

ARTICLE

## The cresting wave: a new moving spotlight theory

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### ABSTRACT

One argument for the moving spotlight theory is that it better explains our temporal phenomenology than does any static theory. In this paper it is argued that insofar as moving spotlight theorists take this to be a sound argument they ought embrace a new version of the moving spotlight theory according to which the moving spotlight is a cresting wave of causal efficacy. Hence a range of fundamental properties are temporary because presentness synchronically changes the fundamental properties that are instantiated in the present moment, and our experiences of presentness co-varies with presentness, allowing us to phenomenologically detect presentness.

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### 1 Introduction

I take the moving spotlight theory (MST) to be the conjunction of three theses: (a) past, present and future objects, properties, and events exist and (b) a privileged proper sub-set of these objects, properties, and events instantiates presentness, and (c) which objects, properties and events instantiate presentness, changes. Further, I assume that temporal passage consists in the movement, or (as I will henceforth say), *change* of presentness.

One motivation for views, such as the MST, which posit temporal passage is that they are better able to explain why we have the temporal phenomenology we do than are views that do not posit temporal passage. Here's why. Suppose that our temporal phenomenology is partly<sup>1</sup> constituted by passage phenomenology. Passage phenomenology has a certain phenomenal character, and the character is *as of something being the case*, namely, *as of* there being temporal passage. I take this to be the claim that passage phenomenology has a certain phenomenal *content*: that it represents that things are *as if* there is temporal passage.<sup>2</sup> According to the argument from

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passage phenomenology, the best explanation for our having phenomenology with this content is that there is temporal passage. After all, if time does not pass, then our passage phenomenology is systematically illusory. Here is that argument:

### ***Argument from passage phenomenology***

(a) We have experiences as of the passage of time.

(b) If we have experiences as of the passage of time, then the best explanation for this relies on the passage of time being an objective feature of reality.

Therefore:

C: The passage of time is an objective feature of reality.

Proponents of an argument of roughly this form include Bourne (2006, 15–16), Craig (2000, 138), Williams (1994) and Baron, Cusbert et al. (2015). See also Skow (2011, 2015) for discussion of arguments such as this.

The argument is an instance of inference to the best explanation, and hence is not valid unless one adds in a further premise (b\*) to the effect that if the best explanation for our experiences as of the passage of time rely on time being an objective feature of reality, then the passage of time is an objective feature of reality. In what follows, let us assume (b\*). Then in this paper I aim to show that insofar as the moving spotlight theorist (MS theorist) takes the argument from passage phenomenology to be sound, she ought endorse a new version of the MST, the cresting wave theory (CWT).<sup>3</sup>

Advocates of the argument from passage phenomenology suppose that the reason temporal passage is the best explanation for our passage phenomenology is that our passage phenomenology is responsive to the presence of passage; in the absence of temporal passage our phenomenology would not be passage phenomenology. That means they are committed to the (plausible) view that the presence of temporal passage makes a difference to our phenomenology.

The MS theorist holds that temporal passage consists in the change of presentness. So the MS theorist who accepts the argument from passage phenomenology holds that the change of presentness makes a difference to our phenomenology. But the change of presentness can only make a difference to our phenomenology if the instantiation of presentness at a time makes a difference to the character of our phenomenology at that time. That can only be so if the character of our phenomenology when a time instantiates presentness is *different* from the character of our phenomenology when that time fails to instantiate presentness. Hence the MS theorist ought accept what, in §2, I call the Distinguishability Principle.

Only if the Distinguishability Principle is true can the MS theorist vindicate the thought that the presence (and change) of presentness is what is responsible for (and hence explains) our having phenomenology with the character that we do. In §3, however, I argue that no plausible extant version of the MST is consistent with the Distinguishability Principle. That leads me to outline (§4) a new version of the MST – the cresting wave theory – that is consistent with the Distinguishability Principle. In §5 I show that if things are as the CWT says they are, then things being that way explains why we have the phenomenology we do. Hence those motivated by the argument from passage phenomenology ought prefer this theory to competing versions of the moving spotlight theory.

To be clear, I am not advocating the CWT and I limit defence of the view to showing that *insofar* as the MS theorist is motivated by something like the argument from passage phenomenology, she ought prefer the CWT to other versions of the MST. I do not attempt to defend the view against general objections to dynamical theories of time. These may be good objections (and, in fact, I think they are). But any MS theorist presumably thinks those objections fail, and it is to her that I am marketing the CWT.

## 2. Presentness and passage

In this section I outline a number of key assumptions and moving parts that we will need in §§3–5. First, I suppose that according to the MS theorist temporal passage consists in a change in which time instantiates presentness. This is, I think, uncontroversial.

A1: Temporal passage = <sup>df</sup> Changing presentness.

Further, I assume that passage phenomenology is just phenomenology as of changing presentness.

A2: Passage phenomenology = <sup>df</sup> Phenomenology as of changing presentness

Why think this? Well, if temporal passage *just is* changing presentness, then surely having a phenomenology as of temporal passage just is having a phenomenology as of changing presentness. After all, if  $x = y$ , then having a phenomenology as of  $x$  just is having a phenomenology as of  $y$ . So if we have a phenomenology as of temporal passage, then we have a phenomenology as of changing presentness.

Later I will draw a number of distinctions between different versions of the MST. For now, notice that if the MS theorist thinks that presentness is reducible to something else, such as a kind of dynamical change, then A2 entails that passage phenomenology is phenomenology as of a kind of dynamical change. Suppose, by contrast, the MS theorist thinks that presentness is fundamental. Then having a phenomenology as of changing

presentness is not having a phenomenology as of dynamical change, or, indeed, as of anything else. That might seem worrisome, since one might antecedently think that the relevant target piece of phenomenology is really a phenomenology as of dynamical change (or, at least, as of something other than changing presentness). Then one might be tempted to say that our phenomenology is a phenomenology as of dynamical change, and that changing presentness is associated with dynamical change, perhaps by being the metaphysical mechanism by which there is such change.

On the assumption that A1 is true and temporal passage just is changing presentness, this would be to deny that strictly speaking we have a phenomenology as of temporal passage. If the MS theorist took this avenue, she would need to spell out the argument from temporal phenomenology somewhat differently than I did previously. She could instead say that (a) we have experiences as of dynamical change (b) if we have experiences as of dynamical change, then the best explanation for this relies on there being dynamical change (c) there is dynamical change only if there is objective temporal passage (d) therefore, there is objective temporal passage. Call this *the argument from phenomenology*. To make this argument plausible the MS theorist would need to say something about what it is to have phenomenology as of dynamical change – in particular, she needs to say something about how that phenomenology differs from the phenomenology one would have if one had a phenomenology as of at-at change, i.e. as of things being one way at one time, and another way at another time. Having done that she would then need to show that the best explanation for our having that phenomenology is that there is dynamical change, and finally, that there could only be such change if there were temporal passage. This is an argument that is well worth pursuing, but it is not the argument that this paper targets. Hence in what follows I assume A2.

Next, I assume that in order for there to be a phenomenology as of *changing* presentness, there must be phenomenology *as of presentness*. That is, I take it that one can only have a phenomenology as of some property changing if one can have a phenomenology as of that property being instantiated. Hence the MS theorist ought accept A3.

A3: It is essential to a phenomenal experience, P, being an experience as of passage (i.e. being passage phenomenology) that P is partly constituted by a phenomenology as of presentness.

Henceforth I will *principally* be concerned with the phenomenology as of presentness, and not with the phenomenology as of *changing* presentness, since I assume the latter requires the former.

