

COULD WE EXPERIENCE THE PASSAGE OF TIME?

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Abstract

It is usually taken for granted that we *could* experience the passage of time. Since it seems to us that we experience the passage of time it is therefore assumed that we have prima facie reason to believe that time passes. But this is false; the passage of time could not be an object of experience because it could not cause, shape or influence temporal experience in any way. After explaining each premise of the argument I discuss several objections that are likely to be raised. I also discuss some related epistemic arguments against the passage of time given by Huw Price and David Braddon-Mitchell along with objections raised against them by Tim Maudlin and Peter Forrest respectively.

1. Introduction

A-theorists, presentists, 'Growing Block' theorists and assorted others all claim that time *passes*. B-theorists, among whom I count myself, claim that it does not. According to B-theorists the world has a temporal *order* that can be expressed in terms of relations of *earlier* and *later* (a 'B-series') but there is no temporal passage and no time that is uniquely and mind-independently *present*. Most B-theorists have defended their view by appeal to McTaggart's paradox or by arguing for ways to give tenseless truth conditions for tensed utterances.¹ While I think there is merit to many of these arguments I shall not add to them here. Instead I shall focus on another issue: the question of whether we could *experience* the passage of time.²

What we *call* 'the experience of temporal passage' – the sensation of time *moving* or of our somehow moving *through* time – is familiar to everyone. Advocates of temporal passage take this experience at face value as an experience of a mind-independent feature of reality. It is thus tacitly assumed that the putative mind-independent passage of time *could* be experienced. This assumption is rarely scrutinised; yet, I shall argue, it is false. Moreover

its falsehood entails that time does not pass. This reverses the usual way of viewing matters; most temporal passage theorists assume that experience supports their view and that the onus is on the B-theorist to account for the illusion of temporal passage in a way that is consistent with the B-theory. It is true that the B-theorist must eventually produce such an account; doing so is an important and neglected project in the philosophy of mind. But accounting for a veridical experience of real temporal passage is far harder.

Very roughly, my argument runs as follows. The main reason for believing in temporal passage is to account for the nature of experience. Yet the nature of experience is fixed once the B-series facts are fixed, and the putative passage of time would be epiphenomenal with respect to B-series facts. Consequently the passage of time has no role in shaping experience and hence it cannot be experienced. Moreover one cannot coherently argue for its existence without claiming that it is experienced, for we have no grasp of what it is supposed to be except through experience. I first describe the argument in more detail then I discuss a number of objections that are likely to be raised.

2. The argument

The argument rests on several assumptions:

- (1) It is a feature of conscious experience that time seems to pass

Assumption (1) should not be controversial; the literature is full of descriptions of the experience of temporal passage as well as claims that B-theorists owe an explanation of why time *seems* to pass, given their claim that it does not. Presumably no one thinks that temporal passage is directly perceived through the outer senses in the same way as colours, sounds and so on. One cannot literally see or hear time passing; for what would it look like, or sound like? Rather, if time passes then it passes everywhere and in everything and is something of which one is *aware*, but in a way that is not

specific to a sensory modality. I have said that time could not be *experienced*, but I am happy to use the word 'perceived' provided it is not understood as relating only to the visual, auditory, tactile, olfactory and gustatory senses. Either way, time seeming to pass is a feature of conscious experience with a distinctive phenomenology.

- (2) The nature of conscious experience is the main motivation for believing in temporal passage

Passage theorists are not always explicit about their motivation, probably because all parties regard their view as the natural, intuitive one to hold. When the reason for believing in passage is discussed the nature of experience is usually cited. For example, commenting on Russell's denial of the passage of time in favour of an early version of the B-theory, Peter van Inwagen (2002, p. 64) writes:

I am very strongly inclined to believe that Russell's theory does "leave out" an aspect of reality that is represented to us by that feature of our experience that, however inappropriately, we pick out by the words 'the sensation of temporal motion'.

