

MAXDictio

Add-on Module
for
Content Analysis



Support, Distribution

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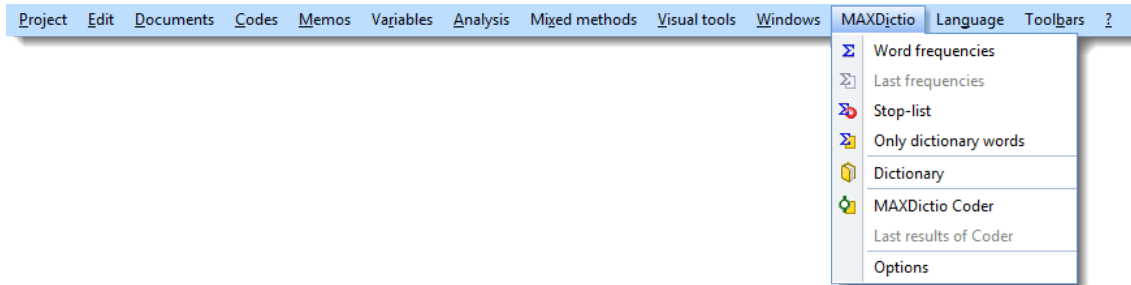
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Content

1	Installation	5
2	What does MAXDictio offer?	6
3	Basic Principles of Working with MAXDictio	7
3.1	Basic Terms	7
3.2	Schematic Course	8
4	Word Frequencies for All or Selected Texts	10
4.1	Starting the Function	10
4.2	Table of Results	11
4.3	Word Frequencies for Activated Documents and Document Sets	13
4.4	Word Frequencies for Dictionary Words	14
5	Creating a Word Index	15
5.1	Accessing the Function	15
5.2	Going to Located Positions, Exporting, and Coding	16
6	Stop-Lists	18
6.1	Function of the Stop-Lists	18
6.2	Creating and Editing Stop-Lists in MS Office Programs	19
7	Viewing and Exporting Last Frequency Count	20
8	Creating and Managing Dictionaries	21
8.1	The Dictionary Function	21
8.2	Creating a Dictionary with Categories and Sub-categories	22
8.3	Sorting and Organizing the Category System	23
8.4	Turning Categories On and Off	24
8.5	Adding and Deleting Search Items to the Dictionary	24
8.6	Turning Search Items On and Off / Activating and Deactivating Words	24
8.7	Setting Options	25
8.8	Transferring Words from the Word Frequencies List into the Dictionary	25
8.9	Transferring Search Items from One Category to Another	25
8.10	Printing and Documenting a Dictionary	26
8.11	Editing Dictionaries in MS Excel	26
9	Construction of Go-Lists	27
9.1	What are Go-Lists?	27
9.2	Accessing the Function and Setting Up Go-Words	27
9.3	Analysis of Go-Words	27
10	The Coder	28
10.1	Accessing the Coder	28
10.2	What Does the Coder Do?	30
10.3	Further Processing of the Results	31
10.4	Coder Options	31
10.5	Coding of Structured Texts	32
10.6	Results Table for Structured Data	34
11	Further Processing of the Coder Results with Excel or SPSS	37
11.1	Questions	37
11.2	How to Transport the Matrix into Excel	37
11.3	How to Transport the Matrix in SPSS	37
11.4	Convert the Results Matrix into MAXQDA Variables	37
12	Options	38
13	Tips and Hints for Working with MAXDictio	39
14	Limits of MAXDictio	40

1 Installation

MAXDictio can only be used in connection with MAXQDA. MAXDictio is not a separate software, it is accessed as a plug-in within MAXQDA. If you have purchased MAXQDA+ the installation routine will setup a menu entry called "MAXDictio" in the MAXQDA main menu.



By clicking on MAXDictio, a pull-down menu will open and you can select one of the offered options.

2 What does MAXDictio offer?

MAXQDA users have repeatedly asked for a tool that would allow them to create an index of the words used in a text, so that they have access to an additional explorative aid for the evaluation of the text. Such a dictionary and content analysis module would make it easy to explore the vocabulary used in a text as well as to find out which words can be found in which texts or text passages. It would also make the differences between the vocabulary of the various texts within one project visible.

Besides the vocabulary functions, the MAXDictio module offers a number of techniques which originate from the area of classical quantitative content analysis. MAXDictio was not intended to be a competitive software product for quantitative content analysis, but rather it aims to utilize these techniques for qualitative data analysis and provide these as an additional set of analysis methods in a manageable form.

