PLS path modeling and regularized generalized canonical correlation analysis for multi-block data analysis

Michel Tenenhaus*

*HEC Paris
tenenhaus@hec.fr,
http://www.hec.edu/Faculty-and-Research/Faculty/TENENHAUS/

Summary

Regularized generalized canonical correlation analysis (RGCCA) is a generalization of regularized canonical correlation analysis to three or more sets of variables. It constitutes a general framework for many multi-block data analysis methods. It combines the power of multi-block data analysis methods (maximization of well identified criteria) and the flexibility of PLS path modeling (the researcher decides which blocks are connected and which are not). Searching for a fixed point of the stationary equations related to RGCCA, a new monotone convergent algorithm, very similar to the PLS algorithm proposed by Herman Wold, is obtained. Finally, a practical example is discussed.

Bibliography

Michel Tenenhaus is Professor emeritus of Statistics at HEC Paris. His main researches are concerned with multivariate data analysis: optimal scaling methods for categorical variables, PLS regression, PLS path modelling and regularized generalized canonical correlation analysis. He has published many papers in scientific journals and three books: Méthodes Statistiques en Gestion (Dunod, 1994), La régression PLS : théorie et applications (Technip, 1998) and Statistique: Méthodes pour décrire, expliquer et prévoir (Dunod, 2007). Michel Tenenhaus is also consultant for industrial companies. He has been chairman of PLS'99 at Jouy-en-Josas and PLS'09 in Beijing, and co-chairman of the following symposia PLS'01 at Anacapri, PLS'03 at Lisbon, and PLS'05 at Barcelona.