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Do we (seem to) perceive passage?

Christoph Hoerl

Abstract:

I examine some recent claims put forward by L. A. Paul, Barry Dainton and Simon Prosser, to the effect that perceptual experiences of movement and change involve an (apparent) experience of ‘passage’, in the sense at issue in debates about the metaphysics of time. Paul, Dainton and Prosser all argue that this supposed feature of perceptual experience – call it a *phenomenology of passage* – is illusory, thereby defending the view that there is no such a thing as passage, conceived of as a feature of mind-independent reality. I suggest that in fact there is no such phenomenology of passage in the first place. There is, however, a specific structural aspect of the phenomenology of perceptual experiences of movement and change that can explain how one might mistakenly come to the belief that such experiences do involve a phenomenology of passage.

Keywords: time, passage, temporal experience, illusion

Do we (seem to) perceive passage?

Some philosophers claim that perceptual experience, especially in the case of the sensory perception of movement or change, (seemingly) presents us with something that they typically refer to as ‘temporal passage’, or just ‘passage’, for short.¹ Their view, in other words, is that, as we see a ball roll across the table, or hear a note rising, we (seem to) perceive such passage occurring. Amongst philosophers holding this view, there is then a debate as to whether this feature of perceptual experience – call it a *phenomenology of passage* – lends support to the view that there is such a thing as passage, conceived of as a feature of mind-independent reality. Is there such a thing, which we come to have perceptual knowledge of when we perceive things moving or changing? Or is the impression of passage in perceptual experiences of movement and change an illusion, and there is in fact no such thing? Examining some recent arguments put forward by L. A. Paul, Barry Dainton and Simon Prosser, I want to explore the possibility that this debate may be predicated on a mistake, because there is in fact no phenomenology of passage of the type envisaged, which is part of perceptual experiences of movement and change. At first sight, this might appear an odd suggestion. How could the philosophers involved in the debate get it so wrong about what their own experiences are like? I will therefore also try to show that there is a specific structural aspect of the phenomenology of perceptual experiences of movement and change that can explain how one might mistakenly come to the belief that such experiences involve a phenomenology of passage.

¹ See, for instance, Prosser (2007), Dainton (2011, 2012), Norton (2010), and Paul (2010).

What is passage? The idea of passage, in the sense relevant to our purposes, is central to the dispute between a certain kind of reductionist about the nature of time and a certain kind of anti-reductionist about the nature of time.² For a reductionist of the type at issue here, all there is to things' moving or changing over time is for those things to occupy different spatial locations or to have different intrinsic properties (of suitable kinds) at different times. As applied specifically to motion, this view is also sometime called the 'at-at' theory of motion, which Russell (1917, p. 84) puts by saying that "[m]otion consists merely in the fact that bodies are sometimes in one place and sometimes in another, and that they are at intermediate places at intermediate times."

For an anti-reductionist, by contrast, there is more to motion and change. Indeed, for the anti-reductionist, things' occupying different spatial locations or having different intrinsic properties at different times presupposes another, more fundamental type of motion or change that times themselves, or things as they are at a time, undergo: they pass or flow from the future through the present and into the past. In other words, it is only because first *O*'s being *P* is present, and then *O*'s being *Q* is present, that *O* can be said to change from being *P* to being *Q* – the successively

² In the philosophy of time, distinctions are also sometimes being made between tensed and tenseless views of time, or between A-theories and B-theories. I concentrate on the distinction between reductionism and anti-reductionism as outlined here, since it seems to capture the dispute over the reality of passage in the most general terms. (My characterization of this distinction follows that given by Paul, 2010.) As I understand it, the reality of passage would also entail that there is an ontological difference between being future, being present, and being past, as envisaged by A-theorists, but the converse entailment does not necessarily hold, since not all views on which there is such an ontological difference can in fact account for passage (see Fine, 2005, pp. 286ff., and Velleman, 2006, p. 12, on this point).

becoming present of different states of the world is a feature of mind-independent reality that grounds the possibility of ordinary movement or change in the first place. This feature is what the idea of passage intends to capture.

The idea that experiences of movement and change involve a phenomenology of passage, correspondingly, is the idea that such experiences feature the (apparent) presentation of passage, as just described.³ I will be concerned specifically with experiences of movement and change in the sense of *perceptual* experiences, such as the experience of *seeing* a physical object moving or changing colour. I will also sometimes refer to such perceptual experiences as ‘temporal experiences’, because they present us with events unfolding over time in a certain way. Note, however, that ‘perceptual’ is meant to indicate a restriction on the notion of ‘experience’ at issue here. There are cases in which experience, more broadly understood, can ground judgements that events unfold a certain way over time, without it being the case that we can perceive them unfolding in this way. (This is an issue I will return to.) As Robin Le Poidevin puts the point,

“[we can be] indirectly aware of the passage of time when we reflect on our memories, which present the world as it was, and so a contrast with how things are now. But much more immediate than this is *seeing* the second hand move around the clock, or *hearing* a succession of notes in a piece of music,

³ The question as to whether passage is real and the question as to whether there is a phenomenology of passage are conceptually orthogonal to each other. One could, for instance, hold that passage is real but that it is a feature of reality that is not presented to us in experience. As we will go on to see, there are also philosophers who think that passage is not real, but that there is nevertheless a phenomenology of passage. Hence the ‘(apparent)’.

or *feeling* a raindrop run down your neck. There is nothing inferential, it seems, about the perception of change and motion: it is simply given in experience” (Le Poidevin, 2007, p. 87).

