

The Passage of Time is Not an Illusion: It's a Projection

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Abstract

This essay aims to review and clarify an emerging consensus among philosophers of time: that belief in the passage of time is not a matter of illusion but rather the result of a variety of cognitive error. I argue that this error is best described in terms of psychological projection, properly understood. A close analysis of varieties of projection reveals how well this phenomenon accounts for belief in dynamic temporal passage and the objective becoming of events. A projectivist account of belief in the passage of time is, in actuality, already predominant in contemporary philosophy of time; but the language of illusion still used by many theorists is hampering recognition of the nature of the solution as well as the recent progress towards consensus.

1. Introduction

Central to contemporary philosophy of time is the ‘scientific time vs manifest time’ question: in a relativistic block universe with only timeless at-at change, why do many of us seem intuitively committed to the reality of the passage of time, the uniqueness of the present, and changing, non-relational temporal properties?¹ There is a wide range of answers to this question in contemporary philosophy of time; unfortunately, categorizing and properly distinguishing between these approaches is challenging.² As Christoph Hoerl helpfully explains,

¹ Teresa McCormack (private conversation) mentions that, in recent work she did with Shardlow *et al.* (2021) and Lee *et al.* (2022) a majority of survey respondents endorsed a ‘naïve’ dynamism in their description of the world, but a minority did not. More work is needed to understand the systematic underlying differences (if any) between these groups.

² Giuliano Torrengo and Daniele Cassaghi (2022) recently have made a heroic attempt to fully classify all the possible positions on this issue. The result is instructive with regard to just how complicated this task can get.

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the first distinction that needs to be made is between reductionism and anti-reductionism:

The idea of passage [...] is central to the dispute between a certain kind of reductionist about the nature of time and a certain kind of anti-reductionist about the nature of time. For a reductionist of the type at issue here, all there is to things' moving or changing over time is for those things to occupy different spatial locations or to have different intrinsic properties (of suitable kinds) at different times. [...] For an anti-reductionist, by contrast, there is more to motion and change. Indeed, for the anti-reductionist, things' occupying different spatial locations or having different intrinsic properties at different times presupposes another, more fundamental type of motion or change that times themselves, or things as they are at a time, undergo: they pass or flow from the future through the present and into the past. (Hoerl, 2014a, pp. 188–9)

Anti-reductionists are often called 'A-theorists' or 'dynamic theorists'. An anti-reductionism that takes manifest time as a guide to reality is broadly rejected by physicists and philosophers of time. The biggest reason for this is that scientific time appears to have no use for absolute becoming and intrinsic temporal properties. (As Craig Callender, 2017, p. 2, recently summarized it in his *What Makes Time Special?*, 'our best science of time suggests that manifest time is more or less rubbish'.) Reductionism corresponds with what is called 'B-theory' or 'static theory'. Reductionists are divided into illusionists and deflationists. The illusionist thinks that perceptual experience presents us with an illusory phenomenology of the passage, or flow, of time. The deflationist is a cognitive error theorist who thinks that there is no such phenomenology in the first place: the idea that a phenomenology of passage even exists is a kind of misconception as to the nature of one's own experience.³

Deflationist Arthur Falk (2003) claimed that our awareness of temporal passage is a consequence of the mind-dependent 'whoosh and whiz' of the continual 'flushing and freshening' of perceptual information being mistaken as a property of the events being perceived. He compared the attribution of this flux to events with the attribution

³ The deflationist position on the experience of temporal passage has existed for a long time (as discussed below), but the use of the term 'deflationism' to describe the position is relatively new. For uses of the term 'deflationist' or 'deflationism' in the relevant context see, e.g., Deng (2017), Miller *et al.* (2020), or Dyke (2021).

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of colours to objects, in characterizing each as the result of a mind-dependent phenomenon being mistaken for an objective quality.⁴ This confusion of subjective experience with an objective process sounds like what is sometimes called 'projection'. This concept shows up in a few, mostly older accounts of our belief in temporal passage as well as accounts of our belief in temporal direction. But nowadays the term 'projection' rarely appears in the literature.⁵

Contrary to this trend, I suggest we would do well to (re-)centre projection as a framework concept for understanding temporal consciousness and belief in temporal passage. As I shall explain below, one advantage of this framing is that it helps clarify the distinction between illusionist and deflationist explanations for our belief in temporal passage.

2. Objections to Projection

On a common understanding of the philosophical use of the term, projection involves mistakenly representing some subjective phenomenal quality as instantiated in physical space or as belonging to an external object (see, e.g., Baldwin, 1992). This is a typical reading of Galileo, Newton, and Hume on so-called secondary properties like colour or sound.⁶ I may represent myself as having an experience of a certain kind (e.g., seeing an object *as red*), but in actuality 'red' is just a feeling I have when I experience certain wavelengths of light under the right conditions.

There are some general concerns about projectivism that may explain why many have been shy of explicitly drawing on the concept of projection in philosophy of time.

A standard objection to any kind of projectivist account like Hume's derives from a kind of 'principle of charity' applied to sense experience. As Sidney Shoemaker (1990) observes, the semantics of expressions about, say, colour properties indicate the attribution of those properties to objects rather than ideas or sensations.

⁴ See my 'Time Awareness and Projection in Mellor and Kant' (Bardon, 2010).

⁵ There is only one speculative mention of 'projection' used in this sense (at the end of Lorne Falkenstein's chapter on Hume) in the entire 2017 *Routledge Handbook of Philosophy of Temporal Experience*. The 2011 *Oxford Handbook on Philosophy of Time* contains (or at least indexes) zero occurrences of the term; the 2014 collection *Subjective Time* indexes zero occurrences; and the same for *The Illusions of Time* (2019).

