

Passage and Perception

Simon Prosser

University of St Andrews

1. Introduction

I shall refer to all theories according to which time passes (including dynamic versions of presentism, ‘growing block’ theories, ‘shrinking tree’ theories, and so on) under the umbrella term ‘A-theory’, and I shall use the term ‘B-theory’ in the standard way to refer to the theory according to which time does not pass, and although events are ordered in time there is no objective present time.¹ Many philosophers, both A- and B-theorists, have agreed that in experience we are, or at least seem to be, aware of time passing:

...We are not only aware of [the passage of time] when we reflect on our memories of what has happened. We just see time passing in front of us, in the movement of a second hand around a clock, or the falling of sand through an hourglass, or indeed any motion or change at all. (Le Poidevin, 2007: 76)

Let me begin this inquiry with the simple but fundamental fact that the flow of time, or passage, as it is known, is given in experience, that it is as indubitable an aspect of our perception of the world as the sights and sounds that come in upon us, even though it is not the peculiar property of a special sense. (Schuster 1986: 695)

Does our impression of the flow of time, or the division of time into past, present and future, tell us nothing at all about how time *is* as opposed to how it merely appears to us muddle-headed humans? ...as a human being, I find it impossible to relinquish the

¹ For simplicity I shall ignore theories opposed to the B-theory that deny passage, such as non-passage versions of presentism or theories that posit irreducibly perspectival facts but deny passage. The former can probably accept the arguments of this paper (which is not to say that such theories are plausible), though the latter may well face similar problems to theories that posit passage.

sensation of a flowing time and a moving present moment. It is something so basic to my experience of the world that I am repelled by the claim that it is only an illusion or misperception. It seems to me that there is an aspect of time of great significance that we have so far overlooked in our description of the physical universe. (Davies 1995: 275)

[Experience is] a defeater-defeater that overwhelms any B-theoretic arguments against the reality of tense. (Craig 2000: 138)

This is often cited by A-theorists as a strong reason to accept the A-theory; we should accept that time passes because we *perceive* it passing. B-theorists, by contrast, face the burden of explaining away the illusion (as they see it) of time passing.

I shall give two main arguments. The first shows that experience does not favour the A-theory over the B-theory, because experience would be exactly the same whichever theory was true. The second argument shows that even if the A-theory were true the experience of passage would nonetheless be an illusion, for it is not possible for the passage of time to be perceived. This is because there can be no unique relation between passage and the relevant phenomenology of the kind needed to make that phenomenology a perception of passage. Finally I shall argue that since the experience of passage is necessarily illusory we cannot even make sense of the notion of objective temporal passage. I thus conclude that the B-theory is true.

2. *The Argument from Indiscriminability*

Perhaps, despite the admitted pull of the phenomenology, one should immediately be suspicious of the claim that experience favours the A-theory over the B-theory; for we do not usually expect metaphysical differences to be discriminable through perception. In any case, in order for perception to allow us to discriminate between the truth-values of opposing claims it must make a difference to experience which of the claims is true. For any two conditions A and B if the *phenomenal character* ('what it is like') of the subject's conscious experience would be the same whether A or B were true then that experience does not allow the subject to discriminate between

A and B. Consequently if experience were to help decide between the A-theory and the B-theory then the two theories would have to have different consequences regarding the phenomenal character of experience.

There are, however, reasons for doubting this. On the face of it the A- and B-theorist agree on which physical facts there are, at least in the sense that they agree on which sentences, expressed in the vocabulary of physics, are true (I shall temporarily ignore the possibility that they disagree about the intrinsic *nature* of the physical facts; this is discussed below). They agree, in other words, on the spatiotemporal distribution of matter and the laws that describe that distribution. Consequently, if they accept the supervenience of the mental on the physical in the world in question (the actual world, say) then they ought to agree on which conscious states there are. But if that is correct then it makes no difference to the phenomenal character of experience whether the A- or B-theory is correct; therefore experience cannot favour one theory over the other.²

Huw Price seems to have had a broadly similar argument in mind in the following passage:

Arguments of this kind [the A-theoretic appeal to experience] need to be treated with caution, however. After all, how would things seem if time did not flow? If we suppose for the moment that there is an objective flow of time, we seem to be able to imagine a world which would be just like ours, except that it would be a four-dimensional block universe rather than a three-dimensional dynamic one. It is easy to see how to map events-at-times in the dynamic universe onto events-at-temporal locations in the block universe. Among other things, our individual mental states get mapped over, moment by moment. But then surely our copies in the block universe would have the same experiences that we do – in which case they are not distinctive of a dynamic universe after all. (Price 1996: 14-15.)

Tim Maudlin has objected to Price's argument. Commenting on the B-theoretic 'block universe' described in the above passage he remarks:

² I discussed similar arguments to this in Prosser 2000, 2007.