This paper is specifically concerned with perceptual experiences of the latter type,⁴ and with the question as to whether such experiences should be seen to involve the (seeming) presentation of passage in the sense at issue between the reductionist and the anti-reductionist described above.⁵

I

⁴ It is not clear whether, in the particular quote I have cited, Le Poidevin wants the phrase ‘the passage of time’ to be understood in the specific way intended by the anti-reductionist. But there are other passages in Le Poidevin (2007) where he clearly seems to imply that perceptual experience (seemingly) presents us with the world as the anti-reductionist has it. See also Dainton, 2012, p. 131, on the distinction between being (apparently) directly aware of the passage of time and being (apparently) aware of it only through the workings of memory.

⁵ Examples of what Le Poidevin would call indirect awareness of time are also sometimes invoked to argue against reductionism. A.N. Prior’s (1959) ‘Thank Goodness’ argument, for instance, turns on one such example. Because my focus is specifically on perceptual experience as such, arguments of this type (and reductionist rejoinders to them) are outside the scope of the present paper. For some existing rejoinders to Prior’s argument, see Mellor (1998, ch. 4), Maclaurin & Dyke (2002), Suhler & Callender (2012). See also Skow (2011) for further distinctions between different kinds of what he calls ‘arguments from experience’ for anti-reductionism. In Skow’s terminology, the type of argument at issue in the present paper is an ‘argument from the content of experience’, specifically with respect to direct perceptual experiences of movements or change.

As I have mentioned, some philosophers hold that perceptual experiences of movement and change involve a phenomenology of passage, but also that there is, in fact, no such thing as passage. We might call this an *error theory* regarding temporal experience. More specifically, according to such an error theory, to get the phenomenology of perceptual experiences of movement and change right, we have to introduce the idea that such temporal experiences (at least sometimes) involve the seeming presentation of passage as the anti-reductionist conceives of it – that is, as a mind-independent change all things in time are subjected to, which consists in their passing from the future, through the present, and into the past.⁶ Yet, at the same time, the error theorist will argue, there is no such thing – all there is to change is things’ having different properties at different times. Temporal experience is thus, in this crucial respect, systematically illusory.

⁶ My main focus will be on the idea of a phenomenology of passage in the sense implied here, namely the idea that, in experiencing things around us moving or changing, we experience those things (apparently) undergoing passage. However, a referee has asked why it should necessarily be part of the idea of a phenomenology of passage that such passage is presented in experience as a mind-independent feature of reality in that sense. I take it one thought here might be that passage might enter into the phenomenology of experiences of movement and change because those experiences themselves (seem to) undergo passage (Dainton, 2012, seems to explore something like this possibility, though he possibly uses the term ‘passage’ in a way that differs from the way I use it). Note that, on such a view, there would still be an element of mind-independence to the passage in question, even though it affects elements of my own mind. Passage, as I have described it in the previous section, is conceived of as a metaphysical feature which, if it exists, does so independently of whether we are aware of it or not. This holds true no matter whether we think of mental occurrences or purely physical ones as undergoing passage,

There is, as has been pointed out with respect to other forms of error theory, a certain dialectical awkwardness to the error theorist's position.⁷ Applied to the kind of error theory about temporal experience just outlined, the worry would run something like this. According to the theory, there is no such thing as passage; yet temporal experience is meant to involve the seeming presentation of passage. But how exactly are we to make it intelligible to ourselves what the latter is meant to come to? If there is really no such thing as the property of undergoing passage, how can we have any idea of what it would be for there to be perceptual illusions as of something having that property? Thus, it is not clear whether an error theory regarding temporal experience of the type proposed is coherent.⁸ Call this the *intelligibility problem*.

This is a very abstract way of putting the intelligibility problem. But I think we can see in a more concrete way that it has some bite by looking at some recent attempts to spell out versions of an error theory regarding temporal experience, and in particular at the role played within them by an appeal to empirical work on apparent motion. Indeed, I think it is plausible that what ultimately motivates the relevant authors' view that the phenomenon of apparent motion may be of some relevance to an error-theorist view of temporal experience is precisely a recognition of the intelligibility problem, understood along the lines just sketched. Pursuing the question

⁷ See for instance Stroud, 2000, esp. ch. 7, for a related argument regarding error theories about colour experiences.

⁸ Compare Skow (2011, p. 364): "So let us assume that time does seem to pass [in the content of experience]. [...] It can look like the B-theory is at an initial disadvantage here. [W]hat they have to explain is why our experiences represent a property (or represent things having a property) that nothing can have. And that has got to be relatively hard to do." See also Dolev, 2012, pp. 61f., for a related argument.

as to whether they adequately address it will also provide us with a better grip on what exactly the problem comes to. My main focus in what follows will be on one type of argument that has been put forward in slightly different form by L. A. Paul (2010) and Barry Dainton (2012), and another type of argument, which I believe ultimately faces similar structural difficulties, put forward by Simon Prosser (2012).