Similarly, D. C. Williams claimed that the most convincing reason for believing in temporal passage was:

...simply that we *find* passage, that we are immediately and poignantly involved in the jerk and whoosh of process, the felt flow of one moment into the next (1951: 466).

These sentiments are found frequently in the literature and I certainly do not deny their force.³ Without the 'sensation of temporal motion' it is hard to see how anyone would come to believe that time passed or even to understand what is meant by 'the passage of time'. It is hard to see how it could be adequately described in terms that made no reference to experience.

It might be possible to give arguments that did not appeal to experience in support of a metaphysics that is naturally *associated* with the passage of time. In such cases, however, the passage of time must be argued for separately and an appeal to experience remains unavoidable. Consider presentism, the view that apart from atemporal entities such as abstract objects (if they exist) only what is present is real. One might argue for presentism in a way that made no appeal to features of experience. But although it seems natural to associate presentism with temporal passage, presentism need not be taken to entail temporal passage. Yet presentism without temporal passage would not, I assume, be plausible even to those who find it plausible otherwise. It would be a kind of temporal solipsism where only the present exists and nothing ever changes. It would seem to leave out an aspect of reality represented to us through experience, just as van Inwagen suggests Russell's B-theory does.

- (3) The conscious experiences of each individual subject nomologically supervene on the physical state of the world.

One way to define 'physicalism' is that everything that has a psychology can be explained in terms of the same theoretical framework as every material entity that does not have a psychology (that is, in terms of the same ontology and the same set of natural laws). A weaker definition would say that the mental supervenes on the physical with metaphysical necessity. This weaker definition allows for non-reductive physicalism. While physicalism of at least the weaker kind is becoming ever more widely accepted there remains significant controversy, with property dualism still popular among a significant number of philosophers.⁴

Fortunately, however, for our purposes a still weaker claim of *nomological* supervenience will suffice. The mental *nomologically* supervenes on the physical if and only if in any nomological duplicate of the actual world the set of psychological truths about that world is entailed by the set of physical truths about that world. So although the psychological facts need not be physical facts, and might not even be necessitated by the physical facts, they are at least nomically dependent on the physical facts by virtue of the laws of

nature in the actual and similar worlds. This is a view that most modern property dualists could accept (though in my opinion their view of conscious experience suffers similar problems to those I shall discuss in relation to the passage of time).⁵ In fact we can make the claim even weaker by relativising to an individual subject, as indicated in assumption (3). This allows for one subject to have an inverted spectrum relative to a physical duplicate, for example. It requires only that the conscious experiences of each individual be entailed by their physical states in a law-like manner, even if there are no such laws that apply to multiple individuals. This is a very weak claim that only an interactionist dualist would disagree with. I doubt that interactionist dualism would provide a satisfactory response to the argument that I shall give, but given the relative lack of popularity of the view these days I shall not discuss it further here.

- (4) The (putative) passage of time would be epiphenomenal with respect to the physical state of the world

By 'epiphenomenal' I mean that the passage of time neither causes nor in any sense influences or determines physical events. Insofar as physical events can be accounted for the account is in terms of physics or at least in terms of what supervenes on the physical, and no appeal to the passage of time plays a role in any such account. I shall argue for this at greater length below. For now I shall move straight on in order to show where the argument leads. Assumptions (3) and (4) entail that the passage of time is epiphenomenal with respect to experience and hence:

- (5) We cannot experience the passage of time.

I shall say more about the entailment from assumptions (3) and (4) to (5) below and deal with objections that I expect to be raised. One final assumption is needed:

- (6) Our grasp of what is meant by 'the passage of time' derives from the nature of experience.

What I intend by (6) is that there are certain putative features of the world whose nature one cannot adequately grasp, at least in practice, except through experience of those very features. Colours are an obvious example; even if one could be given a definition of redness in terms of reflectance properties there would remain an important sense in which one would not really grasp what redness was unless one had experienced it. Without colour experience we would probably never have individuated colours or named them in the first place. The same is true of the passage of time. It is hard to see how one could describe what is meant by 'the passage of time' without reference to experience. One can give a *kind* of definition of passage in terms of the objectivity of A-series properties such as *pastness*, *presentness* and *futurity*, but these properties would similarly be grasped only in relation to experience.

