

Introduction

This book is a less technical version of *Probability's Nature and Nature's Probability: A Call to Scientific Integrity* [Joh09], which was written for scientists. It assumes the reader is not a scientist, and many highly technical details are omitted, such as those from advanced mathematics, quantum probability, and information theory (including probability vectors and conditional matrices). If details for the conclusions presented in this book are desired, the scientists' version should be consulted. This "Lite" version has more verbose explanations of concepts that scientists would know from their training, and which were put in more concise wording in the scientists' version. Since many disciplines are covered, some scientists may also appreciate the easier explanation of fields outside their area of expertise. Also included are some findings that have occurred since the publication of the scientists' version.

Don't be misled by the word "Lite" in the title. A non-scientist will find considerable "meat," as opposed to "fluff" in the book's content. There are some technical details that must be presented, but a thorough understanding is usually not needed in order to appreciate the complexities involved. This is primarily a reference book that can be used when evaluating speculations involving undirected naturalism. The final page has an index of frequently-used terms. You may find this invaluable when encountering a term that you've seen, but can't remember what it means.

In recent years there has been much controversy concerning ID (Intelligent Design). Many in the scientific community have dismissed the concept as Creationism warmed-over, since a designer is assumed (incorrectly) to be, of necessity, God the Creator. Some in the Biblical Creationist community have dismissed ID as irrelevant since the God of the Bible is not portrayed as the Designer (it is therefore not "Truth"). This book, like the scientists' version, will deal with the scientific aspects of ID, not addressing the philosophical and theological aspects of origins, life and the resulting implications. If it is argued that ID is compatible with (though not requiring) a deity, and therefore should be excluded from science, then by the same reasoning, no atheist should be able to publish anything in support of undirected naturalism (which includes Darwinism) since that is a primary belief of those holding the atheistic religious view. This book will show that undirected naturalism lacks

known scientific facts in several critical areas, and that some intelligent agent better accounts for many observations.

To help the reader understand why these books were written, it is important to know the author's background. From childhood, the author was extremely interested in science, devouring books on anything scientific. His love of science led to a Ph.D. in Chemistry from Michigan State University. During his education, views of the American Chemical Society's "From Molecules To Man" program were totally accepted. This program presented the scenario of progressing from inorganic chemicals that were presumed to be available before the first life, developing life via chemical evolution, and then developing the diversity of life (including man) via biological evolution. At that time, he believed anyone not accepting the "proven" evolutionary scenario was of the same mentality as someone believing in a flat earth. He willingly confronted anyone doubting the evolutionary scenarios, relying on the "facts" presented during his training to promote those scenarios.

The author worked for ten years as a Senior Research Scientist in the medical and scientific instrument field. The complexity of life came to the forefront during continued research, especially when his research group was involved with recombinant DNA during the late 1970's. Recombinant DNA is "creating" a new form of life by chemically breaking existing DNA chains and combining the resulting strands in a manner not found in nature. Problems, complexities, and progress in recombinant DNA research were highlighted during weekly group meetings. After several years as an independent consultant in laboratory automation and other computer fields, he began a 20-year career in university teaching, interrupted briefly to earn a second Ph.D. in Computer and Information Sciences from the University of Minnesota.

Over time, the author began to doubt the natural explanations that had been so ingrained. It was science, and not his religion, that caused his disbelief in the explanatory powers of nature in a number of key areas including the origin and fine-tuning of mass and energy, the origin of life with its complex information content, and the increase in complexity in living organisms. This realization was not reached easily, as he had to admit that he had been duped into believing concepts that were scientifically unfounded. The fantastic leaps of faith required to accept the natural causes in these areas demand a scientific response to the scientific-sounding concepts that in fact have no known scientific basis.

In the scientist' version, it is pointed out that scientific integrity

needs to be restored so that ideas having no methods to test or falsify (criteria that would show a theory is wrong) are not considered part of science. This applies to Biblical Creationism as well as to naturalistic “causes” in the areas mentioned above. For example, one should not be able to get away with stating “it is possible that life arose from non-life by ...” without first demonstrating that it is indeed possible (defined as non-zero probability within the nature of probability) using known science. One could, of course, state “it may be speculated that ... ,” but such a statement wouldn’t have the believability that its author intends to convey by the pseudoscientific pronouncement. Parents, students, and others will be able to use the scientific data in this book to filter the unsubstantiated pseudoscientific claims that are so often encountered in “science” programs on TV, in magazines, and in the education system.

This book will review many of the prevalent scenarios that are widely accepted but need closer examination of their scientific validity. It will also examine the scientific validity of ID as a model that can be empirically detected and examined. The usefulness of the ID model for furthering scientific inquiry will also be analyzed.

