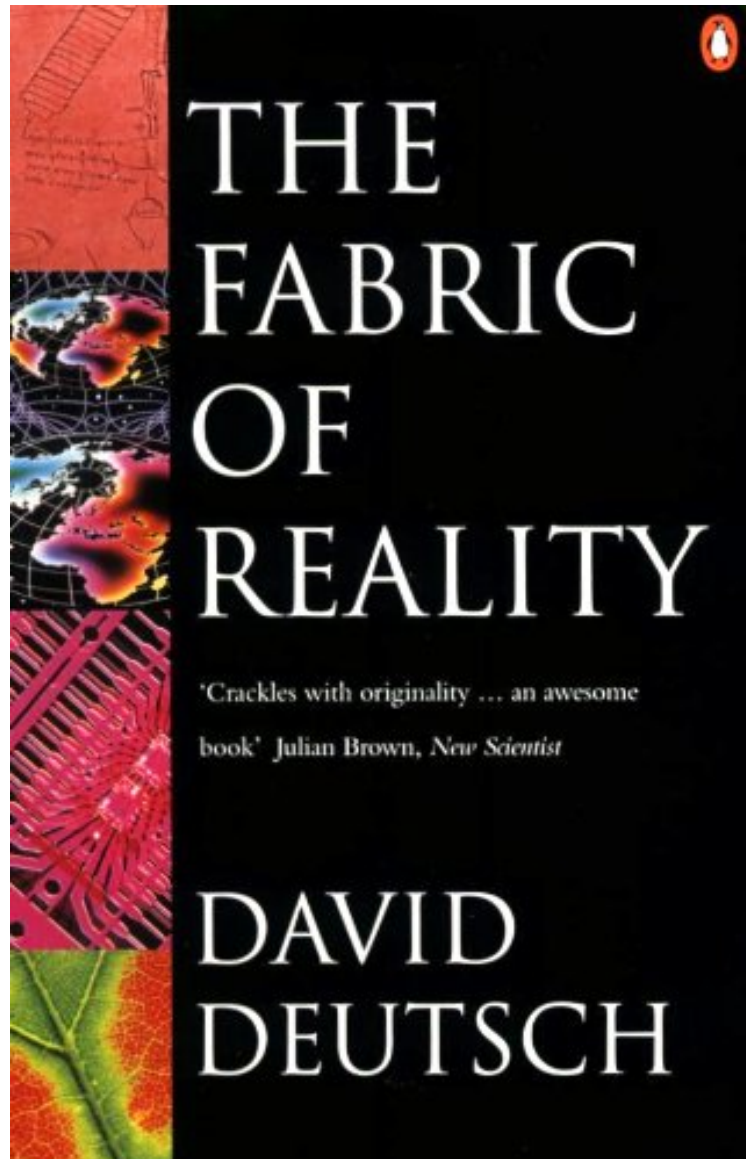


(Download) The Fabric of Reality: Towards a Theory of Everything (Penguin Science)

## The Fabric of Reality: Towards a Theory of Everything (Penguin Science)

Von David Deutsch

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**Von David Deutsch : The Fabric of Reality: Towards a Theory of Everything (Penguin Science)** before purchasing it in order to gage whether or not it would be worth my time, and all praised The Fabric of Reality: Towards a Theory of Everything (Penguin Science):

KundenrezensionenHilfreichste Kundenrezensionen8 von 8 Kunden fanden die folgende Rezension hilfreich. quantum

computers

Von Palle E T Jorgensen

The book was published in 1997, and a lot has happened since then. Yet the foundations retain their permanence, and David Deutsch's captivating writing is as fresh as ever. Despite the availability of newer books, for the layman/woman, now almost 10 years later, I would still rank this book at the top. There is a lot in the book; and yet, the ideas are presented in a clear and engaging way. The author is a pioneer, a giant in modern physics; he was and is a driving force in new discoveries in the subject. Yet he has his personal way of explaining physical reality. His view is not shared by all scientists, one should admit. However, there is agreement about the scientific conclusions. The first chapter in the book stresses \*explanation\*, our understanding of the reason for things. There are other views of science, e.g., instrumentalism: predicting the outcome of experiments. The author's view on quantum theory is based his idea about parallel universes. While fascination, the reader should be aware that there are alternative theories for explaining quantum phenomena. An important concept in quantum theory and quantum computation is "decoherence", and it is explained (ch 9) in terms of different (parallel) universes. In ch 9 about quantum computers, it might have been only fair to mention that there are such other current views on decoherence; but this is a minor complaint.

Presentation: I love that each chapter concludes with a section on terminology and a summary.

As a subject theoretical computer science started with Alan Turing and John von Neumann in the 1940ties: Classical computation follows the model of Turing,-- strings of bits, i.e., 0s and 1s; and a mathematical model which is now called the Turing machine. Instead of bits, why not two-level quantum systems, e.g., models built from electrons or photons? Such an analogues model for computation based on two-level quantum systems, and a quantum version of Turing's machine was suggested in the 1980ties by R.P. Feynman. The form it now has owes much to the author himself, David Deutsch. But it wasn't until Peter Shor's qubit-factoring algorithm in the late 1990ties (not covered in the book) that the subject really took off, and really caught the attention of the mainstream science community, and of the general public: The 'unbreakable' codes might be breakable after all ! That there is a polynomial factoring algorithm, as Shor showed, shook up the encryption community, for obvious reasons, and created headlines in the news. Ideas in the quantum realm, and not part of classical thinking, include superposition of (quantum) states, the EPR paradox (1935), and (quantum) coherence. Although these concepts are at the foundation of quantum theory, they make a drastic change in our whole theoretical framework of computation: Now one passes from the familiar classical notion of bit-registers to that of qubit-registers, and the laws of quantum mechanics take over. Mathematical physicists and computer scientists must revisit the old masters: Bohr, Einstein, Heisenberg, Pauli, and Dirac. In passing from logic gates to quantum gates (unitary matrices), the concept of switching-networks from traditional computer science now changes drastically. The changes introduce brand new scientific challenges, and new truly exciting opportunities. I believe that this book does justice to this, and that it is still a fascinating and thought provoking invitation to some of the most intriguing trends in modern physics.

