

Who is the father of Bayesianism: Bayes or Laplace?

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A genuine historical controversy, and one with a clear consensus among historians of statistics: **the modern theory really comes from Laplace, but the name belongs to Bayes.**

The Bayes side

Thomas Bayes (1701–1761), a Presbyterian minister and amateur mathematician, wrote *An Essay towards solving a Problem in the Doctrine of Chances*. He never published it. After his death his friend Richard Price found the manuscript among Bayes' papers, edited it, added his own introduction and an appendix, and submitted it to the Royal Society in 1763. The essay solves a single special case: given n Bernoulli trials with k successes, find the posterior distribution of the success probability θ under a uniform prior on $[0,1]$. Bayes (with Price) effectively states what we now call Bayes' theorem for this binomial setting, computes the posterior, and gives an integral expression that we'd recognize today as a Beta distribution.

It is a remarkable paper for 1763, but it is narrow: one likelihood, one prior, one application, and a great deal of philosophical hedging about why a uniform prior is even reasonable.

The Laplace side

Eleven years later, with no knowledge of Bayes' essay, Pierre-Simon Laplace (1749–1827) published *Mémoire sur la probabilité des causes par les événements* (1774), in which he stated the theorem in full generality — for any number of causes and any likelihoods — and *named it*: the probability of a cause given an effect. Over the next 40 years, in a long sequence of memoirs culminating in the *Théorie analytique des probabilités* (1812), Laplace did essentially everything we now associate with Bayesian inference:

- the general statement of the theorem, not tied to binomial data,
- the principle of insufficient reason for choosing priors,
- the rule of succession ("if the sun has risen n times, the probability it rises tomorrow is $(n+1)/(n+2)$ "),
- asymptotic posterior normality (what we now call the *Laplace approximation* / Bernstein–von Mises theorem),
- applications to astronomy, geodesy, demography (the sex ratio at birth), jurisprudence, and measurement error,
- and a posterior-mean theory of estimation that anticipates decision theory.

¹ Assisted by Claude for Mac version 1.6259.1.

For roughly a century after Laplace, the entire methodology was called "**inverse probability**", not Bayesian, and everyone who used it, such as Gauss, Edgeworth and Pearson in his early years, was using Laplace's framework, not Bayes'.

So why is it called "Bayesian"?

Three reasons converge:

1. *Priority of publication.* Bayes' essay appeared in 1763, Laplace's first paper in 1774. Even though Laplace developed the theory independently, the name attached to whoever was earliest in print.
2. *R. A. Fisher's polemics.* In the 1920s–50s, Fisher attacked the use of inverse probability and repeatedly called it "Bayes' postulate" / "the Bayesian argument," sometimes with mild contempt. The label stuck.
3. *Mid-20th-century rehabilitation.* When Jeffreys, Savage, Lindley, de Finetti and others revived subjective and objective inverse probability, they adopted Fisher's label "Bayesian" and turned it into a banner.

Stigler's law and Stigler's provocation

Stephen Stigler — the leading historian of statistics — has argued repeatedly that the field exemplifies Stigler's Law of Eponymy ("no scientific discovery is named after its original discoverer"). He has gone further: in a famous 1983 paper, *Who Discovered Bayes's Theorem?*, he suggests the true author of Bayes' essay may have been **Nicholas Saunderson**, the blind Lucasian Professor at Cambridge. That claim is contested, but Stigler's main point — that we attribute the field to Bayes by an accident of naming — is widely accepted.

The honest verdict

If "father of Bayesianism" means *the person who first wrote down the theorem in some form*, it is Bayes (or perhaps Saunderson). If it means *the person who built the framework that we actually use* — general theorem, priors, posterior summaries, large-sample theory, real applications, the philosophical program of treating unknowns as random — it is unambiguously **Laplace**. Most modern historians (Stigler, Dale, Fienberg, Hald) say Laplace, while acknowledging that Bayes deserves the eponym for being there first by a decade.

A nice way to put it in class: *Bayes lit the match; Laplace built the engine.*

A few references

- Dale (1982) Bayes or Laplace? An examination of the origin and early applications of Bayes' theorem. *Archive for History of Exact Sciences*, Volume 27, pages 23-47. <https://www.jstor.org/stable/41133662>
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