ON MCTAGGART'S THEORY OF TIME

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J. M. E. McTaggart argues that time is not part of reality.[1] Specifically, he argues that since the philosophical concept of time is constituted by two fundamental notions of temporality, namely, the notions of fluid and static time, and since, on his view, neither notion is philosophically viable, he concludes that time per se is nothing but an illusion that arises from our distorted perception of essentially atemporal reality.[2] Nowadays, few philosophers who take up the problem of time endorse this sweeping metaphysical thesis.[3] Most see fluid time as entirely illusory. The rest are split between those who believe to the contrary and those who hold both fluid time and static time to be equally real.[4]

In what follows, I shall argue that, despite his failure to prove the unreality of time as such, McTaggart does succeed in establishing his lesser claim that the concept of fluid time is without any ontological import.

THE *A*-SERIES/*B*-SERIES DISTINCTION

McTaggart begins his argument for the unreality of time with his celebrated distinction between two fundamental concepts of time. On one hand, we envisage time as a current flowing from the future, through the present, and into the past.[5] On the other hand, we conceptualize time as a static sequence of events/moments standing in earlier-than, later-than, and simultaneous-with relations. The former sequence, McTaggart labels "the *A*-series" and the latter one he labels "the *B*-series."

Unfortunately, in the literature on the topic, the *A*/*B* distinction is frequently watered down to signify no more than a mere phenomenological/ontological divide. For instance, D. H. Mellor takes it to be the distinction between subjective and objective times or, as he puts it, "between the time of our lives and the time of reality."[6] Yet, it is quite clear that McTaggart takes the difference between his two temporal series to be wholly ontological. In his theory of time, unlike, say, in that of Immanuel

Kant's, the phenomenology plays second fiddle to the metaphysics. As such, his main objective is through and through metaphysical; he sets out to show that neither the *A*- nor *B*-theory of time (and, by extension, none of their amalgamations) is grounded in reality. To think otherwise is to misconstrue McTaggart's project altogether.

In general, McTaggart's *A*-series/*B*-series distinction is considered to be fairly unproblematic—the twofold mode in which, as a matter of fact, we think about time. The truth, however, is that it is not as straightforward as it may first seem because, while the logical (set-theoretic) underpinning of the notion of the *B*-series is rather straightforward, it is unclear whether the *A*-series can be thought of as a genuine series; at least, it is not clear whether it can be deemed to be a series in the strict set-theoretic sense of the term. Hence, before we draw the distinction between the two temporal series, the question of whether the *A*-series is a genuine series must be addressed. If we answer this question in the negative, then the *A*-time/*B*-time distinction disintegrates; at best, it demarcates not two distinct temporal series but a temporal series and something else. If, on the other hand, we answer the question in the positive, then, as I shall shortly argue, the two temporal series are practically indistinguishable.

Consider now the following McTaggart account of the *B*-series. To constitute such a series, he says that

> there is required a transitive asymmetrical relation, and a collection of terms such that, of any two of them, either the first is in this relation to the second, or the second is in this relation to the first. We may take here either the relation of "earlier than" or the relation of "later than," both of which, of course, are transitive and asymmetrical. If we take the first, then the terms have to be such that, of any of two of them, either the first is earlier than the second, or the second is earlier than the first (*NE*, §305).

Apparently, this account of a temporal series does not sit well with the concept of the *A*-series, for, were we to apply it to the *A*-series, we would be forced to judge it to be as inert as the *B*-series is. Could then a logical account be given of a fluid temporal series in principle? To answer this question, we must ask a more general one: is there a coherent logical notion of a *fluid serial order*? I very much doubt that such a notion is attainable.[7] This reservation can be parsed more precisely by way of criteria of identity of sets and series (ordered sets) as follows. On the *axiom of extensionality*, identity of membership is a sufficient condition for the identity for sets because $\{a,b\} = \{b,a\}$. However, this condition is not adequate to give us a criterion of identity for ordered sets because $<a,b> \neq <b,a>$. For this reason, an ordered set whose order mutates can-

not be counted as an ordered set because at one time it is *<a,b>* and at another it is *<b,a>*; an additional necessary condition of *immutability* of order is required. Thus, a question naturally arises: what kind of entity is McTaggart's *A*-series? Is it really a *fluid serially ordered set* of temporal items (i.e., events/moments)? I will now address this question.

