



**VennMaker 0.9.5 VIP**

# **Manual**

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Manual VennMaker 0.9.5 VIP

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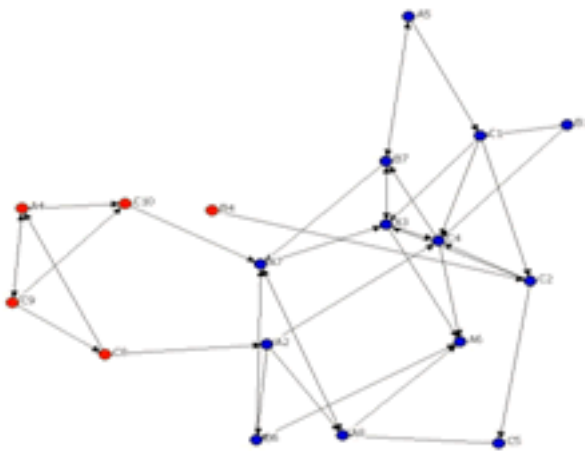
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## 0 VennMaker: Roots, Context and Fields of Application

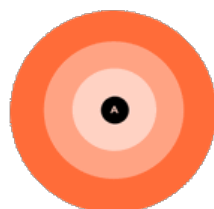
In recent decades, the concept of social networks has gained wider currency among various academic disciplines and areas of inquiry. Social network research generally involves collecting data which describe patterns of relationships and support among individuals, then analyzing them by employing concepts drawn from graph theory. Generally, data involving contact partners within a personal (ego) network are collected with the help of network questionnaires and then evaluated by means of quantitative analytical software.



*Figure 1: Network of advisors at an academic research center; based on a questionnaire survey, visualized with the software program UCINET (Schönhuth 2007a)*

in more action-oriented areas of network analysis, remaining ultimately bound to the perspective of the detached researcher on the outside looking in.

As of late, there have been endeavors to develop methods that come "closer to the actors, their perceptions, interpretations and structures of relevance" (Hollstein and Straus 2005, translated from the German). Almost all of these approaches are towards



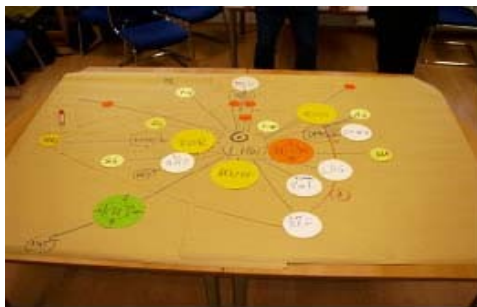
*Figure 2: Method of concentric circles ("social convoy") support persons can be placed into different sections, according to their emotional importance as seen by the interviewed persons (Kahn and Antonucci 1980)*

Collecting and analyzing these data (number, density, centrality measures) has so far been carried out using highly standardized methodologies requiring considerable effort from qualified research staff. Consequently, these methods have their highest value in the processing of very large datasets. Owing to their complex quantitative character, they remain inaccessible to users

a qualitative or "actor-centered network analysis", a recently established frame which draws on the "social convoy" model as developed by Robert Kahn and Toni Antonucci in 1980 for displaying social support

structures. Because of their simple structure and the selective way in which the data are collected, these models are limited in terms of informative value and empirical validity, and therefore not without controversy (Diaz-Bone 2007).

Within organizational research and consulting, a branch has emerged in recent years which visualizes organization members as involved in a common process suitable as a template for analysis and interpretation. While these techniques are successfully applied in consulting and development/aid processes both nationally and internationally, they either come under criticism from academic circles due to their being neither replicable nor representative, or they simply go unnoticed.



*Figure 3: "Venn-diagram": network of social actors in a medium-sized business company in East Germany from a management perspective; size of circle = informal decision-making power; distance = co-operational density / grade of actor- accessibility for the institution (Schönhuth 2007b)*

In a joint interdisciplinary project of members of a cluster of excellence at Trier and Mainz Universities in Germany, we have tried to overcome this gap.<sup>1</sup> Our team has developed software enables users to interactively collect network relationship data from an actor's point of view and render them

comparable and quantitatively analyzable by means of a intuitive graphical user interface. While complex questionnaire procedures and specially trained staff have dominated thus far, VennMaker allows lay users to map actors and their relationships in an intuitive way and generate easily interpretable quantitative and qualitative data out of it. The major benefit of this approach is that interviewees are able to visualize and qualitatively evaluate their networks themselves while simultaneously reflecting on the network structure and genesis together with the researcher, perhaps even considering desirable alterations or the potential for transformation.

Our goal was to develop a tool that is efficiently in these kinds of participatory use scenarios, while at the same time achieving scientific standards in generating and

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<sup>1</sup> The development of VennMaker draws on long standing experience in the development and application of participatory research methodology (Schönhuth and Kievelitz 1995, Schönhuth et al. 1998, Schönhuth 2003, 2007), in visual data mining and graph drawing (Pohl et al. 2004, Pohl et al. 2006, Pohl 2007) as well as on the professional experience of various other disciplines within the participating universities Trier and Mainz, thereby broadening classical social network research with an innovative and unique methodological tool.

processing social network data. Not only is the entire process of generating the network map documented digitally (the choice, positioning, and spatial distribution of actor nodes, as well as the drawing of different relation categories, and the strength of ties between them), but the statements regarding content and importance of social relationships can be audio recorded during the interview and evaluated later via content analysis methods. VennMaker also addresses the structure-agency problem in social network analysis, as questions about the structural potential of a network (i.e. social capital that could be drawn out of the structure) and the actual use of existing ties by an actor can be posed and discussed on the spot.

From the vantage point of the social sciences, this has the potential to narrow the gap between quantitative and qualitative network research. There have been many developments in the area of “qualitative network analysis”, or “mixed methods-methodology” (for Germany see Hollstein/Straus 2006), however, to our knowledge no project has solved either the complexity problem in qualitative network maps or the issue of interlacing qualitative and quantitative data in a satisfying way. Hopefully, given some practical application, time will tell whether we succeeded in going one step further with VennMaker.

### ***Fields of Application***

VennMaker holds an advantage in at least four different settings of network generation and analysis:

*First*, VennMaker allows for participatory, process-oriented interviews, where the client/interviewee and researcher/coach develop and discuss the network map together in a communicative process. A classic field of application would be a research or coaching situation, where the researcher/coach would like to learn more about the socio-strategic setting in which a person (or a group) acts, and the reasoning from the point of view of the client(s). This “mental” network map then may act as a starting point for any kind of probing on histories, current situations, or future prospects of this network.

*Second*, the software allows for the realization of self interviews without the researcher being present. An assistant system can guide the interviewee through all stages of the mapping process step by step, with the help of preconfigured wizards.

This function makes sense when a multitude of digital network maps with the same research question must be processed, or in a series of computer-based interviews via long distances. Picture a scenario involving the preparation of a conflict-workshop. Here, stakeholders or experts could be requested to produce their personal map of the actor constellation beforehand while being electronically guided from the preconfigured VennMaker. Having evaluated the different personal views, the researcher could then begin the workshop with the edited results, illustrating where there is common ground and where there are perceived differences which will have to be negotiated.

*Third*, VennMaker is suitable for jointly generating strategic network maps of organizational branches or projects (“strategic actor mapping”) in a group process. This form of application fits nicely in situations where the elicitation and merging of different actor views for joint action is a goal. An example would be the actor constellation and network developed by the executive board of a medium-sized business company as shown in Figure 3 – only that now it would be processed with VennMaker – either using a Beamer (allowing everyone to take part in the visualized discussion), or using a more cutting-edge interactive whiteboard like Hitachi’s Interactive Board FX Duo.<sup>2</sup>

*Fourth*, VennMaker allows for the user-defined amplification of graphical representations, which can also be applied as a user friendly drawing instrument to visualize network data that have been surveyed with other analytical methods beforehand. This form of using VennMaker as a pure visualizing tool makes sense in all forms of visual presentation of data analyses, be it as a basis for discussion or reflection in working groups, or as visualized representations in lectures and publications.

### **“Venn” – what’s in a name**

What does the name “VennMaker” mean? In Norwegian “Venn” means “brother”, but this pun, though it makes sense, has not been the inspiration for our name. “Venn”, first of is in reverence for the “Venn Diagram”, a tool used with much success in the participatory appraisal of stakeholders in development contexts for the last 20 years. Its originator was the English mathematician and philosopher John Venn (1834-1923).

To make sense of “Venn” in the way we use it with our software, you might read it also as an acronym for “**V**ery **E**nergetic **N**ice **N**etworks”. As developers, we wish all our users this sort of experience when creating networks with VennMaker. In the end, this tool

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<sup>2</sup> Currently we are launching a project together with Hitachi Software Engineering Europe AG to implement a multi-touch option into their whiteboard-series for VennMaker.

derives from the pleasure and gratification that people get when they see their own social networks mapped out in such a way that they are able to “visit” it in a beneficial communicative process together with the researcher/interviewer. This manual is designed to guide you on this path as a competent, yet easy to read companion.

*Michael Schoenhuth, Trier 5<sup>th</sup> of June 2009*

# 1 Introduction

The present manual serves as an introduction to the software VennMaker (Version 0.9.5 VIP). All available features of VennMaker are presented here step by step. The text is divided into three big parts. Free network drawing, configuration and processing of network interviews and exporting of generated data. At the end of this manual you should be able to draw social networks, to configure and execute/perform interviews and to export the obtained data with VennMaker. This manual is especially addressed to readers who are acquainted with the fundamental terms of social network analysis. However, that knowledge is not a prerequisite, especially for the free network drawing mode.

## 1.1 Starting VennMaker

To be able to execute VennMaker, you need Java (Version 1.6.12 and later). You can obtain Java free of charge, visiting <http://www.java.com/de/download/>.

Being able to draw social networks you have to install VennMaker first. Unzip the VennMaker\_0\_9\_5\_VIP.zip file and into the new created VennMaker folder.

If you use Windows XP / Vista you may start VennMaker now double-clicking "VennMaker.exe". Should you have not installed Java on your computer, you will be reminded to do so after having clicked VennMaker.exe.

If you use another operating system (Linux or Mac OS X for example), then you can execute VennMaker directly starting VennMaker.jar.

Having started VennMaker the following window will open on your computer display:

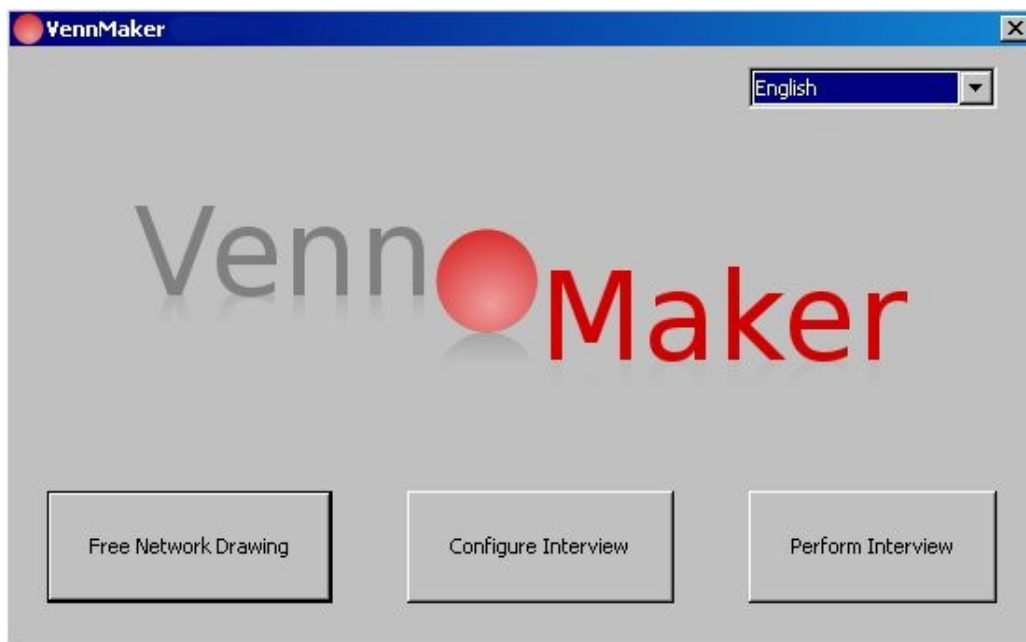


Figure 4: VennMaker-'start'-window

The features that are hidden behind the three buttons *“Free Network Drawing”*, *“Configure Interview”* and *“Perform Interview”* will be explained to you in the following chapters.

By default English is the language of VennMaker. In the right upper corner you can choose between *“English”* and *“German”*.

In the following chapter we will concentrate on the *“Free Network Drawing”* mode.

## 2 Free Drawing of Digital Social Network Maps

Free drawing of digital network maps means that you are not subject to any restrictions from the program concerning the design and generation of the network. So, you may not only choose actors and relations freely from a range of default designs, but may also configure and add new actor types and relations during a VennMaker interview session if the situation demands it.

This mode makes most sense in exploratory interview situations, where the field situation is yet unfamiliar or if maximum flexibility and responsiveness vis-a-vis the proband / client's peculiarities and a minimum of comparability is requested. Typical for the first scenario are hypotheses-generating research situations; typical for the second would be consulting, counseling or coaching situations.

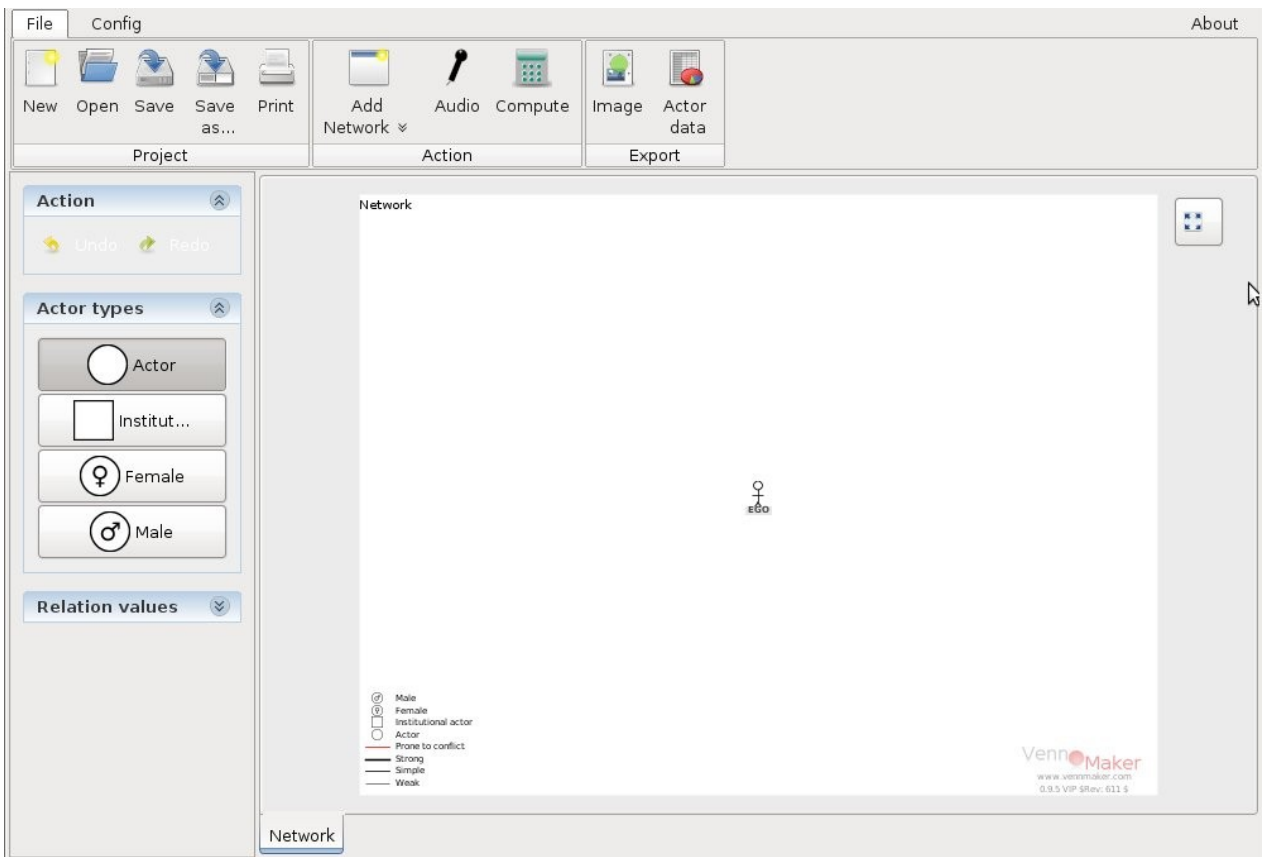


Figure 5: VennMaker in the “Free Network Drawing” mode

This chapter deals with those functions which are available in the “Free Network Drawing” mode .