Returning to the analogy with colour, suppose that in the past redness had been taken to be an as yet undiscovered mind-independent property such as a reflectance property of some kind. Suppose that it were then discovered that experiences of phenomenal redness were due to an internal brain process that was not correlated with external states of affairs at all; experiences of phenomenal redness were more akin to headaches or dizzy spells than to visual perceptions of external features of the world and any apparent correlation between the sensations and the presence of putatively red objects was just coincidence. In those circumstances we should say that it turned out that we had not been experiencing a mind-independent property of redness and indeed that no such property existed, though we might carry on using the word 'red' in talking about our conscious states. No one could coherently argue that mind-independent redness did indeed exist, but was not experienced. For whatever mind-independent features of reality there might be, none of them would deserve to be called 'redness' because our grasp of what redness is derives from experience. Something similar can be said for the passage of time; if the experiences that we *call* experiences of temporal

passage are not experiences of a mind-independent feature of reality then no one can coherently argue that time does indeed pass even though we do not experience it. Whatever mind-independent features of reality there might be, none of them could deserve to be called the passage of time.

From the above assumptions we can conclude:

Conclusion: There is no real passage of time. What we refer to by 'the passage of time' is an illusory feature of conscious experience.

It is necessary to say something further in defence of assumptions (4) and (5). It will help to focus on the reports people make about their temporal experiences. Consider a report of this kind, such as Williams or van Inwagen's comments quoted above. The writing or uttering of these words was, or at least involved, a physical event; a change in the physical state of the world took place. Assumption (4) implies that while physical events can have various physical causes and can be explained in terms of these, the passage of time is not a cause of physical events and has no role of any kind in shaping the physical world. Consider an analogy with epiphenomenal qualia, putative phenomenal states that have no effects on the physical world. The problem with such states is that we can report on our conscious states, and these reports are, or at least involve, physical events. Epiphenomenal qualia by definition cannot shape our experiential reports, so those reports could not be reports of epiphenomenal qualia, even if there were such things. But it seems undeniable that our reports concern our experiences, so even if there were epiphenomenal qualia they would not be what we experienced. Yet this seems absurd; our only grasp of what epiphenomenal qualia were would come through our experiences. So we should conclude that no such things exist.

Now, why would the passage of time be similarly epiphenomenal? The answer is that neither temporal passage nor the associated A-series properties of objective *pastness*, *presentness* or *futurity* are held to play a role in *shaping* the physical world. One can describe the physical world and the way in

which its state at one time depends on its state at other times in B-series terms; given an arrangement of matter at one time the nomologically possible arrangements of matter at earlier and later times are constrained only by the laws of physics and not in any way by real temporal passage. This is not to presuppose that time, as it appears in physical theory, does not pass. Neither is it to assume that the B-series is fundamental. The assumption is merely that the laws of physics can be captured in B-series terms (without assuming that these are more fundamental than A-series properties), and that the nature of experience, and the nature of the experiential reports that we make, is thus fixed by facts that can be stated in B-series terms. What a person says about their experiences is determined by the state of the world at earlier times and perhaps by some indeterministic randomness, but not by the A-series property of the time at which the utterance occurs or by anything else relating to temporal passage. A-properties are supposed to change as time passes; an event that is in the future becomes present and then past. But the B-series facts remain constant throughout, so A-series properties vary independently of the B-series. A-series properties and the associated temporal passage are therefore epiphenomenal with respect to the B-series and with respect to any facts that can be stated in purely B-series terms.

To put this another way, since temporal passage is a matter of metaphysics rather than physics the laws of physics can be expressed in a way that makes no commitment regarding temporal passage. These laws determine the four-dimensional *shape* of the world (that is, the shape of a space-time diagram of the world) but they need say nothing about temporal passage. Consequently the four-dimensional shape of the world – the sequence of events that occur – is not influenced or determined by temporal passage. So the passage of time is epiphenomenal – it has no role to play in shaping the physical world, and hence (by assumption 4) it has no role in shaping experience. The nature of experience is independent of the putative passage of time.