True, there is a mapping from bits of this world to bits of our own, but (unless one has already begged the central question) the state of this world is so unlike the physical state of anything in our universe, that to suppose that there are mental states at all is completely unfounded. (Maudlin 2002: 251)

Maudlin accepts the supervenience of the mental on the physical, but denies that the supervenience base in a B-theoretic ‘block’ world would consist of genuinely corresponding physical states at all. On Maudlin’s view, the causal interactions involved in physical processes are essentially dynamic; the static ‘block’ of the B-theory would contain no such dynamic causation, and so no real physical processes at all. Consequently there is no reason to suppose that there would be conscious experience in such a world; and so no reason to suppose that our experiences are equally consistent with both the A- and B-theories. On the contrary, on Maudlin’s view, if the B-theory were true there would be no conscious experiences at all. Hence ‘none of the arguments for the epistemic inaccessibility of the direction of the passage of time goes through without already begging the question at hand’ (Maudlin 2002: 252. The context suggests that Maudlin intends his claim to apply to the passage, not just the direction, of time).³

For the sake of argument I shall grant the conditional claim that if the A-theorist is right that a ‘dynamic’ physical world is necessary for experience, then the very existence of conscious experience entails the falsity of the B-theory. Even so, Maudlin’s argument fails. The problem is that the entailment from experience to

³ The argument I gave above assumes the supervenience of the mental on the physical, as does Price’s argument insofar as it assumes that where the physical events can be mapped from A-world to B-world, so can the corresponding mental events (perhaps Price could also be read as holding that *all* events could be mapped from A-world to B-world regardless of supervenience; but I think a similar point to Maudlin’s, regarding the supposed essentially dynamic nature of causation and the importance of this for experience, would still apply). What Maudlin points out is, in effect, that such arguments only work if the physical facts are construed ‘structurally’ such that they can be common to the A- and B-worlds despite the difference in the intrinsic nature of those worlds. Maudlin’s position is thus slightly akin to the views recently discussed by David Chalmers (1996, 2009) and Daniel Stoljar (2001) under the heading of *neutral monism*, according to which the intrinsic properties of the physical world, not merely its dispositional/structural properties, have a crucial role in determining conscious experience. Maudlin is thus seeing the B-world as akin to the way a neutral monist sees a ‘zombie’ world: it is a world that lacks the intrinsic features required for consciousness. The reply given below acknowledges the possibility that the intrinsic nature of the physical world might matter, but notes that it begs the question to assume that this nature has to be A-theoretic rather than B-theoretic in order for there to be consciousness.

passage should only be accepted by someone who already accepts the A-theory. The B-theorist will, of course, deny Maudlin's claim that the B-theoretic 'block' world contains no conscious experience. On the contrary, they will say, we are conscious and live in just such a world; it begs the question to assume otherwise. Hence both theories, on their own terms, predict the same experiences. So for someone who has not already decided which theory is correct, experience does not favour one theory over the other.

One might, however, make a different kind of epistemic claim based on the line of thought to which Maudlin appeals. Disjunctive theories of perception allow that objective features of the world can be perceived despite the possibility of subjectively indistinguishable hallucinations. The broad idea is that provided one is not, as a matter of fact, hallucinating, and instead one's perceptual apparatus is functioning correctly, then one's perceptual experiences are suitably sensitive to the state of one's environment. One can therefore perceive one's environment, even though one is not in a position to determine, through experience alone, that one is not in a hallucinatory condition in which one's experiences would not be sensitive to one's environment at all. The 'good disjunct' thus consists in genuine perception, even though the subjectively indistinguishable 'bad disjunct' does not.

In a loosely analogous way, an A-theorist might argue as follows. It is true that experience, in itself, fails to favour the A-theory, for the reasons given above. But this does not show that one cannot perceive the passage of time; it shows only that one's experience cannot, by itself, distinguish between the 'bad disjunct' possibility that the B-theory is true, in which case passage is an illusion, and the 'good disjunct' possibility that the A-theory is true, in which case passage is perceived. The analogy is somewhat inexact because the different disjuncts belong to different putative metaphysical possibilities, but might nonetheless seem enough to allow for passage to be perceived. One might further try to supplement this line of thought with arguments to the effect that if the A-theory is true then one can thereby come to know that time passes, even if one is not in a position to know that one knows. The committed A-theorist might thus dismiss the B-theory as a kind of sceptical scenario comparable to the hypothesis that one is a brain in a vat.

Note, however, that there is nothing in this line of argument that could help someone decide whether the A-theory or B-theory was true if they were genuinely undecided about this, any more than an equivalent move could help someone decide whether or not they were a brain in a vat if they were similarly undecided. The arguments thus far show, then, that experience does not favour the A-theory over the B-theory; though it has not so far been shown that the passage of time could not be perceived if the A-theory were true. In the next section, however, I shall argue that even if the A-theory were true the passage of time could not be perceived.

3. The Argument from Uniqueness of Perceptual Relations

3.1 Passage and phenomenal character

The argument is simple, but I shall have to discuss it at length to make it fully clear. It can, however, be summarised as follows. We have experiences with various phenomenal characters, and these constitute perceptions of various worldly features (I shall use the word ‘feature’ as a neutral way of referring to whatever can be perceived; so if objects can be perceived then they count as features, and the same goes for properties, states of affairs, etc.) For a given subject, at a given time, there is a one-to-one mapping from phenomenal characters of perceptual states to perceived features. It is not plausible that this is a brute fact; perceptual relations are either reducible to, or at least supervene upon, facts about the world that are specifiable in terms that make no reference to perception. But the passage of time cannot be related to a phenomenal character in this way; for there are no facts of the kind needed to ground a unique mapping between a phenomenal character and the passage of time such that the former is a perception of the latter. There is, in other words, nothing that could make it the case that the perception of passage concerns one phenomenal character rather than another; and nothing that could make it the case that the phenomenal character in question is a perception of passage, rather than of something else.

