

Decolonisation, Islam, and science: Eliminating the anti-Islamic biases in mathematics and science

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The story goes that science is at war with all religions, but the fact is that present-day (Western) science is influenced by church theology. For example, we still speak of Newton's "laws" of motion on the belief that the world is governed by eternal laws of nature. This belief is NOT scientific on Popper's criterion of refutability or falsifiability. In fact, it is anti-scientific, for the belief in "laws" militates against the human creativity needed to design novel experiments to test scientific theories.

But this belief, that God rules the world using eternal laws of nature, was a Christian theological belief first articulated by Aquinas.¹ It is contrary to certain key Islamic beliefs such as those of al Ghazali² that Allah has habits which may change. During the Crusades, for obvious political reasons, the West sided with al Ghazali's opponent Ibn Rushd (Averroes), who reiterated the related belief in strict "causality". The theological debate between "laws" vs "habits" was settled differently³ in Christian theology against John Duns and his followers ("the Dunces") in favour of Aquinas and the belief in eternal laws. Since then, it has been a strong point of church propaganda against Islam that despite a good start, Muslims fell behind in science because science needs belief in laws denied by the theology of al Ghazali or belief in a rigid causality. Muslim scientists have participated in this propaganda against Islam on the mistaken belief that imitating the West would help the Muslim world get ahead in science.⁴

Many Muslim scholars respond by playing around with the meaning of word "law". But that evades the question of how the "laws of nature" or the equations of physics (say Newton's universal "law" of gravitation, or Maxwell's equations) may be changed to accommodate the belief in habits rather than laws. Most Muslim theologians don't even understand these mathematical equations, and Muslim scientists who do, are under the thumb of the West, required by OIC to show proof of constant Western approval through publications,⁵ hence do not dare to suggest even exploring such a fundamental change in science.

I will explain how the belief in laws can be challenged and, how science can be reformulated, and why the concept of mechanistic "causality" is NOT essential to science.⁶

But there is a deeper, more insidious problem. No doubt the empirical is indeed universal, and to the extent that science is based on the empirical it too is universal. But science is also based on mathematics: the supposed "eternal laws of nature" are written in the supposed language of eternal truth: mathematics. Few seem to understand that Western/colonial (formal) mathematics prohibits

1 Thomas Aquinas, *Summa Theologica*, n.d., <http://www.newadvent.org/summa/2091.htm>.

2 Al-Ghazâlî, *Tahâfut Al-Falâsifâ*, trans. S.A. Kamali (Lahore: Pakistan Philosophical Congress, 1958); S. Bergh, *Averroes' Tahâfut al-Tahâfut (Incorporating al-Ghazâlî's Tahâfut al-Falâsifa) Translated with Introduction and Notes*, 2 vols (London: Luzac, 1969).

3 C.K. Raju, 'Benedict's Maledicts', *Indian Journal of Secularism* 10, no. 3 (2006): 79–90; reproduced from 'Benedict's Maledicts', *Zmag*, 2006, <https://zcomm.org/znetarticle/benedicts-maledicts-by-c-k-raju/>.

4 C. K. Raju, 'Islam and Science', in *Islam and Multiculturalism: Islam, Modern Science, and Technology*, ed. Asia-Europe Institute University of Malaya and Japan Organization for Islamic Area Studies Waseda University, 2013, 1–14, <http://ckraju.net/hps-aiu/Islam-and-Science-kl-paper.pdf>. Also, earlier version in *Indian Journal of Secularism*.

5 C. K. Raju, 'Benchmarking Science: A Critique of the ISI (Thomson-Reuters) Index', in *USM-Prince Songkla Univ. Conference in Hat Yai*, 2011, <http://ckraju.net/papers/Benchmarking-science-paper.pdf>.

6 C. K. Raju, *Time: Towards a Consistent Theory* (Springer, 1994). *Fundamental theories of Physics*, vol. 65.

the empirical, and is completely divorced from it.⁷ This peculiar feature of Western mathematics, not found anywhere else in the world, relates to the Christian rational theology. During the Crusades, the church suddenly adopted “reason” in imitation of and to counter Islamic *aql-i-kalam*. But it modified the meaning of “reason” by divorcing reason from the empirical. Thus, it is the empirical which conflicts with church dogma, not reasoning minus facts, which begins from metaphysical axioms and postulates. Eliminating the empirical eliminates that conflict between church dogmas and reason. For example, Aquinas⁸ could use “reason” to prove that many angels can sit on a pin starting from an axiom that angels do not occupy any physical space, an axiom unrelated to anything empirical.