3. Responses to objections

I suspect that a number of objections will be raised to the above argument, so I shall respond to all of the objections that I am aware of. Some are of my own creation, but many have been raised by others in conversations on this topic. In discussing the objections I hope to make the argument clearer and to add some further points.

Objection 1: Assumption (1) is false. Our awareness of temporal passage comes through our differing *attitudes* to events with different A-properties (*pastness, presentness* and *futurity*), and this has nothing to do with experience or perception. As Prior (1959) famously observed, one has different attitudes to past and future events just because they are *past* or *future*. One can think about future events without being causally influenced by them, and hence without experiencing them. In doing so, one thinks of them as *future*. So the passage of time is encountered as an ineliminable attitude to events rather than as a perceptual experience.

Response: My argument relies heavily on assumption (1), so this is the kind of objection that worries me the most. But I do not find it convincing. The B-theorist can explain away the naturalness of ascribing A-properties to events by analogies with spatial thought and by appeal to unarticulated constituents in thought and language.⁶ But my argument concerns temporal *passage*. One has differing attitudes to events that are *near* or *far* but one does not thereby think of space as *passing*. So why do we think time passes? One might, I suppose, argue that the very concepts of *past, present* or *future* have the notion of passage built into them, but this does not convince me. It seems to over-intellectualise the phenomenology. I can only assert what I find obvious, that at every moment we have a sense of temporal *motion* or *passage* that does not require us to think about other times and that this is why time seems to us to pass. The sense of passage is closely related to our grasp of A-properties because we take ourselves to be in the present and moving toward the future and away from the past but it is the sense of 'movement' that makes us think

time passes. Even if I am mistaken about this, however, there are still problems for temporal passage because it would still have to be explained how we grasp our concepts of *past*, *present* or *future* and how they come to be *about* the putative real A-properties. This could not be explained by appeal to experience (as one might for colour concepts, for example) because the putative A-properties could not be objects of experience.

Objection 2: Not all events have causes that can be described in the vocabulary of physics. Some events, including many mental events and actions, can only be described in a vocabulary that is not reducible to physics. Consequently we should not expect temporal experience or its causes to be accounted for using the vocabulary of physics.

Response: Suppose we grant that talk of experiences and their causes cannot be reduced to the vocabulary of physics. It remains true that if the experiences supervene on the physical state of the world (assumption (3)) they cannot be affected by anything that cannot affect the physical world.

Objection 3: Events have many causes. The passage of time is one of the background conditions that jointly cause a report of temporal experience, along with certain events that are responsible for the report occurring at one time rather than another. A feature of the world is not epiphenomenal just because it cannot cause events on its own.

Response: Compare what is said here with the effect on the world of the value of Planck's constant. It is true that Planck's constant having the value it has cannot make an event occur without the influence of other events, and it is true that one might nevertheless hold that the value of Planck's constant was among a set of conditions that jointly caused an event to occur. But the value of Planck's constant is part of a physical theory; it can be measured, and its value must be taken into account in making predictions about future events. It makes a difference to what happens in the physical world. Nothing comparable can be said about the passage of time, so there is no comparable

justification for citing the passage of time as being among the causes of the physical events involved in reports of experiences.

Objection 4: I am not aware of having seen a golden eagle. But this does not show that I have never seen one. If, as a matter of fact, a bird that I once saw in the distance was a golden eagle then I have seen a golden eagle. This is true even if my experience did not put me in a position to be justified to assert that I saw one. Similarly, if time passes, and we are aware of time, the time of which we are aware passes and therefore we experience the passage of time.