First, the different areas depicted in Figure 5 will be explained in more detail.

## 2.1 VennMaker Drawing Area

The big white surface area in the middle of the picture is called the “digital network map”. In this area you can draw/place actors, relations, sectors, and concentric circles. Every digital network map can be designed in different colors and be furnished with a background image. We will come back to those features later.

### Ego

In the default setting you will find the symbol of a human being in the center of the empty map, which is labelled “EGO”. Ego by default stands for the person interviewed - we deal with “ego-centered networks”. Renaming the center can also signify the project or group out of whose point of view the network is designed. The Ego can also be moved out of the center to become part of the whole network).



Figure 6: Labeled Ego-symbol

In Figure 6 you see the Ego-symbol with the respective label. If you go over the Ego-symbol with the mouse and press the right mouse button, the following drop-down menu will appear:



Figure 7: Drop-down-menu to execute changes for Ego

If “Fixed ego” is activated, then the Ego-symbol can't be removed. If you choose “Hide ego”, then the Ego-symbol will be suppressed. All relations leading from and to Ego are also invisible and removed temporarily from the map then.

This operation is helpful, if Ego is part of a whole network, meaning, that there is no center, from which a network is set up and seen, but any actor has his or her place within the net. It also fits for Ego-centered interviews when for setting a stimulus you want to visualize only alteri-alteri relations, that means the relations between the network partners of Ego (“how would the network look like without Ego and his/her relations/ties?”).

If you want to uncover Ego again, just right-click anywhere on the map. You will get a drop-down menu where you can click on “Show Ego”. After that Ego with all his/her relations will reappear.

“Enlarge” boosts the Ego-Symbol, “Shrink” downsizes it, with every click one step further. You can also use the mouse wheel for this action. Try which of the functionalities fits you better. If you want to rename Ego, click the respective line named „Rename actor“. A box opens, where you can type in the new name.

Every actor, even Ego, can be endowed with additional commentaries. For this purpose choose “Edit comment”.

## Legend

By default, in the left lower corner of the network map you will find an overlaid legend with standard default settings (see Figure 8).

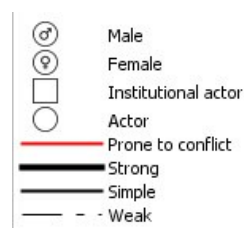


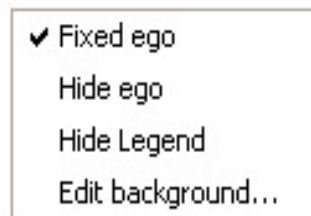
Figure 8: Legend with default settings of the digital network-map

In the left lower corner of the network map by default you will find an overlaid legend with standard default settings (see Figure 8).

The legend contains all actor types and relation types with their description. Figure 8

shows the legend in the default setting. If you delete, modify or add an actor type or relation type, the legend will be updated automatically.

The legend will be hidden by clicking on an unused space of the digital network map with the right mouse button. A menu will open (see Figure 9) where you can choose “*Hide Legend*”. Thereafter, the legend will be hidden.



*Figure 9: Configuration menu of the digital network map*

This also applies for displaying the legend. There is only one difference referring to the menu. Now it contains a new menu item named “*Show Legend*”.

In this chapter you have learned to change some parameters of Ego as well as hiding the legend of the digital network map. The following chapter will explain how to draw other actors (resp. alteri / nodes) on the one hand and how to draw relations (respectively ties) between the actors on the other hand.

## 2.2 Drawing of Actors and Relations

On the left hand side of the digital network map you find the following default menu:

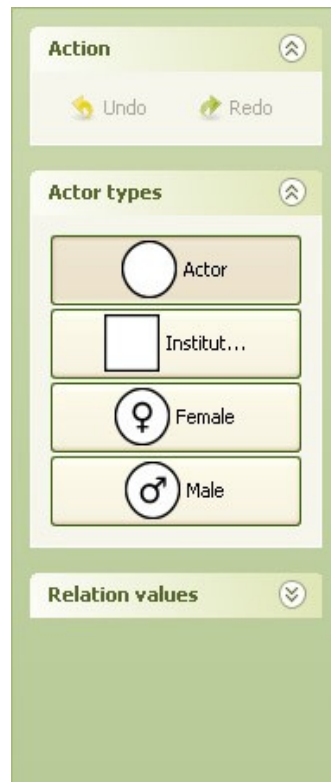


Figure 10: Menu for drawing actors and relations

In Figure 10 three sections are shown: “*Action*”, “*Actor types*” and “*Relation values*”.

The upper section “*Action*” contains an “*Undo*” and a “*Redo*” button. If you make a mistake while drawing the network you can adjust every step by clicking the “*Undo*” button. The “*Redo*” button reverses the undone step.

You can use the undo and redo feature to recapitulate with your interview partner the process of network generating.

In the central section “*Actor types*” the available actor types, their symbols and labels are listed. The default configuration contains four actor types: “*Actor*”, “*Institutional Actor*”, “*Female*”, and “*Male*”.

VennMaker shortens the “*Actor types*” labels automatically to a eight letter word, e.g. “*Institutional actor*” becomes “*Institut...*”.

For example, if you want to draw an actor named “Peter”, firstly you have to select the “Actor type” button named “Actor”. Secondly, you click on the position where the actor should be drawn in the digital network map. Thereafter, VennMaker asks you to enter the name of the actor. VennMaker will give notice if an actor with the same name already exists.

If you want to choose an other actor symbol (e.g. male or female), just click on the appropriate icon. Many other symbols are also available, how to load them see Chapter 2.7 and 3.

After you typed in the actor name, the actor type “Actor” will be shown as a circle in the digital network map. The name of the actor is written underneath the chosen symbol (see Figure 11).



Figure 11: Example of an actor type „Actor“ with the name „Peter“

An actor symbol can be moved by drag and drop the symbol to the favored place. Clicking the right mouse button onto the actor, the following menu will be shown:

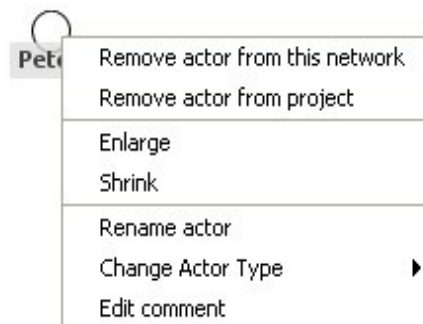


Figure 12: Menu for changing actor attributes

An actor from the present digital network map is deleted by selecting “Remove actor from this network”. Afterwards, the actor symbol is placed in the left area “Available Actors”.

You remove an actor from the project by selecting “Remove actor from project”.

“Enlarge” increases the size of the actor symbol and “Shrink” decreases the size.

You can also increase or decrease the symbol size if you move the cursor onto the actor and turn the mouse wheel.

You may edit the size interval and symbol size directly in “Config” > “Image & Color” > “Actor”. “Number of actorsizes” (Figure 13) means how many different sizes are available and the table „Size“ contains the different sizes (in pixel). “Size” relates to the absolute / width of the actor symbols showing in the digital network map. You can change the “Size” values by selecting and editing the corresponding cell inside the table.

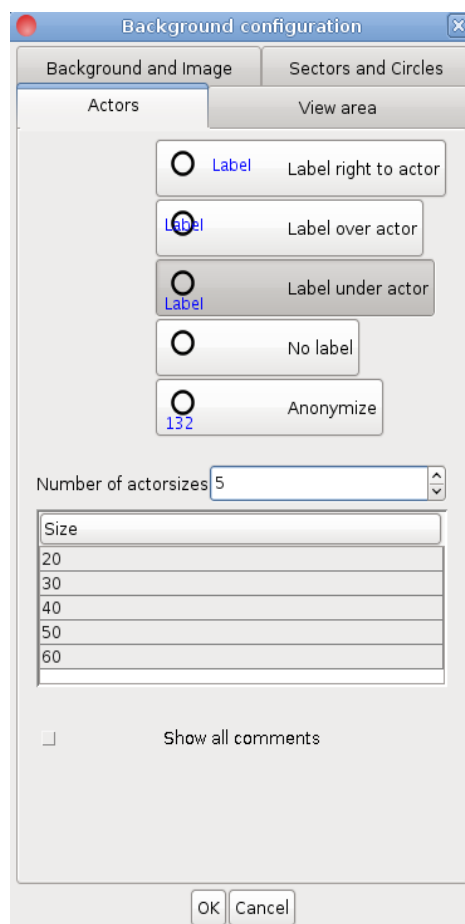


Figure 13: Actor size window

The size values depend on your research question. Moreover, you have to keep in mind that the actor symbol can be greater than the distance between two concentric circles. At the time when the actor symbol overlaps two circles a correct interpretation will not be possible.

The example in Figure 14 makes the occurring problems clear concerning the use of different actor sizes, and the use of the maximum number of sectors as well as the use of concentric circles at the same time: Depending on the actor size an actor will overlap the concentric circles. Keeping in mind while working with concentric circles and sectors, the closer the actor to Ego is, the smaller will be the draw area in a sector and a circle. Furthermore, the visual difference between actor sizes will be problematic when using very small actor size intervals.

Therefore you will get the best performance if you choose in-between “interval not too small and moderate actor size”. The Figure 14 helps to find a reasonable choice:

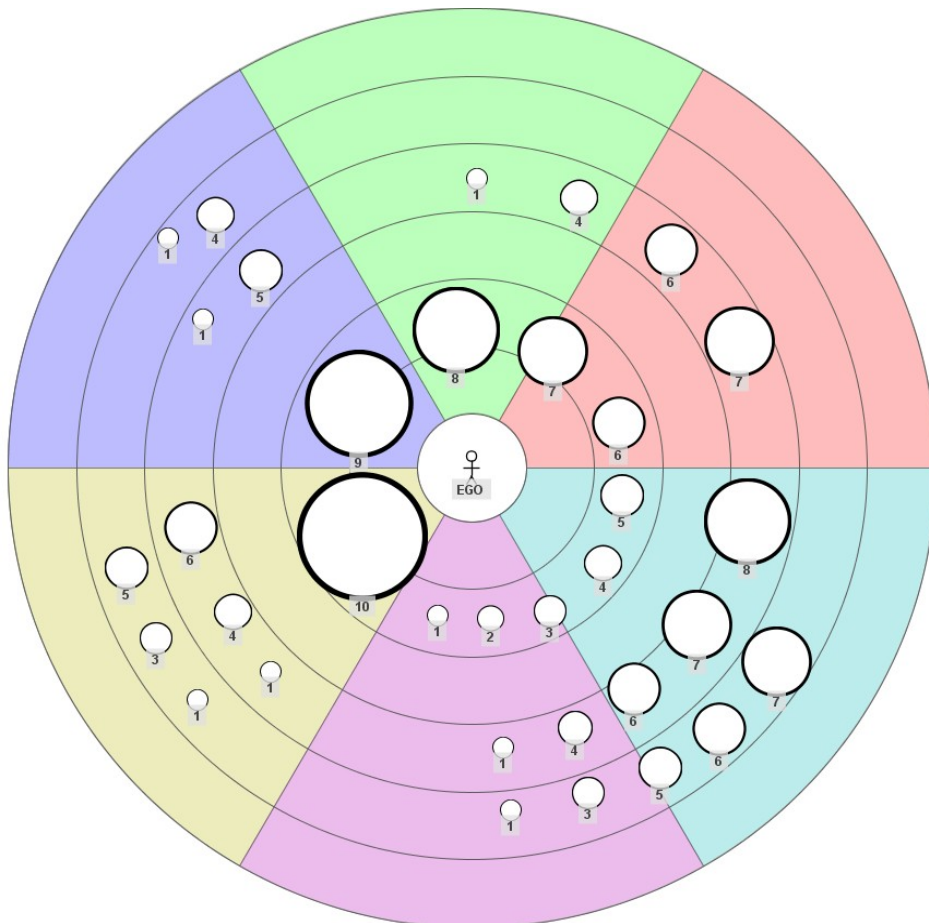


Figure 14: Maximum range (1-10) and “practical” actor sizes for different number of actor categories (2 to 5)

You can rename an actor / node by selecting “Rename actor”. That applies also for the actor type which is changeable with “Change Actor Type”.

## Adding comments

For each actor comments can be added or edited by selecting *“Edit comment”*.

Comments are useful to capture some short attributes of an actor which are important for the identification in the ongoing interview or for the validation at the end of the interview.

If you move the mouse cursor over the actor VennMaker displays the comment after a short delay.

*“Config” > “Image & Color” > “Actors” > “Show all comments”*: all comments are constantly shown. If you select *“Show all comments”* again all comments will be hidden.

## Drawing relations

By starting the *“Free Network Drawing”* mode the third section *“Relation values”* (see Figure 10) will be minimized. You maximize this area if you click on the double arrows to the right of *“Relation values”* :

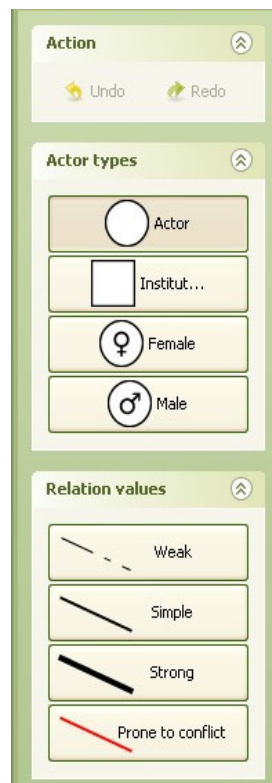


Figure 15: *“Relation values”* menu

In Figure 15 you can see in the section „*Relation values*“ four types of relations: “*Weak*”, “*Simple*”, “*Strong*” and “*Prone to conflict*”. Each relation value is visualized with a different line type.

If you click on one of the relation buttons (e.g. “*Simple*”) you are able to draw a relation in the digital network map as follows:

Firstly, you click with the left mouse button on the actor from which the relation should start. Secondly, you hold the button pressed while moving the cursor to the second actor where the relation should end. Thirdly, you let the mouse button go. Finally, there is a line drawn between the two actors.

If you move the cursor to a relation and press the right mouse button, the following menu will be displayed (see Figure 16):

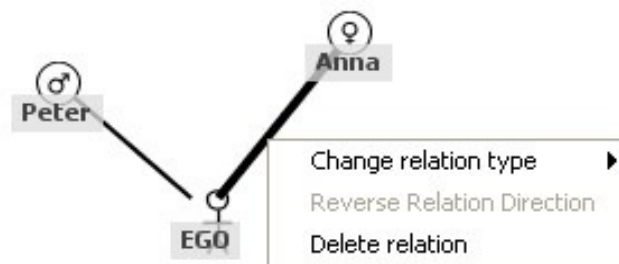


Figure 16: Menu to edit the relation line

The menu item “*Change relation type*” changes the type of relation. That also applies for the menu item “*Delete relation*” which erases the existing relation.

If you use directed relations you are able to change the direction by selecting “*Reverse Relation Direction*” (how to create directed relations see chapter 2.8).

If you like to draw more than one relation type (“multiplex”) between the same two actors the lines will be drawn automatically side by side.

You can add a comment for each relation by right-clicking on the particular line and selecting “*Edit comment*”.

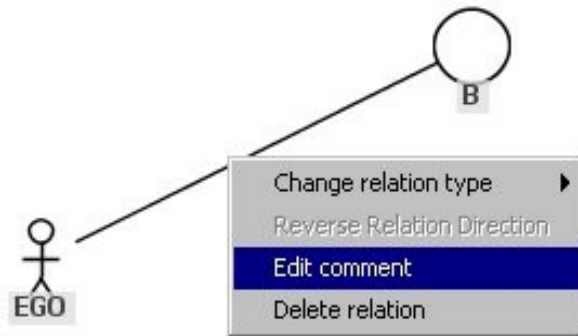


Figure 17: Adding a comment to a relation

The following chapters show how to modify, clone or create digital network maps.

## 2.3 Digital Network Map

Working with VennMaker the digital network map is the drawing area for creating the social network itself.

### 2.3.1 Managing digital Network Map

Selecting “File” in the upper VennMaker menu a new multifunctional toolbar (also called *Ribbon*) will be opened (see Figure 18).

