Discussion of "Beyond subjective and objective in statistics" by Andrew Gelman and Christian Hennig.

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A visit to Disneyland can produce mixed feelings. Yes, most rides are great, the fireworks are spectacular, and the kids love it. But then there are also long lines, poor restaurants, and the general annoyance caused by other people. The paper under discussion evokes sentiments that are similarly mixed. The great rides deserve first mention. The plea to abandon the terms "objective" and "subjective" is well taken. In fact, in 1963 the archetypical objectivist Harold Jeffreys discussed the work of archetypical subjectivist Jimmy Savage and stated: "I have suggested that 'subjective' has been used with so many meanings that it should be discarded as hopelessly confusing" (p. 408).

In addition, the emphasis on model uncertainty is apt, as is the emphasis on the dangers of data-contingent analysis choices (e.g., Peirce, 1878). I applaud the call for adding external information to the statistical model, and I fully agree that the specification of the likelihood deserves at least as much scrunity as the specification of the prior distribution. Moreover, I appreciate the suggestion that different analysis methods may be legitimate and nonetheless yield different answers. These are key insights, often overlooked, that empirical disciplines would do well to incorporate in their statistical curricula. Presently, students still come away from stats courses falsely believing that there is a single correct analysis that yields a single all-or-none conclusion. Humans abhor uncertainty, but statisticians and scientists should steel themselves and accept the inherent ambiguity that arises whenever a finite set of data is analyzed.

The paper also contains some long lines and poor restaurants. I fail to grasp the flirt with frequentism, a non-evidential paradigm that prides itself on having slaughtered common sense on the altar of objectivity. If one wants to learn from prediction errors and not go empistemically bankrupt, there is a simple alternative: stick to the tenets of Bayesian probability theory.

Moreover, I was mystified by the description of the subjective Bayesian. It is true that a subjective Bayesian cannot switch to a different model, but only if this subjective Bayesian first violates Cromwell's rule and deems all other models impossible to begin with. Finally, the authors argue that a prior distribution cannot be evaluated. I beg to differ. Statistical models are a combination of likelihood and prior that together yield predictions for observed data, the adequacy of which can be rigorously assessed (as is commonly done using Bayes factors).

References

Jeffreys, H. (1963). Review of "The Foundations of Statistical Inference". *Technometrics, 3*, 407-410.

Peirce, C. S. (1878). Deduction, induction, and hypothesis. *Popular Science Monthly, 13*, 470-482.