MAXQDA 12
The Art of Data Analysis

MAXQDA Stats Reference Manual

Statistical Analysis with MAXQDA

Support, Distribution:

VERBI Software. Consult. Sozialforschung. GmbH Berlin/Germany

http://www.maxqda.com

Content

1 What does MAXQDA Stats offer?

MAXQDA Stats is a stand-alone statistics module that accompanies MAXQDA software, providing frequently used descriptive and inferential statistical methods. MAXQDA Stats is now available with two great features:

1. Link and interact with data from a MAXQDA project

MAXQDA Stats can be called up for the data of a MAXQDA project, so the document variables and code frequencies per document can be transferred to Stats. The documents that are in the statistical results tables behind individual cells can be stored as document sets for further qualitative analysis. When MAXQDA Stats is closed, variables which may have been added or modified can be transferred back into the MAXQDA project with the qualitative data.

2. Interactive results table

MAXQDA Stats results tables are dynamic, meaning they can be adapted and interactively edited. Rows and columns can be deleted or merged, and the results table will be automatically recalculated. Columns can be moved, hidden or sorted – changes in the results table can be undone. Cells that contain significant values or sharply outlying values can be highlighted in color.

With MAXQDA Stats you can:

- Analyze data from MAXQDA projects
- Analyze external data from SPSS or Excel, for example online surveys
- Enter and analyze new data, for example from "Paper and pencil" surveys

In Detail MAXQDA Stats offers the following functions:

- Statistical analysis of document variables and code frequencies for MAXQDA projects
- Statistical analysis for external data in SPSS or Excel format
- Export data to SPSS or Excel
- Interactive results table in which rows and columns can be moved, deleted or merged
- Exclude cases listwise for individual calculations
- Calculate new variables from existing variables
- Calculate and store z-standardized values for a variable
- Recode variables into new or existing variables
- Filter and search datasets
- Navigable output viewer, from which content can be exported, copied or printed
- Export editable result tables to Word via the clipboard

MAXQDA Stats can perform the following procedures and calculations:

- **Frequency tables**

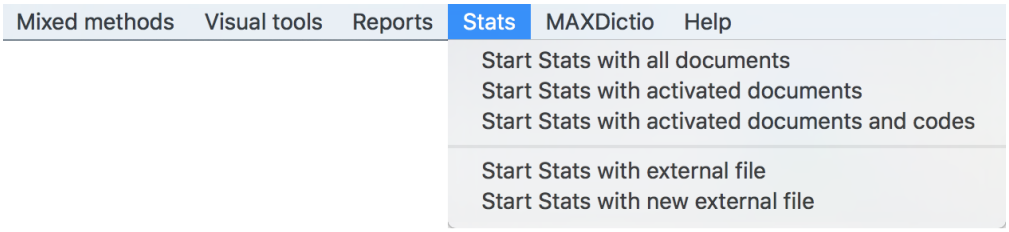
- **Descriptive statistics**: Mean, standard deviation, variance, median, quartiles, minimum, maximum, range, sum, standard error, 95% confidence interval for the mean
- **Crosstabs:** absolute and relative frequencies, row and column percentages, expected frequencies, residuals, standardized residuals, adjusted standardized residuals; Chi-square, Phi, Cramer's V, contingency coefficient C
- **One-way analysis of variance:** with output descriptive statistics and Levene test of homogeneity of variance
- **Correlation:** Pearson and Spearman correlation
- **Scale:** Cronbach's Alpha

Hint: These instructions are not intended as a statistics tutorial and explain computed values only to highlight specific features. To better understand the statistical calculations, we recommend you refer to your available statistical literature.

2 Using MAXQDA Stats

MAXQDA Stats as part of "MAXQDA Analytics Pro"

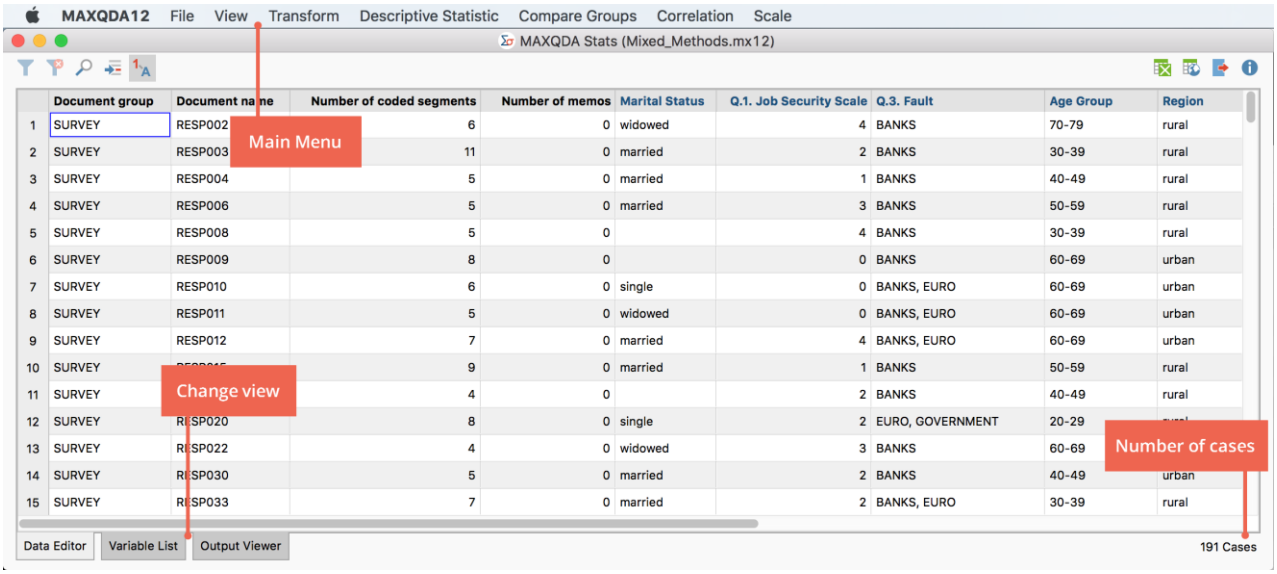
MAXQDA Stats is a module that is part of the product "MAXQDA Analytics Pro". It cannot be purchased individually and can only be unlocked with a corresponding MAXQDA serial number. If you use a license for "MAXQDA Analytics Pro," the menu item **Stats** from which MAXQDA Stats can be started appears on the MAXQDA main menu to the left of the Help menu.



The MAXQDA Stats menu

The MAXQDA Stats interface

MAXQDA Stats can be activated with both the data of a MAXQDA project (document variables and code frequencies per document) and with external data (SPSS or Excel files). Upon starting, the MAXQDA Stats interface, which is structured as follows, appears:



	Document group	Document name	Number of coded segments	Number of memos	Marital Status	Q.1. Job Security Scale	Q.3. Fault	Age Group	Region
1	SURVEY	RESP002	6	0	widowed	4	BANKS	70-79	rural
2	SURVEY	RESP003	11	0	married	2	BANKS	30-39	rural
3	SURVEY	RESP004	5	0	married	1	BANKS	40-49	rural
4	SURVEY	RESP006	5	0	married	3	BANKS	50-59	rural
5	SURVEY	RESP008	5	0		4	BANKS	30-39	rural
6	SURVEY	RESP009	8	0		0	BANKS	60-69	urban
7	SURVEY	RESP010	6	0	single	0	BANKS, EURO	60-69	urban
8	SURVEY	RESP011	5	0	widowed	0	BANKS, EURO	60-69	urban
9	SURVEY	RESP012	7	0	married	4	BANKS, EURO	60-69	urban
10	SURVEY		9	0	married	1	BANKS	50-59	rural
11	SURVEY		4	0		2	BANKS	40-49	rural
12	SURVEY	RESP020	8	0	single	2	EURO, GOVERNMENT	20-29	
13	SURVEY	RESP022	4	0	widowed	3	BANKS	60-69	
14	SURVEY	RESP030	5	0	married	2	BANKS	40-49	urban
15	SURVEY	RESP033	7	0	married	2	BANKS, EURO	30-39	rural

The MAXQDA Stats interface

Hint: When MAXQDA Stats is activated, the normal MAXQDA interface is no longer visible. It will automatically appear again when MAXQDA Stats is closed.

MAXQDA Stats has its own main menu which contains the following options:

File – this menu item serves to open files, create new files, and store external data

View – this menu item allows the user to switch between the Data Editor, Variable List and output viewer

Transform – contains all the functions for calculating and recoding variables

Descriptive Statistic – contains the functions for the creation of frequency tables and calculating descriptive statistics such as median, mean and standard deviation

Compare Groups – allows the creation of crosstabs and the implementation of one-way analysis of variance

Correlation – begins the calculation of correlation tables

Scale – provides access to the functions for creating scales

The user can easily switch between views using the tabs located in the lower left of the screen.

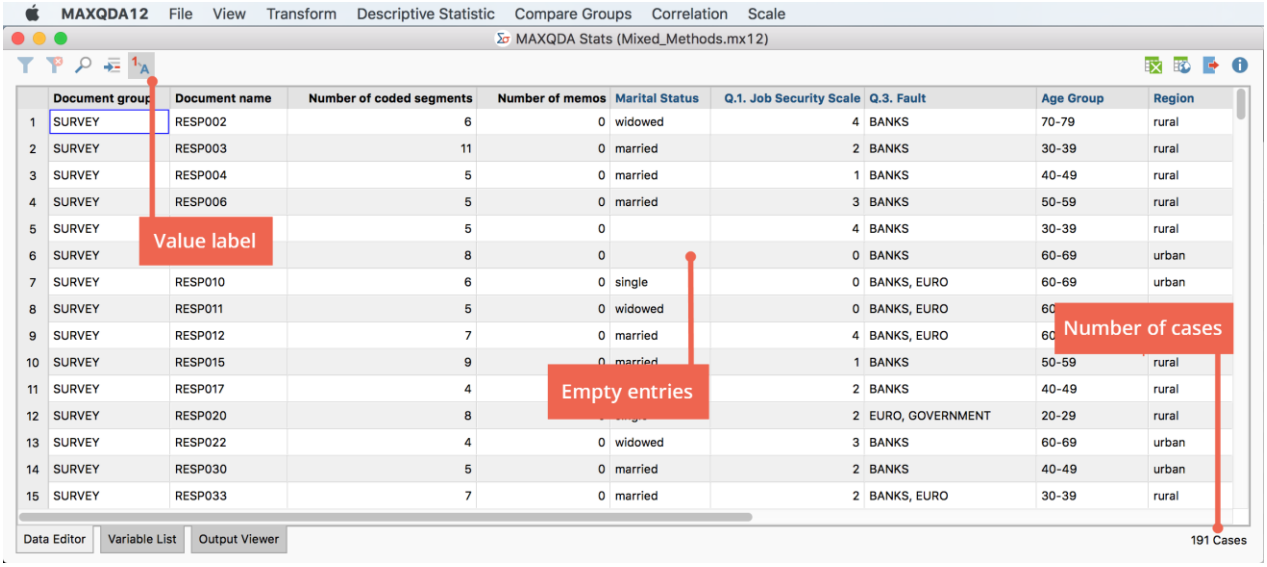
The **Data Editor** contains the cases in the rows and the variables in the columns. This is where the individual cases (analysis units) are entered and edited. If MAXQDA Stats is started for a MAXQDA project, the Data Editor for MAXQDA Stats will contain the same data as the Data Editor for document variables as the MAXQDA project, meaning each row corresponds to one document.

In the **Variable List** variable labels, missing values and other options for variables can be created.

The **Output Viewer** contains all the results tables and charts that were inserted in the Viewer in the course of the MAXQDA Stats session.

3 The Data Editor

The MAXQDA Stats Data Editor displays the cases in the rows and the variables in the columns. Each case is therefore in a separate line. The following figure shows the Data Editor for a MAXQDA project, which essentially correponds to the Data Editor for the MAXQDA document variables. The first row provides information on the document "RESP002" which contains 6 coded segments and 0 memos. It refers to a survey respondent that is widowed, has a high job security level and is between 70 and 79 years old.



	Document group	Document name	Number of coded segments	Number of memos	Marital Status	Q.1. Job Security Scale	Q.3. Fault	Age Group	Region
1	SURVEY	RESP002	6	0	widowed	4	BANKS	70-79	rural
2	SURVEY	RESP003	11	0	married	2	BANKS	30-39	rural
3	SURVEY	RESP004	5	0	married	1	BANKS	40-49	rural
4	SURVEY	RESP006	5	0	married	3	BANKS	50-59	rural
5	SURVEY		5	0		4	BANKS	30-39	rural
6	SURVEY		8	0		0	BANKS	60-69	urban
7	SURVEY	RESP010	6	0	single	0	BANKS, EURO	60-69	urban
8	SURVEY	RESP011	5	0	widowed	0	BANKS, EURO	60	
9	SURVEY	RESP012	7	0	married	4	BANKS, EURO	60	
10	SURVEY	RESP015	9	0	married	1	BANKS	50-59	rural
11	SURVEY	RESP017	4			2	BANKS	40-49	rural
12	SURVEY	RESP020	8			2	EURO, GOVERNMENT	20-29	rural
13	SURVEY	RESP022	4	0	widowed	3	BANKS	60-69	urban
14	SURVEY	RESP030	5	0	married	2	BANKS	40-49	urban
15	SURVEY	RESP033	7	0	married	2	BANKS, EURO	30-39	rural

The MAXQDA Stats Data Editor

The first four columns in the example figure contain the MAXQDA system variables "Document group", "Document name", "Number of coded segments" and "Number of memos". They are immutable in MAXQDA Stats and column headings are therefore shown as known from MAXQDA in black. The modifiable user variables are shown in blue.

Individual columns can be hidden by right-clicking on the column header and choosing **Hide column** from the context menu. Using the **Select columns** function, also in the context menu, individual or all columns can be hidden or shown, just like in MAXQDA.

Hint: The order of the columns from left to right cannot be changed, as this order always corresponds to the order of the variables in the Variable List from top to bottom.

System Defined Missings

MAXQDA Stats considers any blank fields in the Data Editor as system-defined missing. Unlike in the MAXQDA Data Editor, integer or floating point-type variable fields can also be empty.

Show Value Labels

The toolbar is located above the Data Editor on the left side.

Toolbar on the left side of the Data Editor

Using the icon **Show value labels** the entered value of the value label will be displayed. This value can be individually defined for each variable in the Variable List. If no label is defined for a value, the value will still be displayed.

Sort, Search and Filter Cases

Clicking on a column header in the Data Editor sorts the data in this column; clicking a second time sorts the same column in the reverse order.

Hint: On the left side of the Data Editor a sequential numbering of the rows is displayed. The numbering is fixed in order to provide orientation in the dataset; it will not be sorted. For external files, it is always advisable to provide a variable with a unique case ID.

The Data Editor in MAXQDA Stats can be searched and filtered, exactly as in MAXQDA. Clicking on the **Search** icon in the toolbar above the Data Editor opens a search list in which a search query can be entered, the occurrence of which will be searched in all columns. To search in a single column, right-click on the column header and select **Search**.

The filter function can similarly be called up for a column as follows:

1. Right-click on a column header.
2. Select **Filter**.
3. In the dialog box, define a filter criteria and click **OK**.

Enter filter criteria

The number of cases currently in the Data Editor can be seen in the bottom right of the status bar. Only these cases are included in the calculations.

To switch the currently set filter on and off, click on the **Filter** icon in the toolbar above the Data Editor. To delete all filters, click on the icon.

Go to Case

To jump to a particular case in a row, click on the icon in the toolbar above the Data Editor. A small dialog box will appear where you can enter the target row.

Insert New Cases

When MAXQDA Stats is called up for a MAXQDA project, it is not possible to insert new cases, as this would be synonomous with the insertion of further documents in the MAXQDA project itself. The situation is different when you create or open a new external file. In this instance, it is of course possible to add additional cases to the data set, which can be done as follows:

1. Scroll to the bottom of the data set
2. A blank row is located in the last row of the Data Editor. As soon as any content is entered in any column, this row will be assigned a consecutive number and another blank row for the next record will appear underneath the previous row.

Delete Cases

When you work with an external file in MAXQDA Stats, you can delete individual or multiple cases as follows:

1. **In the Data Editor, highlight a single case with the mouse,** or **highlight multiple cases by pressing the Ctrl/cmd key**.
2. **Right-click the highlighted area** and select **Delete selected cases**. Alternatively, you can click on the Delete icon in the toolbar above the Data Editor.

Export Data Editor

At the top right of the Data Editor a typical MAXQDA toolbar is located, which contains the following icons for exporting data.

Open as Excel table – When you click on this icon, the current view will be displayed as a temporary Excel file. If you wish to save this file, you must do so in Excel. Value labels that are displayed in MAXQDA Stats will also be displayed in Excel.

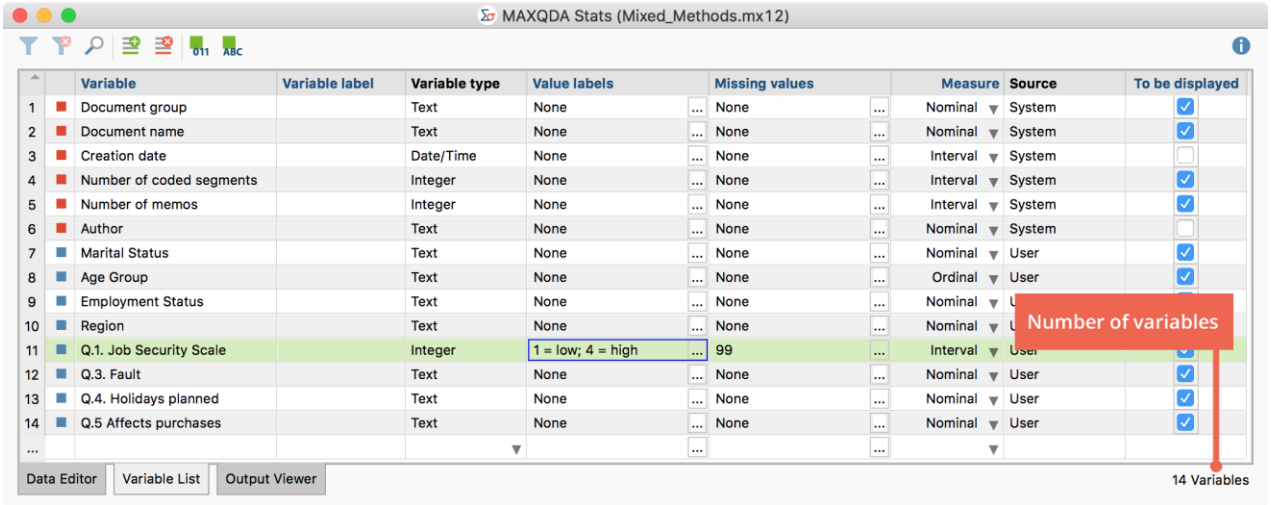
Open as HTML table – When you click on this icon, the current view will be displayed as a temporary HTML file in the default browser. If you wish to save this file, you must do so in the selected browser. Value labels that are displayed in MAXQDA Stats will also be displayed in the HTML file.

Export – When this function is selected, a file dialog will appear in which you can select from Excel or HTML export formats and specify a file name and location. The file will open automatically following the export process. Value labels that are displayed in MAXQDA will also be exported.

The currently displayed data can be saved as an SPSS file by selecting **File > Save as** from the main menu.

4 The Variable List

The MAXQDA Stats Variable List allows you to manage all the variables of a data set. This is the place to define the variable names and value labels, and also to set missing values for a variable. New variables can also be created in the Variable List.



	Variable	Variable label	Variable type	Value labels	Missing values	Measure	Source	To be displayed
1	Document group		Text	None	None	Nominal	System	☑
2	Document name		Text	None	None	Nominal	System	☑
3	Creation date		Date/Time	None	None	Interval	System	☐
4	Number of coded segments		Integer	None	None	Interval	System	☑
5	Number of memos		Integer	None	None	Interval	System	☑
6	Author		Text	None	None	Nominal	System	☐
7	Marital Status		Text	None	None	Nominal	User	☑
8	Age Group		Text	None	None	Ordinal	User	☑
9	Employment Status		Text	None	None	Nominal	U	☑
10	Region		Text	None	None	Nominal	U	☑
11	Q.1. Job Security Scale		Integer	1 = low; 4 = high	99	Interval	User	☑
12	Q.3. Fault		Text	None	None	Nominal	User	☑
13	Q.4. Holidays planned		Text	None	None	Nominal	User	☑
14	Q.5 Affects purchases		Text	None	None	Nominal	User	☑

The Variable List in MAXQDA Stats

In the first column there is a consecutive numbering of the variables. The variables in the Data Editor are displayed from left to right, corresponding to this numbering. The number of variables in the current data set are displayed on the bottom right in the status bar.

The other columns include the following features:

Variable – This column is a mandatory column, meaning each variable requires a variable name. To create, for example, a frequency table or a crosstab, you can select the name of individual variables.

Hint: In MAXQDA Stats variable names can be composed of any character strings up to 63 characters in length. Unlike in many statistics programs, spaces and any special characters are permitted. When working with external statistics files (SPSS, STATA, etc.). it is advisable to choose simple variable names to ensure compatibility. When saving a data set in SPSS format, the variable names are automatically adjusted to be SPSS-compliant.

Variable label – In addition to the variable name, it is possible to assign a label to a variable. In MAXQDA this label can be up to 255 characters in length and include any characters. The variable label will appear in selection dialogs and results tables in the place of the variable name for easier interpretation.

Variable type –The same types of variables can be used in MAXQDA and MAXQDA Stats: text, integer, floating point, date/time, and Boolean (true/false).

Value labels – In statistical data sets, answers are often coded with numbers, for example 1 for "low" and 4 for "high". Assignment of texts to the encoded numbers is done via value label and will appear in this column. At the top of the figure it is shown that for the marked variable "Q.1. Job Security Scale" the text labels "low" and "high" were assigned for the scale endpoints 1 and 4.

Missing values – In this column, the values are displayed which are to be counted as missing for the respective variable and therefore not to be included in the analysis.

Hint: Please note that for the variable type "Boolean" no missing values can be defined.

Measure – Here you can set the measurement level of a variable. You can choose between three levels: "Interval", "Ordinal" and "Nominal".

Source – This column provides information about the origin of a variable. Variables automatically generated in MAXQDA carry the identifier "System", user-defined variables carry the identifier "User". Variables with the origin "Code" are codes to which the function "Transform into document variable" was applied in a MAXQDA project. Variables carrying the identifier "Dictio" are the result of a dictionary-based enumeration of category frequencies using MAXDictio.

Hint: The colors of the squares in the leftmost column of the Variable List reflect the origins of the variables (User = blue , System = red , Code = green ; Dictio = yellow). When working with external files, only blue squares are displayed, as all variables were created as freely editable User variables.

To be displayed – From this column, you can control the display of variables in the Data Editor. To hide a column, remove the check mark by clicking a cell.

Sorting the Variable List

Click on a column header to sort the list of variables corresponding to the clicked column. To restore the original order, click on the first column with the numbering.

To adjust the order of the variables, follow these steps:

1. If the first column is not sorted in ascending order, first click the first column header to reset the currently used sort.
2. Now you can move individual variables by clicking in any row and moving the row to the desired location. To move multiple rows at the same time, hold down the Ctrl or Cmd key as you click on the desired rows, then drag the multi-row highlighted area with the left mouse button.

Create New Variables

You can create new variables by entering data in the blank, bottom row of the Variable List:

1. Double click in the last blank row of the "Variable" column. MAXQDA Stats will automatically generate a new generic variable name: "var001", "var002" etc.
2. Enter a new variable name in the "Variable" column and provide a variable label as required.
3. In the "Variable Type" column, select one of the five variable types supported by MAXQDA Stats, which are the same as those supported by MAXQDA:
   - Text

- Integer
- Floating Point
- Date/Time
- Boolean (true/false)

The new variable is created once you have clicked on a location outside the row and this row is no longer highlighted. Data can now be entered in the Data Editor.

