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Author(s): Jonathan Tallant

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What is B-time?

JONATHAN TALLANT

According to B-theorists, B-relations ('earlier than' and 'later than', see, e.g. Oaklander 2004: 24–25) constitute the reality of time. The B-relations are what distinguish our world from a timeless one. Yet our only awareness of the reality of time comes via our phenomenology of temporal passage. Why is this noteworthy? Our temporal phenomenology is mind-dependent and reflects no feature of reality. Epistemic access to the reality of time is, in fact, simply epistemic access to our own inner phenomenology. It doesn't reflect the way reality is. Hence, we have no understanding of what 'B-time' is.

1. *The mind-dependence of temporal passage*¹

There are three aspects to a B-theoretic account of mind-dependent temporal becoming: first, the sensation that each moment is 'now'; second, the sensation of passage from one moment to the next and, third, the lack of perceptual awareness of times other than the present.² To clarify the third point, at t_1 we are only aware of our mental goings on at t_1 we do not have cognitive access to our mental states at t_2, t_3, t_4 etc. According to the B-theorist, each of these features of our experience is *wholly* mind-dependent. The conjunction of the following three claims I shall refer to as B-theoretic phenomenology.

¹ Notably I do not explicitly consider Mellor's (1981, 1998) views. That I do not is due to the critique in Falk (2003) that purports to show that Mellor's account is insufficient to account for the B-theoretic phenomenology within the B-theoretic ontology.

² I discuss the phenomenology of priority below in §4.

1.1. *Experience of now-ness:*

The B-theorist endorses something like the following negative thesis:

what qualifies a physical event at a time t as belonging to the present or as now is *not* some physical attribute of the event or some relation it sustains to other *purely physical* events. (Grunbaum 1971: 206)

And the following positive thesis:

what is *necessary* so to qualify the event is that at the time t at least one human or other *mind-possessing* organism M is conceptually aware of experiencing at that time either the event itself or another event simultaneous with it in M 's reference frame. (206–7)

There is nothing intrinsic to the event that makes it 'now': the 'now-ness' is added completely by the mind of the temporally cognizant agent (see also, Dainton 2001: 178 and Baker 1979: 345–46).³

1.2. *Sensation of passage:*

For the B-theorist the sensation of temporal passage is mind-dependent and occurs *at* a moment (or moments), rather than requiring passage of the sort stipulated by the A-theorist. Williams (1994: 367) is representative.

Our experience of the moving present is different from the experience of the present being an extra, mind-independent property of events. The latter experience would support the A-theory of time if the experience existed; but the experience does not exist. The former experience exists, but its existence does not support the A-theory of time; for it is compatible with the B-theory of time, in the same way that our experience of the moving here is compatible with the B-theory of space.

The sensation of movement through time is not a sensation that reflects temporal becoming any more than our experience of movement through space reflects spatial becoming. Thus, whatever the sensation of passage does show us, it does not reflect any mind-independent feature of reality (see also, Falk 2003: e.g. 225 and Baker 1979: 345–46).

³ Oaklander (2004: 239) sees things slightly differently. According to him, for something to be 'present' is for us to judge it to be such. Since judgments are mind-dependent – the judgment that x is present reflects no genuine feature of reality – I assume that his account is compatible with the assessment that follows. Certainly, there is no mind-independent presentness according to Oaklander.

1.3. *Experience is only ever experience of one time*

As Falk (2003: 243) has it:

You [are] aware of x but not y at t_1 ; you [are] aware of y but not x at t_2 ; if y is your decisions to drop a stone, you [are] aware of it at t_2 but not before t_2 . The relation of your being aware of it, indeed your making it, holds at one time but not at another. That is all its coming into being amounts to.

More colloquially:

We too wear blinders that delimit a now. (Falk 2003: 225)

This is the standard B-theoretic line. The B-theoretic phenomenology – the phenomenology of passage and now-ness – is *purely* mind-dependent. Notably, the claim here is not that we only experience events that occur at a single time, but that our experiences appear, to us, to occur within a single ‘now’. There is no corresponding ‘now’ in reality.

