



MAXMaps: Creating Infographics and Concept Maps

17

As early as the 1990s, American methodologists Miles and Huberman dealt with the topic of “visualizing social science research” and made many practical suggestions in their seminal book *Qualitative Data Analysis: An Expanded Sourcebook*. The visualization tool MAXMaps builds on these principles and offers a wide range of possibilities for graphically representing data and interrelationships. Visualizations can serve different roles in the research process: they can be used both for exploratory and diagnostic purposes as well as for presentational purposes. Importantly, they also facilitate better communication with scientific audiences in research and with the wider public. Often the latter especially requires aesthetically pleasing visualization options.

In This Chapter

- Learning to visualize interrelationships with MAXMaps
- Discovering which project elements can be integrated into a map
- Designing a map and its elements
- Working with layers and creating a presentation
- Synchronizing maps with MAXQDA project data
- Using model templates for special visualizations

Visualizing Interrelationships

Infographics are everywhere, and today journalism, textbooks, and television would be quite unimaginable without them. In the humanities and social sciences, however, visualizations are still comparatively rare. Ebert (2013) demonstrated that leading social and educational science journals contain very few visualizations. In other branches of science and scholarship, the situation is the reverse: disciplines such as medicine, physics, or climate research rely heavily on all sorts of visual

representations. Imagine, for example, if climate research could only be presented and argued for using texts; surely it is precisely the images that “show” these dramatic developments in the truest sense of the word.

But why should relationships be visualized at all? The proverbial phrase, “A picture is worth a thousand words,” is not only true in everyday life but also applies to the humanities and social sciences, which can often be rather text-heavy. In general, two functions can be distinguished regarding the role of visualizations in research: on the one hand, visualizations are a valuable tool in the analysis process and a vital means of diagnosing phenomena in the data; on the other, they help to communicate, present, and publicize results. These two functions are perhaps best illustrated by the example of medical imaging methods (e.g., ultrasound examinations or magnetic resonance imaging). The ultrasound examination during pregnancy serves to obtain information about the “child in the womb” and to detect deviations from normal values. That is the diagnostic function of this imaging procedure. However, standard ultrasound machines are also capable of taking photos of the ultrasound image, which the parents-to-be can then proudly present to friends and family.

Visualizations as a means of presenting scientific discoveries and information are very widespread today, but it is mostly quantitative information that is presented in this way. Bar and pie charts, for instance, that show the results of survey research, are not only featured in specialist literature but can also be found in a great many articles in magazines such as *Time* and *The New Yorker*.

MAXQDA offers you a variety of visualization options. The visualization tools *Codeline*, *Code Matrix Browser*, and *Document Portrait* have already been described in Chap. 12; this chapter focuses on MAXMaps, MAXQDA’s most comprehensive visualization tool. This is a special tool that allows you to graphically display concepts, research designs, the conditions present during field research, as well as the relationships present in the empirical data.

But what does this mean more specifically, that is, what types of relationships can you display with MAXMaps? The following illustration contains some simple examples of possible visualizations of the relationship between two elements, here the relationships between Code A and Code B.

You can visualize relationships as shown in Fig. 17.1 using MAXMaps; A and B can represent any element of your analysis, including categories. Moreover, beyond

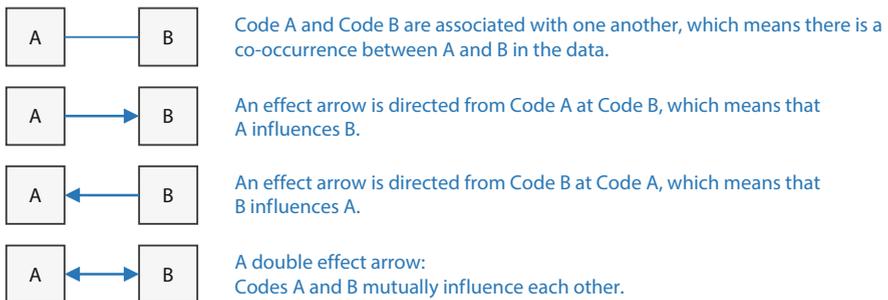


Fig. 17.1 Visualizing the relationship between two elements

MAXQDA's standard elements, you can also insert photos, charts, or images into the map. You can also meaningfully arrange these individual elements in the MAXMaps workspace and—if there is a connection or relationship between them—link them via connecting lines. A diagram like Fig. 17.1 is called a “map.” A map is generated in the (initially empty) MAXMaps workspace, to which any number of elements can be added.

At this point, a distinction needs to be made between “*free*” representations and *data-based* representations. *Free* representations are graphics that could in principle also be created with other software such as OmniGraffle or even Microsoft Word. These programs allow you to create diagrams, organize charts, graphs, and more. *Data-based* representations, on the other hand, are graphics that consist of the elements of a MAXQDA project and can visually represent relationships present in the data, such as the co-occurrence of certain codes.

The following visualizations may be useful as *free* representations in the context of a research project:

- Overviews of fieldwork conditions, e.g., spatial settings, exterior views of buildings, or organizational charts
- Contextual elements such as photos of research participants or research settings
- Representations of the research methods used in the project
- Representations of the different content units of an interview
- Geographical information on fieldwork locations and conditions
- Temporal progressions of research projects and much more

Hence, MAXMaps can be used to generate graphics that are not directly related to the *empirical data* in a MAXQDA project. The real highlight of MAXMaps, however, is that the icons and objects displayed in a map *can* also be linked to the data of a MAXQDA project. A graphic created with OmniGraffle or Word may be aesthetically pleasing and informatively designed, but it is never directly linked to empirical data. In contrast, the connection between the project data and the graphics in MAXMaps makes it possible, for example, to click on the icon of a code and see its definition or to view all the text passages coded with this particular code in table form.

Primarily, MAXMaps is intended as a way of visually representing the various elements of MAXQDA (“objects”) on a workspace, connecting them with each other, and thus visually rendering complex content-related relationships. Elements that can be imported into such a map are, for example, the icons for codes, documents, coded segments, and memos, as well as free elements and text fields the designs of which are freely definable. Photos and user-made graphics can also be inserted into a map.

MAXMaps can be used for a wide variety of tasks. Maps can be used exploratively to develop ideas and communicate them within a team. Maps can also be used to visualize very complex interrelationships or to create overviews of a project or partial aspects of a project. For example, they can visualize:

- The cause-effect relationships between different categories
- The memos belonging to specific documents or document groups
- Intersections and overlaps between codes
- The subcategories of codes
- The constellation of codes in a given document in the shape of a so-called case map

Furthermore, MAXMaps can help create interesting presentations. Different layers of a map can be successively displayed or hidden, providing a variety of design options for visual demonstrations. MAXMaps can be used in several ways during the research process, especially for diagnostic purposes and for identifying relationships. And MAXMaps also lets you organize and group codes (see the section “Creative Coding, a Tool for the Visual Development of a Coding Frame” in Chap. 8); visually represent links between codes, documents, and memos; and much more.

