the inconsistency of tense

McTaggart distinguishes two ways in which events and their times can be ordered. On the one hand, events can be ordered in relational terms through "earlier than", "simultaneously with" and "later than". This way to order events is called a *B-series*.

On the other hand, events can be ordered in terms of being past, present and future constituting an *A-series*. An A-series represents the sort of change we normally associate with time: a present event was future and will be past. Someone endorsing an A-theory defends a *tensed* notion of time and wants to say that there is an objective "flow of time" that conveys a continuously increasing chronological age to those events. A B-theorist rejects the idea of flow of time. For her time is *tenseless.* No privileged present or NOW that moves exists objectively, only the relations earlier than, simultaneous with and later than.

Having established the notions of A- and B-series McTaggart argues then against the reality of time as follows:

(1) The notion of change is essential for the concept of time.
(2) Only an A-series can express change.
(3) The A-series is inconsistent.
Therefore: the notion of time is inconsistent (and hence time is unreal)

I am here not concerned with premises (1) and (2) but will focus on (3), the claim that tense is inconsistent. If I am successful in refuting (3), McTaggart's argument of the unreality of time would collapse independently of the soundness of (1) and (2). It should be sufficient to say that (1) is certainly intuitive, however it is controversial.

One could imagine time flowing without any change in the world going on (e.g. Shoemaker, 1993). The motivation to claim (2) is that a B-series seems not to express change because the relations "earlier than", "simultaneous with" and "later than" hold always. However, some B-theorists do reject (2) (e.g. Mellor, 1993, p.47ff) insisting that to have different properties at different B-times is precisely what change amounts to. This would render McTaggart's argument against the reality of time unsound. But those B-theorists still endorse (3) and reject the reality of *tense*.

McTaggart argues for (3) by saying simply that an event, e, cannot be present, past and future as those are incompatible properties. He anticipates the obvious rejoinder of the A-theorist, namely that those properties are not had *simultaneously* by e, but *successively*. But, so McTaggart, this is not a valid response because then a regress arises as the A-theorist makes use again of a succession in A-terms.

In his version of McTaggart's argument Mellor (1998, pp. 74-75) formulates the regress by using higher order tenses. If "Fe", "Ne" and "Pe" mean, respectively, "e is future", "e is present" and "e is past", then we can express that those properties are not had simultaneously by saying "PFe", "NNe", "FPe", which are expressions with second order tenses and mean, respectively, "e was future", "e is now present" and "e will be past". However, there are incompatible second order tenses (e.g. NP and NF) and as all second-order tenses are had by e, one needs third order tenses to ensure that those properties are had only successively, and so ad infinitum. According to McTaggart and B-theorists like Mellor, the A-theorist always needs to appeal to higher order tenses in order to avoid that an event gets assigned incompatible tensed properties.

But I will show that higher order tenses are unnecessary for the avoidance of an alleged inconsistency, and the B-theorist using McTaggart's proof only begs the question against the A-theory. To avoid inconsistency there is no need to appeal to higher order *A*-successions, the appeal to *B*-successions is sufficient and would immediately stop a suspected regress[1].

But before developing my argument, let me briefly review how the charge of inconsistency of tense is being dealt with by prominent A-theorists.

Three problematic refutations of McTaggart´s proof

A pretty natural way for an A-theorist to respond to McTaggart is to say that there is no problem to avoid in the first place (see Broad, 1938, cited in Oaklander, 1996, p. 212). For someone "taking tense seriously" there is no problem to say that an event to be future, present and past, though not *simultaneously*. Such a lapidary argument won't convince McTaggart or a B-theorist, who just would repeat their argument from above and we end up in a stalemate. It would be better to show to the B-theorist - in a way acceptable for him - that the A-theorist makes certain assumptions that are

[1] As McTaggart considers the A-series more basic than the B-series, the latter falls with the former. Therefore, McTaggart would not accept my argument to avoid a regress by appealing to a *B-series* rather to an A-series. We had to argue first against premise (1) and (2) and refute the idea of the priority of the A-series. In fact, I defend here the A-series as the result of the superposition of a *series* of B-series and the primitive notion of the flow of the NOW, this means the *B-series* is more basic (and it is not false, but it is not the whole picture of the nature of time). My argument in this paper is therefore an attack on the B-theorist's use of McTaggarts argument of inconsistency of tense.

inconsistent only on pain of begging the question against him. Of course, the B-theorist is free to reject those assumptions, but he cannot reject them based on inconsistency that can be inferred only assuming already that those assumptions are wrong.

Other A-theorists have developed more substantial arguments against (3). However, it seems they ultimately do rely on a regress with tensed terms. Here are two such examples:

Lowe (1987) argues that McTaggart commits an "indexical fallacy". Lowe's position is that when one says e.g. " event e is future" one does not say (S1) "event e will be now". Rather it has to be analyzed as a statement made in meta-language about a statement in object language: (S2) " 'Event e is now' will be true at some future time". However, in the meta-language the word "future" in A-theorist terms appears again, hence, the analysis is subject to an infinite regress, because one had to apply a meta-meta-language statement because (S2) is not true always or timelessly (see also Mellor, 1987).

