

# Time, Tense and Adverbial Change:

*Can adverbialism about time solve the problem  
of A-series changes in events?*

## **Abstract**

In response to McTaggart's well-known paper concerning the unreality of time, E. J. Lowe (1998; 2002) sets out a response that may be characterised as an adverbial conception of time and tense. In this paper, I draw upon parallels between this kind of adverbialism about tense and Haslanger's (1998) treatment of the changing properties of objects—an issue that is sometimes known as the *problem of temporary intrinsics*—in order to elucidate the strengths of Lowe's A-series account. In particular, I offer an adverbialist analysis of the nature of complex tenses, i.e. those involving multiple temporal points of reference or comparatives, in a way that avoids a reappearance of the alleged regress—an issue that is often thought to be a problem for Lowe. Subject to various conditions concerning quantification over adverbial relations and the reification of times, the adverbial view is found to offer a novel solution to the problem of A-series change that McTaggart describes, as well as clarifying the ultimate source of the dispute between Lowe and McTaggart on this issue.

## I. Introduction

In ‘The Unreality of Time’, J. Ellis McTaggart (1908) describes two different conceptions of time, concluding that, since neither can account for the existence of substantial change, time must be unreal. McTaggart claims that such change involves the progression of events from the *future*, through the *present* and into the *past*—a set of determinations that McTaggart calls *the A-series*. The A-series is inherently ordered and directional, since events assume these determinations in strict succession. The *B-series*, on the other hand, is a linear and directional sequence of times or events that are ordered according to the relations of ‘before’ and ‘after’. Since B-series relations are fixed and immutable, McTaggart argues that only the A-series can account for the existence of genuine change, and thus for the reality of time. However, he goes on to argue that since the A-series requires events—and by extension *times*—to assume the contradictory determinations of past, present and future, it cannot be real. In this paper, I describe a potential solution to the paradox presented by E. J. Lowe (1998: 130; 2002: 312–9), which involves viewing tense as a changing series of adverbial relations between a perceiver and events. In particular, I will evaluate whether and how Lowe’s account is able to overcome the alleged contradiction in the A-series without reducing his adverbial conception of tense to the unchanging relations of the B-series. I will then examine a number of potential objections to adverbialism concerning the treatment of complex tenses before concluding with a diagnosis of the source of the disagreement between Lowe and McTaggart on the nature tensed facts.

## II. McTaggart's Regress

The contradiction in the A-series arises as a result of events changing their location within the series as they move from future to present to past with the passage of time. For simplicity, let us consider just the three A-series determinations of *past*, *present* and *future*. An event  $e$  that has yet to occur—the rising of the sun tomorrow, for example—starts off as being *future*, which may be symbolised as  $Fe$ . Since past, present and future are mutually exclusive terms, 'e is future' also entails 'e is *not-present*' ( $\sim Ne$ ) and 'e is *not-past*' ( $\sim Pe$ ). As time passes and the event occurs—i.e. the sun rises— $e$  is then *present* ( $Ne$ ), before finally receding into the *past* ( $Pe$ ). Thus, each and every event is:

- (1) *Present* when it is occurring, and *not-present* when it is past or future
- (2) *Future* when it has yet to occur, and *not-future* when it is present or past
- (3) *Past* when it has occurred, and *not-past* when it is present or future

Since each of the above conjunctions constitutes a contradiction, they cannot be true of one and the same event. The obvious response to this is that neither (1), (2) nor (3) is true of the same event *at the same time*, since each conjunct only holds of a given event *at different times*. However, in order to show that the A-series view of time is coherent, we cannot simply help ourselves to the notion of time, and must further unpack this claim in a way that shows it to be internally consistent, but without reducing it to the static and unchanging relations of the B-series.

McTaggart considers how the obvious response might be developed by introducing a more finely-grained series of predicates—FF, FN, FP, NF, NN, NP, PF, PN and PP—that may be applied to each event. Now, instead of three mutually incompatible determinations, we have nine partially compatible determinations, out of which any given event will assume at least one from the first set of three, at least one from the second set, and at least one from the third set. Thus, a presently occurring event, '*will be past*' (FPe), '*is now present*' (NNe) and '*was future*' (PFe) [Mellor 1998: 74]. Since these three predicates are

