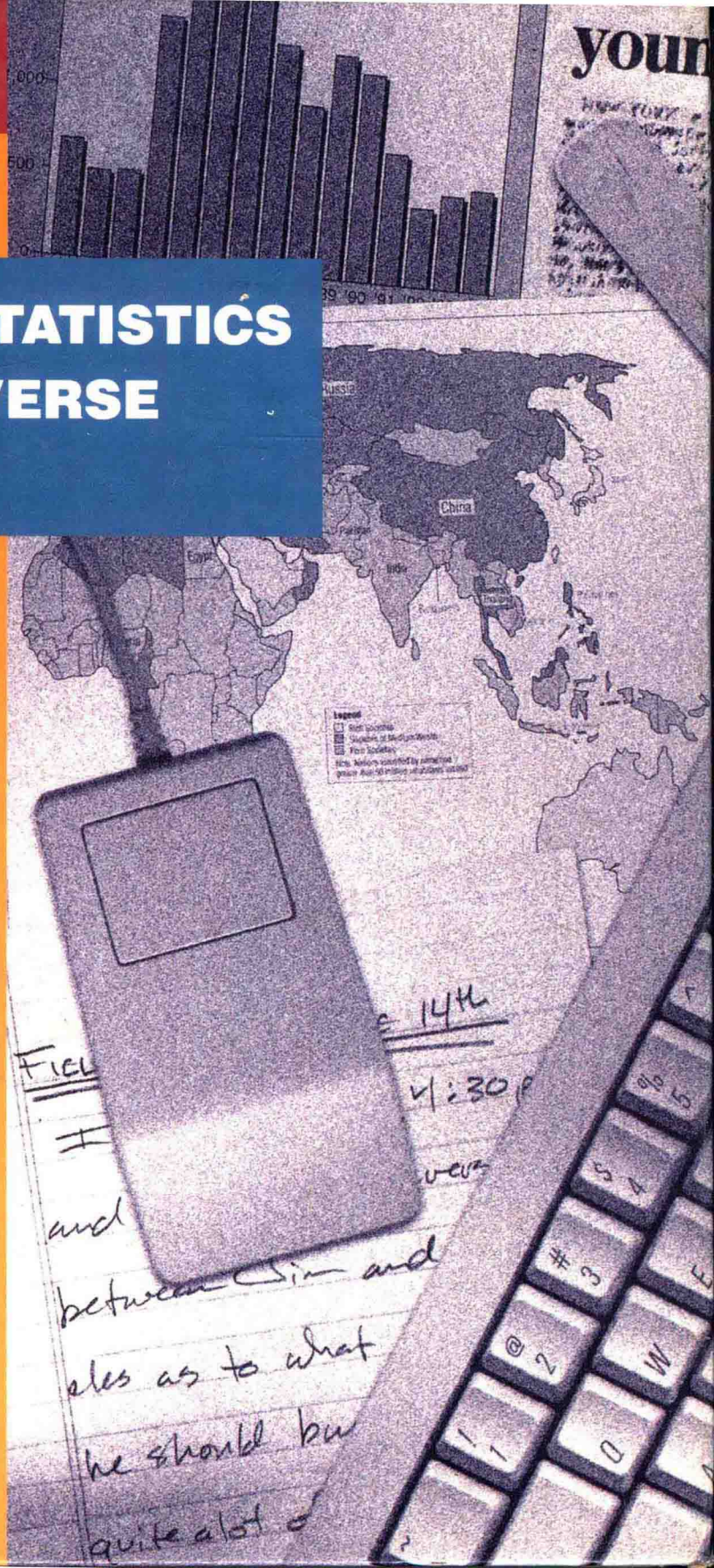


**CHAVA FRANKFORT-NACHMIAS**

WITH CONTRIBUTIONS BY  
**MARK RODEGHIER**

# **SOCIAL STATISTICS FOR A DIVERSE SOCIETY**

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THIS BOOK IS NOT RETURNABLE  
IF SHRINKWRAP IS BROKEN.**





# **Social Statistics for a Diverse Society**

**Chava Frankfort-Nachmias**

*University of Wisconsin-Milwaukee*

**with contributions by Mark Rodeghier**

*University of Illinois-Chicago*



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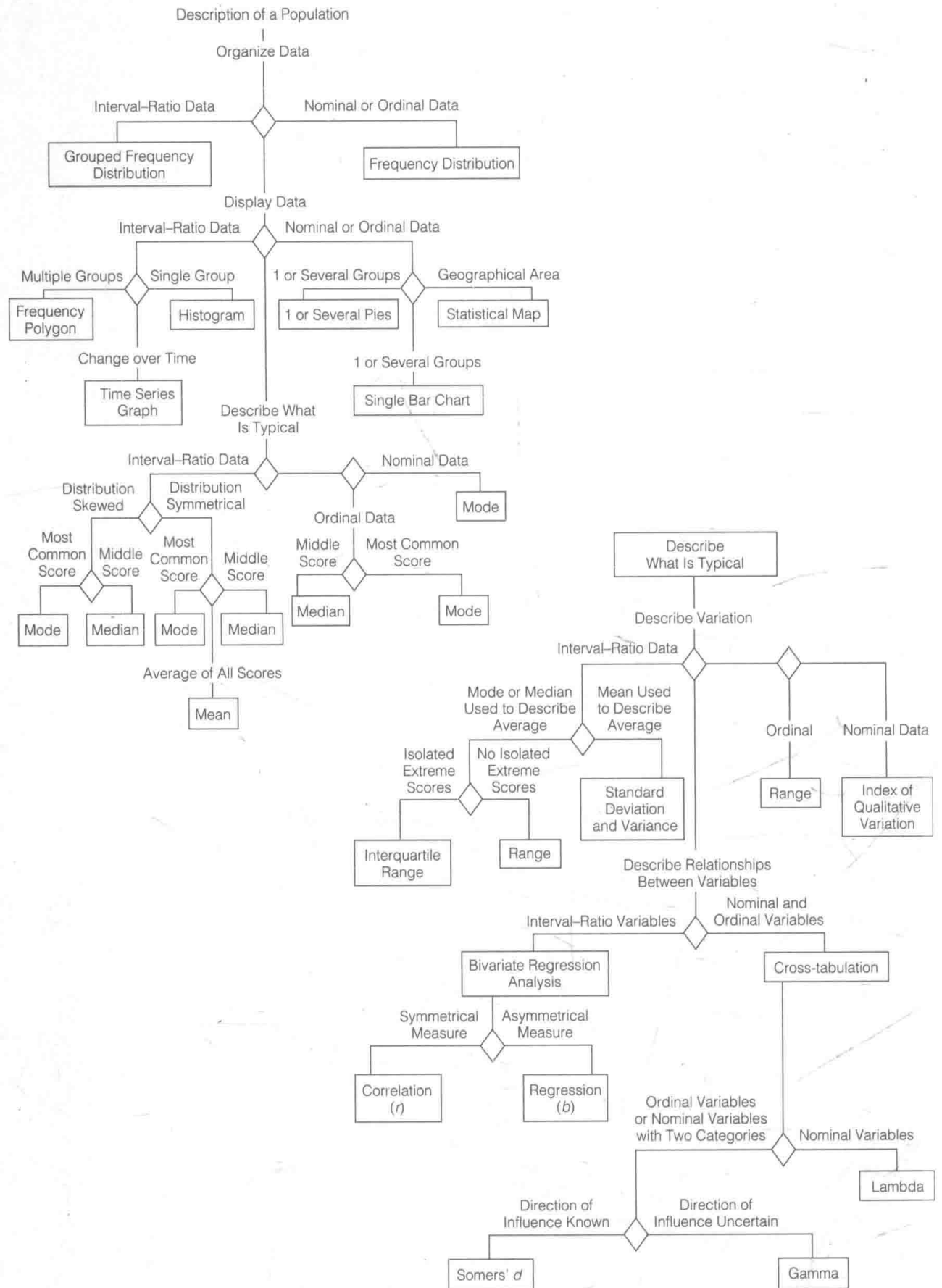
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# Flowchart of the Systematic Approach to Descriptive Data Analysis





# **Social Statistics for a Diverse Society**

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*To all my friends*



### *About the Author*

**Chava Frankfort-Nachmias** is Associate Professor of Sociology at the University of Wisconsin-Milwaukee, where she teaches courses in statistics and research methods. She is the author of *Research Methods in the Social Sciences* (with David Nachmias) and numerous publications on ethnicity and development, urban revitalization, and science and gender. She was the recipient of the University of Wisconsin System Teaching Improvement Grant on integrating race, ethnicity, and gender into the social statistics and research methods curriculum.