Hint: The variable type of a previously created variable can be changed under certain conditions (see below).

If required, enter data in the columns "Value Labels," "Missing Values," and "Measure."

A toolbar is located above the Variable List on the left:

Toolbar on the top left above the Variable List

Click on the icon **New variable** to automatically jump to the last row of the Variable List, where you can immediately start typing a variable name.

Copy Variables

Copying variables can be very helpful, particularly when defining multiple nearly identical variables in an item set or matrix question:

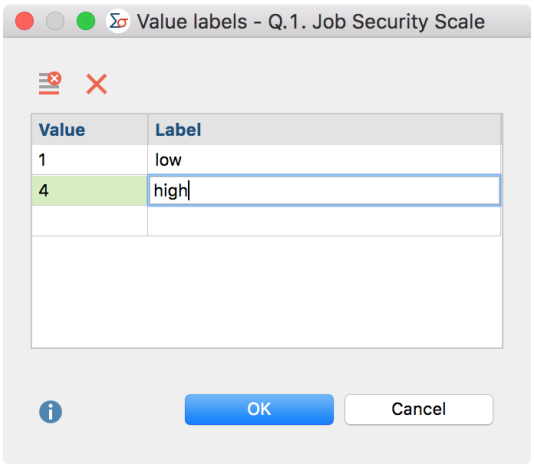
1. **Highlight one or more variables by clicking on the appropriate row** or **clicking and holding the Ctrl/cmd key to select multiple rows**.
2. **Right-click on the highlighted area** and select **Copy variable** or press **Ctrl+C** (Windows) or **cmd+C** (Mac).
3. Right-click on the target line and select the function **Insert variable above**.

When the variable is copied, the variable Label, variable type, value label, missing values and measure will be copied, however the values will not.

Define Value Labels

Value labels are used to match a text to a numerical variable value. For example, if the endpoints of a response scale to the question "Safety of your workplace" are coded with 1="Low" and 4="High", these responses can be switched between their numerical and text representations in the Data Editor.

By clicking a cell in the Value Label column, the following dialog box will appear.



Dialog box for creation of a Value Label

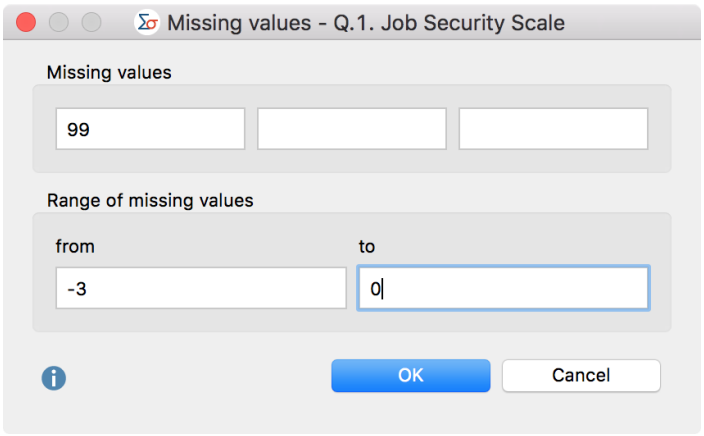
In the left hand column, enter the value to be associated with the label on the right. Normally the value is a number, but you can also use any text string, for example "f" for "female" or "Man" for "Manager." When you click **OK** the value label will appear in the appropriate cell in the Variable List.

Using the two Delete icons at the top of the window, you can delete single or all entries.

Define Missing Values

There are many reasons why missing values may be present in a data set: A respondant did not answer a question or refused to answer a question, or their response is not clear, for example in a handwritten questionnaire an X was placed exactly between two responses. To denote missing values, there are two main options: a) The data field is left blank, in which case the missing value will be considered "System defined missing" and ignored in the evaluation, or b) A specific value can be provided to interpret the missing value.

To define a missing value, click in the cell of the missing value to call up the following window:



Window for entering a missing value

In this window, single missing values or a range of missing values can be entered. All entries in the window are always considered; for example, in the above window, the 99th values as well as the values from -3 to 0, inclusive, will be ignored in the evaluation.

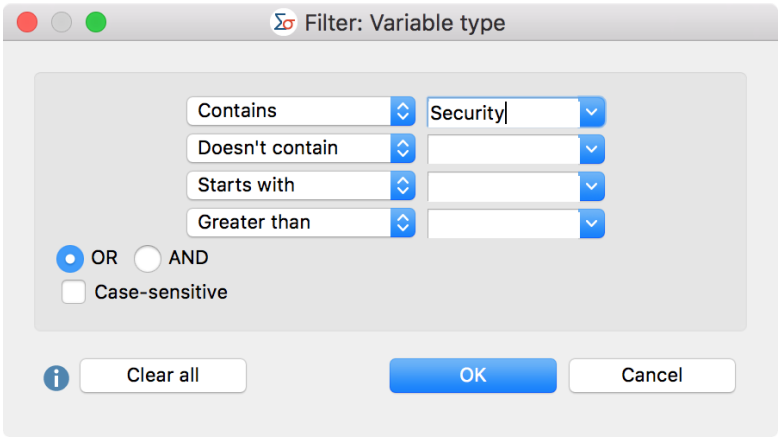
Hint: Missing values cannot be defined for "Boolean (True/False)" variable types.

Search and Filter Variables

The Variable List in MAXQDA Stats can be searched and filtered exactly as in MAXQDA. Clicking on the **Search** icon in the toolbar at the top of the window opens a search list in which a search query can be entered, whose occurrence will be evaluated in all columns. To search in a specfic column, right-click the column header and select **Search**.

Likewise, the filter function can be applied to a specific column:

1. Right-click on the column header.
2. Select **Filter**.
3. Enter the filter criteria and click **OK**.



Enter filter criteria

The status bar at the bottom right of the window displays the number of variables that fulfill the selected criteria.

To turn the filter off and on as required, click the **Filter** icon in the toolbar above the Data Editor. By clicking the icon, all filters will be deleted.

Binarize or Transform Variables into Text Variables

To binarize one or more variables, proceed as follows:

1. Select single or multiple "Integer" or "Floating point" variables with the mouse.

2. Click the **Transform into binary variable** icon in the toolbar above the Variable List and confirm the query.

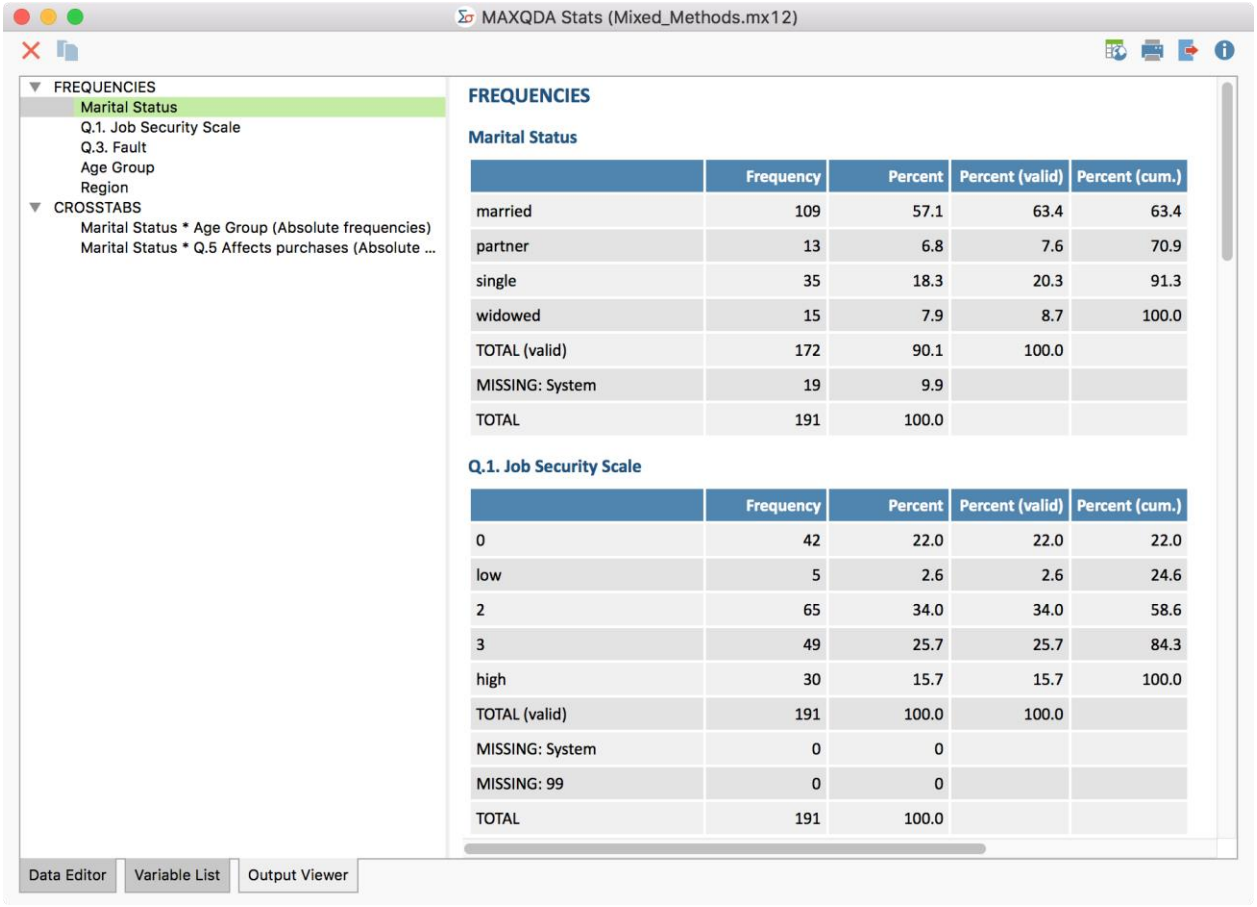
Therein the variable will be transformed into type "Boolean", in which all values different from 0 are set to "false" – including the missing values or defined missing values.

Toolbar at the top left of the Variable List

The **Transform into text variable** icon allows you to transform all highlighted (non-text) variables into "Text" type variables.

5 The Output Viewer

In the Output Viewer, all calculated and customized results tables and charts can be stored. The Output Viewer is divided into two sections: on the left is a tree directory where you can jump directly to the contents; on the right the results tables and charts are displayed.



The Output Viewer

Clicking on an entry in the directory tree jumps to the corresponding location and highlights the appropriate table or chart as well as the correponding heading.

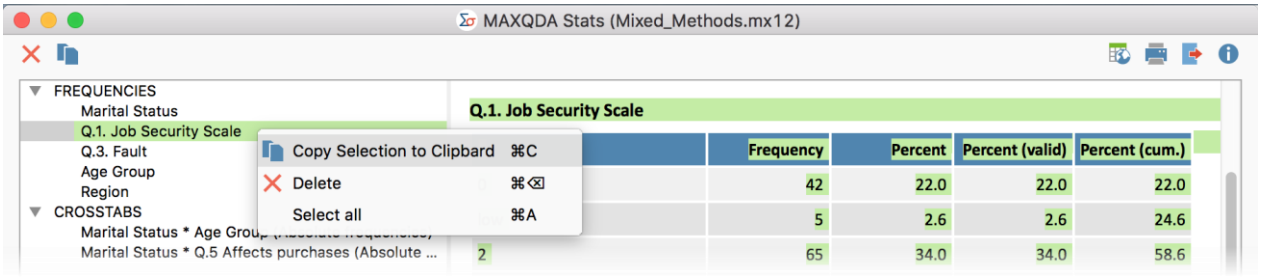
Export Output Viewer

Single or multiple contents of the Output Viewer can be exported or copied to the clipboard.

Copy Highlighted Tables and Charts to the Clipboard

You may wish to copy tables and charts into word processing software such as Word, or presentation programs such as PowerPoint. There are several ways to do so.

- **Right-click on an object you wish you export in the directory tree** of the Output Viewer and select **Copy selection to clipboard**. When you select a heading, all corresponding objects will be automatically selected and copied.
- Click on an object in the directory tree, then click **Copy selection to clipboard** in the top left of the window.
- Highlight the desired selection in the Output Viewer with the mouse, then right-click the highlighted area and select **Copy selection to clipboard.**



Copy objects from the Output Viewer to the clipboard

Export Complete Contents

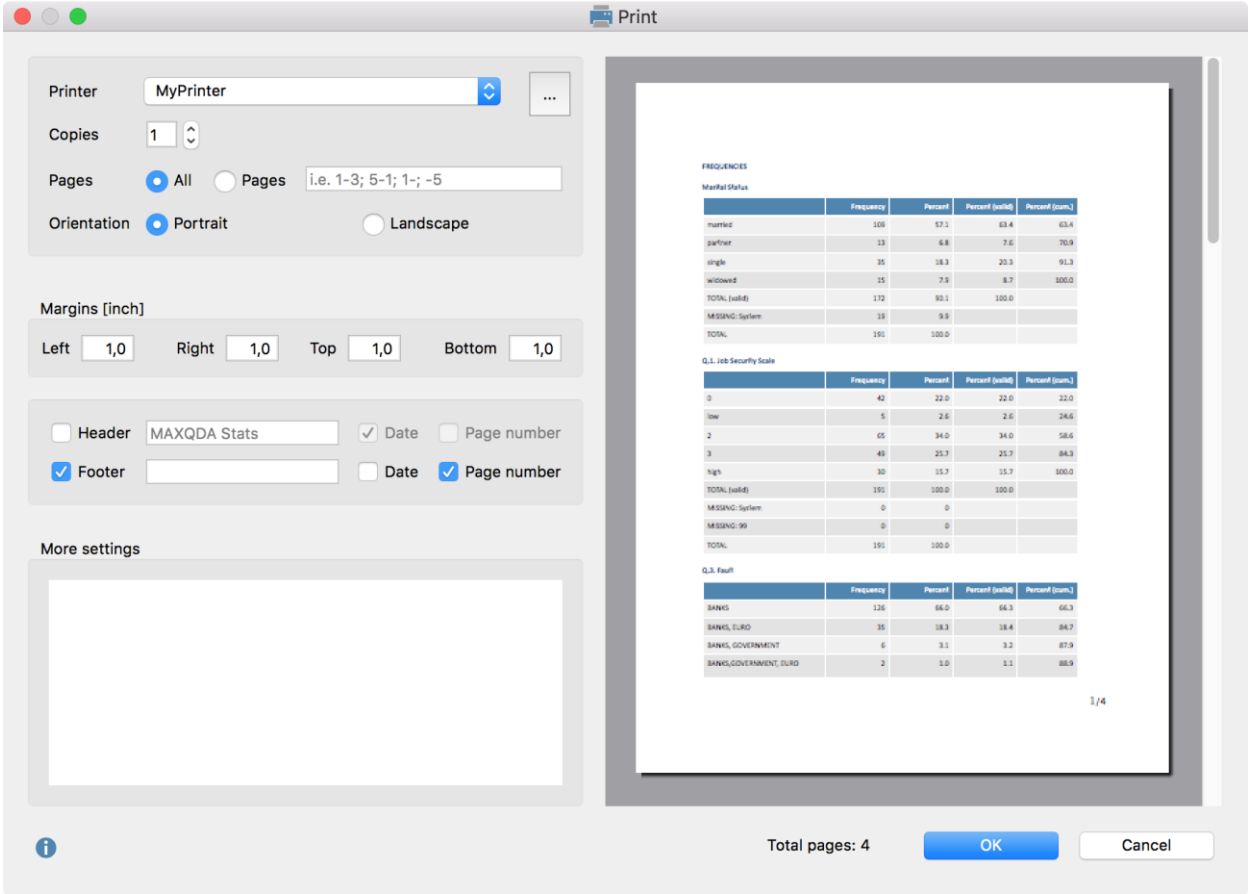
Using the symbol in the top right of the window, you can export the Output Viewer in HTML format:

Open as HTML table – Clicking on this icon displays the contents of the Output Viewer in a temporary HTML file in the default browser. To store the file, you must save it from the browser.

Export – When you select this function, a dialog box will appear in which you can select the filename and location in which you wish the file to be saved. The file will open automatically following the export process.

Print Output Viewer

Click the **Print** icon or use the keyboard combination **Ctrl+P (Windows)** or **cmd+P (Mac)** to print the contents of the Output Viewer. In the dialog box that appears you can select from multiple page settings and select the printer.



Print window

Hint: Please note that very large tables may be cut on the right side when printed.

Delete Content from the Output Viewer

To delete content from the Output Viewer, right-click an entry in the directory tree and select **Delete** or use the **Delete** key **(Windows)** or **cmd+Backspace (Mac)**.

Clicking the **Clear output viewer** ✕ icon at the top left of the window empties the entire Output Viewer.

Hint: When you close MAXQDA Stats the contents of the Output Viewer will automatically be deleted. If you wish to save the contents of the Output Viewer, you must export or copy them to the clipboard before exiting the program.

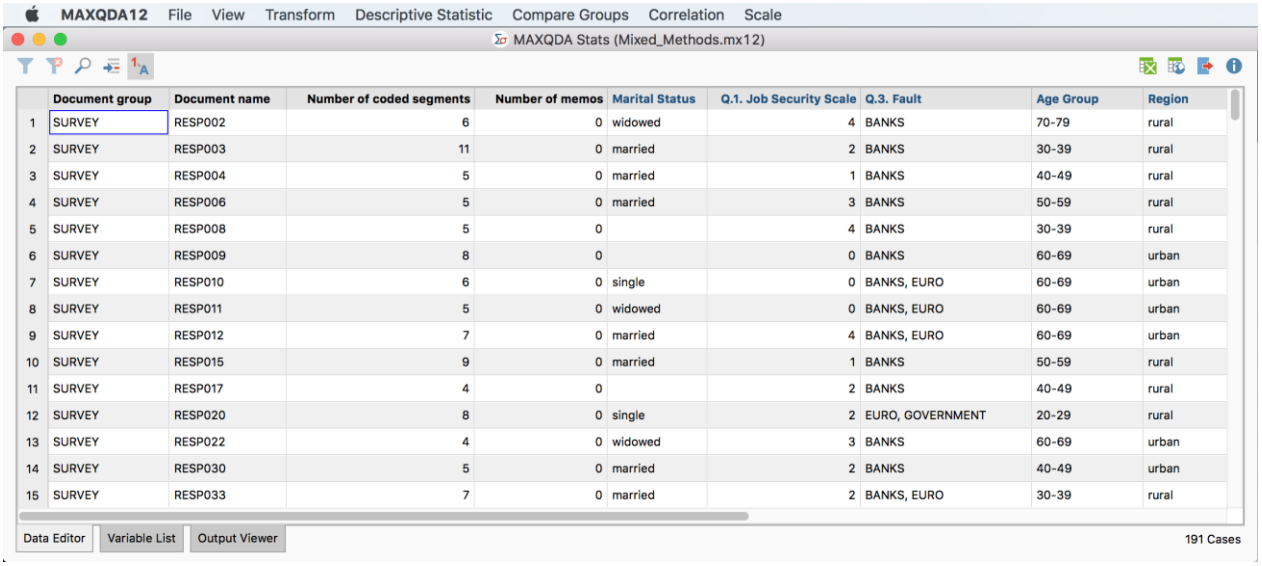
6 Analyze Variables and Codes from a MAXQDA Project

Starting MAXQDA Stats

MAXQDA Stats offers a convenient and innovative way to statistically analyze the document variables of a MAXQDA project as well as the code frequencies per document. With MAXQDA Stats, you can eliminate the cumbersome process of exporting data to a statistical program and then transferring it back to MAXQDA for further analysis; instead, your statistical analyses can be performed directly within the stats module.

Upon starting MAXQDA Stats, the document variables and code frequencies per document are automatically transferred in the following manner:

- The documents form the cases in the Data Editor, exactly as in MAXQDA. Each document is in a separate row and can be identified by its document name and document group.
- The document variables from MAXQDA form the columns in the Data Editor and can be adapted and supplemented in the Variable List.
- A code frequency matrix, in which documents form the rows and codes form the columns, is transferred to the background and is available for analysis. MAXQDA Stats shows how often a selected code was assigned in a document for each case (therefore in each document). You can envision that in the Data Editor, further (invisible) columns are present whose cells contain the code frequency per document.

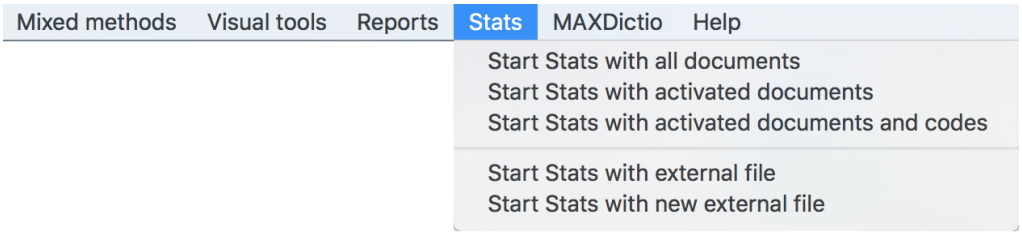


	Document group	Document name	Number of coded segments	Number of memos	Marital Status	Q.1. Job Security Scale	Q.3. Fault	Age Group	Region
1	SURVEY	RESP002	6	0	widowed	4	BANKS	70-79	rural
2	SURVEY	RESP003	11	0	married	2	BANKS	30-39	rural
3	SURVEY	RESP004	5	0	married	1	BANKS	40-49	rural
4	SURVEY	RESP006	5	0	married	3	BANKS	50-59	rural
5	SURVEY	RESP008	5	0		4	BANKS	30-39	rural
6	SURVEY	RESP009	8	0		0	BANKS	60-69	urban
7	SURVEY	RESP010	6	0	single	0	BANKS, EURO	60-69	urban
8	SURVEY	RESP011	5	0	widowed	0	BANKS, EURO	60-69	urban
9	SURVEY	RESP012	7	0	married	4	BANKS, EURO	60-69	urban
10	SURVEY	RESP015	9	0	married	1	BANKS	50-59	rural
11	SURVEY	RESP017	4	0		2	BANKS	40-49	rural
12	SURVEY	RESP020	8	0	single	2	EURO, GOVERNMENT	20-29	rural
13	SURVEY	RESP022	4	0	widowed	3	BANKS	60-69	urban
14	SURVEY	RESP030	5	0	married	2	BANKS	40-49	urban
15	SURVEY	RESP033	7	0	married	2	BANKS, EURO	30-39	rural

The Data Editor: rows are formed by documents, columns are formed by variables

Hint: When working in MAXQDA Stats, the document variables and code frequencies of the MAXQDA project will not be affected. Upon exiting MAXQDA Stats, newly created variables and modified variable values can be transferred back into the MAXQDA project.

To start MAXQDA Stats for a MAXQDA project, several options are available in the main menu under the entry **Stats**:



Starting MAXQDA Stats from the MAXQDA main menu

- **Start Stats with all documents** – When this option is selected, all documents will be available as cases for statistical evaluation in Stats.
- **Start Stats with activated documents** – This option is useful when evaluations should not be carried out for all documents, for example, when only documents with the transcripts of respondents in MAXQDA Stats are to be evaluated, and documents with their own notes or Twitter imports should be left out. Before calling up this function, activate the documents to be analyzed.
- **Start Stats with activated documents and codes** – This option is designed especially for the event that you have a very large code system, but are only interested in selected code frequencies per document. To use this feature, first activate the desired codes and documents that are to be analyzed in Stats.

