

Contents

Preface	iii
PART I APPLICATIONS AND EXTENSIONS OF THE LINEAR ASSIGNMENT MODEL	
Chapter 1 The Linear Assignment Model	3
1.1 Introduction	
1.2 Background	
1.2.1 The LA Model in Optimization	
1.2.2 The LA Model as a Basis for Inference	
1.2.3 A Numerical Example	
1.2.4 Normalizing the Raw Index $\Gamma(\rho_0)$	
1.3 Applications of the LA Model	
1.3.1 Nominal-Scale Agreement: Weighted Kappa	
1.3.2 Prediction Analysis	
1.3.3 The Comparison of Two Numerical Sequences	
1.3.4 The Linear Permutation Statistic: Two-Independent Sample Problems	
1.3.5 Association Between Spatially Defined Variables	
1.4 Technical Issues in the LA Model	
1.4.1 Moments of the Index $\Gamma(\rho)$	
1.4.2 Significance Testing Procedures for the LA Model	
1.4.3 Correlations Between LA Indices	
References	
Chapter 2 Evaluating the Correspondence Between Two Rectangular Matrices of the Same Size	49
2.1 Introduction	
2.2 Reduction of the Rectangular Matrix Comparison Task to a Linear Assignment Problem	

2.3	Applications of the Indices $\Lambda(\rho)$ and $\Lambda(\phi)$	
2.3.1	Association Between Spatially Defined Variables	
2.3.2	Comparing Object by Attribute Data Tables	
2.3.3	The Comparison of Two Vector Sequences: Directional Data	
2.3.4	Index Generalizations: Generalized Rater Agreement	
2.3.5	Unweighted Kappa: Incomplete Selection and Conditional Kappa	
2.4	An Inference Model Based on Row and Column Matching	
2.4.1	Row and Column Matching in a Spatial Context	
	References	
Chapter 3 Extensions of the LA Model		77
3.1	Introduction	
3.2	Applications	
3.2.1	Contingency Tables	
3.2.2	Measuring Concordance Among K Sequences	
3.2.3	Concordance in a More General Context	
3.2.4	Multitrait-Multimethod Matrices	
3.2.5	Testing for an A Priori Pattern in K Sequence	
3.2.6	Two-Group Concordance	
3.3	Two-Dependent Sample Problems	
3.3.1	Sign Test	
3.3.2	Wilcoxon Test	
3.3.3	Mielke-Berry Two-Dependent Sample Statistic	
3.4	Comparisons Between Related Linear Assignment Problems	
	References	
PART II APPLICATIONS AND EXTENSIONS OF THE QUADRATIC ASSIGNMENT MODEL		
Chapter 4 The Quadratic Assignment Model		121
4.1	Introduction	
4.2	Background	
4.2.1	The QA Model in Optimization	
4.2.2	The QA Model as a Basis for Inference	
4.2.3	A Numerical Example	
4.3	Applications of the QA Model	
4.3.1	Seriation	
4.3.2	Generalized Correlation Coefficients	
4.3.3	Simple Cluster Statistics	

4.3.4	Analysis of Variance Procedures Based on Proximity: Comparisons of a Partition to a Proximity Matrix	
4.3.5	Nominal-Scale Agreement: Scott's Model	
4.3.6	Generalizations of the Scott Matching Model	
4.3.7	Nominal-Scale Agreement Based on Object Pairs: Comparing Two Partitions	
4.3.8	Evaluating the Symmetry of a Proximity Matrix	
4.3.9	QA Procedures for Assessing Spatial Auto-correlation: Relating a Variable to a Proximity Matrix	
4.3.10	The Comparison of Two Graphs	
4.3.11	Subset Selection	
4.3.12	Directional Data	
4.3.13	Some Final Comments on Applications	
4.4	Comparisons Between Related QA Problems	
4.5	Correlation Between QA (and LA) Indices	
4.6	Partial Association	
	References	
	Appendix	
	Part A	
	Part B	
	Part C	
	Part D	
Chapter 5	Extensions of the QA Model	262
5.1	Introduction	
5.2	Nonmultiplicative QA Indices	
5.3	Higher-Order Assignment Indices	
5.3.1	Seriation for Symmetric Proximities	
5.3.2	Seriation for Asymmetric Proximities	
5.3.3	Generalized Cluster Statistics	
5.3.4	Some Additional Applications	
5.4	Bottleneck Indices	
	References	
Chapter 6	Multiple Proximity Matrices	303
6.1	Introduction	
6.1.1	A Generalized (QA) Measure of Concordance	
6.1.2	A Priori Comparisons	
6.1.3	Evaluating a Partition of the Set of Proximity Matrices	
6.2	Generalizations	
	References	

Chapter 7	Assignment Restrictions on the QA Model	311
7.1	Introduction	
7.1.1	Some Special Cases	
	References	
Index		323