COMMENT ON SHAFER:
TESTING BY BETTING: A STRATEGY FOR STATISTICAL AND SCIENTIFIC COMMUNICATION

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Betting is central to the history of probability and the way probability is intuitively understood, making it both natural to link betting to statistical analysis and curious that this connection is absent from conventional statistical thinking. Betting appears in Bayesian foundations, but as a philosophical relic rather than a substantive component of the framework. When the devout Bayesian talks about betting, he only cares that the bettor's probabilities make sense (are coherent), not whether they make money. Shafer's view is more palatable for science, where personal opinions should take a back seat to objective reality—though sadly this isn't always the case [3].

Shafer's proposal may improve how statistical work is communicated, but it stops short of what's needed to resolve systemic statistical abuse. In advocating his theory, Shafer writes, "I need not risk a lot of money. [...] I am betting merely to make a point". But what's the point of a fictitious bet?

In gambling parlance, a *freeroll* is a bet that can be won but not lost. In scientific work, the *Freeroll Effect* occurs when scientists incur minimal personal risk in exchange for broad societal impact. Scientists are rewarded for publishing their research in high-impact journals while society bears the risk of inaccurately reported findings and their potentially dire consequences. The replication crisis, misinformed Covid-19 response, and muddled climate policies are all consequences of the Freeroll Effect [2].

So, yes, the amount risked does matter. As any gambler knows, there's a big difference between betting a penny and a thousand dollars. It isn't "irrational", as a Bayesian might claim. It's common sense. We should hope that scientists exercise this same sense before publishing research that burdens society with substantial risk.

Fortunately, mathematical probability has a built-in property to achieve this objective, called the *Fundamental Principle of Probability* (FPP) [1]. Under the FPP, statistical claims are meaningless, and should be disregarded, unless the statistician faces real-world consequences for being wrong. Some critics of the FPP offer the jejune moral objection that gambling is lowbrow, having no place in science. Aside from their deep misunderstanding of risk and its central role in probability, such critics exhibit disregard for the serious practical problems that can be resolved by appealing to risk in statistical practice.

So I advocate to take Shafer's proposal even more seriously than he suggests, by restoring fundamental principles of probability and risk to statistical work, not simply using a different language.

References:

[1] H. Crane. (2018). The Fundamental Principle of Probability. *Researchers.One*, https://www.researchers.one/article/2018-08-16.

[2] H. Crane. (2020). Naive Probabilism. *Researchers.One*, https://www.researchers.one/article/2018-03-9.

[3] H. Crane, J. Guinness and R. Martin. (2020). Comment on the Proposal to Rename the R.A. Fisher Lecture. *Researchers.One*, https://www.researchers.one/article/2020-06-11.

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