Hint: MAXQDA Stats is limited to 1,000 different variables and codes. If a MAXQDA project contains more variables and codes, only the first 1,000 variables and the first codes in the code tree will be transferred to MAXQDA Stats.

The transfer of document variables from MAXQDA when starting MAXQDA Stats occurs in the following manner:

- If a label, value label, missing value or measurement level for a variable has already been created in MAXQDA Stats, this information will be available the next time you start MAXQDA Stats. The specifications are written into the project file and remain there even if MAXQDA Stats is closed and reopened at a later time.
- If a missing value is defined for a variable in MAXQDA, it will be transferred as the first missing value in the top left of the "Missing Values" window in MAXQDA Stats, so long as this position is empty. If the first value is already defined in Stats, no value will be transferred from MAXQDA.
- Missing values for Boolean variables are not accepted, because no missing values for these variables can be defined in MAXQDA Stats.
- Depending on the type of variable in the case that the "categorical" option has been set for a variable in MAXQDA, the measurement level in MAXQDA Stats is set for the variable. Text and Boolean variables get the measurement level in nominal terms, as categorical integer and floating point variables. Other numerical variables and date variables are associated with the level of "interval". If the measurement level has been changed in Stats, it will remain unmodified the next time MAXQDA is launched.

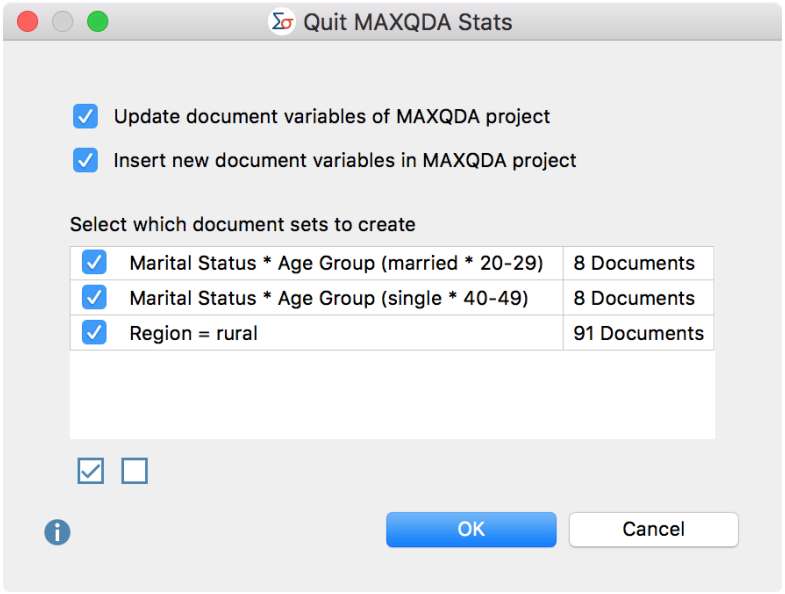
When data from a MAXQDA project is transferred to MAXQDA Stats, all Stats analysis functions remain available.

Transfer MAXQDA Stats Data to a MAXQDA Project

After completing the analysis in MAXQDA Stats, modified variable values can be transferred back to the MAXQDA project to update the existing variables and add new ones. Likewise, document sets created during the analysis can be transferred.

In principle, the transfer of variables from MAXQDA Stats to the MAXQDA project occurs in exactly the same manner as when data is read in MAXQDA using the **Import data (document variables)** function.

To transfer MAXQDA Stats data to the MAXQDA project, close the MAXQDA Stats window using the X symbol (Windows) or red X symbol (Mac) at the top of the window or by selecting **File > Quit MAXQDA Stats** from the Stats main menu. The following option window will appear:



Options window for closing MAXQDA Stats

Update and insert document variables to the MAXQDA project

In the upper pane two options are available, which are selected by default and allow you to control the transfer of variables from Stats for the document variables of the MAXQDA project when exiting Stats.

Update document variables of MAXDA project – If this option is selected, the values of all variables whose names already exist in the MAXQDA project (and which are also the same variable type) will be updated. The definition of missing values and the "categorical" property of a variable cannot be changed during transfer. Existing document variables that were created from a code using the "Transform into variable" function will not be modified, because they always reflect the current code frequencies and are dynamically updated in MAXQDA.

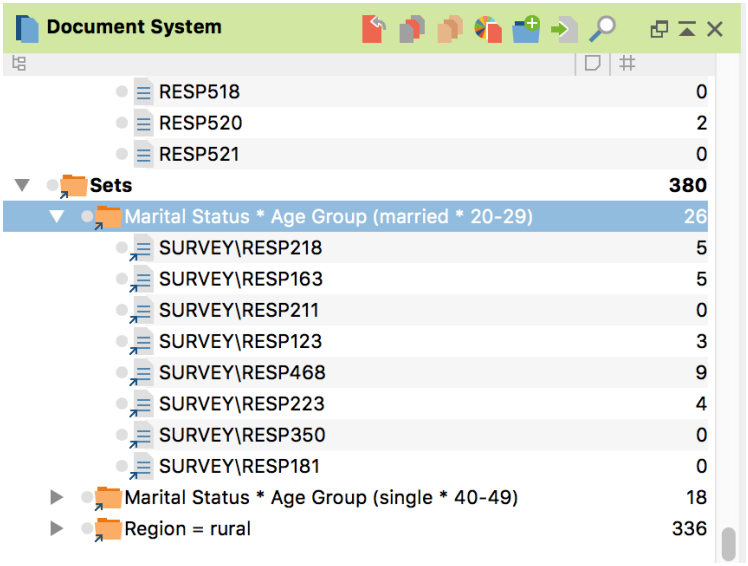
Insert new document variables in MAXQDA project – If this option is selected, variables whose names do not yet exist in the MAXQDA project will be inserted, and the variable values of the individual documents will be transferred.

Hint: If a variable from Stats has the same name as a document variable that already exists in the MAXQDA project but is a different variable type, it will be inserted into the MAXQDA project as a new variable with a suffix. For example, if a numerical variable with the name "Education" is transferred to the MAXQDA project, in which a text variable also entitled "Education" already exists, a new variable with the name "Education (2)" will be inserted.
In MAXQDA Stats, variables indicated in green which were created from codes using the "Transform into document variable" function will not be transferred to MAXQDA, even if their names are modified.

Transfer document sets to a MAXQDA project

In the MAXQDA Stats interactive results tables, it is possible to create a document set that contains exactly the documents represented by a cell or a row. MAXQDA Stats remembers all of the document sets created over the course of the analysis and lists them in the lower pane of the dialog box displayed above when you close MAXQDA Stats. You can individually select whether each document set should be inserted into the MAXQDA project.

For example, in the image below the set "Marital Status * Age Group (married * 20-29)" was created in a crosstab and contains exactly 8 documents that come from married respondents aged between 20-29 years. After the transfer of the Stats data to the MAXQDA project, all selected document sets will appear in the "Document System" window.



Inserted document sets in the "Document System" window of a MAXQDA project

Save Variables and Code Frequencies as SPSS Data

Even when MAXQDA Stats is launched with the data from a MAXQDA project, the data matrix including the variable definitions can be saved in SPSS format, which can be read by lots of statistical packages:

1. Select the menu function **File > Save as** and choose a filename and location in the dialog box that appears.
2. MAXQDA Stats will ask if you also wish to export the codes to SPSS. If you answer yes, each code that is available for analysis in the selection windows in MAXQDA Stats will be exported as its own variable. The values of these variables corresponds to the occurrence of the codes in the relevant documents.

Hint: Existing filenames cannot be overwritten, only saved under a new filename.

When exporting data to SPSS the following should be taken into consideration:

- Spaces and certain characters are permitted in MAXQDA but not in SPSS. In order to be SPSS compliant, variable names will be processed as follows:

Variable Name	Adaptation
Blank space	Will be replaced with underscore_
Begins with #	# will be replaced with HASH
Begins with $	$ will be replaced with DOLLAR
Is too long	Will be shortened
Is a reserved word	_MQ will be attached as suffix
Begins with an invalid character	Character will be replaced with an x
Forbidden character	Will be replaced with a period, blank spaces with an underscore; if at end will be cut off

- In order for the variable name to remain identifiable following the adaptation, a number may be added at the end.
- For text variables, missing values will be exported only if none of the variable values is longer than 8 bytes, otherwise SPSS will not accept any missing values for text variables.

7 Work with External Data in SPSS or Excel Format

Open SPSS data

To open and analyze an SPSS file with MAXQDA Stats, proceed as follows:

- If MAXQDA Stats has not yet been launched, select the entry **Stats > Start Stats with external file** in the MAXQDA main menu. Then, select the appropriate file in the window that appears.
- If MAXQDA Stats has already been launched, the external file can be selected directly from the main menu using the function **File > Open external file**. In MAXQDA Stats only one dataset can be open at a time, so Stats will ask if you would like to save the file that is already open or transfer it to MAXQDA, as the data matrix will no longer be available once the external file is open.

When the external file is open, all Stats analysis functions are available.

Hint: "Text" type variables in MAXQDA can only contain 63 characters. The content of string variables longer than 63 characters will be truncated upon import.

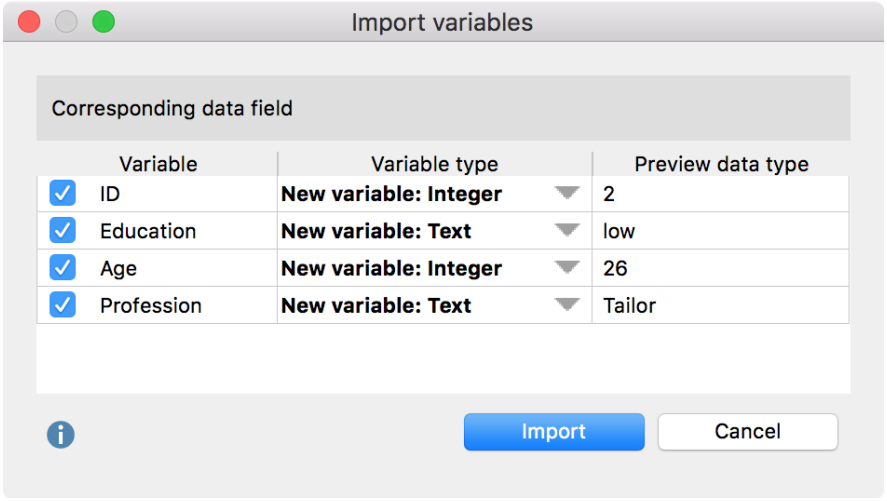
Open an Excel file

MAXQDA Stats can read Excel files of the following structure, which corresponds to that of the Data Editor: The column headers contain the variable names, and the cases form the rows:

ID	Level of education	Years of age	Profession
1	low	26	Seamstress
2	high	33	Hairdresser
3	medium	32	Mechatronics engineer
4	medium	25	Graphic designer
…	…	…	…

The first column ID is not required, but it is recommended to include a unique identification in the dataset in order to be able to definitively match the cases, especially if the data will later be analyzed in another program.

Opening an Excel file is done in the same way as described above for SPSS files, via the MAXQDA main menu function **Stats** or directly in MAXQDA Stats using the **File** function. As no information on the variable type is contained in the Excel file, a dialog box will appear in Stats following the selection of the Excel file, in which the variable type can be defined.



Dialog box for specifying variable types upon import of an Excel

Indicate which of the detected variables you wish to import by checking the boxes in the first column. In the "Variable type" column, define the variable types. The data pattern can be used as a helpful indication.

Hint: Columns with an empty heading will be ignored and are not listed in the dialog.

After clicking **Import** the Excel file will be read and all Stats analysis functions will be available.

Hint: Upon import, variable names will be truncated to a maximum of 63 characters. Columns with variable names that already exist further left in the Excel file in an identical manner will be ignored upon import.

Naturally, no information on missing values or value labels will be imported, because this type of information is not included in the Excel file. The measurement level will be set according to the variable type: integer, floating point and date variables will be set at "interval", whereas text and Boolean variables will be set at "nominal".

Create new External File

In MAXQDA Stats, you can create new external data and store it in SPSS format, for example, results from a survey can be inputted and evaluated directly in MAXQDA Stats.

- If MAXQDA Stats has not yet been launched, select **Stats > Start Stats with new external file** from the MAXQDA main menu.
- If MAXQDA Stats has already been launched, create a new file directly from the main menu by selecting **File > New external file**. In MAXQDA Stats only one dataset can be open at a time, so Stats will ask if you would like to save the file that is already open or transfer it to MAXQDA, as the data matrix will no longer be available once the external file is open.

MAXQDA Stats will open directly with an empty Variable List, in which you can insert new variables and subsequently enter values in the Data Editor.

Save External Data in SPSS Format

To save a currently open file as an SPSS file (which can be read by several statistical packages), proceed as follows:

1. Select the menu function **File > Save as** then, in the window that appears, specify a filename and location for the SPSS file.
2. MAXQDA Stats will ask if you also wish to export the codes to SPSS. If you answer yes, each code that is available for analysis in the selection window in MAXQDA Stats will be exported as its own variable. The values of these variables corresponds to the occurrence of the codes in the relevant documents.

Hint: Existing files cannot be overwritten, only saved with a new filename. This means each time you save your data a new file will be created.

When exporting data to SPSS, the following should be taken into consideration:

- Spaces and certain characters are permitted in MAXQDA but not in SPSS. In order to be SPSS compliant, variable names will be processed as follows:

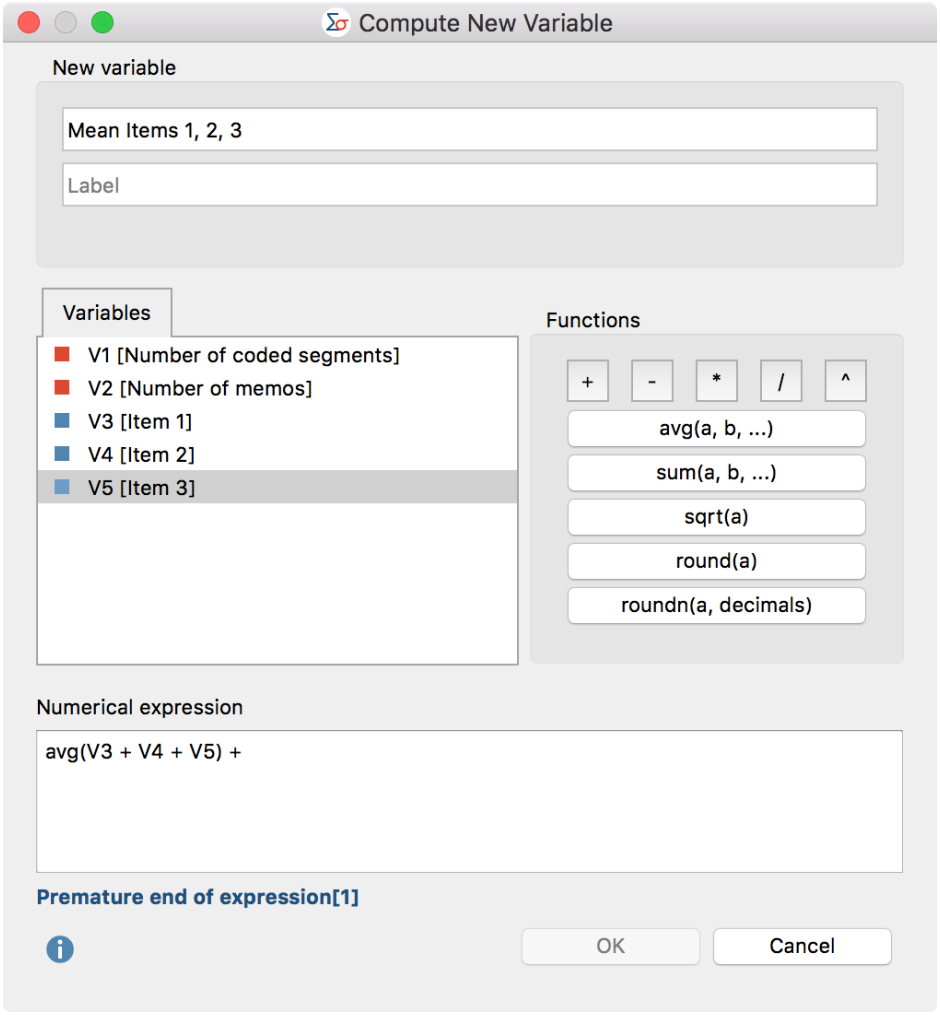
Variable Name	Adaptation
Blank space	Will be replaced with underscore_
Begins with #	# will be replaced with HASH
Begins with $	$ will be replaced with DOLLAR
Is too long	Will be shortened
Is a reserved word	_MQ will be attached as suffix
Begins with an invalid character	Character will be replaced with an x
Forbidden character	Will be replaced with a period, blank spaces with an underscore; if at end will be cut off

- In order for the variable name to remain identifiable following the adaptation, a number may be added at the end.
- For text variables, missing values will be exported only if none of the variable values is longer than 8 bytes, otherwise SPSS will not accept any missing values for text variables.

8 Transform data

Compute Variables

With MAXQDA Stats you can perform calculations on a selected variable and store the result in a new variable. To begin the calculation, select the function **Transform > Compute variable** from the Stats main menu. The following window will appear:



Window for calculation of new variables

When calculating variables, proceed as follows:

1. In the upper pane of the window, assign a new variable name and a label if required. If the variable name already exists, MAXQDA will indicate it in red. The newly created variable will automatically be assigned the type "Floating".
2. In the lower pane "Numerical expression", assign an evaluation instruction. If the input cannot be evaluated, for example because a bracket or a summand is missing, MAXQDA will indicate so in blue as displayed in the screenshot.

In the "Variable" section, all "Integer" and "Floating point" type variables are listed. All variables are numbered consecutively from "V1" to "Vn", with the variable name (or the label if present) enclosed in square brackets. When proceeding with the calculation, the identifier must be inputted as displayed in the screenshot above.

Tip: Double-clicking a variable will insert it into the current cursor position, so it does not need to be entered manually.

In the right hand pane, "Functions", frequently used functions including the applied syntax are listed. Click the function buttons to insert the function in the calculation pane.

Function	Meaning
+ - * /	Add, subtract, multiply, divide
^	Exponent, for example "V1^2" is the variable "V1" squared
avg(a, b, …)	Arithmetic mean of all variables or arithmetic expressions enclosed in the parentheses (separated by commas). Any number of variables or arithmetic expressions can be enclosed in the parentheses.
sum(a, b, …)	Sum of all variables or arithmetic expressions enclosed in the parentheses (separated by commas). Any number of variables or arithmetic expressions can be enclosed in the parentheses.
sqrt(a)	Root of the expression in parentheses
round(a)	The arithmetic expression in parentheses will be rounded to the next whole number
roundn(a, decimals)	The arithmetic expression in parentheses will be rounded to the specified number of decimal places

When you click **OK**, the new variable will be calculated and displayed in the Data Editor.

Hint: If one of the variable values in the calculation instruction is empty or defined as missing, a system-defined missing value will be entered for the result, and the cell will remain empty.

You can also include if-then conditions in the calculation. The following examples illustrate the syntax to be used:

```
if (V1 > V2) {
  V1
}
else {
  V2
}
```

Alternative Syntax:

```
if (V1 > V2)
  V1;
else
  V2
```

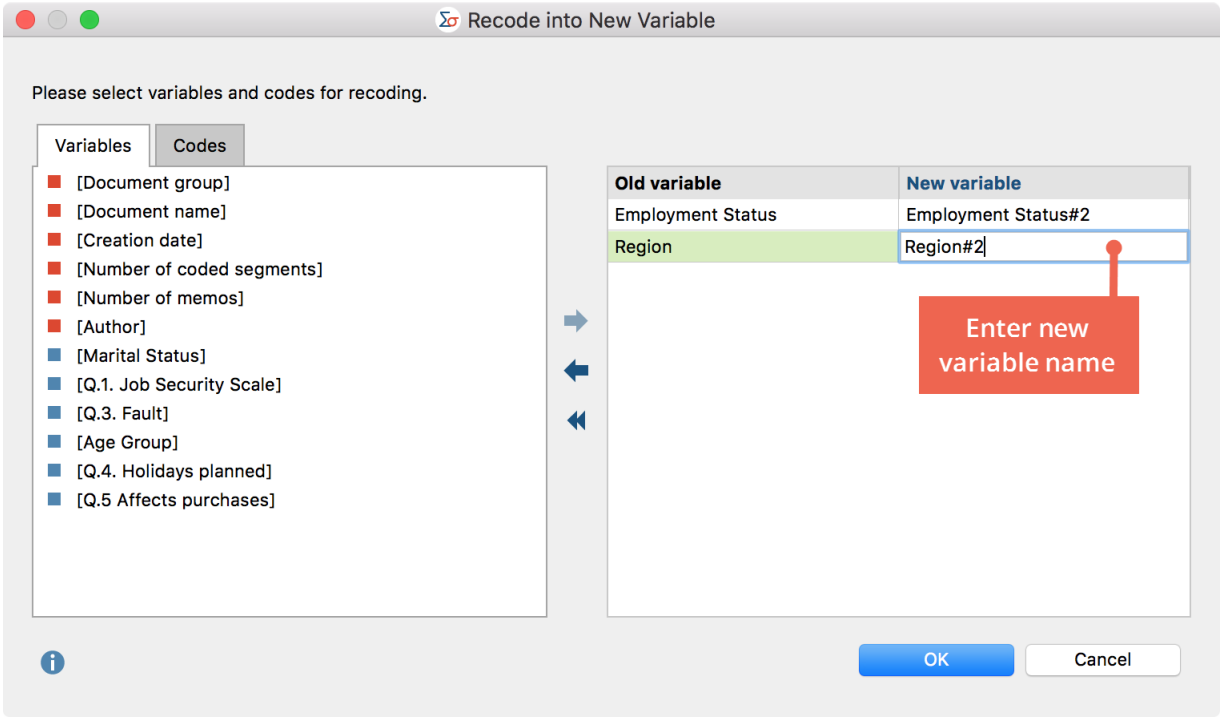
Recode Variables

Often when working with datasets there is the desire to recode variables; for example, to reverse the polarity of an item or group multiple variables as a single variable, summarized as, for example, differentiated collected information on schooling for three levels of education. MAXQDA Stats allows recoding of multiple variables or variable values at a time.

Recode into New Variable

Normally variable values are recoded as new variables so that the original value will not be affected. Proceed as follows:

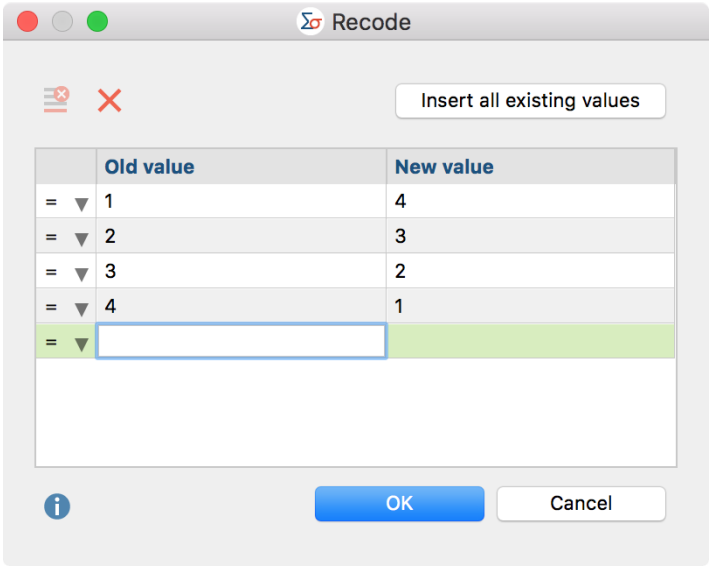
1. Begin the recoding process from the menu function **Transform > Recode into new variable**.
2. The following window will appear:



3. In the left hand pane, select the variables that you wish to recode. Double-click the desired variable to transfer it to the right-hand pane. Multiple variables can be transferred at a time by holding the

Ctrl/cmd key as the variables are selected, then moving them to the right pane with the mouse or by using the blue arrow in the center of the window.