⁶ See Boghossian and Velleman (1989).

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He concludes the default interpretation of such expressions should be such that such properties are at least applicable to objects. Further, Shoemaker continues, the sort of mistake exemplified by the projection of sensible qualities would constitute a category mistake, and experience just cannot involve inherent category mistakes (see also Stroud, 1993).

Simon Prosser (2016) thinks that all phenomenal properties are representational, and projectivism entails non-representational phenomenal properties. According to intentionalism, which Prosser embraces, for an experience to have a phenomenal character is for the world to be represented in a certain way. The projectivist thinks that, even though our experience of an object includes, say, phenomenal colour, the object is not thereby presented as having colour; this representation is the product of a misinterpretation of the significance of the phenomenal content of the experience. The intentionalist denies that phenomenal presentation and representation can come apart in this way.

As I shall argue, a properly expanded definition of psychological projection can alleviate general concerns about projectivism like those of Shoemaker, Stroud, and Prosser. Under this expanded definition, a major category of projection – and the one most relevant to philosophy of time – allows us to account for certain beliefs by reference to aspects of the subject's non-inferential psychology, rather than to the projection of some phenomenal content. In fact, despite his rejection of Humean projectivism, I believe that this expanded understanding of projection is applicable to Prosser's own account of belief in the passage of time.

3. An Expanded View of Projection

The fact that deflationism is the most plausible and parsimonious explanation of belief in temporal passage is easier to see once we have a better understanding of the concept of projection.

Peter Kail (2001) points out that the restriction of projection to purported sensible properties draws on too narrow a definition. Kail argues that the distinctive role of philosophical projective accounts is to explain a commitment to the world being a certain way when it is not possible to invoke the world's either being that way *or even really appearing that way* to explain that commitment. In short, 'projection' encompasses any 'non-detective explanation' for a positive doxastic attitude (Kail, 2007). On this broader understanding, a subject S's commitment to some objective state of affairs counts as a projection when:

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- (a) the best explanation of the commitment does not advert to the putative facts or properties corresponding to the commitment;
- (b) the commitment is not derived or sustained by inference;⁷
- (c) the explanation of the commitment essentially involves appeal to psychological facts about S;
- (d) the phenomenology of the commitment does not intimate to the subject its best explanation.

(Kail, 2001)

This understanding of projection is reflected in a common use of the term in clinical psychology, attributed to Sigmund and Anna Freud: e.g., I feel guilty about something, and unconsciously protect myself by blaming others; or, I desire another and consequently interpret the other's responses as encouraging. Note that, in such cases, the subject will often report finding *evidence* in his or her experience of, respectively, others' malfeasance or romantic interest. The evidence is not there, but the subject interprets his or her own experience as including that evidence anyway.

Freudian projection is characterized by ego-protective motives. But there are many other examples of structurally similar types of projection. Such examples might include a bad case of impostor syndrome, wherein I experience others' attitudes towards me as contemptuous simply because I lack confidence in myself. In such cases, as in cases of Freudian projection, there is a sort of cognitive penetration happening such that your description of the contents of your own experience is altered in some way by your beliefs, expectations, or emotional state. Your subjective reality is confused with objective reality – but not in the sense of directly taking a feature of your subjective phenomenology as an objective feature of the world. As Kail puts it,

We are shifting away from something being *projected* in the quasi-literal sense of something being 'in here' but taken for something 'out there' to something being *a projection* of another state. My belief that Russell is angry is not a representation of *my* state of mind being his, but a representation of his being angry, which I have *because* I am angry – my belief that Russell is angry is a projection *of* my anger, rather than my anger itself being projected. The reason why it is right to call it projection turns on the fact that the correct explanation of the

⁷ 'Sustained by inference' = 'The subject's belief is based on following a rule the subject conceives to be truth sensitive.'

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commitment lies in the non-inferential psychology of the thinker. (Kail, 2001, p. 32)

Racial prejudice and ideological biases have been shown to have similar effects, not just on one's assessment of evidence but also on *descriptions of the very contents of one's own experiences*.⁸

We can thus distinguish between two types of projective explanation for holding a belief, each meeting Kail's criteria for projection:

Ersatz Response Projection (Kail, 2001; or *Feature Projection*, Kail, 2007)

The subject's belief is a response to a phenomenology which is best explained by appeal to the subject's own mental life. This is 'a matter of representing something "in here" to be "out there"' (Kail, 2010, p. 62), as in the case of colour properties.

Non-Response Projection (Kail, 2001; or *Explanatory Projection*, Kail, 2007)

The subject's belief is best explained by features of the subject's non-inferential psychology and not as a response to any phenomenological feature. 'For example, when we say that belief in God is a projection of our fear, we are not representing the world to contain our fear but saying that we hold the belief *because* we are fearful' (Kail, 2010, p. 62).

Note in each case the thought, and the surface grammar of its expression, may appear truth-apt, even though the underlying explanation for the commitment is non-cognitive. The subject misconstrues his or her own experience; the subject thinks the belief is based on evidence or experience but the real reasons for holding the belief lie in his or her non-inferential psychology.

I endorse Kail's categorization, but I find the terminology a bit unsatisfactory. I shall instead refer to these, respectively, as 'direct' and 'indirect' projection, concisely defined as follows:

Direct Projection

Misconception of one's own experience based on taking some particular subjective phenomenology as instantiated in the world, or as being representational in a way that is inapplicable to objective reality.

⁸ See my recent book *The Truth About Denial: Bias and Self-Deception in Science, Politics, and Religion* (Bardon, 2020) for a review of the social science literature on this phenomenon.

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Indirect Projection

Misconception of one's own experience based on, and reflecting aspects of, the non-inferential psychology of the subject.