MAXMaps is interactive, i.e., the objects displayed in the map have a direct connection to the MAXQDA project when the Sync Mode is switched on. For example, you can open a document simply by clicking on its icon in the map, you can read memos and if necessary amend them, and you can open selections of coded segments from different groups to conduct group comparisons.

MAXMaps enables you to make existing connections in the data visible. For documents imported into MAXMaps, for example, all the memos attached to them can also be automatically imported. Similarly, for a code displayed as an icon in MAXMaps, the memos linked to this code, the codes intersecting with it, as well as its subcodes can also be inserted into the map. This creates a completely new way of looking at the data: interrelationships that might otherwise have remained hidden in tables and lists become *obvious*. The display of the relationships between individual elements in these maps—for example, between two or more codes—is not limited to hierarchical list-like relationships; complex networks between these elements can be represented too.

This visual access to the data is additionally supported by the flexible design options in MAXMaps. The wide range of these options offers you a great deal of creative freedom. This applies above all to the presentation of the visual elements, which are not fixed in their shape or size. Codes, memos, and documents need not necessarily be displayed with the same icon or same color; instead, they can be freely designed by the user. Images and labels can easily be customized, and you can even import your own photos or icons.

The Basics of Working with MAXMaps

You will find MAXMaps in the *Visual Tools* ribbon tab. The MAXMaps window (Fig. 17.2) is initially divided into two areas, on the left you can see the “List of Maps” and on the right, the workspace in which you will design your map. You can create any number of maps, and these are automatically saved to your MAXQDA project file, so you do not have to worry about saving the map yourself.

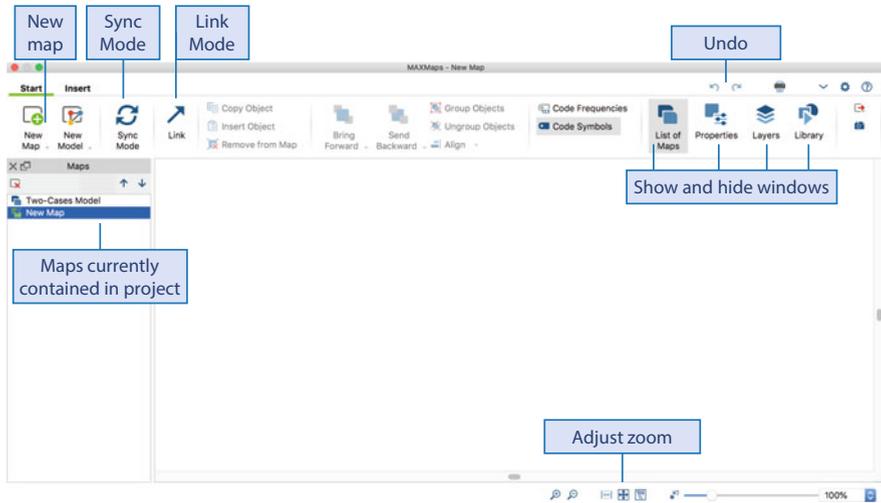


Fig. 17.2 The workspace in MAXMaps

Maps can be exported as graphic files in PNG, JPG, or SVG (scalable vector graphics) formats, so that you can insert them as images into other programs such as Word or PowerPoint. At the top of the workspace, you will see a ribbon menu with two tabs. The *Start* tab contains all the important tools for creating and editing your map. Use the *Insert* tab to insert new codes, texts, images, and shapes into it. And you can create a new map by clicking on *New Map* in the Start menu.

In the upper right corner of the MAXMaps window, there are two arrow icons for undoing and restoring your most recent actions. These undo functions always apply only to the currently open map. The “undo memory” is deleted as soon as another map is opened or the MAXMaps window is closed. The global undo function of MAXQDA has no effect on the stored maps in MAXMaps.

Using the zoom options at the bottom right of the window, you can zoom in and out and jump directly to the first object you added, the “origin” of the map.

Designing a Map

Once you have created a new empty map, you can start designing it, i.e., you can add various elements to the workspace. This is easily done by dragging elements from your project into the MAXMaps workspace with the mouse or by double-clicking an element while holding down the *Alt* key (Windows) or *option* \simeq key (Mac). Alternatively, you can right-click on the element and select the *Insert into Map* option. MAXMaps recognizes three types of objects:

- *Standard objects*. These are MAXQDA project elements (codes, documents, memos, coded segments) and can each only be inserted once into the same map. Changes made to these objects have no retroactive effect on the MAXQDA project:

if, for example, the name of a document inserted from MAXQDA is changed in a map, the name remains unchanged in MAXQDA's "Document System."

- *Free objects.* These are graphic objects; they are called "free" because they are not connected to any elements in your MAXQDA project, i.e., they exist independently of the analyzed data.
- *Linking objects.* This refers to the lines that link two objects in a map to each other.

Standard objects and free objects consist of two parts: an object label and an object image. The linking lines can also be labelled.

Several options—available via the **Preferences** icon in the top right-hand corner of the MAXMaps window—are important when designing a map:

- **Apply grid**—This activates a grid displayed in the background of the workspace that facilitates a more precise positioning of individual elements. The objects snap into fixed positions against this grid.
- **Reduce imported images to this size**—This option controls how large images are imported. You can select between 300, 600, 1200 pixels, and "original size." The longer side of the image is reduced to the specified size. Background images are always imported in their original size.
- **Visualize document links**—If this option is selected, existing document links between two documents are represented by a blue line.

The following MAXQDA elements can be inserted into a map—brackets indicate where these elements are located in MAXQDA:

- Documents ("Document System")
- Document groups ("Document System")
- Document sets ("Document System")
- Codes and subcodes ("Code System")
- Code memos ("Code System")
- Memos attached to places within a document ("Document Browser")
- Memos attached to documents ("Document System")
- Memos attached to document groups ("Document System")
- Free memos (Overview of Memos)
- Coded segments ("Retrieved Segments" window, Overview of Coded Segments, "Document Browser," or "Multimedia Browser")

Graphics with Style

With a little creativity, you can turn your map into something rather special that will make an excellent impression on a conference poster or in a presentation. You can edit the appearance of the elements in your map in various ways in the Properties window. You can open this window by clicking on the icon of the same name in the

