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Dear Carlos,

A few months back I was sent a paper by you, with Stern and Wechsler, "Can a significance test be genuinely Bayesian?" which, at the time, was read cursorily, found interesting and put aside for careful reading when there was more time. I work very slowly nowadays, so that it is not until now that the paper has been given the attention it deserves and these comments produced. I apologize for the delay and thank you for sending me the paper.

What I like about the paper is its basic use of a concept of evidence for a hypothesis, *ev(H)* in your notation, a concept that does not involve any considerations of decisions or loss functions, yet can be used in decision-making. Put differently, the primary role of a statistician is to make inferences. This was certainly the principle behind the founding of the Royal, and other, Statistical Societies. It is important that the statistician's inference contributions can be used, perhaps by others, in making decisions. Your Table 1 provides a good example: what evidence is there that Ed and Joe are equally exigent, the inference, and then the decision about what to do with the dentists?

Several proposals have been made as to how *ev(H)* might be calculated. Two are p-values and posterior probabilities, to which you add a third. Suppose we look at *ev(H)* as an abstract concept and ask ourselves what properties it should have. For example, if *A* and *B* are two hypotheses, we should be able to order them, to say that *ev(A)* is less or more than *ev(B)*. If this is accepted, then I find it compelling that *ev(A)* should satisfy the assumptions SP_1 to SP_4 in chapter 6 of DeGroot's 1970 book, listed in your admirable list of references. His SP_5 enables evidence to be put on a numerical footing by reference to a standard, the uniform distribution on the unit interval. Accepting all five assumptions, DeGroot proves that *ev(H)* must obey all the rules of probability, in particular that

$$ev(A \text{ or } B) = ev(A) + ev(B) - ev(A \text{ and } B). \qquad (1)$$

As you clearly point out in the first paragraph of p.3, your form of *ev(H)* does not satisfy this rule but rather

$$ev(A \text{ or } B) = \max[ev(A),\ ev(B)]. \qquad (2)$$

This implies that your measure of evidence violates at least one of DeGroot's asumptions. Which is it? Are you happy with the violation? The papers of Stern, referred to in the