I suggest we should avoid using the word 'illusion' for either of these varieties of misconstrual of experience. If we use the language of illusion, we send the wrong message as to what kind of explanans we seek. We are looking not for some illusory phenomenology leading us astray, but rather for an account of human psychology that takes us from having a bias or belief of some kind to a representation of the world that is unwarranted, incoherent, or impossible – in other words, a projectivist account.

4. Illusion and Projection

A paradigm case of perceptual illusion would typically involve an experienced stimulus or phenomenology that is misleading in some way thanks to the conditions under which it occurs. By contrast, cognitive error – of which projection is a subcategory – is about misconception rather than misperception. Granted, there is a going to be a lot of grey area between illusion and cognitive error. As Matthew Soteriou (private conversation) points out, it is unclear how to classify phenomena like the McGurk effect. Is it a sort of cross-modal perceptual confusion, or should it primarily be described as the result of a sort of top-down cognitive penetration? What about the voices reported by someone suffering from schizophrenia? Is an impossible Escher figure an illusion? We may need to think of perceptual illusion vs cognitive error more as opposite ends of a spectrum of effects. Nevertheless, I think it's fair to say the distinction can sometimes pretty clearly pick out qualitatively different phenomena – as in the contrast between particular colour judgments in an environment with deceptive lighting vs the overall judgement that colour exists as an intrinsic property of objects.

In paradigm cases, calling an experience a perceptual 'illusion' implies some possible alternative, veridical experience. One has an illusory experience when one experiences a certain stimulus or phenomenology that misleads but, under different conditions, would or could lead to a veridical judgment.⁹ In a manner of speaking, an

⁹ See, for example, Hoerl (2014a) or Deng (2019). There may be exceptions. Simon Prosser (private conversation) argues that the waterfall illusion (an instance of the static negative motion aftereffect) is an example of an illusion that presents us with something impossible (a scene that, temporarily,

illusory experience *does* intimate to the subject its best explanation; it is just that the conditions are such that the best explanation for this token experience is the wrong one.

Projection should not be classified as illusion. Objects have to look like something; there is no non-colour visual encounter option. There are cases where you can be tricked into a particular colour ascription because you don't realize the ambient lighting is not what you think it is. But this doesn't make the very idea of colour itself an illusion. According to the Humean projectivist, we don't have experiences *as of* coloured objects; rather, we have (roughly speaking) colourful experiences of objects. In the case of colour ascription generally, neither the phenomenology nor its context is *misleading*: objects do not falsely appear to have a property that they might really have had in some other context. If the experience leads to a metaphysical commitment to the existence of intrinsic colour properties, then the experience has been fundamentally misconstrued in terms of *type*.

Direct projection may lead us to misunderstand a quality of subjective experience – say, subjective colour feelings, sympathetic responses, or expectations formed by repeated associations – as, respectively, intrinsic colour, objective moral value, or casual connection (Hume, 1739). In so doing we commit a category mistake: we take a subjective feeling as an objective feature of the world. This misunderstanding may systematically result in an explicit commitment according to which we claim to have detected features of the world we could not possibly detect. This kind of misattribution is (a type of) cognitive error, not perceptual illusion.

So here are five possible narratives on the alleged experience of the passage of time:

Type A: *Veridicalism*

We experience the passage of time as such, because passage is real, and we are able to perceive it.

Type B: *Illusionism*

We experience the passage of time as such, but it is a perceptual illusion. There is something seemingly dynamic in our phenomenology on top of the perception of change *simpliciter*, but this dynamicity is an illusion. The belief that time flows is, falsely,

is both dynamic and not dynamic). He says it is not clear what it would mean to have a veridical experience here. I would lean towards saying the motion aftereffect is illusory, whereas the object or background is not; but indeed, there is room for different diagnoses of this effect.

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arrived at by inference (e.g. Paul, 2010; Dainton, 2012; and Gruber and Block, 2013).

Type C: *Direct Projection Account*

Belief in passage arises from a misunderstanding of some feature of one's own experience as an objective property of the world – i.e., taking some subjective phenomenology of change or continuity as *itself* objective flow (e.g., Falk, 2003; Le Poidevin, 2007; Torrenco, 2017).

Type D: *Indirect Projection Account*

Belief in passage is an attributional misconception based on our way of thinking about change and/or self-representation in relation to change (e.g., Parmenides of Elea, c. 450 BCE; Ismael, 2007; Bardon, 2013; Callender, 2017; Miller, 2019; see below for more on how this might work).

Type E: *Combined Projection Account*

A complex combination of mechanisms falling under types C and D. In other words, a complete explanation of belief in temporal passage may involve both direct and indirect projection.

Illusionism is the idea that certain experiences – wherein motion or change can be perceived without inference – either constitute or bear an illusory phenomenology of flow. Theorists like L.A. Paul (2010) and Barry Dainton (2012) claim that there is an additional, illusory dynamical quality in the experience of motion and change that is present even in cases of merely apparent motion. However, as Natalja Deng (2017, 2019) has pointed out, continuous motion phenomenology is not the same as passage phenomenology: even if some experiences of motion, change, and continuity are illusory, the representation of motion, change, and/or continuity is not the representation of objective passage (see also, e.g., Farr, 2020). Because any comparison with motion or change illusions is dependent on equivocation (see Hoerl, 2014a, 2014b), the static theorist should regard any characterization of one's own experience as representing objective passage via a continuous motion/change phenomenology as misdescription rather than illusion.

