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Title Denote or Prove?

Author(s) G. Bruce Schaalje

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Abstract Review of *Fingerprints of God: Evidences from Near-Death Studies, Scientific Research on Creation, and Mormon Theology* (1999), by Arvin S. Gibson.

DENOTE OR PROVE?

G. Bruce Schaalje

Arvin Gibson's *Fingerprints of God* is a well-meaning and energetic book. Although he never explicitly defines what a "fingerprint of God" is, I assume it to mean that just as fingerprints left at a crime scene often provide irrefutable evidence of the identity of the perpetrator, God's fingerprints are very strong—even irrefutable—clues left by God in his work of bringing to pass "the immortality and eternal life of man" (Moses 1:39). Gibson boldly proclaims that when considered carefully, near-death experiences (NDEs), aspects of physical and biological science, and the restoration and message of the gospel are three such fingerprints. In a sense, the book is Gibson's personal expanded version of Alma's testimony to Korihor that "all things denote there is a God; yea even the earth, and all things that are upon the face of it" (Alma 30:44). Critically reviewing this book is difficult in that it feels a bit like critiquing a testimony.

I did enjoy reading much of the book and could not help being drawn in by Gibson's enthusiasm. I had not previously read literature about NDEs, and I found some of the experiences touching and intriguing. Some were less convincing and raised questions in my mind, but that was not unexpected. I read several of them to my wife while

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on a long car trip, and we enjoyed discussing them. However, Gibson is not a polished writer, and the text is somewhat repetitive. I also had trouble determining the target audience for the book; it seemed to oscillate between those who are and those who are not members of the Church of Jesus Christ of Latter-day Saints. But there is much food for thought, and the flaws, for the most part, add charm and innocence to the book.

Having said this, I admit that I was not convinced by some of Gibson's arguments. Even though my faith in God is strengthened as I look at nature and the universe with their beauty, complexity, order, and apparent optimality, I do not find in these the irrefutable proofs that Gibson claims. I think there is a difference between things "denoting" there is a God and things "proving" there is a God. I found myself arguing with Gibson about some of his rigid conclusions, even though I agree with his general point of view.

Gibson's discussion of fingerprints ranges far, including NDEs, cosmology, quantum physics, molecular biology, evolutionary theory, paleontology, probability, church history, and chiasmus. The scope of the discussion is impressive, as is his boldness in tackling and combining so many topics. I am not qualified to comment intelligently on many of his points. Being a statistician, however, I will illustrate my concerns by commenting on his references to statistics and probability theory.

Gibson mentions statistical ideas in a discussion of the strengths and weaknesses of current research on NDEs. He notes that the research has consisted mainly of gathering stories from those who have experienced NDEs, and he gives an honest description of his own method for finding candidates (referrals from friends and newspaper advertisements) and carrying out and recording the interviews (pp. 33–34). He admits that NDE researchers "could not fix the parameters of data that they gathered with such techniques as double-blind studies and sophisticated pre-test statistical gathering methods" (p. 88). Although I am not exactly sure what he means by this statement, I appreciate his admission that statistical controls might strengthen NDE research. I wish he had elaborated on this point. I think it is possible for some form of blinding to be used in this re-

search. I imagine a scenario involving both skeptics of and believers in NDEs as interviewers and those who had actually experienced NDEs along with those who had invented stories as interviewees. The process would involve combinations of interviewers and interviewees, neither of whom would know to which group the other belonged.

Similarly, although I am not sure what Gibson meant by “sophisticated pre-test statistical gathering methods,” I can imagine a study involving the random selection of patients whose medical records indicated a heart stoppage for some defined period of time followed by recovery. It would be interesting to see what percentage of such patients have NDEs and if solicited reports differ from voluntary reports of NDEs. Other improvements might include standardized questionnaires designed to gauge the degree to which interviewees had been influenced by previous exposure to NDE accounts. Gibson notes that Kenneth Ring has attempted to introduce “more statistical gathering techniques” (p. 88) into NDE research but gives no details.

My concern and disappointment in this section is that after mentioning the potential advantages of incorporating statistical ideas into the gathering of NDE data, Gibson reverses himself. He claims that statistical criticisms of NDE research could be viewed as the “epitome of arrogance” because NDEs are crafted by God for the needs of specific individuals and not for the needs of researchers. Somehow this means that statistical criticisms are no longer valid. While I agree that applying statistical requirements to NDE research would be difficult, I do not think that it would be offensive to try to impose academic rigor on NDE research. If NDEs truly are fingerprints of God, they are presumably deliberately given to enhance our faith. Rigorous methods would only add to their effectiveness. I would have been happy if Gibson had simply noted the inherent statistical weakness of much NDE research.