In Dainton's words, the starting point for the first type of argument I will discuss is this: "In a quite general way, our perceptions of moving objects – everyday objects, at everyday speeds – are associated with distinctively dynamic sensible appearances, *sui generis* forms of experience which are not reducible to (or composed of) sequences of static appearances" (Dainton 2012, p. 127). What Dainton here notes is a phenomenal contrast between two sorts of experiences: one in which we see an object moving, and one in which we, for instance, look at a series of photographs taken of the same moving object at one second intervals and displayed for one second each. More specifically, though, Dainton also thinks that this contrast is one that concerns a special quality the moving object appears to possess in the case when we do see it moving – that we do not just see the object as occupying different places at different times (in a sense that could be acknowledged by the reductionist), but that we also have an impression of passage (in the anti-reductionist's sense).⁹ Yet, the

⁹ As an anonymous referee has pointed out, Dainton's view could be interpreted in a way that falls short of ascribing to him the view that I am ascribing to him here. Note that Dainton himself speaks of 'dynamic qualities' being (apparently) presented in experience, rather than 'passage'. What he might have in mind by this is that there is something that is (apparently) presented in experience that the reductionist's description of change leaves out, but that that something isn't passage. One worry with this reading of his position is that the difference between 'dynamic qualities' and 'passage' may turn out to be purely verbal. Perhaps, though, Dainton thinks of such 'dynamic qualities' somewhat along

same ‘dynamic sensible appearances’ present in the case where we see what is in fact a moving object, and see it moving, can also be present when there is in fact no moving object at all – that is, in cases of apparent motion, in which all that is actually displayed are two brief stationary stimuli flashing up in quick succession in two different locations. And this, Dainton says, makes it “reasonable to conclude that our perceptual systems are responsible for creating the dynamic qualities that we perceive moving objects as possessing” (ibid.).

Much the same type of argument has also been put forward by L. A. Paul,¹⁰ who speaks of movement and change as having an ‘animated’ or ‘flow-like’ character in perception, corresponding to the idea of passage, and who provides considerable further elaboration of the specific role apparent motion is meant to play in revealing

the model of secondary qualities. On this view, the anti-reductionist claim targeted by the error-theorist would be the claim that, even though such ‘dynamic qualities’ are different from passage itself, they cannot be accounted for on a metaphysical picture of reality that excludes passage. (Compare similar claims to the effect that, say, colour experiences cannot be accounted for on a physicalist view of the mind; see Jackson, 1982.) I believe the argument I offer in what follows applies equally well to the thought that passage itself is presented in experience as to this type of ‘dynamic secondary quality’ view, and I will therefore focus on the former in what follows.

¹⁰ Dainton’s and Paul’s arguments are similar enough for my purposes in so far as both take it that apparent motion can demonstrate how the brain can generate experiences seemingly of passage, even though the objects experienced do not undergo such passage. Where Dainton in fact differs from Paul is that he nevertheless wants to say that, in such experiences, a form of passage “exists in the realm of appearances” (Dainton, 2012, p. 133) in a way not acknowledged by Paul’s version of the argument. I will set aside this latter difference (which ultimately goes back to a fundamental difference in Dainton’s and Paul’s conception of the nature of perceptual experience) for the purposes of this paper.

this animated or flow-like character to be illusory.¹¹ The main example of apparent motion she discusses has become known as *colour phi* in the philosophical literature.¹² If two distinct and differently coloured stimuli – one red, one green, say – are presented successively at some angular distance away from each other, this can result in observers having an impression of movement from the location of the first stimulus to the second, and also of an abrupt transition from red to green somewhere along that movement. (The latter constitutes a contrast with cases in which the two stimuli are of different shapes. In those cases, the impression is as of a *gradual* plastic deformation.)

Similar to Dainton, Paul thinks that colour phi can show that our brains create an illusion of passage for us. In colour phi, she says, the brain “represents the situation as though there is an animated qualitative change in a dot from red to green” (Paul, 2010, p. 351), even though the only stimuli actually presented are a stationary red dot and a stationary green dot. Furthermore, she also suggests that “this representation is as of an animated, qualitative change that is no different in character from other sorts of visual experiences as of change that we normally have as part of everyday experience” (ibid.).¹³ The thought here seems to be something like this. As

¹¹ In line with what I said in footnote 9, above, I acknowledge that there is scope for different ways of understanding how exactly Paul thinks of the relationship between the idea of movement and change having an ‘animated’ and ‘flow-like’ character in experience and the idea of passage.

¹² For the relevant empirical work, see Kolers & von Grünau, 1976. The results of this work entered the philosophical literature through Goodman (1978), and indeed it was Goodman who first suggested to Kolers the idea of carrying out an apparent motion experiment with stimuli of different colours. The term ‘colour phi’ appears to originate with Dennett (1991).