It is an open question exactly what characterises a phenomenology as of presentness. In what follows I outline two very different options,<sup>4</sup> though I argue in favour of neither. Later (§4) I consider two versions of the CWT. There, I

note that one's preferred characterisation of the phenomenology as of presentness has implications for which version of the CWT one ought prefer.

First, one might think that what it is for an experience to *feel present* to a subject is nothing more than for the subject to have that experience. On this view, to experience something *as present* is no more than to experience it. This characterisation of the phenomenology as of presentness is consistent both with temporal dynamism and with a static theory of time, and, indeed, does not speak in favour of one view over the other. Of course, if there is a *change* in this phenomenology then this speaks in favour of temporal dynamism.

Second, one might think that to have a phenomenology as of presentness is to have a phenomenology as of *objective* presentness: to have a phenomenology which represents that one's experiences are in the objective present, as opposed to merely a phenomenology which represents that one is, at the current moment, having experiences with a certain content. As I note shortly, there is a connection between what we think about the phenomenology as of presentness, and how best to think about the co-variation of that phenomenology with presentness itself. But for now, I will move on.

Next, I argue that the MS theorist who is motivated by the argument from passage phenomenology must hold that temporal passage makes a difference to our phenomenology as of passage. After all, if the presence of temporal passage made no difference to our passage phenomenology, then we would have the same phenomenology regardless of whether or not there was temporal passage. But if we would have the same phenomenology regardless of whether there was temporal passage, then the presence of that phenomenology is not evidence for the presence of temporal passage. Hence MS theorists should accept A4:

A4: The presence of temporal passage makes a difference to our phenomenology as of temporal passage.

Since passage phenomenology is, essentially, partly constituted by a phenomenology as of presentness (A3), and since temporal passage just is the changing of presentness (A1) it follows that MS theorists also ought accept A5:

A5: The presence of presentness makes a difference to our phenomenology as of temporal passage.

It then seems very plausible that if the MS theorist endorses A2 and A3 she ought endorse A6:

A6: The presence of presentness makes a difference to our phenomenology as of presentness.

After all, A2 says that our passage phenomenology just is the phenomenology as of changing presentness, and A3 says that the phenomenology as of changing presentness is partly constituted by the phenomenology as of

presentness. Hence our phenomenology as of passage is partly constituted by the phenomenology as of presentness. Plausibly, then, the reason the presence of presentness makes a difference to our phenomenology as of passage is because it makes a difference to our phenomenology as of presentness. Indeed, suppose one accepts both A2 and A3, but thinks that although the presence of presentness makes a difference to our phenomenology, it does not make a difference to our phenomenology as of presentness. Suppose, instead, that the presence of presentness makes a difference to our phenomenology as of dynamical change (assuming, here, that the phenomenology as of changing presentness and as of dynamical change are distinct).

Then since our phenomenology of temporal passage is phenomenology as of changing presentness (A2), and since the phenomenology as of changing presentness has the phenomenology of presentness as a constituent (A3) then if the presence of presentness makes no difference to our phenomenology as of *presentness*, it makes no difference to our phenomenology as of *changing* presentness, and hence makes no difference to our temporal phenomenology. Of course, it makes a difference to some other aspect of our phenomenology, such as our phenomenology as of dynamical change. That being so, the MS theorist could mount the argument from phenomenology articulated previously, according to which the presence of temporal passage is the best explanation for our having some phenomenology, such as the phenomenology as of dynamical change. But it would not support the argument from temporal phenomenology with which this paper is concerned, since the presence of presentness would make no difference to our temporal phenomenology.

Moving on, I want to make some suggestions regarding what the MS theorist should think about the connection between the presence of presentness, on the one hand, and the presence of the phenomenology as of presentness, on the other hand. Plausibly, perceptual experiences are experiences which, *among other things*, have representational content, and seem to involve the presentation of mind-independent features of the world in such a way that their character is immediately responsive to the character of the objects presented in experience. Thus understood, perceptual experiences may, or may not, be veridical. Hallucinations are paradigmatic instances of perceptual experiences that fail to be veridical. By contrast, non-perceptual experiences either fail to have representational content, or else have representational content, but do not seem to involve the presentation of mind-independent features of the world. Mental imaginings are a good example of this latter kind of non-perceptual experience.

Defenders of the argument from passage phenomenology suppose that our passage phenomenology is perceptual-like insofar they suppose both that (a) said phenomenology has representational content (as of passage)

and (b) that it seems to involve the presentation of mind-independent features of the world in such a way that their character is immediately responsive to the character of the objects presented in experience. If this were not so then it would be implausible to hold that the best explanation for our phenomenology is the presence of something in the external world, to wit, temporal passage. That leaves open that there might be respects in which our passage phenomenology differs from typical perceptual experiences. That is why, henceforth, I will call experiences that share these two key features with perceptual experiences *perceptual-like* experiences.<sup>5</sup> According to those MS theorists who defend the argument from passage phenomenology, our phenomenology as of passage is perceptual-like.

A7: The phenomenology as of passage is perceptual-like.

Given A1, A2, A3 and A7, it is safe to assume the MS theorist will endorse the following:

A8: The phenomenology as of presentness is perceptual-like.

That's because if A8 were not true it is hard to see how experiencing the changing of presentness could be perceptual-like. Since the changing of presentness is what passage phenomenology consists in (A2) and since the phenomenology as of presentness is partly constitutive of passage phenomenology (A3) and since passage phenomenology is perceptual-like (A7) it seems safe to say that the phenomenology as of presentness is perceptual-like.

In what follows I argue that the MS theorist ought also to accept the following:

A11: Token experiences as of presentness co-vary with the presence of presentness.

To see why, notice that it is often supposed that a perceptual experience has the representational content it does, as of, say, representing a cow, because that experience typically co-varies with the presence of cows (see for instance Maloney 1994; Dretske [1983], Dretske [1981], Fodor, J 1987, 1990] and Stampe 1986). The supposition is that something does not count as a perceptual experience as of a cow unless that experience typically co-varies with the presence of a cow. (Of course, that leaves open that sometimes we have a perceptual experience with that content which does not co-vary with a cow because we are having a cow hallucination). We can put that assumption as follows:

A9: A token perceptual experience, E, represents that R only if tokens of that type typically co-vary with the presence of R.

It is plausible to suppose that if A9 is true then so is A10:

A10: A token perceptual-like experience, E, represents that R only if tokens of that type typically co-vary with the presence of R.

One might worry that A9 and A10 are too strong. There are those who think that we have phenomenology as of passage but that there is no temporal passage, and so this seeming is a pervasive phenomenal illusion.<sup>6</sup> That cannot be so if having a perceptual-like experience as of passage requires co-variation with passage. Likewise, it seems, I can hallucinate a flying elephant. But that would be to have a perceptual experience that represents a flying elephant. Since I have no experiences that co-vary with flying elephants, this, apparently, is also rendered impossible.

The right response would seem to be to say that what matters is that the simple elements of perceptual experiences co-vary with the things they represent, and that complex perceptual experiences combine these simple perceptual experiences to represent complex things which, sometimes, do not exist. In the case of the flying elephant there are a variety of simple perceptual experiences that co-vary with the things they represent, and combined, those things have the representational content of a flying elephant. So one might instead defend the following:

A9\*: A token simple perceptual experience, E, represents that R only if tokens of that type typically co-vary with the presence of R.

A10\*: A token simple perceptual-like experience, E, represents that R only if tokens of that type typically co-vary with the presence of R.

