

Preface

This is now the fourth edition of “The Basics of S-Plus” since 1997. S-PLUS saw a steady growth in popularity, and it established itself in many educational and business places as a major data analysis tool. S-PLUS is valued for its modern, interactive data analysis environment, whether it is the primary system or a complement to other standards like SAS (the latter is in particular true for the industry we work in, pharmaceuticals).

We have followed the various releases with new editions of our book, introducing over time major changes like the incorporation of S Version 4 (the underlying language), Trellis graphs, a graphical user interface, in particular for the Windows operating system, and a chapter on R and its differences to S-PLUS (that are minor for the material covered in this book). This edition is an update from edition 3 to cover new functions and features of S-PLUS Version 7.0 (working from the beta release for MS Windows and Linux), adding more practical tips and examples, and correcting a few mistakes.

We are very grateful to all our readers, in particular those sending us suggestions, comments, and any other kind of feedback. You will see some of these reflected in the book.

The number of new books appearing on S-PLUS and its counterpart, R, continues to grow substantially each year. If you want to get an impression of the books available, Insightful maintains a list of S-PLUS references on their web site, <http://www.insightful.com/>. The list currently comprises about 50 books and manuscripts. You can also search for the string “Splus” or “S-Plus” (without quotes) in an online bookstore, such as <http://www.amazon.com/>.

Some of the books on S-PLUS are “Analyzing Medical Data Using S and S-PLUS,” by Everitt and Rabe-Hesketh; “Regression Modeling Strategies,” by Harrell; “Bootstrap Methods and Permutation Tests” by Hesterberg, Monaghan, et.al., “Applied Statistics in the Pharmaceutical Industry,” edited by Millard and Krause; “Mixed Effects Models in S and S-PLUS,” by Pinheiro and Bates; “Modeling Survival Data: Extending the Cox Model,” by Therneau and Grambsch; and the fourth edition of “Modern Applied Statistics with S-PLUS” as well as the second edition of “S Programming,” both by Venables and Ripley.

This book is intended to provide a head-start into the world of S-PLUS (and serves as well as an introduction to R). We are going to introduce you to S-PLUS by taking you through interactive sessions, entering commands and later analyzing data, pointing out tips and pitfalls, and complementing each session with exercises and detailed solutions.

If you have never worked with S-PLUS before and want to get a first impression, take a look at “A First Session,” “A Second Session,” and “Exploring Data” to get an idea of the philosophy of the programming language. If you intend to work with point-and-click graphical user interfaces, take a look at “Graphical User Interfaces.” We are convinced though that if you want to work permanently with S-PLUS, you will need to use the command line and appreciate it soon.

The book originates from lectures such that each chapter can serve as the basis for a 90-minute lecture. The exercises reinforce the material covered and sometimes point out a few more details. It should be interesting to work out a solution to an exercise before comparing it to the solution given here. There’s never a single solution.

Finally, we would like to thank all those who have directly or indirectly contributed to this edition and previous ones. For this edition, Chyi-Hung Hsu, Michael Merz and José Pinheiro gave very helpful comments on the manuscript. John Kimmel at Springer-Verlag is simply a great person to work with, dedicated and professional. David Smith, Michael O’Connell and others at Insightful, Inc. (Seattle) continue to be supportive partners by providing us with alpha and beta releases of upcoming S-PLUS versions. Following the discussion forum s-news provides an insight into frequently asked questions and problems that S-PLUS users face. And last but not least, various people from all over the world supplied comments on earlier editions of the book, pointed out possible improvements and errors and provided a good motivation to revise and update the book with the current edition 4 – which you happen to be reading right now.

We are always interested in any kind of comment that you might have about the book. You are welcome to contact us by sending an E-mail to Andreas.Krause@Novartis.com and Melvin.Olson@Novartis.com. Note though that we will not be able to provide general support, like answering programming questions. For these purposes please refer to the sections where we describe how to get help and support (pp. 413ff. and 422ff.). You

might also want to check if your institution has a contract with Insightful that covers support.

Finally, a Web page is set up to accompany this book:

<http://www.elmo.ch/doc/splus-book/>

It provides information about the book, links to relevant Internet pages, and a list of errata (which we are confident will be fairly short).

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