

# Is this life, the universe, and everything?

## *The Information Paradox*

Robert Wiles

Information Press, Cooma, NSW, 2014

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**Q**uestion: Why would someone publish a long book (400 pages) in a font size so small it is barely readable? Answer: Because it would cost a great deal more money to self-publish an even longer printed book in a font size that is easier to read. Question: Why is the book so long? Answer: Because it covers life, the universe, and everything, and has not had the benefit of peer review or editorial control. Question: Why should I bother to read it? Answer: Don't.

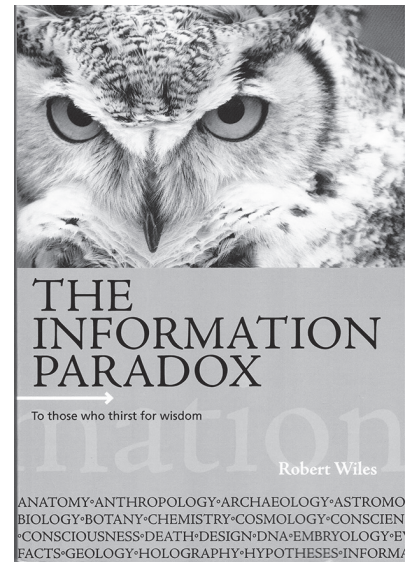
When Nobel Prize-winning physicist Erwin Schrödinger addressed the subject *What is Life?* in his 1944 book of the same name, he felt the need to begin with an apology to his audience:

“A scientist is supposed to have a complete and thorough knowledge, at first hand, of some subjects and, therefore, is usually expected not to write on any topic of which he is not a master. This is regarded as a matter of *noblesse oblige*. For the present purpose I beg to renounce the *noblesse*, if any, and to be freed of the ensuing obligation. My excuse is as follows: We have inherited from our forefathers the keen longing for unified, all-embracing knowledge. ... [but scientific progress has made it] ... next to impossible for a single mind fully to command more than a small specialized portion of it. I can see no other escape from this dilemma (lest our true aim be lost

for ever) than that some of us should venture to embark on a synthesis of facts and theories, albeit with second-hand and incomplete knowledge of some of them—and at the risk of making fools of ourselves.”<sup>1</sup>

Robert Wiles' excuse for writing this book is that it relates his journey of discovery through an eight-year endeavour to explain the evolution debate to his children (foreword). He does not apologize for his obvious lack of expertise on almost every subject on which he touches. On the contrary, he goes in the exact opposite direction, dedicating the book “to those who thirst for wisdom”. So not only does he attempt to explain life, the universe, and everything in terms of (supposedly) his own theory of information and therefore give us knowledge (of every subject in science, it seems, according to the beginning of such an alphabetical list on the front cover), he presumes to guide his readers into the ways of wisdom! My central question in attempting to read this dense and over-long book was therefore ‘Did he succeed?’

Although in parts it does make interesting reading—largely because he quotes at great length (e.g. over three pages) from authors who do have relevant expertise—my overall conclusion is that his deficiencies as a scholar and author have allowed him to reach way beyond his grasp. His aim is worthy, but it takes much more than eight years of part-time reading and writing (he is a father of four, a busy country doctor, and Senior Lecturer in the Rural Clinical School at the Australian National University) to contribute anything much of value to this huge subject on his own. I do not mean to be unkind, but I have to pose Schrödinger's question: “Has Dr Wiles made a fool of himself?”



The only thing interesting I found in the book was his call for the development of a new branch of science—‘Information Mechanics’ (p. 337). Otherwise, the work is entirely derivative. If you want to read about information then I suggest Werner Gitt's 2011 book *Without Excuse: Information—the Key to Life, Scientific Laws and the Origin of Life, Science and God's Message to Mankind*,<sup>2</sup> in the confident knowledge that the author knows his subject matter, is academically qualified to address the subject, and has researched and published peer-reviewed literature on it over many decades.

Inevitably there are conceptual and factual errors in Wiles' arguments that could have been avoided by peer review and editorial control. For example, three consecutive chapters are entitled “Information and the first cell”, “Information and the first organism”, and “Information and the first species”. He does not seem to comprehend the fact that the first cell necessarily is the first organism and the first species. As an author, Wiles seems to have little respect for his readers and has an overblown sense of the value of his own literary discoveries—pasting page after page of quotations from numerous other authors. Was it lack

of confidence, lack of comprehension, or lack of ability that made him do this? Did he feel, perhaps, that such torrents of words from more competent authors might be more convincing to his readers? On the whole, they aren't. They just make the job of reading his book all that more tedious. I am reminded of Proverbs 17:27: "A man of knowledge uses words with restraint." A science writer needs to consume large amounts of published work (Wiles has done that) but then digest it down to something more palatable to a target audience. Wiles has just regurgitated it all, to no audience in particular.