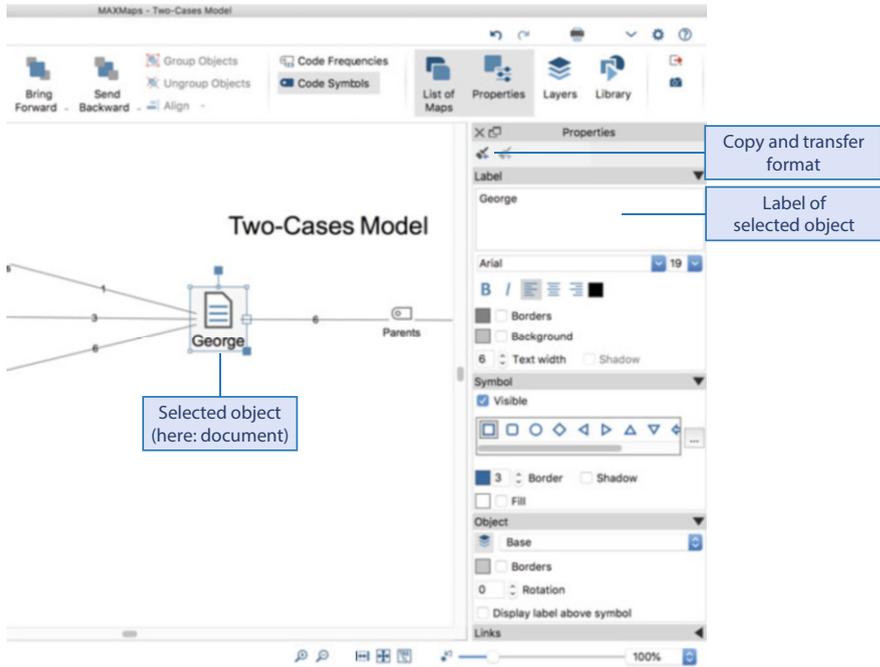


Fig. 17.3 Selected document icon and the Properties window

Start ribbon tab. As soon as an object is selected in the map, you can edit its label, font, and font size and adjust many other settings in the Properties window (Fig. 17.3). For example, in the “Symbol” section of the window, you can determine whether the icon or symbol of the object or only its label should be visible. It may also be useful or interesting for you to insert your own symbol or a photo instead of the standard available symbols and icons. In the “Links” area, you can add either an external link or a geolink to the element. Then, when you double-click it later, the linked file is opened or, in the case of a geolink, the corresponding geo-reference is opened. This linking function lets you create a link to the image of a person, for example, or to make their place of residence visible on a geographical map.

MAXMaps allows you to transfer the applied format of one object to another, thus giving them a uniform appearance. To do this, follow these steps: first, select the object whose format you want to transfer and then click on the **Copy Format** icon in the Properties window. Now select the object you want to apply this format to and click the **Apply Format** icon.

Creating a Case Map

Free representations refer to infographics created with MAXMaps that are independent of the data in a MAXQDA project, i.e., they can in principle also be created with Corel Draw, OmniGraffle, Adobe Illustrator, or other design programs. Only rarely

will you generate graphics completely independently of a MAXQDA project—although this is certainly possible: you can even create impressive birthday invitations with MAXMaps. Free representations and data-based representations cannot be separated in a strict sense anyway; often as not they blend into each other, as the following example will show. Let us look at Fig. 17.4, in which a case map was created for an interview with James K. The purpose of the visualization is to present the characteristics of this interview at a glance.

The steps below were used to create this map:

1. Click on **New Map** and provide the map with a name, e.g., “Case James K.”
2. Switch on the grid view via Preferences (the gear icon the top right corner of the MAXMaps window).
3. Drag the document James K. onto the workspace with the mouse. The document icon will appear just as in the “Document System.”
4. Draw this element out with the mouse to make it larger, and add “Case” to the label after double-clicking on the label.
5. Drag the codes “Biggest world problems,” “Individual behavior,” “Consumption and climate,” “Personal views,” “Causes for discrepancies,” and “Influence” into the workspace.
6. If necessary, change the labels of the codes as shown in Fig. 17.4. For the code “Consumption and climate,” uncheck “Visible” in the Symbol section in the Properties menu.
7. Place the five codes on the workspace as shown in Fig. 17.4.

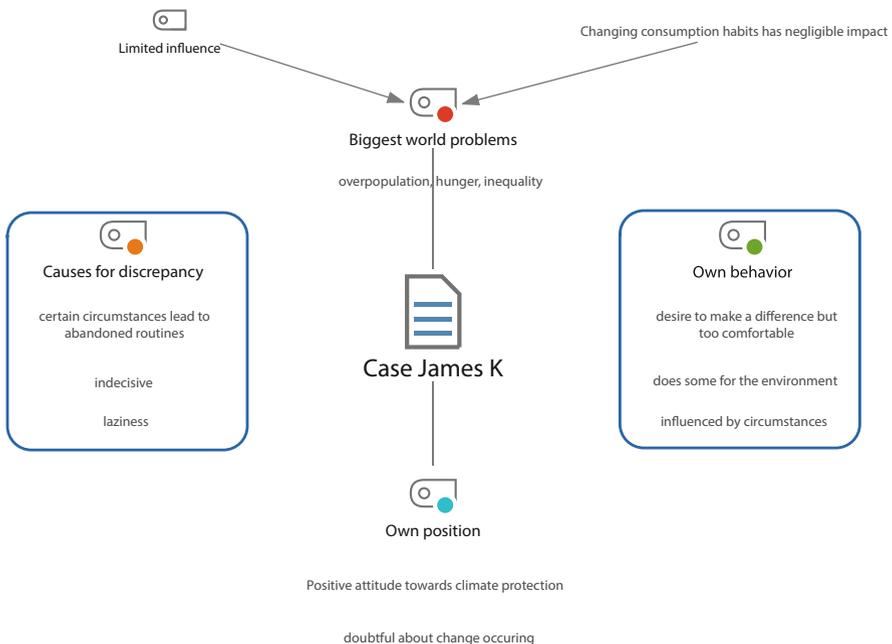


Fig. 17.4 Example of a case map: “Case James K.”

8. In the **Start** tab, click on **Link**, and draw the connecting lines from one object to another by clicking and dragging with the mouse.
9. In the **Insert** tab, click on **New Text**, and enter “Overpopulation, hunger, inequality” in the text field inserted in the upper left corner of the workspace. Move the text field below “Biggest world problems.”
10. Insert a new free object “Rectangle—rounded corners” by double-clicking on the corresponding symbol in the **Insert** tab. Draw the rectangle out with the mouse, large enough to serve as a frame. Set the line width to 10 in the Properties window; the background color remains “white.” Click **Add to Library** in the context menu for the newly inserted rectangle.
11. Drag the object you just added to your Library onto the workspace so that you now have two identical free objects.
12. Move both objects to their intended position, where they cover the codes located there; select one after the other and click the button **Send to Back** in the **Start** tab.
13. Now only the thematic summaries in the two rectangles are still missing. These are inserted as text fields, so click the button **New Text** in the **Insert** tab. The text appears in the upper left corner and can be moved to the appropriate position in the rectangular frame. Now you can enter the respective thematic summary in the text field, e.g., “certain circumstances lead to abandoned routines.”
14. After you have entered all thematic summaries in this way, you can optimize the map as a whole, i.e., move the elements individually or select several objects and distribute them with **Start > Align**, so that the layout is optimally arranged.