One can then think that a complex perceptual (or perceptual-like) experience, E\*, represents R\* only if there is some complete decomposition of E\* into simpler perceptual (or perceptual-like) experiences, each of which co-varies with some aspects of the world which jointly compose R\*.

If phenomenology as of temporal passage is complex, then A9\* and A10\* are consistent with us having phenomenology with that content even if there is actually no temporal passage, so long as each simple component of that phenomenology co-varies with something appropriate in the world.<sup>7</sup> One could think this, consistent with holding that the phenomenology as of presentness cannot be further decomposed, and hence is a simple perceptual-like experience. One might well think this if one thinks (as some MS theorists do) that presentness is a fundamental property. Suppose the MS theorist thinks just that. Then given A10\*, the MS theorist should hold that a token experience as of presentness represents presentness only if tokens of that type typically co-vary with the presence of the presentness. Since MS theorists do think that token experiences as of presentness represent presentness, they should conclude that token experiences as of presentness typically co-vary with presentness (A11).



Even the MS theorist who denies that the experience as of presentness is simple, however, and hence who denies that we should conclude, on the basis of A10\*, that token experiences as of presentness typically co-vary with presentness, should find it independently plausible that token experiences as of presentness typically co-vary with presentness. After all, the MS theorist *does not* think that that presentness is like flying elephants. She thinks both that the phenomenology as of presentness is perceptual-like, and that it represents presentness, and that there is, in fact, presentness. So it would be odd, indeed, for the MS theorist to maintain that despite that being the case, presentness and the experience as of presentness do not co-vary. That would be like saying that I have perceptual-like experience as of chairs, which represent the presence of chairs, and there exist chairs, but in fact my perceptual-like experiences as of chairs do not, in any way, track the presence of said chairs. Hence the MS theorist ought accept A11:

A11: Token experiences as of presentness co-vary with the presence of presentness.

Combining A11 with A6, (the presence of presentness makes a difference to our phenomenology as of presentness) yields what I call the *Distinguishability Principle*, according to which the difference presentness makes to our phenomenology is that, typically, an individual's phenomenology at  $t$  has the phenomenal content as of presentness when, and only when,  $t$  instantiates presentness.

**Distinguishability Principle:** Typically, for any time  $t$ , at  $t$  subjects have a phenomenology as of presentness when, and only when,  $t$  instantiates presentness.<sup>8</sup>

The Distinguishability Principle captures a very intuitive sense in which the presence of our phenomenology as of presentness – one of the constituents of our phenomenology as of passage – is responsive to the presence of presentness – one of the constituents of temporal passage: namely, it is (typically) only in its presence that we have a phenomenology as of presentness. Moreover, there is a clear sense in which if the Distinguishability Principle is false, then we ought be sceptical of the argument from passage phenomenology. For if the Distinguishability Principle is false, then it is not typically the case that a subject has a phenomenology as of presentness when in fact the subject is present: rather, subjects will either have that phenomenology despite failing to be in the present, or will fail to have that phenomenology despite being in the present, or both. But then there is no sense in which our phenomenology is sensitive to the presence of temporal passage, i.e. to the changing of presentness. Hence, the MS theorist who is motivated by the argument from passage phenomenology ought endorse the Distinguishability Principle.

There is also independent motivation for the MS theorist to accept the Distinguishability Principle, since doing so provides a plausible response to the epistemic objection. The epistemic objection is a challenge to any version of dynamism that posits the existence of both objectively present and objectively non-present, times, objects, properties, and events. Roughly, it is as follows. According to such views there exist many occupied non-present moments and only a single objectively present moment. On the assumption that one cannot detect whether one is located in the objective present or at some objectively non-present moment, one ought to conclude that one is more likely located somewhere other than the objective present. Proponents of something like this argument include Bourne (2002) Braddon-Mitchell (2004) and Merricks (2006). Here is a version of the argument targeted to the moving spotlight view<sup>9</sup>:

### ***The epistemic objection***

- (1) The moving spotlight theory is true.
- (2) If moving spotlight theory is true, then one cannot detect whether one is in the objective present or the objective non-present.
- (3) If (2), then one ought conclude that one is not in the objective present given that there are very many more objectively non-present times than objectively present times.
- (4) Therefore, one ought to believe one is not in the objective present.

I assume that the moving spotlight theorist wants to resist (4). If the Distinguishability Principle is true then the argument is easily resisted, since (2) is false.<sup>10</sup> If, typically, subjects have a phenomenology as of presentness when, and only when, they are present, then subjects will be able to detect whether they are present.

It is worth noting that there are two ways the Distinguishability Principle could be true, (and hence (2) false). It could be that the phenomenal character of experiences had by non-present subjects is different from the phenomenal character of experiences had by present subjects. So things seem to non-present subjects a certain way, but they do not seem as though anything is present.<sup>11</sup> Or it could be that at non-present times subjects lack phenomenology altogether, and hence lack a phenomenology as of presentness. Both cases involve properties that are what Russell (2016) call temporally impure, where being *F* is temporally pure if and only if: it is always the case that, if something was once *F*, then (unrestrictedly speaking) something is *F*. Hence both views are what Russell calls 'impure'.

The latter version of an impure view has been defended by Forrest (2006), in the context of a growing block theory. Zimmerman (2005);

Zimmerman (2011)), Cameron (2015), Skow (2015) and Russell (2016) also consider versions of this view in the context of the MST. Zimmerman and Forrest both suppose that if the past lacks phenomenology it is because when things cease being present they are no longer *doing* anything: there are only present processes. Cameron supposes that there is *no way things are*, in the past (or future) and hence there is no way things seem to subjects, in the past (or future). Skow holds that insofar as presentness makes a difference to our experiences, the most plausible way it can do so is by *only* present experiences being available to subjects. If the only experiences that are available to a subject are present ones, then non-present subjects do not have experiences.<sup>12</sup> I return to consider these two forms of covariation later in the paper. For now, we should note that either of these views about the connection between presentness and phenomenology are ones in which presentness co-varies with the presence of a phenomenology as of presentness.

In what follows I argue that traditional versions of the MST are inconsistent with the truth of the Distinguishability Principle. In light of that, in §4 I develop a new version of the MST – the cresting wave theory – which is consistent with the Distinguishability Principle.

### 3. Accounts of presentness

Whether a version of the MST is consistent with the Distinguishability Principle is going to depend on what it is for a time to instantiate presentness, and what it is for presentness to change. In what follows I consider a number of different views the MS theorist might take on these matters, and argue that none of the plausible options are consistent with the Distinguishability Principle.

#### 3.1 *The classic moving spotlight*

Following Deasy (2015), define the *classic* moving spotlight theory as the view that there exists exactly one temporary fundamental property: presentness. This allows that some derivative properties are temporary, as for example, are the properties of pastness and futurity, and as are any properties that are *partially grounded* in the temporary fundamental property of presentness. Here, and in what follows I will have cause to appeal to the notion of grounding and partial grounding. Following Schaffer (2009), Audi (2012), and Raven (2012), I understand grounding to be a primitive dependence relation. Grounding is, putatively, the relation by which the fundamental elements of our ontology *generate* the derivative existents.<sup>13</sup> It is typically (though not universally; see Rodriguez-Pereyra (2015)) thought to be irreflexive, asymmetric and transitive, and thus to confer a partial

ordering over the entities which it relates. For ease of exposition, I follow Schaffer (2009) and Cameron (2008) in supposing that the relata of grounding can be entities of various ontological categories so that it makes sense, for instance, to talk of mental entities being grounded in physical ones.<sup>14,15</sup> Further, we ought distinguish whole from partial ground. Partial grounding, as I use it here, corresponds with Dixon's (2016, 276) Proper Partial Grounding. A whole ground entirely accounts for (and necessitates) that which it wholly grounds. A partial ground is a proper part of a whole ground, and need not necessitate that which it partially grounds.