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## Series Foreword

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In *Social Statistics for a Diverse Society*, Chava Frankfort-Nachmias provides a core introduction to statistics that is strongly grounded in important social issues. Although the typical treatment chooses examples to illustrate particular statistical techniques, Frankfort-Nachmias organizes statistical topics around the tasks of describing the variety of social groupings in society and asking questions about issues of social stratification and inequality. Two “integration and review” chapters and an extensive set of computational and SPSS® exercises, all using real world data, continue the focus on statistics as a tool for understanding the major social divisions in contemporary society.

Kathleen S. Crittenden  
Series Editor



# Preface

If you had been following the 1996 presidential elections, you might have noticed that voting patterns varied considerably by factors such as gender, race, family income, education, and age. For example, Clinton's coalition relied on overwhelming support from women, blacks, and low-income voters. Fifty-four percent of women, 84% of blacks, and 60% of low-income voters supported Bill Clinton for president. Not only were these important differences revealed after the election, but they were estimated with impressive accuracy months before the elections took place!

The increased prominence of women in Clinton's coalition and the continued support of blacks and less affluent voters raise questions about the direction of the Democratic party during the 1998 Congressional elections and the 2000 presidential elections. Should the party protect programs traditionally supported by women and less affluent voters, such as Medicare and education; or should it follow more conservative trends and emphasize budget balancing and welfare and entitlement reforms?

Statistics provides the tools which enable us to analyze and understand differences in voting patterns and how they might influence the direction of a political party. Statistics also allows us to gain insight into other real-life problems that shape our lives. My goal in this book is to show you that statistics is both useful and interesting and a lot easier to understand than you may have been led to believe.

This book is an introduction to statistics for students in the social sciences (sociology and related fields, such as criminal justice, political science, social work, public administration, communication, and nursing) who have not had extensive training in mathematics and are taking an introductory course in statistics.

## Teaching and Learning Goals

This book has three related goals. The first goal is to introduce you to social statistics and demonstrate its value. While most of you will

not use statistics in your own research, you will be expected to read and interpret statistical information presented by others in professional and scholarly publications, in the workplace, or in the popular media. This book will help you understand the concepts behind the statistics you encounter so that you will be able to assess the circumstances in which certain statistics should and should not be used.

The second goal of this book is to demonstrate to you that substance and statistical techniques are truly related in social science research. A special quality of this book is its integration of statistical techniques with substantive issues of particular relevance in the social sciences. Because the world you live in is characterized by a growing diversity, where personal and social realities are increasingly shaped by race, class, and gender, as well other categories of experience, this book teaches you basic statistics while incorporating research related to the dynamic interplay of race, class, and gender. You will become proficient in statistics while learning about social differences and inequality through the substantive examples as well as through the organization and emphasis of statistical concepts and procedures. It is my hope that this approach will make the learning of statistics interesting and relevant to you.

Many of you may lack substantial math background, and some of you may suffer from the “math anxiety syndrome.” This anxiety often leads to a less-than-optimum learning environment, with students trying to memorize every detail of a statistical procedure rather than attempting to understand the general concept involved.

Hence, the third goal of this book is to address math anxiety by using straightforward prose to explain statistical concepts and by emphasizing intuition, logic, and common sense over rote memorization and derivation of formulas.

### **Distinctive Features of This Book**

The three goals outlined above are accomplished through a variety of special features:

*A Close Link Between the Practice of Statistics and Important Social Issues*  
The examples throughout the book, most taken from news stories, government reports, scholarly research, and the General Social Survey, are formulated to emphasize to students that they live in a world in which statistical arguments are common. Statistical concepts and procedures are illustrated with real data and interesting research studies,

providing students with a clear sense of how questions about important social issues can be studied with various statistical techniques.