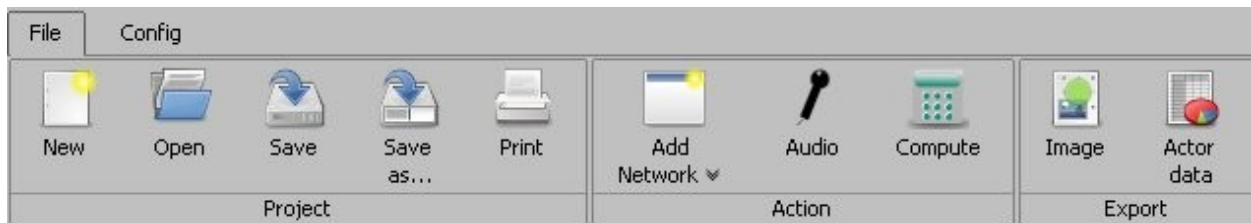


Figure 18: Multifunctional toolbar

The menu is subdivided in three sections : “Project”, “Action” and “Export”.

#### Project

The “Project” section allows the creating of either a new VennMaker project, or the opening of an existing project or the saving of the actual network map(s) in a project.

The VennMaker project itself contains the digital network map(s), the protocol of how

the networks were created as well as the links to the recorded audio files.

A new VennMaker project will be created by clicking on the “New” button. VennMaker will ask you whether to create a new project respectively if you would like to close open network maps. If you confirm a new project, it will be created.

You open a project by clicking on the “Open” button and choosing the corresponding VennMaker file. “venn” is the extension of the VennMaker project filename.

The buttons “Save” or “Save as...” will store the project.

There is a slight difference between “Save” and “Save as...” If you choose “Save as...” VennMaker will ask you for the project name. If you want to save the project with the same name (you have already chosen before) you just need to click “Save”. Thus, VennMaker saves the project without asking for the project name again.

## Action

The second section named “Action” contains amongst others the button “Add Network”. After clicking on this button VennMaker displays a sub menu for creating an empty network map (“Add empty network”) on the one hand and for cloning the actual network map on the other hand (see Fig. 19).

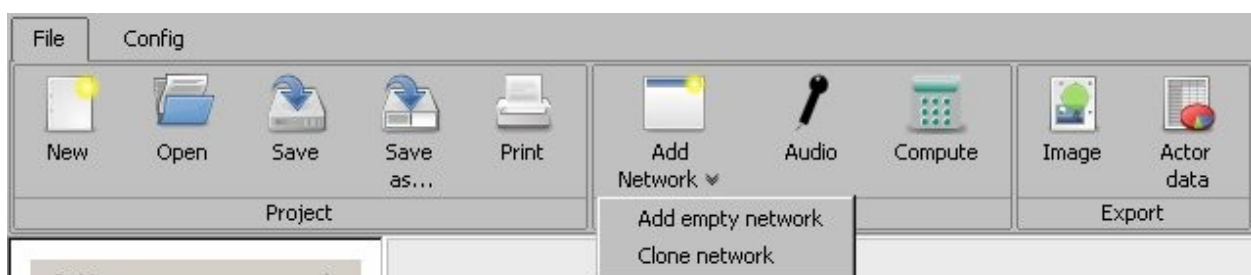


Figure 19: Adding a new digital network map

The menu item “Add empty network” creates a new digital network map, whereas the other menu item “Clone network” makes a copy of the actual network map. If you click on one of these two menu items VennMaker creates the corresponding network map in

a new pane (see Figure 20):



Figure 20: Digital network pane

You can change between the digital network map by selecting the corresponding pane.

To rename your digital network map, click on the respective tab by using your right mouse button and choose “*rename network*”.

To remove a digital network map from your project, click on the respective tab at the lower bar of VennMaker using your right mouse button. Then choose “*delete network*”.

After you have learned how to create, delete, and duplicate digital network maps, please read the following chapter which presents how to provide an individual look of the digital network map.

### 2.3.2 Customizing digital Networks

This chapter will explain how to modify the heading, the background color, the background image, the size of the digital network map and how to add network maps to the background.

You can modify the heading as follows: By default each digital network map contains a heading:

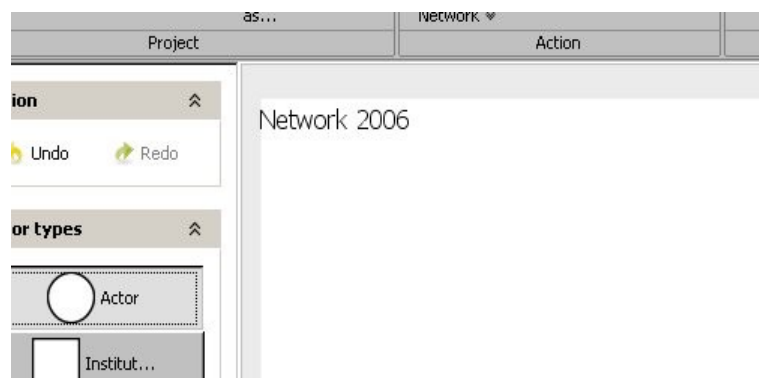


Figure 21: Heading of a digital network map

The heading is similar to the network map name (see Figure 20).

You can repositioning the heading by right-clicking on the network map background:

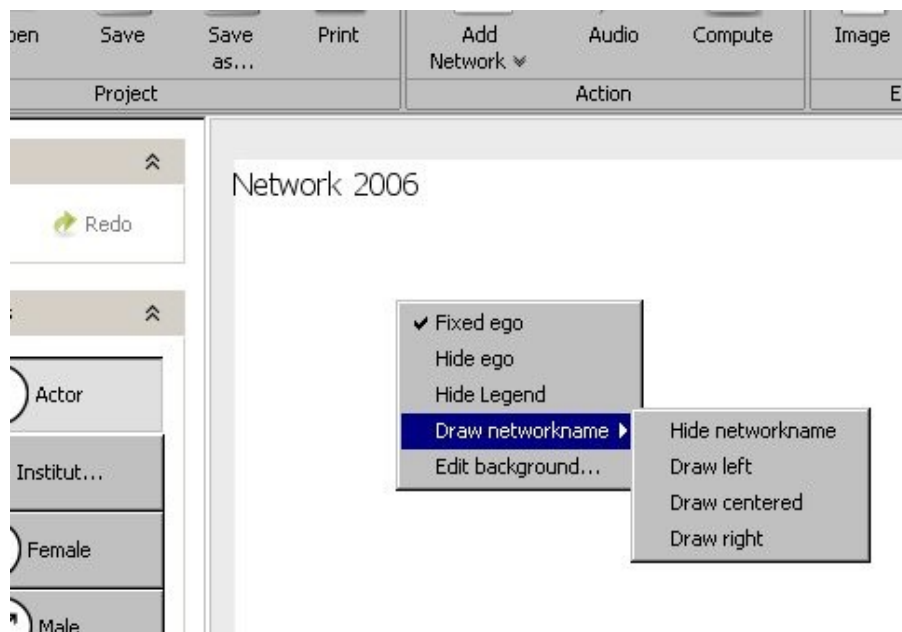


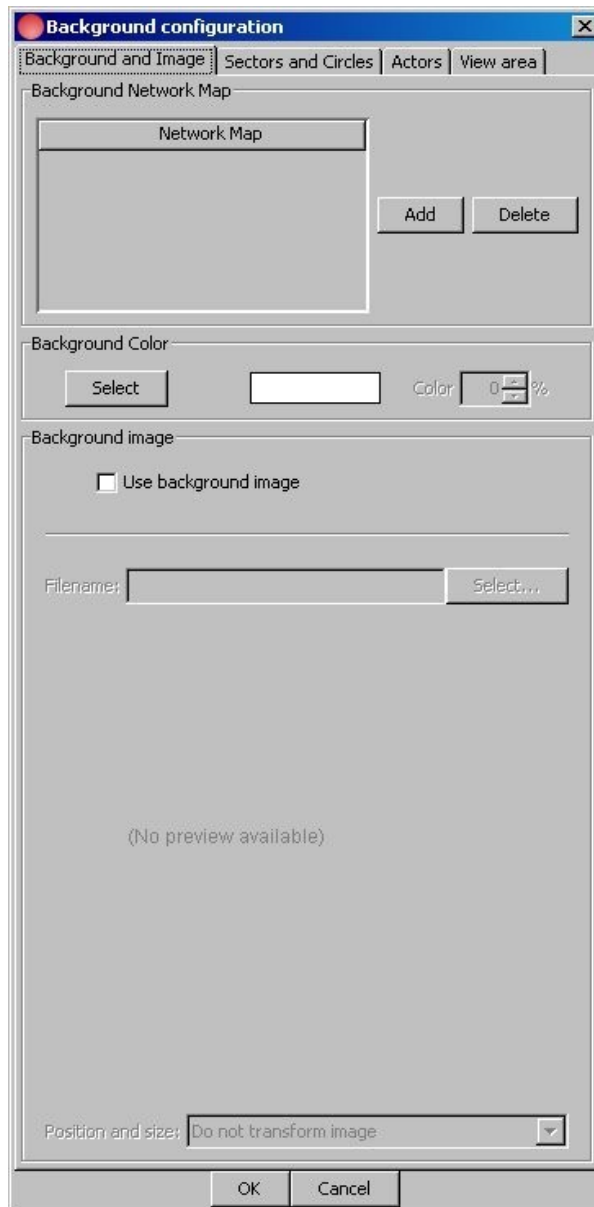
Figure 22: Changing the title position

The heading can be hidden (“*Hide networkname*”) or displayed in the left upper corner (“*Draw left*”), the right upper corner (“*Draw right*”) or in the upper center (“*Draw centered*”) respectively.

The following text illustrates how to adjust the background color, the background image, and the size of a digital network map.

All functions mentioned within this chapter can be chosen in two ways: Either you click on the free space of the network map by using your right mouse button and choose “*edit background*” or you choose “*config*” in the upper menu of VennMaker before you press “*image & color*” afterwards.

Finally, the following window should open by itself:



*Figure 23: Configuration window for digital network maps*

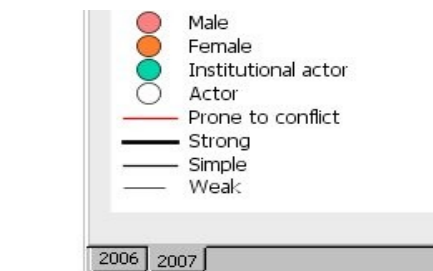
### **Using a network map as a background image**

By using more than one network map per project you can add some network maps to current network map as an additional background image.

Example: In your project exists two network maps, one from the year 2006 and one

from 2007 and you would like to show the differences between the two years.

The first step is to select the target network map where you would like to add the other network map as a background image. In this example you select the network map from the year 2007:



After this you right-click on the network map, select “*Edit background...*” and thereafter in the “*Background configuration*”-Dialog you click the “*Add*”-Button. Now, VennMaker adds automatically all other network maps from the project in the “*Network Map*”-List:

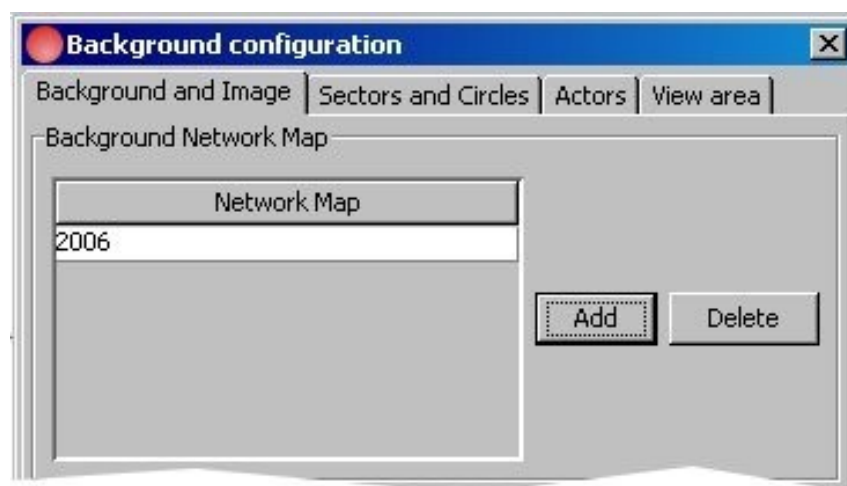


Figure 24: Adding network maps as background images

In this example the network map “2006” will be added to the list.

After this you press the “OK”-Button and VennMaker will draw the network map “2006” in the network map “2007”:

2007

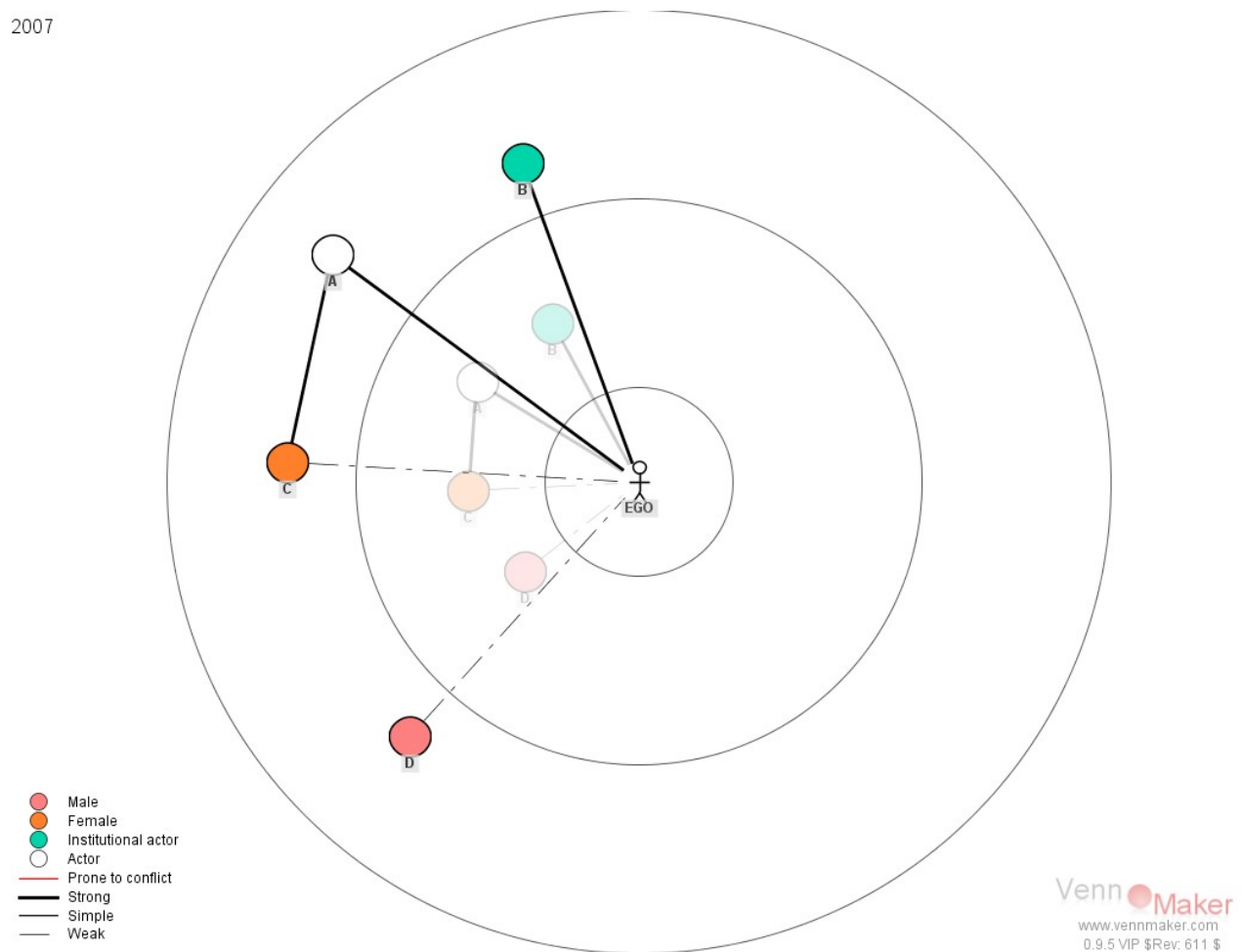


Figure 25: A network map with an other network map in the background

You remove a network map from the background as follows: You right-clicks on network map and select the particular network map in the “Network Map” list. After this you press the “Delete” button and then the “OK” button.

### Changing the background color / Adding a background image

You can change the background color of the network map by clicking the “select”-button. Subsequently choose the background color.

If you like to use your own background image (for example a geographical map or

random images), click on “use background image” first and then choose your image by using the “select”-button.

The image must be saved as a jpg or gif image.

After the background image has been chosen, a preview is displayed (see Figure 26).

