"What is the meaning of it, Watson? . . . It must tend to some end, or else our universe is ruled by chance, which is unthinkable."—"The Adventure of the Cardboard Box" in His Last Bow, *by Arthur Conan Doyle.*

The Undoing of

Bill Fortney

William G. Fortney,

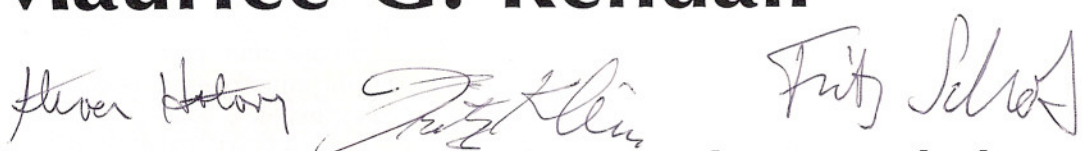
Prologue

Most statisticians will recognize the text that our article explicates: It is an epigram preceding the preface to the second volume of *The Advanced Theory of Statistics* by Kendall and Stuart. As far as we are aware, however, our *explication du texte* has been previously revealed in print only once, in Stuart's obituary of Kendall [*Journal of the Royal Statistical Society A* 147 (1984), 120–122]. That it is not as well-known as it should be is shown by the citation in John Bibby's *Quotes, Damned Quotes and...* (Halifax: Demast Books, 1983) which attributes the quoted passage to "K. A. C. Manderville" without mention of either Kendall or Stuart.

We were unaware of Stuart's obituary when we discovered the hidden meaning and wrote the enclosed revelation of the true authorship of this familiar quotation, which we offer with the requisite apologies to A. Conan Doyle (or "randy author clone"). To cite page number references to Doyle's works seems useless, in view of the many editions in which they have appeared, but for the benefit of any Baker Street Irregulars who may chance to read this, we specifically acknowledge a few borrowings. The "lamia" to which we have Holmes refer is the subject of "The Adventure of the Sussex Vampire," from *The Case Book of Sherlock Holmes*. The name "Garrideb" is, of course, taken from "The Adventure of the Three Garridebs," also from *The Case Book*. It is in "The Final Problem" from *Memoirs of Sherlock Holmes* that we learn that that infamous mathematician, Professor Moriarty, wrote a thesis on the binomial theorem. "Camford University" is the home of Professor Presbury in "The Adventure of the Creeping Man," from *The Case Book*. Holmes demonstrated his cryptanalytic gifts in "The Adventure of the Dancing Men" from *The Return of Sherlock Holmes* and again in the opening chapter of *The Valley of Fear*. And "equinoctial gales" set the stage for "The Five Orange Pips" from *Adventures of Sherlock Holmes*. Finally, "The Science of Deduction" is the title of a chapter in *A Study in Scarlet*.

A final word: Some may doubt our suggestion that Holmes was a frequentist with scant sympathy for a Bayesian view of the world. We believe that, if not a strict frequentist, Holmes revealed himself at least as one who insisted on strict adherence to the likelihood function as the sole basis for inference. His advice that "it is a capital mistake to theorize before one has data" because "insensibly one begins to twist facts to suit theories, instead of theories to suit facts" (taken from "A Scandal in Bohemia" from *Adventures of Sherlock Holmes)* sounds much like a frequentist's lament, and this seems to be one of his most deeply held beliefs, for he reiterated it often. (See, for example, Chapter III of *A Study in Scarlet*, "The Adventure of the Copper Beeches" from *Adventures*, "The Adventure of the Second Stain" from *The Return of Sherlock Holmes*, Chapter II of *The Valley of Fear*, and "The Adventure of Wisteria Lodge" from *His Last Bow*.) The closest Holmes seems to come to a Bayesian perspective is in "The Adventure of the Sussex Vampire" (from *The Case Book*), wherein he remarks that "one forms provisional theories and waits for time or fuller knowledge to explode them," but then immediately adds, "A bad habit, . . ., but human nature is weak." In general, Holmes appears firm, consistent, and adamant in his insistence that all inference must derive from *data* alone. (Given the inferential success that Miss Jane Marple attributes to her belief in the wickedness of human nature and M. Hercule Poirot to his understanding of *la psychologie*, one suspects Agatha Christie had more respect for the prior than did Conan Doyle. One also doubts Ms. Christie would have been taken in by the little moppets' famous photos of fairies in the garden that hornswoggled Mr. Doyle.) None of this should be taken as an indication of the views on Bayesianism entertained by the authors of this article, who are quite at odds with one another concerning both the merits of the arguments and their importance.