In the original paper, McTaggart states that it seems to him "a more reasonable view" that the *A*-characteristics are relations (*UT*, 467); and in the later version, it is "quite clear" to him that they are bona fide relations (*NE,* §326). Apparently, he takes pastness, presentness, and futurity to be relations of order, not monadic properties.[8] On McTaggart's reckoning, therefore, the *A*-series is a serially ordered set of temporal items. In what way, then, is an *A*-serially ordered set different from a *B*-serially ordered set? Take, for instance, an *A*-series of events; an event e_1 is past, an event e_2 is present, and an event e_3 is future. In what way is this ordered set different from an ordered set of the same events such that an event e_2 is later than an event e_i and earlier than an event e_3? The difference here is in name only; in all other respects, the two series are identical. Pictorially:
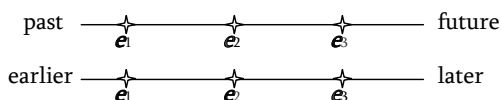

Figure 1

In his painstaking analysis of McTaggart's argument, C. D. Broad also takes McTaggart's *A*-series to be a bona fide ordered set of temporal items because it is

> formed by the various possible degrees of pastness in decreasing order of magnitude, the characteristic of strict presentness, and the various possible degrees of futurity in increasing order of magnitude. Except for the fact that it is compact it might be represented by the series of negative integers, the signless integer 0, and the series of positive integers. Thus
>
> $$\ldots \; -3, \; -2, \; -1; \; 0; \; 1, \; 2, \; 3, \; \ldots$$
>
> *Pastness*   *Futurity*[9]

If Broad's exegesis is correct, then topologically, the *A*-series and the *B*-series are indistinguishable. Moreover, given that the elements of the *B*-series are the same elements as those that also constitute the *A*-series, the inescapable conclusion that follows is that the two series are the same in all respects.[10] This indistinguishablility thesis can be expressed in set-theoretic terms as follows. All Dedekind-complete ordered fields are *isomorphic*, namely, there exists a one-to one correspondence between

them that preserves the ordering. Therefore, all Dedekind-complete ordered fields have the same structure and differ at most in their domain of objects. If two Dedekind-complete fields also have the same domain, then by Leibnitz's Law they are identical. Thus, series that are modeled on a Dedekind-complete ordered field and have the same elements are identical. The *A*- and *B*-series are (modeled on) a Dedekind-complete ordered field. Therefore, the two series are identical.

McTaggart makes it is quite clear that he takes the *A*-series to be *internally* static, that is, that temporal distances and relative locations of its elements do not change:

> For the relations of the *A* series are changing relations, and no relations which are exclusively between members of the time-series can ever change. Two events are exactly in the same places in the time-series, relatively to one another, a million years before they take place, while each of them is taking place, and when they are a million years in the past (*NE*, § 327).

What McTaggart says here and in other passages is this: although the *A*-series is fluid, the relation of its elements is static. If an event e_n is past with respect to an event e_m, it is *always* past in that respect, and it is always the same temporal distance from e_m. Neither are the *A*-temporal positions between events rearrangeable, nor will the *A*-temporal distances between them vary. The outbreak of World War I, for example, is and has always been twenty-five years in the past with respect to the outbreak of World War II.

Indeed, what sense can be given to the idea of an *internally* flowing serially ordered set of temporal items? As far as I can tell, there are three possible case scenarios, none of which holds:

(a) Relative positions of the elements of a fluid temporal series are continuously rearranged.