4. For the new variable name, MAXQDA Stats automatically suggests the original name supplemented with a number after a hashtag #. You can modify the name by editing it in the cell.
5. When you click **OK**, a dialog box will appear for the input of the modified values:



Dialog box for input of values to be recoded

In the "Old value" column, enter the original value and in the "New value" column, enter the target value to be recoded. The image above shows a classic example: the value of the items is reversed, so that the lowest value of 1 becomes the highest value of 4, and vice versa.

Using the selection list in the first column, you can specify a range of values to which a single new value will be assigned. In the selection list, the operators greater than (>); less than (<); greater than or equal to (≥); or lesser than or equal to (≤) are available. Using the following rows, a variable with a value of 3 can for example be dichotomized, so that in the new variable 0 is displayed for values under 3, and 1 is displayed for values over 3:

	Old value	New value
<	3	0
≥	3	1

The button **Insert all existing values** lists the occurring values for all selected variables, which is especially practical when all values of a variable will be recoded and you wish to immediately begin entering the new values.

The and symbols allow you to delete individual or all rows.

6. When you click **OK** the new variable will be inserted and displayed in the Data Editor. The variable label will appear as the original supplemented with the suffix "recoded" so the recoded variable can be easily recognized. If no label is present, the variable name is used as a label to which "recoded" is added.

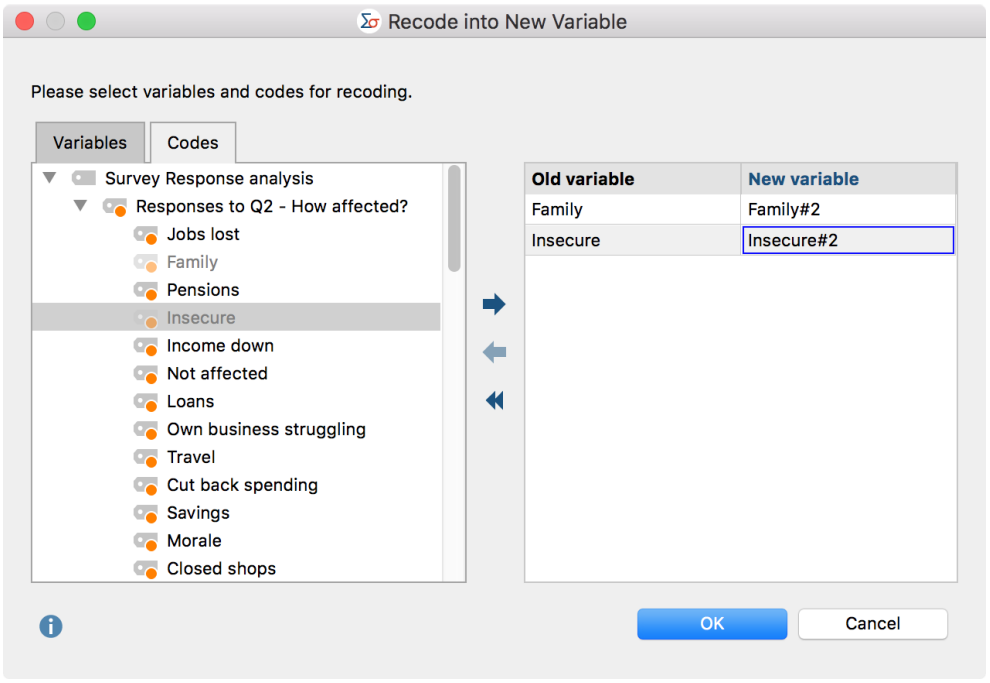
MAXQDA Stats proceeds specifically as follows when recoding:

- In case of conflict of the attribution, the lower attribution will be applied. For example, if the first row states "1 to 4" and the second row states ">0 to 3", 1 will be recoded as 3 and not 4.
- If no new value is specified for an existing value, the old value will be retained.
- Value labels will not be transferred to the new variable, but the definitions for missing values.

Recode Code Frequencies per Document as New Variables

With MAXQDA Stats, you can not only recode variables, but also the code frequencies that were transferred from a MAXQDA project to MAXQDA Stats. If you launched MAXQDA Stats with the data from a MAXQDA project, click the "Code" tab in the dialog box to select individual codes from the familiar code tree.

To recode a code as a new variable, double-click the code or drag it into the right pane of the window using the mouse. You can also use the blue arrow to transfer codes to the right pane.



Select codes for recoding as new variables

Assuming that you are only interested in whether or not a code has been assigned in a document, the exact number of code frequencies is not relevant, but only whether 0 or a higher number is displayed. In this case the code can be recoded in a single fow and stored as a new variable:

	Old value	New value
> ▼	0	1

Recoding into the Same Variable

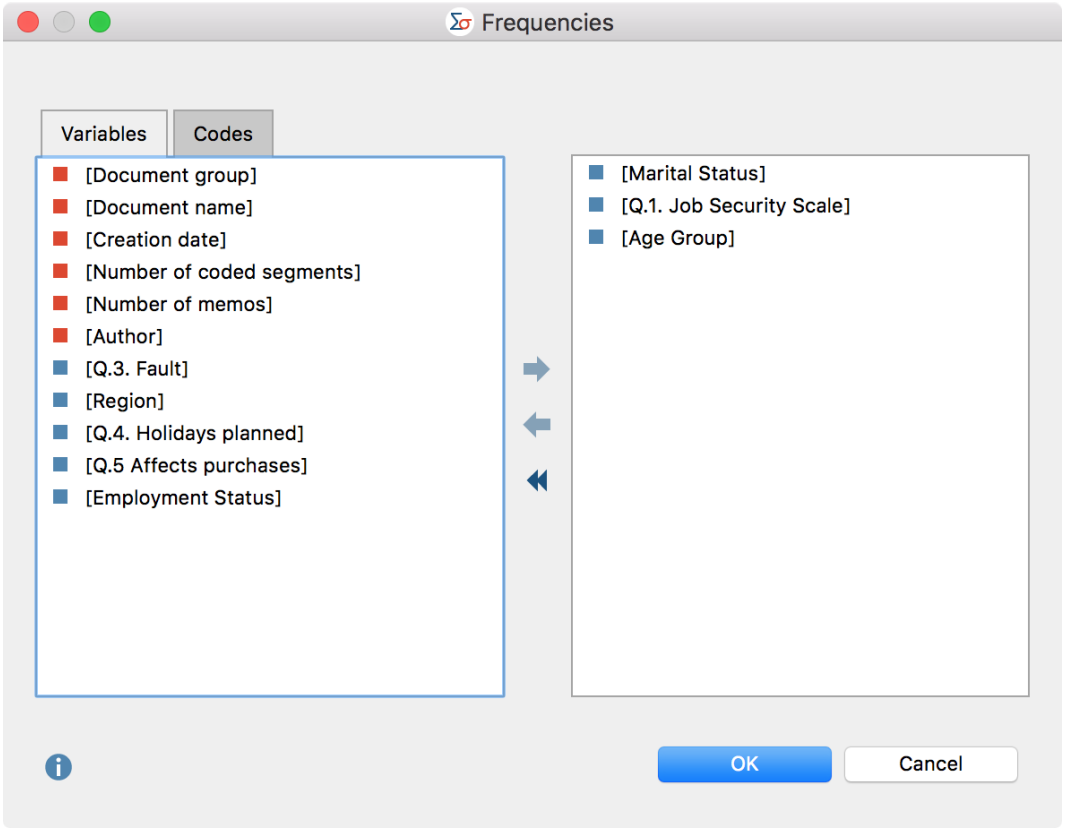
Recoding into the same variable is performed in the same way as recoding into a new variable, from the menu **Transform > Recode into same variable**. However, for this procedure only variables, not codes, can be selected, and naturally the definition of a new variable name is omitted.

9 Frequency tables

Create a new Frequency Table

To create a new frequency table, proceed as follows:

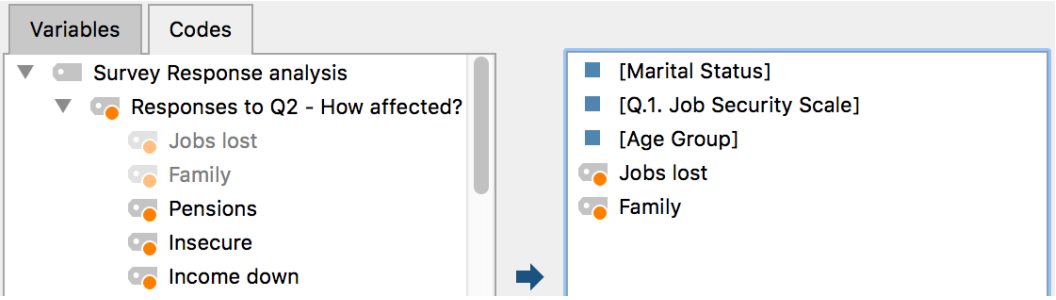
1. Select the menu function **Descriptive Statistic > Frequencies**.
2. In the window that appears, select the variables for which you would like to create frequency tables:



Variables can be selected in several ways:

- Double-click on a variable.
- Drag and drop the variable into the right window pane.
- Select one or multiple variables with the mouse by holding the Ctrl/Cmd key then drag the selection into the right window pane with the mouse, or click the blue arrow in the middle of the window.

3. Switch to the "Codes" tab and select the codes for which you would like to create frequency tables. (This function is available only when MAXQDA Stats is launched from a MAXQDA project).



When you click **OK**, MAXQDA Stats creates a frequency table and displays it in a results view.

Results Table

Frequencies

Q.1. Job Security Scale

	Frequency	Percent	Percent (valid)	Percent (cum.)
low	45	23.6	24.6	24.6
1	5	2.6	2.7	27.3
2	60	31.4	32.8	60.1
3	46	24.1	25.1	85.2
high	27	14.1	14.8	100.0
TOTAL (valid)	183	95.8	100.0	
MISSING: System	5	2.6		
MISSING: 99	3	1.6		
TOTAL	191	100.0		

Results table for frequency

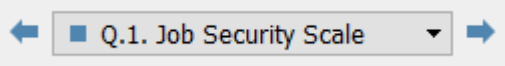
The frequency table displays how many times the individual variables occur. For the variable "Job Security Scale" the value "low" was assigned in 45 cases, and the value "high" in 27 cases. The lower section of the table shows system-defined missing values (blank cells) as well as defined missing values. In the example above, there are 99 missing values, which occurred in 3 cases.

Hint: If a value is defined in the individual missing values as well as in a range of missing values, it will be calculated only as an individual missing value. For example, if "99" is defined as missing and also "50 to 100", "99" will be included in its own row and excluded from the range "50 to 100."

Overview of Toolbar Functions

In the upper section of the results window two toolbars are located, which contain the following important functions:

Table view / Chart view – switches between table and chart view.



Previous/Next – using the blue arrow or the selection list, switch between the results table for previously selected variables or codes.

Refresh – Calls up again the dialog for creation of frequency tables.

Insert into output viewer – inserts the currently displayed table or chart in the Output Viewer.

Insert all into output viewer – inserts all created tables or charts in the Output Viewer.

Copy to clipboard – copies the current table, highlighted area in the table, or chart in the clipboard, for example for insertion into Word.

Print – prints the currently displayed table or chart.

Export – exports the currently displayed table in Excel format, website (HTML) format or RTF format for Word and other word processing programs; exports the currently displayed chart in PNG, SVG or EMF (only Windows) format.

Show value labels – this option is selected by default and causes the defined value label of a variable to be displayed in the place of the value of the variable.

Descriptive statistics – this option is available only for integer and floating point type variables as well as for codes and displays a window with descriptive statistics for the displayed frequency tables.

Undo changes – step-by-step resetting of changes to a table (deletion of rows, merging and moving of rows).

Redo – step-by-step restoring of changes to a table.

Sort Tables and Customize Columns

Tables can be sorted by clicking a column header, in ascending order with the first click and descending order with the second. Clicking again will restore the original order.

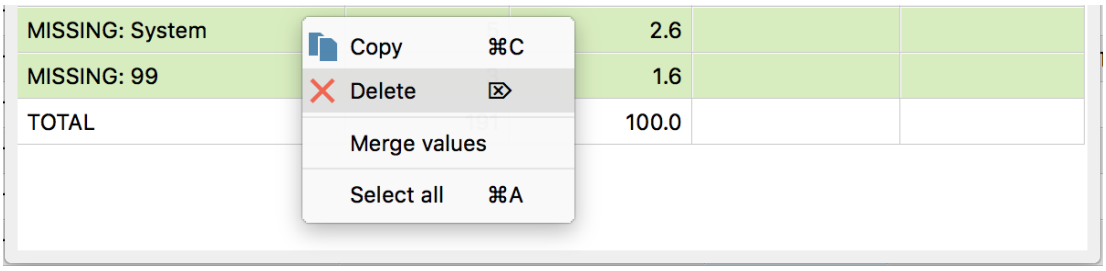
Tip: You can also move the rows of the results table. Click a row, then drag and drop with the mouse to the desired location. This function is also available for multiple highlighted rows. Lines containing totals or missing values cannot be moved.

Column widths can be adjusted with the mouse, and their position can be changed by clicking the column header then dragging them to the desired location with the mouse.

Delete Rows

The results table is interactive and one or more rows can be removed, for example to restrict the evaluation to selected variables. **Right-click a row** and select **Delete**. You can also select multiple rows to delete by holding down the Ctrl/cmd key.

In this way, you can also remove the missing values from the display:



Delete rows from the results table using the context menu

The table will be automatically updated.

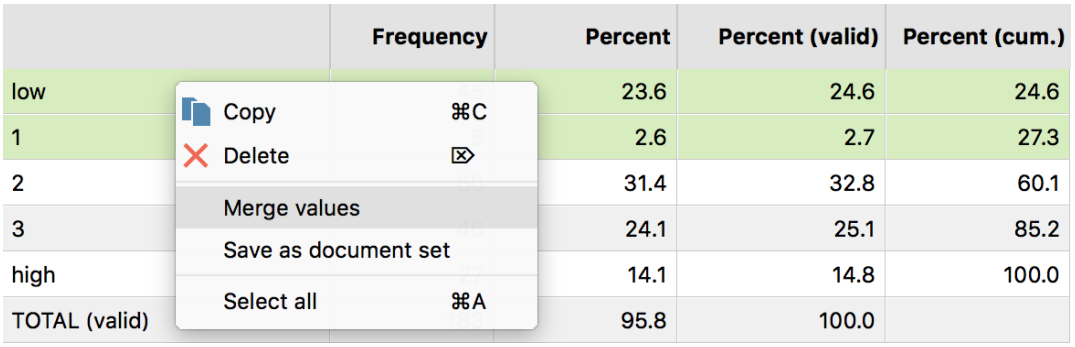
Tip: A column can be hidden from the table by right-clicking within the column header and selecting **Hide column**. When the frequency function is called up the next time, the column will be automatically displayed again.

Merge Values

The interactive results table also allows you to merge multiple values:

1. **Highlight at least two rows** by holding down the Ctrl/cmd key as you click on the desired rows with the mouse.
2. Right-click the selection and select **Merge values**.

In the following example, the two lowest values for the variable "Job Security Scale" are merged:

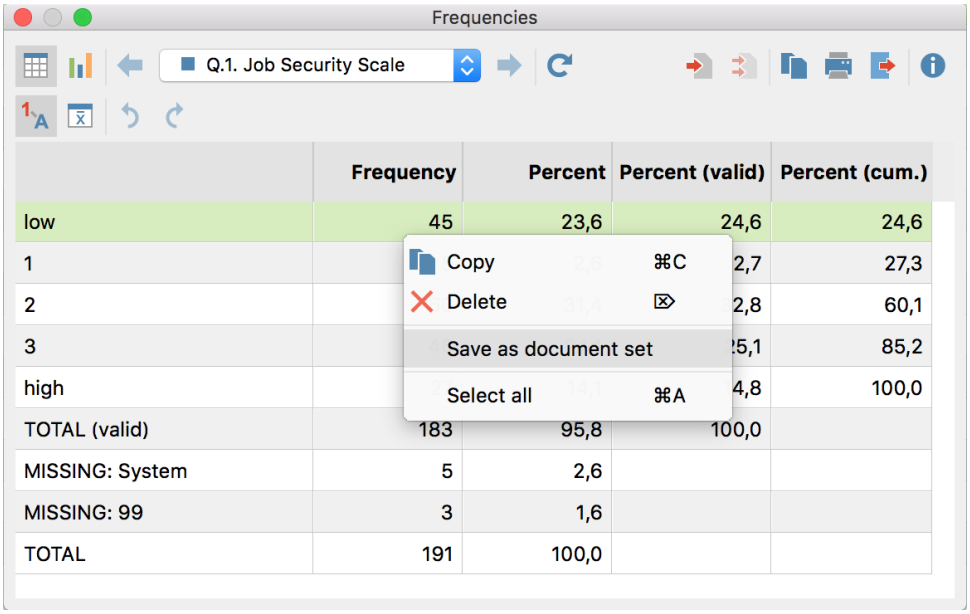


Merge multiple values using the context menu

The table will be automatically updated.

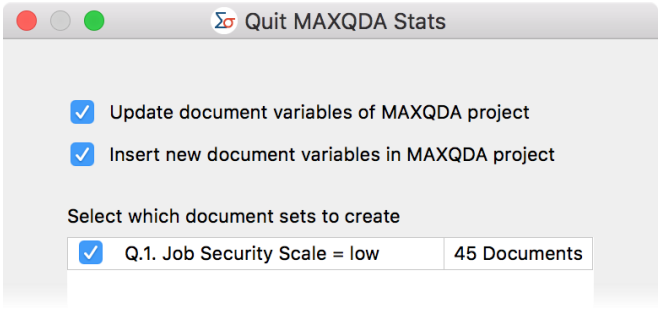
Save Documents as Document Set

If MAXQDA Stats is launched with the data from a MAXQDA project, the frequency of individual variable values corresponds to the number of documents in which these variable values occurred. In this case, a compilation of documents is present behind each frequency count. This compilation of documents can be saved as a document set in MAXQDA: **Right-click on a row** and select **Save as document set**.



Store documents that are attached to a variable value as a document set in MAXQDA

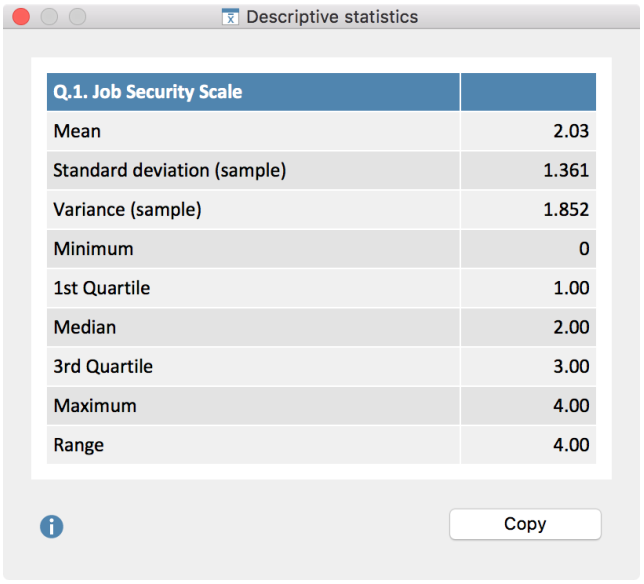
Initially, MAXQDA stores such sets in the background. When you exit Stats, all document sets created during the analysis will be displayed, so you can select which document sets you wish to transfer to the MAXQDA project.



Select document sets upon exiting MAXQDA Stats

Calculate Descriptive Statistics for Frequency Tables

It is possible to request a table with the measures of the descriptive statistics for all frequencies of integer or floating-point type as well as for codes. When you click the **Descriptive Statistics** symbol the following window will appear, which contains typical measures for descriptive statistics.



Descriptive Statistics for a variable

When you click the **Copy** button, the table will be transferred to the clipboard for insertion into programs such as Word.

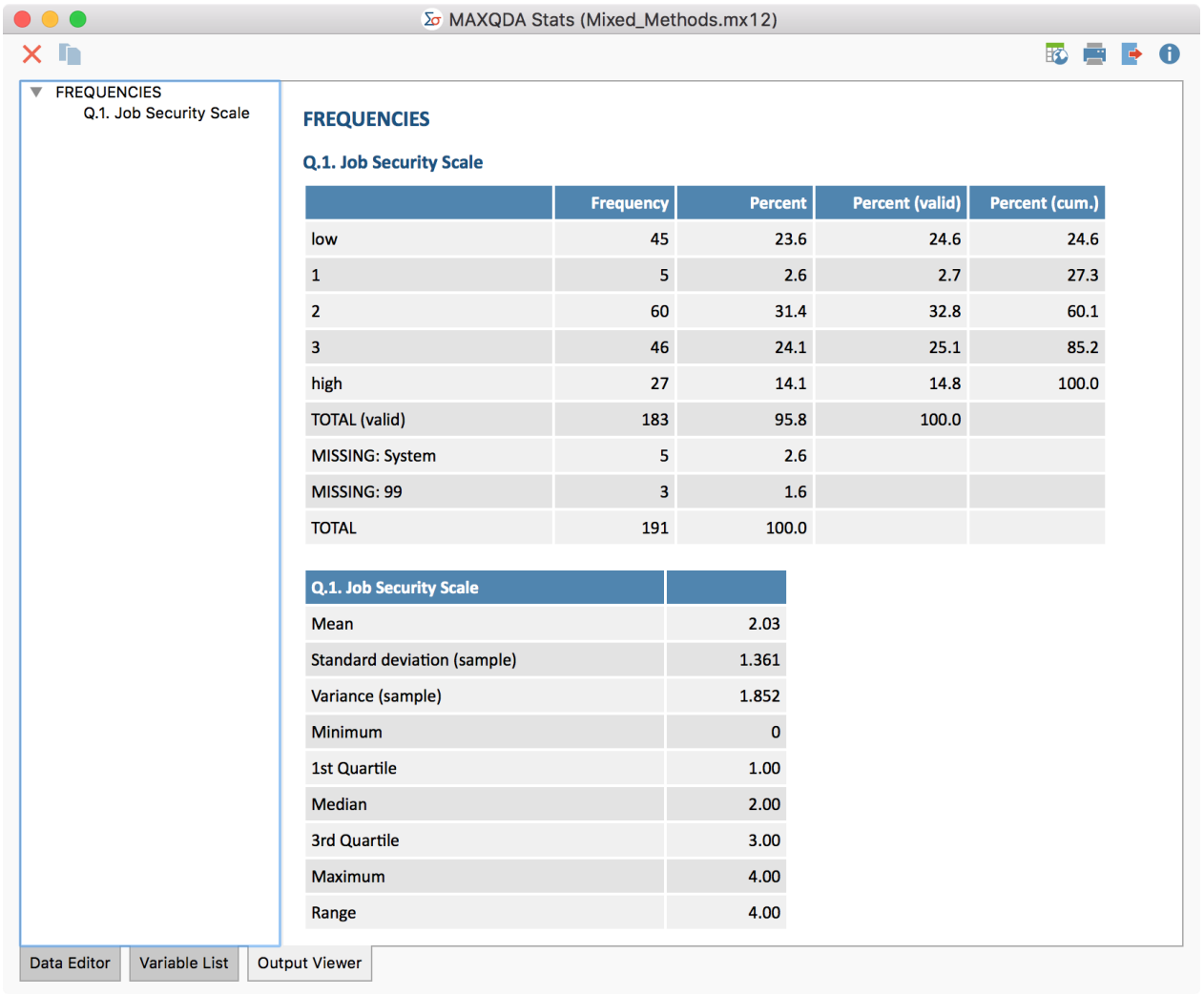
Transfer Results Table to Output Viewer

After the tables have been created and adapted according to your needs, they can be transferred to the Output Viewer from which they can later be exported together:

- Click the **Insert into output viewer** icon to transfer the currently displayed results table to the Output Viewer.
- Click the **Insert all result tables into output viewer** icon to transfer all frequency tables to the Output Viewer.