2. *An analogy with colour*

Consider the following:

Mind-dependent colour:

- (i) The phenomenology of colour is *purely* mind-dependent.
- (ii) Epistemic access to colour is nothing more than access to our *purely* mind-dependent phenomenology.
- (iii) There is no mind-independent ‘colour’.

A note about premise (ii): what the predicate ‘is red’ means to us is, at least in part, the experience of redness. It is only through experiencing redness that we come to know what ‘is red’ actually denotes.⁴ Then suppose that we found that there is *nothing* mind-independent in the world to which the predicate ‘is red’ corresponds. In this imagined state, when I perceive, say, a ‘red pen’, or a ‘red bus’, we find that there is *nothing* in reality to which the experience of redness corresponds. The experience of the colour is *purely* mind-dependent.⁵ Were this to be the case we would surely presume that what it is for something to ‘be red’ is *simply* for us to have a given experience – an experience that is not a reflection of the way that the world is.

So it seems fair to grant that if epistemic access to colour is *purely* mind-dependent, then we are unwarranted in inferring the conclusion that the

⁴ Indeed, it is the experience that permits the development of the concept and thence the predicate.

⁵ Though presumably this is not true of the experience of the bus, the pen etc.

feature in question is *anything more* than mind-dependent. We are not entitled to Mind-independent colour, for instance:

Mind-independent colour:

- (i) The phenomenology of colour is *purely* mind-dependent.
- (ii) Epistemic access to colour is nothing more than access to our *purely* mind-dependent phenomenology.
- (iii) There is mind-independent colour.

We would, or so it seems, have no idea what Mind-independent colour could be, not if our experience of colour is *purely* mind-dependent. We would not be able to say what mind-independent colour *really* is, for our experience of it is of something purely mind-dependent. We would infer from the fact that colour experiences are purely mind-dependent, to the conclusion that there is no such thing as mind-independent colour.

But then compare the above with what follows:

Timeless eternalism:

- (i) The B-theoretic phenomenology is *purely* mind-dependent.
- (ii) Epistemic access to ‘time’ is nothing more than access to this mind-dependent experience of temporal passage.
- (iii) There is no mind-independent ‘time’.

And,

Timely eternalism:

- (i) The B-theoretic phenomenology is *purely* mind-dependent.⁶
- (ii) Epistemic access to ‘time’ is nothing more than access to this mind-dependent experience of temporal passage.
- (iii) *There is mind-independent time!*

3. *An argument from understanding*

Our grasp of what it means to say that ‘time is real’ derives, at least in part, from the nature of our *experience* of time.⁷ It is from our experiencing so-called temporal passage that we come to form some idea of what time might be. With colour, if we have no experience of redness, it seems that we are lacking knowledge of what it is for something to ‘be red’.

⁶ I take it, once again, that the B-eternalist would consent to this. For example Baker (1979: 345–46) holds that whatever the disanalogies with other secondary qualities – e.g. redness – that the passage of time can be described in *purely* mind-dependent terms. Even if not every B-theorist is so impugned, a considerable number (those mentioned so far) are!

⁷ Cf. premise (6) of Prosser (Forthcoming).

Likewise with time. Our experience of time is our experience of what it is like to be in time: our experience of passage,nowness etc. If we have no experience of passage or nowness, we have not *experienced* time, in the same way that if you have not experienced 'redness', you have not experienced the colour red.⁸

In the case of colour, where colour-experience does not correlate to any feature of a mind-independent reality, we have no understanding of what it would mean to say that 'colour' is mind-independent. In the imagined case, where the experience of colour is wholly mind-dependent, to say that there is some mind-*independent* correlate of colour is meaningless. We have already said that colour experience is *purely* dependent upon a mind: so how could we understand the claim that colour is mind-independent, if our experience of it is *wholly* mind-dependent?

