

Special Relativity, Time, Probabilism, and Ultimate Reality

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Abstract

McTaggart distinguished two conceptions of time: the A-series, according to which events are either past, present or future; and the B-series, according to which events are merely earlier or later than other events. Elsewhere, I have argued that these two views, ostensibly about the nature of time, need to be reinterpreted as two views about the nature of the universe. According to the so-called A-theory, the universe is three dimensional, with a past and future; according to the B-theory, the universe is four dimensional. Given special relativity (SR), we are obliged, it seems, to accept (a modified version of) the B-series, four dimensional view, and reject the A-series, three dimensional view, because SR denies that there is a privileged, instantaneous cosmic "now" which seems to be required by the A-theory. Whether this is correct or not, it is important to remember that the fundamental problem, here, is not "What does SR imply?", but rather "What is the best guess about the ultimate nature of the universe in the light of current theoretical knowledge in physics?". In order to know how to answer this question, we need to have some inkling as to how the correct theory of quantum gravity incorporates quantum theory, probability and time. This is, at present, an entirely open question. String theory, or M-theory, seems to evade the issue, and other approaches to quantum gravity seem equally evasive. However, if probabilism is a fundamental feature of ultimate physical reality, then it may well be that the A-theory, or rather a closely related doctrine I call "objectism", is built into the ultimate constitution of things.

Keywords: Special relativity, time, spacetime, quantum theory, general relativity, temporal becoming, ontology, probabilism, indeterminism, flow of time, presentism, theory of everything, quantum gravity, realism, quantum measurement problem, A-series, B-series, McTaggart.

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