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Postscript to a heuristic approach

Several readers found an error and commented on the May 1993 article, "A Heuristic Approach to Solving Probability Problems," by Jonathan Balsam. Thanks to Eliezer Cohen, David Berne, Ernest Arvanitis, Ralph Roseman, Robert Alps, William Babcock, Tom Powell, Mark Evans, Steven Martineau, Bruce Keenan, and Stephen Reddy. Below is Balsam's response:

Most readers' responses to this article revolved around two aspects of the "Let's Make a Deal" question.

Many readers noted that by switching boxes, your probability of winning rises from 1/3 to 2/3, not from 1/3 to 1/2, as the article states. They are correct. (The probabilities of winning must, of course, add up to 1). The article's subsequent reasoning depends only upon the fact that switching increases your probability of winning, not on the magnitude of the increase, so its point is unaffected by this error.

Many readers stressed that the problem should stipulate that the host always allows the contestant to switch boxes. (Otherwise, we must analyze his motivation in offering the switch: is he trying to save money by making the contestant lose, or trying to add to the excitement by forcing a win?) This stipulation is logically necessary, but it could reasonably be inferred from the fact that the subject under discussion is probability, not psychology.

To stimulate further discussion, I'd like to air an interesting variation on the "Let's Make a Deal" theme that we've been bandying about at the office. You are offered your choice of two boxes. Each contains a sum of money, with one sum double the other. You choose one. Without showing you its contents, the host offers you the chance to switch to the other box. The heuristic approach indicates that there is no reason to switch boxes (symmetry obtains between the boxes, and you have received no new information to prompt a switch). But a formalistic approach would suggest you should switch: if your box contains K dollars, the other contains $(1/2)K$ or $2K$, apparently with equal probability. By switching, you increase your expected winnings to $(1.25)K$.

Obviously, this logic is flawed. But what is the fallacy?

Jonathan Balsam

In memoriam

William Alexander ASA 1969, MAAA 1978, MCA 1979, MSPA 1985, EA 1976

Donald C. Baillie ASA 1939, FCIA 1969

W. Harold Bittel FSA 1931, ACAS 1925, MAAA 1965

Ira L. Boyle FSA 1976

Otto J. Burian FSA 1929, MAAA 1965

Alice M. Neenan FSA 1975, MAAA 1978

Mary C. Wilson FSA 1946, MAAA 1965

Editor's Note: Although the passing of all members listed above is a loss to the profession, *The Actuary* wishes to comment on the legacy left by four individuals.

Professor Don Baillie, who composed the Actucrossword in this issue and others, was a regular solver and a gifted composer of cryptics with ingenious and entertaining clues. He taught actuarial science at the University of Toronto for many years and took a particular delight in seeing the names of former students on the list of successful solvers.

A memorial has been established for Ira Boyle, who died of leukemia May 5 at the age of 42. He was second vice president and associate actuary at Transamerica Occidental Life in Los Angeles. The Ira L. Boyle Memorial Fund is to provide support for the actuarial program in the Department of Mathematics at UCLA, his alma mater. To make a donation, send a check specifying its purpose, made out to the UCLA Foundation, c/o Michael Olsson, Department of Mathematics, 405 Hilgard Ave., Los Angeles, CA 90024-1555.

Alice Neenan participated in several professional and industry committees and programs, including serving as a member of the SOA Program Committee and chairperson of the Product Development Section Council. In memory of her contributions to the Section, it has initiated the Alice Neenan Memorial Prize for the best paper on a product development-related topic by a Section member. For more information, call Mark Tullis at 404/365-1612.

Mary Wilson was a director of the American Academy of Actuaries from 1965-69 and spent 20 years with Royal Neighbors of America in Rock Island, Illinois, and 16 at Lincoln National Life in Fort Wayne, Indiana. She left $25,000 to the Society of Actuaries to be used for women actuarial students.

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Obituaries detailing the careers of all deceased members are prepared by the Committee on Memorials and printed in The Transactions. *Members with waivers of dues who do not receive* The Transactions *may request copies of obituaries on any deceased member by contacting E.J. Moorhead, Chairperson, at his* Directory *address.*

Editorial cont'd

overseas, to seek articles of current interest for the general readership of *The Actuary.*

We often need more information on actuarial issues with a high public policy content. Examples are medical care and retirement, both inextricably woven into the debate on the U.S. budget. I am not an expert on either subject. Yet when involved in discussions on these issues, I find — as I'm sure most of you do — that people expect actuaries to know more than the average bear, at least enough to participate fairly intelligently on all but the most technical details.

In this connection, we had hoped to devote part of the September issue to a discussion of the implications for actuaries of President Clinton's proposals for reforming the U.S. health care system. Given the timetable in Washington, that debate will have to wait. This issue, however, does carry a "flash" from Gary Hendricks of the American Academy of Actuaries Washington desk. We are promised that the full details of the Clinton package will be unveiled shortly after this issue is mailed.

Since it's been six years since we've polled our readers, we also plan to conduct a reader survey later this year to make sure we are bringing you what you need, want, and like in *The Actuary.*

But you don't have to wait until the survey to express your opinions. Keep those letters to the editor coming with your comments on the articles being published and what you'd like more of. I look forward to hearing from you.