If at least one of the tables was created for an integer or floating-point variable or a code, MAXQDA Stats will ask if you also wish to insert the descriptive statistics into the Output Viewer. If you agree, a table containing the descriptive statistics will be displayed below the results table.

Tip: When the table is transferred, the adjusted column widths will be maintained.



	Frequency	Percent	Percent (valid)	Percent (cum.)
low	45	23.6	24.6	24.6
1	5	2.6	2.7	27.3
2	60	31.4	32.8	60.1
3	46	24.1	25.1	85.2
high	27	14.1	14.8	100.0
TOTAL (valid)	183	95.8	100.0	
MISSING: System	5	2.6		
MISSING: 99	3	1.6		
TOTAL	191	100.0		

Q.1. Job Security Scale	
Mean	2.03
Standard deviation (sample)	1.361
Variance (sample)	1.852
Minimum	0
1st Quartile	1.00
Median	2.00
3rd Quartile	3.00
Maximum	4.00
Range	4.00

Frequency table in the Output Viewer following transfer

Export and Print Results Table

Several options for exporting and printing the currently displayed results table are available using the following symbols:

Copy to clipboard – copies the entire table or selection to the clipboard, for example in order to paste it directly into Word.

Print – starts the print process and displays a print preview, in which the settings such as margins, orientation, headers and footers can be applied.

Export – exports the table in Excel format, website (HTML) format or RTF format for Word and other word processing programs.

Display Frequencies as Charts

Frequency tables can be displayed as column, bar, or pie charts. You can switch between chart and table views using the and icons.

Frequency chart

You can customize the chart design and display by using the icons in the toolbar above the chart, as well as double-clicking and right-clicking on the elements of the chart. The size of the chart automatically adjusts to the window size. Enlarge the window to get a larger chart.

Hint: At maximum, the first 20 entries of the frequency table will be displayed in the chart.

Frequency charts can be transferred to the Output Viewer for later export. In order to do so, use the following icons.

Insert chart into output viewer, to insert only the current display

Insert all charts into output viewer, to insert charts for all created frequency tables at the same time.

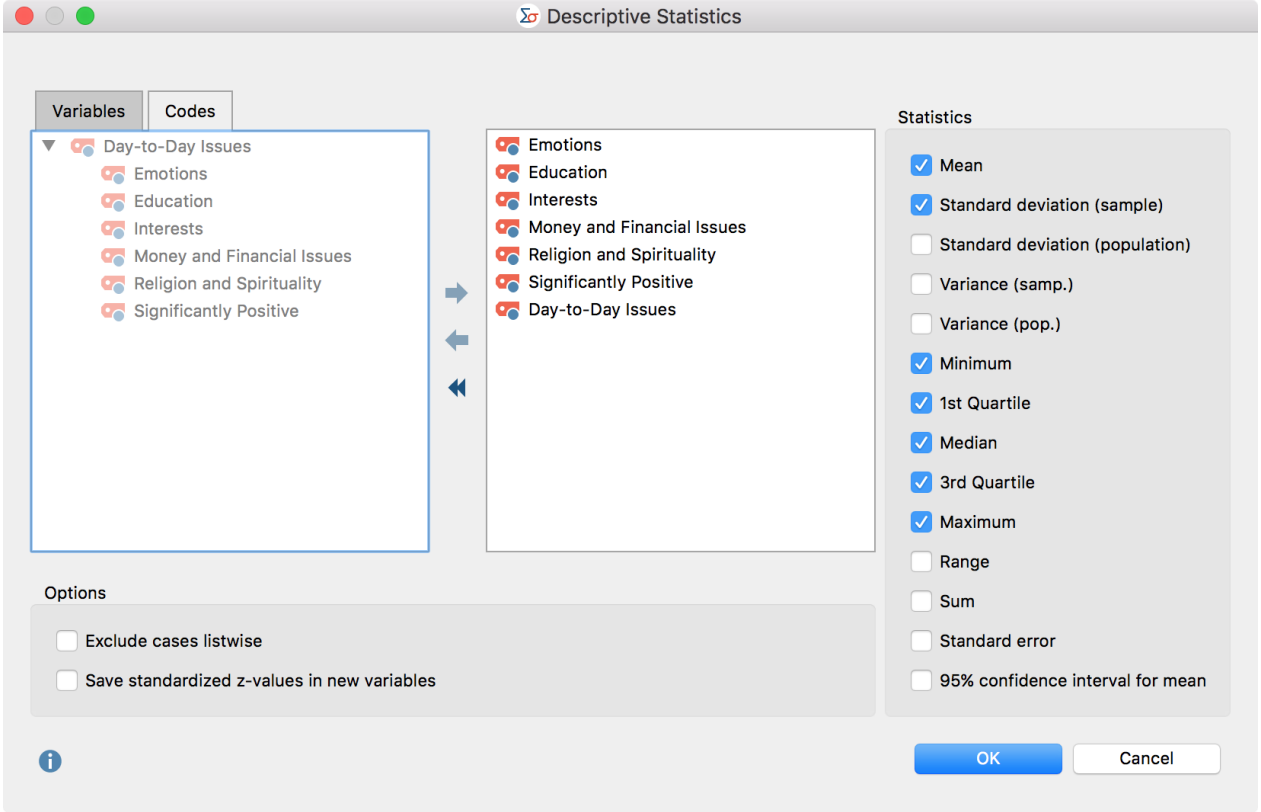
Hint: Charts will be inserted into the Output Viewer in the size that they are displayed, to a maximum width of 650 pixels.

To export or print a chart directly, you can use the usual icons in the top right of the window:

Copy to clipboard, **Print** and **Export**.

10 Descriptive Statistics

With MAXQDA Stats you can calculate various measures of descriptive statistics for several variables simultaneously, and compare results in an easy-to-read table. Begin the evaluation using the Descriptive **Statistic > Descriptive Statistics** menu. The following window will appear, where you can select all the desired variables and codes. In the window, only integer or floating point variables will be displayed:



Select codes, variables and options for Descriptive Statistics

Variables can be selected in several ways:

- Double-click on a variable.
- Drag and drop the variable into the right window pane.
- Select one or multiple variables with the mouse by holding the Ctrl/Cmd key then drag the selection into the right window pane with the mouse, or click the blue arrow in the middle of the window.

To generate descriptive statistics for code frequencies per document, switch to the "Codes" tab and select the desired codes. (This option is available only if MAXQDA Stats was launched with the data of a MAXQDA project).

In the right pane of the window you can select typical metrics and values for the descriptive statistics, some of which require further explanation:

1st and 3rd Quartile – The first quartile corresponds to the 25 percentile and indicates the value below which 25 % of all values fall. Accordingly, 25% of all values are greater than the value of the third quartile, that is the 75th percentile. There are various methods to determine the percentile of a distribution of measured values. A review of nine different methods can be found in Hyndman & Fan (1996): "Sample quantiles in statistical packages". In MAXQDA Stats method no. 7 is implemented, which is also the default method used by "r".

Standard deviation (sample) vs. **(population)** – for the standard deviation of population the unbiased estimator is calculated by dividing the sum of squares by (n - 1), while selecting "sample" the sum is divided by n. The same applies to the calculation of the variance.

Mean error – the standard error of the mean value is output, which is estimated from the random sample. When several samples are taken from a population, the means of these samples scatter around the true mean of the population. This scattering is called mean error.

95% confidence interval for mean – Using the mean error, the limits of the interval are calculated and displayed, which represent a 95% probability of the population mean.

In the lower section of the window, the following options are available:

Exclude cases listwise – select this option to include only cases for which all selected variables have a valid value.

Save standardized z-values in new variables – Check this option to perform a z-standardization of values for all selected variables and codes, and store the results in the new variables. The original variable name is used, supplemented by the suffix "_zvalues". Existing variable labels are also used and supplemented by the suffix (z-standardized). If no variable label was present, the variable name is entered as a label.

Hint: For calculation of z-values the standard deviation (population) with denominator (n – 1) is used.

Results tables

After beginning the evaluation by clicking **OK** the following results table appears, in which the selected variables and codes form the rows and the selected measures form the columns:

Descriptive Statistics

Variable	N	Mean	Std.dev. (samp.)	Minimum	1st Quartile	Median	3rd Quartile	Maximum	Missing	Missing (%)
Emotions	80	2.10	1.375	0	1.00	2.00	3.00	4.00	0	0
Education	80	1.60	1.855	0	0	0.50	3.00	5.00	0	0
Interests	80	1.20	1.600	0	0	0.50	2.00	5.00	0	0
Money and Financial Issues	80	0.41	0.665	0	0	0	1.00	2.00	0	0
Religion and Spirituality	80	0.61	1.496	0	0	0	0	5.00	0	0
Significantly Positive	80	2.42	1.889	0	0	2.50	4.00	6.00	0	0

Results table for the "Descriptive Statistics" function

The result table always contains the column "N" with the number of valid cases (far left) and the column "Missing" and "Missing (%)" (far right), which provide information on the absolute and relative proportion of missing values for each variable. When the "Exclude cases listwise" option is selected, the missing values are all identical. In the example above, code frequencies were evaluated, among which there were no defined missing values, therefor the last two columns contain null values.

Sort Tables and Customize Columns

Tables can be sorted by clicking a column header, in ascending order with the first click and descending order with the second. Clicking again will restore the original order.

Tip: You can also move the rows of the results table. Click a row, then drag and drop with the mouse to the desired location. This function is also available for multiple highlighted rows. Lines containing totals or missing values cannot be moved.

Column widths can be adjusted with the mouse, and their position can be changed by clicking the column header then dragging them to the desired location with the mouse.

Delete Rows (Variables)

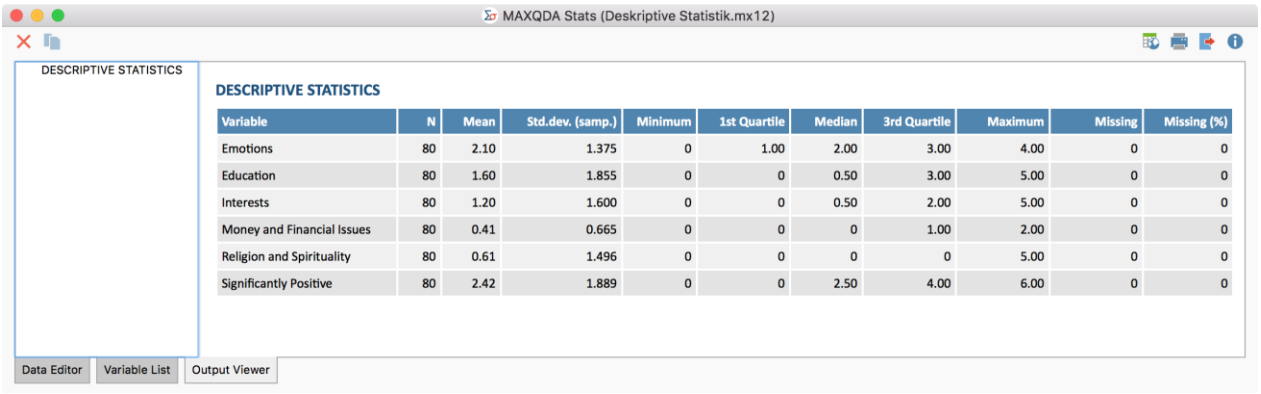
The results table is interactive and one or more rows (variables) can be removed. Right-click a row and select Delete. You can also select multiple rows to delete by holding down the Ctrl/cmd key. When a variable is deleted from the table the table will not be recalculated, even if the Exclude cases listwise option was selected and the number of the valid values would change.

Tip: Columns can be hidden from the table, by right-clicking on the column header and selecting the **Hide column** option. The next time the function is called up, the column will automatically be displayed.

Transfer Results Table to the Output Viewer

Once the tables have been created and adapted according to your needs, they can be transferred to the Output Viewer by clicking the **Insert into Output Viewer** icon, which allows the tables to later be exported along with other results.

Tip: Upon transfer, modifications to column width will be maintained.



DESCRIPTIVE STATISTICS

Variable	N	Mean	Std.dev. (samp.)	Minimum	1st Quartile	Median	3rd Quartile	Maximum	Missing	Missing (%)
Emotions	80	2.10	1.375	0	1.00	2.00	3.00	4.00	0	0
Education	80	1.60	1.855	0	0	0.50	3.00	5.00	0	0
Interests	80	1.20	1.600	0	0	0.50	2.00	5.00	0	0
Money and Financial Issues	80	0.41	0.665	0	0	0	1.00	2.00	0	0
Religion and Spirituality	80	0.61	1.496	0	0	0	0	5.00	0	0
Significantly Positive	80	2.42	1.889	0	0	2.50	4.00	6.00	0	0

Frequency table following transfer to the Output Viewer

Export and Print Results Table

Several options for exporting and printing the currently displayed results table are available using the following symbols:

Copy to clipboard – copies the entire table or selection to the clipboard, for example in order to paste it directly into Word.

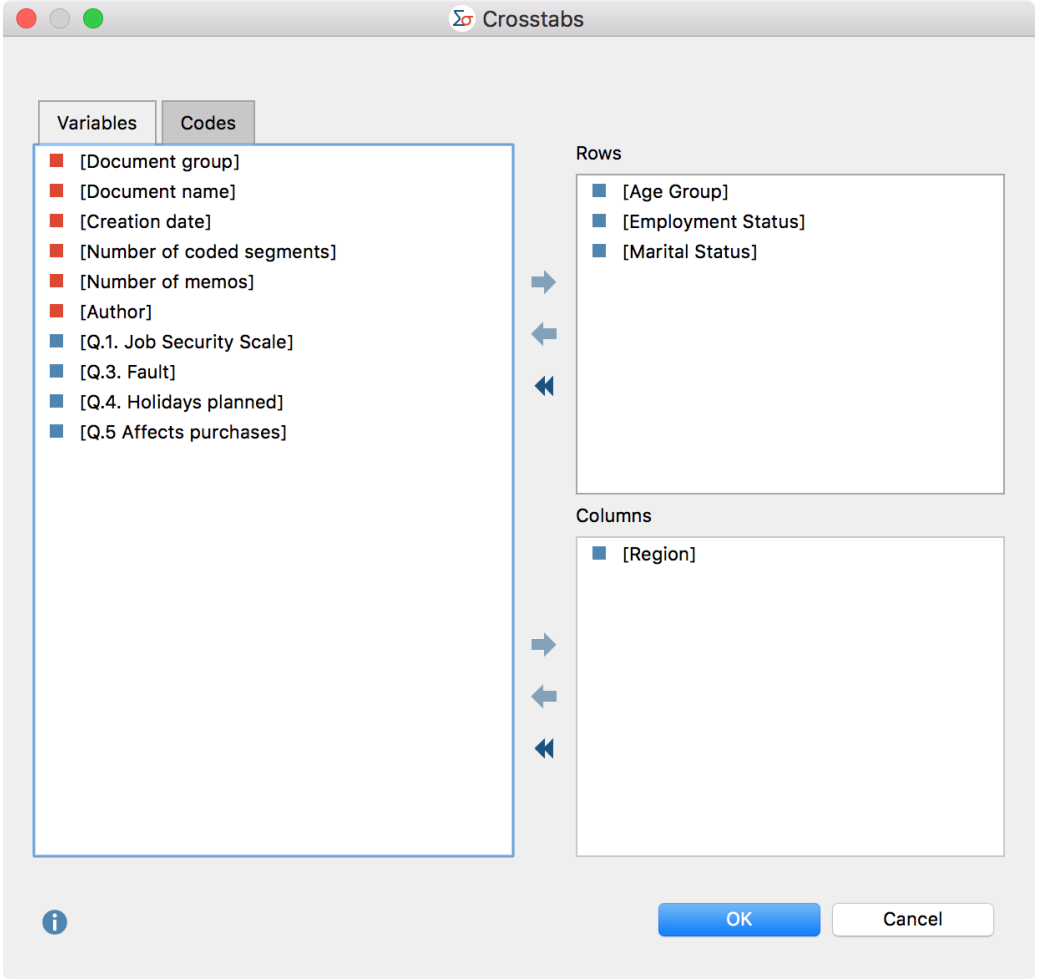
Print – starts the print process and displays a print preview, in which the settings such as margins, orientation, headers and footers can be applied.

Export – exports the table in Excel format, website (HTML) format or RTF format for Word and other word processing programs.

11 Crosstabs

Create a New Crosstab

In order to create a new crosstab select **Compare Groups > Crosstabs** in the main menu of MAXQDA Stats. A window appears that allows you to determine rows and columns for the crosstab.



Dialog box for selection of rows and columns in the crosstab

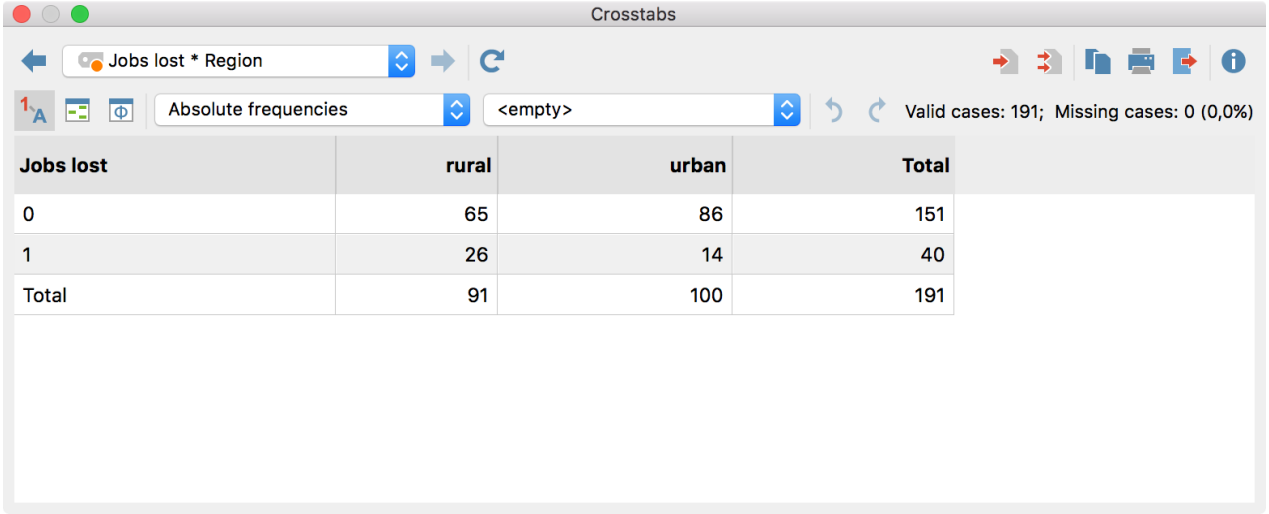
Variables can be selected in several ways:

- Double-click on a variable.
- Drag and drop the variable into the right window pane.
- Select one or multiple variables with the mouse by holding the Ctrl/Cmd key then drag the selection into the right window pane with the mouse, or click the blue arrow in the middle of the window.

To integrate code frequencies per document in the crosstab, switch to the "Codes" tab and select the desired codes. (This option is available only if MAXQDA Stats was launched with the data of a MAXQDA project).

Results Table

After starting the calculation by clicking **OK** a crosstab will be computed for each combination of rows and columns variables. The figure above shows a selection for which four crosstabs will be created. Following results table appears that allows you to switch between the single crosstabs by using the blue arrows and the drop down menu at the top of the window.



Jobs lost	rural	urban	Total
0	65	86	151
1	26	14	40
Total	91	100	191

Results table for the function "crosstabs"

The number of valid and missing values for the displayed variable combination is shown in the upper right corner.

Selecting displayed values

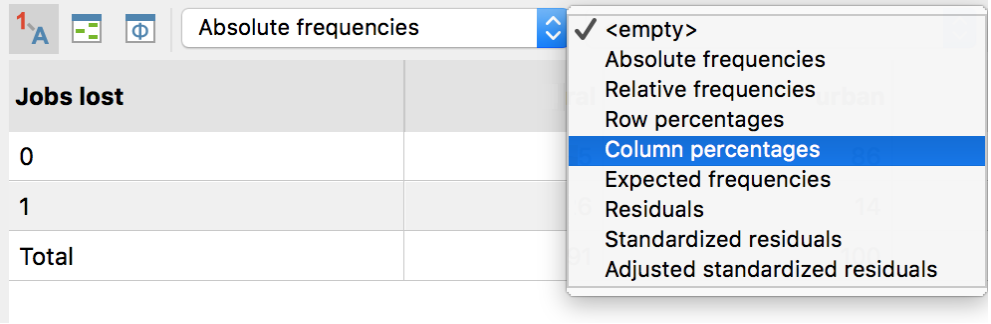
If you start the function "crosstabs" the numbers in the cells display the absolute frequencies, thus the number of cases for each combination of variable values. You can switch the display for the cells to the following values:

- **Relative frequencies** – percentage based on all valid values
- **Row percentage** – percentage based on the sum of a row
- **Column percentages** – percentage based on the sum of a column
- **Expected frequencies** – expected frequencies in case of independence of both variables
- **Residuals – differences between observed absolute frequencies and the expected.** In case of positive residuals more cases occurred than it would be expected considering the marginal distributions.

Standardized residuals – in order to gain a better comparability the residuals are divided by the root of the expected frequencies. The standardized residuals' magnitude corresponds to the root of the particular cell's Chi-square.

Corrected standardized residuals – the standardized residuals are adjusted on the basis of the marginal frequencies.

The cells of the crosstab display either one or two of the presented values. Use the drop down menu on the top of the chart to select the values you want to display.

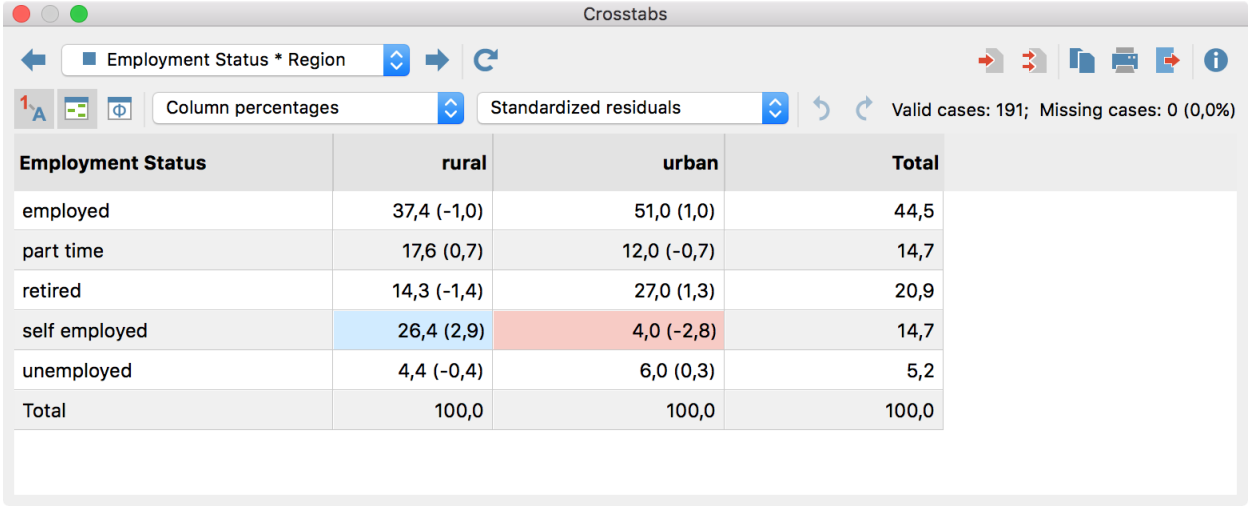


Setting the content for the cells

Highlighting cells with high standardized residuals

You can use standardized residuals for the exploratory interpretation of the table. This is possible because based on the assumption of the independency of the two tabulated variables the standardized residuals are asymptotically normally distributed. Accordingly, a standardized residual greater than 2 or less than -2 indicates an unexpected high or low number of observations in the cell. Values that exceed the magnitude of 2.6 are even less to expect.

