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Book Review

NOT QUITE A THEORY OF EVERYONE

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A review of the Book

A Theory of Everyone: Who We Are, How We Got Here, and Where We're Going

By Michael Muthukrishna, 2023.
Basic Books, London. UK. 439 pages.
ISBN 978-1-399-81063-0 (Hardback, UK £17.00, US$ 18.99)

Life relies on energy. Different forms of life specialize in exploiting different energy resources, and there is a long evolutionary story to tell about innovations in energy exploitation and competition over resources. The history of human economic innovation is also one of energy use and exploitation. The industrialization of our species required new sources of energy, which we discovered, extracted, and used without much care for future costs. Those costs are now arrived in the form of climate change and the running down of the energy assets we have designed our lives around. We are in crisis.

These observations lead Muthukrishna to make the following claim:

> By understanding the constraints imposed by energy, we will transform the way we think about economics, politics, and conservation. But by deepening our understanding of human behaviour, we will develop original insights about how to more effectively exploit energy in ways that help increase our prosperity and reduce the risks of conflict, both within and between societies. By the end we will have a theory that encompasses both; a unified theory of human affairs. A theory of everyone. (2023: 3)

In this way the stage is set for a big theory book. Part I is addressed to *Who We Are* and *How We Got Here*, whilst Part II discusses *Where We're Going*. Muthukrishna is careful to note that his approach is not to provide an account of the "one thing that explains everything" (pp.21-22).

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Instead, he offers us a framework of four laws that unify "the many forces that shape all of life" (p.22). They are:

1. The law of energy
2. The law of innovation
3. The law of cooperation
4. The law of evolution

These laws are first introduced in the context of a discussion about systems-level thinking. Muthukrishna firmly aligns systems-level thinking with ultimate causation, following a standard distinction between proximate and ultimate causes based in mechanism of delivery (the how) and natural selection (the why). He does not quite cash out this alignment. As not all systems are coordinated by selection, we perhaps should conclude that he is only interested in a class of system. This intuition is driven by the example of the failed introduction of cane toads in Australia. Cane toads proliferated exponentially and unchecked because, it is implied, the ecological system into which they were being introduced was not modelled properly and no checks on population growth were in place. Muthukrishna's lesson is that to innovate we must attend to the system.

What this lesson also conveys is a belief in theories as deductive systems (Carroll, 2020). Deductive systems allow us to draw inferences. As Carroll clarifies, deductive systems are comprised of axioms from which theorems are derived. It is the theorems that are laws. Such systems can be judged by the properties of strength and simplicity. A strong system will rule out many possible worlds. Simplicity is a syntactic feature, such that a system where all axioms are independent of one another is simpler than one with redundancy (Wilhelm, 2022). The best deductive systems are sometimes regarded as those balancing strength and simplicity, which positions this view of laws as a firmly pragmatic one grounded in the cognitive capacities of scientists (de Regt, 2015). There is no formal way of judging this balance.

One reason Wilhelm (2022) gives for liking the systems view of laws is that it plays to a scientific intuition – namely that laws should really capture all relevant facts. By facts what is meant are non-modal facts. Modality refers to claims about what could or could not have been, or what must be, and incorporates possible world claims. Thus, according to Wilhelm, scientific laws are "concise codifications of non-modal facts" (p.318). A strong deductive system will allow theorems from which all such facts can be derived. But strength can be sacrificed for simplicity, not least by reducing the number of axioms within a deductive system (Carroll, 2020).

Muthukrishna's first clarification of his four laws is brief. The *law of energy* refers to the energy limits on biomass and complexity in life.

> It is the density of stored energy in different sources, the availability and abundance of these sources, the power – energy transferred per second – and the efficiency with which we can find and use these sources that constrain what we are capable of doing. (2023: 25)

The *law of innovation* is the theorem that life generates innovations in efficient energy capture and control. Life is construed broadly to include evolutionary innovation in organisms as well as technological innovation by organisms. The law of cooperation states that when more energy is available only with the assistance of others then cooperation will emerge between agents. Also, the number of agents involved in cooperation is a function of the amount of energy available in this manner. The law of evolution states that exploitation of energy, innovation in energy capture

and control, and cooperation to gain more energy emerge only via evolution, understood as a trial-and-error process.

