Scope

The function `network` allows the user to construct a network in eight different ways, by choosing three options:

1) Centralisation or no centralisation within groups.
2) Partial correlation or Pearson correlation
3) Sparsity using a cutoff approach or a bootstrap approach.

The user defined Sparsity is the fraction of edges in the network. The correlations with the highest absolute value becomes an edge, 1 or -1 depending on the correlation sign.

Installation

Run the code in your R-console. To calculate partial correlation the R package ppcor needs to be installed first.

Use

The main function is `network`. It calls the functions `CSE`, `corMatrix`, `precision.cutoff` and `precision.bootstrap`.
The `CSE` function computes centralisation within the sub-experiments. The Sub-experiments are defined as the replicates in the data and are to be set as an integer vector of size n, where samples having the same number are defined to be in the same sub-experiment.
The `cormatrix` function calculates the pairwise correlation between the samples, either Pearson or partial correlation.
The `precision.cutoff` function computes the pre-defined sparsity, i.e. the fraction of edges in the final output matrix.
The `precision.bootstrap` function computes the correlation matrix *B* times on samples selected with replacement and computes a 0/1/-1 matrix with pre-defined sparsity, i.e. the fraction of edges in the final output matrix.
The main function, `network`, computes the final sparse 0/1/-1 matrix based on the users choices.

Contributions are welcome!