

The now-moment is believed privileged because now is when happening is experienced

Commentary on BBS target article: Thinking in and about time, by Hoerl and McCormack

Ben Kenward and Michael Pilling

Oxford Brookes University

Department of Psychology, Headington Campus, Oxford, OX3 0BP, UK

bkenward@brookes.ac.uk

mpilling@brookes.ac.uk

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Abstract

Hoerl and McCormack (H&M) risk misleading about the cognitive underpinnings of the belief in a privileged now-moment because they do not explicitly acknowledge that the sense of existing in the now-moment is an intrinsically temporally dynamic one. The sense of happening that is exclusive to the now-moment is a better candidate for the source of belief in a privileged now.

Text

We agree with H&M that the naïve folk conception of time is paradoxical, particularly with respect to the sense of a privileged now. However, we argue that, because H&M have placed little emphasis on the subjective experience of the now-moment, they are likely to be wrong about the cognitive underpinnings of the belief in a privileged now. We doubt that the belief in a privileged now arises from an ancient cognitive system that represents the world without representing change, because the conscious experience of the now-moment is inherently the experience of change.

A better model for the way humans think about time would not explain belief about temporal change primarily only with respect to thoughts about the past and future. Instead, the model should incorporate the variety of mechanisms for processing temporally dynamic stimuli that each present different kinds of temporally dynamic experience to conscious awareness in the now-moment (Montemayor & Wittmann, 2014; Muller & Nobre, 2014). Mental time-travel (Suddendorf & Corballis, 2007), which H&M rely on completely to account for the naïve human idea of time, is only one way in which humans relate to the passage of time. Yet it is arguably the least direct way we experience time because it is normally experienced only as simulation.

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34 A more direct way we experience time is through the *flow* inherent to the sense of the present
35 moment, which is a dynamic sense of events *happening* in the now, widely acknowledged within
36 discussions of the phenomenology of time (Gruber, Smith, & Block, 2018; Prosser, 2012). At any
37 given moment, there is not only (or not at all) a subjective representation of now as a snapshot with
38 no sense of change. There is a sense of flow; now is a single moment, but it is a moment
39 encompassing change. The dynamic nature of the conscious sense of now is revealed in widely used
40 phrases such as “stream of consciousness” and “what is happening now”. Readers unfamiliar with
41 the phenomenological literature are invited to introspect about their experience of existing in the
42 current moment. Even in a stimulus-poor environment, our experiences in the now-moment are
43 dynamic, including breathing or chains of thoughts. Perceptions in the now are frequently of
44 momentary dynamic events: a flash of light, a spoken word, a looming object. Many conscious
45 perceptions are meaningless outside the context of temporal dynamics. For example, the sense of
46 looming and other motion perceptions inherently relate to change (Gibson, 2014), and sound is
47 inherently a temporal phenomenon.

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49 Besides the phenomenological or introspective analysis, various objective observations indicate that
50 the now-moment encompasses happening events rather than just a millisecond snap-shot. For
51 example, multiple events occurring within a time window (up to 300 ms depending on modality and
52 number of events) can be discriminated even though their order cannot be determined (Montemayor
53 & Wittmann, 2014), indicating that they were experienced as separate happenings within one
54 moment. Further evidence, for example from language perception, indicates that there are different
55 kinds of experience of now, with different aspects of dynamism (Poeppel, 2003; Wittmann, 2011).
56 The “simultaneous now” is suggested to last approximately 250 ms (still long enough to contain
57 events), whereas the “conscious now” lasts approximately 3 seconds (Montemayor & Wittmann,
58 2014).

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60 Further evidence for the sense of events happening now comes from work on visual perception.
61 Suitably arranged dynamic stimuli together give rise to our sense of causality in the here and now
62 (Scholl & Tremoulet, 2000). In the same way that changes to the dynamic character of the stimuli
63 can abolish the sense of causality, disruptions to the temporal sequence can also remove the sense of
64 happening that is a cornerstone of the subjective sense of temporal flow (Gruber & Block, 2013).

65

66 There are numerous functional reasons why the experience of the now-moment must be more than a
67 millisecond snap-shot. Our perceptions are integrated with our actions (Pezzulo & Cisek, 2016), with
68 the consequence that our perception of the now-moment is one of the dynamic affordances currently
69 offered. In order to perform even the simplest goal-directed actions, short-term temporal dynamics
70 are taken into account (Gibson, 2014).

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72 Interestingly, there is evidence that on the lowest levels of subconscious perception, stimulus
73 representations are in fact not dynamic, and perception rather takes the form of a series of discrete
74 static representations – this is even held to be plausible for auditory stimuli although sound is
75 inherently temporally dynamic (VanRullen, Zoefel, & Ilhan, 2014). The dynamic perceptions
76 reaching our awareness are therefore not necessarily veridical in the sense of arising directly from
77 the true dynamism of real events – rather, this is likely to represent a reconstruction (Gruber et al.,
78 2018). However, the only thing that matters for our current argument is that the lowest levels of
79 perception subject to conscious awareness usually constitute dynamic representations.

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81 We agree with H&M that there there is little evidence for mental time-travel in most non-human
82 animal species or in human infants. However, given the different ways of experiencing time, it's
83 arguably inappropriate to dichotomise organisms according to 'whether or not [their] model of the
84 world contains a temporal dimension' (p. 14). Rather than the lack of evidence of mental time-travel
85 implying that such organisms have no representation of temporal change, it implies they may have
86 no representation of change except for the change happening in the current moment. In other words,
87 their representational time-line may be very short.

88

89 Given the dynamism of the experience of now, our counter-proposal for what makes now special in
90 naïve human belief is that *now is the only time when events are experienced to happen*. Of course,
91 events are also believed to have happened in the past and are expected to occur in the future, but
92 mental time-travel typically involves simulation rather than experience of those events. We argue
93 that our account is more parsimonious than H&M's because their model implies a curious and
94 unsupported phenomenon: that people ignore their salient experience that things happen in the now-
95 moment when they are thinking about what now actually is.

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