Quentin Smith, takes the bull by the horns and admits an infinite regress, but he denies that it is a vicious one (see Oaklander 1996, pp.213-214). He claims that we need to consider an infinite series of "inherences" in the tensed properties. The property “present” is to be understood as an infinite sequence of inherence relations. The analysis of "e is present" is, so Smith, "e is present, and the being present of e is being present, and the being present of the being present of e is present, etc."

Now this looks rather odd. Oaklander (1996) has attacked Smith's idea of a hierarchy of inherence relations. Without evaluating Oaklander's arguments here let me simply grant that Smith's regress undeniably generates some discomfort and we should prefer, if possible, an account of tense that does not rely on such a regress.

Interestingly, the strategies of Lowe and Smith have the same structure: Lowe move**s** to a hierarchy of meta-languages, while Smith moves to a hierarchy of inherence relations. However, both continue using tensed terms in their refutations of the alleged inconsistency of tense. As a result, it looks like "tensers" and "detensers" just beg the question against each other.

But how could an A-theorist argue against (3) without generating a regress with tensed terms?

An argument for the consistency of the A-series

An A-series can be considered to be a B-series (e1, e2, e3, ...) with a moving present or NOW superposed. This gives for each tensed moment or event a B-series where some item of it is marked as the present event. What we get is therefore not really *an* A-*series* but a BxB matrix (properly labeled and indexed, as I will show) constituted by all those B-series written one below the other.

Let us then create the BxB-matrix rows simply by repeating the original B-series as many times as there are events in this B-series. Then index the elements in the BxB-matrix such that each element in a row has the same index. As index we use the very

elements of the original B-series. The events of the first row[2] have all “e1” as an index, the events in the second row have all “e2” as an index, etc.[3] Finally, pick for all i= 1,2,3,... in row number i the element ei and assign it the label “present” and label all the events earlier than ei "past”, and the events later than ei “future”[4]. You get the following BxB-matrix (boxed items are labeled "present", items underlined "past" and the rest of the items "future"):

[e1 e1]	e2 e1	e3 e1	e4 e1	e5 e1	...
e1 e2	[e2 e2]	e3 e2	e4 e2	e5 e2	...
e1 e3	e2 e3	[e3 e3]	e4 e3	e5 e3	...
e1 e4	e2 e4	e3 e4	[e4 e4]	e5 e4	...
e1 e5	e2 e5	e3 e5	e4 e5	[e5 e5]	...
...	...	...	...	...	

I claim now that the interpretation of the labels "past", "present" and "future" is irrelevant for this argument. The only thing that is assumed about the properties represented by those labels is that they are incompatible and each item (here a cell in the matrix) has exactly one of those labels. The reason that one need not to care about the interpretation of those labels for this argument is that a potential contradiction or regress of the sort McTaggart alleges are *formal* characteristics that can be detected without the need for the availability of an interpretation of that property: a contradiction can be detected by finding items with incompatible properties and a regress can be identified in form of some circular use of a property.

The labeled and indexed BxB-matrix avoids entirely tensed vocabulary. It is not totally equivalent to an A-series, because we have not considered the superposed flow of the NOW. But by being able to ignore any controversial notion of flow or tense in this matrix picture we have gained some common ground with the B-theorist.

The tenseless BxB-matrix allows the A-theorist to argue that an event indeed can, in some sense, have three incompatible properties. Of course he cannot say the event has those properties timelessly, as those properties are incompatible, and an item cannot have timelessly three incompatible properties. He neither can say that an event has those properties "successively in A-terms" because this implies a regress. All this should be granted to McTaggart.

But the A-theorist can say that an event is not a *simple item* in the tenseless picture of an A-series. Rather it is a column in the BxB-matrix (which is a B-series itself, given that the items of the original B-series were used as indices) and it is possible to attach different incompatible properties to items in this B-series column (which are "parts" of events but not the event simpliciter). And this is simply to say that an event can have incompatible properties *B-successively*, which prevents a regress with tense.

Let's turn our attention to the utterance (U) by an A-theorist of "The event e3 is

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[2] For the sake of simplicity of the notation we assume the series has a starting point, a "first event" (e1) and goes on infinitely, but nothing hangs on it.

[3] Alternatively and with the same result you could say that they are labeled such that in each column of the matrix the cells are indexed with the items of the original B-series.

[4] Or, more handily expressed: ei_{ek} is labeled "present" for i=k, "future" for i>k and "past" for i<k (for i=1,2,3, ... and k=1,2,3, ,...).

present, it will be past and it was future" from which McTaggart and B-theorists deduce inconsistency or a regress. There are two components in what is being said by (U), one tenseless and one tensed component which is superposed. We focus on the tenseless one and show it is not contradictory. The tensed component we simply ignore, but I need to say in a moment something about the legitimacy to do so. The tenseless component of (U) is: “e3 with respect to e3 is labeled 'present', e3 with respect to the earlier events e2 and e1 is labeled 'future' and e3 with respect to the later events e4, e5, e6,.... is labeled 'past'". There is no contradiction here derived from one item having incompatible labels "present", "future" and "past", because they are labels not of e3 simpliciter, but of the items in the B-series column corresponding to e3 ($e3_{e1}$, $e3_{e2}$, $e3_{e3}$, $e3_{e4}$, ...) in the BxB-matrix.