MAXDictio is not intended to be a software program for quantitative content analysis. The functionality offered makes this software attractive for researchers who have managed their analysis with less convenient content analysis software up to now. The functionality of MAXDictio software is comparable to other established software programs, such as *Textpack* designed by ZUMA. On the contrary, the way MAXDictio allows the user to build up indexes should convince even experienced *Textpack* users.

More precisely, MAXDictio provides following functions:

- Word frequencies in the whole text or in marked passages
- Word frequencies in text groups or in text sets which have been put together based on textual criteria
- Free definition of text units (whereby these may overlap)
- Editing texts and assigning them to text units is possible throughout the whole process
- Exportability of the frequency analysis outcomes to MS Office programs (such as Excel or Word) and to SPSS, also by using the Windows clipboard
- Index of selected words of one or more texts
- Possibility to jump from each index entry to the underlying text passage
- Limitation of the analysis by go-lists (containing a list of words which should be analyzed exclusively) and stop-lists (which contain a list of those words that should be blocked for analysis)
- Selective analysis by selected criteria, such as the value of socio-demographic variables, filtering by numeric data
- Creation of word-based dictionaries, basic dictionaries as well as hierarchical
- Transfer of words from the word frequency table into the dictionary (by double-clicking or by drag-and-drop)
- Export of dictionaries to MS Office programs (e.g. from Excel)
- Import of previously used dictionaries
- Coding on the basis of word-based dictionaries
- Results of the coder as editable and sortable Excel-like table
- Further processing of the results in SPSS and Excel
- Creation of a validation file for verification of codes
- Total integration in the functionality of MAXQDA using convenient functions such as keyword-in-context or automatic coding of text passages

3 Basic Principles of Working with MAXDictio

3.1 Basic Terms

In the following section, some important and in this manual frequently used terms will be explained, including:

- text
- text section or unit
- word
- word stem
- stop-list
- go-list
- search item
- dictionary
- coding
- text format (RTF, ASCII/ANSI)

Text

A text is a DOC-file in Word or a single document in the “Document System” in MAXQDA. The format of the text is *Rich Text Format*. MAXDictio only analyzes the mere text, which means, for the word frequencies, it is irrelevant which font is being used or if words are written in bold or italic.

Text Section/Text Unit

Similar to a book, texts can be subdivided into chapters and subchapters. Chapters may not overlap, just as in a book Chapter 3 and 4 may not overlap. During import, a text can already be subdivided into sections (text units) with the text pre-processor. But it is also possible to make the text units in MAXQDA simply by coding text passages. The “MAXDictio Coder” can analyze text passages separately. Each text unit will appear individually in a line of the table of results.

Word

For MAXDictio, a word is any string of characters which are situated between two blanks or cut-off punctuation characters (such as , ; . :).

Word Stem

With a modification of the general terminology, in MAXDictio a word stem is to be understood as any part of a word. This means it is not only the left part or the stem form of the word; the “word stem” can also be situated in the middle of the word (so “go” would be a word stem of “going,” “bingo,” and “undergoes”).

Stop-List

Stop-lists contain collections of words that are supposed to be ignored in the word frequency analysis. Generally, these are indefinite and definite articles, numerals, and so on.



Go-List

A go-list functions pretty much conversely to a stop-list. It contains words to which the frequency analysis should be confined, i.e. only words that are on the list will be considered in the analysis.

Index

An index is a list of words that includes their references, i.e. the passages where they can be found in the text(s).

Dictionary

A dictionary is composed of categories and words or character strings which are assigned to the categories. For instance, the words "Italy," "Great Britain," "Germany," "Belgium," "Netherlands," and "Spain" could be assigned to the category "Europe."

In principle, dictionaries are not project-dependent. They can be used again for other projects. The dictionary represents a classification scheme for the coder.

Search Item

A search item is a string of characters, one or more words, which are attached to a category in a dictionary.