¹³ I think it is in fact far from clear whether apparent motion experiences are indeed ‘no different in character’ from the experiences we have when we look at things that are actually moving, though I will

the phenomenology of movement and change experienced in cases of colour phi clearly involves an illusion, and as the same phenomenology is also present in experiences we have when we look at things that are actually moving and/or changing, the reductionist can argue that the latter kinds of experience in fact involve illusion in the same sense. The illusion in each case is as of a motion or change that has a special 'animated' character corresponding to the anti-reductionist's idea of passage, where in fact all that is happening in front of the observer is things' being in different locations or having different colours at different times, as the reductionist has it. That is to say, just as we aren't aware, in the case of apparent motion, that all we are presented with is two differently coloured stimuli exposed at two different times, so we are not aware, in a case in which we see a real object moving and changing colour, that all we are presented with is the object occupying different locations and having different colours at different times. In each case, we also have an illusory experience as of the distinctive kind of motion or change that the notion of passage is meant to capture, which, according to the anti-reductionist, things in time undergo as they pass or flow from the future through the present and into the past. Or so the thought goes.

leave this issue aside for the purposes of my argument. Kolars himself concluded on the basis of a number of psychometric studies that "the neural mechanisms for the two types of perception must be quite different, because [they] seem to be constructed in the nervous system according to different rules" (Kolars, 1964, p. 102; see also Kolars, 1963). I will also leave aside discussion of the general philosophical idea that, if an instance of illusory experience is subjectively indistinguishable from an instance of veridical experience, any true claim about the nature of the former must also be true of the latter. As a reviewer has remarked, an idea of this sort is of course also a notorious part of the traditional 'argument from illusion' (see, e.g., Snowdon, 1992, for discussion).

Here is Paul's own description of the argument, in which she again refers to the purported illusory phenomenology of passage inherent in experiences of movement and change by saying that such experience involve an illusory sense of a 'flow' or 'animation' in the perceived movement or change.

[T]hink about our experience as of change in O from P at t_1 to Q at t_2 in the same way [that is, as illusory just as apparent motion experience is]: when we have this experience, the brain receives information from the temporal stage t_1 , in which O is P , and then information from the subsequent temporal stage t_2 , in which O is Q . The reductionist can hold that, just as with cases of apparent motion (and with colour phi in particular), we experience an illusory sense as of flow and change as the result of the brain's need to accommodate the contrasts between the stages t_1 and t_2 .

How does this work? The idea is that, just as the cognitive science suggests, the brain processes the series of inputs and produces a mental representation or experience as of O changing in some suitably animated or flowing way from being P into being Q . [...] Thus, according to the reductionist, there is no real flow or animation in changes that occur across time. Rather, a stage of one's brain creates the illusion of such flow, as the causal effect of prior stages on (this stage of) one's brain (Paul, 2010, p. 352).

I have suggested that we should see the role that the appeal to apparent motion plays in Paul's and Dainton's argument as having to do with the need to address what I called the intelligibility problem - that is to say, the problem of making intelligible, within the context of a theory that says that there is no such thing as passage, how

there can nevertheless be such a thing as an illusory phenomenology of passage.¹⁴ In Paul's terms, the appeal to apparent motion is supposed to explain how there can be an illusion of a 'real flow or animation in changes that occur across time', even though there is no such thing. On closer inspection, however, it is not at all clear whether it actually achieves this.

The problem is that, when it comes to a case of apparent motion such as colour phi (which everybody agrees involves an illusion), the reductionist's picture of reality, on its own, already seems to have enough resources to explain what the relevant contrast between appearance and reality consists in. For instance, a reductionist might say that, in colour phi, it appears that there is a continuous locational variation across time, where in fact there are just two stimuli at two discrete locations. She might also say that, in colour phi, it appears that one colour is directly (that is, without interruption) succeeded by another, when in fact there is a gap between the time when the first colour is presented and the time when the second colour is presented. And finally, she might say that, in colour phi, there appears to be

¹⁴ I am not suggesting that this is how Paul herself puts things. Indeed she might object at this point that the sentences of hers that I have quoted do not try to address the intelligibility problem, but rather simply aim to describe the cognitive mechanisms that, she believes, give rise to the (alleged) phenomenology of passage in experiences of movement and change. Yet, to show that there are cognitive mechanisms that fit this description, it is not enough to show that there are mechanisms that make us have an illusion of movement and change when in fact there is no movement and change. We also have to show how the same mechanisms could add an illusory ingredient to our experience even when we are in fact looking at genuine instances of movement and change. Otherwise, all we have shown is that there are mechanisms that make us mistake instances of the former case for instances of the latter (more on this below). I think an analogous point also applies to an argument in Huggett, 2010, pp. 113f., which is somewhat similar to Paul's.

one persisting object undergoing this variation in location and colour over time, when in fact there are only the two discrete brief stimuli. On the face of it, none of these claims requires going outside the vocabulary in which the reductionist's picture of reality is couched, but they seem sufficient to capture the sense in which we are dealing with an illusion in cases of apparent motion. Yet, if we can give an account of what the illusion in the case of colour phi amounts to that is couched entirely in the vocabulary of the reductionist, the sense in which apparent motion – and, by extension, experience of real motion and change – is also, in addition, supposed to involve an additional illusory phenomenology of passage has been left unexplained. In other words, the reductionist can accept that apparent motion manifestly involves a perceptual illusion, because of all the differences between appearance and reality just noted. But none of these differences between appearance and reality are present when we look at an object that is actually moving and abruptly changing colour. So what it is about the example of apparent motion that actually gives us reason for judging that apparent motion is illusory is of no help in giving substance to the idea of an illusory element also present in perceptual experiences of actual motion and change. The appeal to apparent motion does not in fact achieve its goal of making intelligible the idea of an illusory phenomenology of passage involved in temporal experience.