Like many others, Simon Prosser (2016) has argued that the experience of a block universe under the B-theorist's view lacks for nothing in accounting for our experiences of change and motion. Kristie Miller ([forthcoming](#)) notes that the experience of objective passage *per se* would have to involve the experience not just of

change but of the objective presentness of current events. How this could possibly figure into one's phenomenology is difficult to understand. Overall, it is just not at all clear how our experience of a truly dynamic, A-theoretical universe would differ from our experience of a static, B-theoretical block universe – and thus the burden is on proponents of passage who cite evidence of passage in experience to identify a distinctive passage phenomenology.¹⁰

I shall thus presume that, like veridicalism, illusionism is an obsolete option. Only deflationist accounts are viable.

For the deflationist, it does not even *seem* as though time passes. Miller, Holcombe, and Latham (2020) discuss the famous Morrot *et al.* (2001) experiment in which the investigators asked a panel of 54 professional wine tasters to assess the smell of white wine that had been secretly dyed red. The dye was odourless and did not change the smell of the wine. Yet the wine tasters largely described the smell as that of red wine. They evidently believed they were dealing with red wine because of the misleading visual presentation, and consequently 'came to *believe* that their olfactory wine phenomenology was as of smelling red wine' (Miller *et al.*, 2020, p. 764). Here we have a pretty clear case of projection rather than illusion. The dye created a misleading visual phenomenology, but not an olfactory one. 'Why are the tasters under the illusion that they are smelling red wine?' is the wrong question. This is the wrong question because it implies that we should seek an illusory olfactory phenomenology to explain the belief. But there is no such phenomenology. The subjects' characterization of their own olfactory experience was a product of their non-inferential psychology – in this case, the belief that they were smelling red wine.

Miller *et al.* hypothesize that belief in temporal passage phenomenology may work the same way: a naïve conceptualization of the world as including the passage of time leads one to misrepresent one's own phenomenology as including a sense of passage.

To frame the framework a little more concisely then, on the deflationist account of temporal experience the question is whether our commitment to the passage of time is a matter of direct or indirect projection (or both). If so, then the proper issues to investigate are as follows:

¹⁰ See, for example, Deng (2013), Frischhut (2015), or Prosser (2016) on this point. Braddon-Mitchell (2013) agrees that the A-theorist's claim to be experiencing a distinctive passage phenomenology appears to be theory-driven.

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If direct projection, what is the phenomenology to which the misguided belief is a response?

If indirect projection, what features of our non-inferential psychology explain the misguided belief?

5. Direct and Indirect Projection in Philosophy of Time

It is a familiar theme to say we view the universe as having an inherent temporal *direction*, thanks to a conflation of the thermodynamic arrow (given a low entropy boundary condition) and time (see, e.g., Albert, 2003).

This misconception is explicitly described as the result of 'projection' by Huw Price (1996). He uses the direct projection of colour, sound, *etc.* as an analogy. But what he is really describing is indirect projection: he argues we project a fundamental causal asymmetry out onto the world (which, in turn, we invoke a fundamental temporal arrow to explain), thanks to our own experience of past/future asymmetries regarding knowledge and action in a thermodynamically asymmetric environment.

Adolf Grünbaum (1963) suggested that the alleged experience of the flow of time is really the simultaneous awareness of temporal order and the awareness of the unique diversity of remembered events at any moment. J.J.C. Smart (1980) similarly proposed that we confuse changes of information in short-term memory with an experience of the objective passage of time – the very notion of the passage of time being, in itself, 'unintelligible'. D.H. Mellor (1998) applied a comparable approach to our belief in passage: we (timelessly) have different beliefs at different times (based on what is available to memory), plus an irreducible, token-reflexive idea of the present; thus, we have different A-beliefs at different times. The awareness of differences in successive A-beliefs causes us to represent ourselves as experiencing changing A-properties. We confuse an awareness of at-at differences in irreducibly indexical subjective states with an awareness of an objective passage of time.

In each of these cases, the author denies we have a phenomenology of passage or flow; rather, we misdescribe our own experience because we have confused the awareness of objective change, order, change in belief, and/or memory accretion with the experience of a flow of time. These accounts (by contrast to, say, Falk's) do not involve some subjective phenomenon being taken for an objective quality.¹¹ I think

¹¹ Again, see Bardon (2010).

that the distinction between ‘direct’ and ‘indirect’ projection accurately captures this difference in explanatory strategy.

Compare Mellor’s approach, relying on what I am calling indirect projection, with Robin Le Poidevin’s, which explicitly relies on what I am calling direct projection:

A-theoretic properties are not in the world, but are *projected* on to the world in response to certain features of our experience: this would be closely analogous to projectivist views of secondary qualities: the world itself is not coloured, but certain properties of objects induce in us sensations which cause us to ascribe colour to them. (Poidevin, 2007, p. 95)

(In context, by ‘A-theoretic properties’ Le Poidevin is referring to a sort of phenomenology of dynamic change/motion based on ‘pure motion’ detectors and predictive/postdictive mechanisms.)

Confusingly, however, Le Poidevin also states that results of psychological or sensory projection are ‘illusory’ (pp. 94–5). This mixed messaging may be why he is lumped in by some (e.g. Miller, [forthcoming](#)) as an illusionist. But I think what he describes actually best falls under the deflationist Type C account. Compare Nick Huggett’s account of the origin of the idea of the flow of time. Just like Le Poidevin, Huggett attributes our notion that time flows dynamically in part to motion detection mechanisms; but, unlike Le Poidevin, Huggett rejects the language of illusion in describing this error:

If something moves across my field of view, triggering my motion detectors so that I perceive motion, then that’s no illusion; the thing really is moving. To think that the experience is of some feature of time itself is not to experience an illusion, but to *misinterpret* that experience. It’s akin to seeing someone from behind and mistakenly thinking I know them; there’s nothing illusory about their appearance, but I misinterpret its significance. (Huggett, 2010, p. 114)