Not everyone, however, is a fan of grounding. For those who are not, little will be lost by translating talk of what grounds what into talk of what reduces to what (where reduction is distinct from identification) and, in most cases, what supervenes on what. Since if  $x$  grounds  $y$  then it follows that  $y$  supervenes on  $x$ , little will be lost if those unfriendly to grounding translate talk of in this manner. Likewise, talk of  $x$  partially grounding  $y$  can be translated into its  $x$  being the partial reductive base of  $y$ , or of  $x$  being part of the supervenience base of  $y$ .

According to a simple version of the classic moving spotlight theory, presentness is a *non-qualitative* fundamental property. It is a sort of moving temporal nowness whose instantiation makes it the case that a time is objectively present, but makes no qualitative difference to a time in the following sense: the instantiation of that property, by a time, is in principle not detectable by any method. Call this the NQ-classic theory. This theory is incompatible with the Distinguishability Principle. On the NQ-classic theory the instantiation of presentness, by a time, makes no qualitative difference to that time, and hence the phenomenology that subjects have when  $t$  is present, is no different from the phenomenology they have when  $t$  is non-present. We can, then, reject this view.<sup>16</sup>

So suppose that the classic moving spotlight theorist holds that presentness is qualitative in the sense that it is in principle detectable by some method. Call this the Q-classic theory. The Q-classic theory is consistent with there being some derivative qualitative property, DP, which is grounded in the instantiation, at  $t$ , of some plurality of fundamental properties  $F_1 \dots F_n$ , one of which is presentness. Then presentness is a partial ground of DP, and DP will be instantiated when, and only when,  $t$  is present. Suppose DP is, in turn, the ground of some subject  $S$ , having the property of being in some phenomenological state, PP, namely the phenomenological state as of presentness. (For simplicity, henceforth rather than using this roundabout locution I will simply talk of derivative properties grounding mental states, or grounding that subjects are in certain mental states – where this should be taken as shorthand for the previous). Then the instantiation of presentness, by  $t$ , makes a difference to  $S$ 's phenomenology, since when  $t$  is present, DP is instantiated and  $S$  has PP, and when  $t$  is not present DP is not

instantiated, and *S* lacks PP. So the Q-classic theory is consistent with the Distinguishability Principle, for if things are this way, then typically subjects have a phenomenology as of presentness at *t*, when, and only when, *t* instantiates presentness.

The Q-classic theory is, however, implausible. To see this, consider what the Q-classic theorist might say about which derivative properties are such that their instantiation is partly grounded in the instantiation of (fundamental) presentness. The options fall along a continuum from, at one end, the view that no derivative properties are partly grounded in the instantiation of presentness, through to the view that every derivative property is partly grounded in the instantiation of presentness. Clearly the former view is no use at all to the Q-classic theorist, since then presentness makes *no* difference to the time that instantiates it. So let's consider some of the remaining options along the continuum.

In what follows I will consider two broad classes of views the Q-classic theorist might endorse. On the first, although the instantiation of presentness is a partial ground for the instantiation of some, or all, *mental* properties, it is not a partial ground for the instantiation of any *physical* properties. On the second, the instantiation of presentness is a partial ground for *all* properties (physical and mental alike). I will begin with the first view and then move onto the second. In each case I will argue that the view in question is problematic.

Let's consider the view that the instantiation of presentness is a partial ground for the instantiation of some, or all, mental properties, but is not a partial ground for the instantiation of any physical properties. It is easy to see why the Q-classic theorist might hold that the instantiation of presentness is not a partial ground for the instantiation of any physical properties, that is, that derivative physical properties are fully grounded in distributions of permanent fundamental properties. Consider some distribution, *D*, of permanent fundamental properties. If physical properties were partly grounded in the instantiation of presentness, then while *D* would fail to ground *any* physical property, that distribution plus presentness *would* ground some physical property. But that is not plausible. All it takes for there to be ordinary derivative physical properties is for ordinary permanent fundamental properties to be thus and so. If so, presentness is not a partial ground of any (derivative) physical property. Nevertheless, since presentness makes a difference to our phenomenology it must at least be a partial ground of some of our *mental* properties.

In order for this to be so, the Q-classic theorist has to say that at least some mental properties – i.e. those partially grounded in presentness – are not physical properties, since physical properties are not partially grounded in presentness. But that seems like the right thing to say if one thinks that the instantiation of presentness makes no difference to the instantiation of

physical properties but does make a difference to the instantiation of mental properties. Then two fairly natural options present themselves. It might be that presentness is a partial ground of only *some* mental states – presumably those mental states with certain phenomenal character – or it might be that presentness is a partial ground for *all* mental states.

One might, initially, be sceptical that it makes sense to wonder whether presentness can be a partial ground for only some mental states. This returns us to our earlier discussion of the phenomenology as of presentness. There, I distinguished two ways in which we can think of this phenomenology. On the first, to experience E as present is no more than to experience E. On this way of thinking, if non-present subjects are not having present experiences, then they're simply not having any experiences at all. So presentness must be a partial ground for any mental state that has phenomenal character. If all mental states have phenomenal character, then presentness must be a partial ground for *all* mental states.

As noted previously, however, one might think that the phenomenology as of presentness is a phenomenology as of objective presentness. It seems *coherent* to suppose that non-present subjects have experiences none of which seem to be objectively present. (One can imagine a subject who has experiences all of which seem to said subject to be objectively past: we can even imagine a subject such as this believing, on these grounds, that they are trapped in the objective past.) So this view of the phenomenology as of presentness is consistent with the instantiation of presentness being a partial ground of only some mental states.

In what follows I outline a number of objections to the view that the instantiation of presentness is a partial ground for the instantiation of at least some mental properties, but is not a partial ground for the instantiation of any physical properties. I begin with what I call *the mismatch problem*. As we will see, the exact form of the mismatch problem depends on whether one supposes that the instantiation of presentness is a partial ground of all, or only some, mental properties. But the rough form of the worry is the same in either case.

Let's begin by supposing that presentness is a partial ground for only some mental states. In particular, suppose presentness it is a partial ground for only those mental states whose content includes the phenomenology as of presentness. So consider the following two beliefs, tokened at *t*, by *S*, when *t* is present.

B1. This moment is present

B2. It seems as though this moment is present.

What is the status of B1 and B2 when *t* is past (or future)? One might think that *S* tokens B1 and B2 at *t*, when *t* is past (or future). One will think so if one thinks that the phenomenology as of presentness is not part of the

content of either belief (and hence is not a partial ground of either). Suppose this is so. Then a problem immediately arises. Conditional on the truth of the Distinguishability Principle we should expect *S* to have a phenomenology as of presentness when, and only when, *t* is present. So we ought suppose that when *t* is past, *S* lacks a phenomenology as of presentness. Nevertheless, if *S* tokens B1 and B2 when *t* is past, then *S* believes that *t* is present, and believes that it *seems* as though *t* is present.