Click on the icon **Highlight cells with high standardized residuals**. Now MAXQDA Stats highlights all cells with a standardized residual greater than 2 in blue and all cells with values smaller than 2 in red. If there are values which magnitude is greater than 2.6 the cells are additionally displayed darker.

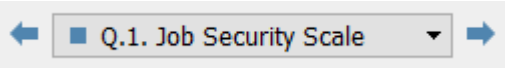


Employment Status	rural	urban	Total
employed	37,4 (-1,0)	51,0 (1,0)	44,5
part time	17,6 (0,7)	12,0 (-0,7)	14,7
retired	14,3 (-1,4)	27,0 (1,3)	20,9
self employed	26,4 (2,9)	4,0 (-2,8)	14,7
unemployed	4,4 (-0,4)	6,0 (0,3)	5,2
Total	100,0	100,0	100,0

Crosstab with highlighted cells for easier interpretations

Overview of Toolbar Functions

In the upper section of the results window two toolbars are located, which contain the following important functions:



Previous/Next – using the blue arrow or the selection list, switch between the created crosstabs table.

Refresh – Calls up again the dialog for creation of crosstabs.

Insert into output viewer – inserts the currently displayed table in the Output Viewer.

Insert all into output viewer – inserts all created tables in the Output Viewer.

Copy to clipboard – copies the current table or the highlighted area in the table in the clipboard, for example for insertion into Word.

Print – prints the currently displayed table.

Export – exports the currently displayed table in Excel format, website (HTML) format or RTF format for Word and other word processing programs; exports the currently displayed chart in PNG, SVG or EMF (only Windows) format.

Show value labels – this option is selected by default and causes the defined value label of a variable to be displayed in the place of the value of the variable.

Highlight cells with high standardized residuals – switch on this option for highlighting cells, which magnitudes of standardized residuals are greater than 2 for easy interpretation of the results.

Association measures – opens a window with association measures for the two variables displayed in the actual crosstab.

Undo changes – step-by-step resetting of changes to a table (deletion of rows, merging and moving of rows).

Redo – step-by-step restoring of changes to a table.

Sort Tables and Customize Columns

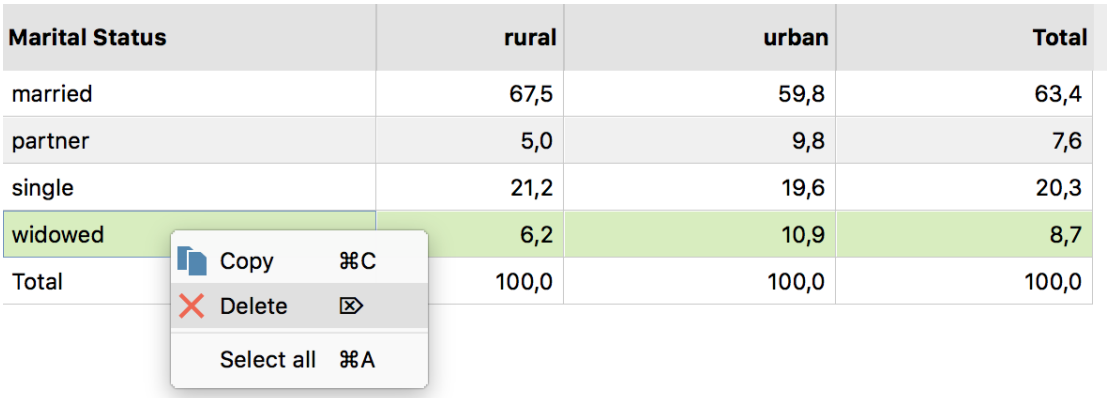
Tables can be sorted by clicking a column header, in ascending order with the first click and descending order with the second. Clicking again will restore the original order.

Tip: You can also move the rows of the results table. Click a row, then drag and drop with the mouse to the desired location. This function is also available for multiple highlighted rows. Lines containing totals or missing values cannot be moved.

Column widths can be adjusted with the mouse, and their position can be changed by clicking the column header then dragging them to the desired location with the mouse.

Delete Rows or Columns

The results table is interactive and one or more rows can be removed, for example to restrict the evaluation to selected variables. Right-click a row and select **Delete**. You can also select multiple rows to delete by holding down the Ctrl/cmd key.



Delete a row from the results table using the context menu

To delete a column from the results table right click on its heading and select **Delete**.

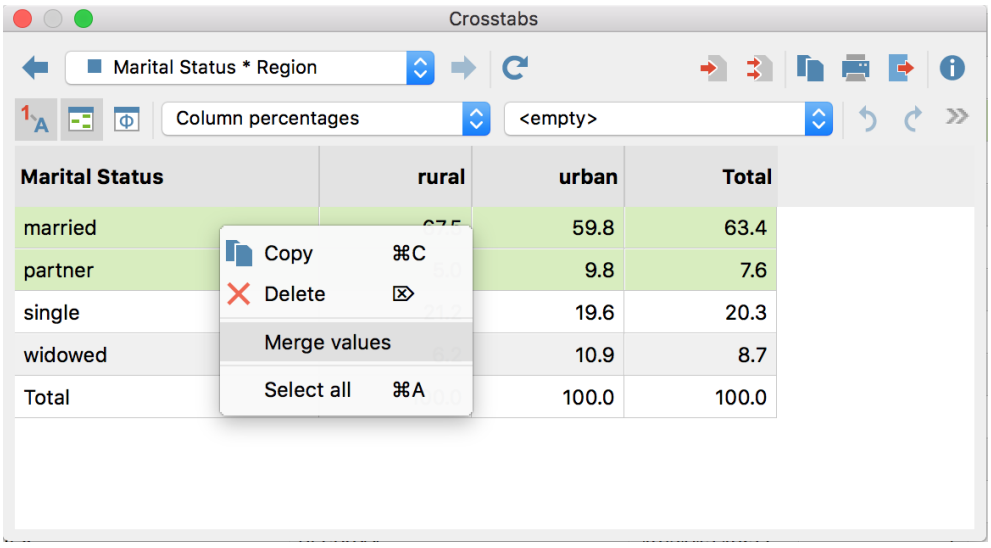
The table will be automatically updated after deletion of rows or columns.

Merge values

The interactive results table also allows you to merge multiple values:

1. **Highlight at least two rows** by holding down the Ctrl/cmd key as you click on the desired rows with the mouse.
2. Right-click the selection and select **Merge values**.

In the following example, the two values "married" and "partner" are merged:



Merge multiple values using the context menu

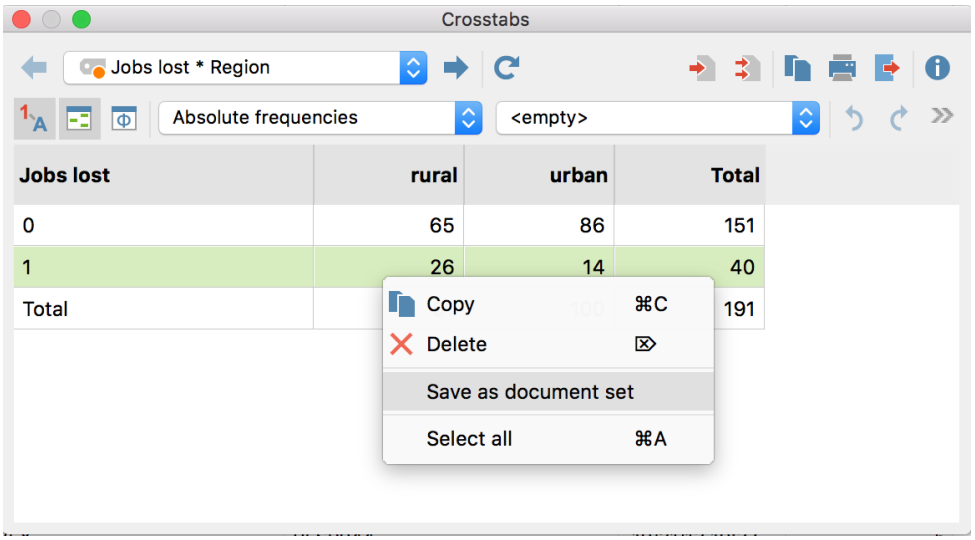
Columns can be merged, too:

1. **Right-click on a column heading** and select **Merge values**.
2. A popup menu appears containing all other columns of the crosstab. **Click on one of the displayed columns** to merge it with the right-clicked column.

The table will be automatically updated after merging columns or rows.

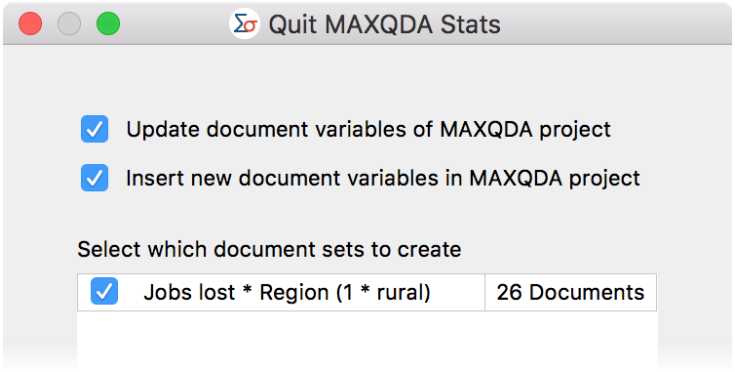
Save Documents as Document Set

If MAXQDA Stats is launched with the data from a MAXQDA project, the frequency in a cell corresponds to a compilation of documents in which the combination of variable values occurs. This compilation of documents can be saved as a document set in MAXQDA: **Right-click on a row** and select **Save as document set**.



Store documents that are attached to a combination of variable value as a document set in MAXQDA

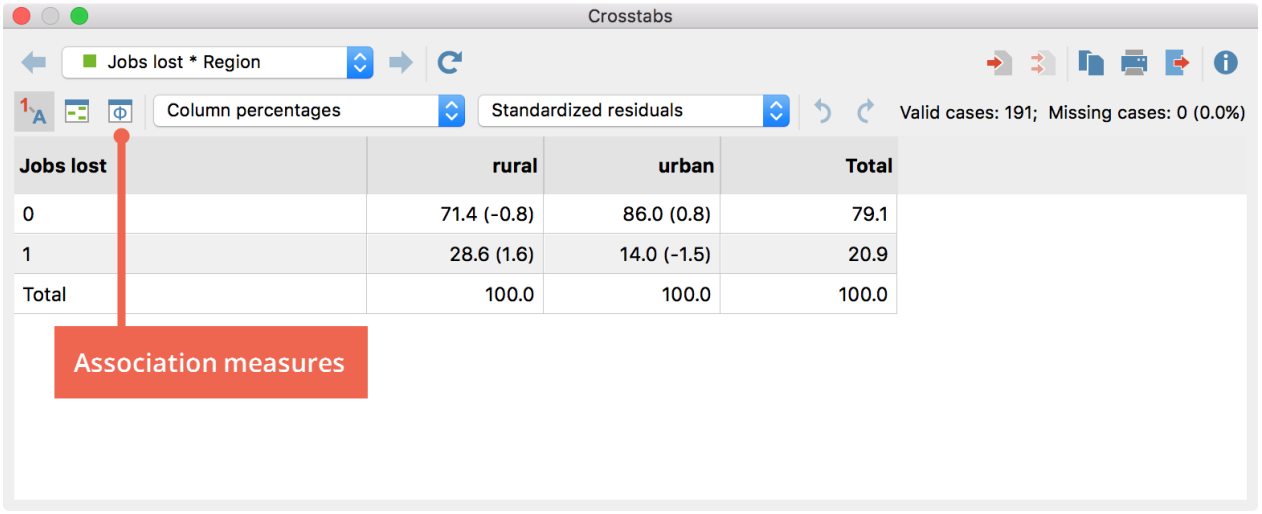
Initially, MAXQDA stores such sets in the background. When you exit Stats, all document sets created during the analysis will be displayed, so you can select which document sets you wish to transfer to the MAXQDA project.



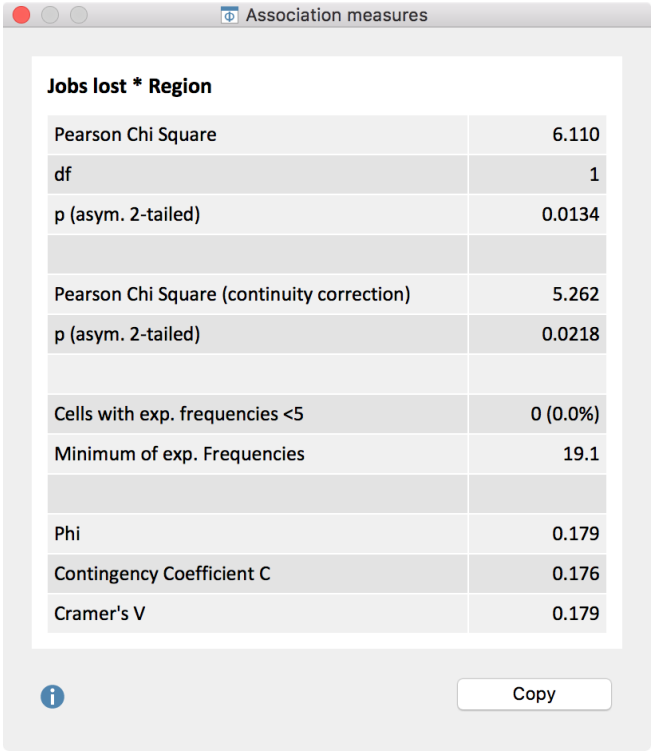
Select document sets upon exiting MAXQDA Stats

Calculating Measures of Association for Crosstabs

In order to calculate measures of association and Chi-square values for a crosstab click the icon **Association measures** in the toolbar above the crosstab.



Icon for calling a window with measures of association of a crosstab



Measures of association for a crosstab

Following measures are computed (see textbooks on statistic for interpretation):

- Pearson's Chi-square with degrees of freedom for the crosstab and the asymptotic two-sided significance level.

- Number of cells with expected frequencies smaller than 5 as well as the minimum expected frequency.
- Coefficient of contingency
- Cramer's V

As you can see in the example above, additional measures are calculated in fourfold tables:

- Pearson's Chi-square with continuity correction
- Phi

If you click **Copy** the table will be transferred to the clipboard so you can paste the table easily into other programs such as Word.

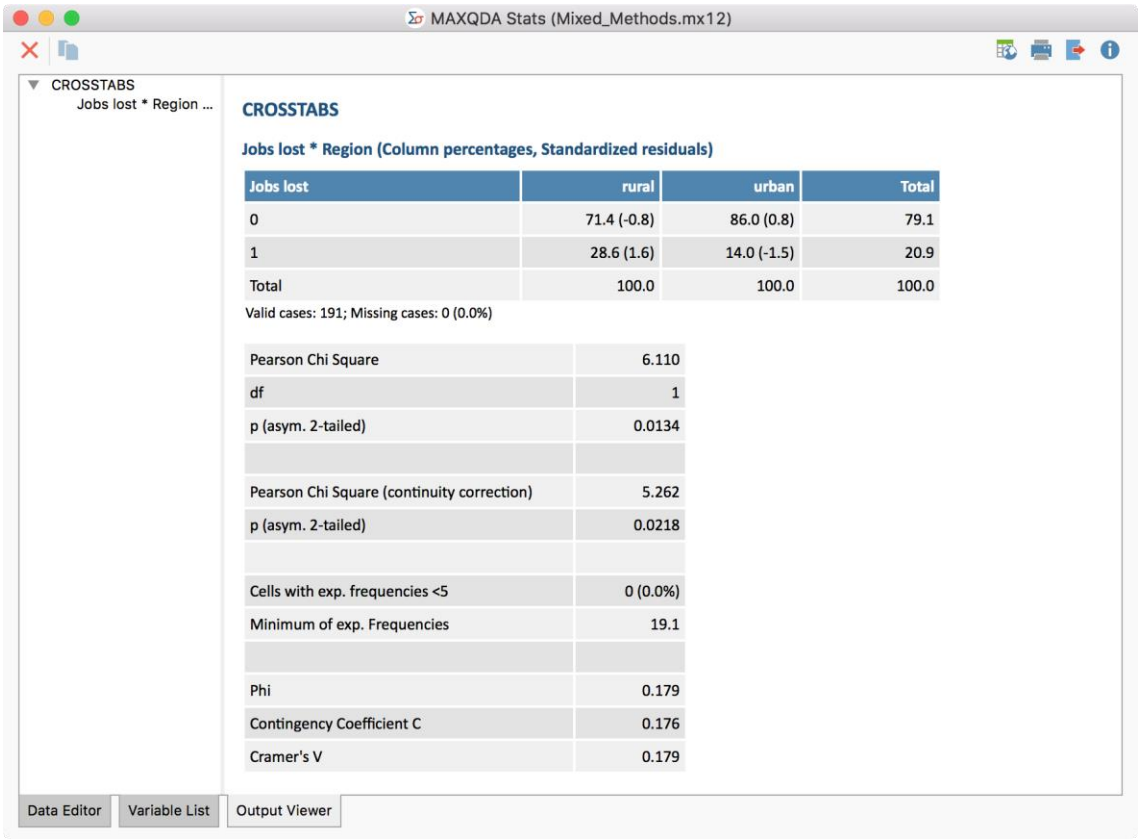
Transfer Results Table to the Output Viewer

After the tables have been created and adapted according to your needs, they can be transferred to the Output Viewer from which they can later be exported together:

- Click the **Insert into output viewer** icon to transfer the currently displayed results table to the Output Viewer.
- Click the **Insert all result tables into output viewer** icon to transfer all created tables to the Output Viewer at once.

MAXQDA Stats will ask if you also wish to include the measures of association. If you agree, a table containing the measures will be displayed below the results table.

Tip: When the table is transferred, the adjusted column widths will be maintained.



Crosstab following transfer to the Output Viewer

Export and Print Results Table

Several options for exporting and printing the currently displayed results table are available using the following symbols:

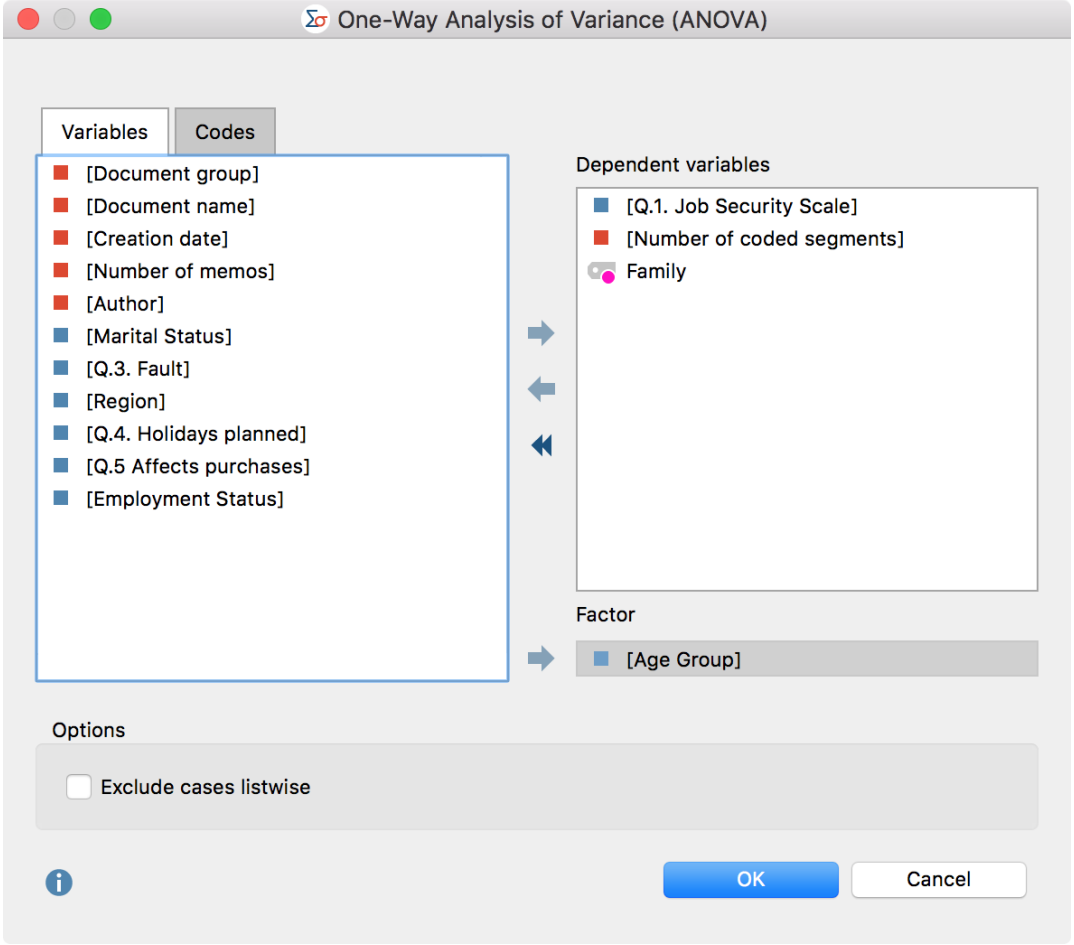
Copy to clipboard – copies the entire table or selection to the clipboard, for example in order to paste it directly into Word.

Print – starts the print process and displays a print preview, in which the settings such as margins, orientation, headers and footers can be applied.

Export – exports the table in Excel format, website (HTML) format or RTF format for Word and other word processing programs.

12 One-Way Analysis of Variance

In order to compute a one-way analysis of variance with MAXQDA Stats, select **Compare Groups > Analysis of Variance** in the main menu. A window appears that allows you to select several dependent variables and one factor as independent variable.



Dialog box for the selection of the dependent variables and the factor for the variance analysis

Variables can be selected in several ways:

- Double-click on a variable.
- Drag and drop the variable into the right window pane.
- Select one or multiple variables with the mouse by holding the Ctrl/Cmd key then drag the selection into the right window pane with the mouse, or click the blue arrow in the middle of the window.

