

CONTENTS

Preface	vii
Chapter 1 Introduction	1
1.1 Assessing Significance in a Hypothesis Test	2
1.2 Which Computer-Intensive Method Should Be Used?	5
1.3 Implications for Selection of a Test Statistic	6
Chapter 2 Approximate Randomization Tests	9
2.1 The Basic Idea of Randomization Tests	10
2.2 Exact Versus Approximate Randomization Tests	12
2.3 The Approach in Approximate Randomization Tests	14
2.4 Example: Voter Turnout in the 1844 Election	19
2.5 Example: Slaveholdings and the Vote for Secession	22
2.6 Example: Do You Get What You Pay For?	25
2.7 Stratified Shuffling	28
2.8 Regression and ANOVA	30
2.9 Summary	31
Appendix 2A: Power of Approximate Randomization Tests	33
Chapter 3 Monte Carlo Sampling	43
3.1 Introduction	44
3.2 Example: Uniform Sampling Without Replacement	46
3.3 An Example of a Test of Whether a Sample is Random	47
3.4 Monte Carlo and Approximate Randomization Tests	48
3.5 Conclusion	49
Appendix 3A: Validity of Computer-Intensive Tests	50
Appendix 3B: Confidence Levels	54
Appendix 3C: Power of Computer-Intensive Tests	58
Chapter 4 Bootstrap Resampling	63
4.1 Introduction	64
4.2 Bootstrap Theory	66

4.3 An Example	71
4.4 Reliability of Bootstrap Tests	72
4.5 Conclusion	78
Appendix 4A: The Sample Transformation Method	79
Appendix 4B: The Bootstrap Randomization Method	80
Chapter 5 Conclusion	83
5.1 Approximate Randomization Tests	84
5.2 Conventional Parametric Methods	85
5.3 Monte Carlo Sampling	87
5.4 Bootstrap Resampling (Distribution Shift Method)	88
5.5 Bootstrap Resampling (Normal Approx. Method)	89
5.6 Selecting a Method for Assessing Significance	90
Appendix A: BASIC Programs	93
A1 BASIC Syntax and Program Listings	94
Template 2.1	95
Program 2.1	96
Program 2.2	98
Program 2.3	100
Program 2.4	102
Program 2.5	104
Program 3.1	107
Program 3.2	108
Template 4.1	110
Program 4.1	112
Program 4.2	115
A2 Listings of BASIC Subroutines and Subprograms	118
A2.1 Random Number Generator	118
A2.2 Shuffling	119
A2.3 Sampling Without Replacement	121
A2.4 Confidence	121
A2.5 Cumulative Normal Probability	124
Appendix B: FORTRAN Programs	125
B1 ABSOFT FORTRAN and Program Listings	126
Template 2.1	127
Program 2.1	128
Program 2.2	130
Program 2.3	133

Program 2.4	135
Program 2.5	137
Program 3.1	140
Program 3.2	142
Template 4.1	144
Program 4.1	146
Program 4.2	149
B2 Listings of FORTRAN Subroutines	152
B2.1 Random Number Generator	152
B2.2 Shuffling	153
B2.3 Sampling Without Replacement	154
B2.4 Drawing a Bootstrap Sample	155
B2.5 Confidence Levels	155
B2.6 Cumulative Normal Probability	158
Appendix C: PASCAL Programs	159
C1 Program Listings	160
Template 2.1	160
Program 2.1	162
Program 2.2	164
Program 2.3	167
Program 2.4	169
Program 2.5	172
Program 3.1	176
Program 3.2	178
Template 4.1	181
Program 4.1	183
Program 4.2	186
C2 Listings of PASCAL Procedures and Functions	189
C2.1 Random Number Generator	189
C2.2 Shuffling	190
C2.3 Confidence Levels	191
C2.4 Cumulative Normal Probability	194
Appendix D: Probability Tables	197
Contents	198
Preliminaries	199
Table A: Confidence Level of a Hypothesis Test	
NS=99	200
NS=999	201
NS=9999	205

vi **Contents**

Table B: One-Sided Confidence Interval for Rejection	
NS=99	208
NS=999	209
NS=9999	212
Table B: One-Sided Confidence Interval for Acceptance	
NS=99	215
NS=999	216
NS=9999	220
 References	 223
 Index	 227