But then we have made little advance in responding to the epistemic objection. Even if it doesn't *seem* to *S* as though *t* is present when *t* is past (or future) if *S* believes that it does seem this way, then it is not clear that *S* can tell whether or not she is in the present. Or, at least, it is not clear that she is justified in believing that she is in the present when, and only when, she is, given her beliefs about the way things seem. Moreover, putting the epistemic objection aside, this seems a highly unattractive view of the connection between beliefs and phenomenology. On such a view there is a radical mismatch between how the world seems to us, at a time, and how we believe the world seems to us, and what we believe about the world on the basis of how the world seems to us. That is because this view allows the way things seem to us to almost entirely float free of other mental states. Wiggling the way things seem to us does not wiggle our *beliefs* about how things seem to us because the latter mental states are permanent while the former are temporary. That is a very unattractive combination.

Perhaps, then, one thinks that presentness is a partial ground for B2, but not B1. This might seem plausible because B1 is a belief about the world, whereas B2 is a belief about how things seem. Plausibly, one can believe that a particular moment is present without having a phenomenology as of presentness as part of the content of that belief, but one cannot believe that things seem as though they are present, without having that phenomenology as part of the content of the belief. If that is right then B2 cannot be tokened at *t*, when *t* is not present. Then there will be no mismatch between how things seem, and *S*'s beliefs about how things seem. But there will still be a mismatch. For on this version of the Q-classic theory all of *t*'s *physical* properties will be the same when *t* is past and future, as when it is present. On the plausible assumption that *S*'s behaviour and brain states are grounded entirely in physical properties, we should expect these to be the same when *t* is past and future, as when *t* is present. To be sure, then, B2 will not be tokened at *t*, when *t* is past (or future). But some mental state whose ground is entirely physical will be tokened, and that state will play the very same functional roles, with regard to the behaviour of *S*, as does B2. Hence there will be a mismatch between how subjects behave, and what they believe about the world, on the one hand, and how things seem to them, and what they believe about how things seem to them, on the other hand. The former are permanent, the latter temporary. Again, though, when we

wiggle how things seem we also want to wiggle not only our beliefs about how things seem, but also our beliefs about the way the world is, conditional on those seemings, and our behaviour in light of our beliefs about how the world is. As long as we hold fixed a subject's behaviour, and a good deal of their psychology, and allow to vary (to be temporary) some proper set of their mental states, we will find objectionable mismatches between those that are permanent, and those that are temporary.

So suppose, instead, that the Q-classic theorist holds that presentness is a partial ground for *every* mental state. To suppose so is to suppose that when *t* is not present, no mental states are tokened at *t* and so the past and future are populated entirely by mental-state zombies: creatures that not only lack phenomenal states, but lack *all* mental states.<sup>17</sup> The mismatch remains, however; but now it is between behaviour and the having of mental states. For the behaviour of non-present subjects will be permanent, given that said behaviour is entirely grounded in physical properties, but the mental states that accompany that behaviour will be temporary. Given that, as I will argue henceforth, on this view presentness is only introspectively and not scientifically detectable, this is worrisome. For there will be no way to know whether one is interacting with genuine subjects or mental-state zombies who behave just like subjects. Yet such radical scepticism regarding whether one's contemporaries are zombies or not is surely ludicrous. Hence this version of the Q-classic theory faces (some version of) the mismatch problem. This is not the only problem this view faces.

On this view, recall, the instantiation of presentness is not a partial ground for the instantiation of physical properties. So the instantiation of presentness at a time makes no difference to which physical properties are instantiated at that time. Hence the presence of presentness at a time won't be detectable through commonplace scientific methods. Hence the Q-classic theorist will hold that presentness itself leaves no record of having been at some time. Let's distinguish two ways in which presentness could leave a record of itself. In a strong sense, presentness leaves a record of itself at *t* iff there is a difference in the qualitative properties *t* instantiates *before* presentness arrives, than the qualitative properties it instantiates *after* presentness leaves. In the strong sense, presentness leaves a record of itself if, by examining a time, we can determine whether or not that time has instantiated presentness or not. In a weak sense, presentness leaves a record of itself at *t* iff there is a difference in the properties *t* instantiates when *t* is present, than when *t* is not present.

If there are any derivative properties that are partially grounded in presentness, then presentness will, in a weak sense, leave a record of itself, insofar as it will be true that some time was a certain way (though no longer is) in virtue of having instantiated presentness.<sup>18</sup> Moreover,<sup>19</sup> the Q-classic theorist could think that there are fundamental properties that change, such as for instance



the property of *having been present*. Prior to presentness arriving, some time  $t$  lacks that fundamental property: after presentness arrives, and then leaves,  $t$  has that fundamental property. So  $t$ 's fundamental properties prior to presentness arriving are different from those after presentness has departed. Nevertheless, that property is not detectable: it is not a qualitative property. So in the strong sense presentness leaves no record of itself. For however things are, qualitatively speaking at  $t$ , before presentness arrives, is *the very same way they are* qualitatively speaking, after presentness leaves.

So presentness itself leaves no record that can be empirically detected. Why should it matter if presentness leaves no strong record? Well, the changing of presentness is supposed to be what temporal passage consists in. Temporal passage, in turn, is a feature of time. So on this view time has properties that are, in principle, empirically undetectable. Indeed, on this view it would be in principle impossible to determine, through empirical investigation, whether time flows. But if anything seems like the kind of paradigmatic phenomena ripe for empirical investigation, then time seems like that thing. Instead, on this view, temporal passage can be detected only through introspection.

So let us consider the second version of the Q-classic view, according to which the instantiation of presentness is a partial ground for *all* derivative properties (physical and mental alike). This view avoids any mismatch problem. For no derivative physical property is instantiated at any non-present time, and hence there will be no non-present behaviour at such times, that can obtain in the absence of the relevant mental states. Moreover, if all derivative physical properties are partially grounded in the instantiation of presentness, then presentness is empirically detectable insofar as we can detect those derivative physical properties.

One might wonder if something like this idea helps to explain more recent versions of the MST owing to Skow (2015) and Cameron (2015). Recall that according to these views there are no non-present subjects having experiences, either because there is no way things *are*, at non-present times, or because the only experiences available to a subject are present ones. Consider Cameron's view for a moment. On that view what is the case, *now*, is what is the case *simpliciter*. Past- and future-tensed truths about any object are made true by that object's *present* instantiation of a temporal distributional property (combined with its age). Since the temporal distributional property of an entirely non-present object does not, *now*, attribute to said object any (ordinary) properties it follows that it is not the case that said object has any such properties (though it did). Why, however, should this be? If there exist past and future objects, and these objects have properties, why should it be that the way things are in the present, is the way they are *simpliciter*? Why aren't past and future perspectives equally good? For Cameron, the answer is that these perspectives are not equally

good because age is a partial ground for derivative properties. Another option, though, would be to say that this is so because *presentness* is a partial ground for all derivative properties. So those derivative properties are absent from past and future times. Hence for almost all temporary ways things can be at a time, they can be that way only if that time is present. So the present perspective is the correct one.

The problem with this version of the Q-classic theory lies in its commitment to the claim that all derivative properties, and hence all physical properties, are partially grounded in the instantiation of presentness. It beggars belief that all physical properties are so grounded. Consider mass, and suppose mass is derivative. Fix the distribution of all fundamental properties at a time except for presentness. *Surely* that will fix the distribution of mass at that time. That is, can adding presentness to a time really make the difference between that time instantiating mass, and not instantiating mass, *holding all else fixed*? I find it impossible to believe so.

So the problem for the Q-classic theorist is this. The mismatch problem arises if one supposes that some, but not all, derivative properties are partially grounded by presentness. The mismatch problem disappears if one supposes that all derivative properties are partially grounded by presentness. But this latter claim is very implausible. In all, I take these considerations to jointly militate against the Q-classic theory. Since the NQ-classic theory is incompatible with the Distinguishability Principle, it follows that we ought reject the classic theory.

