This Week's Citation Classic

Edwards W, Lindman H & Savage L J. Bayesian statistical inference for psychological research. Psychol. Rev. 70:193-242, 1963.
[University of Michigan, Ann Arbor, MI]

The definition of probability as a measure of the opinions of ideally consistent people, the topic of this paper, has many consequences. Bayesian statistical inference specifies how opinions should be changed in the light of new information. Topics covered include specific distributions, the principle of stable estimation, the likelihood principle, and paradoxes that result from comparing a sharp null hypothesis with a diffuse alternative. [The Social Sciences Citation Index® (SSCI®) indicates that this paper has been cited over 200 times since 1966.]

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"When L.J. (Jimmie) Savage moved from the University of Chicago to the University of Michigan in the early 1960s, I was tickled pink; I consider the first half of his book, The Foundations of Statistics,[1] to be the finest combination of wisdom with good writing that I have yet seen. I knew a little of Bayesian thinking, thought its impact would be enormous, and wanted to know more. So I asked Harold Lindman, then a graduate student, to prepare a draft on the topic for the other graduate students. He did — and I found myself looking at a topic too important for casual treatment. So I rewrote Harold's draft, and showed the result to Savage. He, in his gentle but painfully explicit way, showed me a subset of my intellectual and expositional errors. I asked him if he would be willing to cooperate with me in fixing the draft up, and he said yes.

"That was the beginning of the most exciting year of my life. One piece at a time, we took my draft, analyzed its intellectual and verbal deficiencies, and Jimmie helped me to understand where the truth lay. I then went home, and tried my hand at writing down what I had just finished learning, and in a day or so the cycle started again. Every page of the manuscript passed through my typewriter at least 13 times before we were both satisfied. In the process, I developed an intuition about such ideas as the likelihood principle sufficiently strong so that I could suggest new lines of thought to Jimmie, with perhaps a .600 batting average.

"Toward the end, the three of us began to understand that a special effort was leading to a special result. No previous paper had done a good job of presenting the Bayesian point of view to those not already steeped in statistics. That, of course, is why it has become a Citation Classic. To this day, I know of no better presentation of the justification for use of uniform priors. Of course, numerous books have by now made the Bayesian ideas far more accessible, to psychologists and others. Authors include Phillips,[2] Hays and Winkler,[3] and Novick and Jackson.[4]

"Savage died of a very premature heart attack a few years later. I cannot even imagine what statistics (or my life) would be like if he had fulfilled his years. He was then, and remains, the most creative, most profound, and gentlest man I have ever known."

1. Savage L J. The foundations of statistics. New York: Dover, 1972. 310 p.
2. Phillips L D. Bayesian statistics for social scientists. New York: Thomas Y. Crowell, 1974. 363 p.
3. Hays W L & Winkler R L. Statistics: probability, inference and decision. New York: Holt, Rinehart & Winston, 1970. Vol. II.
4. Novick M R & Jackson P H. Statistical methods for educational and psychological research. New York: McGraw-Hill, 1974. 456 p.