Working with Layers and Designing a Presentation

Anyone who has ever worked with image processing programs like Adobe Photoshop will be familiar with the term “layer.” In Photoshop, layers are compared to transparent foils that are laid one on top of the other, i.e., you can see the layer below. MAXMaps also lets you to work with layers; the elements of a map can be assigned to different layers. With the help of these layers—which can be displayed in sequence, one on top of the other—you can design a detailed and informative presentation that progressively becomes more complex and reveals an evolving structural thesis.

To distinguish layers from each other, they are given a name. If you have not created additional layers, all newly inserted objects are assigned to the default layer “Base.” You can access the layers function via the corresponding icon in the **Start** tab. A window will then open where the existing layers are listed and where you can create new layers by clicking the **New** icon in the top left corner of this window.

The first step is to set up as many layers as you need. In the Single-Case Model shown in Fig. 17.5, for example, you could work with three layers: first, the center of the map with the document name and the map title; then a second layer with the inner circle of the codes; and third, a layer with the outer circle (currently hidden).

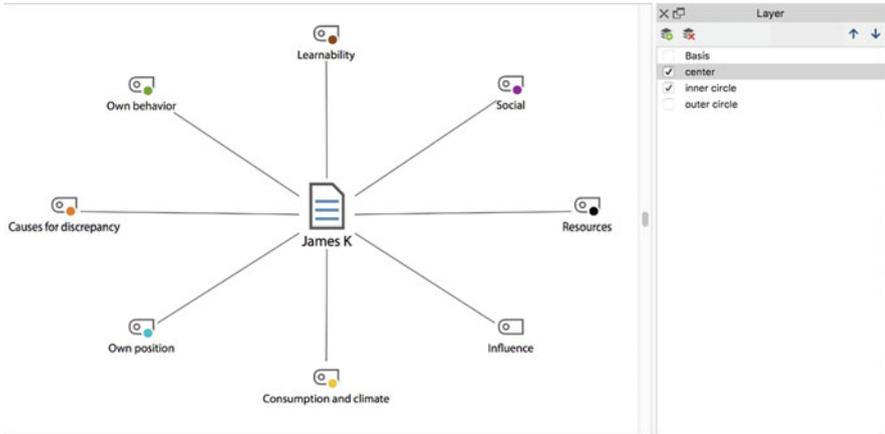


Fig. 17.5 Working with different layers

Accordingly, the layers should be named “center,” “inner circle,” and “outer circle.” The “Base” layer is always present and cannot be renamed or deleted.

In the second step, all elements of the map are assigned to a specific layer. This works as follows: right-click on the element, select the “Layer” option, and assign it to one of the three layers—initially all elements are assigned to the “Base” layer, which is then gradually cleared as they are assigned to other layers.

By activating or deactivating the checkmark in front of the respective layer, the elements of the layer are displayed or hidden. In Fig. 17.5 you can see the map where only the layers “center” and “inner circle” are switched on.

Visualizations are very often created for presentations. In a live presentation as part of a lecture, you could reveal the distinct layers one after the other, starting with “center” followed by the “inner circle” and then the “outer circle.” Another possibility is to create three images of the map: (a) map only with the “center” layer, (b) with the two layers “center” and “inner circle,” and (c) with all the layers. If you export the map as an image file (e.g., in PNG format) after each step, these three files can be integrated into a PowerPoint or Prezi presentation. This enables you to create a dynamic presentation using layers, independently of MAXQDA.

Synchronizing MAXMaps with the MAXQDA Project Data

MAXMaps’ great strength is that it allows you to connect and synchronize its infographics with your MAXQDA project file. In the simplest case, this connection means that elements, e.g., codes, memos, or documents, can be dragged into a map from MAXQDA’s various overviews and windows whereby their icons and colors are also adopted. Many MAXQDA context menus, for example, in the “Document System” and in the “Code System,” also contain the entry *Insert into Map*. There are

also two further ways of connecting map and project data: (a) via the context menu of individual elements in a map and (b) via Sync Mode.

Synchronizing via Context Menus in MAXQDA

One way to synchronize project data and maps is via the context menus of elements in MAXMaps. If you right-click on a code in the MAXMaps workspace, the Overview of Coded Segments, Overview of Memos, and Overview of Variables are all available, just as they are in MAXQDA's "Code System." For details on how to work with these overviews, see Chap. 6.

Using the *Import Memos* option available in MAXMaps, via the context menu for documents, you can insert all the memos attached to this document into the workspace (Fig. 17.6); these are automatically linked, graphically, to the document icon by nondirectional lines.

The *Import Subcodes* function is available in the context menu for inserted codes; it imports all the subcodes on the level immediately below the selected code and links them to the code by connecting lines. If required, the thickness of these linking lines can be set to correspond to the frequency of the subcodes. Other options in the context menu allow you to:

- Import intersecting codes: here, all codes are inserted into the workspace that intersect with the selected code within the documents in your MAXQDA project and are linked to the code in the map by dashed connecting lines.
- Import linked memos: all memos linked to the code are inserted into the workspace. Linked memos already displayed in the map are not inserted a second time but are instead also graphically linked to the code by a line.
- Import the text of a coded segment: right-click on the coded segment icon in the workspace to insert the segment's complete text as a label.

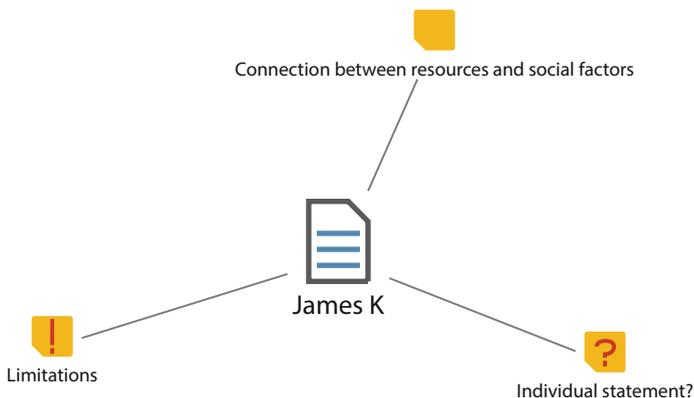


Fig. 17.6 Memos of a document displayed in MAXMaps having been automatically imported

Table 17.1 Available actions in MAXMaps' Sync Mode

Icon	What happens when you...		
	Hover	Single-click	Double-click
Document group or document set icon	Displays memo attached to document group or document set in tooltip (if a memo exists)	Selects document group or document set in the "Document System" window	
Document icon	Displays document memo in tooltip (if a memo exists)	Selects document in the "Document System"	Opens document in the "Document Browser"
Memo icon	Displays memo in tooltip	Selects memo (depending on the memo type) in the "Document System," "Code System," "Document Browser," or "Multimedia Browser"	Opens memo
Code icon	Displays code memo in tooltip (if a memo exists)	Selects code in the "Code System"	Opens the Overview of Coded Segments for this code
Coded segment icon	Preview of coded segment in tooltip	Selects code in the "Code System," corresponding document is opened in the "Document Browser," or media file in the "Multimedia Browser," at the location or time position of the coded segment	

Synchronizing via Sync Mode

Sync Mode synchronizes the map with the MAXQDA project; you can activate and deactivate this mode in the *Start* tab by clicking on the corresponding icon. For example, hovering the cursor over a document icon in the map reveals the memo assigned to this document in a tooltip, and double-clicking the icon opens the document in MAXQDA's "Document Browser." Table 17.1 provides an overview of the actions available in Sync Mode.