Response: The two cases are not analogous. Whereas in the first case it does not seem to me that I am seeing a golden eagle in the second case it *does* seem to me that time is passing. There is a crucial difference between seeing something that is, as a matter of fact, an *F*, and seeing something *as* an *F*. We have a rough idea of how the presence of a golden eagle at a close enough distance in a well-lit environment could produce in the subject the kind of visual sensation that we would describe as veridically seeing something *as* a golden eagle. But we have no corresponding idea of how it would be possible to veridically experience time *as* passing, even though it seems to us that we do so experience it.

Objection 5: In effect you are saying that we do not experience the passage of time because we would have the same experiences even if time did not pass. Assume for a moment that time *does* pass. Then how are we to interpret the counterfactual? The temporal passage theorist can claim that passage is essential to time, in which case there is no possible world in which time does not pass. The counterfactual would thus have a necessarily false antecedent, and standard analyses would treat it as trivially true.⁷ If we exchanged the consequent for its negation the resulting counterfactual ('if time did not pass we would *not* have the same experiences') would also be trivially true, so nothing of interest can be concluded.

Alternatively one might hold that the closest possible world in which time does not pass is a four-dimensional 'block' world isomorphic with the actual

world. But, as Tim Maudlin (2002) has pointed out in responding to epistemological arguments by D. C. Williams (1951) and Huw Price (1996), the temporal passage theorist can claim that when interpreted this way the counterfactual is false. For the temporal passage theorist holds that a 'block' world does not contain time, but only an extra spatial dimension on to which actual temporal events can be mapped. Since such a world does not contain time there is no reason to suppose it contains any experiences at all. Hence the counterfactual is false; instead, if time did not pass we would not have any experiences at all.

Response: In an earlier paper (Prosser 2000) I did put forward a counterfactual of this sort. That was a slip, but the counterfactual was just intended to illustrate an analogy with the problems facing epiphenomenal qualia. Just as the believer in epiphenomenal qualia has a problem explaining how experiential reports could be brought about by the presence of epiphenomenal qualia, so the believer in temporal passage has a problem explaining how experiential reports concerning temporal passage could be brought about by time passing. In any case, we do not need the problematic counterfactual to demonstrate that temporal passage is epiphenomenal with respect to the physical world. We need only note that the behaviour of matter is determined by the laws of physics and nothing else. The counterfactual does not appear in the argument given above.

There might nonetheless be a way to rescue a counterfactual formulation, though I shall not develop it. The problematic counterfactual does not *sound* any more trivial than 'if I were you...', which also has an impossible antecedent. Perhaps 'if I were you' should be interpreted as really meaning something like 'if I were in your situation...'. Perhaps there is a similar way of dealing with our problematic counterfactual. Alternatively, an account of such counterfactuals might be developed in terms of epistemic rather than metaphysical possibilities. There are interesting questions in philosophy of language about such statements, but I shall not pursue them here because I prefer to just express the argument in a way that avoids them.

Objection 6: If causation supports counterfactuals then there *is* a sense in which the passage of time causes the experience of the passage of time. Assume that the closest world in which time does not pass is a four-dimensional 'block' universe as described above. In such a world there is no experience at all. Consequently if time did not pass the experience of time would not occur. So there is no reason to deny that temporal passage causes temporal experience.

Response: For experience *E* to be an experience of phenomenon *P* it is not enough that *E* would occur only if *P* occurred. An experience *tracks* the phenomenon it represents, and it does so uniquely. If the reasoning above were correct it could be applied equally to any other feature of the world that is necessary for experience, or of any other feature of experience. If Planck's constant did not have roughly the value it has then we would not have experiences because matter would never become organised in the right way for conscious experiences to occur. So if Planck's constant did not have the value it has, we would not have putative experiences of the passage of time. So by the reasoning above, what we call 'experience of temporal passage' is really experience of the value of Planck's constant. But by the same reasoning it is also experience of the fact that $2 + 2 = 4$, or of the fact that the universe contains matter, and so on. An experience that is so indiscriminating cannot satisfactorily be described as experience of the passage of time. Worse still, every other experience would count as experience of the passage of time because every other experience would be such that it would not occur if time did not pass. So experience of the redness of a ripe tomato counts as experience of the passage of time. But this is absurd. Temporal experience has a distinctive phenomenology; the objection fails to show how this aspect of experience, and no other, could be an experience of temporal passage, and not something else.