Before discussing the argument in more detail I shall digress, in this section, to say a little more about the phenomenal character associated with temporal passage. This is necessary because I have found, in conversation, that the notion of a phenomenal character associated with the experience of temporal passage can cause confusions that might obscure the force of the argument.

First, some terminology. Two experiences differ in phenomenal character just if what it is like to have one experience differs from what it is like to have the other. A subject's overall experience at a time typically comprises a set of different phenomenal characters; when one sees a red object and a blue object simultaneously one can distinguish the 'red' phenomenal character from the 'blue' phenomenal character in one's visual experience, for example. I assume nothing else about the individuation of phenomenal characters; I do not, for example, assume that they can be counted. I shall use the symbols ' $P_1, P_2, P_3 \dots$ ' to stand for experiences (elements of an overall subjective state) differentiated by their different phenomenal characters. When speaking of the phenomenal character of an experience I shall use the corresponding symbol in boldface; thus for any i , P_i is an experience with phenomenal character P_i . For simplicity when speaking informally, however, I shall sometimes use the same set of symbols ' P_i ' to denote either experience-tokens, experience-types or their phenomenal characters, allowing context to disambiguate. I shall use ' T ' to mean either 'time passes' or 'the passage of time' (again, depending on context).

I assume throughout that there is something that it is like for us by virtue of which time seems to pass, and which A-theorists interpret as a perception of time passing; and thus a phenomenal character P_T associated with passage. To deny this would be to deny the phenomenology described by the quotations at the start of this paper. I think this would be implausible; but in any case, the A-theorist to whom I am opposed claims that the passage of time is perceived, and it is hard to see how this could be true unless there were some associated phenomenology. P_T can thus be assumed as common ground.

Note, however, that I make no further assumption about the nature of P_T or its relation to other elements of experience. P_T is *whatever* element of phenomenal character exists by virtue of which the world appears A-theoretic rather than B-

theoretic. It need not be assumed, for example, that P_T is an ‘extra’ element of experience that is added to, or in principle detachable from, other elements. It is, for example, entirely consistent with the above assumptions that passage is experienced by virtue of the way change is experienced; perhaps change is experienced as having a ‘dynamic’ nature as opposed to the B-theorist’s ‘at-at’ notion of change (according to which there is change if $F\text{-at-}t_1 \ \& \ \neg F\text{-at-}t_2$), and perhaps this is all there is to experiencing time as passing. Something like this is suggested in the quotation by Robin Le Poidevin, above. Nonetheless there would still have to be some element of what it is like to experience change as dynamic that makes it seem that way to us; and hence a phenomenal character P_T .

Alternatively, I have heard it suggested that passage experience consists in a ‘way’ in which everything is experienced; that passage experience *infuses* all experiences rather than adding to them.⁴ But insofar as this is a clear claim, it does not threaten the existence of P_T . In culinary contexts we speak of infusing one type of food with another. But the effect of this is only that in addition to the normal taste of the food one also tastes the substance with which it is infused; the two tastes remain distinguishable, with distinct phenomenal characters. So, by analogy, the notion that passage infuses all experience offers no reason to deny that passage experience has a distinct phenomenal character.

Extending the analogy, let us suppose, instead, that there were a way of infusing one food with another so that the two tastes merged and became indistinguishable, perhaps due to a chemical reaction. Someone tasting the resulting blend would not be able to identify the individual tastes. But the analogous claim would seem to be that our experiences are somehow *altered* by passage, yet not in such a way that one can distinguish passage separately. But if experience contains no discernible ‘passage’ element it is unclear how this differs from denying passage phenomenology altogether. Moreover, the proposal fails to capture anything in common between different experiences, and thus fails to account for the strong intuition that time seems to pass no matter what experiences one has. If there is a discernible common element, as presumably there is, then there is a common phenomenal character P_T .

⁴ Something of this kind has been suggested to me in conversation a number of times. My apologies for not being able to recall who suggested the word ‘infusion’ for this.

One final possibility is that there is no single, common phenomenal character P_T but instead different phenomenal characters providing the ‘passage’ aspect in different experiences. This strikes me as implausible but I shall not discuss it at length because the argument that follows would still work in just the same way even if it were true.

3.2 *The uniqueness of perceptual relations*

I can now state my objection to the perception of passage in more detail. Consider a token experience, P_1 , that is a perception of some worldly feature F_1 . It is controversial exactly what makes P_1 a *perception* of F_1 , though it is commonly held to involve causation, counterfactual dependence, or something of that sort (see below). It is not a brute fact that P_1 is related to F_1 as a perception of it; it is true because of some other facts.

Consider now a subject who, in addition to P_1 , also has a token experience P_2 that is a perception of a different feature F_2 . There is a one-to-one mapping from the phenomenal characters at a given time to the worldly features; P_1 is a perception of F_1 , not F_2 , and P_2 is a perception of F_2 , not F_1 . More generally, for token perceptual experiences $P_1, P_2, P_3 \dots$ and perceived features $F_1, F_2, F_3 \dots$ there is a one-to-one mapping from every P_i to the corresponding F_i . Again, this unique mapping is not a brute fact. It is a constraint on any theory of perception that it entails that token perceptual experiences map onto perceived features in this unique way. Call this the *uniqueness constraint* on perceptual relations.