I think this is the correct response to make to Paul's and Dainton's argument. As it stands, though, I expect it is unlikely to make those who believe that there is a phenomenology of passage involved in perceptual experiences of movement and change give up that belief. For they are likely simply to insist that that phenomenology is a manifest feature of their experiences – my discussion so far may

at best have shown that it hasn't been adequately accounted for as yet.¹⁵ What this shows is that we have in effect simply swapped one type of error theory for another, albeit one of a somewhat different kind. This time, the claim is that, whilst there are some philosophers who think that there is a feature of the phenomenology of temporal experience that corresponds to the anti-reductionists' idea of passage – a phenomenology of passage – there is in fact no such feature. Again, though, this type of error-theorist claim might appear baffling. How could it seem to one that there is a certain feature present in the phenomenology of perceptual experiences of movement and change when in fact there isn't? I will try to address this issue at the end of this paper, after considering another form of error theory regarding temporal experience, put forward by Simon Prosser, according to which there is a more specific illusory aspect of perceptual experiences of movement and change that underlies the (alleged) impression of passage.

II

Whilst Prosser would agree with Paul and Dainton that perceptual experiences of movement and change involve a perceptual illusion, and that this illusion is the source of the anti-reductionist's idea of the passage of time, his overall approach is somewhat different from theirs. For one thing, he is, in some respects at least, more explicit about the need to tackle what I have called the intelligibility problem than

¹⁵ Dolev, too, notes that Paul seems to make implicit appeal to the idea of something like a 'passage quale' in motion experience; see Dolev, 2012, p. 59. See, also Prosser (2007, p. 83): "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".

Paul and Dainton are. As a result, his strategy is to first try and make plausible on independent grounds how our intuition that time passes (in the way envisaged by the anti-reductionist) might be grounded in a particular way of (mis-)representing the world. And it is only after he has done so that he brings in considerations about apparent motion in support of the claim that perceptual experiences of motion and change in fact involve the world being thus (mis-)represented.

What is the non-veridical representational content that, according to Prosser, perceptual experiences of movement and change possess, and that leads us to think of time as passing? Put briefly, Prosser thinks that such perceptual experiences misrepresent the way in which perceived objects persist through time – according to him, they in fact perdure, but we experience them as enduring. As Prosser understands it, for an object to perdure is for it to persist by having different temporal parts at different times. And he takes it that for an object to endure, by contrast, is for it to be present in its entirety at each moment at which it exists – it is for it to have no temporal parts, but only spatial parts.

How might the question as to whether objects are perceived as perduring or enduring be relevant to the issue as to whether there is a phenomenology of passage in perceptual experiences of movement and change? Here, Prosser cites as an inspiration for his position an argument put forward by David Velleman (2006). According to Velleman, our sense of time as passing is connected to the way we think of ourselves over time, especially within the context of experiential memory and anticipation. Experiential memory and anticipation, Velleman argues, involve imaginatively occupying the point of view of one's own past or future self. But as doing so is simply a matter of imagining *being* one's past or future self, the difference between the (present) subject who is doing the imagining and the (past or future) subject whose

experiences are remembered or anticipated is apt to be lost sight of in the process. The result is the illusion of an enduring self, in the sense of endurance mentioned above: “I tend to think of myself as my present self – a momentary subject whose existence is indeed complete in the here-and-now. I am tempted to say that I nevertheless persist through time because I tend to think of this self, complete in the moment, as nevertheless existing at other moments [that I remember or anticipate]” (Velleman, 2006, p. 8).

As Velleman points out, once the thought of an illusion of an enduring self understood along those lines is in place, we can also grasp how it might form the source of the idea of time as passing. He explains:

Whatever the future draws nearer to, or the past recedes from, must be something that can exist at different positions in time with its identity intact. And we have already found such a thing – or the illusion of one, at least – in the form of the enduring self. [...] I exist in my entirety at successive moments in time, thereby moving in my entirety with respect to events. As I move through time, future events draw nearer to me and past events recede. Time truly passes, in the sense that it passes *me*. (Velleman 2006, pp. 12f.)

In the present context, we need not disagree with this particular explanation Velleman gives of the source of our inclination to think that time is passing (in the way envisaged by the anti-reductionist). What matters for this paper is the way in which Prosser tries to appropriate elements of Velleman’s view to make plausible the idea of an illusory phenomenology of passage present in perceptual experiences of movement and change.

Note, first of all, that Velleman's proposal concerns what I referred to as experience 'in the broad sense' at the beginning of this paper (which is precisely why I will set aside detailed discussion of it for present purposes). That is, he connects our inclination to think of time as passing to an aspect of the relation, e.g., between current conscious experience and recollection, rather than to the phenomenology of experience narrowly construed as perceptual experience of movement and change.¹⁶ Thus, some work is required to show that we can in fact extend Velleman's proposal to show that experience in the latter, narrow sense, can give rise to an illusion as of time passing on the same grounds.