According to Le Poidevin, we claim to experience passage just because we experience some motion/change phenomenology, taking a subjective feeling as an objective feature of the world. He concedes Richard Gale’s (1968) objection that ‘pastness, presentness, and futurity are not sensible properties in the way that colours are’. Gale presumes that the only type of projection is the projection of sensible properties like colour or sound, concluding that our belief in the passage of time cannot be the result of what I am calling direct projection. But Le Poidevin answers that there is a sort of

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representational content deriving from features of sensory experience that is involved. He suggests an analogy to a Humean projectivism about moral values:

Projectivists can appeal to causal considerations, such as the emotional effect that certain natural properties of events have on us, in defence of the view that the world does not contain objective, mind-independent, moral values. (Le Poidevin, 2007, p. 96)

So Le Poidevin wants to avoid suggesting our belief in passage is based on projection of a 'sensible property'. Yet he still wants to describe the phenomenon as the (direct) projection of a different kind of feeling onto the world. His passing reference to illusion appears to be a sort of colloquialism, as Le Poidevin really draws on projectivism in explaining the belief.

Compare Giuliano Torrenzo (2017), who argues that the experience of the passage of time involves the direct projection of a unique, primitive, phenomenal modifier. This is a variation on the idea of directly projecting a phenomenological feature: there is a feeling as of the passage of time, but on this account it has no representational content (such as that which may be associated with perceived features like colours or shapes). Torrenzo calls this a 'cognitive illusion' (p. 174). His analogy has to do with wrongly thinking something is blue (in ordinary sunlight) because you are wearing blue lenses. But this would be more of a perceptual illusion: there is an alternative, veridical experience one could have had under different circumstances. One could imagine removing the blue glasses and realizing that one had been basing one's judgement as to the visual characteristics of the object on misinformation.

In the case of passage, Torrenzo says we cannot imagine the world without it seeming passage-like, and yet he claims we retain the cognitive resources to grasp the difference between illusion and reality in this case. This may explain his use of the term 'illusion' rather than 'error'.¹²

I think 'cognitive error' would be a better term here than either 'illusion' or 'cognitive illusion' for any resulting commitment – the problem is conceptual and attributional: it is a case of taking an aspect of one's phenomenology as an objective feature of the world. But such aspects cannot be objective features of the world, which

¹² This reminds me of Kant's non-spatiotemporal noumenal world, which (Kant claims) is thinkable, but the thought can have no content. This is an idea that has given many Kant critics pause. Even Kant would not call space and time 'illusions' in any event.

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makes it hard to understand how they could be literally experienced as such. Any explicit metaphysical commitment to the reality of passage is not based on perceptual *misinformation* but rather on *misconception*.

Note that each type of account – direct projection accounts like those of Falk, Le Poidevin, Huggett, or Torrenco, and indirect projection accounts like those of Grünbaum, Smart, or Mellor – meets each of the four criteria for projection laid out by Kail.

6. The Projectivist Consensus

The deflationist wishes to explain the misrepresentation of one's own phenomenology as a phenomenology as of passage by reference to some sort of pre-existing commitment to the reality of passage. Of course, the deflationist must account for that commitment without reference to any previous veridical or illusory experience of passage.

As we saw, according to Mellor we experience change just by virtue of having, remembering, and expecting different states at different times. Our subsequent belief in passage is explained by non-inferential aspects of our psychology, rather than by some phenomenological feature. This would qualify as indirect projection, but deflationists have not been satisfied by Mellor's account. Many other, more sophisticated efforts at deflating the alleged experience of the passage of time have since emerged.

In her 2007 *The Situated Self*, Jenann Ismael argues that McTaggart's conundrum over the application of A-series terms to reality arises from a confusion over the status of indexicals like 'now' or 'I' in terms of their ontological vs their true functional status. As Ismael puts it,

Of course, there are not really any times that move through time, places that move through space, or relatives that travel through family trees. There are only the grammatical illusions created by forgetting that 'now', 'here', and 'me' are functions rather than singular terms. [...] The unseen seer tracing the path it carves out is pure illusion, an artifact of unfolding psychological history characterized by a continuous cycle of self-location. (Ismael, 2007, p. 153)

My only objection here is to the characterization of this sort of error as an 'illusion'. On Ismael's own account, neither the fictional 'now' nor the fictional 'self' presents itself to us, truly or falsely, as either ontologically independent or constant. Thus any misguided informal or

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formal commitment to their independent ontological status should be characterized as the result of projection, not illusion.

According to Simon Prosser (2016), no mental state does or could represent either temporal passage or dynamic change. As noted earlier, Prosser embraces intentionalism, thereby rejecting direct projection accounts of experiential misrepresentation. The 'illusion' and 'phenomenology' of temporal passage are explained, in part, by 'the illusory and indeed contradictory way in which change is represented, involving the representation of something retaining simple numerical identity through the change' (p. 186). Prosser denies any distinct *quale* associated with an experience of temporal passage. The 'illusion' of passage has to do instead with underlying assumptions about endurance (Prosser cites Velleman, 2006, here), plus the need to reconcile the resulting contradictions within experience.

Given that Prosser denies that there are any elements of experience that represent A-theoretic features, I think the language of indirect projection would be more congenial to his account than the language of an illusory phenomenology that somehow misleads without really existing in the first place. No passage phenomenology? Then no *illusory* passage phenomenology. Indirect projection accounts do not require the intentionalist to abandon the thesis that phenomenal character is always representational. As we have seen, in the case of indirect projection the issue is not the projection of a phenomenal feature.