### 3.2 *The non-classic moving spotlight*

The non-classic MST is the theory according to which there are multiple temporary fundamental properties.<sup>20</sup> It is consistent with the non-classic MST that presentness itself be reducible to some other temporary fundamental properties, or that presentness is a further temporary fundamental property. In what follows, for simplicity, I assume that presentness is a further fundamental property that may then be associated with the changing of other fundamental properties. Hence, I use locutions such as: when presentness arrives at a time, *t* it alters the fundamental properties of the time. I don't thin that anything hangs on putting things this way rather than supposing that its being the case that some (or all) of the temporary fundamental properties changing, is what the arrival of presentness consists in.

Let's call the set of all of the fundamental properties of a world, *except* for the property of presentness, the set of *fundamental-minus* properties. Then the non-reductive version of the non-classic theory is the view that when fundamental presentness arrives at a time, *t*, presentness alters (at least some of) the fundamental-minus properties instantiated at *t*, and *that alteration persists thereafter*. In its reductive version, it is the view that when certain

fundamental-minus properties at  $t$ , change, then this constitutes the arrival, at  $t$ , of non-fundamental presentness. As noted, in what follows I will frame things in terms of the non-reductive version of the Q-classic view. But in either case the crucial point is the same: either presentness is associated with change in other fundamental properties, or it is constituted by said change.

Skow (2011) offers a version of such a view according to which it is indeterminate which fundamental-minus properties are instantiated at future times and the arrival of presentness at a time makes it determinate which fundamental-minus properties it instantiates, and, having done so, those fundamental-minus properties remain determinately instantiated at that time once it is past.

The crucial difference between the Q-classic theory and the non-classic theory is that according to the latter view, the arrival of presentness at a time makes a difference to which *other fundamental* properties that time instantiates, while according to the former, the arrival of presentness only makes a difference to which derivative properties that time instantiates, namely to the instantiation of derivative properties that have the instantiation of presentness as part of their grounds.

Call the totality of fundamental-minus properties that are instantiated at some time,  $t$ ,  $t$ 's *fundamental-minus properties*. Then let  $\delta$  be the set of  $t$ 's fundamental-minus properties when  $t$  is future, and  $\phi$  be the set of  $t$ 's fundamental-minus properties when  $t$  is present, and  $\gamma$  be the set of  $t$ 's fundamental-minus properties when  $t$  is past. We can then characterise the non-classic moving spotlight theory as follows

Non-classic Moving Spotlight: (a)  $\delta \neq \phi$  and (b)  $\phi = \gamma$ .

(a) and (b) of course, jointly entail (c)  $\delta \neq \gamma$ .

The problem with the non-classic theory is that it is really no improvement on the Q-classic theory precisely because if (b) is true then the only fundamental difference between present  $t$  and past  $t$  lies in the presence, or absence, of presentness at  $t$ . So if subjects (typically) have a phenomenology as of presentness when, and only when  $t$  is present (as the Distinguishability Principle requires) there must be some derivative property instantiated when  $t$  is present, that is not instantiated when  $t$  is past, and that property must be responsible for the presence of a phenomenology as of presentness when, and only when,  $t$  is present. Notice, however, that this just what the Q-classic theorist says about the difference between present  $t$ , and past (and future)  $t$ . If her account is not good, as I suggested in the previous section, then the non-classic theorist is no better off than the Q-classic theorist.

So far, then, I have argued that no plausible version of the classic or the non-classic theory is consistent with the Distinguishability Principle. With this in mind, in what follows I outline a new version of the MST – the

cresting wave – and argue that, unlike its competitors, there are plausible versions of this view that are consistent with the Distinguishability Principle.

#### 4. The cresting wave theory

The cresting wave theory shares with the non-classic theory the claim that some fundamental-minus properties are temporary. But, as we will see, it differs in one crucial respect. Let  $\delta$  be the set of  $t$ 's fundamental-minus properties when  $t$  is future, and  $\phi$  be the set of  $t$ 's fundamental-minus properties when  $t$  is present, and  $\gamma$  be the set of  $t$ 's fundamental-minus properties when  $t$  is past. We can then characterise the cresting wave theory as follows

Cresting wave theory: (a)  $\delta \neq \phi$  and (b)  $\phi \neq \gamma$  and (c)  $\gamma \neq \delta$ .

Crucially, where the non-classic theory holds that  $\phi = \gamma$ , the cresting wave theory holds that  $\phi \neq \gamma$ .

The most natural way to understand the cresting wave theory, and the way I will adopt henceforth, is to suppose that the only moment with causal efficacy is the present moment. Or, better, presentness *is* causal efficacy, which is like a cresting wave. Its arrival changes the fundamental-minus properties of a time. Once presentness has left a time its causal efficacy is spent. Of course, the *remains* of the change, and hence of the efficacy, are there; but the *change and the efficacy itself* have gone, which is why the time instantiates different fundamental-minus properties in the past than in the present. To get a feel for what I take to be the best way of spelling out this view, consider the following burning fuse model articulated by John Norton.

Please imagine a long fuse hanging down from the ceiling. We take a match, strike it and bring it to the end of the fuse..Our attention is held by the flaming point that slowly advances upward. Those parts of the fuse ahead of the fire take their turn to be consumed by it and to disappear into the ashes... The advancing point of fire is the now. It consumes the future, the unburnt fuse, which is converted into the past, the scattered nothingness of ashes. In the burning fuse model, the future states carry the capacity of being able to come to be present. That capacity is realized in momentary fires of the present after which all reality is extinguished. The future is real; the past is not...The key novelty of the burning fuse model is the recognition that future events carry a property that is not carried by past events: they carry the capacity of being able to come to be present. Past events do not carry that capacity. Once they are past, they are spent. The capacity is lost. Indeed they carry no potentialities at all (Norton 2015, 103).<sup>21</sup>

The cresting wave theory differs from Norton's burning fuse model in one crucial respect. According to the cresting wave theory the past exists. Still, using the language of Norton's metaphor we can think of the cresting wave theory as follows. There exists a bare fuse along which the flame moves. The

bare fuse, prior to the flame arriving, is the future; the location at which the flame burns is the present. As the flame moves along the fuse what is left is the burnt remnant of the fuse, and that burnt remnant is the past. Thus a time goes from being future (bare fuse) to being present (brightly alight) to being past (black and burnt).

How to spell this out in less metaphorical terms? One way, but not the only one, is to appeal to dispositions. Henceforth I will understand dispositions as powers that can be manifested. Further, and following Mumford and Anjum (2011) I will suppose that it is properties that do the causal work, and that causation is the result of powers manifesting themselves. Causation is the result of suitable powers appropriately combining and manifesting; effects are brought about by powers working together to manifest some further property. I call the version of the cresting wave theory spelled out in terms of this framework, the *manifesting wave theory* (MWT).

The MW theorist holds that presentness is an essential component of *any* combination of powers that manifest. So what it is for a moment to be present is for its dispositional properties to manifest. What it is for a moment to be future is for its dispositional properties to be as yet unmanifested, and what it is for a moment to be past is for its dispositional properties to have been manifested: for those properties to be spent.

