

## Comment

Persi Diaconis

In my experience, parapsychologists use statistics extremely carefully. The plethora of widely significant p-values in the many thousands of published parapsychological studies must give us pause for thought. Either something spooky is going on, or it is possible for a field to exist on error and artifact for over 100 years. The present paper offers a useful review by an expert and a glimpse at some tantalizing new studies.

My reaction is that the studies are crucially flawed. Since my reasons are somewhat unusual, I will try to spell them out.

I have found it impossible to usefully judge what actually went on in a parapsychology trial from their published record. Time after time, skeptics have gone to watch trials and found subtle and not-so-subtle errors. Since the field has so far failed to produce a replicable phenomena, it seems to me that any trial that asks us to take its findings seriously should include full participation by qualified skeptics. Without a magician and/or knowledgeable psychologist skilled at running experiments with human subjects, I don't think a serious effort is being made.

I recognize that this is an unorthodox set of requirements. In fact, one cannot judge what "really goes on" in studies in most areas, and it is

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*Persi Diaconis is Professor of Mathematics at Harvard University, Science Center, 1 Oxford Street, Cambridge, Massachusetts 02138.*

## Comment: Parapsychology — On the Margins of Science?

Joel B. Greenhouse

Professor Utts reviews and synthesizes a large body of experimental literature as well as the scientific controversy involved in the attempt to estab-

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*Joel B. Greenhouse is Associate Professor of Statistics, Carnegie Mellon University, Pittsburgh, Pennsylvania 15213-3890.*

impossible to demand wide replicability in others. Finally, defining "qualified skeptic" is difficult. In defense, most areas have many easily replicable experiments and many have their findings explained and connected by unifying theories. It simply seems clear that when making claims at such extraordinary variance with our daily experience, claims that have been made and washed away so often in the past, such extraordinary measures are mandatory before one has the right to ask outsiders to spend their time in review. The papers cited in Section 5 do not actively involve qualified skeptics, and I do not feel they have earned the right to our serious attention.

The points I have made above are not new. Many appear in the present article. This does not diminish their utility nor applicability to the most recent studies.

Parapsychology is worth serious study. First, there may be something there, and I marvel at the patience and drive of people like Jessica Utts and Ray Hyman. Second, if it is wrong, it offers a truly alarming massive case study of how statistics can mislead and be misused. Third, it offers marvelous combinatorial and inferential problems. Chung, Diaconis, Graham and Mallows (1981), Diaconis and Graham (1981) and Samaniego and Utts (1983) offer examples not cited in the text. Finally, our budding statistics students are fascinated by its claims; the present paper gives a responsible overview providing background for a spectacular classroom presentation.

lish the existence of paranormal phenomena. The organization and clarity of her presentation are noteworthy. Although I do not believe that this paper will necessarily change anyone's views regarding the existence of paranormal phenomena, it does raise very interesting questions about the process by which new ideas are either accepted or rejected by the scientific community. As students of science, we believe that scientific discovery