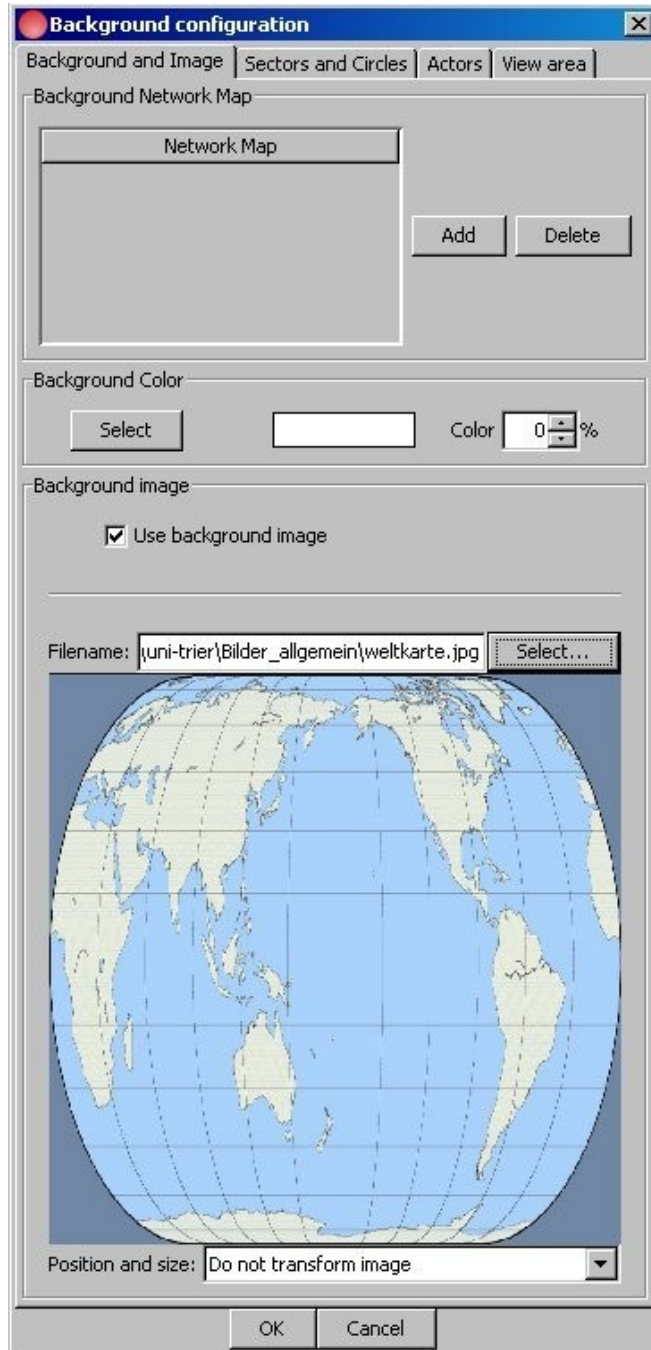


Figure 26: Preview of a background image

By using “position and size”, it is possible to fit the image into the digital network map in various ways.

“Do not transform image” means to leave the image in its original form. There will be no size fitting.

“Zoom to fit” means to match the background image with the digital network map referring to height and width.

“Preserve ratio” means to match the background image with the digital network map by maintaining the aspect ratio.

“Preserve ratio (full size)” means to draw the full screen background image into the digital network map by maintaining the aspect ratio.

The inserted background image refers to the current digital network map.

### Maximizing the view area

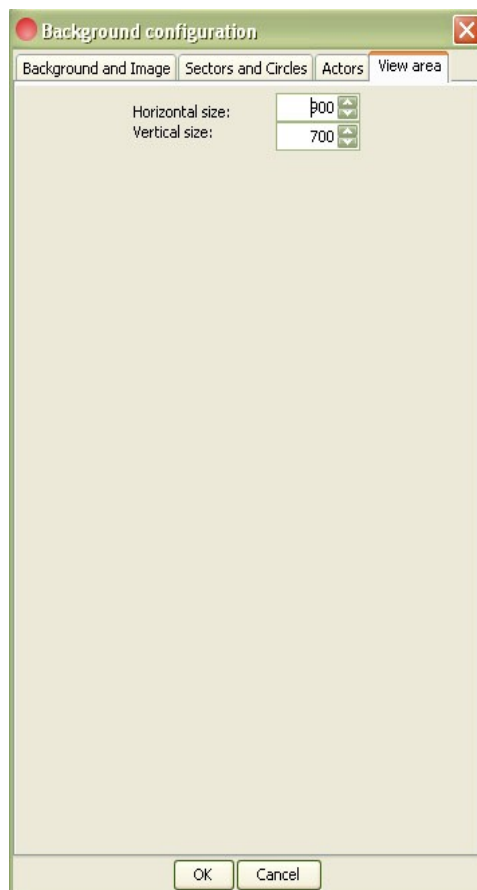


Figure 27: Change the size of your digital network map

Via the tab “view area” you can change the size of the current digital network map (see Figure 27).

While drawing a digital network map, it is possible to hide the toolbar.



Figure 28: Button to hide and uncover the toolbar

To hide the toolbar click on the button (see Figure 28) at the upper right corner of your digital network map. By repeating, you can uncover the toolbar again.

## 2.4 Recorder – Record and Playback

With respect to qualitative research it can be necessary to record the spoken word in order to analyze it at a subsequent date.

To record and playback the spoken word, VennMaker contains a recorder / player.

You can choose the recorder/player via “File” > “Audio”.

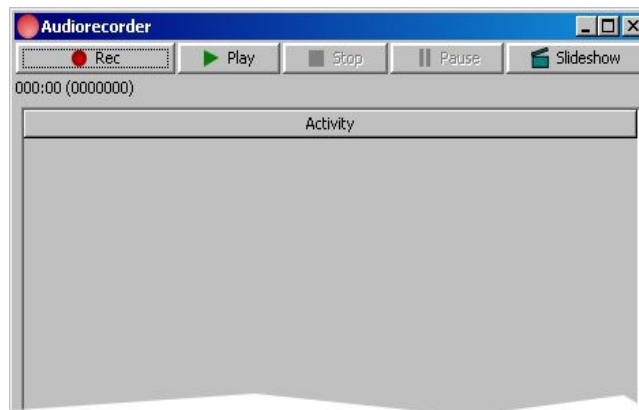


Figure 29: Recorder

Provided a wired microphone, the recording process starts by clicking on “rec”. From then on, every spoken word will be recorded.

Please check the quality of your microphone first. Use an external microphone if necessary.

The recording ends by pressing “stop”.

On the left, you can see the current time position. Enclosed in brackets, you see the total time of recording.

VennMaker automatically creates a recording file (.wav) in the VennMaker directory.

VennMaker memorizes the starting time automatically. If you like to hear or see the interview again, the record file (.wav) needs to be placed in the VennMaker directory.

Attention: The recording files are saved in an uncompressed way. As for extended interviews, therefore, recording files can quickly add up to 100-400 MB. Be sure to provide enough memory space! Compressed audio formats are planned to be realized within a later version of VennMaker.

The playback starts by pressing "*play*". The audio mode and the visualization mode are linked to one another. During the creation of the digital network map all actions and recorded speech are presented synchronously (for example, the drawing or movement of actors / notes, the creation of relations / links). Consequently, it is possible to reproduce the entire interview including every spoken word and action while drawing the digital network map in real-time.

All user activities are displayed in a table: the first table column “Nr.” contains the activity number, the second column “Time” the point in time of the activity and the third column “Activity” shows the name of the activity (see Figure 30).

| Nr. | Time     | Activity                 |
|-----|----------|--------------------------|
| 0.  | 00:00:00 | Create and add new actor |
| 1.  | 00:00:07 | Change actor type        |
| 2.  | 00:00:13 | Change actor type        |
| 3.  | 00:00:19 | Change actor type        |
| 4.  | 00:00:23 | Create and add new actor |
| 5.  | 00:00:26 | Create and add new actor |
| 6.  | 00:00:28 | Create and add new actor |
| 7.  | 00:00:32 | Add Relation             |
| 8.  | 00:00:34 | Add Relation             |
| 9.  | 00:00:45 | Add Relation             |
| 10. | 00:00:47 | Add Relation             |
| 11. | 00:00:50 | Add Relation             |
| 12. | 00:01:04 | Clone network            |
| 13. | 00:05:47 | Resize actors            |
| 14. | 00:05:53 | Move actor               |
| 15. | 00:05:56 | Move actor               |
| 16. | 00:06:00 | Move actor               |
| 17. | 00:06:02 | Move actor               |
| 18. | 00:06:03 | Move actor               |
| 19. | 00:06:05 | Move actor               |
| 20. | 00:06:06 | Move actor               |
| 21. | 00:06:07 | Move actor               |
| 22. | 00:06:10 | Move actor               |
| 23. | 00:06:12 | Move actor               |
| 24. | 00:06:13 | Move actor               |

Figure 30: Audio playback and the activity list

The playback can be stopped by pressing “Stop” or “Pause”. If you press “Pause” and afterwards you press “Play” the playback starts at the same time position as before.

You can playback different activities by selecting these activity and pressing “Play”. Then VennMaker will begin audio and visual playback at this position.

On the left in the “*Audiorecorder*” window you can see the current time position. Enclosed in brackets, you see the total time of recording:



A further function is the “*Slideshow*”. The slideshow replays all activities with equal time interval (2 seconds).

## 2.5 Initials Computations

You can execute initial computations in form of rates or density via “*File*” > “*Compute*”. Results are presented within a separate window.

The results always refer to the current digital network map.

The illustrated rates contain the amount of actors per actor type, the amount of actors in every single concentric circle and sector plus the total amount of actors in the digital network map.

The density specifies the ration between the amount of drawn relations and the amount of potential relations. Density can reach a value between 0 and 1. 0 signifies that no relations are compounded. 1 signifies that all actors are totally networked.

Density is a measure related to the entire social network.

VennMaker distinguishes between networks with an Ego and networks without an Ego. In the first case, the Ego is included into the computation of density. In the second case, only the Alteri-Relations are considered. Usually, the density measure should be higher when considering the Ego. The test person mentions familiar persons and is normally not able to give broad information about Alteri-Alteri relations. Hence, the amount of mentioned relations and potential relations is nearly the same. A more precise description of useful measurements for social network analysis is illustrated in chapter 4.1.2.

You can save the results as CSV file via “*Export*”.

## 2.6 How to Use Concentric Circles and Sectors

Actors attributes can be illustrated via both concentric circles and sectors. Those functions are available via the “*config*” - menu (see Figure 31).

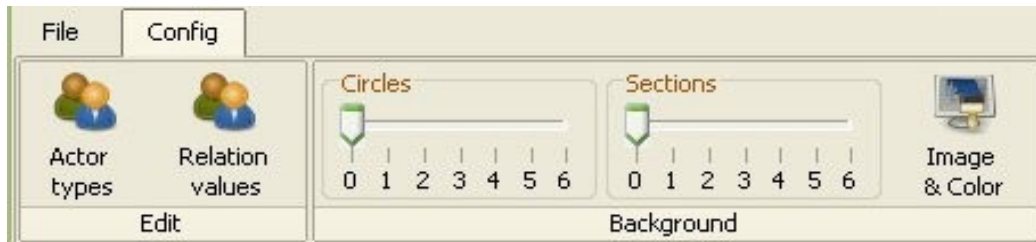


Figure 31: Configuration Toolbar

You can use the regulator to adjust the amount of concentric circles and sectors. Additional settings can be made via “*Image & Color*” > “*Sectors and Circles*” (see Figure 32).

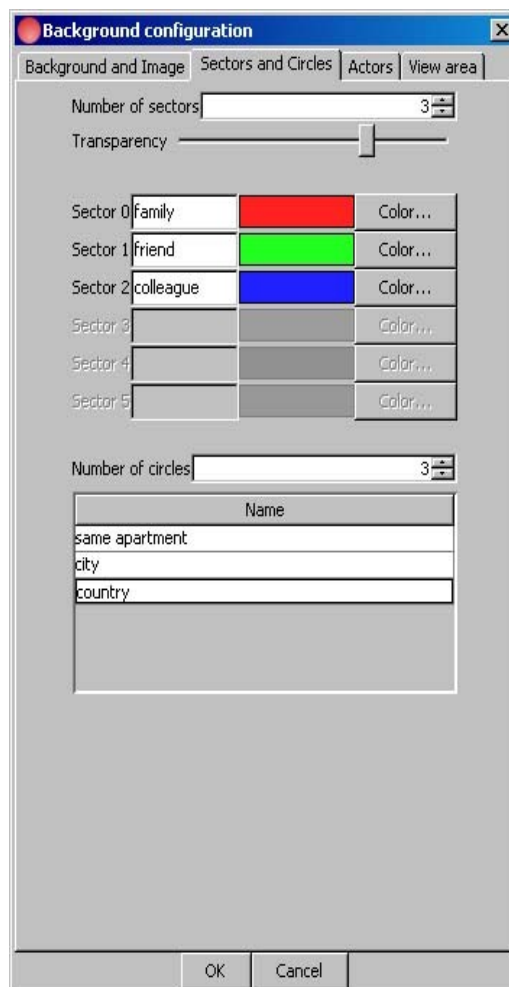


Figure 32: Configure concentric circles and sectors

“*Number of Sectors*”: Choose the total amount of sectors.

“*Transparency*”: If you make use of a background image it can be helpful to adjust transparent sectors. Otherwise they will cover your background image. You can use the regulator to adjust the degree of transparency. The farther right you set, the more transparent your sector appears.

“*sector 0*” - “*sector 5*” You can entitle every single sector. Those titles appear on the digital network map. You can color your sector via the color-button next to every single sector.

“*Number of circles*”: Here, you can adjust the total amount of concentric circles. There is a maximum of 6 entitled circles in total.

## 2.7 Configure Actor Types

VennMaker offers a set of four actor types by default (female, male, neutral and institutional). You can use them but you do not need to! It is possible to define your own actor types or to modify existing actor types with VennMaker. Therefore, click “*Config*” > “*Actor types*” (see Figure 33).

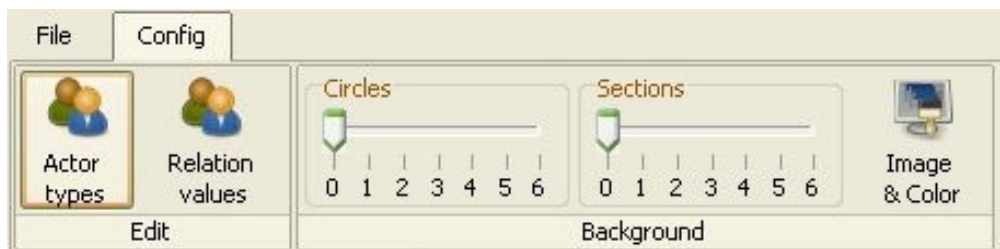


Figure 33: Configure actor types

The following window should be opened by itself:



Figure 34: Configuration window for actor types

The table contains two columns: “*name*” and “*image*”.

You can change an existing actor type name by clicking on the pursuant cell in the first row. Then you can rename the cell. The actor symbol can be changed via the second cell. If you click on the pursuant cell, a drop-down list opens where you can choose your preferred actor symbol.

To add new actor types, choose “*new type*”.

You can delete actor types by choosing the pursuant actor type and clicking “*delete type*”.

*The actor type symbols are saved in the VennMakers subdirectory “./icons”. You can create free symbols with open source vector graphic software like “Inkscape”(www.inkscape.org).*

*If you want to add new symbols, you must save the svg file into the mentioned directory. The new symbols appear in the drop- down list.*

## 2.8 Configure Relations

You can define your own relations or modify existing relations via “*Config*” > “*Relation values*”.