Although different, the objection is reminiscent of an argument put forward by Peter Forrest (2004). Craig Bourne (2002) and David Braddon-Mitchell (2004) had both objected to the 'Growing Block' theory advocated by Forrest and others in the following way. The Growing Block theory holds that

the past is real but the future is not. The present is seen as the 'edge of Being', and reality grows as the present moves forward in time. But if the past is just as real as the present then in the past there are people having experiences. In that case, how do we know that we are not among them? How do we know that the time that we call 'the present' is present rather than past? As Braddon-Mitchell puts it, how do we know it is now *now*? This would not be a problem for presentists because they hold that only the present is real so all experiences are in the present. But no such escape is possible for the Growing Block theory. Forrest's response is to suggest that consciousness only occurs in the present; it has something to do with the *activity* that takes place at the boundary of reality. Consequently all experiences are of the present.

Note that Forrest's position commits him to epiphenomenalism about consciousness; consciousness cannot modify the physical world because if it did then the events that occurred on a given day could differ according to whether or not the day was past, present or future. Those who, like myself, reject epiphenomenalism could therefore dismiss Forrest's view on that basis. One could also note, as Chris Heathwood (2005) does, that Forrest's view removes one of the main reasons for preferring the Growing Block theory to presentism; namely that it avoids problems finding truthmakers for statements about the past. Now, the argument given by Bourne and Braddon-Mitchell against the Growing Block theory clearly has some connections to the argument given above against temporal passage. That it is not the *same* argument can, however, be seen from the fact that Bourne and Braddon-Mitchell's argument does not apply to presentism whereas mine does. Bourne and Braddon-Mitchell's argument concerns whether we can distinguish the present from the past; my argument concerns whether we can experience temporal passage. And even if Forrest's 'dead past' view rescues him from Bourne and Braddon-Mitchell's argument, it does not rescue him from mine. The 'dead past' view explains nothing about how we could experience temporal passage.

Objection 7: Even if the nature of subjective experience does not prove that time passes, that does not show that one cannot experience the passage of

time. Veridical perception can be subjectively indistinguishable from illusion or hallucination yet many philosophers deny that this shows that we cannot directly perceive objects. By analogy, the temporal passage theorist can say that it is not necessary for experiencing the passage of time that our subjective states be consistent only with the passage of time, and not with the B-theory.

Response: The analogy is not a good one; our inability to tell whether our subjective states are veridical is not the point. The point is that we have no idea how they could *be* veridical experiences of temporal passage. In uncontroversial cases of perception such as seeing a ripe tomato we have a story to tell about how veridical perception works. The story needs considerable refinement but cognitive science is making progress with this. Whatever the details, the story at least involves light reflecting from the tomato, striking the retina and triggering light sensitive cells which send signals to the occipital cortex modifying the brain's state. In an illusion or hallucination presumably some identical modifications occur but through a deviant causal chain. We have no corresponding story to explain how we could experience the passage of time even in veridical cases. There does not seem to be any way for the passage of time to modify brain states or to play any role in making it the case that the brain is in whatever state it is in. Hence there is no way for the passage of time to be in any way responsible for the nature of temporal experience, even in a veridical case.

Objection 8: Too strong an analogy is being made with perception. In visual perception a physical event causes a modification of the pattern of retinal stimulation resulting in a modification of the brain state and a visual experience of the event. Perhaps it is true that the passage of time could not modify a brain state in a comparable way. But the passage of time is not an event; it is continuous and is experienced continuously, so the brain's state does not have to be *modified* in order for the passage of time to be experienced.

