

Contents

Preface

1	Independence and association in the two-dimensional table	1
	Introduction	1
	Independence in 2×2 tables	4
	The $I \times J$ table	9
	Multiplicative models	11
	The log-linear model	15
	Alternative log-linear models	17
2	The multidimensional table	21
	The saturated model for multidimensional tables	24
	The standard errors of parameter estimates	28
3	Unsaturated models	32
	Marginal equalisation and corresponding parameters	32
	Shorthand notation	37
	Goodness of fit	39
	Model selection strategies	40
	Applications of simultaneous test procedures	48
4	Sample design and inference	67
	Sampling models	67
	Maximum likelihood estimation	69
	Product multinomial sampling: factors and responses	70
	Multistage analysis	72
	Sample designs and inferences	74
	The chi-squared test and complex samples	76
5	Table design and inference	84
	The simultaneous test procedure with polytomies	84
	Parameter trends	86
	The uniform association model for the two-way table	88

Uniform association models for multiway tables	94
Alternatives to maximum likelihood	104
Continuation odds models	107
Proportional odds and proportional hazards models	108
Extreme-ends and related models	109
Uniform association models and reordered variables	114
Triangular tables	116
Separable incomplete tables	119
Small samples	120
Table collapsing and category amalgamating	121
Residuals and incomplete tables	126
6 Counts from temporal observations	130
The main diagonal model	131
The mover–stayer and related models	133
Minor diagonals models	135
Distance models	136
Large samples	141
Quasi-symmetry models	141
Symmetry and marginal homogeneity	143
Diagonals-parameter symmetry models	145
Multiwave panels and loyalty models	147
Multiwave panels and loyalty–distance models	149
Multivariate panel data	153
Some weak symmetry models for multivariate panel data	156
Direction of causation in multivariate panels	158
Simplifying polytomous multivariate panel data	159
Multiway tables with temporal and spatial autocorrelation	162
Appendix GENSTAT listings	167
<i>References</i>	177
<i>Author index</i>	
<i>Subject index</i>	178