(b) Temporal distances between the elements of a fluid temporal series continuously modulate.

(c) Both, relative positions of the elements of a fluid temporal series and the distances between them are in the state of flux.

On the first scenario, we would have something like this: e_m is past in relation to e_n; then, it is either future or present in the same respect and so forth. On the second scenario, an internally fluid temporal series would be like a rubber cord, of a sort, continually stretching and contracting, or perhaps just stretching or just contracting. On the third scenario, such a temporal series would be twice over chaotic. Any such

notion of an internally fluid temporal series is incoherent. The A-series, therefore, must be thought of as internally static as the B-series is.

What sense, then, can be given to the notion of temporal fluidity on this construal of the A-series? Suppose we say that the A-series flows in the sense that events recede further and further into the past. Under this scenario, when one event moves, then all events move with it in unison; otherwise, we would have a chaotic temporal flow. What we apparently have here is the notion of B-time in disguise because, though the A-series moves, it nevertheless moves as one *rigid whole*. We thus must conclude that if we take the A-series to be a bona fide series, it cannot be differentiated from the B-series because the elements of the two time-series are the same, and their ordering is the same; in fact, on the indistinguishablility thesis, there is only one internally static temporal series.[11]

Tʜᴇ Tᴡᴏ Nᴏᴛɪᴏɴs ᴏғ Tᴇᴍᴘᴏʀᴀʟ Pᴀssᴀɢᴇ

If the A-time/B-time distinction is to be upheld, we must find a way to differentiate between the two temporal series. Since they cannot be differentiated *internally*, the only option, as far as I can tell, is to differentiate them *externally*. To all intents and purposes, this external/internal distinction amounts to the distinction between two conceptions of temporal passage. On the external conception of temporal passage, the A-series shifts as a rigid whole *in relation* to something external to it. On the internal conception of temporal passage, temporal flow is nonrelational; the A-series flows *within*; it is like a river, only that it is the river without banks rolling its waters uniformly with no relation to anything external.[12]

In "fluid time-series," therefore, the term *fluid* is ambiguous; it could be read either as "*externally* fluid" or as "*internally* fluid." On the external reading, "fluid time-series" is to be understood as follows:

> *Def I*: S is a fluid time-series $\equiv_{\text{def}} S$ is a series of temporal items that flows as one rigid whole in relation to something external to it.

When "fluid time-series" is read internally, it has the following sense:

> *Def II*: S is a fluid time-series $\equiv_{\text{def}} S$ is a series of temporal items that flows within irrespective of an external point of reference.

Now, in "fluid time-series" and its proxies, e.g., "the A-series," the term *series* is short for "serially ordered set." Thus, properly analyzed, "fluid time-series" is to be understood as follows:

> *Def III*: S is a fluid time-series $\equiv_{\text{def}}$ (i) S is a *serially ordered set* of temporal items; (ii) S is *fluid*.

If in *Definition III*, we read *fluid* internally; its two clauses become mutually exclusive because in the first clause, a fluid time-series is conceived as a *static* row, whereas in the second clause, it is conceived being in a state of flux. Apparently, on (i), a fluid time-series is modeled on a Dedekind-complete ordered field, or continuum, whereas on (ii), it is nothing like a continuum. On the internal reading, therefore, *Definition III* is an amalgamation of two competing conceptions of fluid time-series:

> *Def IV*: **S** is a fluid time-series $\equiv_{\text{def}}$ **S** is an *immutable* series of temporal items.
>
> *Def V*: **S** is a fluid time-series $\equiv_{\text{def}}$ **S** is a *variable* series of temporal items.