According to Callender (2017) – building, like Prosser, on Velleman (2006) – the fictional 'self' naively conceives of itself as enduring through a variety of temporally separated events. The direction of the ego's 'movement' is fixed by experienced epistemic and causal asymmetries. Thus we have the conception of an enduring self moving through time, and a simple imaginative switch in perspective leads to the notion of events flowing towards us. Callender approvingly cites the dictum 'The illusion of the enduring self is responsible for the illusion of the flow of time' (p. 251).

Again, my objection is just to the use of the term 'illusion'. Callender's story depends neither on an illusory enduring-self phenomenology nor on an illusory temporal-flow phenomenology. The so-called 'sense' of flow is an indirect projection deriving from the idea of one's own endurance.

The use of the term 'illusion' in such contexts does not capture well what is being asserted. Further, it sends the wrong message to any reader as to what the theorist's research program is: if time is an illusion, then surely one's research program should centre on finding the illusory phenomenology that is responsible. But this is not the goal for deflationists. Rather, the deflationist is seeking to identify either

(a) the phenomenology implicated in the misconstrual of some experience as experience as of passage, or (b) those aspects of one's non-inferential psychology that explain the belief in passage.

Kristie Miller's account is similar to those of Ismael, Prosser, and Callender, but better stated. According to Miller (2019), it does not seem to us as though time passes; our own phenomenology is misconstrued.¹³ Either we interpret our own experience as an experience of the passage of time because we believe that time passes, or because our use of language necessarily reflects an embedded perspective distinguishing past and future.

Miller's story conforms to what I am calling indirect projection. Ultimately, we misrepresent the world as dynamic because we misrepresent our own experience of the world. We misrepresent our own experience of the world because of a fact about our non-inferential psychology: namely, our unavoidable self-representation as an embedded spatiotemporal agent. Essentially, we come to think of our own experiences as experiences of a changing present because we think of ourselves as beings experiencing a changing present: a perfect example, structurally, of Freudian psychological projection.

Miller uses the term 'cognitive error theory' to describe her account. In colloquial English, 'illusion' can be a synonym for 'error'. But in the context of this debate, deflationists like the various theorists discussed above would head off confusion by avoiding use of the term 'illusion', in favour of something like 'cognitive error' or 'misconception', where, further, the type of error in question is explicitly understood in either direct or indirect projectivist terms.

But what about Shoemaker's 'principle of charity' in dealing with attributions the projectivist considers systematically mistaken? Shoemaker argued that, other things being equal, consistent systems of representation as reflected in language should be taken at face value. And our language certainly reflects a systemic attribution of passage to events. Well, as Boghossian and Velleman reply,

First, a principle of charity applies primarily to a language, or other representational system, *taken as a whole*; and so, when rightly understood, such a principle is perfectly consistent with the possibility that large regions of the language should rest on widespread and systematic error. Second, what a principle of charity recommends is, not that we should avoid attributing widespread error at all costs, but that we should avoid attributing inexplicable error. (Boghossian and Velleman, 1989, p. 97)

¹³ See also Deng (2019).

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As shown by the various accounts discussed here, the error involved in the indirect projection of passage is perfectly explicable, drawing on familiar and demonstrable aspects of human psychology.

Nick Young also denies that our belief in the passage of time is an illusion, as theorists like Paul and Dainton had claimed:

Some philosophers say that time seems to pass due to the way we perceive change. They argue that moving objects appear 'dynamic', and that we mistake this dynamism for time passing. [...] Change in the world appears to flow smoothly because our perceptual systems transform moving objects in the same way they do static frames of [a film]: they superimpose a dynamism on to them that they do not possess. Because we fail to recognise that this is a product of our minds rather than a feature of reality, we have come to believe that the world is dynamic, and that time really flows. (Young, 2022, np)

Indeed, as noted earlier, the experience of continuity should not be confused with the experience of passage. Young goes on to argue that the thought that we sense an objective flow of time really has to do with the projection of internal feelings relating to agency and autonomy rather than with the perception of motion or change:

The experience of thinking is nothing like seeing objects change. Our inner thoughts don't explain why time still seems to pass even when we are not perceiving differences in the world. Appealing to our perceptions of change to explain the feeling of flowing time might not be such a promising approach after all. I believe that this leads us to mistake the feeling of doing – moving, thinking, focusing – for the feeling of time passing. We experience ourselves as perpetually, helplessly active. [...] We are driven to keep making changes. *And it is here that we make a mistake* [my emphasis]. Rather than blaming our neurophysiology for the feeling that we must constantly act, we blame the world outside: we mistakenly think that some outside force (like a flowing river of time) is responsible for the ever-present feeling that we are being 'pushed along'. (Young, 2022, np)

Young appears to be drawing the proper distinction between illusion and error. Our alleged sense of time's passage is not derived via inference from a sense of dynamism in perception; rather, the belief is the product of the mistaken projection of our internal sense of having to constantly act or experience.

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Despite his using the phrase ‘cognitive illusion’, the distinction between perceptual illusion and cognitive error seems to be just what Christoph Hoerl (2014a) has in mind in his ‘Do We (Seem to) Perceive Passage?’:

In general, we might say that if there is no *perceptual* illusion of the sort envisaged by those who speak of an illusory phenomenology of passage, there must be a form of *cognitive* illusion they are under, which leads them to say that there is. [...] What I want to argue is that the idea of a phenomenology of passage [...] involves a conflation between the *correct* thought that only some changes can be perceptually experienced (others being too slow to be perceived), and the *incorrect* thought that some perceptual experiences involve not just an awareness of change, but that the change in question is itself experienced to have some special further (‘animated’ or ‘flow-like’) quality. [...] Contrary to the idea of a phenomenology of passage, all that is in fact presented to us in perceptual experience are changes and movements that are just as the reductionist has it. (Hoerl, 2014a, p. 196)

These are all somewhat different explanations, but I believe we are seeing a consensus forming here. In explaining belief in temporal passage, all of these scholars (as I understand them) – Grünbaum, Smart, Mellor, Falk, Le Poidevin, Huggett, Torrenco, Braddon-Mitchell, Ismael, Prosser, Deng, Hoerl, Callender, Miller, and Young¹⁴ – draw on some sort of projection rather than perceptual illusion, while, of course, rejecting the now thoroughly deflated veridicalist account.