Coding

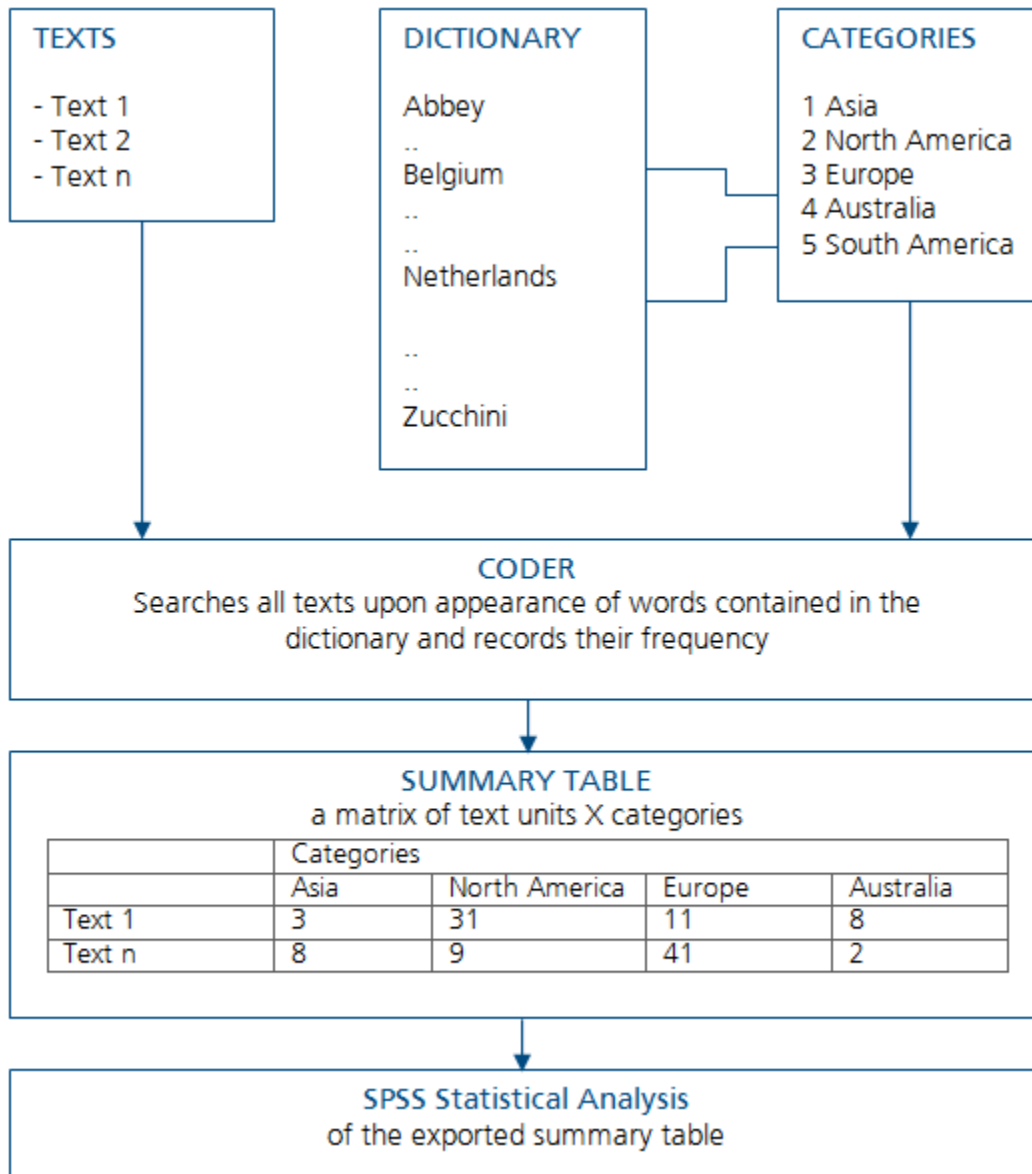
The word 'coding' in MAXDictio carries the same meaning as in quantitative content analysis. Based on the words in the dictionary, MAXDictio counts how frequently the categories appear in the texts or text passages. The table of results shows the number of times a category appeared within each text unit. With the aid of this information, it is then possible to carry out statistical calculations.

Text Format (RTF, ASCII/ANSI)

RTF and ASCII are common file formats in Windows. Rich Text Format allows for use of different font types and sizes as well as text characteristics like bold, italic, or text colors. ASCII files are considerably more limited. They only contain characters of the American Code for Information Interchange (ASCII). Font types and sizes as well as other text characteristics are not included. In MAXDictio, such RTF-specific characteristics will be ignored.

3.2 Schematic Course

Based on well-known textbooks like KRIPPENDORF(2004), an outline of the following classical quantitative content analysis schema is possible:



Schematic view

The starting point of the analysis is a certain number of texts, often called the text corpus. If necessary, the texts can be subdivided into individual sections, such as a book is divided into chapters. These sections are also called text units. They can also function as counting units, so that if the automatic "MAXDictio Coder" is applied, each text unit will be counted separately.

