

A Unified Account of Latent Variable Models and Factor Analysis

The lectures will fall into two parts.

The first part will be a review of the origins, assumptions and uses of the principal latent variable models. These include latent class, latent trait, latent profile and factor analysis models. Some longstanding problems and points of dispute concerning these models will be identified.

The second part will present a unified approach showing that these models, and many others, are special cases of a *general linear latent variable model* (GLLVM). This, in turn, can be derived from a more general formulation in which conditional independence plays a key role. It will be shown how this approach resolves some longstanding confusion, especially in relation to, so-called, factor scores and the indistinguishability of some models.

A fuller account, on which these lectures are based, is contained in *Latent Variable Models and Factor Analysis* by Bartholomew and Knott (1999, Arnold). Examples will be found in Chapters 6,7,8 and 9 of *The Analysis and Interpretation of Multivariate Data for Social Scientists* by Bartholomew, Steele, Moustaki and Galbraith (2000, Chapman& Hall/CRC).

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