To teach reasoning to its priests, the church adopted the book “Euclid’s” *Elements*, asserting that it had axiomatic proofs, prohibiting the empirical, of just the sort that suited the church. Euclid is of course a myth, and no one has responded in a decade to my Euclid challenge prize of MYR 10 K for primary evidence about “Euclid”. Worse, it was eventually admitted in the 20th c., after nearly 800 years, that it is a false myth that the book has any axiomatic proofs divorced from the empirical. Though providing such proofs disjoint from the empirical was never the intention of the author of the book, written in the Egyptian tradition of mystery geometry advocated by Plato, Hilbert believed, contrary to the evidence (e.g. of diagrams in the book), that it was. Hilbert (and all Western philosophers) also wrongly believed the myth that deductive proofs were infallible or more certain than empirical proofs. Hence, Hilbert gravely distorted the original book, changing it to synthetic geometry to provide the first axiomatic proof of the “Pythagorean theorem”. This led to the birth of **formal mathematics based on the church superstition that prohibiting the empirical results in infallibility**.

While the claim of greater epistemic value, though widely believed, is completely fake, it does enable the non-empirical (or dogmatic) components of formal mathematics to creep into science in many ways. This was a trick the colonised never understood. For example, this creep comes in through the calculus needed to formulate the differential equations of physics (“laws of nature”). Calculus is today believed to require the formal real numbers or the continuum. As noticed by Naquib al Attas, this involves a metaphysical bias, since Asharites believed in atomicity. However, most Muslims academics, have failed to notice the possibility of rectifying this metaphysical bias⁹ teaching calculus without the continuum, and without limits, which has actually been tried out in the University Sains Malaysia and in Iran etc. However, as already pointed out, most of our university academics are too much under the thumb of West, either to develop or debate this possibility; they prefer to stick to the creed of blind imitation of the West. To encourage people to think independently, this webinar will encourage a debate on **the need of the continuum for calculus**, given the historical circumstances that the calculus developed¹⁰ and was applied long before the continuum was invented.¹¹

7 C. K. Raju, ‘Decolonising Mathematics’, *AlterNation* 25, no. 2 (2018): 12–43b, <https://doi.org/10.29086/2519-5476/2018/v25n2a2>; C. K. Raju, ‘Computers, Mathematics Education, and the Alternative Epistemology of the Calculus in the *Yuktibhāṣā*’, *Philosophy East and West* 51, no. 3 (2001): 325–362, <http://ckraju.net/papers/Hawaii.pdf>; How Colonial Education Changed Our Math Teaching | C.K. Raju, 2020, <https://www.youtube.com/watch?v=Rm6d-bUmmGg>; C. K. Raju, *Decolonise Math = Eliminate the Myth, Fraud, and Superstition in Formal Math*, 2020, <https://www.youtube.com/watch?v=rvSbGFiCsO8>.

8 Aquinas, *Summa Theologica*. First Part, Q. 52, article 3, <http://www.newadvent.org/summa/1052.htm#article3>.

9 C. K. Raju, ‘Teaching Mathematics with a Different Philosophy. 1: Formal Mathematics as Biased Metaphysics’, *Science and Culture* 77, no. 7–8 (2011): 274–279, arXiv:1312.2099; C. K. Raju, ‘Teaching Mathematics with a Different Philosophy. 2: Calculus without Limits’, *Science and Culture* 7, no. 7–8 (2011): 280–285, arXiv:1312.2100. .

10 C. K. Raju, *Cultural Foundations of Mathematics: The nature of mathematical proof and the transmission of the calculus from India to Europe in the 16th c. CE* (Pearson Longman, 2007).

11 C. K. Raju, “Calculus the real story”, Talk at MIT, Cambridge Mass., 2015, <https://www.youtube.com/watch?v=IaodCGDjqzs&feature=youtu.be>. Abstract at <http://ckraju.net/papers/Calculus-story-abstract.html>. Also ‘Marx and Mathematics. 2: “Discovery” of Calculus’, *Frontier Weekly*, 31 August 2020, <https://www.frontierweekly.com/views/aug-20/31-8-20-Marx%20and%20mathematics-2.html>; ‘Marx and

Another key issue is that of **continuous creation in Islam vs the one-time creation in post-Nicene Christianity**. This is perhaps best demonstrated by singularity theory for which half the Nobel prize in physics this year, went to Roger Penrose. A singularity is a mathematical issue, not something that can be empirically observed: Penrose himself argued that a naked singularity can never be seen because of cosmic censorship.

