

1. Record Nr.	UNISA996466404403316
Autore	Nishisato Shizuhiko
Titolo	Modern Quantification Theory : Joint Graphical Display, Biplots, and Alternatives
Pubbl/distr/stampa	Singapore : , : Springer Singapore Pte. Limited, , 2021 ©2021
ISBN	981-16-2470-4
Descrizione fisica	1 online resource (242 pages)
Collana	Behaviormetrics: Quantitative Approaches to Human Behavior ; ; v.8
Altri autori (Persone)	BehEric J LombardoRosaria ClavelJose G
Soggetti	Càlcul Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Foreword -- Preface -- Acknowledgements -- Contents -- Part I Joint Graphical Display -- 1 Personal Reflections -- 1.1 Early Days -- 1.2 Internationalization -- 1.3 Books in French, Japanese and English -- 1.4 Names for Quantification Theory -- 1.5 Two Books with Different Orientations -- 1.6 Joint Graphical Display -- 1.7 A Promise to J. Douglas Carroll -- 1.8 From Dismay to Encouragement -- References -- 2 Mathematical Preliminaries -- 2.1 Graphs with Orthogonal Coordinates -- 2.1.1 Linear Combination of Variables -- 2.1.2 Principal Axes -- 2.2 Correlation and Orthogonal Axes -- 2.3 Standardized Versus Non-standardized PCA -- 2.4 Principal Versus Standard Coordinates -- References -- 3 Bi-modal Quantification and Graphs -- 3.1 Likert Scale -- 3.1.1 Its Ubiquitous Misuse -- 3.1.2 Validity Check -- 3.2 Quantification Theory -- 3.2.1 Quantification by Reciprocal Averaging -- 3.2.2 Simultaneous Linear Regressions -- 3.3 Bi-linear Decomposition -- 3.3.1 Key Statistic: Singular Values -- 3.4 Bi-modal Quantification and Space -- 3.5 Step-by-Step Numerical Illustrations -- 3.5.1 Basic Quantification Analysis -- 3.6 Our Focal Points -- 3.6.1 What Does Total Information Mean? -- 3.6.2 What is Joint Graphical Display -- 3.7 Currently Popular Methods for Graphical

Display -- 3.7.1 French Plot or Symmetric Scaling -- 3.7.2 Non-symmetric Scaling (Asymmetric Scaling) -- 3.7.3 Comparisons -- 3.7.4 Rational 2-D Symmetric Plot -- 3.7.5 CGS Scaling -- 3.8 Joint Graphs and Contingency Tables -- 3.8.1 A Theorem on Distance and Dimensionality -- References -- 4 Data Formats and Geometry -- 4.1 Contingency Table in Different Formats -- 4.2 Algebraic Differences of Distinct Formats -- 4.3 CGS Scaling: Incomplete Theory -- 4.4 More Information on Structure of Data -- References -- 5 Coordinates for Joint Graphs -- 5.1 Coordinates for Rows and Columns. 5.2 One-Component Case -- 5.3 Theory of Space Partitions -- 5.4 Two-Component Case -- 5.5 Three-Component Case -- 5.6 Wisdom of French Plot -- 5.7 General Case -- 5.8 Further Considerations -- 5.8.1 Graphical Approach and Further Problems -- 5.8.2 Within-Set Distance in Dual Space -- References -- 6 Clustering as an Alternative -- 6.1 Decomposition of Input Data -- 6.1.1 Rorschach Data -- 6.1.2 Barley Data -- 6.2 Partitions of Super-Distance Matrix -- 6.3 Outlines of Cluster Analysis -- 6.3.1 Universal Transform for Clustering (UTC) -- 6.4 Clustering of Super-Distance Matrix -- 6.4.1 Hierarchical Cluster Analysis: Rorschach Data -- 6.4.2 Hierarchical Cluster Analysis: Barley Data -- 6.4.3 Partitioning Cluster Analysis: Rorschach Data -- 6.4.4 Partitioning Cluster Analysis: Barley Data -- 6.5 Cluster Analysis of Between-Set Relations -- 6.5.1 Hierarchical Cluster Analysis of Rorschach Data (UTC) -- 6.5.2 Hierarchical Cluster Analysis of Barley Data (UTC) -- 6.5.3 Partitioning Cluster Analysis: Rorschach Data and Barley Data (UTC) -- 6.5.4 Effects of Constant Q for UTC on Cluster Formation -- 6.6 Overlapping Versus Non-overlapping Clusters -- 6.7 Discussion and Conclusion -- 6.8 Final Comments on Part 1 -- References -- Part II Scoring Strategies and the Graphical Display -- 7 Scoring and Profiles -- 7.1 Introduction -- 7.2 Profiles -- 7.3 The Method Reciprocal Averaging -- 7.3.1 An Overview -- 7.3.2 Profiles -- 7.3.3 The Iterative Approach -- 7.3.4 The Role of Eigendecomposition -- 7.3.5 The Role of Singular Value Decomposition -- 7.3.6 Models of Correlation and Association -- 7.4 Canonical Correlation Analysis -- 7.4.1 An Overview -- 7.4.2 The Method -- 7.5 Example -- 7.5.1 One-Dimensional Solution via Reciprocal Averaging -- 7.5.2 K-Dimensional Solution via SVD -- 7.5.3 On Reconstituting the Cell Frequencies -- 7.6 Final Remarks -- References.

8 Some Generalizations of Reciprocal Averaging -- 8.1 Introduction -- 8.2 Method of Reciprocal Medians (MRM) -- 8.3 Reciprocal Geometric Averaging (RGA) -- 8.3.1 RGA of the First Kind (RGA1) -- 8.3.2 RGA of the Second Kind (RGA2) -- 8.3.3 RGA of the Third Kind (RGA3) -- 8.4 Reciprocal Harmonic Averaging (RHA) -- 8.5 Final Remarks -- References -- 9 History of the Biplot -- 9.1 Introduction -- 9.2 Biplot Construction -- 9.3 Biplot for Principal Component Analysis -- 9.4 Final Remarks -- References -- 10 Biplots for Variants of Correspondence Analysis -- 10.1 Introduction -- 10.2 Biplots for Simple Correspondence Analysis-The Symmetric Case -- 10.3 Biplots for Simple Correspondence Analysis-The Asymmetric Case -- 10.4 Ordered Simple Correspondence Analysis -- 10.4.1 An Overview -- 10.4.2 Biplots for Ordered Simple Correspondence Analysis -- 10.4.3 The Biplot and a Re-Examination of Table 3.13.13 -- 10.5 The Biplot for Multi-Way Correspondence Analysis -- 10.5.1 An Overview -- 10.5.2 TUCKER3 Decomposition -- 10.6 The Interactive Biplot -- 10.6.1 The Biplot and Three-Way Correspondence Analysis -- 10.6.2 Size and Nature of the Dependence -- 10.6.3 The Interactive Biplot -- 10.7 Final Remarks -- References -- 11 On the Analysis of Over-Dispersed Categorical Data -- 11.1 Introduction -- 11.2 Generalized Pearson Residual -- 11.3 Special Cases -- 11.3.1

Generalized Poisson Distribution -- 11.3.2 Negative Binomial
Distribution -- 11.3.3 Conway-Maxwell Poisson Distribution -- 11.4
Over-Dispersion, the Biplot and a Re-Examination of Table3.5
eflinktab3.53.53 -- 11.5 Stabilizing the Variance -- 11.5.1 The
Adjusted Standardized Residual -- 11.5.2 The Freeman-Tukey Residual
-- 11.6 Final Remarks -- References.