Independent from the texts, you work with a dictionary or encyclopedia. This dictionary consists, on the one hand, of an unlimited number of categories. On the other hand, it includes the words that are attached to these categories. In the example below, the words "Belgium" and "Netherlands" belong to the category "Europe."

The Coder allows automatic coding of all of the texts, individual texts, or a collection of selected texts on the basis of the dictionary. It is as if a certain number of savings boxes are put up for each text – exactly as many as there are categories. The text editing starts with the first word of the text. Then, for each word that is also contained in the dictionary, a counting piece will be put into the savings box in the assigned category. After the whole text has been processed, the number of counting pieces in each savings box is determined. A statistical evaluation for this text will be calculated which contains, among others, the following information: total number of coded words, number of coded places for Category 2, and so on.

4 Word Frequencies for All or Selected Texts

4.1 Starting the Function

The simplest function of MAXDictio determines the vocabulary of all of a current project's texts.

This function can be accessed by either:

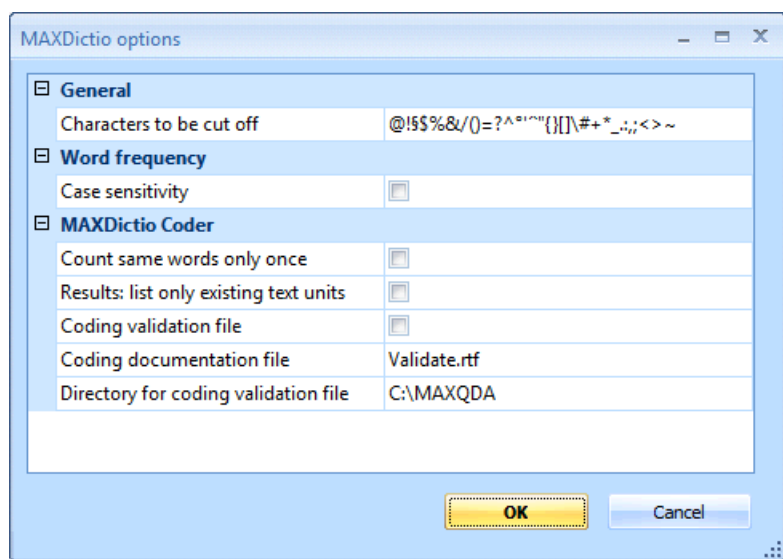
- selecting the option **Word Frequencies (All Texts)** in the **MAXDictio menu**, or
- just clicking on the corresponding **quick button** in the tool bar.



Depending on the size of the textual material, some time might pass after activating the function, as MAXDictio will now work through the material text by text. All words will be isolated, transferred into a list, and counted.

What is a word in MAXDictio? A word is, as showed above, any sequence of characters between two delimiters. Delimiters can be space-tabs or punctuation marks. For example, "work." as the last word of a sentence would be limited by a space on its left and by a period on its right.

Before starting the analysis, you should decide which characters are supposed to act as delimiters. This option is set in the Menu **MAXDictio > Options**.



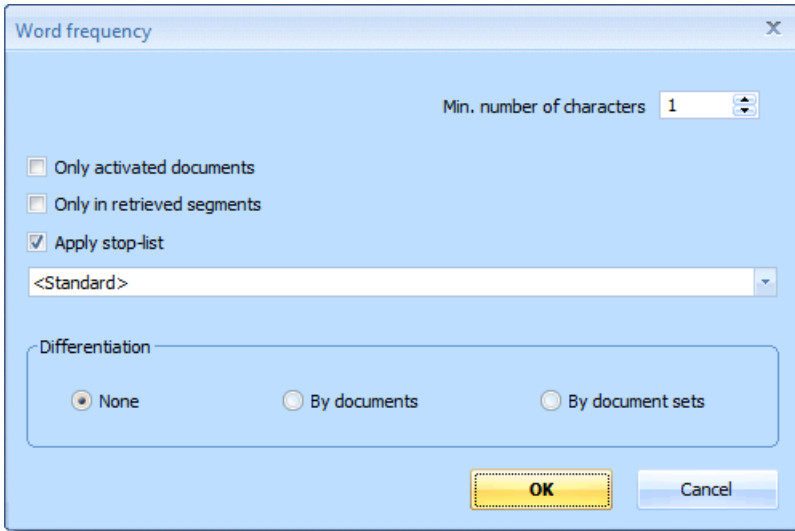
The "MAXDictio options" window

In the dialogue field "Characters to be cut off," all delimiting characters should be entered. Usually these are the punctuation marks, such as:

" ' () , . : ; ?