It is important to note that there is intentionally no backward synchronization between a map and the MAXQDA project data. Hence, changing the name of a document or code in a map does not affect the name of this document or code in MAXQDA. The same applies if the text of a displayed coded segment is shortened or summarized; even in this case, the segment remains unchanged in the MAXQDA project file.

The Model Templates: Prepared Maps for Special Tasks

The ready-made model templates provided in MAXMaps are particularly useful. These templates create specific visualization formats with a single click. They can save you a considerable amount of time and effort compared with manually implementing the same analyses.

There are several different model templates to choose from. Table 17.2 provides an overview of the nine variants and the concepts behind the individual models.

Table 17.2 Overview of the model templates in MAXMaps

Description	Focus	Meaning and purpose
Single-Case Model	One document, document group, or document set	This model produces a map of the assigned codes, memos, and coded segments for a selected document from the “Document System”
Single-Case Model for Focus Group Participants	A participant in a specific focus group	This model produces a map of the assigned codes, memos, and coded segments for a specific participant in a selected focus group
Single-Case Model with Code Hierarchy	A document, document group, or document set	This special variant of the single-case model produces a map in which the code hierarchy is also displayed
Two-Cases Model	Two documents, document groups or document sets and their respective codes	This model visually displays which codes occur in both documents, document groups, or document sets and those which only exist in one of the two “cases”
Single-Code Model	One code with coded segments and subcodes	This model displays a selected code and its corresponding coded segments in a map, as well as the code memo and the memos linked to this code
Code Theory Model	The memos linked to a code	This model can assist you in developing theories and testing hypotheses. A selected code, and if necessary also its corresponding subcodes, and the memos linked to this code and its subcodes are displayed in the workspace
Code-Subcodes-Segments Model	A code with its subcodes and coded segments	A selected code and its subcodes are displayed in a map. Each code and subcode is linked to its corresponding segments
Hierarchical Codes-Subcodes Model	A code and its subcodes	A selected code and its subcodes are displayed in a map. The hierarchical structure of the subcodes is visualized in the form of several “levels”
Code Co-occurrence Model	Intersections of codes	For selected codes, the intersections between them and other codes are mapped out. Including the subcodes in this map increases its complexity

With all the available models, you can control the selection of documents or codes by activating them before creating the map. In the Code Co-occurrence Model, you can also select the coded segments by specifying the weight variable range (see Chap. 6). One-click graphics can be edited like normal maps, i.e., you can change the position of elements in the workspace, insert or delete links between them, and add additional elements, text fields, and free objects.

All models are created by clicking on *New Model* in the *Start* tab and selecting the model that suits your analysis. The following will describe some selected models in greater detail and give examples of what the corresponding visualizations look like.

Single-Case Model: Displaying All the Codes and Coded Segments in a Document

The basic questions underlying this model are “Which codes and subcodes have been assigned to a specific document?”, “Which coded segments correspond to these codes?”, and “Which memos have been assigned to the document or text passages of this document?”.

In the case of an interview, you might ask: “What issues did the person’s interviewed mention? What exactly did they say, what words did they use? What dimensions did they address?”. A map of this kind, created for a specific document, is called a Single-Case Model in MAXQDA. Once you have opened this model, you can drag any document (or, alternatively, a document group or a document set if multiple documents represent a single case) from the “Document System” into the workspace with the mouse. The following options are at your disposal regarding the automatic selection of elements in the map:

- Memos: you can select the type of memos included (document memo, memos within the document, code memos, and memos linked to codes)
- Codes: you can restrict the map to activated codes or restrict it to a certain maximum number of codes.
- Coded segments: you can choose whether coded segments are displayed (yes/no), restrict the maximum number of segments displayed per code, and set a priority regarding the display of coded segments, either by weight or by size.

Figure 17.7 provides an example of a Single-Case Model: the selected document “James K.” is located at the center of the map; the document’s codes, beginning with “Influence” at the top, are linked to it with lines within the inner circle. In the outer circle, you can see the coded segments, each linked to its code. This Single-Case Model is taken from an interview study that was conducted by following a guideline. For many of the codes, there is only one coded segment linked to it, which is explained by the fact that there is only one text passage which was coded with this code—the code that corresponds to the respective question in the guideline.

In the upper left corner of the map, there is a memo with the title “Restrictions.” You can open this memo in Sync Mode by double-clicking on it. The document “James K.” will then be opened in the “Document Browser” at the same location in the text where the memo is attached.

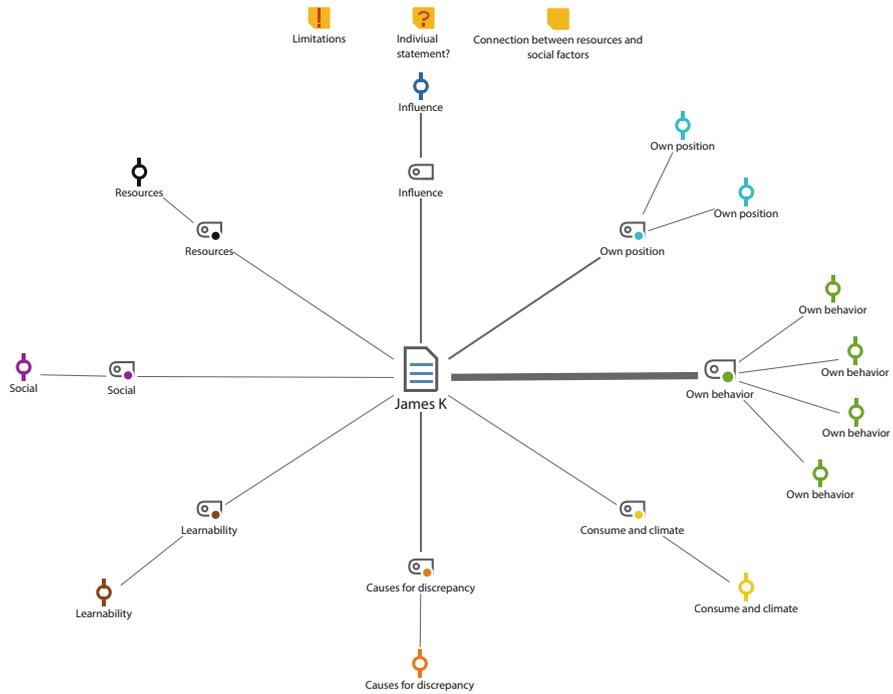


Fig. 17.7 Map for the document James K. created using the Single-Case Model

What can we take from this map? First, you can see which codes are assigned to the document. Second, the width of the linking lines indicates which codes have been assigned more frequently to the document and which have been assigned less frequently; here, the codes that have been assigned the most frequently are the codes “Own behavior” and “Own position.” Third, the number of segments assigned with a code is visually displayed in the map, and, fourth, the map can be used to explore content: if you hover your mouse cursor over a coded segment icon when Sync Mode is switched on, the corresponding text of the segment is revealed.