expressed in different tenses, they are perfectly compatible, and so the immediate contradiction is avoided. However, a similar problem now arises when we consider what happens *after* the event has occurred. In this case, the event may be described as  $FPe$ ,  $NPe$  and  $PNe$ , since it now lies entirely in the past. This conflicts with the above determinations since  $NPe$  entails  $\sim NNe$ , which contradicts  $NNe$  above. Thus each event must still assume more than one of the incompatible determinations, leading to a contradiction. Any attempt to resolve this by introducing yet more finely-grained predicates corresponding to the 27 three-place combinations of past, present and future (i.e.  $FFF$ ,  $FFN$ ,  $FFP$ ,  $FNF$ , etc.) will fail in a similar way. Although it resolves the immediate conflict between the original nine predicates, certain combinations—e.g.  $FFF$  and  $PPP$ —are still incompatible, and since every event must at some point assume the incompatible determinations, there is no escape from the regress. Thus, McTaggart concludes that the regress is vicious, the A-series unreal, and since changes in tense are essential to the concept of time, time is unreal.

There are many possible responses to this argument. The first is to deny the viciousness of the regress, as per Lowe (1987a: 64), who claims that the contradiction within A-series terms is indeed resolved through the introduction of the additional temporal predicates at each level. Another response is to argue that all talk about *events* may be reduced to statements about *objects undergoing change* (Prior 1968). This side-steps the contradiction on the basis that only objects change, and not events, since events *are* changes, although this does not address the problem of temporary intrinsics described below. A third option is to agree with McTaggart about the unreality of the A-series, but to argue in favour of a tenseless B-series conception of time (e.g. Mellor 1998). However, this requires an account of substantial change that is based on the essentially static and unchanging relations of the B-series—a position that McTaggart (1927: 264) considers untenable. Finally there is the possibility of an adverbial response, which is the option that I will be examining throughout the remainder of this paper.

### III. Adverbialism about Objects

In order to demonstrate how an adverbial account of time might address the apparent contradiction within the A-series, I will first examine an adverbial response to the distinct, but related, ‘problem of temporary intrinsics’ (Lewis 1986: 202). This concerns the contradiction between intrinsic (i.e. internal non-relational) properties of objects that change over time, such as a banana that changes from being green to being yellow as it ripens (Hawley 1988: 211). Just as ‘past’, ‘present’ and ‘future’ are mutually exclusive determinations of *events*, so a single *object*, *a*, cannot be both *green-all-over* and *yellow-all-over* without contradiction, since the statement ‘*a* is green-all-over’ entails ‘*a* is *not* yellow-all-over’, which is incompatible with ‘*a* is yellow-all-over’. Lewis identifies three possible solutions to this problem, which involve temporally qualifying the *property*, *copula* and *object*, respectively (Lowe 1988: 73). The first of these options describes properties as *relations to times*, e.g. *green-at-t<sub>1</sub>* and *yellow-at-t<sub>2</sub>*, which unlike *green-all-over* and *yellow-all-over* are perfectly compatible since *a is green-at-t<sub>1</sub>* only entails  $\sim(a \text{ is yellow-at-}t_1)$  and not  $\sim(a \text{ is green-at-}t_2)$ . Lowe and Lewis object to this solution on the grounds that it makes temporary properties relational, which is highly counterintuitive as it is unclear how ‘having a property’ can be construed in terms of an object’s relation to a time (cf. Hawley *op. cit.*). The second option, which is favoured by Lewis, incorporates the temporal reference in the *object* such that each object consists of multiple ‘temporal parts’ (Lewis *op. cit.* 202), which are the bearers of its (temporary) properties.<sup>1</sup> Accordingly, it is not the object (*a*) that is both green and yellow, but *a-at-t<sub>1</sub>* (an earlier temporal part of *a*) that is green and *a-at-t<sub>2</sub>* (a later temporal

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<sup>1</sup> It is unclear whether Lewis thinks that all of an object’s intrinsic properties are borne by its temporal parts, or merely those that change over time, but it seems reasonable to assume that any intrinsic property that can be held temporarily by any object should in all cases be attributed to the temporal parts of its bearer, as opposed to the object *simpliciter* (cf. Hawley *op. cit.* 212). This leaves open the question of whether the object itself possesses any properties at all, or whether these merely supervene upon its temporal parts, although this does not have any particular implications for the present discussion.