Secondly, even though it is true that Velleman thinks that the idea of time as passing rests on a confused way in which we think of ourselves as enduring when we recollect past experiences or anticipate future ones, he also believes that there is another, coherent, way of understanding what it is for something to endure (and how this is different from perduring), and that it is in fact true that some things, such as

¹⁶ In the next section, I will look at the question as to how, on a view on which there is no such thing as a phenomenology of passage in perceptual experiences of movement and change, we might nevertheless explain why some philosophers think that there is such a phenomenology of passage. If Velleman is right and the source of our inclination of time as passing are features of experience more broadly conceived (see also footnote 5), it is of course possible that part of the answer to this question lies with an illicit move from the idea that experience thus broadly conceived seems to present us with passage to the idea that experience narrowly conceived as perceptual experience of movement and change must also do so. As I will argue in the next section, though, there is also a specific feature of perceptual experiences of movement and change themselves that might explain why one might mistakenly come to think that they involve a phenomenology of passage.

material objects, endure, as thus understood, whereas others perdure.¹⁷ Briefly, the correct sense in which material objects endure rather than perdure, on Velleman's view, is that their identity is determined at each time at which they exist. The same cannot be said, e.g., for temporally extended events or processes, because what there is of an event or process at a time is typically not sufficient to determine what event or process it is – my having my foot on the ground at a certain moment, for instance, does not determine whether I am walking or running.

The obvious worry that this then raises as regards Prosser's argument is that Prosser may be correct in saying that material objects figure in perceptual experience as enduring, rather than perduring, but that there may in fact be nothing illusory about this. And if material objects figure in perceptual experience as enduring in the sense in which they do actually endure, it is at least unclear why we should think that such experiences nevertheless include an illusory phenomenology of passage. Again, it seems the only cases in which there would be a genuine illusion would be cases such as that of apparent motion, in which there is no moving material object in the first place. But, as we have seen, if that is the only illusion, nothing outside the reductionist's vocabulary is needed to describe it.

For both of these reasons, I believe it is important to see that Prosser's appeal to apparent motion is not a mere add-on to or further illustration of his argument, but that, just as in Paul and Dainton, it plays a crucial role in his attempt to make intelligible the idea of an illusory phenomenology of passage involved in experiences of movement and change.

¹⁷ See Hofweber & Velleman, 2011; see also Haslanger's (2003) related criticism of positions on which the existence of perdurance is incompatible with that of endurance.

Consider, then, the following thought-experiment, which Prosser develops to support his view, which turns on the idea of an imaginary being that does not experience apparent motion.¹⁸

Suppose [...] that there were a being who did not experience [apparent motion] and instead only experienced quicker and quicker sequences of still images, without motion or change. Suppose this being had an unlimited mental capacity and powers of discrimination; then, in the limit, the sequence would be experienced as a continuum of still images, yet still with no motion or change of any kind. This is more or less what experience would be like if objects were represented in experience as perduring; there would be representations of time-slices of objects at different positions, perhaps understood as related to one another as parts of the persisting whole (perhaps in a manner analogous to the way in which dots in a grid may be seen as grouped into objects consisting of rows or columns). But there would be no experience of dynamic motion or change. (Prosser, 2012, p. 112)

It is not entirely clear exactly what sort of example Prosser has in mind at the beginning of this quotation, but clearly, for his argument to work, it would also have

¹⁸ Prosser (2012, p. 112) also argues that apparent motion is evidence that our “perceptual system is ‘lazy’ – it no longer ‘bothers’ to separate the still images as separate identities and instead puts them together as one single moving object, numerically identical throughout”. Yet, it is unclear how this is supposed to support the idea that perceptual experiences of real motion involve a misrepresentation of the metaphysical status of the perceived object, since in those cases there is in fact a single moving object.

to cover cases such as perceiving a billiard ball rolling across a table. That is to say, Prosser would presumably want to argue that in that case, too, the imaginary being he envisages would in fact just experience a ‘continuum of still images’. If that is the case, though, his argument rests on a conflation regarding the notion of a ‘still image’.¹⁹ The stimuli used in apparent motion experiments, or the images that are projected onto a cinema screen are indeed ‘still’ images, in the sense that each of them is projected onto the screen *for an interval of time*, and doesn’t move or change during that interval of time.²⁰ In the case of the rolling billiard ball, however, there simply is no interval during which the ball does not change its position during that interval.²¹ Thus, the idea that Prosser’s imaginary being could nevertheless see the progress of the billiard ball as a succession of ‘still images’ makes no sense, unless that being’s experiences misrepresent how things are.²²

¹⁹ A similar conflation can also be seen in the passages I quoted from Dainton (2012, p. 127) towards the beginning of the previous section.

²⁰ Indeed, how to create the intermittent movement that makes it possible for each individual frame on the film strip to be stationary for a brief period of time so that it can be exposed (in the camera) or projected onto the screen (by the projector) was one of the key engineering challenges of early cinema.

²¹ That’s at least if we assume such motion to be continuous, which seems to be an implication of what Prosser is saying. In the next paragraph, we will actually see that continuity of motion isn’t even the key issue.

²² This is in fact just a different way of putting part of the ‘at-at’ theorist’s response to the paradox of motion: Motion may seem paradoxical, the ‘at-at’ theorist will argue, if we think that a moving object must be at rest at any particular instant during its journey, because it occupies only one place at any such instant. The appearance of paradox is removed, the ‘at-at’ theorist will say, once we acknowledge that whether or not an object is in motion or at rest is not a matter of what is the case with the object at one instant, but with where it is located across different instants. (See also the description of the reductionist’s position at the beginning of this paper.)