Apparently, on *Definition IV*, the *A*-series/*B*-series's distinction is a nonstarter. If, on the other hand, we adapt *Definition V*, then we have a logically specious doctrine of fluid time-series since it is an a priori truth that fluctuations within a set, temporal or not, preclude it from being an ordered series. Strictly speaking, "an internally fluid temporal series" is a contradiction in terms, for it basically amounts to "a variably ordered set of temporal items," that is, to "an unordered ordered set of temporal items."[13] As such, the notion of internally fluid temporal series is without any ontological import whatsoever; there is simply no such thing as an unordered ordered set of temporal items.

Should we then go back to *Definition IV*? It appears to be the only logically viable alternative. However, by accepting this definition, we are compelled to make the *A/B*-distinction within the framework of the external doctrine of temporal passage. On this reading, the *A*-series is different from the *B*-series in that it moves as a rigid whole with respect to something external, whereas the *B*-series is static both internally and externally. In the footnote on pages 10–11 of vol. 2 of *NE,* McTaggart offers such an account of temporal passage. He says there that, if the *A*-series flows, it must flow as a rigid whole, in relation to the *B*-series, which itself must be stationary. The converse picture of temporal passage, he adds, is that of the *B*-series sliding along a stationary and internally static *A*-series (see Figure 2).
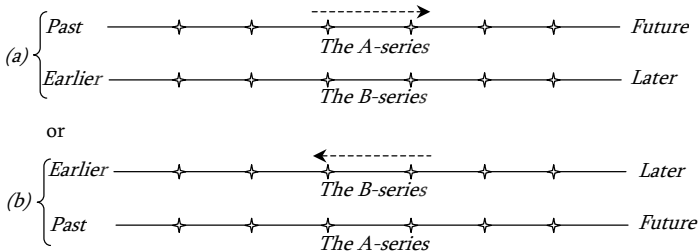

Figure 2

Apparently, McTaggart's external doctrine of temporal passage stems from his realization of an a priori truth that, if the *A*-series is a bona fide series, it must be internally unchanging, as all series are. This leads him to find the external doctrine of temporal passage to be the only logically viable alternative. Yet, in the literature on the topic, the external doctrine of temporal passage is generally overlooked. This neglect is due to the peculiarity of McTaggart's style. He talks more often about the *A*-series in terms of monadic properties, then in terms of dyadic relations. Indeed, the very contrast between the *A*- and *B*-series is cast in terms of the contrast between monadic properties and relations.

Moreover, in 1927 version, McTaggart deemed it necessary to append the original formulation of the concept of the *B*-series by bringing into play the set-theoretic language of simple ordering (see quotation on page 390). Thus, textually, there is a clear sense that, on one hand, events and moments exemplify monadic properties of pastness, presentness, and futurity; and on the other, they stand in two-place relations of earlier than/later than and in the equivalence relation of simultaneity. More importantly, the very spirit of McTaggart's temporal transience paradox turns on the idea of events/moments being able to exemplify mutually exclusive properties of pastness, presentness, and futurity. If the paradox makes sense at all, it makes sense in terms of the instantiation of the first-order properties of pastness, presentness, and futurity over a second-order time. Yet, as we have seen, McTaggart does hold the *A*-characteristic to be genuine relations. How, then, should we reconcile this apparent inconsistency? Which should we hold—that the *A*-series involves monadic properties or dyadic relations? McTaggart appears to be of two minds on this. The contradictory nature of the *A*-series, he says, "would arise in the same way supposing that pastness, presentness and futurity were original qualities, and not, as we have decided that they are relations" (*NE* §332).[14]

Let us now turn to McTaggart's temporal transience paradox.