As with the colour case, if our sole epistemic contact with the reality of time is contact with a *purely* mind-dependent phenomenology, then we cannot make a meaningful claim as to the mind-*independent* reality of temporality. Our concept 'time' is informed by our experience of the B-theoretic phenomenology. Our experience of that phenomenology is not reflecting any feature of a mind-independent reality. What is 'time' if our experience of it is experience of a *purely* mind-dependent phenomenology? It seems that we can have no *concept* of what 'time' is in the B-theory.

4. *Objections and replies*

A first reply to my arguments might go like this: premise (i), of Timely-eternalism, states something that looks to be close to a necessary truth, that the B-theoretic phenomenology is mind-dependent. After all, *all* phenomenology, so understood, is mind-dependent. So it is hard to see how the arguments here will not threaten the desire to be realists in all cases – colours, physical objects etc.

But this would be to wilfully misunderstand (i). We are not, in considerations of colour etc. *committed* to the claim that our phenomenology is *purely* mind-dependent. The more charitable way to understand such secondary qualities is as a product of the physical world *and* the mind.⁹ Which features of the physical world? According to Heil (2003: 195–204), the secondary quality of colour might be due to many factors: the internal structure of light radiation, the mind, the sub-atomic structure of the entity being viewed etc.

⁸ I deal with the slide from 'temporal passage' to 'time' below: §5.

⁹ I do not claim either of these views to be representative of Locke's original views. That is a matter for those more knowledgeable in the area of Locke's own writings. E.g. Lowe (2005: 48–58).

This more charitable reading states that a secondary quality is composite. The phenomenology of colour depends upon many things. So, typical secondary qualities aren't *purely* mind-dependent: they reflect at least *some* feature of reality – features such as the internal structure of light radiation in the case of colour. If we do have colour sensations (which we do) then they can be taken to reflect at least some aspect of how reality is. Thus, 'red' (say), is not simply 'in the mind', but is, at least in part, due to the internal structure of light radiation.

But this route does not seem open to the B-theorist. They have no such external mechanism in place. With what feature of *time* is there interaction, such that it gives rise to the experience of temporal passage? What is there to play the analogous role of 'light radiation' or, 'the sub-atomic structure of the entity being viewed'? There doesn't look to be any obvious candidate.

Second, the B-theorist might object, I have not yet told the whole story. A complete account of temporal phenomenology would include an account of priority – that is, 'what it feels like' for one experience to be earlier than another. If we can point to some feature of our temporal phenomenology that *is* B-theoretic, then we will have an obvious way to counter my argument.

The B-theorist might point to a particularly short temporal interval and some action therein, and argue that our experience of the action is structured in such a way as to represent temporal succession to us: the moving of a hand across some portion of a visual field, for example.

As Falk (2003: 233) rightly notes, the extended now of the specious present seems to be filled up with one single experience, even though that experience seems to be temporally extended. In the case of the hand moving across my visual field, it seems as if I am experiencing, if not the whole of the movement of the hand, at least a substantial portion of it. Thus, even though at any one point in time the hand is only located at a single point in space, it seems to me as if it is moving. Hence, the specious present may be said to be structured along B-theoretic lines and it is this structure that gives us our experience of B-time. Since this aspect of the experience *isn't* mind-dependent, I *am* experiencing time.

There are two objections to this line from the B-theorist. First, our experience of this 'earlier' and 'later' structure is intrinsically tensed. That is to say that when I experience the extended nature of the specious present, when I experience temporal priority, it is as a *part* of the now. There are B-theorists who have explicitly acknowledged this: 'I for one cannot have non-A-perceptions' (Falk 2003: 221).

Now put this claim in the terms of the debate: I am having a tensed experience of tenselessness. The idea seems dubious. Consider an analogous colour case. 'I am having a coloured experience of colourlessness.'

If I am having a coloured experience of colourlessness, then I am not having a colourlessness experience, since a colourless experience would be one devoid of colour. Since the experience described is a coloured experience of colourlessness it follows that the experience *cannot* actually be an experience of colourlessness. It must be an experience of colour.