My contention is that no plausible theory of perception could satisfy the uniqueness constraint if the passage of time were perceived. In light of the uniqueness constraint the A-theorist faces two challenges: firstly, to make it clear why only P_T , and not another phenomenal character, is a perception of T (call this the *uniqueness of P_T*); and secondly to make it clear why P_T is a perception of T , and not another feature (call this the *uniqueness of T*). I shall discuss these challenges in turn, arguing that neither can be met. I shall thus conclude that the passage of time cannot be perceived.

3.3 The uniqueness of P_T

The uniqueness of P_T is a distant cousin of a condition that H. H. Price (1954: 70) tried to capture through his distinction between *standing* and *differential* conditions. A standing condition is an object whose presence is necessary for any of the sense-data in the current experience; whereas a differential condition is an object whose presence is necessary for some, but not all, of the sense-data in the current experience. Only differential conditions can be perceived. Price's distinction is problematic in a number of ways but nonetheless aims to capture a sound intuition: that if, at some time, a subject's overall experience comprises a variety of different perceptual phenomenal characters then in order for just one of these to be a perception of feature F it must be the case that the presence of F is not equally responsible for the presence of all of the phenomenal characters.

With this in mind we can immediately see a problem for the A-theory. In section 2 we considered Maudlin's claim that if the A-theory is true then, since there are no experiences in the B-theoretic 'block' world, experience entails passage:

$$(1) \quad \Box \forall i (P_i \rightarrow T)$$

In order for P_T to be a perception of passage there must be more to the relation between P_T and T than is captured by (1), since (1) states a relation that holds equally between T and every member of P_i . Moreover if T is a condition for there being any experience whatsoever then in the absence of further argument this makes T equally responsible for the presence of all P_i (what Price would have called a standing condition, rather than a differential condition). So the challenge is to find a further, perception-constituting relation that holds between T and P_T but not between T and any other P_i .

I shall now consider some possible candidates for such a relation. I assume that perception is just one kind of relation; its nature does not vary according to what is perceived. Thus if the passage of time is perceived it must stand in the same kind of

relation to P_T that other perceived features stand in to their corresponding P_i . The onus is on anyone who disagrees to explain how P_T is related to T , and why this relation should be thought of as perceptual. There is currently no consensus about the necessary and sufficient conditions for perception, but some of the theories that have been put forward provide necessary conditions that should be widely accepted. In each case, however, I shall argue that these necessary conditions are not met by P_T and T .

I shall also assume, throughout what follows, that the mental supervenes on the physical at least to the extent that every individual's conscious states are correlated with that individual's physical states (the notion of 'correlation' should be understood as sufficiently law-like to sustain counterfactuals such as 'had S's brain-state differed in such-and-such a way, S's conscious state would have differed thus-and-so). This leaves open the possibility that physical duplicates across different worlds, or even within a world, might in some cases differ in the phenomenal characters of their experiences. This is a very weak claim; even dualist theories can count as supervenience theories of the relevant kind provided they accept that each individual's conscious states correlate with their physical states. Only proponents of Cartesian dualism or other 'anomalous' versions of dualism would disagree. Given the relative obscurity of the latter views I shall assume that the onus is on their proponents to explain exactly how abandoning supervenience would allow them to evade the problems discussed below; I am very sceptical about the prospects for this. A stronger supervenience claim may well be correct; but this would not weaken any of the arguments that follow.⁵

Firstly, then, consider causal theories of perception (Grice 1961, Tye 1982, Noë 2003). I shall not rehearse the difficulties facing traditional causal theories.⁶ But while it has proven difficult to spell out necessary and sufficient conditions for perception

⁵ In fact, insofar as the claim defended here is that passage is not perceived in the actual world (which would probably suffice for the B-theorist's purposes), the supervenience claim could be further weakened to apply only to the actual world (or perhaps worlds nomologically equivalent to it). Presumably, hardly anyone these days would deny that our *actual* conscious states correlate with our brain processes in a law-like way. Strictly speaking, to defend the claim that the perception of passage is logically impossible we need the stronger supervenience claim made above; as mentioned above, however, I think it unlikely that denying supervenience would really make it any easier to explain how passage could be perceived.

⁶ See Tye 1982 for some discussion of these; see also Lewis 1980.

in purely causal terms there is nonetheless broad agreement that *some* kind of causal relation is necessary; we do not perceive features that are causally isolated from us. Moreover, not every part of a causal chain leading to an experience is perceived. One rather plausible constraint is that in order to be perceived, F must play a role in making the experience the way it is, not just in making it happen at all. Or, what amounts to much the same thing, F must have a role in causing one P_i (the one that is a perception of F) that it does not have in causing any other P_i .⁷ But, as I shall now argue, it is very hard to see how T could have such a role in relation to P_T .

Given the causal constraint just discussed, and given the supervenience of the mental on the physical, it follows that in order to be perceived, T must cause some part of the physical world (presumably the subject's brain) to be configured in one way rather than another. We have at least a rough idea of how this works for other perceived features. A visually perceived object, for example, projects an image on the retina which differentially influences the retina – some retinal cells are stimulated, others are not; and those that are stimulated are affected differentially according to the distribution of wavelengths in the light. This in turn has a differential influence on the configuration of the brain, and thus on experience. A visually perceived green triangle thus configures the brain differently from a red square; if they both affected the brain in the same way there could be no perceptual experience that would discriminate between them.