This, however, is ultimately only a side issue, and it is important not to let it obscure a further problem with the above passage from Prosser, which I think is even more directly relevant to the present paper. The problem that I have in mind concerns the precise role that continuity of movement, or lack thereof, is supposed to play in Prosser's argument. He appears to think that we perceive a moving object as enduring, rather than perduring, because we do not perceive its movement as being made up of a succession of phases in which it remains still at different positions. Yet arguably this is just what we do perceive in certain kinds of cases, and it doesn't seem true that, in those cases, we have a different impression of the metaphysical nature of the object that is moving than when we see it in apparent continuous motion. The movement of the second hand on my wristwatch, for instance, is clearly discontinuous. As it moves through 6 degrees (which it does every second), it beats around 5 times, meaning that it stops for a very brief moment in one position, before inching forward to the next position.²³ But I have to say that this does not incline me in the slightest towards thinking of the second hand of my watch as persisting through time in a different way from the way I ordinarily think of, say, rolling billiard balls as persisting.

Thus Prosser, too, like Paul and Dainton, ultimately does not provide convincing grounds for the view that perceptual experiences of movement and change involve a phenomenology of passage, where that is to mean that objects are not just perceived to be at different places or have different properties at different times, but that their movement and change is also experienced to have some additional quality that a reductionist could not account for. But again this leaves us with a similar

²³ The same is likely to be the case with the second hand on your wristwatch, unless your watch is a great deal more expensive than mine.

question as that noted at the end of the previous section. Prosser is clearly trying to describe an aspect of his own experience and give an account of it.²⁴ As such, he is likely to (and has every right to) find any suggestion that there is no such aspect unconvincing, unless it is backed up by some account as to how one might come to believe that there is such an aspect, even if there isn't.

In general, we might say that if there is no *perceptual* illusion of the sort envisaged by those who speak of an illusory phenomenology of passage, there must be a form of *cognitive* illusion they are under, which leads them to say that there is. Thus, what is needed here is some form of diagnosis of how the idea of a phenomenology of passage might be grounded in a genuine insight into an aspect of the phenomenology of temporal experience, but get it wrong about what that aspect is. I will now try to offer such a diagnosis.

III

I want to suggest that the idea of a phenomenology of passage, as an ingredient in perceptual experiences of motion and change, conflates what are in fact two quite different distinctions regarding the phenomenology of temporal experience.

First of all, there are various sorts of distinctions to be made amongst the sorts of temporal phenomena that we can (in favourable circumstances) directly encounter *within* perceptual experience: for instance, abrupt changes versus gradual ones, continuous motion versus discontinuous motion, or events involving one persisting object moving and/or changing versus events involving two or more distinct entities

²⁴ See again the quotation in footnote 15, above.

enjoying a brief existence in succession. In effect, the responses I have given above to the arguments by Paul and Dainton and by Prosser, respectively, turn crucially on pointing out distinctions of this type. Essentially, what I have argued is that the authors in question mistakenly single out perceptual experiences (apparently) featuring one particular subset of temporal phenomena of the kinds just listed as ‘experiences as of passage’, with the implication that we need to resort to the anti-reductionist’s vocabulary to describe them. As against this, I have suggested, the reductionist should protest that her view does in fact have sufficient resources to capture all the relevant temporal phenomena, and the differences between them, in her own terminology.

But why might one even be tempted to think that there is a certain class of perceptual experiences in which one is not just presented with things’ being one way at one time, and them being another way a little later, but in which that change also appears to have an ‘animated’ or ‘flow-like’ character – some additional *je ne sais quoi* that might be seen to correspond to the anti-reductionist’s idea of passage? To diagnose what might stand behind that temptation, I think we need to bring in a further distinction, which I already mentioned briefly at the beginning of this paper.²⁵

On any plausible theory of temporal experience, there has to be a distinction between certain temporal phenomena that we can directly perceive, and others that we can’t. To use C. D. Broad’s example, we can *see* the movement of the second hand of a watch but not that of the hour hand, because the movement of the hour hand is too slow to be perceived.²⁶ We can’t see the movement of the hour hand, although it, too,

²⁵ And which I also alluded to when I contrasted Prosser’s approach with Velleman’s.

²⁶ See Broad, 1923, p. 351. It is Broad’s example in the sense that his discussion of it is arguably the most influential. Locke (1975 [1690], II. xiv. 11) already uses the example of the hands of a clock to

is in fact moving, and although we can tell, by checking the watch periodically and seeing the hour hand occupy different positions, that it is moving.

What I want to argue is that the idea of a phenomenology of passage, as an ingredient in perceptual experiences of movement and change, involves a conflation between the *correct* thought that only some changes can be perceptually experienced (others being too slow to be perceived), and the *incorrect* thought that some perceptual experiences involve not just an awareness of change, but that the change in question is itself experienced to have some special further ('animated' or 'flow-like') quality. It is of course true, as Broad's example of the hour hand of a clock illustrates, that sometimes all that we have are experiences of an object occupying different locations at different times, without us ever actually perceptually experiencing the object moving. Similarly, in a case in which an object changed colour only very slowly, all we might have are experiences of the object having different colours at different times, without us actually being able to *see* the change in colour occurring.²⁷ But it is a mistake to conclude from this that perceptual experiences of the latter type, in which we do have a direct perceptual experience of an object moving or changing, must involve something else being presented in experience in addition to the object occupying a series of different positions at different times or having different colours at different times. Rather, the explanation of the difference is to be sought in the basic thought – noted, amongst others, by William James (1890, p. 629) and Edmund

point out that sometimes we can tell of something "that it hath moved, yet the Motion itself we perceive not". A version of the example can also be found in Wertheimer, 1912, p. 162. See also Phillips (2011) for a recent discussion of how we can account for the idea of 'motion too slow to be perceived'.