In a section in which he should have some first-hand experience, on antibiotic resistance in bacteria, he tells us that 'superbugs' arise only in hospitals that use the strongest antibiotics, and they lose their virility when having to compete with wild strains and no antibiotics are present. Sounds good. But right in the middle of this discussion Wiles makes a prediction from his 'Law of Coding' which he claims the evidence confirms, when in fact it is falsified (p. 227). His Law of Coding is just a restatement of Francis Crick's 'Central Dogma of Molecular Biology' (that information passes from DNA to RNA to protein but not in reverse). Wiles claims it has proven with time to be true, but it hasn't. Bacteria use proteins (enzymes) to splice foreign DNA into and out of their genomes, sampling the genetic environment and using any sequences that prove advantageous. This is the basis of lateral gene transfer, it is mediated by proteins, and has been observed in a multitude of examples. Microbiologist James Shapiro called this 'natural genetic engineering' and he published his 2011 book *Evolution: A View from the 21st Century*<sup>3</sup> with the express purpose of refuting Crick's Central Dogma. Although severely criticized by neo-Darwinists,<sup>4</sup> Shapiro's numerous examples and cogent arguments far outweigh his critics'

simplistic appeals to ignorance regarding the true power of random neo-Darwinian origination.<sup>5</sup>

Wiles' error becomes clearer when we examine his prediction in detail:

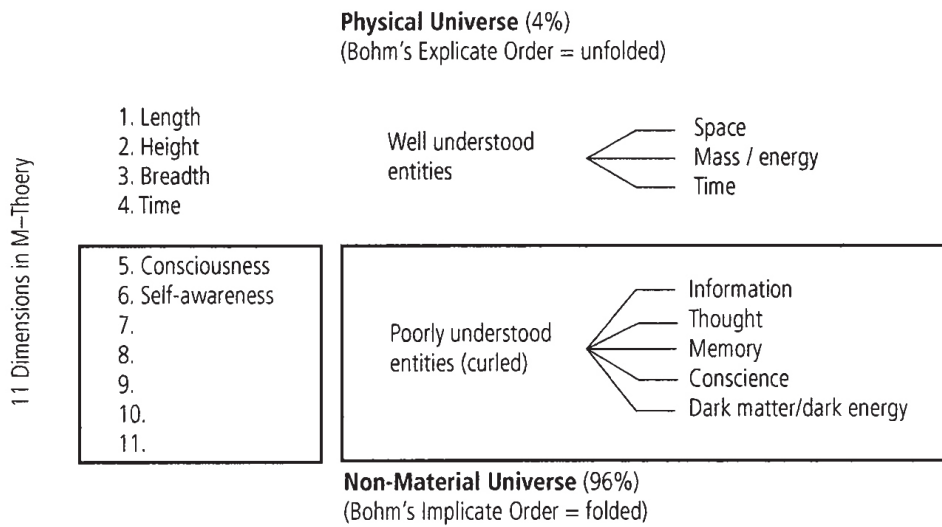
"If Neo-Darwinian evolution was indeed true, it might be envisaged that a sophisticated bacterium would develop a switching mechanism in its epigenome to turn the pumps on and off in the presence of antibiotics. ... This has not been described to date. This lack of ability to develop switches in the epigenome is predicted by the Law of Coding, as it would require sending information the wrong way up the intracellular information pathways, which cannot happen (p. 227)."

His prediction is wrong for at least two reasons. First, because genetic switching is the foundation of gene regulation and many different examples of gene regulatory rearrangements are known.<sup>6</sup> As a general principle, "Bacterial adaptation to new environments typically involves reorganization of gene expression",<sup>7</sup> which means 'reorganization of gene switching sequences'. Second, his use of the word 'epigenome' is incorrect. His glossary entry defines it as "supervisory (meta-) information within the genome of living organisms that carries the instructions for how a cell is to grow and function". The National Human Genome Research Institute defines it as: "The epigenome is made up of chemical compounds and proteins that can attach to DNA and direct such actions as turning genes on or off, controlling the production of proteins in particular cells",<sup>8</sup> and they give as illustrations DNA methylation and histone modifications.

Wiles' definition more correctly fits the 'regulatory genome' described in the 2006 book *The Regulatory Genome: Gene Regulation in Development and Evolution* by Caltech's International Biology Prize-winning developmental biologist Eric Davidson. The regulatory genome is

what makes a chimpanzee—rather than a human—out of a chimp genome that is supposedly similar to that of humans. The regulatory genome is explicitly genomically encoded and does not include epigenomic phenomena like DNA methylation and histone modifications (although the two are not totally independent). The regulatory genome consists of: (1) gene switches (*cis*-regulatory modules) which are segments of DNA directly upstream of protein-coding genes; (2) protein transcription factors that bind to *cis*-regulatory modules and either initiate or repress transcription of DNA into protein-making mRNA; (3) long segments of regulatory RNA derived from non-protein coding sections of the genome which modulate the timing and rate of transcription factor activity; (4) microRNAs from the same source that fine-tune transcription factor activity; and (5) looping patterns in chromatin structure that can bring remote parts of the genome together to jointly contribute to the regulatory activity.