There seems no way for the passage of time to have a corresponding differential influence on the configuration of the brain (or on any part of the physical world). An explanation why matter becomes arranged into a brain that is configured thus-and-so, rather than some other way, can be given entirely in terms of previous configurations of the physical world conjoined with the laws of physics.

At most, the passage of time would be a kind of 'background' or 'enabling' condition, necessary for causation to be possible at all (as Maudlin suggests). Perhaps, in the same spirit, an A-theorist might claim that real causation takes place only in the present moment, setting in motion a chain of causation leading to an

⁷ Dretske's (1993) distinction between 'triggering' and 'structuring' causes is closely related; it seems reasonable to hold that a perceived feature must be a structuring cause, not merely a triggering cause, of the perceptual experience.

experience (Le Poidevin (2007: 84-5) considers such a view on behalf of the A-theorist). But a mere enabling condition does not play a role in making experience one way rather than another; and by the same token there is nothing that relates it to one element of experience rather than another. By analogy, consider a slide film ('transparency') projector that projects a still image from a piece of film onto a screen. The pigments in the film configure the image on the screen by virtue of their own configuration. Elements on the film can be mapped one-to-one onto elements on the screen – the red pigment in the top left corner of the film maps onto the red patch in the top left corner of the screen, and so on. Now, if the power to the projector were cut, no image would appear on the screen. The presence of an electrical voltage in the projector is thus an enabling condition for the image on the screen. But one cannot single out any element of the image on the screen as corresponding uniquely to the presence of electricity in the projector. Whatever role the electricity has in producing one element of the image, it has just the same role in producing all the other elements.

By the same token, even if T were a necessary condition for causation this would not connect T uniquely with P_T , such that T was not related in that way to other P_i . I conclude that the constraint that P_T be uniquely related to T is not satisfied. Note that it is not plausible to claim that one perceives passage just by having any experience at all. This would not be true to the phenomenology; time seems to us to pass because of P_T , not just because we have any experience at all.

So much for causation; let us now consider *counterfactual dependence* (Lewis 1980). According to Lewis, in order for P_i to be a perception of F_i , P_i must be counterfactually dependent on F_i (we can set aside other details of Lewis's account and focus on this necessary condition). Thus, if F_i had differed, P_i would have differed in a corresponding way. In Lewis's account there must be a range of alterations to F_i that would be matched by a corresponding range of alterations to P_i . Even if one rejects this range of dependency, however, one might well accept a weaker condition along the lines that had F_i not been present, neither would P_i (perhaps this would need hedging with some kind of *ceteris paribus* clause). This captures something of the intuitive notion that perceptual states are sensitive to the way the world is. Lewis analysed causation in terms of counterfactuals and therefore

regarded his theory of perception as a causal theory; but we can consider the constraint of counterfactual dependence independently.

Let us suppose again, for argument, that the B-theoretic ‘block’ world contains no experience. Then if time did not pass, there would be no P_T (it might be claimed that the block world is not even a possible world, but let us assume that we can set this worry aside). This is a counterfactual dependence, but it applies equally to every member of P_i so the uniqueness condition is not satisfied. Adding Lewis’s stronger condition of a range of counterfactual dependence does not help; it is hard to see what range of counterfactual alterations could be made to the passage of time and reflected in experience. Perhaps time could have passed more quickly or slowly; but it is far from clear that this would make any difference to experience, and still harder to see why the difference should uniquely concern P_T . One could posit a brute dependence – if time ran slower, P_T alone would differ in some way – but this seems unacceptably ad hoc. Why should only P_T be affected in this way? The problems for this latter proposal multiply if the difference in P_T could make a difference to the subject’s behaviour, such as causing the subject to remark that time seemed to have slowed. This would require implausibly selective modifications to the laws of physics when time ran at a different rate. So I conclude that P_T cannot be uniquely counterfactually dependent on T .

Intentionalist theories of perception, according to which perceptual experiences have representational contents associated with their phenomenal characters, are not universally accepted but enjoy broad enough support to be worth discussion.⁸ Consider, then, the constraint that in order for P_i to be a perception of F_i , P_i must *represent* F_i . It is hard to see how any current notion of representation would have the consequence that P_T represents T while other members of P_i do not. Consider, for example, naturalised theories of representation of the kind that stress the importance of information and/or teleology (Dretske 1994, Fodor 1987, 1990, Millikan 1989). The notion of information is tied to certain kinds of counterfactual dependence; so the above discussion of counterfactual dependence makes clear the difficulty with the claim that P_T carries information about passage while other members of P_i do not.

⁸ The literature is extensive. For representative surveys as well as defences of intentionalism see Byrne 2001, Chalmers 2004; for dissent see Travis 2004.