Further design options allow you to replace the icons for the coded segments with their texts, insert images to represent elements in the map, change the size of elements, and insert memos, free text fields, and external links—such as a geolink from the document symbol for “James K.” to his place of residence.

The Single-Case Model with Code Hierarchy creates a similar model for a document. However, the code hierarchy is displayed here, and you can choose how many subcode levels are displayed.

Single-Case Model for Focus Group Participants

The Single-Case Model for Focus Group Participants is structured in the same way as the regular Single-Case Model, but instead of featuring a document or document group at the center of the map, there is a single focus group participant (Fig. 17.8).

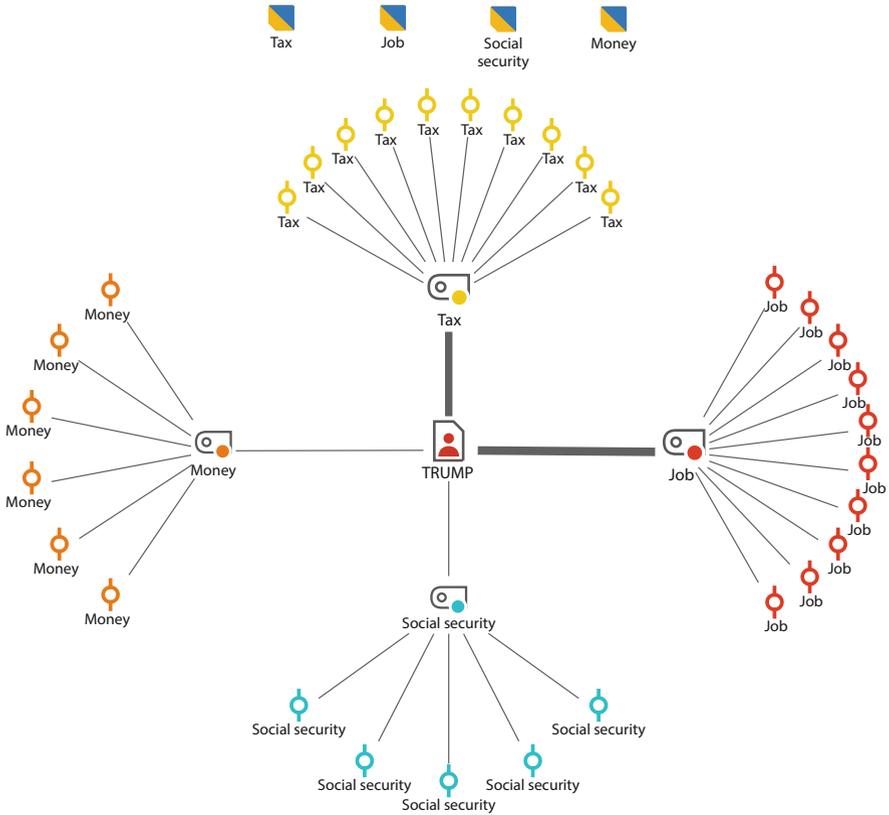


Fig. 17.8 Example of a Single-Case Model for Focus Group Participants

Single-Code Model: Placing the Focus on One Category

The key questions associated with this model are, for example, “In which documents has a certain code been assigned?”, “What is the content of the text passages assigned with this code?”, and “Which memos are associated with this code?”. To a certain extent, this model is the counterpart to the Single-Case Model, but instead of a certain document, a specific code is the focus here.

Figure 17.9 shows a very simple Single-Code Model for the code “Nature and the environment as a global problem,” i.e., respondents named “nature and environmental problems” among the world’s current biggest problems. For the sake of clarity, the example illustration is limited to ten coded segments.

This map contains the code “NA—Nature and Environment” at the center, and the ten selected coded segments are linked to it by lines. As can be seen by their labels, these segments stem from interviews 6, 7, 9, 11, etc. The segment texts have been inserted in place of their icon for two coded segments, using the context menu option *Insert Text of Coded Segment as Label*. You could also insert the texts of the other segments to gain a more complete overview of what was said on this particular