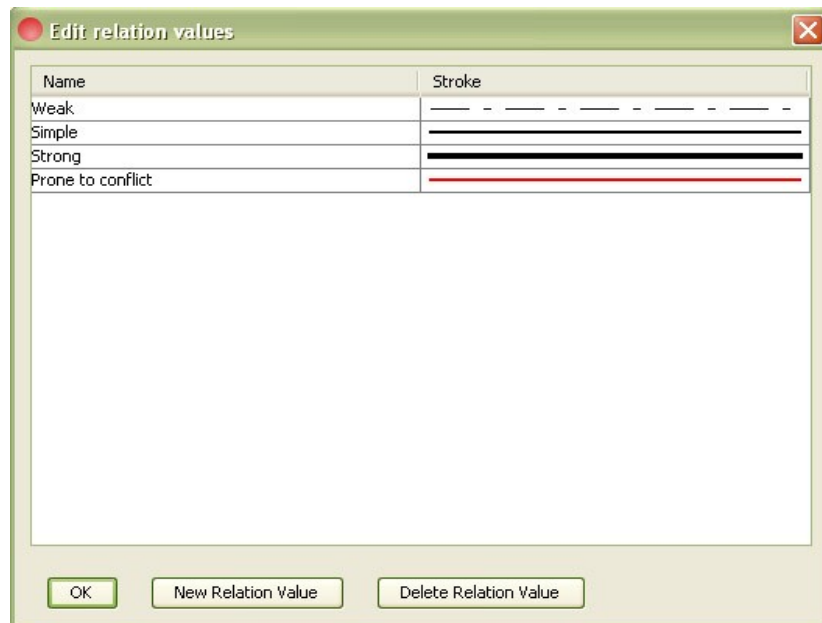


Figure 35: Configure Relation Values

In Figure 35, you see the configuration window for relation values containing a table with two columns. In the first column "*name*", you can change existing relation names by clicking on the pursuant cell and rename it. The second column illustrates the appearance of relations as lines. If you choose a cell, the following window opens by itself:

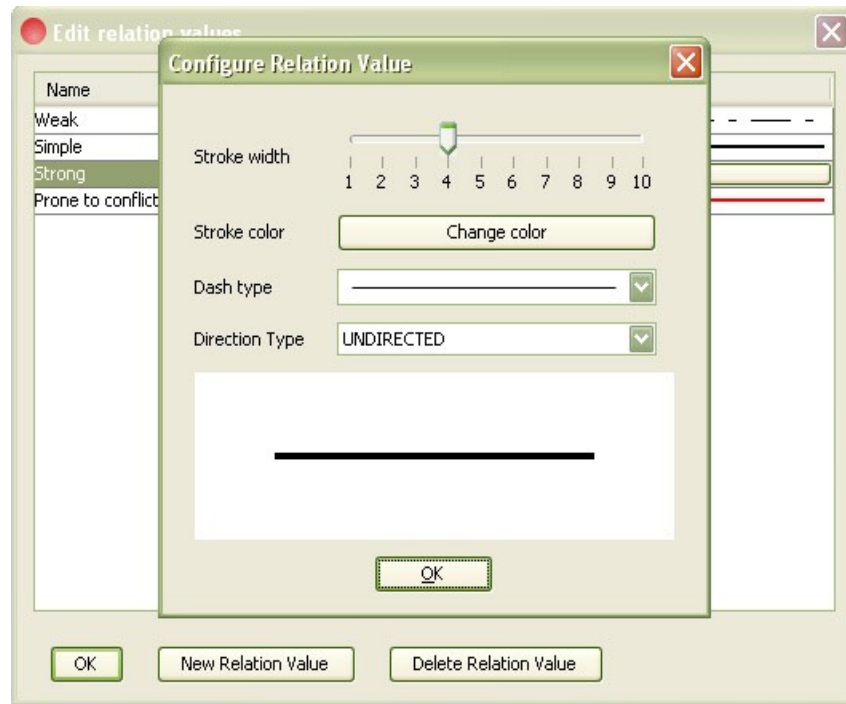


Figure 36: Configuration and Lines

"Stroke width" changes the thickness of a line. "Stroke Color" adjusts the color of a line. "Dash type" determines the texture of a line.

Via "direction type", you can choose, if you like, directed (arrows) or undirected (lines) relations.

You can see the pursuant setting as preview within the subjacent white space.

On our website <http://www.vennmaker.com>, you can find helpful tutorials containing examples how to use the "Free Network Drawing" mode for explorative polls.

## 2.9 Filter

Collecting of huge amount of social relations can result in complexity and faults. For this reason VennMaker enables to set filter to hide or show relations. The filter shows all relations from one actor to all adjacent actors and hide all other relations to non-adjacent actors (see Figures 37-39).

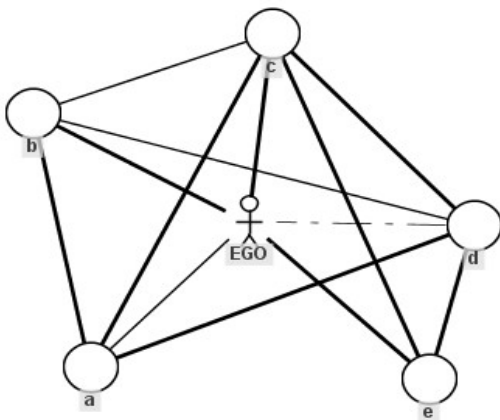


Figure 37: Network without filter

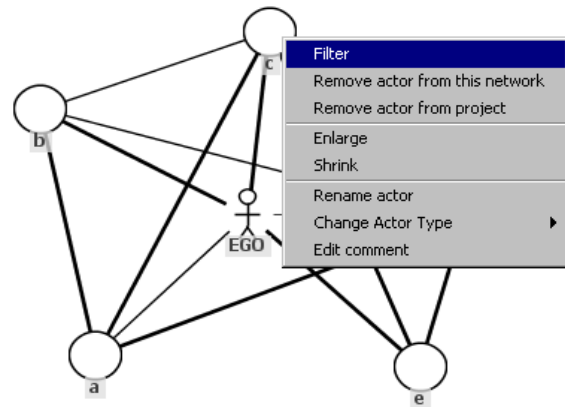


Figure 38: Activating a filter for actor "c"

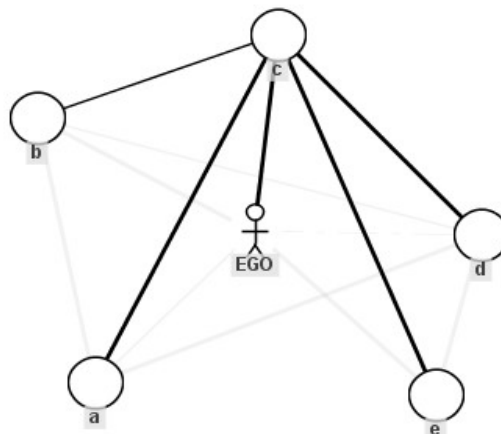
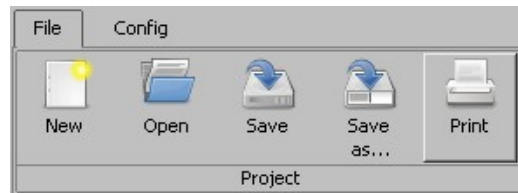


Figure 39: Network with filter

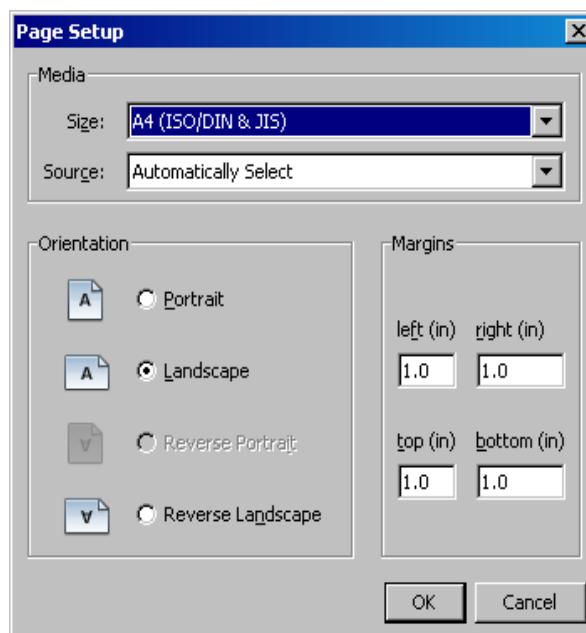
To activate the filter function you must right-click on the particular actor and select "Filter" (see Figure 47). In this way a filter can be set for each actor. The filter has no effect on the computation. You deactivate the filter by right-clicking on the actor and selecting "Filter" again.

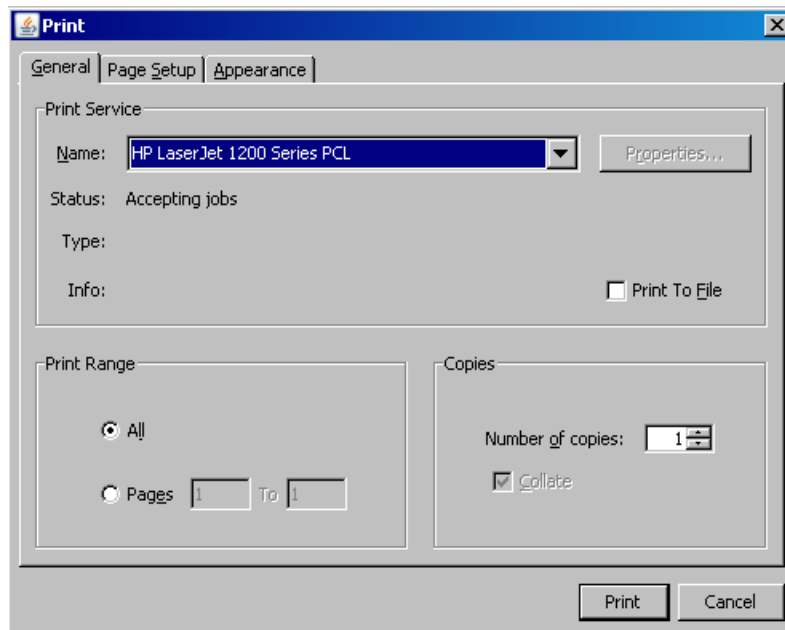
## 2.10 Printing

To print the current network map, go to “File” and press the “Print” button:



In the print dialog you can choose the paper size and the paper orientation:





If you press the “OK” button you can select the printer and the number of copies.  
Click “Print” and the printing will start.

### 3 Configure and Performing an Interview

Due to comparative reasons a standardization of the interview framework is of an advantage. First, interviews can be configured in advance. Second, performance of an interview can be optimized according to test hypothesis using focused questionnaires. Moreover, wizards will support an autonomous but guided interview mode.

#### 3.1 Configure an Interview

VennMaker offers the “Configure Interview” mode, which will help to select the item, type, order and time sequence of organizing an interview.

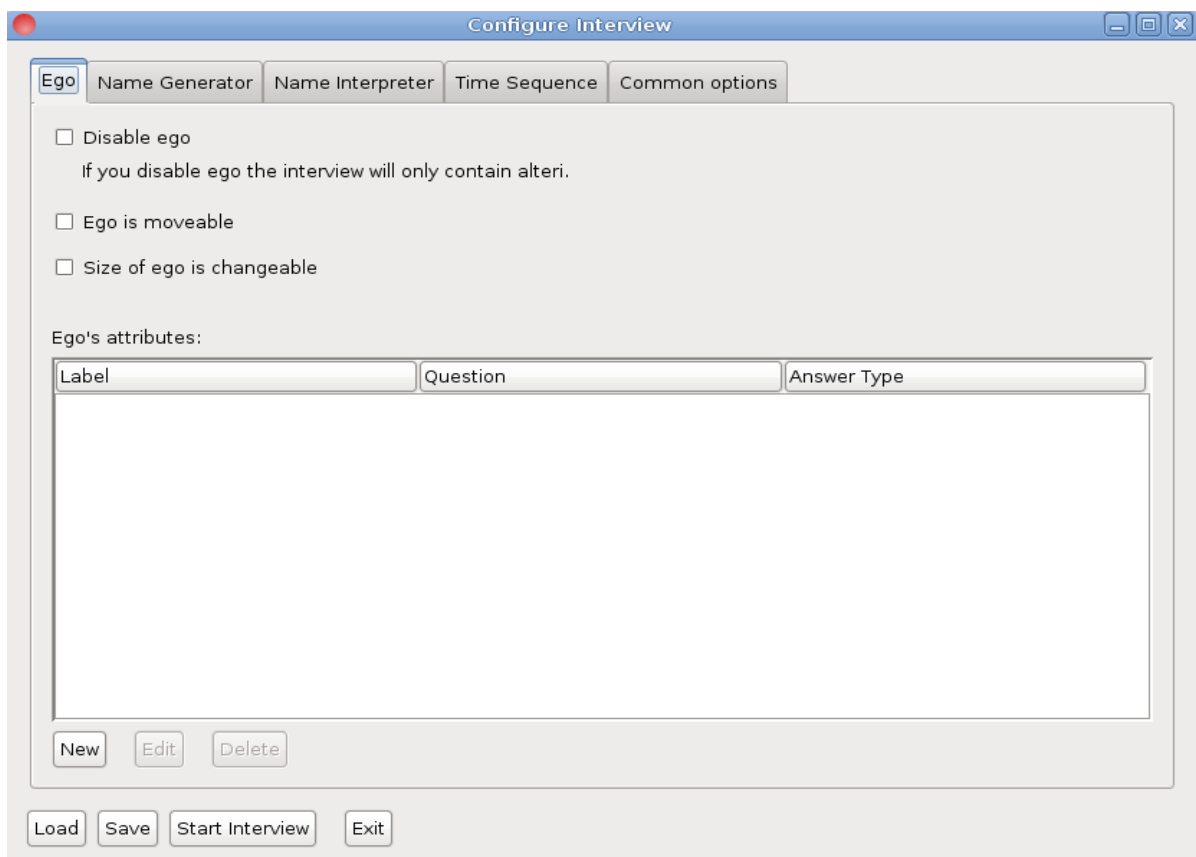


Figure 40: Main options to configure interviews

The “Configure Interview”-screen (Figure 40) is programmed to optimize the performance of the designated interviews. In order to meet the need of a required research design, there are certain ways for adjustment. Starting with entering items for Ego, then the Alter name generators and the name interpreters can be described and the time sequence can be specified.

Finally, the design of the questionnaire can be customized using the common options screen.

### Configuring Items of Ego

Figure 41 shows the options to configure the items of Ego, such as location, symbols and attributes.

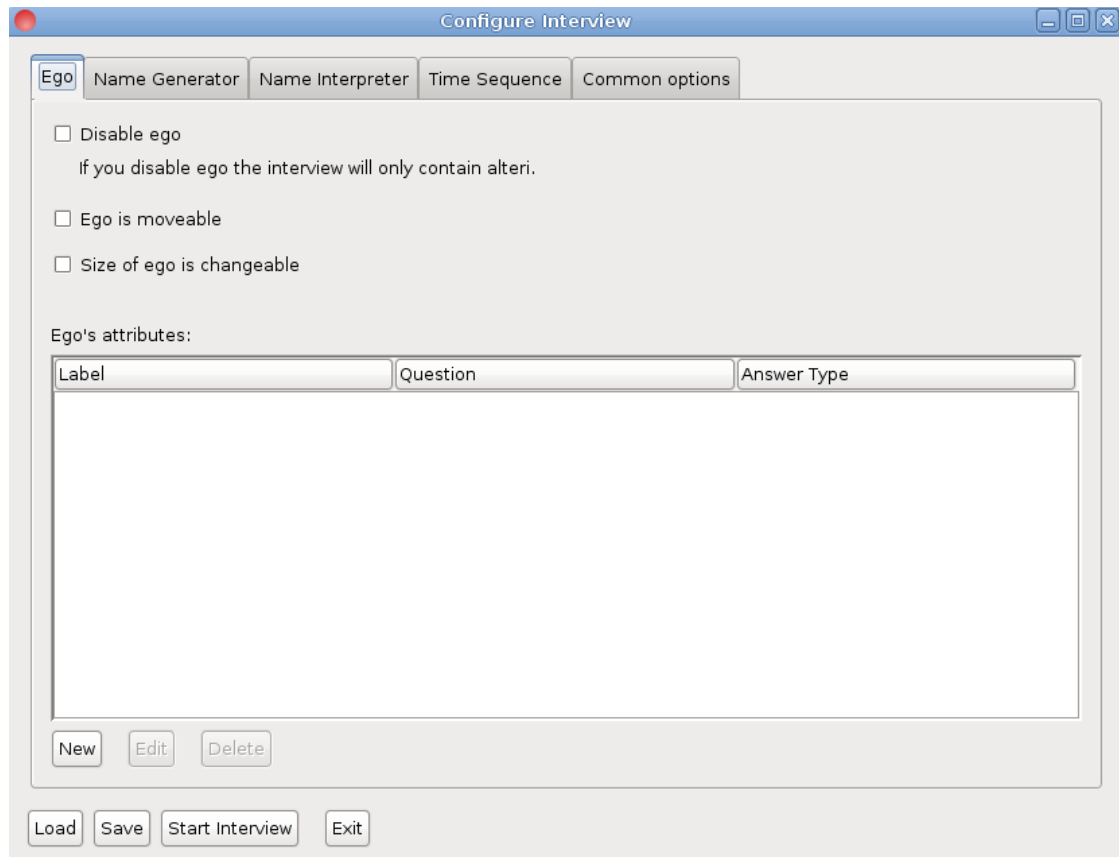


Figure 41: Data entry to select attributes and items of Ego

Set *“Ego is moveable”* and the usually center fixed Ego can be placed on the VennMaker-screen freely. *“Disable Ego”* leads to the remove of Ego on the VennMaker-screen. Even the *“Size of ego is changeable”* to resize Ego during an interview.