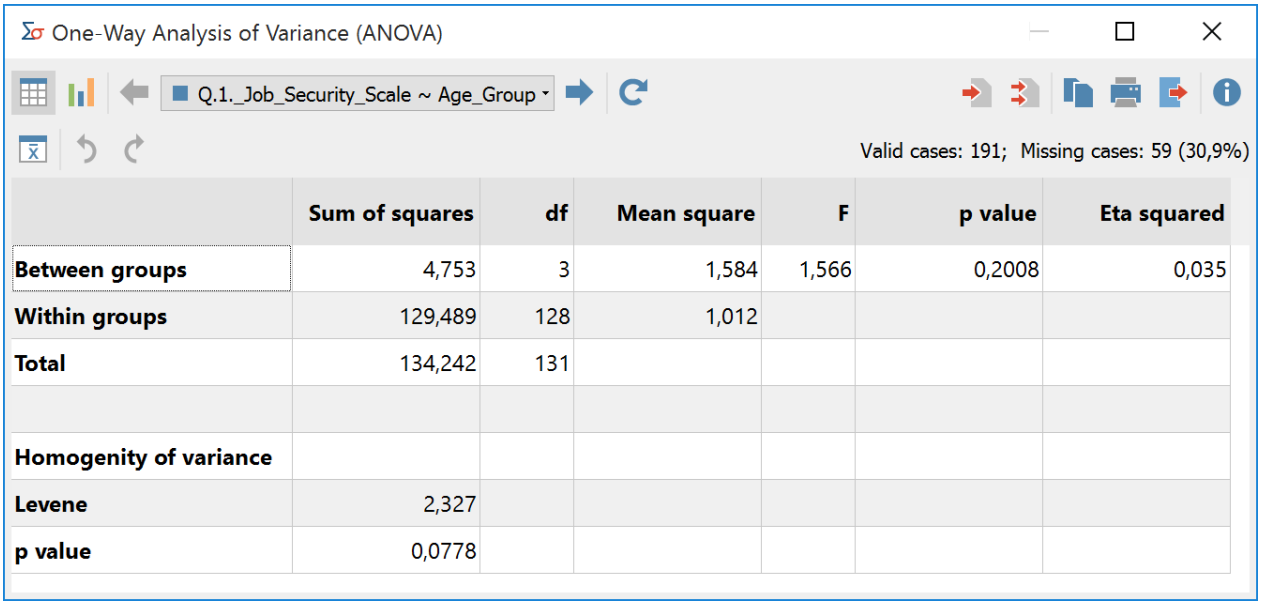
To integrate code frequencies per document as dependent variables or as a factor, switch to the "Codes" tab and select the desired codes. (This option is available only if MAXQDA Stats was launched with the data of a MAXQDA project).

Hint: You can only select variables of the type integer or float as dependent variable.

In order to integrate only those cases that contain variables with a valid value select **Exclude cases listwise**.

Results Table

After starting the calculation by clicking **OK** an analysis of variance is performed for each selected dependent variable. The following results table appears for the first dependent variable. Use the blue arrows and drop down menu on the top of the window to switch to results tables for the other dependent variables.



	Sum of squares	df	Mean square	F	p value	Eta squared
Between groups	4,753	3	1,584	1,566	0,2008	0,035
Within groups	129,489	128	1,012			
Total	134,242	131				
Homogenity of variance						
Levene	2,327					
p value	0,0778					

Results table for the function "analysis of variance"

The number of valid and missing cases for each calculated variance analysis is displayed in the upper right corner. The results table includes all the major results of the variance analysis.

- The column "sum of squares" contains the sum of squares between groups and within groups.
- The column "df" provides information on the number of degrees of freedom and allows conclusions on the number of groups that are defined by the factor. The example shows 3 +1 = 4 groups.
- The "mean squares" can be calculated by dividing the sum of squares by the degrees of freedom. The ratio of mean squares in turn results the "F-value" whose probability of occurrence can be computed by using the F-distribution and finds expression in the "p-value".
- "Eta-squared" is a measure of effect size and signifies the variance explained by the factor. The value is between 0 and 1 and can be interpreted as a percentage.

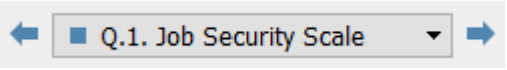
Testing the homogeneity of variances

A prerequisite for the calculation of a variance analysis is the homogeneity of variance within the single factor levels. This can be tested with the Levene test, the results are displayed in the lower part of the table.

Overview of Toolbar Functions

In the upper section of the results window two toolbars are located, which contain the following important functions:

Table view / Chart view – switches between table and chart view for means.



Previous/Next – using the blue arrow or the selection list, switch between the results table for the dependent variables.

Refresh – Calls up again the dialog for selecting variables for analysis of variance.

Insert into output viewer – inserts the currently displayed table or chart in the Output Viewer.

Insert all into output viewer – inserts all created tables or charts in the Output Viewer.

Copy to clipboard – copies the current table, highlighted area in the table, or chart in the clipboard, for example for insertion into Word.

Print – prints the currently displayed table or chart.

Export – exports the currently displayed table in Excel format, website (HTML) format or RTF format for Word and other word processing programs; exports the currently displayed chart in PNG, SVG or EMF (only Windows) format.

Descriptive statistics – opens a window containing descriptive values for the groups build by the factor.

Undo changes – step-by-step resetting of changes to a table (deletion of rows).

Redo – step-by-step restoring of changes to a table.

Display Descriptive Statistics

If you want to display important characteristic values for each factor level click on the icon **Descriptive statistics** . A table appears containing information for each factor level and the total number of cases.

Descriptive statistics

	N	Mean	Std.dev. (pop.)	Std.error	Mean lower b. (95%)	Mean upper b. (95%)	Minimum	Maximum
20-29	24	2,12	1,262	0,258	1,59	2,66	0,0	4,0
30-39	38	2,66	1,072	0,174	2,31	3,01	0,0	4,0
40-49	51	2,45	0,901	0,126	2,20	2,70	0,0	4,0
50-59	19	2,26	0,733	0,168	1,91	2,62	1,0	4,0
Total	132	2,42	1,012	0,088	2,25	2,60	0,0	4,0

Copy

Descriptive statistics for each factor level

- Column „N“ shows the number of valid values for each factor level.
- Column „Mean lower bound (95%)“ contains the lower value of the confidence interval on the mean.

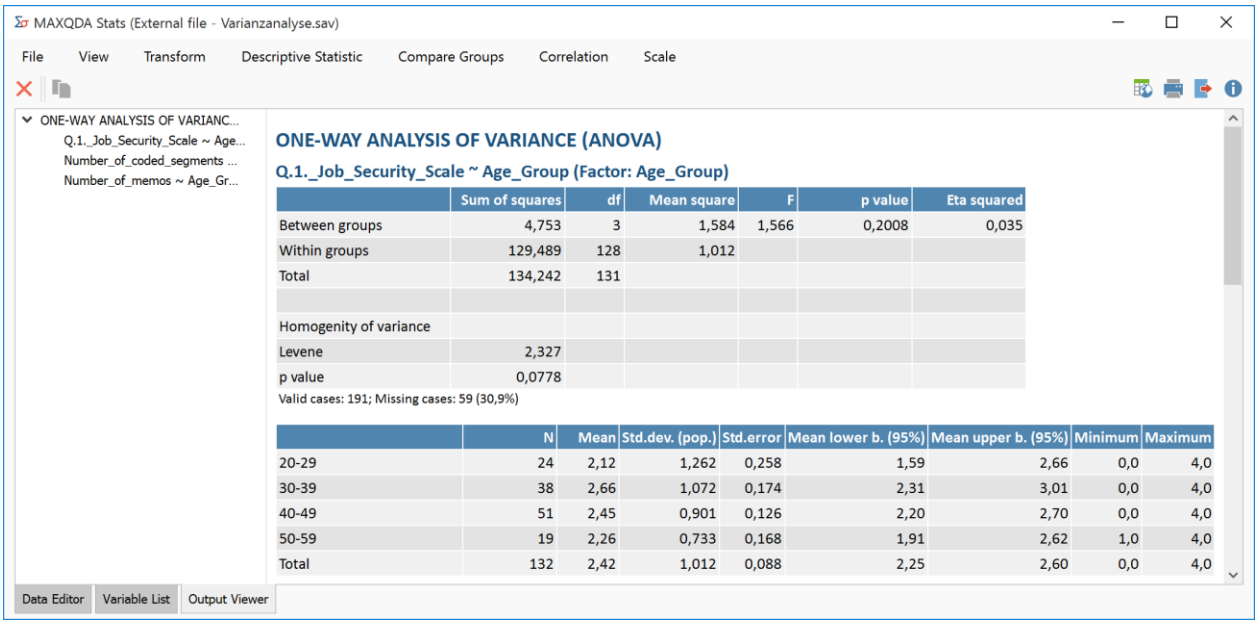
Transfer Results Table to the Output Viewer

After the tables have been created, they can be transferred to the Output Viewer from which they can later be exported together:

- Click the **Insert into output viewer** icon to transfer the currently displayed results table to the Output Viewer.
- Click the **Insert all result tables into output viewer** icon to transfer all created tables to the Output Viewer at once.

MAXQDA Stats will ask if you also wish to include a descriptive statistic for the factor groups. If you agree, an additional table will be displayed below the results table.

Tip: When the table is transferred, the adjusted column widths will be maintained.



ONE-WAY ANALYSIS OF VARIANCE (ANOVA)

Q.1._Job_Security_Scale ~ Age_Group (Factor: Age_Group)

	Sum of squares	df	Mean square	F	p value	Eta squared
Between groups	4,753	3	1,584	1,566	0,2008	0,035
Within groups	129,489	128	1,012			
Total	134,242	131				
Homogenity of variance						
Levene	2,327					
p value	0,0778					

Valid cases: 191; Missing cases: 59 (30,9%)

	N	Mean	Std.dev. (pop.)	Std.error	Mean lower b. (95%)	Mean upper b. (95%)	Minimum	Maximum
20-29	24	2,12	1,262	0,258	1,59	2,66	0,0	4,0
30-39	38	2,66	1,072	0,174	2,31	3,01	0,0	4,0
40-49	51	2,45	0,901	0,126	2,20	2,70	0,0	4,0
50-59	19	2,26	0,733	0,168	1,91	2,62	1,0	4,0
Total	132	2,42	1,012	0,088	2,25	2,60	0,0	4,0

Results table following transfer to the Output Viewer

Export and Print Results Table

Several options for exporting and printing the currently displayed results table are available using the following symbols:

Copy to clipboard – copies the entire table or selection to the clipboard, for example in order to paste it directly into Word.

Print – starts the print process and displays a print preview, in which the settings such as margins, orientation, headers and footers can be applied.

Export – exports the table in Excel format, website (HTML) format or RTF format for Word and other word processing programs.

Display Means as Chart

In order to display a chart of the means of the single factor groups click the icon **Chart view** in the results table.

Chart view of the means

You can customize the design and view of the chart by using the icons in the toolbar above the chart as well as double-clicking and right-clicking the elements of the chart. The chart's size automatically adjusts to the window size. Enlarge the window in order to receive a larger chart.

Hint: In case of the occurrence of negative means no chart is displayed.

Mean charts can be transferred to the Output Viewer for later export. In order to do so, use the following icons.

Insert chart into output viewer, to insert only the current display

Insert all charts into output viewer, to insert mean charts for all created result tables at the same time.

Hint: Charts will be inserted into the Output Viewer in the size that they are displayed, to a maximum width of 650 pixels.

To export or print a chart directly, you can use the usual icons in the top right of the window:

 **Copy to clipboard**,  **Print** and  **Export**.

13 Correlation

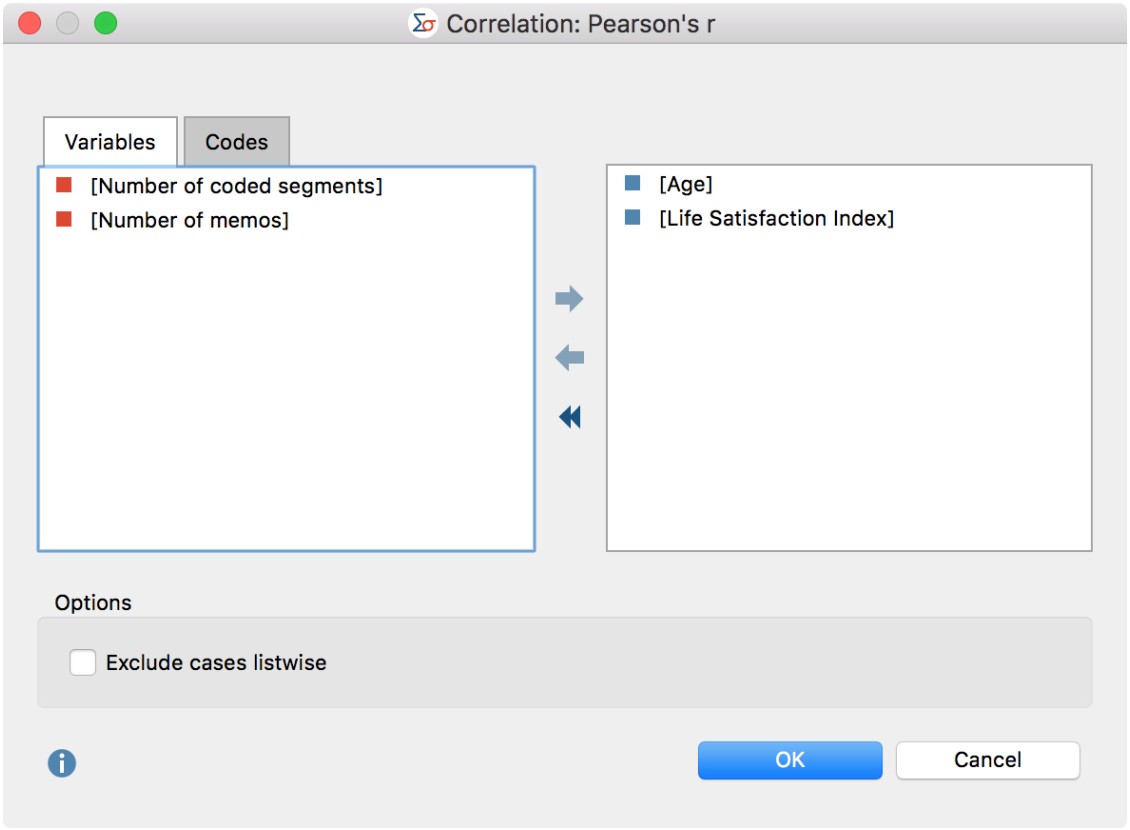
Correlation analysis is used to examine relationships between variables, in particular the analysis of "the more, the more"- and "the more, the less"-correlations. MAXQDA Stats supports the calculation of bivariate correlations, thus the correlation between two variables.

In order to calculate a correlation with MAXQDA Stats, select one of the following items in the main menu:

- **Correlation > Pearson**, usually used for interval scale variables or
- **Correlation > Spearman**, usually used for ordinal scale variables

A dialog box appears that allows you to select every variable that you want to calculate bivariate correlations for.

Hint: All variables of the type float and integer are throughout available, regardless of the level of measurement of single variables.



Dialog box for selecting variables to calculate correlation (here: Pearson's r)

Variables can be selected in several ways:

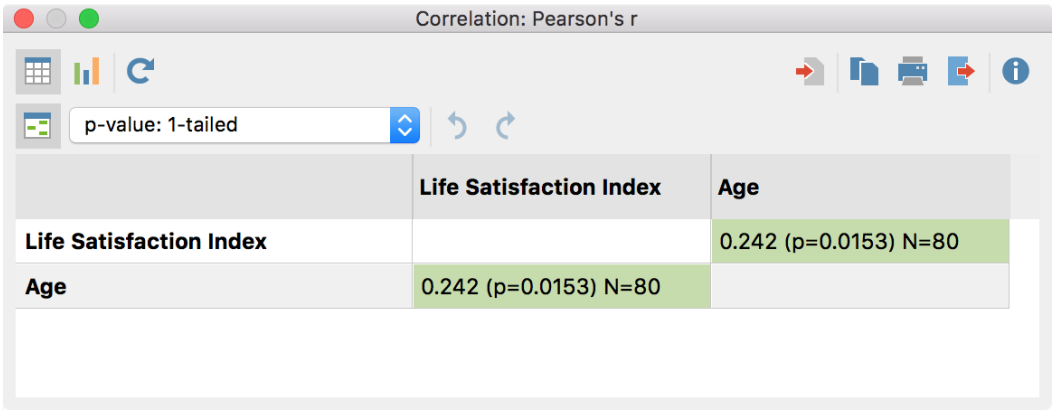
- Double-click on a variable.
- Drag and drop the variable into the right window pane.

- Select one or multiple variables with the mouse by holding the Ctrl/Cmd key then drag the selection into the right window pane with the mouse, or click the blue arrow in the middle of the window.

To integrate code frequencies per document into the computation of correlations, switch to the "Codes" tab and select the desired codes. (This option is available only if MAXQDA Stats was launched with the data of a MAXQDA project).

Results Table

After clicking **OK** a results table appears containing the pairwise correlations. Since all selected variables are listed in both, rows and columns, all the calculated correlations are displayed twice.



Results table with pairwise correlations (here: Pearson's r)

Each row contains three kinds of data:

- The calculated correlation coefficient, either Pearson's r or Spearman's Rho, depending on the selected function,
- the p-value for the correlation coefficient's significance as well as
- the number of valid cases for each combination of both variables.

The picture above shows the correlation between the variables "Age" and "Life Satisfaction Index" which is highlighted in green. In this example, Pearson's r is 0.242, the p-value is 0.0153 (thus below the significance threshold of 5%). The number of valid values for this combination of variables adds up to 80 cases.

The one-sided p-value is displayed by default. Using the drop down menu in the toolbar it is possible to switch to two-sided p-values. The p-value is calculated if the number of cases is more than 5. If there are less cases the p-value is always 1.

Hint: If the option **Exclude cases listwise** is selected the number of valid and missing values is displayed only in top right in the window. The cells contain the correlation coefficient and the p-value only.

Highlighting Significant Correlations

In order to highlight every cell with a p-value under 5% in green click the symbol **Highlight significant correlations** . The smaller the p-value the darker the background colors:

- smaller than 5% → light green
- smaller than 1% → green
- smaller than 0,1% → dark green

Overview of Toolbar Functions

In the upper section of the results window two toolbars are located, which contain the following important functions:

 **Table view / Chart view** – switches between the result table and scatter plots.

Refresh – Calls up again the dialog for selection of variables for the correlation table.

Insert into output viewer – inserts the currently displayed table or chart in the Output Viewer.

Copy to clipboard – copies the current table, highlighted area in the table, or chart in the clipboard, for example for insertion into Word.

Print – prints the currently displayed table or chart.

Export – exports the currently displayed table in Excel format, website (HTML) format or RTF format for Word and other word processing programs; exports the currently displayed chart in PNG, SVG or EMF (only Windows) format.

Highlight significant correlations – switch on this option for highlighting cells with p-values lower than 5%.

Undo changes – step-by-step resetting of changes to a table (deletion of rows).

Redo – step-by-step restoring of changes to a table.

Sort Tables and Customize Columns

Tables can be sorted by clicking a column header, in ascending order with the first click and descending order with the second. Clicking again will restore the original order.

Tip: You can also move the rows of the results table. Click a row, then drag and drop with the mouse to the desired location. This function is also available for multiple highlighted rows. Lines containing totals or missing values cannot be moved.

Column widths can be adjusted with the mouse, and their position can be changed by clicking the column header then dragging them to the desired location with the mouse.

Delete Rows and Columns

The results table is interactive and one or more rows can be removed. **Right-click a row** and select **Delete**. You can also select multiple rows to delete by holding down the Ctrl/cmd key. **Right-click a column heading** and select **Delete** to remove it from the results table.

Deleting a column or row in a correlation table only affects the display. The values are not recalculated even if selected option Delete cases listwise would change the number of valid values for variables taken into account.

Tip: A column can be hidden from the table by right-clicking within the column header and selecting **Hide column**. When the function is called up the next time, the column will be automatically displayed again.

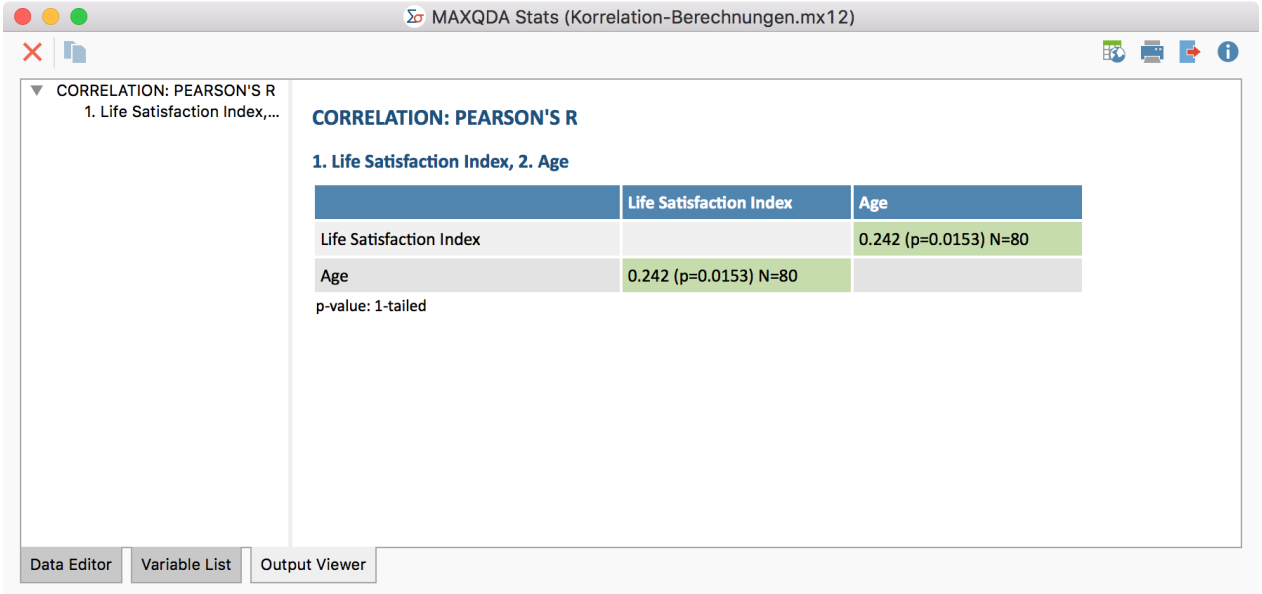
Transfer Results Table to the Output Viewer

After the tables have been created, they can be transferred to the Output Viewer from which they can later be exported together:

- Click the **Insert into output viewer** icon to transfer the currently displayed results table to the Output Viewer.
- Click the **Insert all result tables into output viewer** icon to transfer all created tables to the Output Viewer at once.

MAXQDA Stats will ask if you also wish to include a descriptive statistic for the factor groups. If you agree, an additional table will be displayed below the results table.

Tip: When the table is transferred, the adjusted column widths will be maintained.



Results table for correlations following transfer to the Output Viewer

Export and Print Results Table

Several options for exporting and printing the results table are available using the following symbols:

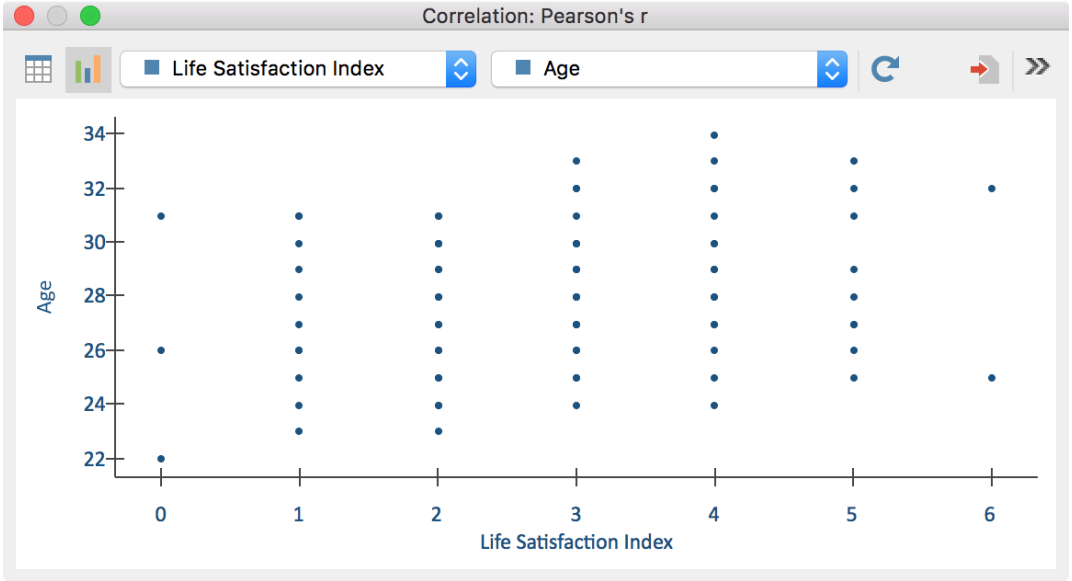
Copy to clipboard – copies the entire table or selection to the clipboard, for example in order to paste it directly into Word.