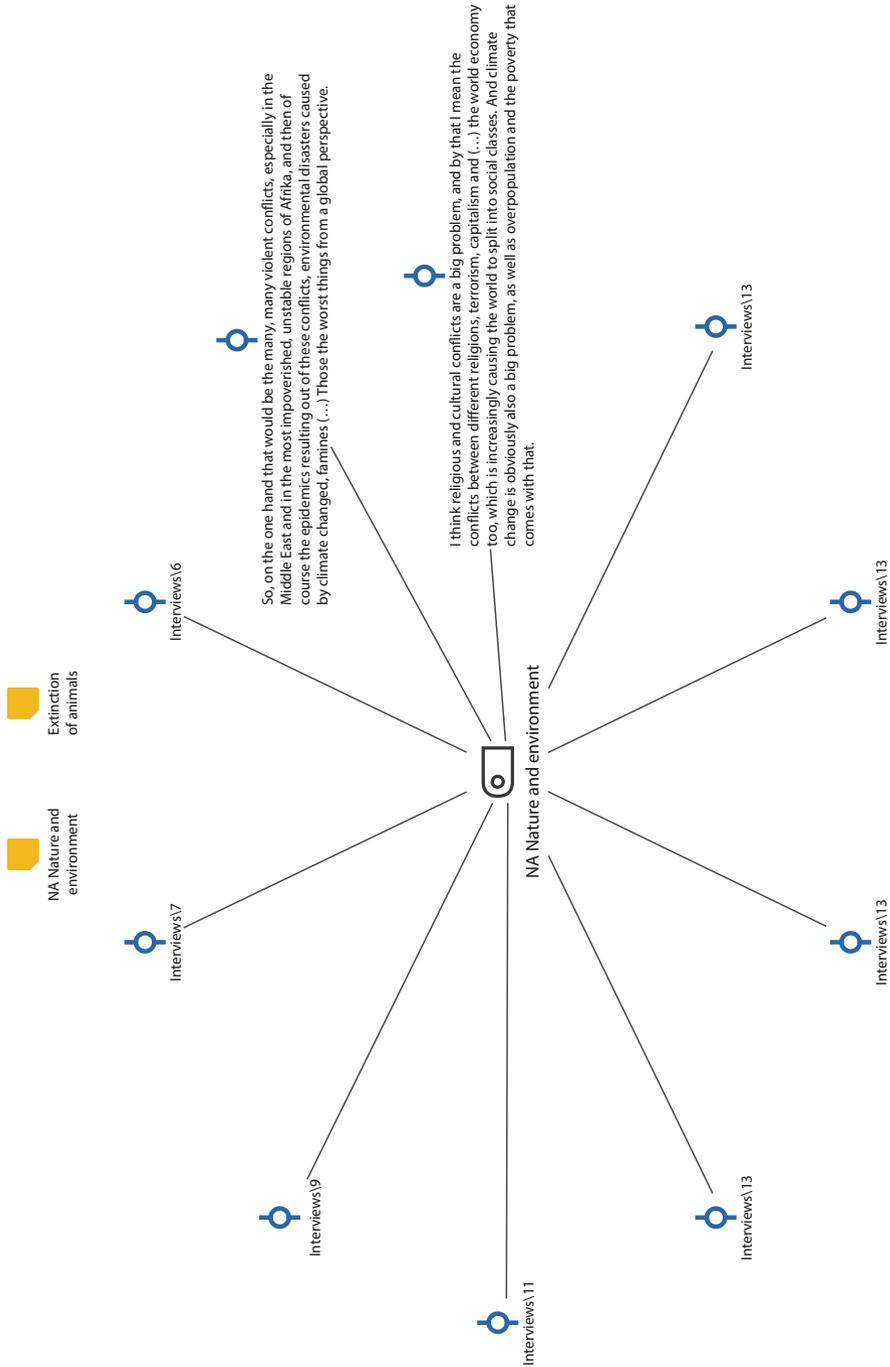


Fig. 17.9 Focused display of a code using the Single-Code Model

topic. At the top of the screen, you can see two memo icons: one is the code memo, which contains the code definition, and the other is simply another memo which has been attached to this code. This map, created as a Single-Code Model, can be customized, as required: elements can be changed, new elements can be added, and new linking lines drawn.

This map is also synchronized with the MAXQDA project data. Double-clicking on a coded segment opens the document in the corresponding location in the text—provided that Sync Mode is switched on.

Code Theory Model: Using Memos for Theory Development

This model effectively supports the development of theories and the testing of hypotheses. In this model, the focus is placed on the memos attached to a particular code and its subcodes, and so this will be most useful if you have previously written detailed and thoughtful memos. The map first includes the code memos that are normally used to record the respective code definition as well as ideas and hypotheses referring to the category; secondly, the map also includes further memos linked to these codes. For a selected code and its subcodes, the code memos and linked memos are automatically inserted into the workspace. The memos are visually linked to their code or subcode by lines.

Figure 17.10 provides an example of a Code Theory Model. At the center is the code “Biggest world problems,” its subcodes (inner circle), and their memos (outer circle). As usual, the display in the map can be limited to activated codes. Only the code “NA—Nature and Environment” is linked to two memos: its code memo (this contains the code definition) and a linked in-document memo entitled “Animal extinction,” which is attached to a passage in the text and contains reflections on this topic.

The map is interactive (when Sync Mode is switched on): double-clicking on a memo opens it and selects the corresponding code in the “Code System.” Double-clicking on a text memo opens the corresponding document in the “Document Browser,” precisely at the location in the text where this text memo is attached.

Code Co-occurrence Model: Discovering Interrelationships Between Codes

Some key questions associated with this model are “In what way are two or more codes related?”, “Which codes occur together?”, and “Which codes appear in which documents in combination with which other codes?”.

These questions can be answered using the Code Co-occurrence Model; Fig. 17.11 illustrates its basic structure using a simple example. In an open interview, the question was asked as to which problems are currently regarded as the biggest problems worldwide. Inductive, data-driven categories were then formed from the answers. The visualization in Fig. 17.11 now indicates which subcodes were assigned to the interview in combination with which other subcodes, and how often this occurred. The width of the connecting lines indicates the frequency of this co-occurrence.

The map demonstrates that “NA Nature and environment” and “SO Social affairs” are mentioned together particularly often. The combinations of “NA Nature

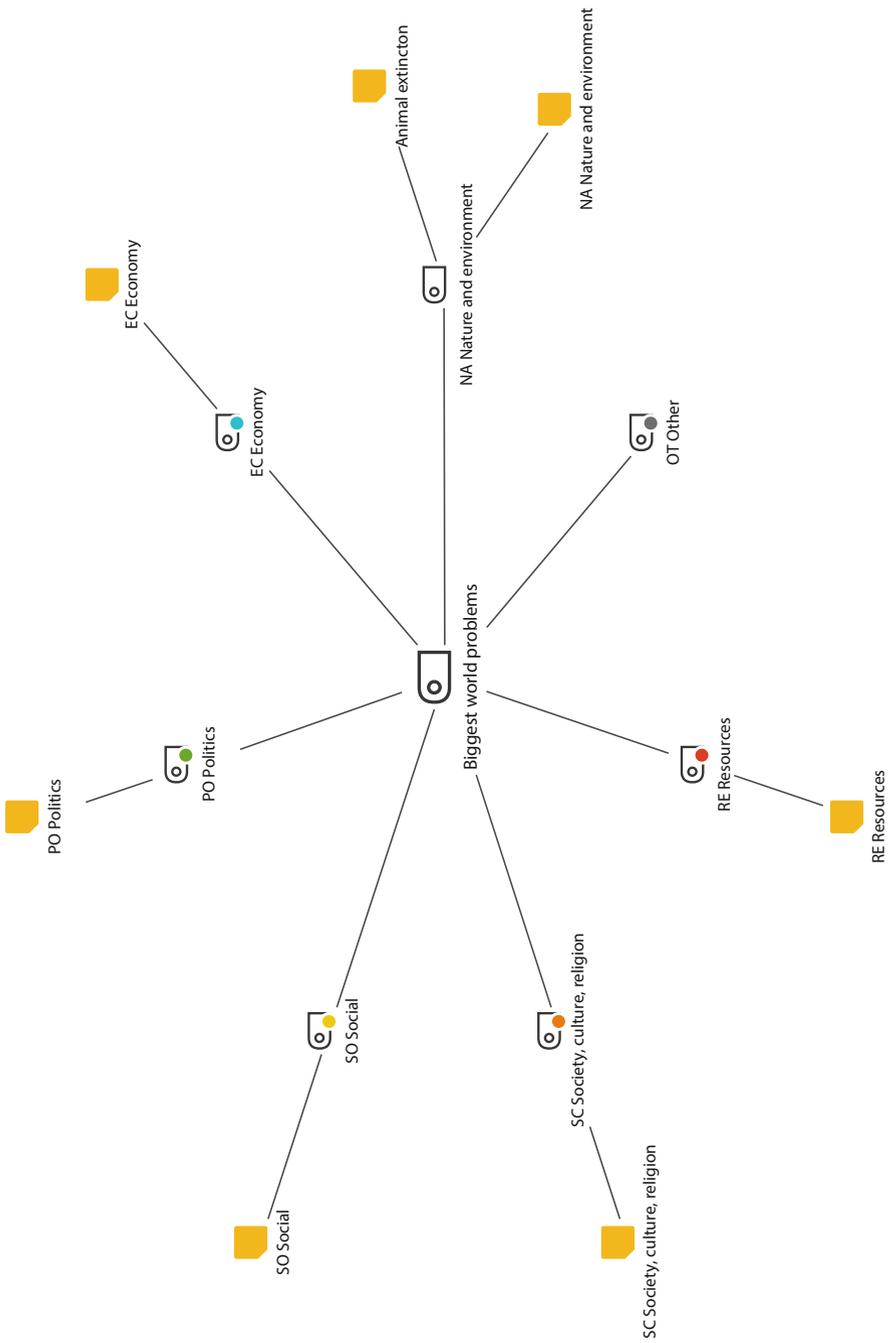


Fig. 17.10 The Code Theory Model with a code, subcodes, code memos, and linked memos