Within the *“Ego's attribute”*, *“New”* items can be configured using *“Edit”* and existing items can be erased with the function *“Delete”*.

Figure 42: Data entry to configure items of Ego

Choosing “New” leads to a data entry screen (see Figure 42) to configure the items. Insert the name of the item into the “Name of attribute”-field. Formulate the interview question using the field extensions of “Related question”-field . Select given answer types regarding the “Answer type” part of the screen. “Predefined Answers” helps you to prepare categories of supporting questions. “New...” creates new answers, “Edit...” corrects predefined answers, and “Delete” removes existing answers from the list.

If your test person shall not choose from predefined categories but answer freely instead, you can select “allow free answers”.

Afterwards you can choose between “text” and “numerical”. “Text” permits to enter any characters while “numerical” permits to enter numbers only. Furthermore, you can determine the type of numbers (“Units” as meters, pounds, dollars or number of persons). Via “minimal value” or “maximal value”, you can restrict the range of numbers.

You can determine two kinds of answer denial via the options “allow ‘no answer’” and

“allow ‘don’t know””.

The time position for asking a question in the interview is determined via the drop-down menu “ask on”:

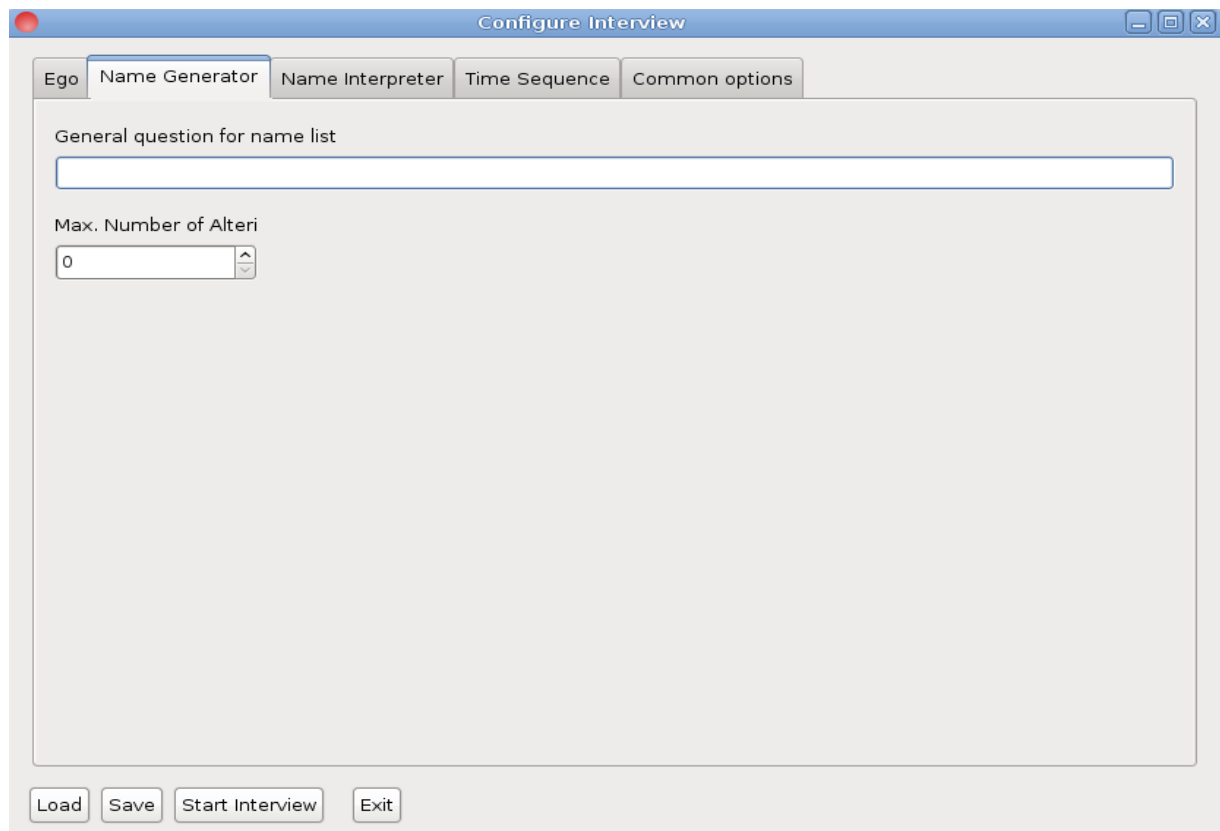
“Start of interview”: The question is posed at the beginning of the interview before the digital network map will be drawn.

“Adding to network”: The Question is posed as soon as the Ego is shown on the digital network map.

”End of interview”: The question is posed after network drawing at the end of the interview.

The setting will be assumed by clicking on “OK”. The question will be displayed in the “Ego’s attributes” list. You can edit the question via “edit”.

### 3.1.1 Configure the Name Generator



The screenshot shows a window titled "Configure Interview" with a blue title bar and standard window controls. Below the title bar are five tabs: "Ego", "Name Generator", "Name Interpreter", "Time Sequence", and "Common options". The "Name Generator" tab is selected. The main area contains a text input field labeled "General question for name list" and a spinner control labeled "Max. Number of Alteri" with the value "0". At the bottom of the window are four buttons: "Load", "Save", "Start Interview", and "Exit".

Figure 43: Input fields for the name generator

If you choose the tab “name generator”, the input mask for the name generator will be opened by itself (see Figure 43).

The primary function of the name generator is to frame the social network. You can define further questions for all persons (alteri) surveyed with the name generator via “name interpreter” (see Chapter 3.1.2).

“Max. number of alteri” specifies the maximum amount of Alteri the test person can enter. “0” signifies no restrictions. The test person can enter Alteri as many as she or he likes in the name generator list.

### 3.1.2 Configure the Name Interpreter

The tab “name interpreter” opens an input mask within which you can enter, edit and delete different name interpreters (see Figure 44).

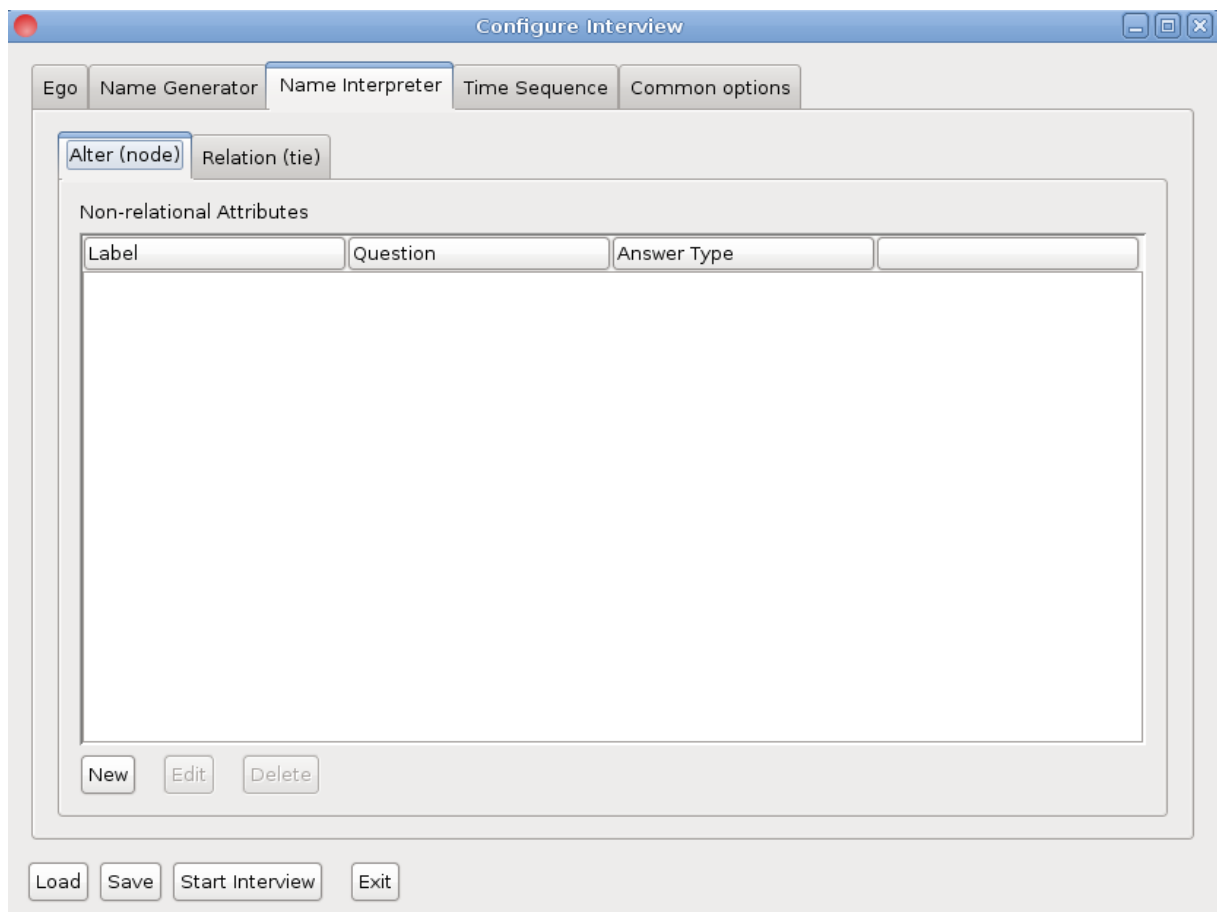


Figure 44: Input fields for determination of different name interpreters

Name interpreters are questions about alteri attributes. The alteri are surveyed by the name generator. You can ask for relational and non- relational attributes.

If you like to list non-relational attributes, choose the tab “alter(node)” and then “new”.

After pushing the button, a new input mask opens by itself (see Figure 45). You can enter any label for your item into the box “Name of attribute”. The label will not be shown during the interview.

You can formulate the question for any item within the “Related question” line. This questions are displayed during the interview.

Within the sector “Answer type” it is possible to determine different survey methods for every question. The test persons can choose from a set of predefined answer categories or they can enter their answers freely.

Predefined answers are determined in the field “predefined answers” (see Figure 45).

The screenshot shows a window titled "Configure Interview Environment" with a sub-section "Configure attributes for alters". It contains three main sections: "Attribute" with a "Name of attribute" input field; "Question" with a "Related question" input field; and "Answer type" which includes a "Predefined Answers" input field, "Allow multiple selections" checkbox, "Visual Mapping" dropdown (set to "None"), "New...", "Edit...", and "Delete" buttons, "Allow free answers" radio buttons (Text and Numerical), a "Unit" input field, "Allow 'No Answer'" and "Allow 'Don't know'" checkboxes with "Minimal value" and "Maximal value" input fields (both set to 0), an "Ask on" dropdown (set to "Start of interview"), and "OK" and "Cancel" buttons at the bottom.

Figure 45: Input fields for Alter attributes

You can define an answer for the predefined answers field via the button “New...”. “Edit...” opens a list with all predefined answers for editing. “Delete” deletes the selected answer from the list.

If you choose *“Allow multiple selections”*, the test person is able to select multiple answers. If you do not set the checkmark, the test person can only give one answer during the interview.

You can choose elements for visualizing the answer categories via *“Visual Mapping”*. The test person chooses the respective answer. VennMaker links the answer category with a visual element. For example: If you pose a question about alteri’s sex, the answer will be assigned to a respective symbol onto the digital network map.

Hereby, answer categories can be linked not only with a symbol type but also with the symbol size. Additionally, predefined answers can be assigned to relations-lines, sectors and concentric circles. The respective menu items are *“actor type”*, *“actor size”*, *“relation type”*, *“sector”* and *“circles”* within the drop- down list *“visual mapping”*.

Via *“actor type”*, the predefined answers are linked with different actor symbols. *“Edit”* permits to change the actor types: Choose the respective answer category and click *“Edit”*. A window with a drop-down menu opens by itself. You can select your preferred symbol and then click *“OK”*. The file name for the symbol in the actors’ symbol list has changed.

*The actor type symbols are saved as .svg files(svg = scalable vectot graphics) in the VennMakers subdirectory “.icons”. You can create free symbols with open source vector graphic software like “Inkscape” ([www.inkscape.org](http://www.inkscape.org)). Further information about free .svg editor tools can be found on [www.svg.org](http://www.svg.org). If you want to add new symbols, you must save the .svg file into the mentioned directory. The new symbols appear in the drop-down list.*

*“Actor size”* permits to link the answer categories with different actor symbol sizes. Therefore, you can define an individual size (pixels) via *“Visual Mapping”*. Every line in the *“Visual Mapping”* window is linked to the respective answer category.

*“Relation type”*: If your question measures a relational attribute, you can assign different line types to the respective answers. The line types are illustrated in the window *“Visual Mapping”*. You can edit them via the *“Edit”* button.

*“Sector”*: Single sectors can be linked to answers via this menu item. The answers are assigned to the sectors clockwise.

*“Circle”*: Single concentric circles of the digital network map are connected with answer categories through this menu item. On the digital network map the proband can see the

respective, given answer in the corresponding concentric circle. For this, the answers are assigned outgoing from the center of the circle to the respective circle.

The collecting of the Item by given answers can be handled differently in the interrogative dialogue. If you activate “*Matrix*”, for example, the proband will be offered a spread sheet during the interview (see Figure 46).

The screenshot shows the VennMaker software interface. At the top, there is a title bar with the text "VennMaker" and a close button. Below the title bar, the main content area is divided into two sections. The left section contains a text input field with the question "What kind of advice do the Person give?". Below the input field, there is a table with five columns: "help in household", "emotional Problems", "lend money", "no answer", and "don't know". The rows represent different individuals: Anna, Hans, Peter, and Frau Schmidt. Each cell in the table contains a small checkbox. The checkboxes for "help in household" are checked for Anna, Hans, and Frau Schmidt. The checkbox for "emotional Problems" is checked for Hans. The checkbox for "lend money" is checked for Peter. The checkboxes for "no answer" and "don't know" are not checked for any individual. The right section of the interface is a vertical grey bar with the VennMaker logo at the top and a green arrow pointing right with the text "Next" below it.

|              | help in household                   | emotional Problems                  | lend money                          | no answer                | don't know               |
|--------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|
| Anna         | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| Hans         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Peter        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Frau Schmidt | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |

Figure 46: Input matrix in the Interview mode

In the first column all Alteri and in the first row the given answers are listed. In the other cells there are small clickable boxes. If the proband clicks one of these boxes, he or she chooses the respective answer category for the respective Alter. The advantage of this kind of questioning is that the proband can see all Alteri with the response spectrum and is able to select the answer category quickly.

Another design of the interrogative dialogue uses so-called "Buckets". Here, the proband can pull the Alteri in Buckets / fields (see Figure 47).

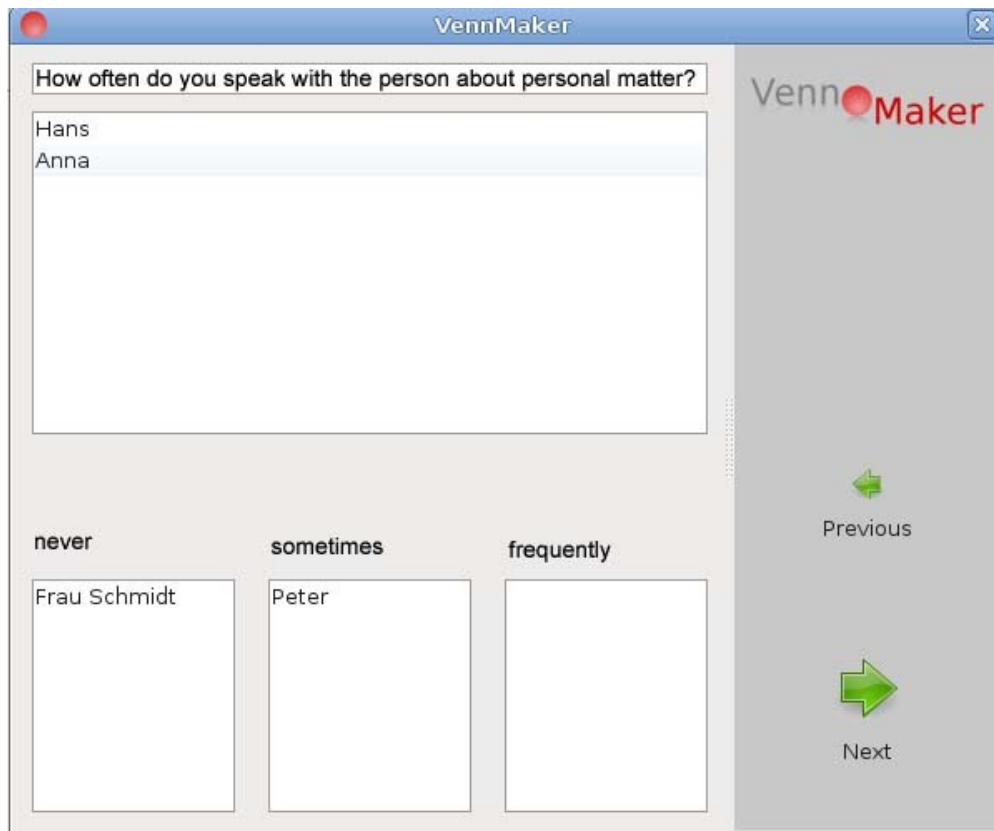


Figure 47: Buckets in the Interview mode

Each bucket represents one given answer category. If you have chosen *"Visual Mapping"* > *"Actor Size"*, then buckets are used in the interrogative dialogue.

