

## **”Blockcluster” and ”simerge” : Two R packages for Latent Block Models and Latent Block Models with co-variables implemented in C++**

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The basic idea of Latent Block Model (LBM) consists in making permutations of individuals (rows) and variables (columns) in order to draw a correspondence structure between individuals and variables. The R package “blockcluster” implements generative LBMs for binary, contingency, continuous and categorical data sets.

In order to estimate the parameters, it implements BEM, BCEM algorithms. The R package “simerge” is a work in progress and allows to estimate LBM when additional information is available. It implements BEM algorithm.

Both packages used C++ implementation and benefits from advanced C++ structures implemented by STK++ library and rtkore package (the port of STK++ to R). In this talk we will outline the theory LBM (with and without co-variables) and present some showcases examples. In a second part we will focus on implementation and explain how packages take advantages from C++ for large tables.

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