These theorems are integrated. Energy is the utility to be maximized. Innovations including cooperation can increase the value of that maximization. Evolutionary processes sort those innovations that maximize energy return. Their integration is not surprising as these ideas are derived from evolutionary theory and its applications. This gloss incorporates the basics of major transitions, elements of optimality modelling, and economic history. Muthukrishna knows this, and nods to these works in passing. But there is nothing new here. What he has done, however, is to produce a simplified deductive system. This runs the risk of sacrificing strength, by which is meant reducing the ability to rule out modal facts, or other possible worlds. Furthermore, given that cooperation is a type of innovation under energy maximization, and innovation is a product of evolutionary processes operating over variation, we can see that there is a form of redundancy in the four laws due to their interdependence.

When Muthukrishna turns to flesh out the detail of his laws of life he does so mostly through rich description of biological and technological situations that are readily interpreted in energy terms. But his argument is also augmented. For example, he asserts that one pattern in the history of energy acquisition has been a waxing and then waning of cooperation. Initially an energy source is discovered that requires much cooperative effort to extract and use. Later innovation makes extraction and exploitation easier, and that energy falls into the hands of those few who control these new innovative methods. This leads to socio-political organizations such as feudalism or oligarchy, as the few attempt to control the energy. This is a shift from positive sum conditions, where all are maximizing energy and its rewards, to zero sum conditions where a few gain everything at the expense of the many. These different conditions motivate different psychological responses – cooperation and harmful competition respectively.

It is not immediately clear to this reader that the benefits of innovation will always fall under the control of a few, and nor is it clear to Muthukrishna. Later in the book he describes how Norway divides energy benefits (cash) amongst its citizens for them all to benefit. This is an available route to a good life, low on conflict. But it is also evidence that Muthukrishna's deductive system is not ruling out possible worlds. If oligarchy and egalitarianism are two possible outcomes of an energy abundance, then we need some extra axioms or theorems to make more accurate our predictions.

Muthukrishna does add detail to support his four laws. These come, in small part, from the academic literature on intelligence and cultural evolution, including dual inheritance theory and cultural group selection. He races through summaries of these ideas in an uncritical manner. But, for the most part, Muthukrishna is a storyteller, weaving a somewhat chaotic yarn about our species that is clearly influenced by his theoretical predilections but is in no sense an entailment of those fields. Just as with E.O. Wilson, Lorenz, and many others who have contributed big theory perspectives, Muthukrishna is able to interpret the world through his chosen lens for the simple reason that he is listing the phenomena those theories were designed to explain. We should expect a fit, but that is not the best way to inspect the value of the theoretical claim.

It would be foolish to see Muthukrishna's task as one of producing a theory that dealt only with non-modal facts, given the evidence he has to hand. The behavioural and social sciences produce probabilistic statements and generally avoid formal, causal claims. All the empirical work that is cited in this book is grounded in association data processed through standard, and mostly frequentist, statistical methods. Muthukrishna is reporting on patterns in various kinds of population, and this kind of account can be regarded as a statistical explanation (Ariew et al., 2017). This is not causal, but we can commit to the idea that the patterns we have observed are caused by underlying mechanistic processes, even though the statistics will not reveal those

mechanisms. Instead, we have an idea about what the putative mechanisms can cause to happen. That is useful because it sets the parameters for the deeper scientific account.