When the A-theorist adds the tensed component to the tenseless part of (U) and thinks for himself: “and e3 is NOW”, then he moves onto tensed territory and the cells and their labels "past", "present" and "future" in the BxB-matrix can get their tensed interpretation for the A-theorist in that instant in the following way, depending on their relative positions:

a) In the row of $e3_{e3}$: *e3 is present* (with respect to e3, means NOW). *e1 and e2 are past* (with respect to e3, means NOW) . *e4, e5, ... are future* (with respect to e3, means NOW).

b) In the column of $e3_{e3}$: e3 with respect to the past events e1 and e2 ($e3_{e1}$ and $e3_{e2}$) is future, so *e3 was future*. e3 with respect to the future events e4, e5, ... ($e3_{e4}$, $e3_{e5}$, ...) is past, so *e3 will be past*.

c) For any other cell the labels can also get a corresponding interpretation; e.g. take $e2_{e2}$ (labeled "present"): the correct tensed reading is that *e2 was present*, because e2 is indexed to e2 and e3 is NOW and e2 is earlier than e3.

The B-theorist, however, should not care about this tensed extra-component. It does not generate new items in the matrix picture; it only picks out a certain ei_{ei} in the BxB-matrix and the tensed interpretations of the labels get "activated" in relation to ei_{ei} being NOW. The structure in terms of items and properties relevant to detect a contradiction of the sort McTaggart pretends to detect, namely that an item has incompatible properties, is given completely by the tenseless component of the A-series, the labeled and indexed BxB matrix. Therefore it is legitimate to ignore the tensed component in order to show that there is no such contradiction.

As an upshot, the A-theorist can avoid inconsistency and regress by considering an event to be a B-series, rather than merely an item in the B-series. The B-theorist can, of course, reject this matrix picture, but not through an argument from inconsistency or regress. The inconsistency and regress argument works only if she has already settled the question whether events are simple items in a B-series. But to assume this is just to beg the question.

A defense against some objections

One could protest against the idea that an event is a B-series, which is something odd. An event is a singular item, rather than a series of items.

The reply is that an event, in the A-theorist's picture expressed *tenselessly* as I suggest it, is a B-series column in the BxB-matrix. If the B-theorist wants to avoid begging the question he must argue why an event cannot be a B-series. Obviously an event is not a series in the *B-theorist* terms, but presupposing this is just to beg the question.
What seems behind the intuition that an event is a singular item but not a series is the idea that an event happens at a given instance. An A-theorist however claims that we can also say (with the common sense on our side) that an event will be present and was future. I then proposed that this idea can best be captured by considering an event to be a B-series and without contradiction and a vicious regress.

Another objection is to claim that the fact that all items ei_{ei} (for i=1,2,3...) are labeled with "present" in the BxB-matrix is inconsistent. Not all events can be present.

The response is that I have warned already that the label "present" is just that, a tense-less label representing some property incompatible with "past" and "future" and should not be confused with the tensed property of being present. E.g. event e3 is present *in the tensed* sense only when $e3_{e3}$ is being picked out by the NOW[5]. $e2_{e2}$, which also has the label "present", however, *was present*, as e2 is earlier than e3. (However, the interpreted reading of the labels should not concern the B-theorist.)

A further objection is to say that the matrix picture doesn't make any sense. What should all this copying of the B-series, the indexing and labeling *mean*? To a B-theorist, the A-theorist is babbling nonsense[6].

If the reason for "not making sense" is that the matrix picture does not fit his preconceived B-theory picture, then he is simply begging the question. In case the objector really does not understand, even under the principle of charity, what the BxB-matrix could "mean" there is, obviously, no common ground for further dispute.

It is important to stress that I do not intend to reduce to or explain the flow of time in tenseless terms. The flow of time is an additional superposed and primitive ingredient to the tenseless BxB-matrix. Time flow is for many other reasons controversial (see e.g. Markosian, 2010) and a B-theorist is free to reject it based on good other arguments.

Conclusion

B-theorists who defend McTaggart's proof of the inconsistency of tense beg the question against the A-theorist by assuming that an event is tenselessly an item in a B-series. I suggest that an A-theorist can consider an event tenselessly to be itself a whole B-series. An A-series is then a properly indexed and labeled BxB-matrix plus a superposed flow of the NOW. To say that an event is present, was past and will be future, if properly expressed tenselessly in terms of the BxB-matrix is then *not* inconsistent and does *not* lead to a regress. This does not make the A-theory right, but at least it fends off an old and persistent attack.

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[5] The label "present" assigned to a cell in the matrix alone is not sufficient to convey the *tensed* property of being present to that cell. All cells in the BxB-matrix get tensed properties conveyed from their labels and their relative positions once we have the NOW superposed and picking out some ei_{ei}.

[6] I am grateful to Geoffrey Klempner for an objection along this line.

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