

About time, concisely

Adrian Bardon: A brief history of the philosophy of time, second edition. New York: Oxford University Press, 2024, \$29.95 PB

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Adrian Bardon has produced a new version of his historical introduction to the philosophy of time. Originally published in 2013, the second edition of 2024 is partly rewritten and supplemented with a more extensive discussion on our disposition to project the passage of time. The historical exposition contains standard figures in Western philosophy, covering antiquity, the early modern era, and the 20th century. This edition also references some schools and figures not typically included in the canon, such as very early Indian sources, Émilie du Châtelet and al-Ghazali.

Although the book's title emphasizes history, most of the chapters are directed at issues in systematic philosophy of time: the realism/antirealism debate, temporal passage, temporal experience, spacetime, direction, time travel, time and free will, and the temporal boundaries of the universe. The book is pedagogically well-designed. The chosen topics are well-balanced and the text flows smoothly from beginning to end. The perennial questions about time are presented to the reader in an accessible way.

Bardon introduces a tripartite distinction within the metaphysics of time: realism, idealism, and relationism. These are clearly not actor's categories. Bardon ascribes, for example, idealism to

Parmenides, relationism to Aristotle, and realism to Newton. There are several reasons to think that these categories do not adequately reflect the positions held by these figures.

To start with, Parmenides. His argument suggests that the passage of time is contradictory. For time to pass, it would have to be that the past and the future both exist. Otherwise, there could not be passing from the past to the future. The past and the future differ from the present in that they, unlike the present, do not exist. So, if we subscribe to time's dynamic nature, we both affirm and deny the existence of past and present. Consequently, we neither admit nor deny; that is the contradiction. Apparently, for Parmenides, our mortal everyday beliefs are rife with contradictions, but there are no contradictions out there. To assume anti-realism about time from this perspective requires something like the modal notion of metaphysical impossibility. If passage is contradictory, it cannot exist, similar to the way round squares cannot exist. It would sound weird to say that someone is an idealist about round squares.

About Aristotle being a relationist. Bardon's tripartite distinction does not in itself clarify that someone can be a realist relationist, like Aristotle is typically thought to be, and an idealist relationist, like Leibniz is typically thought to be. So, relationism is not only an alternative to realism or idealism, as both can go together with relationism. There are also issues with interpreting Aristotle as a relationist. Some things Aristotle says in his *Physics* (in 219b 5–8, for example) do point towards the relationist reading. Bardon nevertheless writes that “we think of time as passing equally for everything everywhere ... Further, although changes can be slow or fast, time cannot; “slow” and “fast” are defined in terms of time, not vice versa” (11). This view is attributed to Aristotle (based on *Physics* 218b 10–20 presumably), but it is not an instance of relationism. The idea that time passes equally for everything everywhere is a substantivalist doctrine, championed by Newton much later. Moreover, if time has a definite speed, if it flows equally, then time itself is the reference point for all other motions and synchronization of clocks. This does not fall under relationism about time.

The book does not contain a chapter on temporal measurement, but it does occasionally refer to clocks. Bardon implicates that clocks are used to measure “changes as states of affairs come to be or pass away” (1). He continues: “What clocks measure is duration, and duration is itself a temporal concept. Clocks don’t make sense unless we already know what they measure” (1). Later, we are told that “A-series change is measured by clocks” (84). It is not explained how clocks could track change along past–present–future axis. It is not clear, as is also extensively pointed out in the book, and convincingly argued in Chapter 4, that there even is such a passage of time. The underlying question—what is the quantity that a clock measures?—is left unanswered. A relativistic answer is that ideally clocks measure the invariant quantity of proper time, that is, the lengths of the segments of their timelike worldlines. If an accurate clock ideally assigns numbers 1, 2 and 4 to events a , b and c along its worldline, the clock shows the correct temporal measurement when the ratio of the length of the segment \overline{ab} and the segment \overline{bc} is $1/2$ (Maudlin 2012, 108).

Proper time as a path in spacetime is also relevant for discussion about temporal passage. Bardon mentions proper time explicitly in the context of expounding on Minkowski light cones. He also uses the same idea when assessing the putative time travel asymmetry (162). I think the explanations provided in this context are correct. He does not mention proper time in the context of recently developed deflationary theories (for example, Mozerky 2015, Fazekas 2016, and Slavov 2022). These theories take relativity seriously and suggest that passage is a real, objective feature of the world. In short, by using B-theoretic resources, the deflationary account defines passage as the succession of events along the observer’s timelike worldline. Change between earlier and later stages of the local parts of the universe is taken to provide the necessary dynamicity that is required of passage. There is local change, although the total sum of existence, the block universe, is constant. Whether this account is successful or not is to be discussed somewhere else. This is however how Bardon characterizes deflationism:

Temporal **deflationism** is the view—consistent with static theory and increasingly dominant in philosophy of time—that we not only do not experience the passage of time, but do not even *seem* to experience the passage of time. According to deflationism, the idea that we have an experience as of the passage of time is a conceptual confusion—a misrepresentation of the nature of one’s own experience. (105–6)

The description above, as well as the discussion surrounding that quote, is reminiscent of the error theory (see Miller, Holcombe, and Latham 2020). Deflationary theory can be a metaphysically realist theory of passage within the B-theoretic four-dimensional block universe. It would also be helpful to clarify that one can be an antirealist about A-passage but a realist about B-passage. Although the former view is a popular position and the latter is not a standard view, deflationism is, as Bardon recognizes, “increasingly dominant in philosophy of time” (105). Hence, one could expect something to be said about its potential.

The historical introduction to special relativity is clear, and pedagogically excellent, but it omits the 19th century development of electromagnetism. Einstein’s original 1905 paper on the electrodynamics of moving bodies, and names like Faraday and Maxwell, are not mentioned. The way relativity is treated indicates well the relevance of the relativity of simultaneity to the metaphysics of time, namely eternalism. Yet eternalist considerations that draw on relativity of simultaneity are in tension with the conventionality of simultaneity. Einstein’s original 1905 paper already includes a section that deals with conventionality. Rovelli (2019, 1328), for example, notes that “Einstein’s simultaneity is not a discovery of a fact of the matter about multiple simultaneity surfaces: it is the discovery that simultaneity has no ontological meaning beyond convention”. This is a relevant challenge for eternalist arguments that apply hyperplanes of simultaneity, as illustrated in Figure 4.1 on page 97 in the book under review.

Bardon claims, “the idea that the direction of time is fixed by the causal arrow would be undermined by the possibility of traveling to an earlier time” (fn. 3, 135). I think one can maintain that travel to a time earlier than our births is metaphysically possible, even though causal asymmetry grounds the temporal one. A closed timelike path would have events on it ordered successively and one-directionally. This of course does not suggest a unique, completely universal direction of time. Yet if there are something like multiple B-series of time (Fazekas 2016), the causal and temporal arrows can be argued to align along observers’ paths in spacetime.

All in all, Bardon’s book is a valuable introduction to the philosophy of time. It is concise yet extensive. I believe it convincingly demonstrates two things: both the history of philosophy and the modern sciences are central to our understanding of the nature of time, and it is possible to explain how our conception of the passage of time fits with the block universe.

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