7. A Combined Account

Evolution is a messy, ad hoc process. We know that there are multiple sensory and neural processes involved in timing and time perception. I don’t see any reason why we couldn’t combine direct and indirect projection in telling the full story of temporal consciousness. In other words, the direct projection of pure motion, pure succession (see Arstila, 2008), and/or postdictive effects as, say, Le Poidevin describes, could be part of the story in addition to the indirect projection described by, say, Ismael, Callender, or Miller. In that case the full story would be what I call a combined ‘Type E’ account. If

¹⁴ See also Bardon (2010 and 2013).

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the result of these direct and indirect processes is a formal or informal commitment to the passage of time, the special status of the present, and/or dynamic, non-relational temporal properties, then the proper way to understand this commitment is in terms of a multi-level misconception of one's own experience. The development of a fully fleshed-out Type E account would require further advances in the empirical study of time perception in cognitive psychology and neuroscience. The 2019 anthology *The Illusions of Time: Philosophical and Psychological Essays on Timing and Time Perception* includes some of the latest work on pure succession and postdiction (along with the effects on time consciousness of attention, emotional state, circadian rhythms, repetition suppression and predictive coding, and adaptation to asynchronies across sensory modalities). Also of relevance are chapters on how our perception of time-order, synchrony, and duration are influenced by causal judgement: this area of research is a rich field for examples of projection in other aspects of time consciousness, wherein perceived temporal intervals between stimuli, and even the perceived order of stimuli, are affected by beliefs about causal links between them.¹⁵

8. Conclusion

Neither the direct nor indirect projectivist approach requires us to truly have experiences (whether veridical or illusory) as of the passage of time. Again, each type of projection – direct or indirect – can result in cognitive error if one is confused by the commitment, or the surface grammar of the expression of the commitment, into thinking that one's belief is sustained by inference of some kind. The essence of projection is conceptual confusion, so it is not surprising that a lot of confusion has surrounded accounts of our misconceived commitment to the passage of time.

Just like intrinsic colour or objective value, objective passage *isn't even the sort of thing we could experience*. Various kinds of 'seemings' are involved, but we err cognitively in taking such seemings as seemings as of temporal passage. This results in beliefs about the objective passage of time, not because we have an experience as of passage but because we *think* we do. Theorists working in philosophy of time would do well to more carefully distinguish between illusionist and

¹⁵ See Desantis and Buehner, 'Causality Guides Time Perception' and Hoerl, 'Temporal Binding and the Perception/Cognition Boundary' (each from Arstila *et al.*, 2019).

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deflationist theories of temporal experience; and the best way to maintain this distinction is by focusing on some combination of the subcategories of cognitive error I have been calling ‘direct’ and ‘indirect’ projection. It’s time for philosophy of time to explicitly recognize the growing consensus on the central role of projection in temporal consciousness.¹⁶

References

- David Albert, *Time and Chance* (Cambridge: Harvard University Press, 2003).
- Valtteri Arstila, Adrian Bardon, Sean Enda Power, and Argiro Vatakis (eds.), *The Illusions of Time: Philosophical and Psychological Essays on Timing and Time Perception* (New York: Palgrave MacMillan, 2019).
- Valtteri Arstila, ‘Temporal Experiences Without the Specious Present’, *Australasian Journal of Philosophy*, 96 (2008), 287–302.
- Thomas Baldwin, ‘The Projective Theory of Sensory Content’, in Tim Crane (ed.), *The Contents of Experience* (Cambridge: Cambridge University Press, 1992).
- Adrian Bardon, ‘Time Awareness and Projection in Mellor and Kant’, *Kant-Studien*, 101 (2010), 59–74.
- Adrian Bardon, *A Brief History of the Philosophy of Time* (New York: Oxford University Press, 2013).
- Paul Boghossian and David Velleman, ‘Colour as a Secondary Quality’, *Mind*, 98 (1989), 81–103.
- David Braddon-Mitchell, ‘Against the Illusion Theory of Temporal Phenomenology’, in T. Soto, S. Sugimoto, and T. Sakon (eds.), *Proceedings of the CAPE International Workshops, CAPE Studies in Applied Philosophy and Ethics Series, Vol. II* (CAPE Publications, 2013).
- Craig Callender, *What Makes Time Special?* (Oxford: Oxford University Press, 2017).
- Barry Dainton, ‘Time and Temporal Experience’, in Adrian Bardon (ed.), *The Future of the Philosophy of Time* (New York: Routledge, 2012).
- Natalja Deng, ‘On Explaining Why Time Seems to Pass’, *Southern Journal of Philosophy*, 51 (2013), 367–82.
- Natalja Deng, ‘One Thing After Another: Why the Passage of Time is Not an Illusion’, in Valtteri Arstila, Adrian Bardon, Sean Enda Power, and Argiro Vatakis (eds.), *The Illusions of Time: Philosophical and*

