

Peter W., This just arrived (10/19/92)
& I'm sending it on for your
'assimilation'. I can thank Norm
later when we send him a copy

Peter F.

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10/9/92

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Dear Peter,

I am very sorry to be so tardy in replying to your query concerning the origin of the independence postulate. As you note in your paper, the atmosphere at RAND in the late '40's and early '50's was abuzz with discussions of utility, decision theory and personal probability. There was a vast amount of trading of ideas and it is extremely difficult at this late date to sort out who initiated what.

After a lot of thought, I am fairly certain that I was responsible for the specific formulation in my '49 paper. At that time I was steeped in the trick of definition by abstraction. (A cardinal number is the class of all classes equivalent to a given class, etc.) It seemed to be a neat way to deal with utilities. However, I didn't think of the equivalence assumption as a fundamental postulate, but merely as an adjunct to the explication of the notion of utility.

Over the years--along with a lot of other people--I have found some serious problems with the postulate; not just the Ellsberg and Allais paradoxes, but somewhat deeper logical difficulties. Savage did not consider the case of consequences which are lotteries. That might have seemed queer to him, since his "lotteries" were "acts" and acts which have as consequences other acts might seem slightly weird--his acts were not probabilistically determined. However, lotteries which have lotteries as outcomes is, of course, a well-known concept in other formulations of personal probability.

At all events, pondering these things has recently led me to a pair of results which Savage thought impossible, namely a general definition of (probabilistic) independence within his qualitative framework, and a general qualitative definition of conditional probability.

It was good hearing from you, and I hope you will send me a copy of the finalized paper.

Cordially,

Norm

(NORMAN C. DALKEY)