THE TEMPORAL TRANSIENCE PARADOX

In the literature on the topic, the temporal transience paradox is usually interpreted along the following lines: pastness, presentness, and futurity are *ipso facto* incompatible properties. Yet, if time passes, any event instantiates all three temporal properties. We can symbolize this twofold claim as follows:

(1) $Pe \supset (\neg Ne \ \& \ \neg Fe)$; $Ne \supset (\neg Pe \ \& \ \neg Fe)$; $Fe \supset (\neg Ne \ \& \ \neg Pe)$,

(2) $Pe \ \& \ Ne \ \& \ Fe$.[15]

Apparently, (1) and (2) are incompatible, but if time flows, McTaggart argues, both must be true; hence, the paradox. This is how McTaggart lays out the claim:

> Past, present, and future are incompatible determinations. Every event must be one or the other, but no event can be more than one. If I say that any event is past, that implies that it is neither present nor future, and so with others. . . . The characteristics, therefore, are incompatible. But every event has them all. 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 the three characteristics belong to each event (*NE* §329).

As it stands, the temporal transience paradox is rather an oddball.[16] Surely, from the fact that a past event *e* instantiates the properties __is past, __has been present, and __has been future, it does not follow that *e* instantiates properties __is past, __is present, and __is future. Indeed, the converse follows because the property __is present ≠ the property __has been present and the property __is future ≠ the property __has been future.

Yet, there is more to McTaggart's paradox than meets the eye. The air of fallaciousness that surrounds it is due solely to the haphazardness of McTaggart's way of reasoning. In fact, McTaggart is fully aware of the seeming strangeness of his claim, and he readily acknowledges, in the passage that immediately follows the articulation of the paradox, that a natural way to counter it would be to say that events do not instantiate all three temporal properties simultaneously.[17]

What then exactly is McTaggart's contention? What should we take the temporal transience paradox to be? Having acknowledged that pastness, presentness, and futurity are incompatible properties only if they are instantiated simultaneously, McTaggart invites us to consider an alternative possibility: namely, that they are instantiated *successively*, as, for instance, when an event *e is* present, *will be* past, and *has been* future, and then he 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?" (*NE* §331) In answering these questions, McTaggart invokes the notion of *ordinary* property instantiation over time: "When we say that *X* has been *Y*, we are asserting *X* to be *Y* at a moment of past time. When we say *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" (*NE* § 331). Let us represent this idea of ordinary property instantiation over time as follows:
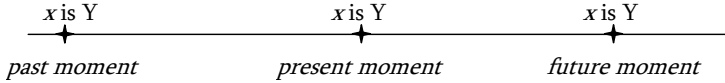
x is Y	*x* is Y	*x* is Y
past moment	*present moment*	*future moment*

Figure 3

McTaggart then assumes without argument that the same mechanics are in play in the case of temporal property instantiation, thus, in effect, positing a second-order time: "Thus our first statement about *M*—that it is present, will be past, and has been future—means that *M* is present at a moment of present time, past at some moment of future time, and future at some moment of past time" (*NE* § 331). This claim can be represented graphically by Figure 4, on analogy with Figure 3:

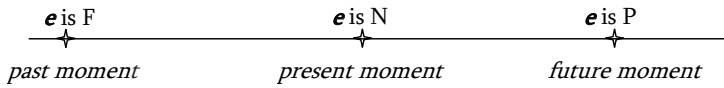| *e* is F	*e* is N	*e* is P
past moment	*present moment*	*future moment*

Figure 4

McTaggart, it seems, is motivated in this argument by the grammatical similarity between statements expressing ordinary and temporal property instantiation, e.g., "*x* is red" and "*x* is past." This leads him to conclude that, since ordinary property instantiation is a process and since all processes unfold over time, instantiation of temporal properties, being a process, must unfold over time as well; only that unlike ordinary property instantiation, it must unfold over a *second-order* time. It must be stressed that McTaggart does not argue, as Mellor thinks he does, that "because each event is always changing its *A*-times, it has to have them all."[18] Let us symbolize Mellor's claim as follows:

(3) the *A*-series exists ⊃ (P*e* & N*e* & F*e*).

It is patently clear that (3) is simply false, or rather, as E. Lowe points out, it is incoherent.[19]

The significance of the paradox, as I see it, is in McTaggart's analysis of simple-tense predications, which is as follows:

(i) "*e* is past" = "there is a time *t*, such that *e* has pastness at *t* and *t* is *not* the *A*-series."