and environment” and “RE Resources” as well as “NA Nature and environment” and “PO Politics” are also quite common. By comparison, however, the combination of “EC Economy” with other subcodes is quite rare. This means that problems associated with economics are usually mentioned alone and comparatively rarely in combination with other topics, as the biggest world problem.

There are several options available for customizing this model:

- The analysis of intersections can be limited to activated documents.
- The frequency of intersections can be represented by the width of the linking lines between codes, as shown in Fig. 17.11.
- Subcodes can be included, making graphics much more complex.
- You can specify a minimum number of intersections that must be present in the data before they are represented in the map.
- You can include weight scores, i.e., only coded segments whose weight scores lie within a specified range are displayed in the map.

Code-Subcodes-Segments Model: Placing the Focus on a Category, Its Subcategories, and Coded Segments

Like the Code Co-occurrence Model, this model has the capacity to display extensive information; in other words, these maps run the risk of quickly becoming quite unwieldy and confusing. In many respects, this model is similar to the Single-Code Model, but unlike it in that this model focuses not only on one particular code and its coded segments but also includes its subcodes.



Fig. 17.11 Example of a Code Co-occurrence Model

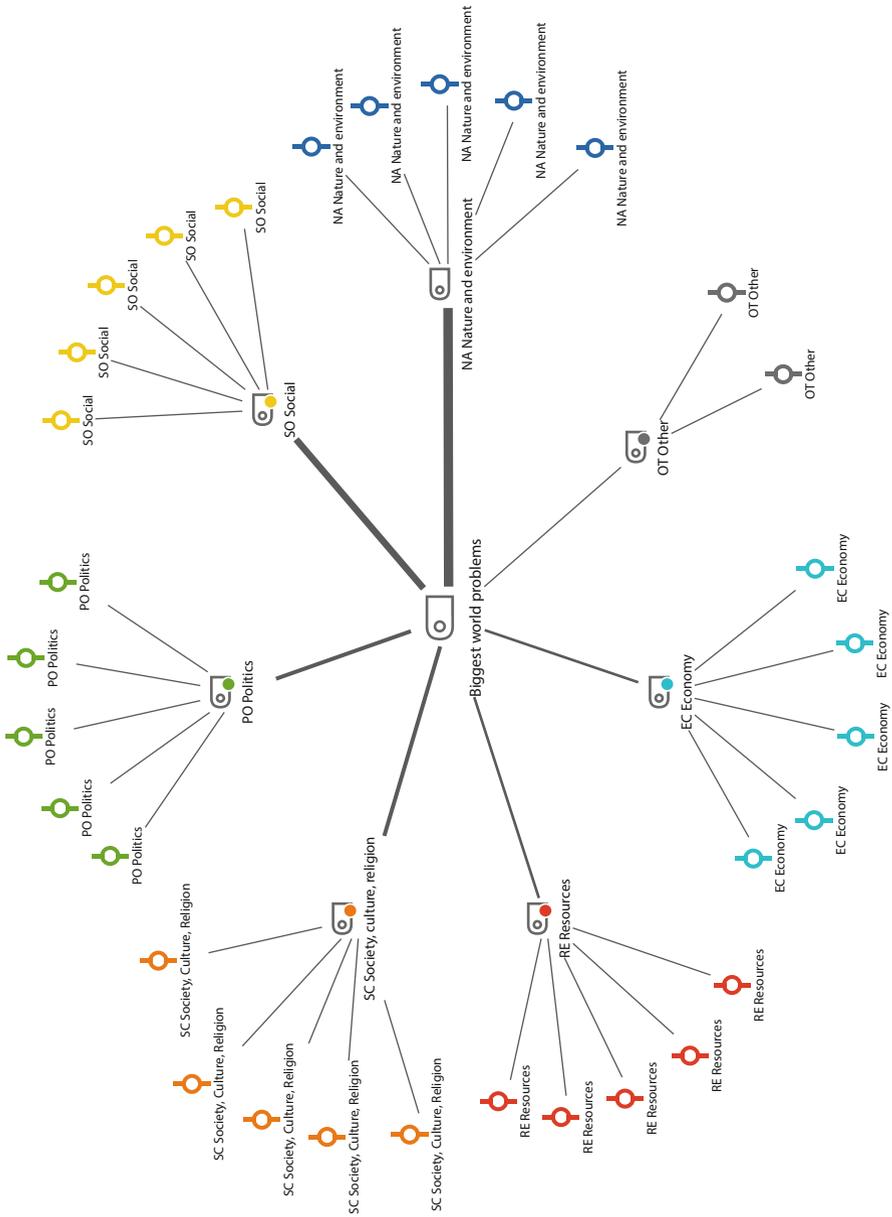


Fig. 17.12 Example of a Code-Subcodes-Segments Model

So, what does this model do? It visually portrays the coded segments of a code and its subcodes. It offers you a visual impression of the distribution of frequencies (by line thickness). And it can also be used to explore statements on specific topics. If you hover your cursor over a coded segment icon, the corresponding text is displayed—provided that Sync Mode is switched on.

You can generate this map by first selecting a group header code from the “Code System” and dragging it to the center of the workspace. You can then select further options, including the maximum numbers of subcodes and coded segments to be displayed per subcode. It also makes sense to select the option *Line width reflects frequencies*, because you can then tell at a glance which codes occur most frequently.

The model in Fig. 17.12 contains the selected code “Biggest World Problems” in the middle. It is linked to its subcodes by nondirectional arrows. The outer circle contains the segments for each subcode, up to a maximum of five (previously selected as an option in the model dialog box). By applying weight scores to the most significant segments during coding work, you can ensure that these are the selected elements for this model. The segments are each connected to their subcode by linking lines.

The map can easily be expanded if required: the elements can be rearranged, and new elements, such as code memos, can be added to suit your analysis.

Reference

Ebert, T. (2013). *Die Systematisierung visueller Darstellungsformen in der sozialwissenschaftlichen Forschung*. Marburg: Philipps-Universität Marburg. Retrieved from <https://archiv.ub.uni-marburg.de/diss/z2013/0712/>