As brought out in my two-day debate with Penrose in 1997, Stephen Hawking applied singularity theory to the whole cosmos to assert that “science” supported the Christian theological belief in one-time creation of the cosmos. Note that the big bang theory does not by itself imply one-time creation, a singularity is needed for that. Hawking’s work¹² involved pushing in questionable assumptions/axioms about time identical to those used by Augustine in post-Nicene theology, and supported by the same bad theological arguments used by Augustine.¹³ But few understand singularity theory well enough to understand this.

Knowing fully well that these assumptions cannot withstand public scrutiny, Stephen Hawking’s co-author G. F. R. Ellis, who got the million-dollar Templeton award for putting together science and religion, recently ran away from an academic debate on singularity theory¹⁴ and the decolonisation of math¹⁵ in South Africa. Subsequently, Tipler who has published many articles in *Nature*, brazenly asserted in a book (published by the publishers of *Nature*) that singularity theory is scientific proof of ALL of Christian theology.¹⁶ Unfortunately, Muslims across the world have mostly failed to respond to such abuse of mathematics and science for propaganda against Islam or to explore and examine the already existent remedy of decolonising math and science. They need to have the courage to stop imitating the West in academics and instead stand up to it.

That the West is running scared is clear from the fact that it has no academic counter-arguments to offer, and hence repeatedly just censors any attempt to decolonise math and science, e.g. in South Africa,¹⁷ and then in Palestine¹⁸ and indeed throughout the world.

Mathematics. 3: The European Navigational Problem and the Dissemination of the Indian Calculus in Europe’, *Frontier Weekly*, 4 September 2020, <https://www.frontierweekly.com/views/sep-20/4-9-20-Marx%20and%20mathematics-3.html>; ‘Marx and Mathematics. 4: The Epistemic Test’, *Frontier Weekly*, 8 September 2020, <https://www.frontierweekly.com/views/sep-20/8-9-20-Marx%20and%20mathematics-4.html>.

12 S.W. Hawking and G. F. R. Ellis, *The Large Scale Structure of Spacetime* (Cambridge University Press, 1973).

13 C. K. Raju, *The Eleven Pictures of Time: The Physics, Philosophy and Politics of Time Beliefs* (Sage, 2003); C. K. Raju, ‘The Christian Propaganda in Stephen Hawking’s Work’, *DNA India*, 16 January 2011, sec. Lifestyle, <https://www.dnaindia.com/lifestyle/review-the-christian-propaganda-in-stephen-hawking-s-work-1495047>. Archived print version at “Hawking singularities”, <http://ckraju.net/blog/?p=50>.

14 *Decolonising Science Panel Discussion: Part 1* (University of Cape Town, 2017), <https://www.youtube.com/watch?v=ckbzKfRIi6Q&feature=youtu.be>.

15 *HEC11 - Keynote by Professor C. K. Raju* (Durban, 2017), https://www.youtube.com/watch?v=cpS6MfzJr2E&list=PLUOd47_fvYyVL9bHgHvyD6e3gsoJo4bo&index=14.

16 F. J. Tipler, *The Physics of Immortality: Modern Cosmology, God, and the Resurrection of the Dead* (London: Macmillan, 1996); F. J. Tipler, *The Physics of Christianity* (New York: Doubleday, 2007); Frank J. Tipler, ‘General Relativity, Thermodynamics, and the Poincaré Cycle’, *Nature* 280, no. 5719 (1 July 1979): 203–5, <https://doi.org/10.1038/280203a0>.

17 C. K. Raju, ‘Black Thoughts Matter: Decolonized Math, Academic Censorship, and the “Pythagorean” Proposition’, *Journal of Black Studies* 48, no. 3 (2017): 256–78, <https://doi.org/10.1177%2F0021934716688311>; C. K. Raju, ‘To Decolonise Math Stand up to Its False History and Bad Philosophy’, in *Rhodes Must Fall: The Struggle to Decolonise the Racist Heart of Empire* (London: Zed Books, 2018), 265–70; C. K. Raju, *Mathematics, Decolonisation and Censorship*, 2017, <https://kafila.online/2017/06/25/mathematics-and-censorship-c-k-raju/>.

18 Extended abstract of censored talk at <http://ckraju.net/papers/palestine-extended-summary.pdf>, Description at “Israel denies visa for talk on decolonisation exposing Einstein” <http://ckraju.net/blog/?p=157>.