Thus, the claim that I am experiencing a tensed, *tenselessness* is similarly fallacious. Whatever tensed-tenselessness is, it is not tenseless: obviously, since the term ‘tenseless’ indicates the absence of tense. Since the experience described is a tensed experience of tenselessness it follows that the experience cannot actually be an experience of tenselessness. It must be a tensed experience and tense, according to the B-theorist, is *wholly* mind-dependent. Once again, then, it seems that we shall have no conception of ‘time’ in the B-theory, for we have no experience of a genuinely tenseless relation.

My second objection is that, *even were this experience of tensed-tenselessness said to be an experience of tenselessness*, what we are experiencing cannot be the sort of thing that a B-relation is. The claim made on behalf of the B-theorist was that I am, in the extended now, experiencing B-relations. But I am experiencing these B-relations to be constitutive of ‘the now’ (e.g. Falk 2003: 232–33). I cannot be experiencing B-relations, since B-relations *are not* constitutive of a now.

If we did understand B-relations in the way we experience them, we should have to understand them as constituting a ‘now’. It is intrinsic to our experience of B-relations that they do so. To deny this would be to deny that B-relations have a feature intrinsic to our experience of them. If the B-theorist then said that B-relations lack a feature intrinsic to our experience of them I for one should have no understanding of what a B-relation is.

Since B-relations don’t compose a now – not an objective now, at any rate – I take it that the structure of the specious present is not *genuinely* B-theoretic. Thus, we still lack the requisite experience of *genuine* B-time. What we are experiencing is tensed-tenselessness – and that is not, as I have argued above, tenseless. Since the experience is *intrinsically* tensed, the experience cannot be of a B-relation and must be mind-dependent.

The final defence B-theorists might make of their position is this. We know what it is like to have one experience and, at a significantly later time, to have another experience. To have such experiences *is* to have an experience of B-relations. In having these sorts of experiences we are experiencing what it is like for B-relations to obtain.

But this seems to describe an intrinsically tensed experience. Suppose, at 12:00 I have an experience – say, that of hearing Bach’s *St John Passion*. Then, at 14:00, I hear Bach’s *St Matthew Passion*. At 12:00 I will hear the *St John Passion*, and will experience the attendant ‘whoosh and whiz’

(Williams (1951: 299) of temporal passage. I will anticipate certain future events and remember certain others. At 14:00, I will hear the *St Matthew Passion*, and will experience the attendant ‘whoosh and whiz’ of temporal passage. I will anticipate certain future events and will remember certain others; in this case, my hearing the *St John Passion*.

Each of these events, so described, is a tensed experience. The experience of ‘hearing’ the relevant Passion is a tensed experience. The act of anticipation is an act of attempting (subconsciously, or otherwise) to predict what *will* be the case.¹⁰ And remembering at least *seems* to be recalling what *was* the case. Since what *was* the case no longer *seems* to be what *is* the case, memory is tensed. So, once again, our experiences seem to be tensed.

5. *The reality of time and perception of passage*

Am I guilty of conflating our sensation of passage with the reality of time, or even begging the question against the B-theorist? After all, the B-theorist claims that the reality of time is preserved by the B-relations. They do not say that we need to preserve ‘passage’ understood in A-theoretic terms: indeed, ‘passage’ is to be explained away as mind-dependent. Time is something very different from our A-theoretic awareness of it.

First, tense is mind-dependent. Second, we come to understand what ‘time’ is through our experiences. Our experience of time is our experience of what it is like to be in time: an intrinsically tensed experience. Were we not to experience this phenomenology then we would not believe in ‘time’. For instance, if we denied that experience is only ever experience of a given now (part of the B-theoretic phenomenology), then we would have our experiences somehow ‘all-at-once’. If this were the case, then we would, presumably, not think that time was real. At least, not where the term ‘time’ is taken as semantically stable, for the phenomenology would be unrecognisable.¹¹

But ‘time’ is constituted by B-theoretic relations. If we do not come into contact with ‘time’, if we only ever come to into contact with something intrinsically tensed – e.g. mind-dependent – we *cannot* be taken to understand the nature of ‘time’, for the very notion is formed on the basis of our phenomenology that is, in fact, an illusion – it’s all tensed! What the B-theorist refers to as ‘time’, then, is not something that I understand.