Maurice G. Kendall



Steven Hotovy, Fritz Klein, and Fritz Scholz

Even the rain, driven by the winds of an equinoctial gale against the window pane of our chambers, could not distract Holmes from his reverie. I well knew that, when lacking nutriment for his intellect, he could remain in such an unhealthy trancelike state for days at a time, paying no heed to either surroundings or companions. His breakfast, untouched, was already growing cold on the table when Mrs. Hudson entered, bringing with her our share of the morning post. With an unfeigned air of languor Holmes glanced at the stack of letters. Selecting one that unaccountably bore neither postmark nor sender's name and address, he opened it and began reading. As I continued to watch in silence, an expression of intense excitement suddenly transfigured my friend's face.

"Ha, Watson! What do you make of this?" he exclaimed, pushing toward me a folded scrap of the sort of inexpensive lined yellow paper that impoverished universities provide for the recondite doodlings of their scholars. Unfolding the paper, I found the following text written in a meticulous, cultured hand:

"You haven't told me yet," said Lady Nuttal, "what it is your fiancé does for a living."

"He's a statistician," replied Lamia, with an annoying sense of being on the defensive.

Lady Nuttal was obviously taken aback. It had not occurred to her that statisticians entered into normal social relationships. The species, she would have surmised, was perpetuated in some collateral manner, like mules.

"But Aunt Sara, it's a very interesting profession," said Lamia warmly.

"I don't doubt it," said her aunt, who obviously doubted it very much. "To express anything important in mere figures is so plainly impossible that there must be endless scope for well-paid advice on how to do it. But don't you think that life with a statistician would be rather, shall we say, humdrum?"

Lamia was silent. She felt reluctant to discuss the surprising depth of emotional possibility which she had discovered below Edward's numerical veneer.

"It's not the figures themselves," she said finally, "it's what you do with them that matters."

K. A. C. Manderville, *The Undoing of Lamia Gurdleneck*

There was nothing more. I turned the paper over and held it against the gray light from the window, but, try as I might, I could not discern what it was that had so captured Holmes's interest.

"It seems a perfectly ordinary snippet from a story or novel," I replied, mystified. "Perhaps this Manderville chap was sending it to his publisher, and the postman delivered it here by mistake."

"Watson, I fear your powers of inference are in no wise superior to those possessed by that bloody bunch of bungling Bayesians at the Yard," Holmes returned rudely. "Did you not remark the author's singular choice of a name for his heroine—'Lamia?'"

"Well, it *is* rather an unusual Christian name," I replied woundedly.

"'Unusual!'" exclaimed Holmes. "I should have said 'outré.' Make a long arm, Watson, and tell us what the *Oxford English Dictionary* has to say upon the subject."

I reached for Volume VI and found the page. "'Lamia,'" I read. "From the Latin: 'A witch who was supposed to suck children's blood . . . . Also Greek, Λαμια, a fabulous monster . . . .' Meaning: 'a fabulous

monster supposed to have the body of a woman, and to prey upon human beings and suck the blood of children . . . .'"

"'Suck the blood of children!'" Really, Watson. Still, I recall that we have had some little experience concerning such, as you related in one of your sordid sensational tales. I refer to an occasion on which we came to the aid of an unfortunate woman suspected of actually being a 'lamia.' In Sussex, was it not?"

I assented, but Holmes continued as if I were not present.

"The key to our present riddle lies in the *names*. People often enjoy playing with names, you know. You will recall the little matter of the three Garridebs, which turned largely on the singularity of the surname. Aside from the strong hint given by the use of the word 'lamia' that something has been transformed, can you make nothing whatsoever from these characters' names?"

"Nothing whatsoever," I admitted.

