YSocNet

Manual

Keyan Zahedi

July 23, 2001

Contents

1 Data-input

There are three different ways to insert data into YSocNet.

1. File
2. Interface
3. Mouse

1.1 File input

The input file has three parts, of which two are optional. Each part is divided by a empty line.

Part 1: Attribute-names (optional) Attribute-names must be the first non-empty line in the input file. Attribute-names are given in a comma separated list, in which the first attribute-name may not start with a number.

Part 2: Actors & Actors attributes (optional) Each row has as many elements as defined by the attribute-names line, plus 2 optional as described later. In case there are no attribute-names given, the number of elements is not limited. At the end of each row, 2 additional numbers may be placed, which represent the location of the actor. If no coordinates are given YSocNet will place them in a specific order. Otherwise coordinates must be assigned to every actor. The first attribute in the row may not start with a number, and should be a unique identifier for each actor, as it is the default attribute to be listed.

Part 3: Relations have two values, a name and a relation-matrix. The name is optional, but each input-file must have at least one relation-matrix. Numbers may be given as integer (1) or double (1.00). If there is a name assigned with the relation-matrix, no empty lines are allowed between the relation-name and the relation-matrix.

1.1.1 Example

```
<beginning of file>
name, age

clara, 24, 0.0, -154.89583333333331
frank, 12, 2.755364296100349E-15, -22.5
peter, 37, 0.0, 22.5
bob, 88, -1.8968642168061195E-14, 154.89583333333331
judy, 21, 6.494455928039517E-15, -456.3663419223244
maggy, 3, 53.033008588991066, -403.33333333333337
homer, 38, 0.0, -350.30032474434233
marge, 32, -4.2899631637570405E-14, 350.30032474434233
bart, 10, 53.03300858899102, 403.33333333333337
lisa, 8, -4.939408756560992E-14, 456.3663419223244

mails
 0 1 1 0 0 0 0 0 0 0
 1 0 1 1 1 1 1 1 1 1
 1 1 0 1 0 0 0 0 0 0
 0 1 1 0 0 0 0 0 0 0
 0 1 0 0 0 1 1 0 0 0
```

```
 0 1 0 0 1 0 1 0 0 0
 0 1 0 0 1 1 0 0 0 0
 0 1 0 0 0 0 0 0 1 1
 0 1 0 0 0 0 0 1 0 1
 0 1 0 0 0 0 0 1 1 0
<end of file>.
```

Files have the ending .MAT and can be loaded using the load-menu. A file can be created using the save-menu.

1.2 Interface

There are two modules placed within the menu *SocNet*, the *AttributesModule* and the *MatrixModule*.

1.2.1 AttributesModule

The attributes module (fig. 1) builds an interface to add/remove actors, and to add/set/remove attributes.

Actors can be added by pressing the *add actor* button. Each new actor will have a default value assigned for each attribute. To remove a node, first mark it, by activating the check-box. All marked actors will be removed by pressing the *delete actor* button.

Attributes are added with the *add attribute* button. The new attribute will have a default name, which can be changed easily by just writing the new one in the attribute-name field. For each node, a default value for the new attribute will be given, and can be changed by inserting the new value, into the field of the actor. To remove the shown attribute with all its values, the *delete attribute* button must be pressed. The first attribute should be the name or some unique identification, as it is the attribute that is listed in the *MatrixModule*, and the first one to be seen in YSocNet. Only if there is at least one actor, attributes and relations (see 1.2.2) can be added.

1.2.2 MatrixModule

The *MatrixModule* (fig. 2) allows full control over the relations. A relation consists of a relation-name and a relation-matrix. The relation-matrix represents the relations between the actors.

Relationmatrix stores the complete information about all the relations between the actors, concerning a specified topic. A relation-matrix is added by pressing the *add* button. A new relation-matrix will have a default name, which can be changed by inserting a new name. A relations-matrix can only be added if there is at least one actor in the scene. The button *del* removes the shown relation-matrix.