In short: I *am* deriving the unreality of time from the nature of our experiences of temporal passage, but only because I believe that our understanding of what time is, and our knowledge about time, is ultimately

¹⁰ I cannot anticipate my birthday party without predicting that it *will* occur.

¹¹ Similar remarks could be made concerning ‘passage’ and ‘now-ness’. What, for instance, would time be like for us if we lacked either of these? The very notion is beyond my imagination.

founded upon our experiencing of it and those experiences are tensed. Here I seek, once more, the analogy of colour. We experience redness, so we understand what redness is. If we then say that our experience of redness is *purely* mind-dependent, but that there is *also* something in the world which is what it is to be red, then we should have no idea of what it is to be that extra thing. So, too, in the temporal case. We experience time through intrinsically tensed experiences. If we then say our experience of time is *illusory* but that there is *also* something in the world which it is to be ‘time’, something that lacks an intrinsic feature of our experience of time, then we should have no idea of what it is to be that other thing.

6. Conclusion

The claim asserted here is that we have no understanding of what the reality of B-time consists in if our temporal phenomenology is intrinsically tensed – that is to say, intrinsically mind-dependent. To be sure, the current scientific conception of time is far removed from our A-theoretic experiences. But our concept of time is still firmly rooted in the experience of it. If we deny that our experience of time is an experience ‘of time’, then the more developed scientific concept seems ill-founded. If the B-theory of time is true, we have no understanding of what time is and no way of finding out.¹²

University of Leeds
Leeds LS2 9JT, UK
j.c.tallant@leeds.ac.uk

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¹² With thanks to Andrew McGonigal, Nikk Effingham and an anonymous referee for this journal for comments on a previous draft.

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How to part ways smoothly

HUD HUDSON

Consider two temporally-continuous, spatially-unextended material objects that have a first and last moment of existence and that share all of their temporal parts up until their very last time-slice. Name them *Three* and *Nine*.

Here's something you wouldn't have expected. After a lifetime of traveling together, at their very last moment of existence, Three and Nine are a metre apart in distance, and yet neither ever changes in size or engages in discontinuous motion.

Here's how they do it.

Common is the name of their shared temporal part. As you can deduce, Common is in existence at every time Three or Nine is in existence, with the exception of their final moment. Common is restless – always on the move. At T_0 (the first moment of his existence), Common sits at the 12:00 point on a one-metre diameter wall clock. He Zeno-sprints around the perimeter of the clock from T_0 up to but not including T_{100} (the first moment of his non-existence). That is, during the first 1/2 of his life he moves from the 12:00 point to the 3:00 point, during the next 1/4 of his life he moves from 3:00 to 6:00, during the next 1/8 of his life he moves from 6:00 to 9:00, during the next 1/16 he moves from 9:00 to 12:00, during the next 1/32 of his life he moves from 12:00 to 3:00, and so on. Increasing his speed in this manner guarantees that for any distance you might choose, Common travels further than *that* (and you can tell exactly when, too) and he happily passes every point on the perimeter infinitely many times. Again, though, Common is not around to brag about his achievement at T_{100} .¹

¹ You may wish to object that if Common behaves as described he moves faster than light. Fortunately, he belongs to the sort of object for which this achievement is much less worrisome than one might think. For a quick discussion of this point see my 'Moving faster than light' *Analysis* 62: 203–5 (2002). For a more comprehensive discussion of this point with a view to some of its physical and philosophical consequences see chapter 5 of my *The Metaphysics of Hyperspace* (Oxford: Oxford University Press, 2006).