

Book Review: The Formula: How Algorithms Solve all our Problems ... and Create More by Luke Dormehl

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18/03/2015

Amidst the confusion and the hype around big data, Luke Dormehl's *The Formula* charts the growing influence of algorithms in modern society and how they affect our daily lives. **Michael Veale** finds that this book's strength lies in providing background on the personalities behind the hype. He recommends it to people new to the field looking for a basic recent history, and to those looking for an understanding of the mentalities that both seek to fit formulas to the world, and fit the world into formulas.

The Formula: How Algorithms Solve all our Problems ... and Create More. Luke Dormehl. WH Allen. 2015.

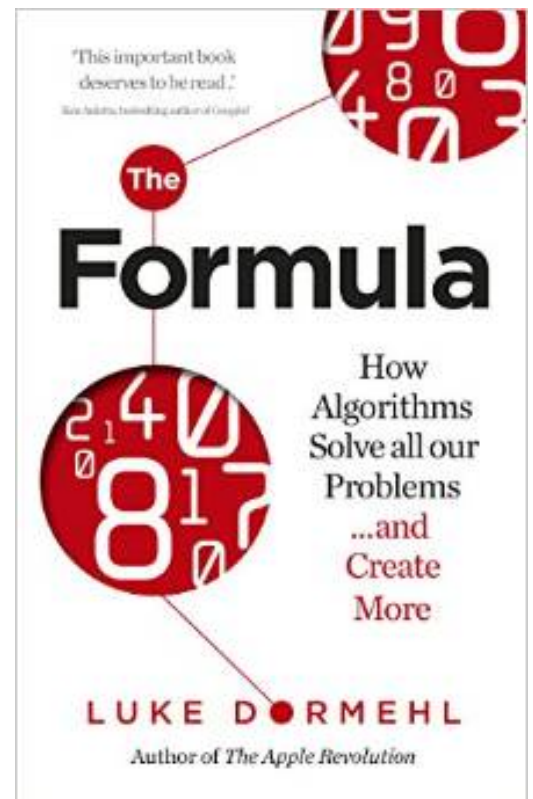
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Algorithms are involved in more and more of our lives. When browsing online, data-crunching routines figure out how to answer our questions, display targeted adverts, and even send you different flavours of email newsletter based on how you reacted to the last one. They even occasionally break into the news with astounding feats of prediction, such as [guessing when customers are pregnant before they know themselves](#). But while your personal data is likely subject to thousands of algorithms per day, on average awareness of this practice is shockingly low.

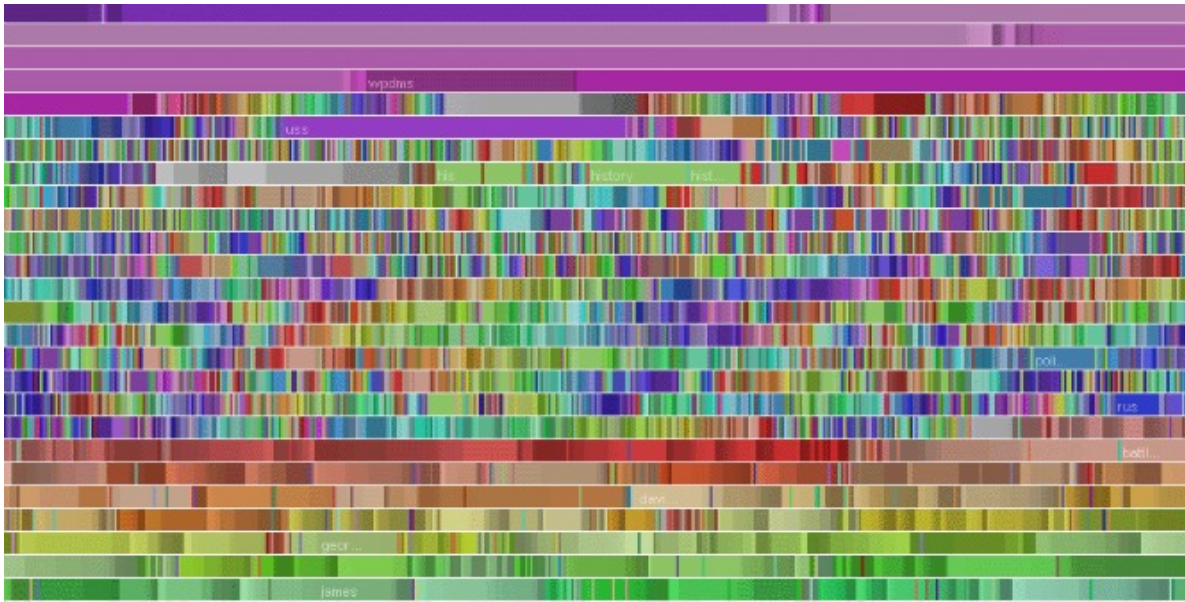
Floods of books shout the praises and promise of 'big data'. A quick Amazon search for the exact phrase produces nearly 4,000 results, with 500 in the last 90 days alone. Even so, the topic is covered in thick fog of confusion. Behavioural economist Dan Ariely [once compared](#) big data to of all things, teenage sex: "everyone talks about it, nobody really knows how to do it, everyone thinks everyone else is doing it, so everyone claims they are doing it." Amidst the confusion and the hype, Luke Dormehl has written *The Formula*, a book with a refreshingly lucid view, which instead of looking at the 'how', focuses more on the 'what' and 'who', zooming in on a variety of practices and practitioners across wide array of fields.

