Statistical Science
1991, Vol. 6, No. 4, 339–362

Lisp-Stat: Book Reviews

EDITOR'S INTRODUCTION

This feature consists of four reviews, and a rejoinder by the author, of the recently published book *LISP-STAT: An Object-Oriented Environment for Statistical Computing and Dynamic Graphics*, by Luke Tierney, School of Statistics, Minneapolis, Minnesota. John Wiley & Sons, xiii, 397 pp, $39.95.

In the author's own words:

> This book describes a statistical environment called Lisp-Stat. As its name suggests, Lisp-Stat is based on the Lisp language. It includes support for vectorized arithmetic operations, a comprehensive set of basic statistical operations, an object-oriented programming system, and support for dynamic graphics.
>
> The primary object of this book is to introduce the Lisp-Stat system and show how it can be used as an effective platform for a large number of statistical computing tasks, ranging from basic calculations to customizing dynamic graphs. A further objective is to introduce object-oriented programming and graphics programming in a statistical context. The discussion of these ideas is based on the Lisp-Stat system, so readers with access to such a system can reproduce the examples presented here and use them as a basis for further experimentation. But the issues presented are more general and should apply to other environments as well.

This book can be used as a supplement to several courses on statistical computing and computational statistics. A course emphasizing the use of different programming paradigms could be based on the material in Chapters 3–6. A course on dynamic graphics could use primarily the material in Chapters 6–10.

The chapter headings are:

The Editors hope that this feature will serve as a timely focus of discussion of statistical computing and graphics environments and related man-machine interface issues.

Comment

Ron Baxter and Murray Cameron

In the past, new software systems have been developed as the result of research to find methods to integrate statistical analyses and to simplify their specification and computation. Examples include the development of general methods for specification and computation in analysis of variance by Nelder, Wilkinson and James, which led to Genstat, and the development of generalised linear models and iteratively reweighted least squares by Nelder and Wedderburn, which led to the development of GLIM. In the case of Lisp-Stat, the book describes an abstract statistical environment that brings together:

- methods in dynamic statistical graphics developed in the last 20 years,
- the object-oriented approach of computer science applied to both graphical and statistical objects and

Ron Baxter is Manager, Computers, Software and Networds Program, and Murray Cameron is Manager, Signal and Image Analysis Program, CSIRO, Division of Mathematics and Statistics, P.O. Box 281, Lindfield, New South Wales, Australia, 2070.