Some problems might occur with hyphens. If compound words should be counted as one word and not be split up into their separate parts, the hyphen may not be declared as a delimiter. It is best to experiment a little with different possibilities. As the counting of the word frequencies can be repeated with no significant loss of time, it is advisable to look through the results for any concurrencies, change the options if needed, and then repeat the analysis.

After starting the **Word Frequency function**, the following dialogue window appears. Here you may select all the options you need.



Before starting the "Word frequency" function you have to choose several options

The following options may be set:

- Minimal number of characters** – words with less characters will be skipped
- Only activated documents** – the frequencies procedure will be restricted to the activated text files
- Only in retrieved segments** – the frequencies procedure will be restricted to the coded segments actually displayed in the "Retrieved Segments" window
- Apply stop-list** – when the check box is set, a stop-list will be applied
- Differentiation** – here you may select if the table of results displays any differentiation (**None**, **By documents** or **By document sets**)

As soon as you click **OK** again, the frequency procedure will start.

4.2 Table of Results

The word frequency result table appears as follows:

Word	Word length	Frequency	%
jesus	5	601	1,56
man	3	476	1,24
god	3	320	0,83
father	6	266	0,69
lord	4	251	0,65
son	3	251	0,65
disciples	9	226	0,59

The "Word frequency" table

The table depicted above contains the following information:

1. number of analyzed texts (top left, here = 4)



2. total number of counted and separated words (= "tokens," here = 38,528)
3. number of different words in the texts (= "types," here = 3,636)
4. The first column serves to define a word as a stop-word. By double-clicking, you can change its status. At first, the default for each word is the status "go-word." The symbol depicted then is green. After double-clicking on it, it changes into a red stop sign. The word will then be sent to the active stop-list automatically.
5. In the next column, the words appear as they appear in the text. Whether capitalization will be displayed or not depends on the option selected (in the **Options-menu**).
6. The third column contains the word length counted in characters.
7. Column 4 contains the absolute frequency of each word in the processed texts.
8. Column 5 contains the percentage of the word referring to the tokens, i.e. the total number of counted words in all texts. In our example, the word "jesus" was counted 601 times, which is 1.56 percent of the total of 38,528 words.

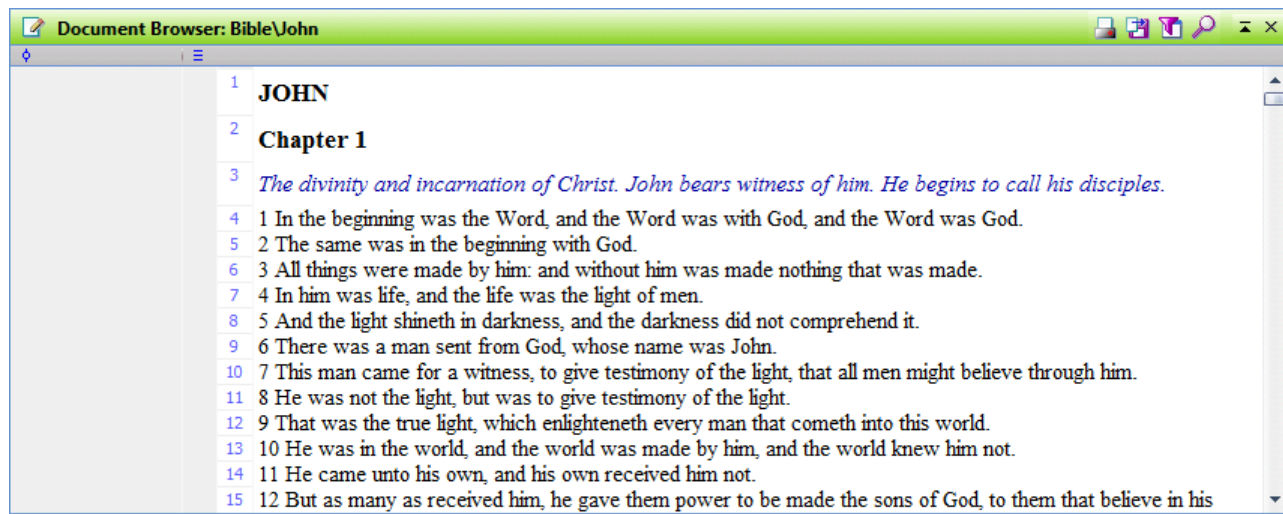
In quantitative content analysis, the so-called type-token-ratio is a measure for the elaboration of a text. The type-token-ratio is the quotient of different words ("types") divided by the total number of words ("tokens"). It can be a maximum of 1.