²⁷ See Russell's (1927, p. 281) example of a chameleon that changes colour very slowly.

Husserl (1990 [1928], p. 12) – that there is a difference between a (mere) succession of experiences and an experience of succession. The sense in which we may, in some cases, experience an object occupying different positions or having different colours at different times, without seeing the object moving or changing colour, is that, in those cases, all we can do is see the object being in one position or having one colour whilst recalling seeing it being in a different position or having another colour. That is what explains the difference in phenomenology from the case in which we can actually see the object moving or changing colour.²⁸

One way of putting the point here is that there is indeed a sense in which, in our experience, the movement of the second hand of a clock, for instance, is more ‘animated’ than that of the hour hand. But the reason for that is not that the hour hand is merely experienced to occupy different positions in succession whereas there is

²⁸ The distinction at issue here is central to any theory according to which perceptual experience takes in more than what is the case at an instant, but there is also a limit to the interval perceptual experience can take in (for some different ways of articulating this idea, see, e.g., Tye, 2003, ch. 4; Grush, 2009; Phillips, 2011; Soteriou, 2011). This basic idea is a key feature of both *retentionalist* and *extensionalist* approaches to temporal experience, though they articulate it slightly differently. In retentionalist theories such as Husserl’s, retention is conceived of as a feature of perceptual experience that allows perception itself to encompass what is just-past (that is, a limited stretch of time in the past) alongside what is present. As such, it is to be contrasted with recollection, which can be of the more remote past, but which, rather than being an *aspect* of perceptual experience, operates by *reproducing* perceptual experiences. Extensionalist theories maintain that episodes of perceptual experience themselves extend over an interval of clock time, and that this can explain how we can be perceptually aware of movement and/or change. Again, though, this interval – the ‘specious present’ – is conceived to be of limited duration, thus making it the case that some movements or changes that might be discerned over longer periods over time cannot be directly perceived. For a comprehensive discussion of both retentionalism and extensionalism see Dainton (2010).

something different, and in addition, that we experience in the case of the second hand. Rather, it is because of a structural difference in the way in which we become aware of the movement in each case. In other words, we can experience the movement of the second hand in quite a different sense from that in which we can experience the movement of the hour hand. In the case of the second hand, we are dealing with temporal experience narrowly construed as perceptual experience: the movement – that is, the hand’s successively occupying different positions – can simply be *seen*. By contrast, in as far as we can be said to experience the movement of the hour hand, too, the relevant notion of experience is a different, broader one.²⁹ We cannot see the hour hand move, although we can know that it has moved because we can see it occupy one position now, and recall seeing it occupy a different position earlier.

IV

²⁹ As mentioned in footnote 5, above, there are of course also attempts to make sense of the idea of a phenomenology of passage in the context of this broader notion of experience, e.g. in Prior’s (1959) ‘Thank Goodness’ argument. I have not tried to address such attempts in this paper. However, my argument might be seen to share a common structure with reductionist responses to arguments such as Prior’s. In effect, what I am arguing for is that the idea of a phenomenology of passage inherent in perceptual experiences of movement and change rests on a mistake regarding certain features of our own psychology. Similarly, the general thrust of the responses to Prior I mentioned in footnote 5 is that any impression of passage that might be associated with experience in the broader sense at issue in his example is due to features of our own psychology, rather than reflecting an awareness of some mind-independent feature of reality. As such, the present paper can be seen as providing an extension of their approach.

To sum up, what I am suggesting is that the idea of a phenomenology of passage, as an ingredient in perceptual experiences of movement and change, rests upon a mistake about a particular structural aspect of the phenomenology of experiences of movement and change. That aspect consists in there being a phenomenological difference between perceiving something's being one way whilst recalling it being another way, on the one hand, and actually having a perceptual experience of the thing moving or changing, on the other. And the mistake consists in conflating that difference with a difference between two sorts of things that we can supposedly have perceptual experiences *of* – an object simply occupying different positions (and/or varying in other properties) at different times versus some special additional feature corresponding to the anti-reductionist's idea of passage. However, once it is recognized that it is in fact differences of the first kind that motivate the idea of a phenomenology of passage, it also becomes open to the reductionist to argue that what appears to be seen in colour phi, and what is actually seen in cases of veridical perception of motion and change, is in fact simply variation over time in a thing's location and/or other properties. Contrary to the idea of a phenomenology of passage, all that is in fact presented to us in perceptual experience are changes and movements that are just as the reductionist has it.³⁰

³⁰ Parts of this paper were presented at the conference 'Do we need a new physics of "passage"?' in Cape Town in December 2012, at a Graduate Research Seminar of the Centre for Consciousness and Self Consciousness at Warwick, and at Ludwig Maximilians Universität Munich. I thank members of the audience on these occasions for discussion. I also thank two anonymous referees for this journal for their comments.

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