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In This Issue

GRAPHICAL MODELS

In the first of two papers on graphical models in statistics, D. R. Cox and Nanny Wermuth discuss association and dependence relationships determined by covariance matrices and show how graphs can be helpful in classifying and interpreting them. A distinguished class of models, called "decomposable," are distributionally equivalent to a system of recursive regression models and thus have comparatively simple interpretations. The recursive regression graphs are essentially directed acyclic graphs, which play a prominent role in graphical modeling in expert systems, the topic of the second paper, by David Spiegelhalter, A. Philip Dawid, Steffen Lauritzen and Robert Cowell. Cox and Wermuth show that nondecomposable models also arise naturally, and they present examples in which such models provide good fits to sample covariance matrices. They leave open the problem of explaining how these models arise.

Spiegelhalter, Dawid, Lauritzen and Cowell review recent developments in probabilistic expert systems, using a simple medical diagnosis system as an example. Here, not only do graphical models again play a role in interpretation of structure, but consideration of the properties of the relevant graphs has led to important advances in computation. Accompanying these two papers are commentaries by A. P. Dempster, Clark Glymour and Peter Spirtes, Joe Hill, David Madigan, Sharon-Lise Normand, Judea Pearl, Michael Sobel and Joe Whittaker.

LONGITUDINAL BINARY RESPONSES

Nan Laird delivered one of the Institute of Mathematical Statistics (IMS) 1992 Special Invited Lectures. The paper on which that talk was based, written by Garrett Fitzmaurice, Nan Laird and Andrea Rotnitzky, is published here with commentaries by Melinda Drum and Peter McCullagh, Ross Prentice and Lloyd Mancl and Scott Zeger, Kung-Yee Liang and Patrick Heagerty. The paper reviews regression models for binary longitudinal data, beginning with the application of generalized estimating equations (introduced in this context by Liang and Zeger) and emphasizing subsequent likelihood-based alternative proposals. One of these (due to Zhao and Prentice) sets certain multiway interactions in a loglinear representation of the model to zero and, in that case, obtains efficient estimates of association as well as regression parameters. The second (due to Fitzmaurice and Laird) uses association parameters that are orthogonal to the means and thereby obtains robustness of regression parameter estimates to association misspecification. The authors and the discussants compare these approaches and comment generally on the estimation of correlation structure in conjunction with regression.

DOUBLE-BLIND REFEREEING

The IMS has been considering the use of double-blind refereeing for its journals. In 1991, an ad hoc committee was formed to review the issue. Its report, printed in this issue, was presented to the IMS Council at its annual meeting in 1992. One of the main recommendations of that committee was that the IMS not implement double-blind refereeing without first conducting an experiment to assess the merits of such a system. The Council then established a second ad hoc committee to consider the feasibility of conducting such an experiment; its report is also in this issue. There has been quite a bit of discussion of this topic. To give readers some idea of its flavor, L. Billard, R. J. Carroll, Christian Genest and Willem van Zwet were asked to prepare reactions to these reports.

LEHMANN'S MENTORS AND EARLY COLLABORATORS

The University of California at Berkeley was for many years a dominant source of theoretical statistics in the United States. In a set of reminiscences about six influential figures in his career, E. L. Lehmann focuses especially on the period during which Berkeley's Statistics Department was formed. He begins with the mathematician Evans and then talks about his interactions with Neyman, Wald, Scheffé, Stein and Hodges. Lehmann's account provides us with a first-hand recollection about a group of leaders who, along with their colleagues, largely defined the field of mathematical statistics for a generation of researchers.

HENRY DANIELS

After studying at Edinburgh and Cambridge, Henry Daniels spent many years at the Wool Industries Research Association. In an interview conducted by Peter Whittle, Daniels describes the way his work there suited him and the influence it had on his statistical thinking. He discusses his move back to Cambridge and then on to Birmingham and several of his papers on strength of materials and the saddlepoint approximation.

Robert E. Kass

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