part) that is yellow. Just as there is no contradiction between having one of our spatial parts (e.g. our hands) pointing left while the other points right, different temporal parts of an object may possess conflicting properties without contradiction. However, this solution requires positing the existence of an entirely novel class of objects, namely temporal parts, with which we are otherwise unfamiliar, and so could be accused of being ontologically extravagant or *ad hoc* (Lowe 1998: 134). Finally, there is the adverbial account, which temporally qualifies the relation between an object and its properties by means of an adverbial modifier, which indicates its *tense*. Just as ‘possibly green’ and ‘actually yellow’ are compatible modal claims, ‘*a is-at-t<sub>1</sub> green*’ and ‘*a is-at-t<sub>2</sub> yellow*’ do not conflict, since *is-at-t<sub>1</sub>* and *is-at-t<sub>2</sub>* are distinct ways in which an object can possess the properties of being-green or being-yellow.<sup>2</sup>

Philosophical opinion on adverbialism as a solution to the problem of temporary intrinsics is divided. Lewis rejects the adverbial account as a mere variant of the relational account, claiming that it involves a three-place relation between objects, properties and times (Lewis 1988: 66 fn.). Haslanger (1998:121) and Lowe (*op. cit.* 74) deny that any such three-place relation is required and defend adverbialism on the grounds that it alone supports the intuition that objects are fully present throughout their lifetime, i.e. they *endure*, as opposed to Lewis’s ‘perdurantism’ theory, in which only one ‘temporal part’ of an object is present at any given time (Lewis *op. cit.* 202). Regardless of the merits of adverbialism as a solution to the problem of change in objects, however, a similar account may also be given regarding the changing properties of (or relations between) events. This seems particularly appealing given the close relationship between adverbial modifiers and the everyday notion of tense, which can be understood in terms of adverbial modification of the copula. In the following sections, I will examine how one such account (Lowe 1998; 2002)

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<sup>2</sup> Although not all adverbial modifiers afford this kind of compatibility; quickly and slowly, for example.

purports to overcome the contradiction within McTaggart's A-series, along with some potential objections to it.

#### IV. Adverbialism about Tense

Lowe's adverbial account of tense closely resembles McTaggart's initial response to the contradiction between the incompatible A-series determinations of 'past', 'present' and 'future'. Like McTaggart, it involves the introduction of the tensed relations of *was*, *is now* and *will be*. However, unlike McTaggart, Lowe denies even the appearance of a contradiction, since the three tenses are conceived of as adverbially modified ways in which an event may possess its (temporal) properties. This enables claims such as '*e was future*' and '*e is now past*' to be made of one and the same event without contradiction, provided that they involve different A-series adverbial modifiers, or tenses. Specifically, Lowe (1998) claims that:

- (4) For any event *e*, (i) it either was, is now, or will be true to say '*e has happened*', and (ii) is either was, is now or will be true to say '*e is happening now*', and (iii) is either was, is now or will be true to say '*e will happen*'.

(Lowe 1998: 91; my italics)

On this account, the statement '*e is now past*' says nothing more than '*e has happened*'. Similarly, '*e was future*' may be analysed as '*e has happened or is happening now*', since an event that was (but is no longer) future must be either past or present. As per the adverbial solution to the problem of temporary intrinsics, these adverbially modified relations enable the same event to possess the conflicting properties of pastness, presence or futurity *in different ways*, thus overcoming the initial contradiction within McTaggart's A-series. However, in order to avoid the subsequent regress, Lowe must also explain how it is possible for the same event to be *successively* past, present and future (Lowe 2002: 316) in a way that does not invoke the notion of 'times', which would reduce his account to the static and unchanging relations of the B-series.

Lowe explicitly rejects the idea that we should ‘*reify* moments of time’, i.e. ‘to treat them as real entities, to be included in our ontology along with events and persisting objects’ (*ibid.* 315; original italics). Instead, he introduces the A-series adverbs *pastly*, *presently* and *futurely*, which adverbially modify the manners in which events can be past, present or future.<sup>3</sup> This gives nine possible combinations such that

- (5) Every event is such that it is (i) either *pastly past* or *presently past* or *futurely past* and (ii) either *pastly present* or *presently present* or *futurely present* and (iii) either *pastly future* or *presently future* or *futurely future*.

(*ibid.* 318; my italics)

Accordingly, the statement that ‘*e* is future *at some time in the past*’, may be unpacked as ‘*e is-pastly future*’, which is compatible with ‘*e is-presently past*’ and ‘*e is-futurely past*’ due to the different manners in which pastness or futurity are predicated. In this way, Lowe reduces all statements concerning *times* to statements involving A-series adverbs, since tense is, on his account, conceptually prior to time, and not the other way around.