So, to return to an earlier question, how is it that the instantiation of presentness at a time changes other *fundamental* properties of that time? It does so by synchronically causing those properties to be different. For on this view causation is simultaneous. The effect – that is, the manifesting of powers – occurs at the same time as the powers come together in the relevant combination, the combination involving presentness. One way to get a handle on this is to think of composite entities. We put chair-parts together to create a chair. Prior to the parts being appropriately arranged, there is no chair. Once appropriately arranged, there is a chair. But there is no temporal gap between the arranging, and the chair coming into existence. One could, in fact, think of the coming into existence of the chair as a case of *metaphysical* causation (see Wilson 2017; Schaffer 2016). Similarly, when we appropriately combine powers, the combining of those powers both is the cause, and the effect. Notably, however, this need not commit the manifesting wave theorist to action at a distance. Action at a distance occurs when cause and effect are spatially, but not temporally separated, and the causal propagation between cause and effect must travel faster than light to from cause, to effect. The manifesting wave theorist thinks there is no distance *whatsoever* (temporal or otherwise) between cause and effect. If  $t$  is present, then presentness is instantiated at every location at  $t$ . Presentness pervades  $t$ . Since it is the combination of some dispositional properties, alongside presentness, which results in the manifesting of certain dispositions, causes are always exactly where their effects are. So there is

neither spatial nor temporal distance between cause and effect, and hence no action at a distance.

The crucial difference, then, between the MWT and the Q-classic view is that according to the latter there is a fundamental property of presentness, and any dynamical change is grounded in changing presentness,<sup>22</sup> while according to the former, changing presentness is grounded in the manifestation of dispositions. So the Q-classic view is committed to there being a lot of permanent *fundamental* structure in the four-dimensional block. To the extent that the Q-classic theorist supposes that most derivative properties are wholly grounded in permanent fundamental properties (i.e. not partially grounded in presentness) she will suppose that almost the entire four-dimensional block is permanent and unchanging. By contrast, the MW theorist (in any of its versions) holds that there is relatively little that is permanent in the four-dimensional structure. As we will see shortly, how much, if any, she thinks is permanent will depend on the exact details of her views about properties and dispositions.

Why might MW theorists disagree about how much of fundamental reality is permanent? Consider, first, a version of the MWT that endorses pandispositionalism, the view that all properties are dispositions. On this view all future properties are *unmanifested* dispositions; all present properties are *manifesting* dispositions and all past properties are *manifested* dispositions. Crucially, on this view there is *no* fundamental property that is instantiated by *t* when *t* is past, present and future: *all* fundamental properties are temporary.

So pandispositionalist MWT shares some features with Cameron's (2015) version of the MST. Recall that according to Cameron, entirely non-present objects don't, for instance, instantiate mass, since they do not *presently* instantiate mass. The pandispositionalist MW theorist will agree that (entirely) non-present objects do not instantiate properties like mass. But in other ways the views are very different. For Cameron, the totality of temporal distributional properties is unchanging. All that changes are objects' ages. By contrast, the pandispositionalist MWT holds that all the fundamental properties change: moving from being unmanifested dispositions, to manifesting, to being manifested. So if objects have temporal distributional properties that supervene on the fundamental properties at times, then these TDPs will change as presentness changes. Alternatively, if TDPs are fundamental, then we have a picture in which objects have complicated TDPs which specify both how things are, before presentness arrives, and how they are, when presentness arrives, and how they are, after presentness leaves: and these facts are permanent. On that view, TDPs are like a permanent 'lockup' table, where what they tell us about how things will be, how things are, and how things were, varies depending on where presentness is. This allows us to accommodate its being the case that how

things are, at some future time, is not how they will be, when that time is present, nor how they were, when that time is past.

Pandispositionalist MWT is not the only version of the MWT. The MW theorist could hold that only *some* properties are dispositional, while others are categorical. Then some fundamental properties – namely the categorical properties – are permanent. This version of the view accommodates the idea that there is some permanent fundamental structure in the four-dimensional block, whilst allowing there is also change in some aspects of the fundamental structure. We could call this the *moderate manifesting wave theory*. The moderate MWT is dissimilar to Cameron's version of the MST not only in that it holds that fundamental properties other than presentness are temporary, but also in that it holds that there are some permanent ways things are, such that things are (present tense) this way in the past (and future).

In §5 I argue that given that one is motivated by the argument from passage phenomenology, one ought prefer the CWT (in the form of the MWT) to other versions of the MST. But of course, even if what I say there is right, it could still be that all things considered, the MWT does worse overall as a version of the MST. I don't think this is true, but I can't hope to go through all of the ways the view differs from its competitors in order to show that it is at least no worse than said competitors in each of these respects. Instead, I will focus just on the features of the view that set it apart from other versions of the MST, to see whether there are *prima facie* reasons to think that these features will render the theory less appealing than its competitors. Hence I will focus on the fact that according to any version of the CWT, many (or all) fundamental properties are temporary. For this is what sets the view apart from other extant versions of the MST.<sup>23</sup>

If at least some fundamental properties (other than presentness) are temporary, then it cannot be that what makes true, past-tensed truths, is how things are, in the past. For how things are, at past time, *t*, is not how they were, when *t* was present. So the CW theorist needs to provide truth-makers for past-tensed truths that do not appeal to the ways things are, in the past. That is (arguably) a cost to the view. It's a cost that has to be paid in order to vindicate the Distinguishability Principle, so I think it is a cost worth bearing.

Recent defenders of the MST, such as Skow (2015)<sup>24</sup>; Cameron (2015); also deny that the way things are, in the past, makes true, past-tensed truths. Cameron thinks that it is the way things are, *presently*, (by way of an object's temporal distributional properties) that makes true, past-tensed truths. Since the CWT cannot posit temporal distributional properties – or at least, not temporal distributional properties that do not themselves change – she cannot avail herself of Cameron's proposal. She can, however, appeal to something like the apparatus laid out in Skow (2015). Skow adumbrates a number of versions of the MST. Notably, one of these appeals

to what he calls MST-Supertime (a second temporal dimension). The idea is that we model the change of presentness by appealing to its having different locations in time, at different locations in MST-Supertime. The CW theorist can hold that the truth-maker for past-tensed truths about  $t$  is not the way  $t$  is, in the past, but rather, the way  $t$  is at the MST-Supertime at which  $t$  instantiates presentness. For those defenders of the MST who think that something like MST-Supertime is needed to model *any* version of the MST, this account of truth-makers for past-tensed truths will incur no additional ontological costs.

Alternatively, the CW theorist could borrow an idea from Forrest (2006) and say that past-tensed truths *are* made true by the way things are in the past, but in an indirect fashion. Consider some past time  $t$ . Now consider some present-tensed claim about  $t$ , for instance, 'X is F at  $t$ '. Suppose that  $t$  is not, in the past, such as to make true 'X is F at  $t$ '. Nevertheless, there is some way  $t$  is which is the way it could be only if when it was present, it was such that 'X is F' is true.<sup>25</sup> The way  $t$  is, in the past, bears witness to its *having been the case* that when  $t$  was present, 'X is F' was true. That is because the way  $t$  is, in the past, is such that certain dispositions *have manifested*. But this can only be so given that  $t$  was one present, and when present it was some particular way (namely X's being F). So, that certain dispositions *have manifested*, as witnessed by past time  $t$ , is what makes true some past-tensed truth about  $t$ .

To sum up: because it can meet the Distinguishability Principle, the CWT faces truth-making problems that traditional versions of the MST do not. Nevertheless, since the CWT can avail itself of a number of potential accounts of truthmaking, this does not appreciably speak in favour of these traditional MSTs.

Given this, in what follows I move on to show that the manifesting wave version of the CWT is preferable to other versions of the MST with respect to meeting the Distinguishability Principle.