Teleological theories often make essential reference to the notion of information, and so suffer the same problems; but even those that make no reference to information nonetheless make essential reference to the ontogenetic or phylogenetic causal history that led to the selection of the representing state. Given the above discussion of causation, it is hard to see how T could have the right role in the selection of P_T , but not other members of P_i . Much the same would apply to causal chain theories of reference; there is no principled way to trace a causal chain back uniquely from P_T to T . If none of these theories adequately captures the notion of representation then the onus is on the A-theorist to provide and motivate an alternative theory of representation that allows the representation of T uniquely by P_T . I am sceptical of the prospects for this.⁹

Admittedly, some strongly externalist notions of representation might allow features to be represented by perceptual states even though they are not reflected in the phenomenology. Thus one might hold that visual perceptions of identical twins differ in singular content despite not differing in phenomenal character; only certain general contents (shape, colour etc.) are reflected in the phenomenology.¹⁰ On an even stronger view, one might hold that a property such as *being French* can be perceptually represented just because one's experience represents a person that happens to be French, even though there may be nothing in the person's appearance to indicate this. This would not require the property of being French to stand in any causal or counterfactual relation to the experience. But whenever the represented content is not reflected in the phenomenology there is also a sense in which the relevant features are *not* perceived. Thus, in one sense, one sees a French person; but since the nationality makes no phenomenological difference, one does not see *that* the person is French.¹¹

By analogy, if the A-theory is true there might be a sense in which perceptual experiences represent A-theoretic features, and a corresponding sense in which those features are perceived. Thus, in this sense, when one sees an event that happens to be

⁹ If P_T does not represent T , then what *does* P_T represent? Answering this question, I suggest, promises to be a fruitful task for the intentionalist B-theorist who wishes to explain the phenomenology of temporal passage. I attempt this in Prosser forthcoming.

¹⁰ See Tye 1995, 2002 for defence of the view that phenomenal character correlates only with 'abstract' contents (consisting of perceptible properties rather than individual identities or natural kinds).

¹¹ Fred Dretske (1995) makes a similar distinction between seeing objects and seeing facts.

present, one's experience represents, and one thus perceives, a present event. But the arguments above suggest that A-theoretic properties, like the property of being French, would not be part of the content that is reflected in the phenomenology. Since our current concern is whether the phenomenology of passage reveals the nature of reality, we can conclude that A-theoretic features are not perceived in any relevant sense.¹²

3.4 *The uniqueness of T*

The arguments of the previous section focussed on the difficulty in explaining how the passage of time could stand in a perception-constituting relation to P_T without standing in the same relation to every other P_i . In this section we shall consider the converse problem, of the uniqueness of T ; the difficulty in explaining how P_T could stand in a perception-constituting relation to T without thereby standing in the same relation to various other worldly features. Given the arguments of the previous section, we can be brief. Consider again the claim, (1), that experience entails passage, granted above as holding if the A-theory were true. Any claim that this conditional makes P_T a perception of T faces the problem of explaining why P_T is not thereby a perception of *any* necessary condition for experience. Consider, for example, the value of Planck's constant, h . Our current understanding of physics suggests that the value of h must lie within a very narrow range in order for matter to become sufficiently organised for mentality to occur. Experience, and hence P_T , thus entails that h has the value it has. So why should P_T be a perception of temporal passage rather than of the value of h ?

¹² A referee raises the following possible concern about the general line of argument in this section: arguably, change is a necessary condition for any perceptual experience because without changes in stimuli the senses would become habituated and nothing would be perceived. But I do not think this raises any problems in explaining how change can be perceived because, unlike passage, change is not *merely* a necessary condition for experience. A change in the scene before the subject leads to a change in the incoming stimuli, which leads to an alteration of the configuration of the brain in ways that we can perfectly well understand; and different changes lead to systematically different brain-alterations. Moreover, every perceived change is a specific kind of change; but no specific kind of change is necessary for experience. So while the existence of change *per se* might be a standing condition for experience, specific changes, which are what we perceive, are not.

The problem re-emerges given any of the theories of perception described above. If passage is a causal background condition for experience, so is the value of h . Any argument to the effect that P_T is counterfactually dependent on T seems likely to show that it is also counterfactually dependent on h . By the same token, P_T would carry information about h if it carried information about T . In light of all this, it is unclear how P_T could be either ontogenetically or phylogenetically selected as a representation of T but not h , as required by teleological theories. And so on, for any plausible theory of perception. At any rate, if this is not the case then the onus is on the A-theorist to explain what would make it the case that P_T is perceptually related to T without also being perceptually related to h . Much the same could be said of many other facts that are necessary in order for experience to occur.

4. *Quasi-Kantian supervenience?*

Can the claim that T is perceived derive any support from a quasi-Kantian claim that the phenomenology of passage is a necessary condition for any experience whatsoever? Given that it is hard to imagine experiencing anything without time seeming to pass, this condition has some plausibility. It amounts to an entailment from any experience to P_T :

$$(2) \quad \Box \forall i (P_i \rightarrow P_T)$$

It might also quite plausibly be claimed that experience can never consist *solely* in experiencing passage:

$$(3) \quad \Box (P_T \rightarrow \exists i (P_i \& P_i \neq P_T))$$

This is particularly plausible if one holds that the experience of passage consists in the experience of dynamic change, as described above. There is, however, no entailment from P_T to any *specific* other member of P_i :

$$(4) \quad \square \forall i ((P_i \neq P_T) \rightarrow \neg(P_T \rightarrow P_i))$$

This is illustrated by the fact that every phenomenal character other than P_T is such that it can be exchanged for a different phenomenal character without passage ceasing to be experienced.

It might be thought that these entailments do at least provide a principled way to distinguish P_T from other members of P_i . But it is hard to see how this could make P_T a perception of T . (2), (3) and (4) state that any P_i entails P_T , and that P_T entails some other P_i , though not any specific P_i . This asymmetric entailment between P_T and other members of P_i is a supervenience relation; P_T supervenes on P_i . So the question is whether the supervenience of P_T on P_i shows that P_T is a perception of T .

