

# The politics of time beliefs

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## Synopsis

Time beliefs relate to values. Political control of human behaviour, by “fixing” values, can hence be achieved by manipulating time beliefs. For example, Augustine changed time beliefs in early Christianity (from quasi cyclic time to apocalyptic time) to induce people to behave in a way he regarded as appropriate. More recently, global political control through “soft power” has again been related to the globalisation of culture by Huntington.

In the traditional Western view, mathematics and science are believed to be value free, and universal (not merely global). On the other hand, the typical history of mathematics and science portrays these as mainly the products of Western culture—“Greece” followed by the European renaissance, and modern developments. Isn’t it strange that all things of universal significance should have developed only within a single culture? However, setting aside questions of history, let us look at the *content* of science and its philosophy. Stephen Hawking’s chronology condition exactly reflects Augustine’s position on quasi-cyclic time, like Popper’s record postulate. The trite argument linking closed time loops to “fatalism” is, however, not valid—closed time loops actually lead to spontaneity not “fatalism”.<sup>1</sup>

To induce people to surrender to God, al Ghazali argued that cause and effect did not bind God, but allowed that God was bound by logic. Since Western Christianity had already switched to a transcendent God, continuous providential intervention endowed God with excessive power, and, when combined with the absence of cause and effect, this demotivated people. Hence, in Christian rational theology, it came to be believed that, except for special moments like the initial moment of

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<sup>1</sup>For more details, see [http://philsci-archive.pitt.edu/archive/00002416/01/Time\\_Travel\\_and\\_the\\_Reality\\_of\\_Spontaneity.pdf](http://philsci-archive.pitt.edu/archive/00002416/01/Time_Travel_and_the_Reality_of_Spontaneity.pdf), and for an even more non-technical account, see “Time Travel”, chp. 7 in *The Eleven Pictures of Time*, Sage, 2003.

creation, God ran the cosmos with mechanical laws of cause and effect. Newton referred to his mechanics as “laws” of motion because it was these “laws of God” that he thought had been revealed to him, and the Newtonian world evolves in a completely mechanical way, regardless of chance, chaos or life. There is a remarkable resemblance to theology even in the conflict between Laplacean determinism and the human freedom presupposed by the philosophy of science!

Although Newtonian theory, since it lacked a measure of time, was replaced by relativity, we see that relativity (especially when combined with Hawking’s singularity theory <sup>2</sup>) somehow seems to continue to reproduce a picture of the world aligned to narrow theological requirements!

In fact, the alignment goes deeper. Al Ghazali’s concession (that logic binds even God) led to the belief that logical truth is necessary (true in all possible worlds), while empirical truths are contingent. This elevation of metaphysics over physics is taken for granted, today, not only in the currently dominant philosophy of mathematics,<sup>3</sup> but also in e.g. the criterion of refutability: it is believed that empirical refutation refutes the physical hypothesis, and not the deduction that connects physical hypothesis to empirical conclusions. However, apart from theology, the Western philosophical belief in the infallibility of deduction rests only on a naive assumption that logic is universal. In fact, logic varies with culture and the underlying perceptions of time—Buddhist and Jaina logics are not two-valued, or even truth-functional, like quantum logic in the structured-time interpretation.

If mathematics and science are thus aligned with culture, their perceived value-neutrality makes them political instruments in globalizing culture. Alternatively, one needs to construct a culturally neutral version of mathematics, science, and the philosophy of mathematics and science. To this end, I have proposed that rigid causality should be abandoned in physics,<sup>4</sup> and that the empirical must be re-admitted in mathematics.<sup>5</sup>

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<sup>2</sup>Hawking’s arguments imply a breakdown of only smoothness, not of relativity itself. See C. J. S. Clarke, *The Analysis of Spacetime Singularities*, Cambridge University Press, 1993, and C. K. Raju, “Junction Conditions in General Relativity”, *J. Phys. A: Math. Gen.*, **15** (1982) 1785–97.

<sup>3</sup>C. K. Raju, “Computers, mathematics education and the alternative epistemology of the calculus in the *Yuktibhāṣā*”, *Philosophy East and West* **51**(3) (2001) 325–62. Draft at <http://IndianCalculus.info/Hawaii.pdf>.

<sup>4</sup>C. K. Raju, *Time: Towards a Consistent Theory*, Kluwer, 1994. Also, CKR, “The electrodynamic 2-body problem and the origin of quantum mechanics”, *Found. Phys.* **34** (2004) 937–62.

<sup>5</sup>CKR, *Cultural Foundations of Mathematics*, PHISPC, New Delhi, 2005 (to appear).