Response: Nevertheless in order for an experience to be *of* something the experienced feature of the world had better have a role in determining the phenomenology of the experience otherwise, as I urged above, there would be nothing to make one phenomenal feature the experience of temporal passage rather than another. Moreover experiential reports are events and are presumably caused by the experiences to which they refer, which must in turn be influenced by whatever they are experiences of. Consequently, as emphasised above, the passage theorist must account not only for how temporal passage could shape temporal experience but also for how it could thereby have a role in bringing about the physical events involved in reports of temporal experience.

4. Conclusions

I believe that the arguments above constitute a convincing case against the passage of time. But even if there turn out to be further objections to the argument I hope that I have at least made it clear that defenders of temporal passage face a serious challenge to account satisfactorily for temporal experience. Although the B-theorist also faces a problem in accounting for temporal experience no argument has been given to show that this is impossible. The situation is thus not symmetrical between temporal passage and the B-theory, for only one faces an argument that shows it to be impossible to account for temporal experience.⁸

NOTES

¹ See for example the papers collected in Oaklander and Smith.

² I first sketched the argument that follows in Prosser 2000. Here I defend it in more detail, add some points and deal with some objections.

³ Another good example is Craig 2000 (e.g. pp. 138, 164-5) who claims that experience is a “defeater-defeater that overwhelms any B-theoretic arguments against the reality of tense” (2000: 138).

⁴ The best known in recent years is David Chalmers (1996).

⁵ Chalmers is an example of a property dualist who accepts nomological supervenience.

⁶ See Prosser (forthcoming) for discussion of this. See also Maclaurin and Dyke 2002.

⁷ See Lewis 1973, pp. 24-5. Lewis does briefly discuss an alternative analysis that does not treat counterfactuals with impossible antecedents as trivially true, but does not adopt it. I shall not pursue alternative analyses here.

⁸ I would like to thank Adam Elga and Nick Treanor for written correspondence relating to this topic and numerous others for conversations.

REFERENCES

- Bourne, C. 2002: When am I? A Tense Time for Some Tense Theorists. *Australasian Journal of Philosophy*, 80, 359-371.
- Braddon-Mitchell, D. 2004: How do we Know it is Now Now? *Analysis*, 64, 199-203.
- Chalmers, D. J. 1996: *The Conscious Mind: In Search of a Fundamental Theory*. Oxford: Oxford University Press.
- Craig, W. L. 2000: *The Tensed Theory of Time: A Critical Examination*. Dordrecht: Kluwer Academic Publishers.
- Forrest, P. 2004: The Real but Dead Past: A Reply to Braddon-Mitchell. *Analysis*, 64, 358-362.
- Heathwood, C. 2005: The Real Price of the Dead Past: A Reply to Forrest and to Braddon-Mitchell. *Analysis*, 65, 249-251.
- Lewis, D. 1973: *Counterfactuals*. Oxford: Blackwell Publishers.
- Maclaurin, J., and H. Dyke 2002: "Thank Goodness That's Over": The Evolutionary Story. *Ratio*, 15, 276-292.
- Maudlin, T. 2002: Remarks on the Passing of Time. *Proceedings of the Aristotelian Society*, 102: 237-252.
- Oaklander, L. N. and Q. Smith (eds.) 1994: *The New Theory of Time*. New Haven and London: Yale University Press.
- Price, H. 1996: *Time's Arrow and Archimedes' Point*. Oxford: Oxford University Press.
- Prior, A. N. 1959: Thank Goodness That's Over. *Philosophy*, 34, 12-17.
- Prosser, S. 2000: A New Problem for the A-theory of Time. *The Philosophical Quarterly*, 50, 494-98.
- Prosser, S. forthcoming: Temporal Metaphysics in Z-Land. *Synthese*.
- van Inwagen, P. 2002: *Metaphysics*. Second edition. Boulder/Oxford: Westview Press.
- Williams, D. C. 1951: The Myth of Passage. *Journal of Philosophy*, 48, 457-472. Reprinted in R. Gale (ed.) *The Philosophy of Time*. Garden City, NY: Anchor, 1967, 98-116.