If you like to get the question answered independently – meaning, without predetermined categories – then activate *"Allow free answers"*. Here, one can choose between *"text"* and *"numerical"*.

*"Text"* permits the input of any character, while *"numerical"* permits only numerics. *"Unit"* predefines the unit (for example, dollar, and liter) and *"Maximal value"* and *"Minimal value"* predefine the upper limit and lower limit of the numeric.

Via *"Allow No answer"* and *"Allow Don't know"* the proband can refuse the answer and give the reason of this refusal at the same time.

### 3.1.3 Setting the Time Sequence of the Interview

If you choose the tab "Time Sequence", the following template will open:

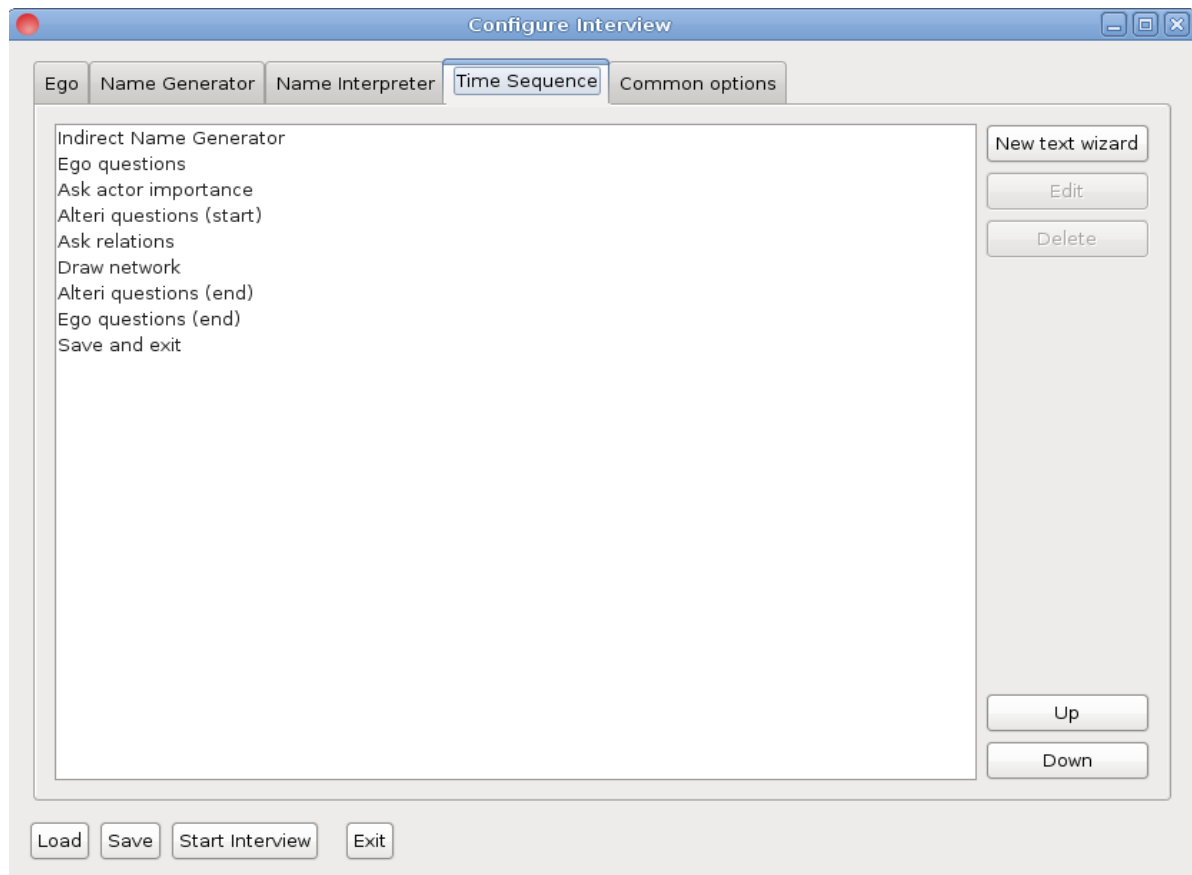


Figure 48: Time Sequence Template

In the left section the respective actions are listed following chronological order. The order can be changed, while clicking the respective entry and afterwards clicking on "Up" or "Down". "Up" will shift the entry one row upward. This means, that the respective action in the interview takes place earlier. "Down" will shift the entry downward, the action takes places chronologically later.

"New Text Wizard" will create a new text wizard. A text wizard is a simple text window which the proband can see during the interview. It is used to create additional information and offers help and guidance for the proband, e.g. giving instructions. At the beginning of the interview, for example, a text wizard "Welcome to the interview!" could appear or at the end of the interview one can read "Thanks a lot! Please, click on 'next' to stop the interview".

### 3.1.4 General Settings

In the tab "*Common options*" you may choose the size of the digital network map as well as the respective language.

### 3.1.5 Loading and Saving of the Interview Configuration

You can load an existing interview in the configuration menu by choosing "*Load*". Interview-configuration files will have the file extension "vennEn". You can save the settings which you have determined in the interview configuration menu by clicking "*Save*".

Via "*Start Interview*" you can switch over to the interview mode and test your settings. "*Exit*" will finish the configuration mode.

The following chapter explains how to conduct a preconfigured interview in the "*Perform Interview*" mode.

## 3.2 Conduction an Interview

You can conduct a preconfigured interview by choosing the mode "*Perform interview*". After clicking the button (see Figure 4) you are requested to select a preconfigured interview file. Interview files will have the ending "vennEn".

Depending on the configuration of the interview the respective interrogative dialogues (see Figure 49) will appear.

By clicking "*Next*" and "*Previous*" you are able to navigate between the dialogues -pre and -back. If you change to the digital network map you will see a "*Next*" button on the left side with the respective question.

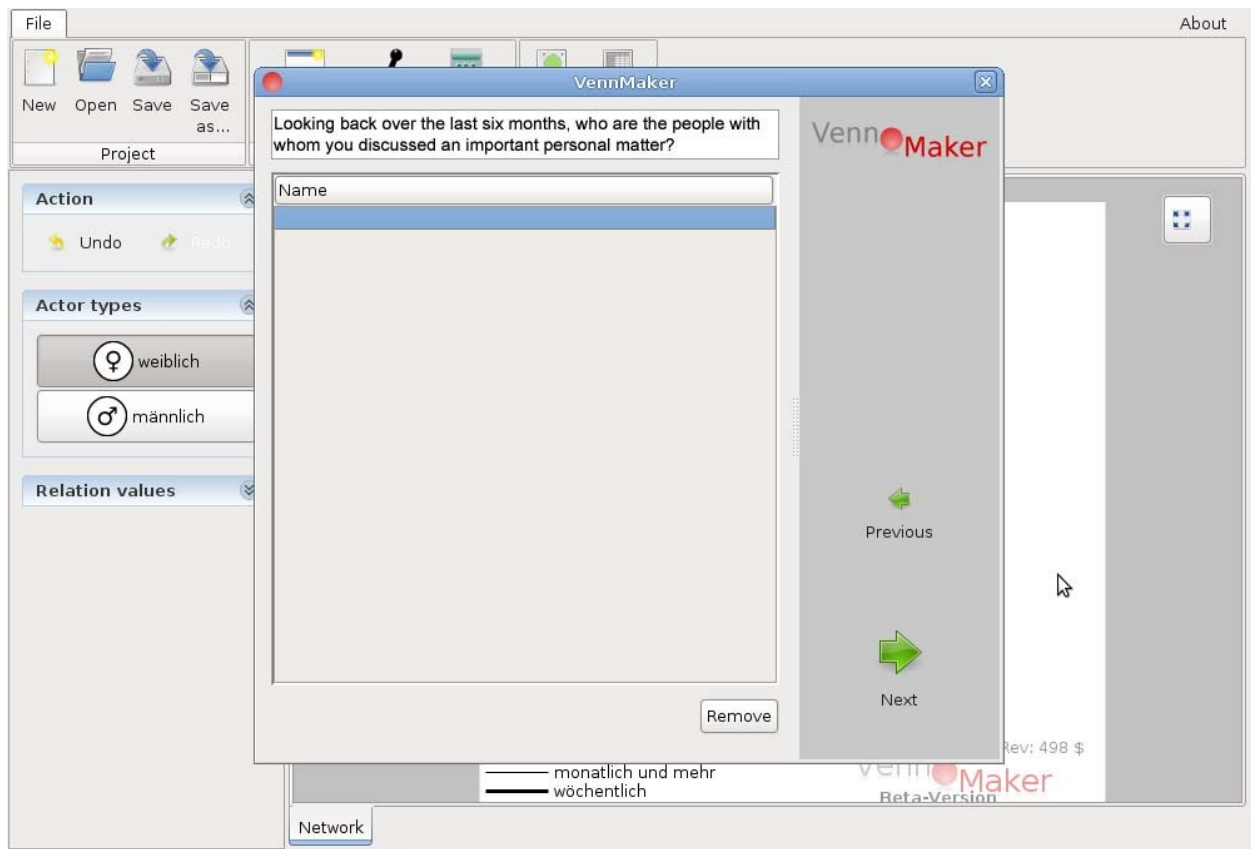


Figure 49: Illustration of the name generator dialogue in the Interview mode

At the end VennMaker stores the interview result in a file in the VennMaker directory. The file name consists of a random, six-digit number with the file ending “venn”. You can load this file in the “Free Network Drawing” mode for further analyses as well as for exporting.

How to export conducted networks with VennMaker you will learn in the following chapter.

## 4 Export of Data

The following chapters give an outline how to anonymize and export collected data with VennMaker. The chapters imply that you already have recorded a network. How to record a network and to conduct interviews, is shown in chapter 2 and chapter 3.

### 4.1 Export of digital Network Maps

VennMaker offers the possibility to save digital network maps as picture files as well as CSV files.

#### 4.1.1 Saving digital Network Maps as Picture file

You shall start VennMaker in “Free Network Drawing” or “Perform Interview” mode. Here, it is possible to save the actual selected network map via “File” > “Image” as “png”-picture file.

How to save your network data in VennMaker – processing them with other programs, as OpenOffice Calc, Excel or SPSS – you will learn in the next chapter.

#### 4.1.2 Saving digital Network Maps as CSV files

For the processing of your network data VennMaker offers the memory function in the so-called CSV-format (CSV= “Comma Separated Values”) via “File” > “Actor Data”.

You can freely choose a name to save your files. At least five CSV files will be saved: ego, alter, relations, adjacency matrix files and network characteristics files.

All files will have the filename extension “csv”. Additionally, VennMaker is adding specific file names:

In the **ego file** “EGO\_ Name.csv” all data for Ego will be saved. Which question was answered in what way, as well as x- and y-coordinate and several network values. The first column contains the Ego-ID, which is a combination of the actor name and a unique number. In the anonymization mode the actor name is omitted.

The **alter file** “ALTER\_ Name.csv” includes information about Alteri: the actor name, in which sector and circle the actor is located, x- and y-coordinate and a few network values. The first column contains Ego-ID to allocate Alteri to Ego. The second column

includes the respective, uniquely Alteri-ID, which consists of the actor name and a number. In the anonymization mode the actor name is omitted. If the actor is located outside of sectors or circles, then it is coded with „-1“ in the respective column.

In the **relation file** “RELATON\_*NetworkMapNumber*.csv” one can find information about delineated relations. Here, the data are arranged in a matrix form. The first column and the first row contain the actor-IDs. The direction of relation is defined as follows: from the actor in the respective row to the actor in the respective column.

The characteristics of relations are saved as string, while non-existent relations are coded with “0”.

The **network characteristics files** “Compute\_*NetworkMapNumber\_Name*.csv” contains different types of frequencies, e.g. number of actors, number of actor types, number of actor types per sector and circles and so on.

In the **adjacency matrix file** „ADJAZENZ\_*NetworkMapNumber\_Name*.csv“ the respective adjacency -matrix is saved. Existing relations contain „1“, while not-existing ones are coded with “0”.

*NetworkMapNumber* means the network map number, which depends on the quantity of used network maps. If only one digital network map is used in VennMaker, then only one relation- and overall network characteristics file exist with the network map number “1” (e.g.: RELATION\_1\_Name.csv).

*Name*: is the name of your VennMaker project (see Chapter 2.3.1).

The following three charts are showing how VennMaker is transferring the graph in Figure 50 into two different matrices.



direction of the relation always starts from the respective row to the respective column. Because we have an undirected graph – the relations are proceeding in both directions –, also the matrix is symmetric, which means that the from-top-left-to-bottom-right matrix diagonal can be mirrored on the lower matrix diagonal (cf. Jansen 2006, p. 100).

In our example the cell “Actor H – Actor I” has the same size as the cell „Actor I – Actor H“, namely „friendly relationship“. Undrawn relations are coded with “0”. Behind the name one can find a number which shall ensure that actors with the same name can be distinguished, e.g. Actor H and ID 1 = “Actor H\_1”.

| Network   | Actor I_2      | Actor A_7           | Actor H_1           | Actor B_5      | Actor D_8  | Actor E_9           | EGO_0               | Actor G_3           | Actor F_4           | Actor C_6           |
|-----------|----------------|---------------------|---------------------|----------------|------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Actor I_2 | 0              | 0                   | friendship          | 0              | 0          | prone conflict      | friendship          | friendship          | friendship          | 0                   |
| Actor A_7 | 0              | 0                   | 0                   | 0              | 0          | 0                   | undef. relationship | 0                   | 0                   | 0                   |
| Actor H_1 | friendship     | 0                   | 0                   | 0              | 0          | undef. relationship | friendship          | friendship          | friendship          | 0                   |
| Actor B_5 | 0              | 0                   | 0                   | 0              | 0          | 0                   | friendship          | 0                   | 0                   | prone conflict      |
| Actor D_8 | 0              | 0                   | 0                   | 0              | 0          | 0                   | friendship          | 0                   | 0                   | 0                   |
| Actor E_9 | prone conflict | 0                   | undef. relationship | 0              | 0          | 0                   | friendship          | undef. relationship | undef. relationship | 0                   |
| EGO_0     | friendship     | undef. relationship | friendship          | friendship     | friendship | friendship          | 0                   | friendship          | friendship          | undef. relationship |
| Actor G_3 | friendship     | 0                   | friendship          | 0              | 0          | undef. relationship | friendship          | 0                   | friendship          | 0                   |
| Actor F_4 | friendship     | 0                   | friendship          | 0              | 0          | undef. relationship | friendship          | friendship          | 0                   | 0                   |
| Actor C_6 | 0              | 0                   | 0                   | prone conflict | 0          | 0                   | undef. relationship | 0                   | 0                   | 0                   |

Figure 51: Example of a social network, depicted in terms of a relation matrix

In Figure 52 one can see an adjacency-matrix, which is saved in ADJAZENZ.csv. An adjacency-matrix is a matrix with an equivalent number of rows and columns; existing relations are coded with “1”, while not-existing relations are coded with “0”.

| Network   | Actor I_2 | Actor A_7 | Actor H_1 | Actor B_5 | Actor D_8 | Actor E_9 | EGO_0 | Actor G_3 | Actor F_4 | Actor C_6 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------|-----------|-----------|-----------|
| Actor I_2 | 0         | 0         | 1         | 0         | 0         | 1         | 1     | 1         | 1         | 0         |
| Actor A_7 | 0         | 0         | 0         | 0         | 0         | 0         | 1     | 0         | 0         | 0         |
| Actor H_1 | 1         | 0         | 0         | 0         | 0         | 1         | 1     | 1         | 1         | 0         |
| Actor B_5 | 0         | 0         | 0         | 0         | 0         | 0         | 1     | 0         | 0         | 1         |
| Actor D_8 | 0         | 0         | 0         | 0         | 0         | 0         | 1     | 0         | 0         | 0         |
| Actor E_9 | 1         | 0         | 1         | 0         | 0         | 0         | 1     | 1         | 1         | 0         |
| EGO_0     | 1         | 1         | 1         | 1         | 1         | 1         | 0     | 1         | 1         | 1         |
| Actor G_3 | 1         | 0         | 1         | 0         | 0         | 1         | 1     | 0         | 1         | 0         |
| Actor F_4 | 1         | 0         | 1         | 0         | 0         | 1         | 1     | 1         | 0         | 0         |
| Actor C_6 | 0         | 0         | 0         | 1         | 0         | 0         | 1     | 0         | 0         | 0         |

Figure 52: Example of a social network depicted in terms of an adjacency matrix

Actor A (3rd row) has got only a relationship with one person, namely with Ego (column 8), while Ego (column 8) has relations to all the other actors. Actor relations to oneself are undocumented; therefore, the from-top-left-to-bottom-right located matrix diagonal is coded with “0”.