Gibson devotes several pages of the book to probabilistic arguments regarding the creation of the universe and life on earth (pp. 28, 134–49, 195–96). In the book proper, he gives no details on the derivation of these probabilities. He simply states them, with references to their sources. He also refers readers interested in derivations to sample calculations in appendix C (pp. 240–50). The reported

probabilities of the random creation of a simple bacterium or even a typical protein characteristic of a living organism are incredibly small numbers, ranging from 10^{-20} to $10^{-40,000}$. The reported probability of a universe consisting of stars and galaxies rather than black holes is many, many orders of magnitude smaller than these.

Several things about this discussion concern me. First, Gibson repeatedly says that the value 10^{-50} is the probability cutoff accepted by scientists as a definition of "impossibility" (pp. 29, 137, 145, 241). He gives no reference for this statement but implies that it is such a commonly accepted value that all scientists are familiar with it. I was not familiar with it, and neither were several of my colleagues. I very much doubt that scientists would agree to define impossibility this way. This is a minor issue, but it reinforced my impression that Gibson has a tendency to overstate his case.

Second, Gibson's sources for his probability calculations were not from mainstream scientific literature. If the references had been, I would have been more comfortable, trusting that they had been properly derived and peer reviewed.

Third, the probability calculations in appendix C are, in my opinion, flawed. For example, in his calculation of the probability of the random creation of a blood-clotting protein, Gibson suggests that of 30,000 gene pieces in a typical animal with blood-clotting capability, 4 have to do with blood-clotting proteins. He then uses these two numbers to calculate the desired probability as 1 in $30,000^4$, the probability of selecting 4 specific objects at random out of a set of 30,000 distinct objects, assuming selection with replacement. He computes that if it took 0.1 second for each selection of 4 gene pieces, it would take 3.17×10^9 years to work through all possible selections. The problem here is that the probability model has nothing to do with the biology of the situation. I know only a little about biology, but I cannot envision how natural selection of a 4-gene-piece protein could be modeled as a single draw of 4 objects with replacement from an existing set of 30,000 objects, even if those objects happen to be the 30,000 gene pieces of a typical organism. The use of 0.1 second per draw in the time calculation is completely arbitrary, and it is highly unlikely that one would have to run through all

30,000⁴ draws before selecting the desired set of 4. This example made me wary of all of the calculated probabilities reported in the book.

It is not hard to compute extremely small probabilities by combining familiar-looking numbers. The question is whether they have anything to do with reality. Informative probabilities are based on careful models of the whole situation and are often counterintuitive. For example, Evelyn Marie Adams won the New Jersey lottery twice in a short period of time.¹ The probability of a specific person buying two lottery tickets and winning with both tickets is about 1 in 17 trillion, and one is tempted to think that an extremely unlikely—even impossible—event happened in Adams's case. However, the 1-in-17 trillion chance is not really relevant. The fully formulated question is about someone, somewhere, sometime winning a lottery twice. This probability has been calculated as about 1 in 2 for any seven-year period. So it really is not surprising that someone like Adams happened to do it. I fear that many of the calculations quoted by Gibson suffer from similar problems—they do not address the fully relevant probabilistic situation. In order to obtain a meaningful and relevant result, a probability calculation addressing the creation of life must realistically reflect the complete biological process in the full context.

Gibson sums up his section on probability by stating, "From probability considerations alone, there is only one rational answer as to how life began—God" (p. 216). For Gibson, these calculations and the other fingerprints in the book settle the issue. There is only one rational conclusion for him. While I am persuaded by many of the issues that Gibson raises and agree that these things suggest or denote that there is a God, I do not believe that they settle the issue. My reservation about the book is that scientifically unsophisticated readers might be misled by Gibson's arguments, and scientifically sophisticated readers might be turned off by Gibson's bold claims. The book would have been more successful in enhancing faith if Gibson had taken a softer line on his fingerprints.

1. Jessica M. Utts, *Seeing through Statistics*, 2nd ed. (New York: Duxbury, 1999), 298–99.