According to Lowe (2002) then, any event that *is-presently future* will also be *futurely present*, since the two terms are coextensive, and similarly for the other adverbial locutions, *mutatis mutandis*. This gives rise to an obvious objection concerning the use of *is* and *will be* in such expressions, since if these terms are themselves considered to be tensed then this gives rise to a regress, as in McTaggart (*ibid.* 315). However, Lowe argues that ‘*is-presently future*’ is equivalent to ‘*is future*’, where the ‘*is*’ is present-tensed, and ‘*will-futurely-be present*’ to ‘*will be present*’.<sup>4</sup> In other words, the tense of the copula does no additional work in these statements—it is only there to make the grammar consistent—and so no regress need arise. If the copula is considered to be

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<sup>3</sup> *Is-pastly*, *is-presently* and *is-futurely* in Lowe (2002) are logically and semantically equivalent to *was*, *is-now* and *will be* in Lowe (1998).

<sup>4</sup> In some cases, ‘*will-futurely-be present*’ will be taken to mean ‘*is-more-futurely present*’, as considered in section V below.

tenseless, on the other hand, then there is no need to reintroduce the notions of *pastly*, *presently* and *futurely* in order to explain its meaning, and so either way the regress is avoided.<sup>5</sup>

A more substantive objection to Lowe's adverbial account is that it seems not to have solved the original problem of how the same event can be both 'presently future', 'presently present' and 'presently past', since all events must still successively assume these conflicting determinations due to the passage of time. The claim '*e is-presently present*', which may also be expressed as '*e is happening now*', entails 'not (*e is-presently future*)', or '*it is not the case that e was happening*'. Nevertheless, it *will* subsequently be the case that '*e was happening*', and so it seems that we must say of *e* that it is *both happening and not happening*, which is contradictory. Lowe denies that this argument has any force on the basis that it equivocates over either statements or times, the latter of which he has already excluded from his ontology (*ibid.* 316). For Lowe, *e* is either (i) 'presently present' and 'pastly future', or (ii) 'presently past' and 'pastly present', but never (iii) 'presently present' *and* 'presently past', or (iv) 'pastly future' *and* 'pastly present', which would be incompatible. Of course, it may be the case that *e was-presently* present and *is-now-presently* past, but since both of these claims involve different A-series adverbs, or tenses, there is no contradiction between them, and so no cause for regress.<sup>6</sup>

## V. Complex Tenses

So far, I have considered only the simplified A-series determinations of 'past', 'present' and 'future'. This is sufficient for dealing with expressions like 'I *had finished* eating', which may be analysed as 'my finishing eating *was-pastly past*'. However, the situation becomes more complex when we consider statements such as

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<sup>5</sup> This explains Lowe's use of the disjunctive '*is, was, or will be*' in (4) above.

<sup>6</sup> Indeed, for Lowe, the truth of both of these statements is determined by the same A-series fact: whether or not *e* has happened.

(6) The Battle of Hastings *was future, was present and was past.*

whose components are true of the years 1065, 1066 and 1067, respectively. A naïve adverbial analysis of (6) along the lines described above would yield

(7) The Battle of Hastings *is-pastly future, is-pastly present and is-pastly past.*

which is contradictory, since all three determinations are predicated in the same manner, i.e. *pastly*. In order to avoid this problem, Lowe employs more finely-grained A-series adverbs, as in

(8) The Battle of Hastings *is-pastly future, is-more-pastly present and is-still-more-pastly past.*

This may be expressed in a more general form as

(9) The Battle of Hastings is *X-ly future, Y-ly present and Z-ly past.*

where *X*, *Y* and *Z* are A-series adverbs corresponding to what Lowe calls the relative ‘degrees of pastness’ (Lowe 1998: 92) of the claims in question, such as *942-years-past*, *941-years-past*, and so on. Here, Lowe’s idea seems to be that terms such as ‘pastly’, ‘more-pastly’ and ‘still-more-pastly’ *quantify over the A-series* such that the ordinary English terms, *was*, *is now* and *will be*, identify distinct regions of the series that are relevant to the claim in question (*ibid.*). Since (9) states that the conflicting properties of pastness, presence and futurity are held in different adverbially modified manners (*X-ly*, *Y-ly* and *Z-ly*), the contradiction is avoided. Furthermore, due to the token-reflexive truth-conditions of tensed sentences (*op. cit.* 90), the relevant A-series adverbs for a given event will constantly change as it becomes ‘less future’ and ‘more past’ with the passage of time (Lowe 2002: 317), causing *X*, *Y* and *Z* to range over different regions of the A-series depending upon when this statements is asserted.

