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Letters

Biological glitches in glitz

The problems described in "Going for Glitz" (SN: 10/9/93, p.232) are not limited to the physical sciences.

You may be familiar with brain topographic mapping, in which voltages from a limited number of scalp electrodes (usually 24 or 32, sometimes 64) are used by a mapping algorithm to produce a multicolor topographic map not unlike a colored weather map. The mapping algorithm takes a very small number of voltage values and uses them to assign colors to a very large pixel array. The number of pixels used depends on the graphics resolution used, but it can be as high as 256,000. This graphic treatment involves enormous data smoothing that introduces a false sense of structure.

As an experiment, I generated topographic maps by assigning random numbers to the voltages. Some neurologists seemed quite willing to diagnose my random number generator.

Responsible users of this technology would

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Cover: Several competing theories now attempt to explain how people reason and make judgments. According to some researchers, decision making relies on situation-specific "reasoning instincts" and an inherent human ability to track the frequency of co-occurring events in one's surroundings. Other researchers study more general reasoning rules, as well as handy, but fallible, mental shortcuts to decision making. (Illus.: Todd Siler, *States of Mind: A State of The World*, 1985, mixed media on synthetic canvas, 8 ft. x 3 ft. 9 in. Gift, Stewart and Judy Colton, 1987. Collection, the Solomon R. Guggenheim Museum, New York. © Todd Siler, 1985, 1994. All rights reserved.)



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stress that no conclusion should be based on a single topographic map. They would argue that only consistent, time-dependent changes in the maps are significant. Many of these individuals would, however, admit that some of their colleagues do not exercise this degree of rigor.

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Predicting the past

David Schramm is entirely correct in asserting that proponents of quasi-steady state cosmology are engaging in *postdiction* rather than *prediction* ("New Challenge to the Big Bang?" SN: 10/9/93, p.236). But isn't that what cosmology is all about?

One is hard put to design a meaningful double-blind cosmological experiment. Unlike biologists, who can plant petunias in the monastery garden to their heart's content, or behavioral scientists, who can run as many

rats through mazes (or graduate students through questionnaires) as they please, cosmologists are largely relegated to the role of observer and historian.

Even proponents of the Gamow Singularity (popularly known as the Big Bang) are limited to fitting their hypotheses to observations of past cosmic behavior. What we seek, of course, are predictions regarding future cosmic expansion or collapse, but one has difficulty recruiting researchers who will stick around while the data trickle in.

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All letters are subject to editing.

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