The results can be sorted by the individual columns, namely:

- an alphabetical wordlist in ascending or descending order
- by word length, ascending or descending
- by absolute frequency of occurrence in the text, ascending or descending
- by percentage of the word in the text (word frequency divided by tokens)

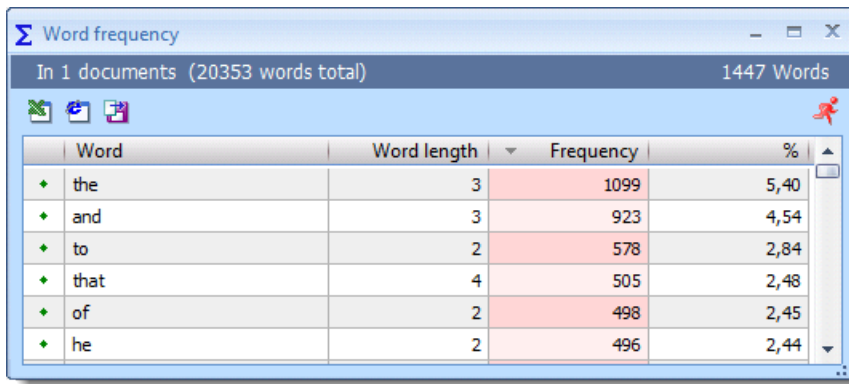
Example

We will be using a short text section from the new testament:



The "Document Browser" window

Now we will start the word frequency counting for all texts. After clicking twice on the column **frequency**, we get a list arranged by frequencies in descending order. Clicking once will assort the list in ascending order, which means that words with the frequency of 1 are on the top of the list.



Word	Word length	Frequency	%
the	3	1099	5,40
and	3	923	4,54
to	2	578	2,84
that	4	505	2,48
of	2	498	2,45
he	2	496	2,44

The list of results of the “Word frequency” function

As you can see, the word “the” is the most common words, which were counted 1099 times. This relates to a percentage of 5.40 per cent for each word.

The following demonstrate possible ways to handle the table:

- An alphabetical list in ascending order is generated by clicking on the column title **Word**.
- By clicking on the column title **Word** with the right mouse button, a context menu opens which contains, among other things, the option **Search**. This option calls up an input field in which you can type the desired word.
- A list of all locations of a word in the text can be created by clicking on the given word with the right mouse button and selecting the option **Create index** in the context menu.
- By double-clicking on a word, it can be added to the active stop-list.

MAXQDA users are already familiar to the window “Search results” (from MAXQDA’s text search functions) and know that from this window, the locations and their context can be coded as desired.

4.3 Word Frequencies for Activated Documents and Document Sets

It is also possible to limit your work frequency counts to certain documents or document sets. To do this, activate the documents you want to include and then run the word frequency count, checking the box next to **Only activated documents** in the dialog field. Doing this will cause only the vocabulary in those activated documents to be analyzed. This can even be done for a single document, further limiting the amount of text included.

If you check the box to set your frequency count to be differentiated **By document set** in the dialog field, the counts will be separated into different columns in the results table. Each column will include the counts for the documents in each of the document sets you have created in the Document System. If you use this option in combination with the **activation by variable** function, you can do comparisons across specific groupings based on socio-demographic information, for example.

After starting the count, you may have to wait a little while for the results to appear, since each document is analyzed one at a time. The amount of time the action requires is directly proportional to the size of the documents. All words are isolated, transferred to a list, and counted. The results are the same as shown above in the Table of Results section.

The results are shown in the same form and with the same meaning as in the results table for all documents.

The difference is that new columns have been added after the percentage column, so you can see exactly how many times each word showed up in each group.