"Take, for instance, the name 'Nuttal,'" continued Holmes. "How would *you* choose to spell it?"

"N-U-T-T-A-L-L, of course."

"Yet in this manuscript the final 'L' is lacking. Not significant in itself, of course; an author may employ the orthography of his choosing, mayn't he? But then consider Lady Nuttal's Christian name, Sara. Can it be mere coincidence that the name as spelt lacks the final 'H'?"

"I'm sure I can't say," I replied, wondering when Holmes would get to the point.

"These are very deep waters, Watson," Holmes went on. "We have here to do with the mathematically trained mind. Professor Moriarty, you will recall, was a mathematician."

"His dissertation was on the binomial distribution," I volunteered, to salvage a remnant of my pride.

"Binomial *theorem*, Watson, not *distribution*," came the severe reply. "but I am pleased you have not forgotten, even though you have, as usual, muddled the matter in your head. Let us continue our line of investigation. 'K. A. C. Manderville.' Now, what does *that* name bring to mind?"

The sound of the pelting raín brought no help. Once again, I had to confess ignorance.

"Really, Watson!" exclaimed Holmes with evident asperity. "It is true that some of the modern Mandevilles spell the surname with an 'R,' but in a monograph on the frequencies of occurrence of English names, on which I collaborated with a young statistician at the University of Camford, I established beyond doubt that the spelling 'Manderville' is really an infrequent orthographic variation on the original Norman family name, which lacks the 'R.' No, Watson, you may rely on it that our author simply had an extra letter of which he wished to rid himself, and so determined to place it in the least conspicuous location. If further proof were needed, it would be found in the evident fact that he felt obliged to give his pseudonymous self *three* initials, rather than the customary two."

"Well, Holmes, it's clear you have it all figured out. Pray, enlighten me as to your deductions."

"Simplicity itself, Watson. This is no snippet, as you termed it, of a novel. Perhaps 'hoax' is too strong a term, but it is not too much to say that we have before us an elaborate prank, perpetrated by one of the century's finest mathematical statisticians. You apparently failed to observe, Watson, that the letters of the name 'K. A. C. Manderville' are a subset of those of 'Lamia Gurdleneck,' lacking only, as they do, the 'G.'"

"Surely you err, Holmes," I rejoined. "There is no 'V' in 'Lamia Gurdleneck.'"

"To the classically educated mind," Holmes returned triumphantly, "the interchange of the letters 'U' and 'V' would be a matter of indifference, identified as they are in the Latin origins of our alphabet."

"I can see you have guessed the identity of the author," I replied, hoping to bring the matter to an end, although Holmes was only too obviously savoring the opportunity the anonymous letter had provided for displaying his powers. "Who, pray tell, is it?"

"Guessed!" Holmes's voice betrayed a touch of warmth. "I am not guessing, Watson. You recall how, in the matter of the dancing men, I was able to decipher the code without the benefit of any key. Here we actually have all the letters, and all that is required of us is to arrange, or, to use our prankster's own vocabulary, 'undo,' them properly."

Holmes then proceeded to write on the ruled yellow page in large block letters:

LAMIAGURDLENECK

Crossing off the letters one at a time, beginning with the letter 'M,' and copying each letter below as he did so, Holmes wrote:

Maurice G. Kendall.

"You will also observe that 'K. A. C. Manderville' is but an anagram of 'Maurice Kendall." I am afraid Professor Kendall is the perpetrator of this prank, although it is likely he had an accomplice," Holmes concluded.

"Why do you say that?" I inquired. "And what is the significance of the spelling of Lady Nuttal's name?"

Without a word, Holmes penned the name:

SARANUTTAL

Then, again crossing out the letters one by one, Holmes wrote beneath:

Alan Stuart.

"Kendall's co-author of *The Advanced Theory*, to be sure," I exclaimed in surprise. "But why should Professor Kendall wish to play such a prank on us?"

Holmes's voice fell silent for a long moment, and when it returned, it was scarcely audible above the patter of the rain on the window pane. "That I cannot fathom," came the slow reply. "Powerful though it is, the science of deduction is hardly adequate to plumb the murky depths of the statistical mind."