*A Focus on Diversity* A strong emphasis on race, class, and gender as central substantive concepts is mindful of a trend in the social sciences toward integrating issues of diversity in the curriculum. This focus on the richness of social differences within the United States is manifested in the application of statistical tools to examine how race, class, gender, and other categories of experience shape our social world and explain social behavior.

*Intuitive Multivariate Approach to Statistical Understanding* The book introduces the broad concept of multivariate analysis without actually dealing with its complex technical detail. The concept is introduced early on and throughout the text by the frequent comparison of the experiences of people with diverse and multiple social statuses. Through the use of simple statistical concepts, students are exposed to the complex notion of the interconnected nature of social systems.

*Statistics in Practice* Most chapters include one or several application sections that show how the statistical concepts covered in the chapter can be applied to examine social issues. The Statistics in Practice sections use real data from the General Social Survey or other sources.

*Reading the Research Literature* While many students will not use statistics in their own research, they will be expected to read and interpret statistical information presented by others in professional and scholarly publications. The statistical analyses presented in these publications are a good deal more complex than most classroom and textbook presentations. To guide students in reading and interpreting research reports written by social scientists, most chapters include a section in which excerpts of published research reports utilizing the statistical concepts under discussion are presented.

*Intégration and Review Chapters* Two special review chapters are included. The first is a review of descriptive statistical methods, and the second, as the final chapter of the book, reviews inferential statistics. The review and integration chapters provide students with an overview of the interconnectedness of the statistical concepts and help them test their abilities to cumulatively apply the knowledge they have acquired. Students learn to recognize, given the data and research purpose at hand, the best statistical procedure to apply, in order to analyze the

data properly. Both chapters include flowcharts that summarize the systematic approach utilized in the selection of statistical techniques as well as exercises that require the use of several different procedures.

*Learning by Doing* A rich variety of exercises at the end of each chapter and special exercises at the end of both integration and review chapters are of three kinds: (1) traditional exercises to help students understand basic principles and procedures using, at most, simple calculators; (2) computer exercises involving students' use of SPSS; (3) group exercises promoting *cooperative learning*, so that students can learn to work in "teams"—the way most social science projects are conducted.

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*Special care has been taken to ensure the accuracy of the calculations and notations throughout this book. Each page was carefully proofread, independent of the author, by two experienced statistics instructors. Every example in the book was independently checked by working through it, and every exercise in the book was also worked out, step by step, to ensure the accuracy of the answers at the back of this book and in the instructor's manual.*

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*Creative Use of Graphics* The book makes plentiful and sparkling use of graphics, both to teach students statistical understanding and to relate graphics presented in the popular media to academic statistics teaching.

*Computer Applications and Data Set* SPSS for Windows is used throughout the book, although the use of computers is not required to teach and learn from the text. Special demonstrations at the end of each chapter help students interpret SPSS output. Real data from a wealth of interesting research projects are used to motivate and make concrete the coverage of statistical topics. These data, from the General Social Survey and other sources, are included in a diskette packaged with every copy of the text. The diskette includes "movies" created with Lotus ScreenCam that illustrate and annotate the operation of key statistical techniques in SPSS for Windows from each chapter of the book.

*Additional Supplementary Texts on Important Topics* The Pine Forge Press Series in Research Methods and Statistics, of which this book is a part, includes additional supplementary volumes covering regression and

analysis of variance in more detail than is available in this book. These supplements were written to closely coordinate with our text.

*Tools to Promote Effective Study* Each chapter closes with a list of main points and key terms discussed in that chapter. Boxed definitions of the key terms also appear in the body of the chapter and in the index/glossary. In addition, boxed learning checks dispersed throughout serve to emphasize to students the important points discussed in a particular section of the chapter. Answers to all the odd-numbered problems in the text are included in back of the book. Complete step-by-step solutions are in the manual for instructors, available upon adoption of the text.

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I am grateful to my students at the University of Wisconsin-Milwaukee, who taught me that even the most complex statistical ideas can be simplified. The ideas presented in this book are the products of many years of classroom testing. I thank my students for their patience and contributions.

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Chava Frankfort-Nachmias  
*University of Wisconsin-Milwaukee*



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