Word	Word length	Frequency	%	Teresa	Milly	Joanna	Kim	Jon
i	1	1212	4,22	96	59	53	187	97
the	3	953	3,32	51	14	18	48	40
to	2	766	2,67	48	33	20	69	32
of	2	756	2,63	29	22	15	37	29
a	1	646	2,25	36	22	25	46	30
and	3	642	2,24	33	25	18	56	35
that	4	531	1,85	7	5	2	36	27
my	2	464	1,62	23	39	44	55	25
life	4	374	1,30	10	7	17	16	10
is	2	356	1,24	7	6	15	20	15
this	4	256	0,89	9	7	5	10	11

Word frequency table showing the word frequencies for each document.

4.4 Word Frequencies for Dictionary Words

If you have created dictionaries with search terms (see Creating and Managing Dictionaries), you have the option to call up the frequencies for these words. Simply choose **Only dictionary words** from the **MAXDictio** drop-down menu. The following window then appears, which gives you the change to set whether to search for the terms in all or only certain documents:

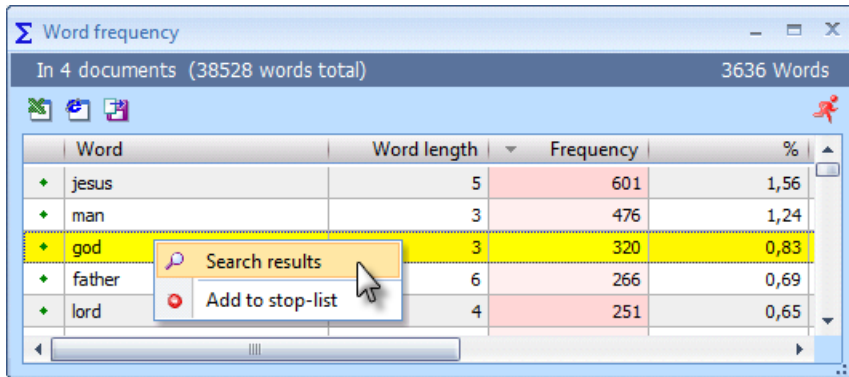
- Only activated documents** – only searches within those documents activated in the Document System.
- Only in retrieved segments** – only searches within the sections of text called up in the Retrieved Segments window.
- Differentiation** – sets whether the frequencies should be broken up in different columns based on the document or document set in which it was found.

The count begins as soon as you click on **OK**.

5 Creating a Word Index

5.1 Accessing the Function

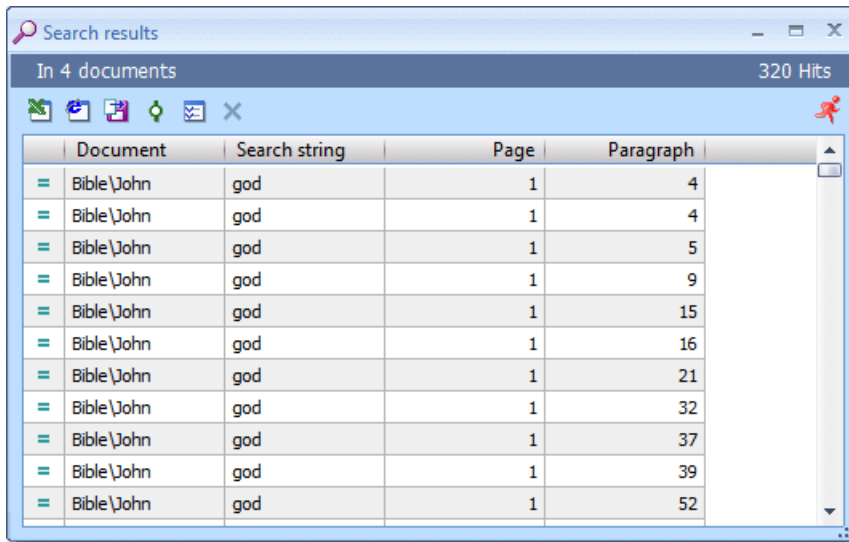
An index of the located positions in the text can be created for each word in the list of word frequencies. Click on the desired word with the right mouse button; then select **Search results** from the context menu (see illustration below).



Right-clicking on the word opens the context menu in which you can find the "Search results" option

In the screenshot above, you can see that the word "god" was found 320 times, making up 0.83% of the total vocabulary.

The above requested index appears as follows:



The "Search results" window

Users of MAXQDA are already familiar with the representation of search results in this form, as it is the same as in the MAXQDA search function.

In the table heading, information is displayed regarding how many texts the word has been found in and how many located positions there are all together in the text.