(ii) "*e* is present" = "there is a time *t*, such that *e* has presentness at *t* and *t* is *not* the *A*-series."

(iii) "*e* is future" = "there is a time *t*, such that *e* has futurity at *t* and *t* is *not* the *A*-series."

It is these P@*t*, N@*t*, and F@*t* relations that are the crux of the temporal transience paradox because the process of instantiation of

A-properties at times is *prima facie* a process that unfolds over a second-order time. Clearly, P@t, N@t, and F@t essentially amount to t @t . We may wish to express this idea symbolically as follows:

(4) Pe ≡ (Pe@t) & Ne ≡ (Ne@t) & Fe ≡ (Fe@t).

Since (4) commits us to a second-order time, the question arises whether we are dealing here with A-or B-second-order time. In *NE* §331, McTaggart explicitly states that these higher-order times are A-times. Hence, we are dealing here with the instantiation of first-order A-properties over second-order A-times. But the second-order pastness, presentness, and futurity too are instantiated successively because they are no less incompatible with one another than the first-order A-properties. We thus have a vicious infinite regress.[20]

We can now see that the spirit of the paradox is not that events instantiate all three temporal properties in tandem but that the instantiation of A-properties entails a second-order A-time and so *ad infinitum*. What McTaggart should have said is that, as far as the instantiation of A-properties is concerned, we have only two alternative scenarios: either they are instantiated simultaneously or successively. And then he should have shown that neither alternative is viable. This would have been decisive. Instead, he chose to posit an unargued assumption that the contradiction arises at the first level of instantiation only to disclaim it immediately thereafter as patently nonsensical. This unwieldy strategy can be completely avoided if we take the paradox to be not the conjunction of (1) and (2) but as the dichotomy expressed in (5):

(5) the A-series exists ≡ ((Pe@t) & (Ne@t) & (Fe@t)) ∨ (*Pe & Ne & Fe*)).

So construed, the paradox has the form of a catch-22: either pastness, presentness, and futurity are instantiated *successively*, and thus over a second-order A-time and so *ad infinitum*; or if not, they are then instantiated *simultaneously*, which is blatantly absurd. Whichever horn of the dilemma one chooses, the outcome is the same—the reality of A-time must be rejected.[21]

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NOTES

1.   J. M. E. McTaggart, "The Unreality of Time," *Mind* 17 (1908): 457–74. An augmented version of the argument makes up chapter 33 of McTaggart's

unfinished magnum opus *The Nature of Existence,* ed. C. D. Broad (Cambridge: Cambridge University Press, 1927). When quoting, I will refer to "The Unreality of Time" as *UT*, followed by page number; and to *The Nature of Existence* as *NE*, followed by section number. For the most part, I will be citing the latter.

2.   This is essentially a Hegelian view as opposed to Kantian conception of time, according to which time is a conceptual construct superimposed on reality. McTaggart is explicit about the distinction and says that his views resemble those of "Hegel rather than those of Kant. Hegel regarded the order of time-series as a reflection, though a distorted reflection, of something in the real nature of the timeless reality, while Kant does not seem to have contemplated the possibility that anything in the nature of the noumenon should correspond to the time-order which appears in the phenomenon" (*NE* §350).

3.   T. L. S. Sprigge ("The Unreality of Time," *Proceedings of the Aristotelian Society* 92 [1992]: 1–19) and this author are rather rare exceptions. Mathematicians and physicists, on the other hand, are more open to the idea of the unreality of time. Consult, for instance, Kurt Gödel, "A Remark about the Relationship between Relativity Theory and Idealistic Philosophy," in *Albert Einstein: Scientist-Philosopher*, ed. P. A. Schilpp (Evanston, IL: Library of Living Philosophers, 1949); and more recently, P. Yourgrau, *The Disappearance of Time* (Cambridge: Cambridge University Press, 1991) and J. Barbour, *The End of Time* (Oxford, New York: Oxford University Press, 1999).