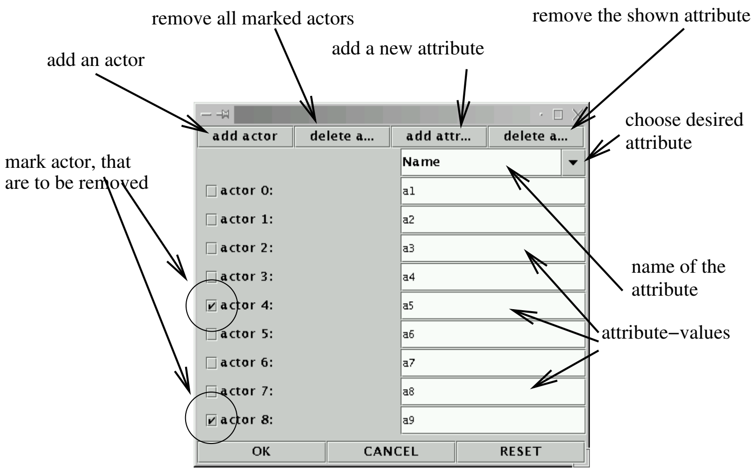

Figure 1: Interface

Relations between actors are controlled by the pull-down menus, which represent the cells of the matrix. Each pull-down menu has 5 different values, starting from the empty one, indicating no relation, up to very strong, representing the strongest possible relation. Relations are always directed and start at the actor listed on the left side, and end at the actor listed on the top of the matrix.

1.3 Mouse

Actors and relations can easily be added by only using the mouse on the surface of YSocNet. Pressing the mouse once and short adds a new actor to the scene. To remove an actor, activate the actor by clicking on it. Then use the menu associated with the right mouse button, and select delete.

To add an relation between 2 actors, click at the source actor, hold the mouse button, and drag it to the target actor. A new relation will be added. Every added relation will have the value 1. To change the value, use the *MatrixModule*.

2 Viewing Data

The right mouse button, pressed while the mouse cursor is at some free space on the surface, and no actor or relations is marked, shows a menu (fig. 3) including the options *View Relation* and *View Attribute*.

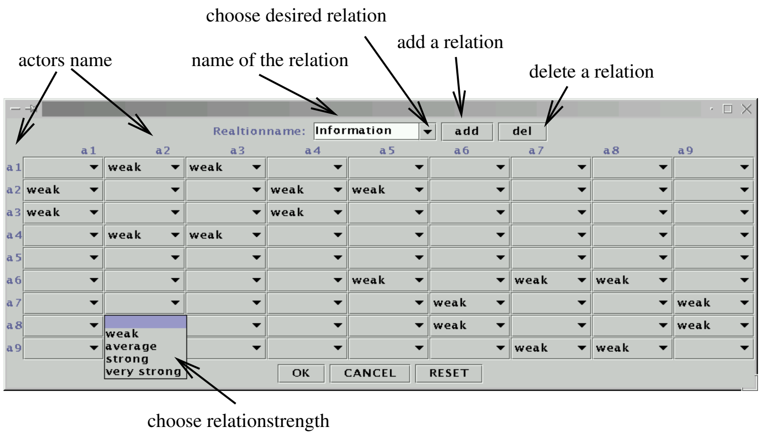

Figure 2: Interface

2.1 View Relation

This menu shows all relation-names, and which of them are drawn right now. It is able to select any number and combination of relations to be displayed.

2.2 View Attribute

This menu shows the displayed attribute (drawn in the centre of each actor). Only one attribute may be displayed at a time.

3 Analysis

The analysis can be activated by selecting *Analysis*, which is found within the menu *SocNet*. A dialog will appear, which offers the possibility to modify some of the analyses-parameters.

3.1 Centrality

This interface provides the possibility of choosing the wanted centrality functions. For a close description of the functions, please read "*visualisation of social networks*".

3.2 Output

This dialog allows the specification of an output-file, in which an ASCII-formatted result of the analysis will be written into.

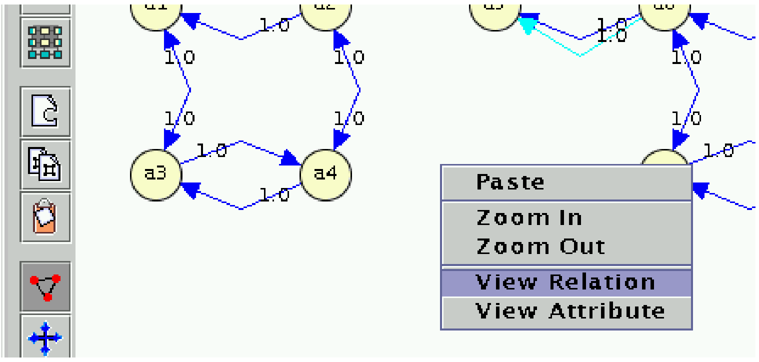

Figure 3: right mouse-button menu

3.3 Clustering

The clustering parameters can be changed here, but it seems a quite good idea to leave them untouched. If more information is desired, please read "*visualisation of social networks*"

3.4 Relations

This menu lists all relations, and provides the possibility to deselect any of them for the complete analysis.

3.5 Colours

Each group will have its unique colour, assigned by the selected colouring mode.