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- Psychological Essays on Timing and Time Perception* (New York: Palgrave MacMillan, 2019).
- Natalja Deng, 'Temporal Experience and the A vs. B Debate', in Ian Phillips (ed.), *The Routledge Handbook of Philosophy of Temporal Experience* (New York: Routledge, 2017).
- Andrea Desantis and Marc Buehner, 'Causality Guides Time Perception', in Valtteri Arstila, Adrian Bardon, Sean Enda Power, and Argiro Vatakis (eds.), *The Illusions of Time: Philosophical and Psychological Essays on Timing and Time Perception* (New York: Palgrave MacMillan, 2019).
- Heather Dyke, *Time* (Cambridge: Cambridge University Press, 2021).
- Arthur Falk, 'Perceiving Temporal Passage: An Indicator of the Nature of Consciousness', in Amita Chatterjee (ed.), *Perspectives on Consciousness* (New Delhi: Munshiram Manoharlal, 2003).
- Matt Farr, 'Explaining Temporal Qualia', *European Journal for Philosophy of Science*, 10:8 (2020), 1–24.
- Akiko Frischhut, 'What Experience Cannot Teach Us About Time', *Topoi*, 34 (2015), 143–55.
- Richard Gale, *The Language of Time* (London: Routledge and Kegan Paul, 1968).
- Ronald Gruber and Richard Block, 'The Flow of Time as a Perceptual Illusion', *The Journal of Mind and Behavior*, 34 (2013), 91–100.
- Adolf Grünbaum, 'Carnap's Views on the Foundations of Geometry', in P.A. Schilpp (ed.), *The Philosophy of Rudolph Carnap* (Open Court: LaSalle, IL, 1963).
- Christoph Hoerl, 'Do We (Seem to) Perceive Passage?', *Philosophical Explorations*, 17 (2014a), 188–202.
- Christoph Hoerl, 'Temporal Binding and the Perception/Cognition Boundary', in Valtteri Arstila, Adrian Bardon, Sean Enda Power, and Argiro Vatakis (eds.), *The Illusions of Time: Philosophical and Psychological Essays on Timing and Time Perception* (New York: Palgrave MacMillan, 2019).
- Christoph Hoerl, 'Time and the Domain of Consciousness', *Annals of the New York Academy of Sciences*, 1326 (2014b), 90–6.
- Nick Huggett, *Everywhere and Everywhen: Adventures in Physics and Philosophy* (New York: Oxford University Press, 2010).
- David Hume, *A Treatise of Human Nature* (London, 1739).
- Jenann Ismael, *The Situated Self* (Oxford: Oxford University Press, 2007).
- Peter Kail, 'Précis of *Projection and Realism in Hume's Philosophy*', *Hume Studies*, 36 (2010), 61–5.
- Peter Kail, 'Projection and Necessity in Hume', *European Journal of Philosophy*, 9 (2001), 24–54.
- Peter Kail, *Projection and Realism in Hume's Philosophy* (Oxford: Clarendon Press, 2007).
- Sean Kelly, 'The Puzzle of Temporal Experience', in Kathleen Akins and Andrew Brook (eds.), *Cognition and the Brain* (Cambridge: Cambridge University Press, 2005).

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- Robin Le Poidevin, *The Images of Time: An Essay on Temporal Representation* (Oxford: Oxford University Press, 2007).
- Ruth Lee, Jack Shardlow, Christoph Hoerl, Patrick O'Connor, Alison Fernandes, and Teresa McCormack, 'Toward an Account of Intuitive Time', *Cognitive Science*, 46 (2022).
- D.H. Mellor, *Real Time II* (London: Routledge, 1998).
- Kristie Miller, 'Against Passage Illusionism', *Ergo*, (forthcoming).
- Kristie Miller, 'Does It Really Seem as Though Time Passes?', in Valtteri Arstila, Adrian Bardon, Sean Enda Power, and Argiro Vataki (eds.), *The Illusions of Time: Philosophical and Psychological Essays on Timing and Time Perception* (New York: Palgrave MacMillan, 2019).
- Kristie Miller, Alex Holcombe, and Andrew Latham, 'Temporal Phenomenology: Phenomenological Illusion Versus Cognitive Error', *Synthese*, 197 (2020), 751–71.
- Gil Morrot, Frédéric Brochet, and Denis Dubourdieu, 'The Color of Odors', *Brain and Language*, 79 (2001), 309–20.
- L.A. Paul, 'Temporal Experience', *The Journal of Philosophy*, 107 (2010), 333–59.
- Huw Price, *Time's Arrow and Archimedes' Point: New Directions for the Physics of Time* (New York: Oxford University Press, 1996).
- Simon Prosser, *Experiencing Time* (Oxford: Oxford University Press, 2016).
- Jack Shardlow, Ruth Lee, Christoph Hoerl, Teresa McCormack, Patrick Burns, and Alison Fernandes, 'Exploring People's Beliefs About the Experience of Time', *Synthese*, 198 (2021), 10709–31.
- Sydney Shoemaker, 'Qualities and Qualia: What's in the Mind?', *Philosophy and Phenomenological Research*, 50 (1990), 109–31.
- J.J.C. Smart, 'Time and Becoming', in Peter Van Inwagen (ed.), *Time and Cause: Essays Presented to Richard Taylor* (Springer: Dordrecht, 1980).
- Barry Stroud, "'Gilding and Staining" the World with "Sentiments" and "Phantasms"', *Hume Studies*, 29 (1993), 253–72.
- Giuliano Torrengo, 'Feeling the Passing of Time', *The Journal of Philosophy*, 114 (2017), 165–88.
- Giuliano Torrengo and Daniele Cassaghi, 'Flow and Presentness in Experience', *Analytic Philosophy*, 63 (2022), 1–22.
- David Velleman, 'So It Goes', *The Amherst Lecture in Philosophy*, 2006 (<https://www.amherstlecture.org/velleman2006/>).
- Nick Young, 'Time Doesn't Flow Like a River. So Why Do We Feel Swept Along?', *Psyche*, 2022 (<https://psyche.co/ideas/time-doesnt-flow-like-a-river-so-why-do-we-feel-swept-along>).

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