4.   The most prominent static-time theorists are B. Russell ("On the Experience of Time," *The Monist* 25 [1915]: 212–33); D. C. Williams ("The Myth of Passage," *The Journal of Philosophy* 48 [1951]: 457–72); W. V. Quine ("Identity, Ostension, and Hypostasis," in *From a Logical Point of View* [Evanston, IL: Harper & Row, 1963]); J. J. Smart ("The River of Time," *Mind* 58 [1949]: 483–94); D. H. Mellor (*Real Time II* [London: Routledge, 1998]); and T. Sider (*Four-Dimensionalism* [Oxford: Clarendon Press, 2001]). The fluid-time theorists are lesser in numbers but not in stature; among them, we find A. Prior (*Past, Present, and Future* [Oxford: The Clarendon Press, 1967]); P. Geach ("Some Problems about Time" in *Logic Matters* [Berkeley: University of California Press, 1972]); P. Ludlow (*Semantics, Tense, and Time* [Cambridge: Cambridge University Press, 1999]); and W. L. Craig (*The Tensed Theory of Time* [Dordecht: Kluwer, 2000]). Among hybrid-time theorists, the following names stand out: C. D. Broad (*Scientific Thought* [New York: Harcourt, Brace and Company, 1923]); G. Schlesinger (*Aspects of Time* [Indianapolis: Hackett Publishing Company, 1980]); M. Tooley (*Time, Tense and Causation* [Oxford: Clarendon Press, 1997]); and D. Zimmerman ("The A-Theory of Time, the B-Theory of Time and 'Taking Tense Seriously'," *Dialectica* 59 [2005]: 401–57).

5.   An alternative yet ontologically equivalent image of temporal passage would be that of time flowing from the past, through the present, and into the future. Basically, the difference between these two images of temporal passage is that either we conceive of the world as a stationary object and of time as a wind, of a sort, unceasingly blowing from the future; or we envisage the world as itself inexorably moving from the province of the past into the land of the future, riding, as it were, the tidal wave of time. On the two temporal passage metaphors

consult, for instance, J. J. Smart ("The River of Time," 484) who speaks of "the metaphor of time as a river which flows or a sea through which we sail."

6.   D. H. Mellor, "The Time of Our Lives," in *Philosophy at the New Millennium*, ed. Anthony O'Hear, 45–59 (Cambridge: Cambridge University Press, 2001), 59.

7.   Of course, we habitually observe orders of succession, e.g., an order of appearance of actors on the theater stage. But in what sense is this a fluid order? If an actor *A* appears before an actor *B*, then *A* always before *B*; otherwise, we would have a different order of appearance. Thus, it is fluid in a purely psychological sense as, for instance, counting a static row of objects is fluid in a purely psychological sense; it is fluid to the counter, but that which is counted remains static.

8.   McTaggart is not consistent on this point. The inconsistency is especially evident in view of the fact that his temporal transience paradox is best parsed in terms of pastness, presentness, and futurity being monadic properties. I shall say more on the issue in due course.

9.   C. D. Broad, *The Examination of McTaggart's Philosophy* (Cambridge: Cambridge University Press, 1938), 289.

10.   J. J. Thomson ("McTaggart on Time," *Philosophical Perspectives* 15 [2001]: 229–52) advances a similar "indistinguishably" thesis. She points out that, on condition that the *A*- and *B*-series are comprised of the same elements and given that the order of these elements is exactly the same, then the *A*- and *B*-series are identical in all relevant respects.