Does it matter that Wiles is a little bit wrong on these subjects? His failure to understand his subject becomes more evident in his glossary definition of 'evo devo': "Evolutionary Developmental Biology: the study of how embryogenesis might have evolved within Darwinian Theory." He puts the cart before the horse. Evo devo begins with developmental biology, a subject with a long and illustrious history of experimental investigation and award-winning discoveries. It is very solid science. Evo devo then views developmental biology from an evolutionary viewpoint to try to imagine how the great variety of developmental systems may have evolved. Evo devo is not tied to Darwinian Theory, as Eric Davidson discovered, but few people seem to want to listen. His dramatic discoveries led him to conclude: "This concept [the basal stability of the hierarchical regulatory genome] cannot be accom-



**Figure 10.3: An expanded Illustration of both the Physical and Non-Material Universe**

As the non-material Universe is curled (according to Relativity Theory) and hence unable to be probed from the physical Universe directly, most of the dimensions are unknown and hence have been left blank. Dimensions 5 and 6 are discussed in greater detail in Chapter 12.

**Figure 1.** Wiles' summary diagram of the physical and non-material universe, revealing confusion and confounding of concepts. Examples include: curvature of spacetime in General Relativity is confused with tightly curled extra dimensions in string theory; denial that non-material entities such as information and memory can be probed from the physical universe; implicit acceptance of theoretical concepts (M-theory, dark matter, dark energy) as if they are real.

modated by microevolutionary nor macroevolutionary theory.”<sup>9</sup> So yes, it does matter that Wiles is wrong about his Law of Coding because it is the very first principle in his understanding of information flow in the cell (chap. 3).

Information flow in cells can be properly understood only through the concept of the regulatory state of the cell. The regulatory state is the entire set of factors that determine the state the cell is in at any particular time. It is perhaps best illustrated by considering an egg and sperm prior to fertilization. Both contain approximately the same (haploid) genomes. The sperm is specially configured by its regulatory genome to be a sperm (which is its regulatory state), and the egg is specially configured by its regulatory genome to be a vastly larger egg (which is its regulatory state). After fertilization we now have a zygote, the first cell of a new diploid individual organism. The sperm genome and the egg genome must each be stripped of all their previous specializations as sperm and egg cells so they can adopt the regulatory state of a totipotent zygote. But if all regulatory information is

stripped away, how does the new zygote know how to launch itself into embryogenesis? The answer is that everything is provided in the regulatory state of the mother's egg cell—and that is why the egg is so huge compared to the sperm. The egg is packed with maternal regulatory RNAs and ribosomes, while the sperm is just a packet of mostly chromosomes. The direction of the most important information flow in cells is therefore from parent *cell* to daughter *cell*, not from DNA to RNA to protein.

Wiles' self-published book inevitably invites comparison with other self-published books in this field. Walter ReMine's excellent 1993 book, *The Biotic Message: Evolution versus Message Theory*,<sup>10</sup> ingeniously used only the words of evolutionists to assess their own claims. The result is easy to dip into for specific information and is still worth reading at length today. John Sanford's 2008 book, *Genetic Entropy & The Mystery of the Genome*,<sup>11</sup> is also excellent because the author is an international specialist in the field about which he writes, his points are succinctly and clearly made, and he includes criticisms with answers at the

back. Vance Nelson's excellent books,<sup>12</sup> *Dire Dragons* and *Fast Fossils*, are the result of meticulous original research and a high standard of publication quality. In comparison, Wiles' effort is one long tedious argument, inexpertly made.

### Conclusion

Would I recommend the book to readers of this journal? Perhaps, if you pretend the title is something like: *My adventures in trying to explain evolution to my kids*. That way readers might expect what they actually get. It might be something useful to read in the holidays, if the font size doesn't bother you. After all, three and a half consecutive pages of quotations from Paul Davies (for example) is always worth reading because Davies is a good author and knows his subject, even if I might disagree with him sometimes. Most of Wiles' other quotations are also from worthy writers. But for myself? I wouldn't waste my time getting eye strain. Sorry Robert.

Meanwhile, here are some words that were of great value to me. They were contained in a gracious manuscript

rejection letter I received from Cambridge University Press: “It is a very competitive field.” Schrödinger made the cut—his book was reissued by Cambridge University Press in 1992 with a foreword by Sir Roger Penrose OM, FRS, and again in electronic format in 2012. He did not make a fool of himself.

### References

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