The Compute.csv file contains the following:

|                             |      |
|-----------------------------|------|
| Actortype_male              | 6    |
| Actortype_female            | 3    |
| Circle_-1                   | 0    |
| Circle_0                    | 0    |
| Circle_1_same apartment     | 0    |
| Circle_2_neighborhood       | 2    |
| Circle_3_same city          | 5    |
| Circle_4_Germany            | 2    |
| Circle_5_abroad             | 0    |
| Sector__-1                  | 0    |
| Sector__1_family member     | 5    |
| Sector__2_non family member | 4    |
| Density (with Ego)          | 0.44 |
| Density (only Alter)        | 0.31 |

Figure 53: Example of a Compute.csv file

The first row includes the name of the respective network map, in our example “network”.

The following rows contain the total number of Alteri and the single type of actors from the cited example. The rows that contain “Circle” visualize the respective frequency of

actors per concentric circle. “*Circle\_-1*” is representing the area outside the concentric circles. “*Circle\_0*” is representing the area in which Ego is located. In both areas Alteri have not been drawn; therefore, they have the frequency value “0”.

“*Circle\_1...*”-“*Circle\_5...*” refer to the default distances. For example, there are 5 Alteri who are living at the same place and only 2 Alteri who are living in neighborhood with Ego.

The lines which are labeled with “*sector*” include the frequencies of actors per sector. “*Sector\_-1*” is representing the area outside the sectors. Besides the mentioned frequency calculation VennMaker offers additional analytical network measures: density, degree, indegree and outdegree.

Density: The density is representing the degree of connectedness of the network. The density of a network is defined by the ratio of the existing relations to the number of categorically possible relations (cf. Jansen 2006, p. 94). In VennMaker the drawn rows are considered as relations. The row “*Density (with Ego)*” (Figure 53) contains density value, in which Ego and its relations are considered; while the value of density in “*density (only Alteri)*” is calculated for the Alteri and its relations. Which of the both values are important for you, is depending on your research question (cf. McCarty and Wutich 2005).

Figure 54 and Figure 55 contains the attributes of Ego and the Alteri from the cited network example. The containing degree-values are signifying the following: the degree of an actor gives information on how much the actor is embedded in a network. If Ego has direct relations with two actors, then Ego has a degree of “2”.

Indegree and Outdegree: Indegree and Outdegree are simple measures for prestige, popularity and social support (cf. Jansen 2006, S. 96). Indegree is representing the number of in-going direct relations of the particular actor; while outdegree is measuring the number of out-going direct relations. In VennMaker the drawn rows are considered as relations. Moreover, it is important to point out that the calculation of indegree- and outdegree is only possible for directed relations. If one uses undirected relations then the values are the same for in- and out degree and describe the degree.

To compare the outdegree and indegree values between different networks the values must be normalized. The score is between 0 and 1. The higher the value the higher the degree.

| id_Ego | x_Network | y_Network | Indegree_Network | Outdegree_Network | Size_Network |
|--------|-----------|-----------|------------------|-------------------|--------------|
| EGO_0  | 530.0     | 436.5     | 9                | 9                 | 60           |

Figure 54: Ego attributes of a network example

| id_Ego | id_Alter  | Alter_Type | x_Network | y_Network | How often do you speak with the person about personal matter? | What kind of advice do the person give?            | Where does the Person live?_Network | Is the person female or male? | What kind of relationship exists between you and the person_Network | Sector_in_Network | Circle_in_Network | Indegree_Network | Outdegree_Network |
|--------|-----------|------------|-----------|-----------|---|--|-------------------------------------|-------------------------------|---|-------------------|-------------------|------------------|-------------------|
| EGO_0  | Actor H_1 | male       | 416.0     | 268.0     | sometimes   | help in household                                  | same city                           | male                          | friendship  | 0                 | 3                 | 5                | 5                 |
| EGO_0  | Actor I_2 | female     | 708.0     | 347.0     | frequently  | help in household emotional problems_lending money | same city                           | female                        | friendship  | 0                 | 3                 | 5                | 5                 |
| EGO_0  | Actor A_7 | male       | 495.0     | 631.0     | frequently  | emotional problems                                 | same city                           | male                          | undef. relationship   | 1                 | 3                 | 1                | 1                 |
| EGO_0  | Actor B_5 | female     | 436.0     | 537.0     | sometimes   | help in household                                  | neighborhood                        | female                        | friendship  | 1                 | 2                 | 2                | 2                 |
| EGO_0  | Actor D_8 | male       | 714.0     | 615.0     | sometimes   | help in household                                  | Germany                             | male                          | friendship  | 1                 | 4                 | 1                | 1                 |
| EGO_0  | Actor E_9 | male       | 605.0     | 189.0     | sometimes   | emotional problems_lending money                   | Germany                             | male                          | friendship  | 0                 | 4                 | 5                | 5                 |
| EGO_0  | Actor G_3 | female     | 534.0     | 235.0     | never   | help in household                                  | same city                           | female                        | friendship  | 0                 | 3                 | 5                | 5                 |
| EGO_0  | Actor F_4 | male       | 615.0     | 253.0     | never   | help in household                                  | same city                           | male                          | friendship  | 0                 | 3                 | 5                | 5                 |
| EGO_0  | Actor C_6 | male       | 399.0     | 473.0     | never   | help in household                                  | neighborhood                        | male                          | undef. relationship   | 1                 | 2                 | 2                | 2                 |

Figure 55: Alter attributes of a network example

Closeness (Incloseness and Outcloseness): Closeness is a function of geodesic distances from the actor to all other direct or indirect connected actors. The geodesic distance is the shortest length between two nodes. If the geodesics increase in length, the centrality of the actor also increases (vgl. Wasserman and Faust 1994, S. 184f.).

The closeness centrality can also be calculated for directional relations.

Proximity Prestige: Proximity Prestige measures how proximate the actor is to the actors in its influence domain. Proximity is defined as closeness that focuses on distances from one actor to all other direct or indirect connected actors. The minimum value of the Proximity Prestige is 0, which means the actor is unreachable. The maximum value is 1, if all actors are adjacent to the actor (vgl. Wasserman and Faust 1994, S. 203f.)

| I                    | J                     | K                       | L                        | M                       | N                        | O                             | P                           |
|----------------------|-----------------------|-------------------------|--------------------------|-------------------------|--------------------------|-------------------------------|-----------------------------|
| Indegree_<br>Network | Outdegree_<br>Network | IndegreeStd_<br>Network | OutdegreeStd_<br>Network | InCloseness_<br>Network | OutCloseness_<br>Network | ProximityPrestige_<br>Network | OutClosenessStd_<br>Network |
| 1                    | 1                     | 0.5                     | 0.5                      | 3                       | 3                        | 0.667                         | 0.667                       |
| 2                    | 2                     | 1                       | 1                        | 2                       | 2                        | 1                             | 1                           |

Figure 56: Part of an Alter.csv file

How to work with exported data, you will learn in the following chapters.

### 4.1.3 Import of Data into OpenOffice Calc or Microsoft Excel

After starting OpenOffice Calc or Excel you can load the respective CSV-file via „New“ > „Open“ or you can open the file via double-click.

In OpenOffice Calc you will be asked to set a separator. Here, you shall choose „Semicolon“ and then click on „OK“.

### 4.1.4 Import of Data into SPSS

In this subchapter you will learn how to load a CSV file. After starting SPSS (version 15 or greater) you click on *“File”* > *“Open”*. Here, you change to the folder in which you have saved the CSV file. After that you choose as data-file *“All files (\*.\*)”*. Select the file CSV file you want to import.

After that SPSS is starting the Import text wizard:

In step 1 you handle everything like it is set and only click on *“Next”*.

In step 2 please set the question *“How are your variables arranged?”* to *“Delimited”* and for *“Are variable names included at the top of your file?”* click *“Yes”* and then choose *“Next”*.

In the step 3 you shall clarify that the first case is located in the second line, that *“Each line represents a case”* and *“All of the cases”* shall be imported. After that please click on *“Next”*.

In step 4 you set the question *“Which delimiters appear between variables?”* to *“Semicolon”*. Please deactivate *“Space”* and activate *“None”* in *“What is the text qualifier?”*. In the data preview field of SPSS all data shall be presented correctly.

In step 5 you can set the specification for the variables. Therefore, please click the particular column in the data preview field and choose the respective data format. If you have determined all characteristics of variables please click on “Next”.

In step 6 you will finish the import by clicking the button “Finish”.

SPSS is now loading the data; if necessary you have to determine afterwards, if the respective variable is “numeric” by type. This is possible in the variable view in the column „Type“.

#### 4.1.5 Import of Data into Ucinet

Please start Ucinet (Version 6.217) and click the button “*Matrix spreadsheet*”. In the opened window click on “*File*” > “*Open*” and go to the particular folder, in which you have exported the digital network map with VennMaker as CSV files. Afterwards you shall choose the file type “*CSV files*”.

Usually all CSV files are listed. Here, choose the respective adjacency file and click on “*OK*”. Subsequently please make sure that the number of rows and columns is equal in “*Dimensions*”. Finally, please save the data via “*File*” > “*Save as*” as “*UCINET 4-6 dataset*”.

#### 4.1.6 Visualization of Network Graphs with NetDraw

In the next step please start NetDraw (Version 2.0) and load saved dataset-files:

“*File*” > “*Open*” > “*Ucinet dataset*” > “*Network*”

The following options have to be selected:

File format: *Ucinet (\*.##h)*

Type of data: *1-Mode Network(s)*

Ignore reflexive ties: *should be activated*

Ties have values > *0.0*

Please choose the file which you have saved in Ucinet via “...” and click “*OK*”. Now the network will be drawn and further calculations can be carried out.

## 4.2 Anonymization of collected Data

Often it is necessary to modify collected data to prevent identification of the respective proband or Alteri.

Therefore, VennMaker offers an anonymization function which allows substituting actor names by numbers. An anonymization can be carried out in both "*Free Network Drawing*"- or "*Perform Interview*" mode. Click "*Config*" > "*Image & Color*". After that please click the button "*Anonymize*" in tab "*Actors*". Accordingly numbers instead of the name of actors will be shown. Anonymization will be done for all digital network maps and encompasses both saving as picture file as well as export as CSV file. In VennMaker it is anytime possible to display the name of actors by choosing another label button in the tab "*Actors*".

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Data that are collected in social network analysis are often sensitive personal data. VennMaker allows to elicit official and non-official network data of persons and institutional actors, and this in settings where often unequal power relationships and resource distribution prevail. As with any other powerful instrument VennMaker could be used for various legal and non-legal purposes. The inventors are aware of this problem and make security and protection of personal data a prime development goal. Together with the acceptance of the license the user of VennMaker is obliged to use the software only with the informed consent of those who share their social networks during this process, according to existing legal rules of confidentiality and data protection. Any data produced and stored have to be anonymized or encrypted, in a way, that it is not possible to draw traceable personal information of any kind by third parties that otherwise could not be drawn from official sources. As a user of VennMaker you are obliged to follow the guidelines of good scientific practice (cf. Universität Trier, 2002) and especially to obtain approval ("informed consent") of the probands (cf. Bortz and Döring 2006, p. 44).

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Version 3, 29 June 2007

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## References

- Bortz, J. and Döring, N.** (2006) Forschungsmethoden und Evaluation für Human- und Sozialwissenschaftler, Heidelberg, Springer.
- Diaz-Bone, R.** (2007) Gibt es eine qualitative Netzwerkanalyse? Review Essay: Betina Hollstein & Florian Straus (Hrsg.) (2006). Qualitative Netzwerkanalyse. Konzepte, Methoden, Anwendungen, Forum Qualitative Sozialforschung 8(1), p. Art. 28.
- Hollstein, B. and Straus, F.** (2005), Qualitative Netzwerkanalyse. Konzepte, Methoden, Anwendungen, VS Verlag für Sozialwissenschaften, Wiesbaden, p. 13.
- Jansen, D.** (2006) Einführung in die Netzwerkanalyse, Wiesbaden, VS Verlag.
- Kahn, R. L. and Antonucci, T. C.** (1980) Convoys Over the Life Course: Attachment, Roles, and Social Support, in: Baltes, P. B. und Brim, O. G., Jr. (Hrsg.): Life-Span Development and Behavior, Academic Press, New York, p. 253-286.
- McCarty, C. and Wutich, A.** (2005) Conceptual and Empirical Arguments for Including or Excluding Ego from Structural Analyses of Personal Networks, Connections 26(6), p. 9-15.
- Pohl, M.** (2007), Visual Data Mining in Software Archives to Detect How Developers Work Together, Minneapolis, USA.
- Pohl, M. et al.** (2004) Dynamic Graph Drawing of Sequences of Orthogonal and Hierarchical Graphs, in: Pach, J. (Hrsg.): Graph Drawing (vol. # 3383): 12th International Symposium, GD 2004, New York, NY, USA, September 29-October 2, Springer Verlag, Heidelberg, p. 228-238.
- Pohl, M. et al.** (2006) Visual Representations, in: Kerren A., Ebert A. und Meyer, J. (Hrsg.): Human-Centered Visualization Environments, Springer LNCS Tutorial, , p. 163-230.
- Schönhuth, M.** (2003), Entwicklung, Partizipation und Ethnologie. Implikationen der Begegnung von ethnologischen und partizipativen Forschungsansätzen. Habilitationsschrift an der Universität Trier, Fachbereich IV, <http://ubt.opus.hbz-nrw.de/volltexte/2005/300/>.

**Schönhuth, M.** (2007) Diversity in der Werkstatt - Eine Feldstudie zum Thema Vielfalt und Behinderung, in: Steinmetz B., Vedder G. (Hrsg.): Diversity Management und Antidiskriminierung, Bertuch-Verlag, Weimar, p. 95-114.

**Schönhuth, M.** (2007a) Venn-Maker1.0 und andere Gewächse aus dem Garten des Exzellenzclusters. Selektive Betrachtungen, Unverff. Vortrag auf der Beiratstagung des Exzellenzclusters am 22./23. Februar 2007 in Mainz/Waldhausen.

**Schönhuth, M.** (2007b) Gelebte Diversität als Organisationsressource: eine ethnologisch-betriebswirtschaftliche Pilotstudie; am Beispiel der Diversity-Kategorie: "Behinderung", Projektbericht für den Forschungsfonds der Universität Trier. Trier, unveröff. Manuskript.

**Schönhuth, M. and Kievelitz, U.** (1995), Participatory Learning Approaches: Rapid Rural Appraisal / Participatory Appraisal. An introductory guide, <http://www.gtz.de/de/dokumente/en-SVMP-schoenhuth-kievelitz-1995.pdf>.

**Schönhuth, M. et al.** (1998) Partizipation unter der Lupe: Ethnologische Begegnungen mit partizipativen Methoden im Forschungs- und Aktionszusammenhang, Entwicklungsethnologie 7(2), p. 11-48.

**Universität Trier** (2002), Sicherung guter wissenschaftlicher Praxis, [http://www.uni-trier.de/fileadmin/forschung/forschung/Downloads/Sicherung\\_guter\\_Praxis/100197.pdf](http://www.uni-trier.de/fileadmin/forschung/forschung/Downloads/Sicherung_guter_Praxis/100197.pdf).

**Wasserman, S. and Faust, K.** (1994) Social network analysis: methods and applications, Cambridge, Cambridge University Press.

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