It is very unclear why this should be so. Kant's corresponding view of space and time made them essential forms of experience, but transcendentally ideal. The A-theorist, by contrast, claims that the passage of time belongs to objective reality; to treat passage as ideal would be to concede the truth of the B-theory. As far as I can see the best prospect for the A-theorist along these lines would be to argue that passage is a necessary feature of time, that P_T is a necessary feature of experience, and that somehow this makes the latter an experience of the former (though it is hard to see why this should be so). This would not really be *perception* as we normally conceive of it, and would thereby clash with the *prima facie* phenomenology; but if it could be made convincing it might at least provide some sense in which experience matches reality, and not just by chance. Nonetheless, significant uniqueness problems remain; it is not clear why the necessity of P_T should match up with the necessity of T rather than with any other necessity. Moreover, no explanation has been given of what makes it the case that P_T is an experience *of* (or *about*) the passage of time. A mere coincidence of necessities does not seem sufficient. On the contrary, given any normal way of understanding what it is to perceive something, if P_T supervenes on P_i it seems more plausible to conclude that P_T is *not* a perception of anything beyond what is perceived by the P_i upon which it supervenes.

5. The Unintelligibility of the A-Theory

I have argued that the passage of time cannot be perceived. I do not think that an A-theorist can comfortably accept this conclusion yet continue to accept the A-theory. For it seems hard to deny that our understanding of the notion of passage, or the related notion of dynamic change, is bound up with the nature of experience. Yet if no such experience can be a perception of passage then, on the face of it, we lose our grip on what it would be for time to pass, and the claim that time nonetheless passes is rendered unintelligible.

I can only see two options for the A-theorist, neither of which seems appealing. Firstly the A-theorist could deny the existence of the phenomenology altogether and hold that our grasp of the notion of passage derives from elsewhere. I have assumed throughout that this is not a plausible option, and the quotations at the start of this paper support this. At most, one might disagree over the nature of the phenomenology (over whether or not it is essentially associated with the experience of change, for example). If there were no such phenomenology at all it would be hard to understand why so many people have claimed that there is. So, at the very least, the A-theorist who denies the phenomenology owes us an explanation of how so many people could be mistaken about this.

Secondly, the A-theorist could accept the existence of the phenomenology but deny that our grasp of the notion of passage has any essential connection with this phenomenology. Whether this is a viable response depends on exactly what our grasp of the concept of passage consists in. Arguably, there are some concepts, like 'red', our actual grasp of which is essentially connected to experiences of certain kinds; we currently have no way of understanding what it is for something to be red, except by virtue of its relation to phenomenologically 'red' experience (this is not to insist that redness is not an objective property; but we could only discover which objective property it is by virtue of its role in bringing about phenomenologically 'red' experiences). There are other concepts, however, like 'square', instantiations of which can be perceived but for which we do have an alternative way to grasp the concept.

We can understand what it is for something to be square, for example, by understanding a purely geometrical definition that makes no reference to experience.

Now, in the former case, if we were convinced that phenomenologically ‘red’ experiences could not be perceptions of any property that deserved to be called ‘redness’ then I think it would be very hard to sustain the belief that red things nonetheless exist; given the lack of any backup means for understanding what it is for something to be red, such a claim would be unintelligible. If redness is not what brings about phenomenologically red experiences then we really have no idea what it is. One might think that one could still *imagine* something being red; but arguably, in doing so, one would re-use various perceptual capacities, perhaps in effect simulating an experience of red. In that case, one would still have no independent understanding of what it would be for something to be red. The latter, ‘square’, case is different; if we were to discover that none of our phenomenologically ‘square’ experiences, in any sensory modality, were perceptions of any real shape property then we should have to abandon the claim that squares could be perceived; but we could still understand what it would be for something to be square by virtue of our backup geometrical definition of ‘square’.

The question, then, is which of these two models better captures our understanding of the concept of passage and its relation to experience. It seems to me more plausible to liken ‘passage’ to ‘red’ than to ‘square’. Certainly it does not seem clear that the concept of passage can be given a reductive definition in anything like the same way as ‘square’, while remaining inconsistent with the B-theory. Note also that, as in the ‘red’ case, merely to be able to *imagine* time passing would not clearly constitute an alternative grasp of the concept; it would have to be shown that in doing so, one did not merely simulate passage experience. One has to be very careful, in trying to conceive of what passage could be, that one does not thus ‘imagine’ it in an illegitimate quasi-experiential way. Finally, it might be held that a grasp of tensed predicates such as *past*, *present* and *future*, and perhaps their differing significance for our actions, is sufficient for a grasp of the notion of passage. But more would have to be said to establish that an A-theoretic grasp of these notions – an understanding of them as incompatible with the B-theory – was required for a grasp of their significance, and sufficient for a grasp of the notion of passage, but did not tacitly

rely on a simulation of, or any other connection with, passage experience. I cannot fully resolve this issue here, but I think that enough has been said to put the onus on the A-theorist to explain how we understand what it is for time to pass, if not in relation to experience. In the absence of a satisfactory account, the A-theory is rendered unintelligible.

