The Formal–Geometric Approach to Correspondence Analysis

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An arrow is not a set of coordinates.
J.W. Tukey

Plan of the talk

• *Prelude*: A late–summer dream.
• *Introduction:* The formal–geometric approach to statistics.
• (*Part I. Formalization*). *Construction of clouds and chi–square metric.*
. Measure vs variable duality.
. *Basic mathematical background*: Abstract linear algebra.
. The geometry of measures on a finite set.
. Frequency tables; conditional frequencies, profiles and transitions.
. The construction of the two clouds in CA.
. Chi–square metric.
• *Interlude.* Adjoint transitions.
• (*Part II. Spectral decomposition*). *Principal axes and coordinates.*
. Spectral equations and spectral decomposition theorem.
. Matrix notation as a shorthand.
• The shortcomings of the matrix approach to statistics.
• A final word.

References

Benzécri J.P. & Coll (1973). *Analyse des Données, Volume 2 Analyse des Correspondances.* Paris: Dunod.
Rouanet H. & Le Roux B. (1993). *Analyse des Données Multidimensionnelles.* Paris, Dunod.
Le Roux B., Rouanet H. *Geometric Data Analysis* (in preparation). Dordrecht, Kluwer.