Print – starts the print process and displays a print preview, in which the settings such as margins, orientation, headers and footers can be applied.

Export – exports the table in Excel format, website (HTML) format or RTF format for Word and other word processing programs.

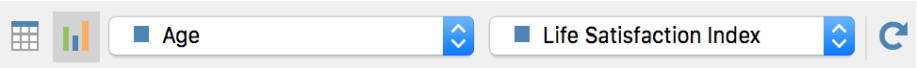
Displaying Scatter Plots

In order to display a scatter plot for every pairwise combination of variables click on the **Chart view** symbol in the results table.



Scatter plot for two variables

Using the two drop down menus in the top toolbar you can determine the variables for the X-axis and the Y-axis. The drop down menus contain all the variables that are selected for the calculation of correlation.



Determine variables for the X-axis and Y-axis

It is not possible to customize the display of the chart. The chart's size automatically adjusts to the window size. Enlarge the window in order to receive a larger chart.

Scatter plots can be transferred to the Output Viewer for later export. In order to do so, use the following icons.

Insert chart into output viewer, to insert only the current display

Insert all charts into output viewer, to insert mean charts for all created result tables at the same time.

Hint: Charts will be inserted into the Output Viewer in the size that they are displayed, to a maximum width of 650 pixels.

To export or print a chart directly, you can use the usual icons in the top right of the window:

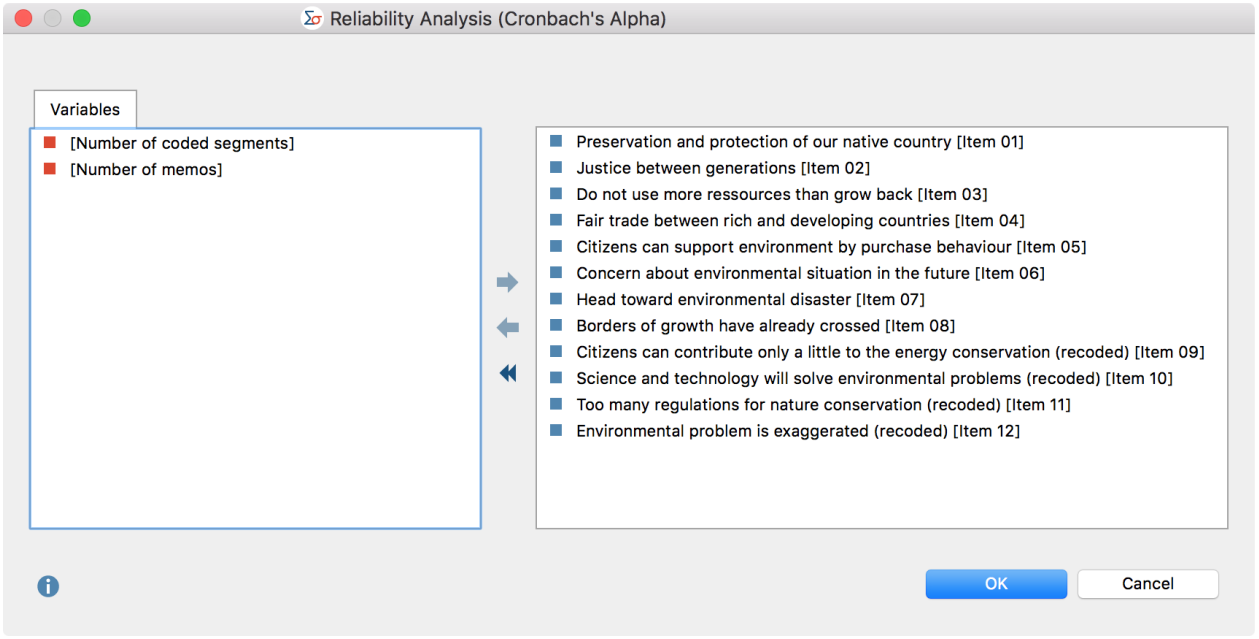
Copy to clipboard, **Print** and **Export**.

14 Scale

MAXQDA Stats supports the creation of a scale, that consists of several items. Before you start building a scale, it may be helpful to check the items for consistent polarity, otherwise the computation may give wrong results. You can use the function **Transform > Recode** into other variable to standardize the item polarity.

To build a scale in MAXQDA Stats, select the function **Scale > Reliability (Cronbach's Alpha)** from the main menu. A dialog will appear in which you can select all the variables you want to include in the initial scale.

Hint: The dialog contains all variables of type integer or floating point, independent from their measure.



Dialog box for selection of variables for building a scale

Variables can be selected in several ways:

- Double-click on a variable.
- Drag and drop the variable into the right window pane.
- Select one or multiple variables with the mouse by holding the Ctrl/Cmd key then drag the selection into the right window pane with the mouse, or click the blue arrow in the middle of the window.

To integrate code frequencies per document into the calculations, switch to the "Codes" tab and select the desired codes. (This option is available only if MAXQDA Stats was launched with the data of a MAXQDA project).

Hint: Only those cases will be taken into account, where all variables have a valid value.

Results Table

After click on **OK** MAXQDA Stats will compute a results table with the following structure:

Reliability Analysis (Cronbach's Alpha)

Cronbach's alpha: 0.773 Valid cases: 2003 Missing cases: 31 (1.5%)

	Item	Mean scale w/o item	Std.dev. scale w/o item	Corrected item scale corr.	Alpha w/o item
1	Preservation and protection of o...	40.89	5.758	0.354	0.764
2	Justice between generations	41.01	5.604	0.535	0.748
3	Do not use more ressources than...	41.12	5.590	0.492	0.750
4	Fair trade between rich and deve...	41.18	5.612	0.467	0.753
5	Citizens can support environme...	41.52	5.678	0.331	0.765
6	Concern about environmental sit...	41.60	5.483	0.488	0.748
7	Head toward environmental disa...	41.65	5.457	0.508	0.746
8	Borders of growth have already ...	41.76	5.734	0.255	0.773
9	Citizens can contribute only a little	42.35	5.671	0.221	0.782
10	Science and technology will solv...	42.16	5.534	0.408	0.758
11	Too many regulations for nature ...	42.14	5.444	0.440	0.754
12	Environmental problem is exagg...	41.91	5.390	0.530	0.743

Result table for function "Scale"

The results table contains the following information:

- **Cronbach's Alpha** and the number of **Valid** and **Missing cases** are displayed at the top right.
- **Item** – This column contains the variable label, or if this does not exist, the variable name.
- **Mean scale w/o item** – The "Mean value of the scale without the item" equates the mean value of the additive scale, if the item would be removed from the scale.
- **Std.dev. scale w/o item** – The "Standard deviation of the scale without the item" equates the standard deviation (population) of the additive scale, if the item would be removed from the scale.
- **Corrected item scale corr.** – The "Corrected item scale correlation" measures, how strongly the respective item correlates with the total scale. Usually, items with a very low correlation are not suitable for the final scale and should be removed from the item pool. MAXQDA Stats highlights the item(s) with the lowest correlation always.
- **Alpha w/o item** – "Cronbach's Alpha without item" informs about the height of Alpha, if you would remove the respective item from the scale. For the twelve items above, Cronbach's Alpha is 0.773 for example. If you removed item no. 9 with the lowest item scale correlation, Alpha would be slightly increase to 0.782.

Hint: Items with a negative item scale correlation usually have the wrong polarity which conflicts with the model assumptions for calculation of Cronbach's Alpha.

Overview of Toolbar Functions

Refresh – Calls up again the dialog for selection of variables.

Insert into output viewer – inserts the currently displayed table in the Output Viewer.

Copy to clipboard – copies the current table or highlighted area in the table in the clipboard, for example for insertion into Word.

Print – prints the currently displayed table.

Export – exports the currently displayed table in Excel format, website (HTML) format or RTF format for Word and other word processing programs.

Remove item from scale – the selected items will be removed from the scale and the values of the results table are updated.

Build scale and save as new variable – shows a dialog in which you can set a variable name and a label for a new variable that contains either the sum or the mean of the item values for each case.

Descriptive statistics – opens a window containing descriptive values for each item and the total scale build by item summation or item means.

Undo changes – step-by-step resetting of changes to a table (deletion and moving of rows).

Redo – step-by-step restoring of changes to a table.

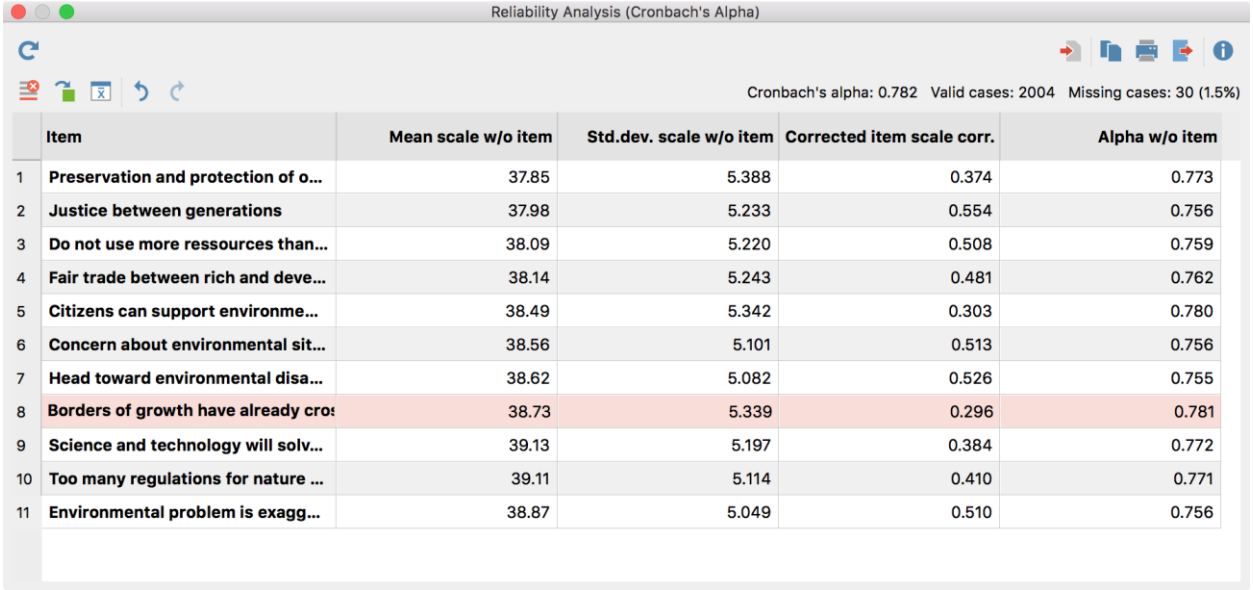
Interactive Optimization of Scale by Deleting Items

In MAXQDA Stats you can remove items from the scale, which leads to an immediate recalculation of all values:

1. **Click on an item (or some when holding down Ctrl/cmd key)**, you want to remove.
2. Then click on the symbol **Remove item from scale** or **right click on the highlighted rows** and select **Remove** from the context menu.

MAXQDA Stats updates the values in the table instantly.

To reintegrate a deleted item into the scale, you can click on the **Undo** symbol .



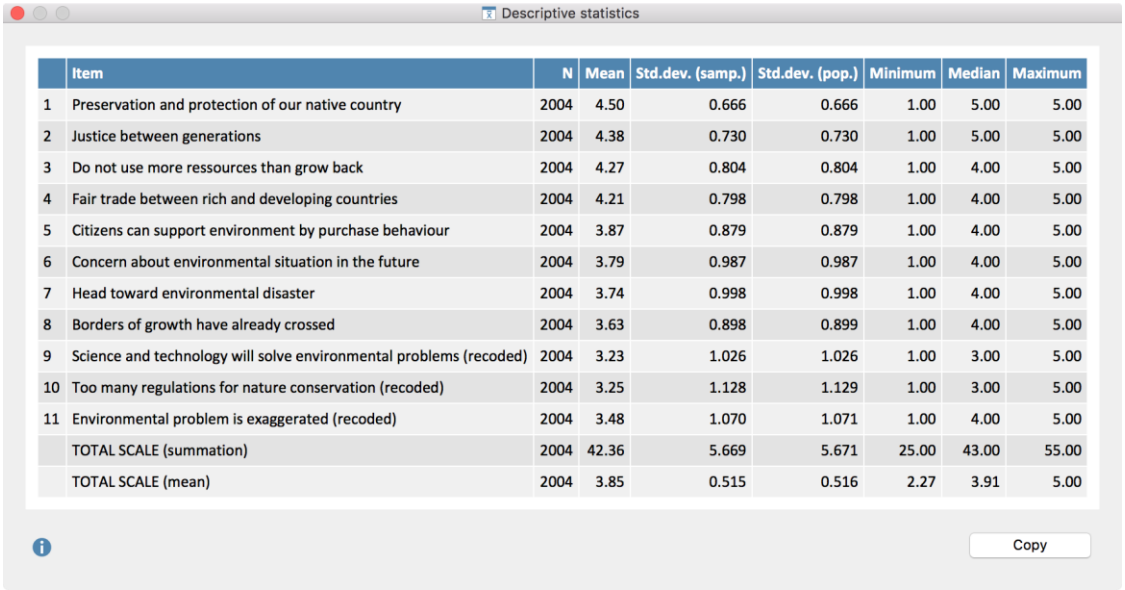
	Item	Mean scale w/o item	Std.dev. scale w/o item	Corrected item scale corr.	Alpha w/o item
1	Preservation and protection of o...	37.85	5.388	0.374	0.773
2	Justice between generations	37.98	5.233	0.554	0.756
3	Do not use more ressources than...	38.09	5.220	0.508	0.759
4	Fair trade between rich and deve...	38.14	5.243	0.481	0.762
5	Citizens can support environme...	38.49	5.342	0.303	0.780
6	Concern about environmental sit...	38.56	5.101	0.513	0.756
7	Head toward environmental disa...	38.62	5.082	0.526	0.755
8	Borders of growth have already cro:	38.73	5.339	0.296	0.781
9	Science and technology will solv...	39.13	5.197	0.384	0.772
10	Too many regulations for nature ...	39.11	5.114	0.410	0.771
11	Environmental problem is exagg...	38.87	5.049	0.510	0.756

Result table for reliability analysis after removing an item

Hint: For calculating the results for the remaining items MAXQDA Stats practices list wise deletion for cases with missing values. Therefore, the number of missing values may decrease and more cases might be integrated into the calculation. As a consequence, the new value for Cronbach's Alpha might be slightly lower than the value displayed in the column "Alpha w/o item" before.

Show Descriptive Statistics for Items and Total Scale

For evaluation purpose of the frequency distributions, you can get an overview of descriptive statistics for the single items and the total scale build by addition and by mean: click on the symbol **Descriptive Statistics** to start a calculation of typical statistical values. A window like the following will appear:



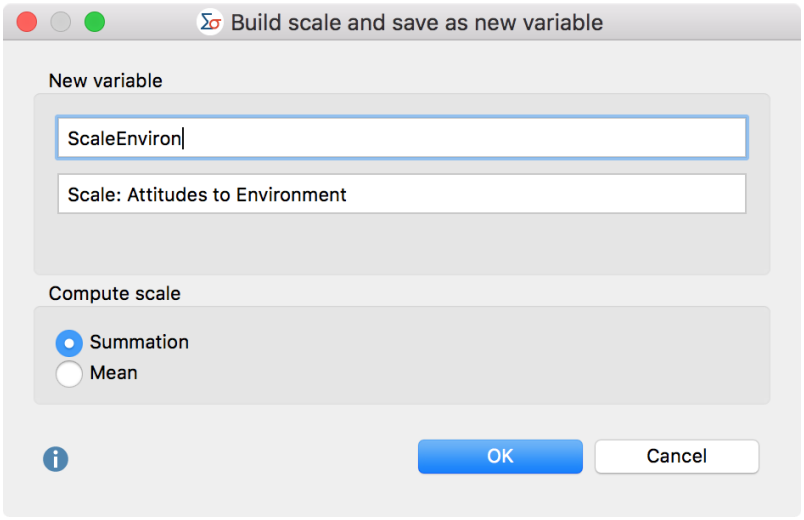
	Item	N	Mean	Std.dev. (samp.)	Std.dev. (pop.)	Minimum	Median	Maximum
1	Preservation and protection of our native country	2004	4.50	0.666	0.666	1.00	5.00	5.00
2	Justice between generations	2004	4.38	0.730	0.730	1.00	5.00	5.00
3	Do not use more ressources than grow back	2004	4.27	0.804	0.804	1.00	4.00	5.00
4	Fair trade between rich and developing countries	2004	4.21	0.798	0.798	1.00	4.00	5.00
5	Citizens can support environment by purchase behaviour	2004	3.87	0.879	0.879	1.00	4.00	5.00
6	Concern about environmental situation in the future	2004	3.79	0.987	0.987	1.00	4.00	5.00
7	Head toward environmental disaster	2004	3.74	0.998	0.998	1.00	4.00	5.00
8	Borders of growth have already crossed	2004	3.63	0.898	0.899	1.00	4.00	5.00
9	Science and technology will solve environmental problems (recoded)	2004	3.23	1.026	1.026	1.00	3.00	5.00
10	Too many regulations for nature conservation (recoded)	2004	3.25	1.128	1.129	1.00	3.00	5.00
11	Environmental problem is exaggerated (recoded)	2004	3.48	1.070	1.071	1.00	4.00	5.00
	TOTAL SCALE (summation)	2004	42.36	5.669	5.671	25.00	43.00	55.00
	TOTAL SCALE (mean)	2004	3.85	0.515	0.516	2.27	3.91	5.00

Descriptive values for the single items of a scale and the total scale

The last two rows contain the values for the total scale. For the row "TOTAL SCALE (summation)" at first a variable will be computed in the background, which contains the sum of each item value for each case. Then the statistical values for this variable will be calculated. For the row "TOTAL SCALE (mean)" at first a variable is calculated, which contains the mean for each case.

Build Scale and Save as New Variable

MAXQDA Stats offers an easy possibility to combine the items shown in the result table in a scale and save it as a new variable. Click on the symbol **Build scale and save as new variable** to start the calculation. A dialog will appear, in which you can enter a variable name and a variable label and where you can set the kind of calculation.



Define variable name, variable label, and the kind of calculation for the new variable

Summation – The sum of all single item values will be calculated for a case.

Mean – The arithmetic mean of all single item values will be calculated for a case.

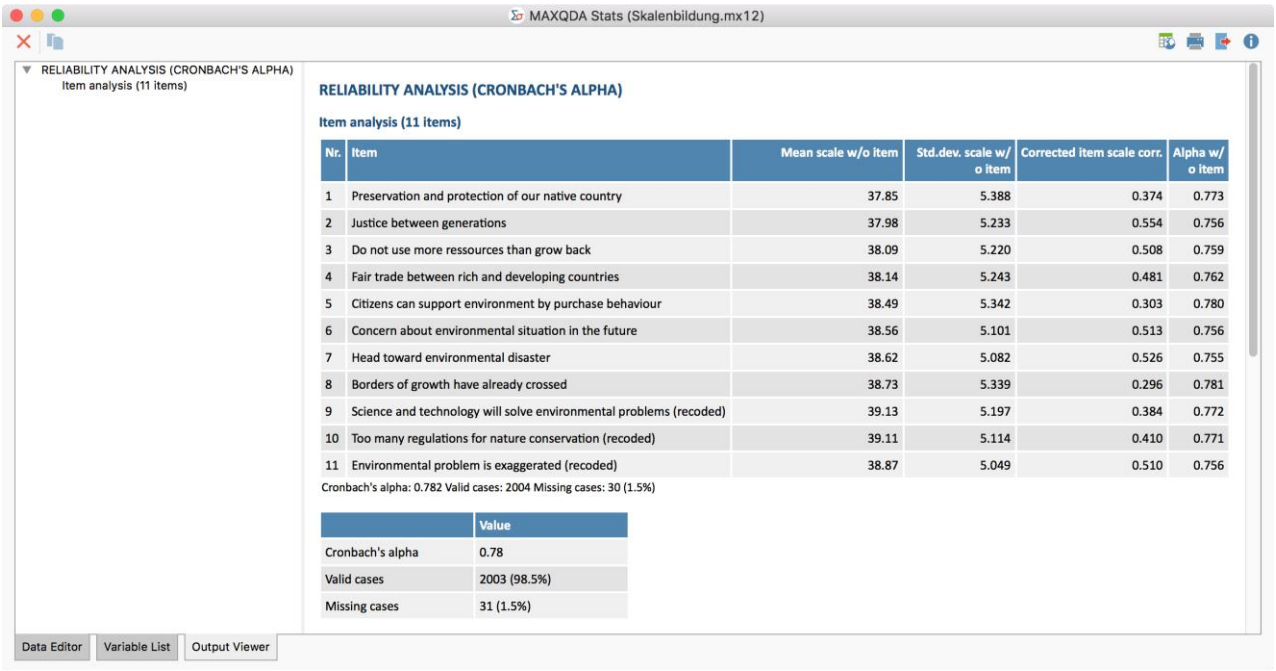
If a value is missing for an item or the value is defined as a missing value, the newly created variable contains a (system defined) missing value for the respective case.

Transfer Results Table to the Output Viewer

To transfer the results table containing the computed values for the scale to the Output Viewer, click the **Insert into output viewer** icon in the toolbar.

MAXQDA Stats will ask if you also wish to include descriptive statistics in the Output Viewer. If you agree, an additional table will be displayed below the results table.

Tip: When the results table is transferred, the adjusted column widths will be maintained.



Results table for "Scale" following transfer to the Output Viewer

Export and Print Results Table

Several options for exporting and printing the results table are available using the following symbols:

Copy to clipboard – copies the entire table or selection to the clipboard, for example in order to paste it directly into Word.

Print – starts the print process and displays a print preview, in which the settings such as margins, orientation, headers and footers can be applied.

Export – exports the table in Excel format, website (HTML) format or RTF format for Word and other word processing programs.

15 Limits and Technical Notes

Number of variables	max. 1,000 If you start Stats from within a MAXQDA project file, only the first 1,000 variables and codes will be transferred to Stats. If you open an external file a maximum of 1,000 variables will be imported.
Number of cases	There is no functional limit for the number of cases. Please keep in mind, that importing a large number of variables and cases will take some time.
Variables of type „text“	max. 63 characters
Rounding of floating point numbers	“Round half to even” method is used for displaying floating numbers in Data Editor and Result Views, while “Round half up” method is used when choosing method round() for calculating new variables via the **Transform** menu (see https://en.wikipedia.org/wiki/Rounding)
Computation of quartiles	There are different procedures to compute quartiles, as described in Hyndman & Fan (1996) „Sample quantiles in statistical packages”. In MAXQDA Stats procedure no. 7 is implemented, which is used by default by statistical package “r”, too.
SPSS: export and import	Stats supports the import of SPSS files created with version 18, in single cases files created with older version can be imported. The files exported in SPSS format can be opened with SPSS 18 or newer, depending on the content in single cases with older versions, too.
Excel: export	When exporting to the older Excel format XLS a maximum of 256 variables will be exported, because the format does not support more than 256 columns.