Dormehl doesn't focus on a single flavour of algorithm. Instead, he turns the spotlight on followers of a developing ideology of techno-rationality, quantification and predictability. Its adherents chase objectivity through ever faster machines and ever more ambitious code. They quantify their bodily metrics, boil down love and match-making to an imagined parametric 'essence', and search for the secret recipe to a Hollywood blockbuster. They build robotic quiz champions and computerised composers. Their programmes claim to be able to monitor and mitigate mood dips with timely environmental interventions, notice patterns in literary structure ahead of theorists and critics, and highlight crime hotspots before they emerge. Dormehl gives an umbrella name for the various products of this mindset – 'The Formula'.

This book is organised in a sequence of vignettes, each short chunk profiling one or two Formulites, their personal worldview, and the part they have played in encoding social and psychological phenomena for digital processing or prediction, in some of the ways outlined above. This anecdotal format appears messy and disjointed at times. But this messy structure suits this messy field – shoehorning so many projects and personalities into a spurious timeline



would probably feel less than satisfying.



Visualization of all editing activity by user “Pearle” on Wikipedia (Pearle is a robot). Image by [Fernanda B. Viégas](#) CC BY 2.0

The conclusion of the book attempts to draw these anecdotes together into both a summary and a future trajectory. The real argumentation of the book, mostly hidden in the shadows of the author’s language and phrasing earlier, is to be found in these final pages. It is interesting, reflective, and touches on many of the issues in this area, but unfortunately feels a bit sidelined in the work, appearing very suddenly and lacking space for proper elaboration.

One interesting takeaway point from the conclusion, and one which merited more space than it got, is the question of algorithms’ neutrality. Dormehl briefly discusses how large machine-learning giants such as Google have a strong interest in branding their algorithms as neutral and objective. This is not dissimilar to society’s old perception of photographs before Photoshop could work its magic (although even in the era of Stalin, [plenty of astounding photo-editing](#) was going on). Given that public knowledge of how algorithms work is very low indeed, how they are presented and sold is a subject warranting much more discussion. In studies of scientific and technological systems, much discussion surrounds how to involve citizens and stakeholders in innovation, through concepts such as [technology assessment](#) or more recently, the new European Commission buzzphrase ‘[Responsible Research and Innovation](#)’. How can the public morally judge algorithms if they don’t work in ways which can be explained simply or understood heuristically? Given even their programmers cannot rigorously ‘interpret’ the decision processes used by their creations, how can they be put up for public debate? Say that you want an algorithm not to behave in certain ways – does that impose a large technical burden, or is it insignificant enough that it is something we should be increasingly demanding?

The anecdotal format of this book also gives significant food for thought. Hunting for an objective ‘truth’ just out of reach is likely a flawed approach. As [George Box wrote](#), ‘all models are wrong, but some are useful’. For the most part, modern social science isn’t hoping to find heavy-duty laws or universal theories any longer, so this isn’t big news. But the objectivity-hunters described by Dormehl don’t tend to be social scientists, but engineers. Thinking more about the similarities between the people rather than the varied initiatives is something he doesn’t really do. Those inspired to build big-red ‘predict’ buttons on black-boxes filled with complicated algorithms often do so without the lessons incrementally developed by social scientists and statisticians. Circumventing these surely has some significant consequences, and that would make an interesting and important topic of study.

This book is not really an introduction into the types of algorithms that exist, and how they work. Pedants already waist-deep in this field are likely to find Dormehl's technical explanations a little problematic. If you're interested to go further technically, I recommend the free online courses from [Johns Hopkins University](#) (shorter and less mathematical, more applied) and from [Caltech](#) (longer and less applied, more mathematical). This book's strength lies instead in providing the personalities behind the hype. In that respect, it really does quite a good job. I recommend it to people new to the field looking for a basic recent history, and an understanding of the mentalities that seek to fit formulas to the world, and fit the world into formulas.

Michael Veale has a bachelor's degree in Government and Economics from LSE and a master's degree in Sustainability Science and Policy from Maastricht University. His main research interests are sustainability at the border of science and policy, private governance and certification, data visualisation, stakeholder participation and innovation. Having previously worked in health innovation at the European Commission, and sustainability certification for the sugarcane sector, he now researches into science advice to policy at University College London.

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