11.   Recently, Clifford Williams argued against the *A*-time/*B*-time distinction from an opposite standpoint. He contends that the distinction must be abandoned because transience is an essential feature of both *A*- and *B*-time. This thesis Williams calls "the transition argument." He indeed maintains that the two types of temporal passage are indistinguishable in principle; this is his indistinguishablility thesis. See Williams, "The Metaphysics of A- and B-Time," *The Philosophical Quarterly* 46 (1996): 371–81; "A Bergsonian Approach to A- and B- Time," *Philosophy* 73 (1998): 379–93; and "Beyond A-and B-Time," *Philosophia* 31 (2003): 75–91.

12.   Compare this account of temporal passage with Isaac Newton's account of absolute time: "Absolute, true, and mathematical time, of itself, and from its own nature, flows equally without relation to anything external, and by another name is called duration" (*Principa*, ed. F. Cajori [Berkeley: University of California Press, 1947], 6).

13.   It may be argued at this point that internal fluidity of a time-series does not necessarily entail its being in the state of flux, for it might move as one monolithic whole. To this objection, I will simply reply that, in this case, we would be dealing with the external example of temporal fluidity.

14.   It appears that McTaggart acknowledges, however tacitly, that there are two radically different strains in his temporal transience paradox: one involving

the idea of pastness, presentness, and futurity being monadic properties and the other involving the idea of their being dyadic relations. These two strains, however, are so intricately intertwined that it is almost impossible to tell them apart.

15.   This construal of the paradox is present in D. H. Mellor (*Real Time II*); Steven Savitt ("A Limited Defense of Passage," *American Philosophical Quarterly* 38 [2001]: 261–70); N. Oaklander (*The Ontology of Time* [New York: Prometheus Books, 2004]); and many others.

16.   D. M. Zimmerman ("The A-Theory of Time") deems it to be McTaggart's "worst argument" and agrees with C. D. Broad's characterization of it as a "philosophical howler." In the hundred years since the inception of the paradox, several interpretations of it have been advanced. As a rule, *A*-theorists are critical of the paradox's underlying logical structure; they, therefore, reject its metaphysical import. In contrast, *B*-theorists tend to overlook the paradox's logical blemishes and prefer to accentuate its far-reaching metaphysical consequences. To date, no consensus has been reached about the paradox's logical validity or soundness of its metaphysics. For positive assessment of the paradox, see, for instance, M. Dummett ("A Defense of McTaggart's Proof of the Unreality of Time," *The Philosophical Review* 69 [1960]: 497–504); D. H Mellor (*Real Time II*); and N. Oaklander (*Ontology of Time*). For negative assessments, see, for instance, C. D. Broad (*Examination of McTaggart's Philosophy*), G. N. Schlesinger (*Aspects of Time*), and S. Savitt ("A Limited Defense of Passage").

17.   N. Oaklander (*Ontology of Time*, 53), in his defense of the paradox, aptly points out that "McTaggart does *not* begin by assuming that every event is (timelessly or simultaneously) past, present, and future, but rather he denies it. Thus, the common critique of McTaggart that he errs at the first step by *assuming* every event is past, present and future is a non sequitur."

18.   D. H. Mellor (*Real Time II*), 73.

19.   E. J. Lowe, "The Indexical Fallacy in McTaggart's Proof of the Unreality of Time, *Mind* 96 (1987): 62–70.

20.   There is a question whether McTaggart's regress is vicious (consult, for instance, the exchange between Q. Smith ("The Infinite Regress of Temporal Attributions" in *The New Theory of Time*, ed. N. Oaklander and Q. Smith, 180–94 [New Haven, CT: Yale University Press, 1984]) and N. Oaklander ("McTaggart's Paradox and the Infinite Regress of Temporal Attributions: A Reply to Smith" in *The New Theory of Time*, 195–201). It was also suggested to me by Professor G. Priest that, in my explication of McTaggart's regress, the question has been left answered. I would like to take an opportunity to reply to the charge. I believe all infinite regresses are *epistemologically* vicious since they defer explanations indefinitely. McTaggart's regress certainly does fit this category.

21.   I am grateful to Michel Levin and Graham Priest for helpful comments on earlier versions of this paper.