In drawing this distinction between statistical and causal accounts we can see that Muthukrishna is in fact making only one axiomatic claim – that about the relationship between energy and life, in his first law. However, the remaining three laws are not self-evident truths but rather statistical likelihoods: innovations, including cooperation, that help to maximize energy utilities can occur, and those innovations can be stabilized in a population by selection. Put another way, laws 2-4 are predictions, supported by observational work carried out under the various theories of culture and intelligence that Muthukrishna favours, but that could equally have been derived from other perspectives. Even if we charitably repackage this analysis and suggest that Muthukrishna is arguing that all is in the service of energy maximization that means cooperation, harmful conflict etc. have this in common and differ in terms of the scale at which maximization occurs. This begins to look like a theory of the one thing that explains everything, something Muthukrishna has explicitly disavowed.

Muthukrishna's main lesson appears to be that working socially allows for greater innovation, the production of more conceptual variation and thus raw material to select from. The advocacy is for the power of the group over the individual – a smart worker can still be outcompeted by a well-organized collective. By the end of Part I it is clear to the reader that Muthukrishna is excited by the fields he has surveyed. He sees culture as central to human nature, as both software and a mechanism for developing software to run on the human brain. This point is emphasized when he discusses the cultural influences upon individual intelligence, bringing together Luria's classic ethnographic studies with Flynn's cultural interpretation of increases in IQ scores over generations. But culture is also a mechanism for group level innovation leading to forms of cooperation. His ambition is to use these insights to develop solutions to our current crises.

Part II focuses upon where we are going. Again, Muthukrishna is a storyteller, taking the reader through a collection of descriptions and accounts focused around six issues he believes we must solve. These are not issues formally derived from his theory, but they are clearly flavoured by it. We must reunite humanity, develop governance that is fit for the 21st century, address equality, trigger a creative explosion, improve the internet, and augment our intelligence. Nothing is dull, and each idea deserves thought, but whilst all the ideas are related to his focus upon socially embedded and socially wrought innovation in the service of energy maximization it is hard to discern a clear path to action. Indeed, nothing clear is recommended. In the end one is left feeling that Muthukrishna is demonstrating a style of thinking, a way of taking any socioeconomic observation about the modern world and interpreting it as an issue of energy maximization to be dealt with culturally. Because he is discussing humanity, social governance, collective innovation, and cultural intelligence his account in part II amounts to a truism. His principal axiom about energy and its relation to life is simply demonstrated as applicable in the social domain, which it should be as this is a domain of life.

What this reader was hoping for in Part II was a method for assaying the cultural ecologies of relevant societal problems. Muthukrishna's systems lesson about cane toads was a promising handwave and further lessons in how to do cultural ecology, how to think about the introduction of new innovations into society, how to model their uptake, costs and benefits would have been a significant contribution to applied behavioural and social science. Instead, we have been left to draw abductive inferences from case studies and given no criteria with which to judge those inferences. Ultimately, all we learn from this book is that humans are a cultural species. The crises we face have emerged from cultural traits, and possibly solutions to them will also be grounded in the same traits.

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Tom Dickins is professor of behavioural science at Middlesex University, and a research associate at the Centre for Philosophy of Natural and Social Science at the London School of Economics. His core interests lie in what behaviour is and evolutionary theory. He has recently published *The Modern Synthesis: Evolution and the Organization of Information* (2021) and co-edited (with Ben Dickins) a companion volume *Evolutionary Biology: Contemporary and Historical Reflections Upon Core Theory* (2023), both with Springer.

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REFERENCES

Ariew, A., Rohwer, Y., & Rice, C. (2017). Galton, reversion and the quincunx: The rise of statistical explanation. *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences, 66*, 63–72. DOI

Carroll, J. W. (2020). Laws of Nature. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2020). https://plato.stanford.edu/archives/win2020/entries/laws-of-nature/

de Regt, H. W. (2015). Scientific understanding: Truth or dare? *Synthese, 192*(12), 3781–3797. DOI

Matthen, M., & Ariew, A. (2009). Selection and Causation. *Philosophy of Science, 76*(2), 201–224. DOI

Wilhelm, I. (2022). Tractability and laws. *Synthese, 200*(4), 318. DOI