## 5. The superiority of the manifesting wave theory

The NQ-classic theory is straightforwardly inconsistent with the Distinguishability Principle. So we can eliminate it from consideration. That leaves the Q-classic and the non-classic theories. The non-classic theory shares a crucial feature with the Q-classic theory: both treat the difference between  $t$  when it is present, and  $t$  when it is past, in the same manner. Further, the non-classic theory shares a crucial feature with the CWT: both treat the difference between  $t$  when it is present, and  $t$  when it is future, in the same manner. It follows that if the way the CWT treats the difference between  $t$  when it is past and  $t$  when it is present is preferable to the way in which the Q-classic theory



does, then the CWT is preferable to both the Q-classic and non-classic theories. In what follows I argue that this is so.

In §3 I outlined a number of problems for two different versions of the Q-classic theory, which, I claimed, were sufficient to find each unattractive. One version of the theory commits us to the view that there is an objectionable mismatch between physical properties (and hence behaviours) and mental properties (beliefs or phenomenal states or both). It also commits us to the view that presentness is a non-physical property, and hence not a property that is empirically detectable, and thus commits us to the view that temporal passage is not empirically detectable. The other version of the Q-classic theory commits us to saying that if we hold fixed the distribution of fundamental properties (bar presentness) then by varying *just* the instantiation of presentness, we thereby vary whether any (derivative) physical property is instantiated.

Let's consider each of these problems and see whether the MWT can do better. If it can, we have shown that some version of the CWT is preferable to any of its MST competitors (holding fixed the attractiveness of the Distinguishability Principle).

First, the MWT entails that presentness is a physical property. For on this view presentness is causal efficacy. It is the presence of presentness, at  $t$ , which is (partially) responsible for the manifesting of dispositions at  $t$ . Hence presentness leaves, in a strong sense, a record of itself having been at a time. So if temporal passage consists in changing presentness, then it is empirically detectable.

Second, although the MW theorist might hold that presentness is a partial ground for every derivative physical property (as the pandispositionalist does) she will deny that we can hold fixed all the fundamental properties (bar presentness) and by varying *only* the instantiation of presentness, thereby vary all the derivative physical properties. For she thinks that the derivative physical properties vary when  $t$  is present, from when it is not present, in virtue of the fact that (some, or all) of its fundamental properties vary. So she can maintain that derivative properties supervene on fundamental properties in much the way we have always supposed.

Third, the MW theorist need not suppose that there are any objectionable mismatches. Mismatches arise when we suppose that presentness is the only temporary fundamental property, and that while derivative physical properties are not temporary, at least some mental properties are. The MW theorist supposes that many, or all, fundamental properties are temporary. So she has no reason to think that derivative physical properties are permanent, whilst also thinking that (at least some) mental properties are temporary. So she has no reason to countenance such mismatches. She can suppose that behaviour, beliefs about the world, beliefs about how things seem, and how things do in fact seem, all go together as a neat package

that co-varies with the presence of presentness. On this view the past and future are not just like the present, but just *not present*, they are substantially different from the present, and this will be reflected in more than just the ways things seem to subjects.

Hence none of the issues that plague the Q-classic theory are problems for the MWT.

## 6. Conclusion

On the MWT the (changing) instantiation of presentness makes a difference to our phenomenology as of presentness, and hence the passage of time makes a difference to our passage phenomenology. If things are as the MW theorist supposes, then we are justified in believing that we are present, and in believing that time passes, on the basis of our perceptual-like experiences, in just the same way that we are justified in believing that there are chairs present based on our perceptual experiences. Thus if things are this way the argument from passage phenomenology ought be persuasive, and the epistemic objection ought be easily resisted. Thus if one is motivated towards the MST on broadly phenomenological grounds, and, in particular, because of the argument from passage phenomenology, one has reason to prefer the MWT to any of its MST opponents.

Of course, one might think that the cresting wave theory is metaphysical craziness. As it happens, I agree. But if that is your view, then either you, like me, should reject the MST altogether or, if you endorse that view, you should do so for reasons other than an appeal to the content of our passage phenomenology.

## Notes

1. The limiting case in which temporal phenomenology is partly constituted by passage phenomenology will be where passage phenomenology exhausts temporal phenomenology. Nothing hangs on the assumption I make, that passage phenomenology only 'properly' partly constitutes temporal phenomenology.
2. One might deny that we have passage phenomenology thus described. See for instance Hoerl (2014); Braddon-Mitchell (2013); Miller, Latham, and Holcombe (2018); Torrenco (forthcoming). For present purposes I assume that we do have passage phenomenology.
3. Since growing block theorists are also sometimes motivated by the argument from passage phenomenology, similar considerations to those raised in this paper might prompt the growing block theorist to endorse a version of the growing block that is similar to the cresting wave theory I offer here, except modified so as to be growing-block friendly.
4. I don't claim that these are exhaustive; but they represent the two most extreme positions.

5. 'Quasi-perceptual' is sometimes used in this role, but is also sometimes used to pick out experiences with representational content that do *not* seem to be sensitive to something mind-independent.
6. This is the view that Cusbert et al. (2015) and Miller et al (2018) call phenomenal illusionism.
7. Arguably, something like this is what Paul (2010) defends.
8. The principle leaves it open that sometimes subjects fail to have a phenomenology as of presentness at a time when it is present, and sometimes have a phenomenology as of presentness when a time is not present.
9. A different version of the argument targets the growing block theory.
10. I cannot, here, argue that this is the only, or best, way to do so, though I think it is. Recent proposals (such as Cameron 2015) do not, to my mind, provide a viable alternative (for discussion of these proposals see Miller 2017, 2018).
11. Skow (2015 p 205) argues against this view.
12. Except in versions of the moving spotlight theory in which it is not an absolute matter which time is present, but, instead, each time is present relative to itself.
13. Thus, the notion of grounding we have in mind is not one according to which the grounded is 'nothing over and above' its grounds. I follow Audi (2012) in supposing that if  $x$  grounds  $y$ ,  $x$  in some sense metaphysically explains  $y$ , but  $x$  and  $y$  are distinct.
14. Nothing hangs on this. Those who, like Audi (2012) prefer to restrict the relation to *facts* are free to reformulate our proposal in those terms.
15. As is common, I assume *necessitarianism* about grounding (namely that if  $x$  grounds  $y$ , then at every possible world where  $x$  exists,  $y$  exists) and that grounding is constrained by relevance, and is thus a non-monotonic relation.
16. Skow (2015 p 198) makes a similar point.
17. Forrest (2006) proposes such a view in the context of the growing block theory.
18. With thanks to an anonymous referee for pressing me on this point.
19. As a helpful referee pointed out.
20. Deasy (2015) calls this change of fundamental properties Williamsonian Passage.
21. It should be noted that Norton is not defending such a view. Indeed, he is intending to poke fun at metaphysics via the introduction of what he takes to be such a ludicrous view.
22. Of course, there is still at-at change in the absence of changing presentness.
23. This is not the only view that combines these features. Sider (2011) describes such a view as one in which there is Williamsonian passage, since Williamson (2002) considers such a view.
24. Skow considers various versions of the MST, and defends a number of these. He does not, however ultimately endorse such a view.
25. This view, which appeals to primitive tensed facts, bears some relation to the view found in Parsons (2002) according to which at  $t$ ,  $\phi$ , means were  $t$  present, it would be the case that  $\phi$ . In fact, Parsons' proposal is an alternative to the one described here, since presumably 'X is  $\phi$  at  $t$ ' will come out as true on the Parsons semantics, since were  $t$  present, X would be  $\phi$ .

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