

# Home Assignment 1.4

Version 1.1

## Task

Network  $A$  (two-mode network):

- (a) Develop an Octave function `event_redundancy.m` that calculates the redundancy for every event in your two-mode network. A second function `redundancy_rank.m` returns an  $n \times 2$  vector with event labels in the first column, and corresponding redundancy values in the second column. Apply this function to the given network  $A$  and interpret your findings.
- (b) Using *ConExp*, create a Galois lattice of network  $A$ , and interpret it. If required, you can reduce the network to a  $100 \times 100$  matrix to reduce visual clutter. Store your layouted lattice in a file `graphA_FCA.cex` and a file `graphA_FCA.png`. Add the results/your interpretations to the report.

Detailed interface descriptions are provided in a separate file (see below).

## Provided files

[http://www.kmi.tugraz.at/staff/markus/courses/SS2010/707.000\\_web-science/ass14.zip](http://www.kmi.tugraz.at/staff/markus/courses/SS2010/707.000_web-science/ass14.zip)

- `actorLabelsA.txt`
- `eventLabelsA.txt`
- `networkA.csv`
- `eventLabelsA.dat`
- `script14.m` contains interface descriptions for the required Octave functions. Your Octave functions must comply with these interfaces!

## Structure of your repository

- `report.pdf` (contains your results, plots, and interpretations; keep it VERY short!)
- `octave/`
  - `event_redundancy.m`
  - `redundancy_rank.m`
  - `graphA_FCA.cex`
  - `graphA_FCA.png`

Your file `report.pdf` and every source code file has to have a header containing your name and matriculation number.

## Submission

Home Assignment 1.4 is due **May 5, 2010 12:00** (high noon).

The due date is a *soft deadline*. That is, your score on the assignment will be rated 100% if you hand in the assignment before 12:00. The following 12 hours are suitable for a submission as well, *but* your points will be rated 66%. Read: 1/3 of your points will be subtracted if you hand in your assignment between 12:00 and 23:59. 24:00 is the *hard deadline*; if you hand in anything after 24:00 you will not receive any points.

Submission is done using the SVN version control system. (See instructions on the course website.)

## Policies

- No external Octave packages are allowed.
- Your code will be tested with independent datasets in an automated way, assuming your functions comply with the interfaces in the provided files.
- Your code and report will be checked for plagiarism.

## Resources

- MatLab/Octave:
  - [http://www.math.umn.edu/~lerman/math5467/matlab\\_adv.pdf](http://www.math.umn.edu/~lerman/math5467/matlab_adv.pdf)
  - <http://www-mdp.eng.cam.ac.uk/web/CD/engapps/octave/octavetut.pdf>
  - [http://en.wikibooks.org/wiki/Octave\\_Programming\\_Tutorial](http://en.wikibooks.org/wiki/Octave_Programming_Tutorial)
- ConExp Concept Explorer
  - Download (Concept Explorer version 1.3) <http://sourceforge.net/projects/conexp>
  - Project Website: <http://conexp.sourceforge.net/>
  - Documentation: <http://conexp.sourceforge.net/users/documentation/>