It is important to realize that empirical science does not address issues such as “why” (purpose) or “how” (mechanism), but merely “that” (characterization of properties, often with mathematical expressions). Empirically testing hypotheses and theories against observations of the natural world is fundamental to the scientific method (as opposed to relying on a priori reasoning, revelation, or intuition). For example, the law of gravity has proven to be extremely accurate for determining intersections of moving objects in 3-dimensional space, such as landing a spacecraft on Mars. Science does not yet know “how” gravity works (gravitons have been proposed, especially as part of string theory), and may never know “why” it works, but science has determined “that” it works (every time, a quality of “law”). Note that other scientific laws are also in effect so that a flying airplane still obeys the law of gravity, with the laws of aerodynamics offsetting the effects of the law of gravity for a rapidly-moving airplane.

Principles and laws that have been demonstrated to be valid will be employed, discounting speculation that has no proven scientific basis. We will be considering “science as we know it,” not “science as we don’t know it.” Note that new avenues of scientific thought often involve speculation to be tested for validity, so speculation does have a place in science. Such speculation, however, needs to be identified as such so

that it isn't mistaken for "fact." We will see that ID fits into the guidelines of the scientific method for investigating phenomena, correcting and integrating previous knowledge, or acquiring new knowledge. ID is based on gathering observable, empirical and measurable evidence, subjecting it to specific principles of reasoning.

This book is written for people interested in science, especially those who wish to investigate the validity of Intelligent Design. The purpose is not to turn you into a scientist, so don't get bogged-down if you don't understand everything. This is a reference book that you can refer to as needed to evaluate assertions purported to be science.

This book is not meant to be a comprehensive coverage of all topics (such a book could never be published as new findings occur daily), but does provide representative references for the topics of interest, especially findings supporting ID. Most of the quotations are from scientists who believe in undirected natural causes as the only "valid" science, so don't take their statements as implying their explicit support of ID, even if those statements may demonstrate ID is reasonable. Quotations, even from ID proponents, are not meant to reflect agreement by this author, but rather to reflect the breadth of ideas being considered to explain the evidence of design that is empirically detectable. For example, there are many different beliefs as to who or what caused the design that is empirically detectable, but those beliefs fall outside empirical science, and therefore any particular scenario won't be supported.

There are many more references than should be necessary, but they are needed to counteract the falsity of statements like "*Darwin's theory is now supported by all the available relevant evidence, and its truth is not doubted by any serious modern biologist*" [Daw82]. (Note: all quotes are italicized so that the reader can quickly identify them as quotes, identified by author and year.) It is important to realize that, contrary to a wide-spread belief of mainline science, the lack of scientific basis for undirected naturalism is acknowledged by many scientists. After considering the information in this book, you will be able to evaluate statements like "*It is absolutely safe to say that if you meet somebody who claims not to believe in evolution, that person is ignorant, stupid, or insane*" [Daw89]. This book highlights components that are missing in most scientific coverage of life and its diversity.

A Quick Guide to Reading Each Chapter (by chapter number)

- 1 This is a foundational chapter for appreciating the scientific-notation numbers used throughout the book. The fundamentals of probability must also be understood. This chapter will be easy reading if you're strong in math, but may take an extraordinary time if you've found math to be challenging, and if you want to totally understand the concepts. If all you want is a "feel" for the numbers, the time will be considerably less (and you can always come back to this chapter if deeper understanding is desired later).
- 2 This chapter builds on concepts introduced in chapter 1 to clarify terms related to probability (possible, probable, feasible). Understanding chapters 1-2 will result in a fairly good understanding of "probability's nature." Other topics, such as information theory, make use of more complex expressions of that nature (such as conditional probability space matrices and information entropy calculations), but those details won't be covered in this book version (consult the version for scientists if those details are desired).
- 3 The coverage of the speculations for the origin of mass and energy can be used to balance what one often encounters on that topic, especially in PBS "science" programs. Those speculations may be skipped since they are not directly pertinent to the empirically detectable fine-tuning of the constants and properties which serves as ID evidence. Since this is a reference book, you can read those details when you encounter speculations on the origin of mass and energy.
- 4 This chapter should give an appreciation for the complexities of even "simple" life, but needn't be thoroughly understood since the purpose isn't to make you a biologist. The terms that will be used in the following chapters are **highlighted** so that particular attention may be given to them.
- 5 A critique of the origin-of-life scenarios should provide information that is usually missing when those scenarios are presented. Undirected natural processes are shown to have an extremely low probability of generating life from non-life based on principles of chemistry and physics.

- 6 The concept of information, the types of information, and information's expression and communication are covered. The complex information and information processing systems within life are shown, based on information science, to have zero probability of arising by undirected processes (which rules out undirected natural processes as life's source).
- 7 The mechanisms of biological evolution are evaluated from both physical and informational sciences. This chapter is particularly important for evaluating the plausibility of evolutionary scenarios.
- 8 This chapter highlights the conflict between undirected naturalism and ID, particularly the prevalent misconceptions about ID. Most will find this to be "easy-reading" because of its non-technical nature. Some may want to read this before reading the more technical chapters to get a clear understanding of the issues involved with ID before investigating the details of why ID provides a better model of many observations than does undirected naturalism.
- 9 The final chapter is also non-technical, and clarifies characteristics of ID and the benefits of ID to science.