This modified adverbial locution, however, gives rise to two problems. Firstly, the notion of ‘quantifying over the A-series’ has yet be fully explained.

Secondly, in order for (9) to be intersubstitutable for (6), it is necessary to add the constraint that  $X$  is *more-past-than*  $Y$ , which is *more-past-than*  $Z$ , thus requiring comparison between A-series adverbs. To illustrate the first of these problems, consider:

(10) John had already eaten when Mary arrived.

(*ibid.*)

On a B-series view of time, this would be understood to mean that there is a time before now (an indexical expression) at which Mary arrives and that is *after* (a B-series relation) the time of John's eating. By substituting the references to times for A-series adverbially modified relations, we obtain

(11) There is a temporal adverb,  $X$ , such that John's eating is  $X$ -ly past and Mary's arrival is  $X$ -ly present.

It is tempting to read both (9) and (11) as quantifying over, or 'reifying', times, thus undermining the primacy of the A-series, and reducing Lowe's tensed A-series locutions to their tenseless B-series equivalents. However,  $X$ ,  $Y$  and  $Z$  are not times, but *A-series adverbs* and so, on an adverbial account, conceptually prior to times. Moreover, A-series adverbs are not existent entities, but ways in which the relation between an event and its properties may be modified; i.e. they are '*predicate modifiers*' (Lowe 1998: 94). Thus, Lowe need not be taken to be reifying the terms of the A-series, other than to say that they are the series of temporal modifiers that affect the way in which events possess their properties, and so are themselves neither *actual* nor '*in time*' (rather, they *give rise to* times).

The second problem raised by (9) relates to the nature of the 'second-order' relations that hold between  $X$ ,  $Y$  and  $Z$  concerning their relative 'degrees of pastness'. By invoking the notion of *more-past-than*, it again seems that Lowe is again either quantifying over times or reducing the A-series to the B-series relations of 'before' and 'after'. Lowe can perhaps escape this objection by suggesting that since the A-series is inherently ordered and directional, then A-

series adverbs are comparable to the elements in a numeric series—real numbers, for example—and the notions of ‘more-past-than’ and ‘more-future-than’ analogous to the mathematical operators, ‘less than’ and ‘greater than’, which compare the position of terms within the series. This would not require the existence of any additional entities, such as times, and does not reduce the A-series to the B-series, since only the *relative* position of A-series adverbs can be compared in this way, with the more fundamental notions of ‘past’, ‘present’ and ‘future’, which have no B-series equivalents, remaining irreducible.

How the notion of quantifying over adverbial modifiers can be represented in formal logic lies outside the scope of this paper, but the basic concept may perhaps be clarified by considering the parallel case of *degrees of probability*. The fact that such degrees may be ordered in terms of their likelihood does not require us to reify probabilities corresponding to the various adverbial modifiers in question (although it does perhaps require that they are quantifiable in some way—numerically, for example). If this kind of quantification can be made to work, then Lowe’s adverbial account offers the possibility of supporting arbitrarily complex tenses without the need to iterate or ‘stack up’ adverbial modifiers (*ibid.*), since each additional clause simply specifies further constraints upon the ‘second-order’ relations between the A-series adverbs in the sentence, thereby escaping McTaggart’s regress.

## V. Conclusion

I have argued that Lowe’s adverbial account of time does overcome the contradiction within McTaggart’s A-series, but with two important caveats. Firstly, it must be possible to quantify over A-series adverbs without reifying its terms, or B-series ‘moments of time’. Secondly, Lowe rejects McTaggart’s implicit assumption that it is possible to provide a ‘complete description of reality’ (Dummett 1960: 356) irrespective of one’s temporal perspective. Instead of making tenseless claims about one and the same event at different points throughout its lifetime, as McTaggart attempts to do, leading to a contradiction,

Lowe accepts that *all contingent facts are essentially tensed* (Lowe *op. cit.* 90), and so are only true or false from a particular temporal perspective. Whilst we can evaluate the truth or falsity of statements from different temporal perspectives, there is, for Lowe, no question of being able to ‘step outside time’, and, since the sum total of all temporal facts is always consistent for any given temporal perspective, the alleged contradiction in the A-series never arises. On this account, McTaggart’s paradox is founded upon a misconception, since it attempts to do just that (Lowe 2002: 319). For Lowe, we simply cannot avoid the need for tense—which is perhaps unsurprising given that on an A-series account of time, the notions of past, present and future are taken to be essential and irreducible.

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