

“Matrimonial Ring Structures” Step by Step

Instructions for the use of PAJEK with the tools offered by the TIME¹ Group for the analysis of matrimonial networks

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Complement to the article

HAMBERGER, Klaus, Michael HOUSEMAN, Isabelle DAILLANT, Douglas WHITE et Laurent BARRY
2004 “Matrimonial Ring Structures”, *Mathématiques et sciences humaines/Mathematics
and Social Sciences*, 168 (Les réseaux sociaux, Alain Degenne ed.) : 83-119.
<http://eclectic.ss.uci.edu/~drwhite/pub/MatrimonialRingStructure.pdf>

and to the tools put on line by the authors at

<http://eclectic.ss.uci.edu/download/MarriageNetTools.htm>

<http://eclectic.ss.uci.edu/download/PajekMatrimonialCensus.zip>)

Summarized Instructions (commands only)

(For more complete instructions and explanations, see the French version.)

1st Order Networks

Creating a *basic* (1st order) network

- **Create an EXCEL file** (e.g. “Ragusa.XLS”) with 6 columns (Ego’s number, name, sex [M/F], F’s number M’s number Sp’s number), with as many lines per person as the person has spouses. Replace empty cells by a 0 (zero). Quit EXCEL.
- **Open GEN2PAJEK** (<http://eclectic.ss.uci.edu/download/gen2pajek.exe>).
 - Define the input file (“Ragusa.XLS”) clicking on “input file”.
 - Name the output file (e.g. “Ragusa rough.NET”).
 - Click “Create Pajek File”.
 - When finished, quit GEN2PAJEK.
- **Open PAJEK 1.02** (<http://vlado.fmf.uni-lj.si/pub/networks/pajek/pajek102.exe>).
 - Line Network, click “Open” button on the left: open “Ragusa rough.NET”.
 - Menu **Macro / Play**: choose and open “**M1 - Prepare Basic Network (1 Edge Value).MCR**”.
 - Save the resulting network (N7, e.g. as “Ragusa1.NET”): Line “Network”, click “Save” button on the left.
 - Quit PAJEK.

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To obtain the number of rings of each type

1. Opening the documents

- Open PAJEK
- Line Network, “Open” button: open the basic (1st order) network (e.g. “Ragusa1.NET”).
- Menu File / Pajek Project File / Read
 - Choose between
 - “Rings 1” (the 239 “consanguineous” rings)
 - “Rings 2” (the 145 relinking rings)
 - “Rings 3” (= 1+2 together, i.e. 384 rings)

2. Selecting the elements

- Line Network: select the 1st element (“Ragusa1.NET”).
- Menu Nets / Second Network
- Line Network: select the 4th element (the 1st ring type in the list)
- Menu Nets / First Network
- Menu Nets / Fragment (1 in 2) / Options Opens a frame with 8 options.
 - Check the options **3, 5, (6)** and **7**.

3. The Process

- Menu Nets / Fragment (1 in 2) / Find (or: **Ctrl+F**)
- Menu Macro / Repeat Last Command (or: **F10**)
 - Check the 7th option “Fix (**Second**) Network”, and click on “Repeat Last Command”.
 - Number of repetitions needed:
 - 238 for the “consanguineous” rings
 - 144 for relinking rings
 - 383 for both together. Then click “OK”.

4. View and save the results

- View** Line Network, “Edit” button (right button on the left).
- Save** Line Network, “Save” button (central button): save as “.TXT” file.

To obtain the number of marriages implied in each ring type

1. Selecting the elements

- Line Network: select the 3rd element (“Marriage.NET”).
- Menu Nets / First Network
- Line Network: select the 1st element of the last series, i.e.:
 - N 149 if the relinking rings have been searched
 - or - N 388 if “consanguineous” + relinking rings have been searched together
 - (in both cases, the name of that element ends with “like 4 in 1”)
- Menu Nets / Second Network

2. The process

- Menu Nets / Fragment (1 in 2) / Find (or: **Ctrl+F**)
- Menu Macro / Repeat Last Command (or: **F10**)
 - Check the 1st option “Fix (**First**) Network” (and *uncheck* the option “Fix (Second) Network” used previously), then click “Repeat Last Command”.
 - Number of repetitions needed:
 - 144 for the relinkings
 - 383 for both series together. Then click “OK”.

3. View and save the results

- View** Line Vector, “Edit” button (right button on the left).
- Save** Line Vector, “Save” button (central button): save as “.TXT” file.

Creation of 2nd Order Networks

1st Step - Creation of a 2 Mode Network (macro “M2”)

- Open PAJEK
- Menu **Macro / Play** (or **Ctrl+M**)/ Choose (and **Open**) one of the 3 “M2” macros:
 - “M2 - Census Graph 2-mode (**239**).MCR” for “**consanguineous**” marriages
 - “M2 - Census Graph 2-mode (**145**).MCR” for the **relinkings**
 - “M2 - Census Graph 2-mode (**384**).MCR” for **both together**

The macro successively opens 2 frames asking to open a file:

- 1) First, the 1st order network to transform (e.g. “Ragusa1.NET ”),
- 2) Then, the Ring list corresponding to the chosen macro:
 - “Rings 1” (the **239** “**consanguineous**” rings)
 - “Rings 2” (the **145** **relinking** rings)
 - “Rings 3” (= **1+2 together**, *i.e.* **384** rings)

ATTENTION : The Ring list opened here must **imperatively coincide** with the chosen “M2” macro.

- Create a new folder (e.g., “Ragusa 2Mode Relink (145)”).
- Save (“Save” button, on the left) the last element in each of the following lines: “Network”, “Partition” and “Vector”, accepting the default extensions (“.NET”, “.CLU” and “.VEC” respectively).
- Close PAJEK.

2nd Step - Reduction of the 2 Mode Network to a New 1 Mode Network (macro “M3”)

- Open PAJEK.
- Line **Network: Open** (“Open” button, on the left) the “.NET” file that has just been saved.
- Line **Partition: Open** the “.CLU” file that has just been saved.
- Line **Vector: Open** the “.VEC” file that has just been saved.
- Menu **Macro / Play** (or **Ctrl+M**)/ Choose (and **Open**) one of the 3 variants of “M3”:

a) All MARRIAGE TYPES, WITHOUT PARTITION
“M3a - Census Graph 1-mode.MCR”

To view the result:

- Menu Draw / **Draw** (or: **Ctrl+G**)

or **b) All MARRIAGE TYPES, WITH A PARTITION**
“M3b - Partitioned Census Graph 1-mode.MCR”

The macro asks to choose the **partition to be used**.

- Choose a partition *in accordance with the treated network* (consanguineous, relinkings, or both).

To view the result:

- Menu Draw / **Draw-Partition-Vector** (or: **Ctrl+Q**)

or **c) TYPE CLUSTERS, ACCORDING TO A PARTITION**
“M3c - Aggregate Census Graph 1-mode.MCR”

The macro asks to choose the **partition to be used**.

- Choose a partition *in accordance with the treated network* (consanguineous, relinkings, or both).

To view the result:

- Menu Draw / **Draw-Partition-Vector** (or: **Ctrl+Q**)

ATTENTION

Before running the “M3” macro again (e.g. to test another partition on the same network), **the initial elements** (output of “M2”) **must EACH TIME be selected again in the “Network”, “Partition” and “Vector” lines.**