Review by Palle Jorgensen, July 2005.5 von 6 Kunden fanden die folgende Rezension hilfreich. A curious, but unconvincing, thesis

Von Michael J. Edelman

Many years ago John Wheeler proposed a way out of the uncertainty of quantum probability: He suggested that every time a quantum event occurs, the universe itself divides in two, each part representing one possible alternative. A heady idea, and one that Wheeler himself later rejected as carrying with it "too much metaphysical baggage". But in recent years a number of adventurous young theorists (and a number of physics-ignorant speculative metaphysicians) have picked up the theory and put it to use solving problems. One recent paper explains the dark matter problem and the weak force of gravity by supposing most of the gravitons are clumped in a nearby, parallel universe. The author of the volume at hand proposes to explain everything from the physics of the two-slit experiment to free will via the multiverse, as he calls it.

Deutsch is no lightweight; his background in physics demands that his ideas be given serious consideration. But he does a poor job of arguing his case, glossing over details with a wave of the hand, assuring that this must be the case, since he says so. He tends to lecture the reader with a smug self-assurance that is tremendously off-putting as well. Perhaps he's right; me may be living in in one branch of a near-infinite multiverse. I can't say with absolute confidence that Deutsch is wrong. But I'm nowhere near convinced he's on the right track.

6 von 8 Kunden fanden die folgende Rezension hilfreich. Online Reviewers Fail Benchmark Test

Von Ein Kunde

Having read this book myself, I viewed the online reviews as a benchmark that could tell me something about who else reads this kind of book, and whether I am comfortable trusting their judgments. I ordered it prior to publication, as the result of a search for books on "quantum computing," before I was able to read any reviews, and before I could discover that by reading it I would learn nothing about quantum computing I didn't already know. When it arrived, it seemed interesting anyway -- a discourse on the (already familiar) many-worlds interpretation of QM from a true enthusiast, something I myself have never been. Should I have been? That's the question this book might have answered.

As far as the book's entertainment value, I tend to agree with the reader who called it "pompous, pretentious and worse of all extremely boring to read." Still, I'm not about to quarrel with readers who say things like "I really liked this," or even "it fires up the mind." Tastes are very personal, and even I might have said something like that at some other stage of life.

But what is so disappointing about many of the reviews is that the reviewers are obviously confused about the distinction between a scientific theory and a theoretic interpretation. A couple of examples: One reader called the central idea of the book "non-sense" and went on to say that "this book is built of figments that cannot be verified experimentally because of their very definition" (no extra credit for agreeing with me

on one star). Another says, "his theory of parallel universes is one of the most elegant theories in physics today." I could go on, but that would be as boring as the book itself. Obviously, you can't verify that other parallel universes exist, in any measurable way. But one does not ask an interpretation for verification. For example, it isn't possible to prove that the Sun and not the Earth is the center of the solar system, but thinking that way makes the planetary orbits a lot easier to understand. That's why even a doubter like myself is willing to consider the possibility of a many-worlds interpretation: Some bright guy may show you that things you once thought were hard to understand, are easy. The long and the short of it is -- Deutsch is not that guy.

**Kurzbeschreibung** An extraordinary and challenging synthesis of ideas uniting Quantum Theory, and the theories of Computation, Knowledge and Evolution, Deutsch's extraordinary book explores the deep connections between these strands which reveal the fabric of reality in which human actions and ideas play essential roles. "Our best theories are not only truer than common sense, they make more sense than common sense," writes physicist David Deutsch. In *The Fabric of Reality*, Deutsch traces what he considers the four main strands of scientific explanation: quantum theory, evolution, computation, and the theory of knowledge. "The four of them taken together form a coherent explanatory structure that is so far-reaching, and has come to encompass so much of our understanding of the world, that in my view it may already properly be called the first Theory of Everything." Deutsch covers some difficult material with unusual clarity. Each chapter ends with a summary and definitions of important terms, which makes the work an invaluable sourcebook. From Booklist In the library of physics for laypeople, Deutsch's book is unique. Correction: it is multiversal, existing in innumerable universes that Deutsch argues exist alongside the "real" universe that people perceive. Explaining that, and persuading the reader of its scientific truth, makes this work unique. Another of Deutsch's mindbenders is that each person could be resurrected near the Big Crunch (if there is one) by a universal computer with infinite memory, a conclusion discussed (and unfairly dismissed by most scientists, according to Deutsch) in Frank Tipler's *The Physics of Immortality* (1994). Deutsch, a quantum physicist at Oxford University, builds toward the computerized second coming on the basis of the well-known, reproducible experiment that conclusively establishes the quantum nature of light and of reality. He then discusses three more topics--computation theory, evolution, and epistemology--combining them with quantum theory to construct his Theory of Everything, the grail of all theoretical physicists. Deutsch allows that his is a minority view among his peers, but the confidence with which he presents his views, and the absence of condescension in his style, accesses nonscientists to his seemingly alien world(s). Gilbert Taylor