6. Conclusion

The central aim of this paper has been to issue a challenge to the A-theorist. After arguing that experience does not favour the A-theory over the B-theory, I suggested that in order to defend the claim that passage could be perceived, even if the A-theory were true, the A-theorist would have to explain what makes it the case that the relevant phenomenology (P_T) stands in a unique, perception-constituting relation to the passage of time. This would require answering two questions: Firstly, why should P_T , rather than some other member of P_i , be related to the passage of time as a perception of it? And, secondly, why should P_T be related to the passage of time, as a perception of it, rather than to some other feature of the world? I gave reasons for thinking that on any familiar construal of what it is to perceive, the A-theorist cannot answer these questions. Consequently the passage of time cannot be perceived. I then suggested that this conclusion threatens to render the A-theory unintelligible.

The onus is not on the B-theorist to think of every possible theory of perception and show that it fails in relation to the passage of time. If the more familiar theories of perception cannot account for the perception of passage then the onus is on the A-theorist to explain and motivate a theory of perception that would allow the passage of time to be perceived. I very much doubt that this can be done.¹³

¹³ I am very grateful to an audience in Geneva for feedback that greatly improved this paper, and to Akiko Frischhut and an anonymous referee for further very helpful feedback on a written version.

References

- Byrne, A., 2001: Intentionalism Defended. *Philosophical Review*, 110, 199-239.
- Chalmers, D. J., 1996: *The Conscious Mind: In Search of a Fundamental Theory*. Oxford: Oxford University Press.
- Chalmers, D. J., 2004: The Representational Character of Experience. In Brian Leiter (ed.) *The Future for Philosophy*. Oxford: Oxford University Press.
- Chalmers, D. J., 2009: The Two-Dimensional Argument Against Materialism. In B. McLaughlin (ed.) *The Oxford Handbook of the Philosophy of Mind*. Oxford: Oxford University Press.
- Craig, W. L., 2000: *The Tensed Theory of Time: A Critical Examination*. Dordrecht: Kluwer Academic Publishers.
- Davies, P., 1995: *About Time: Einstein's Unfinished Revolution*. Harmondsworth: Penguin.
- Dretske, F., 1993: Mental Events as Structuring Causes of Behaviour. In J. Heil and A. Mele (eds.) *Mental Causation*. Oxford: Oxford University Press, 121-36.
- Dretske, F., 1994: If You Can't Make One, You Don't Know How it Works. In P. French, T. Uehling and H. Wettstein (eds.) *Midwest Studies in Philosophy*, 19, 468-82.
- Dretske, F., 1995: Meaningful Perception. In S. M. Kosslyn and D. N. Osherson (eds.) *Visual Cognition: An Invitation to Cognitive Science Volume 2*, 2nd edition. Cambridge, MA: MIT Press. Reprinted in slightly revised form as 'Seeing, Believing, and Knowing' in R. Schwartz (ed.) *Perception*. Oxford: Blackwell, 2004.
- Fodor, J. A., 1987: *Psychosemantics*. Cambridge, MA: MIT Press.
- Fodor, J. A., 1990: *A Theory of Content and Other Essays*. Cambridge, MA: MIT Press.
- Grice H. P., 1961: The Causal Theory of Perception. *Proceedings of the Aristotelian Society Supplementary Volume*, 35, 121-53.
- Le Poidevin, R., 2007: *The Images of Time*. Oxford: Oxford University Press.

- Lewis, D. K., 1980: Veridical Hallucination and Prosthetic Vision. *Australasian Journal of Philosophy*, 58, 239-249. Reprinted in Lewis's *Philosophical Papers Volume 2*. Oxford: Oxford University Press, 1987.
- Maudlin, T., 2002: Remarks on the Passing of Time. *Proceedings of the Aristotelian Society*, 102, 237-252.
- Millikan, R. G., 1989: Biosemantics. *Journal of Philosophy*, 86, 281-97.
- Noë, A., 2003: Causation and perception: the puzzle unravelled. *Analysis*, 63, 93-100.
- Price, H., 1996: *Time's Arrow and Archimedes' Point*. Oxford: Oxford University Press.
- Price, H. H., 1954: *Perception*. London: Methuen.
- Prosser, S., 2000: A New Problem for the A-theory of Time. *The Philosophical Quarterly*, 50, 494-98.
- Prosser, S., 2007: Could We Experience the Passage of Time? *Ratio*, 20, 75-90. Reprinted in L. Nathan Oaklander (ed.) *Philosophy of Time: Critical Concepts in Philosophy*. New York/London: Routledge, 2008.
- Prosser, S., forthcoming: Why Does Time Seem to Pass? *Philosophy and Phenomenological Research*.
- Schuster, M. M., 1986: Is the Flow of Time Subjective? *The Review of Metaphysics*, 39, 695-714.
- Stoljar, D., 2001: Two Conceptions of the Physical. *Philosophy and Phenomenological Research*, 62, 253-81.
- Travis, C., 2004: The Silence of the Senses. *Mind*, 113, 59-94.
- Tye, M., 1982: A Causal Analysis of Seeing. *Philosophy and Phenomenological Research*, 42, 311-325.
- Tye, M., 1995: *Ten Problems of Consciousness*. Cambridge, MA: MIT Press/A Bradford Book.
- Tye, M., 2002: Visual Qualia and Visual Content Revisited. In D. J. Chalmers (ed.) *Philosophy of Mind: Classical and Contemporary Readings*. Oxford: Oxford University 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.