The column “Document” in the table indicates the name of the document in which the word has been found. In the column to the right, the search item (here: “god”) is listed and the number of the relevant paragraph in the document is shown in the fourth column.

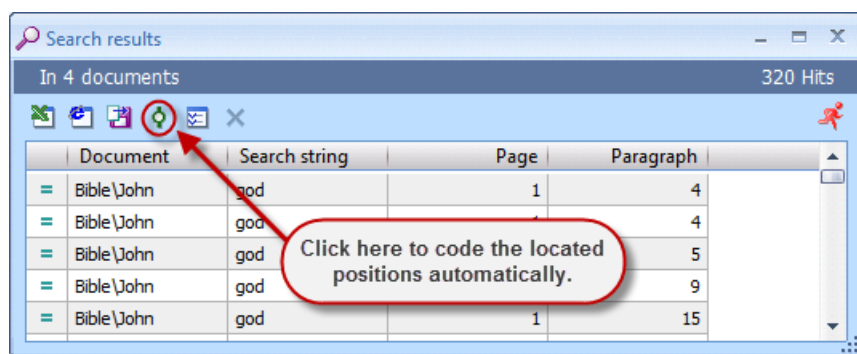
This table can also be sorted by the single columns, just like other tables in MAXQDA, either in ascending or in descending order. Clicking once on the **column title** will sort the table by column.

By clicking on the **column title** with the right mouse button, you can open the context menu, which, among other functions, offers to search in this column.

5.2 Going to Located Positions, Exporting, and Coding

By clicking on a **located position**, the text passage will be opened and loaded directly into the “Document Browser”. The window “Search results” will stay in the front, so that for optimal working conditions, it is advisable to arrange the windows on your screen in such a way that this window won’t cover the “Document Browser” window.

The function “Search results” is directly integrated into the lexical search functions and the coder of MAXQDA, which means that the located positions can be coded directly by clicking on the **Autocode** button in the toolbar located on top of the “Search results” window. More details can be found in the MAXQDA user’s manual.



The located positions can be coded automatically via the “Autocode” function

It is also possible to export all the „hits“ along with their surrounding text into a new file – either in RTF-format or as a table in HTML/Excel-format. All kinds of export files can be printed without problem.

Search results			
Document	Preview	Page	Paragraph
Bible\John	1 In the beginning was the Word, and the Word was with God, and the Word was God.	1	4
Bible\John	1 In the beginning was the Word, and the Word was with God, and the Word was God.	1	4
Bible\John	2 The same was in the beginning with God.	1	5
Bible\John	6 There was a man sent from God, whose name was John.	1	9
Bible\John	12 But as many as received him, he gave them power to be made the sons of God, to them that believe in his name.	1	15
Bible\John	13 Who are born, not of blood, nor of the will of the flesh, nor of the will of man, but of God.	1	16
Bible\John	18 No man hath seen God at any time: the only begotten Son who is in the bosom of the Father, he hath declared him.	1	21
Bible\John	29 The next day, John saw Jesus coming to him, and he saith: Behold the Lamb of God, behold him who taketh away the sin of the world.	1	32

An HTML table of the Search results



	A	B	C	D
1	Document	Preview	Page	Paragraph
2	Bible\John	1 In the beginning was the Word, and the Word was with God, and the Word was God.	1	4
3	Bible\John	1 In the beginning was the Word, and the Word was with God, and the Word was God.	1	4
4	Bible\John	2 The same was in the beginning with God.	1	5
5	Bible\John	6 There was a man sent from God, whose name was John.	1	9
6	Bible\John	12 But as many as received him, he gave them power to be made the sons of God, to them that believe in his name.	1	15
7	Bible\John	13 Who are born, not of blood, nor of the will of the flesh, nor of the will of man, but of God.	1	16
8	Bible\John	18 No man hath seen God at any time: the only begotten Son who is in the bosom of the Father, he hath declared him.	1	21
9	Bible\John	29 The next day, John saw Jesus coming to him, and he saith: Behold the Lamb of God, behold him who taketh away the sin of the world.	1	32

An Excel table of the Search results

6 Stop-Lists

6.1 Function of the Stop-Lists

Stop-lists are collections of “uninteresting” words, such as definite and indefinite articles, conjunctions, or numerals. Such words are usually sources of irritation when analyzing a text. For that reason, it is advisable to exclude them from the analysis. MAXDictio allows you to create as many stop-lists as you’d like, as well as to edit and manage them. Words that are in the stop-lists will automatically left out of the table of counting results.

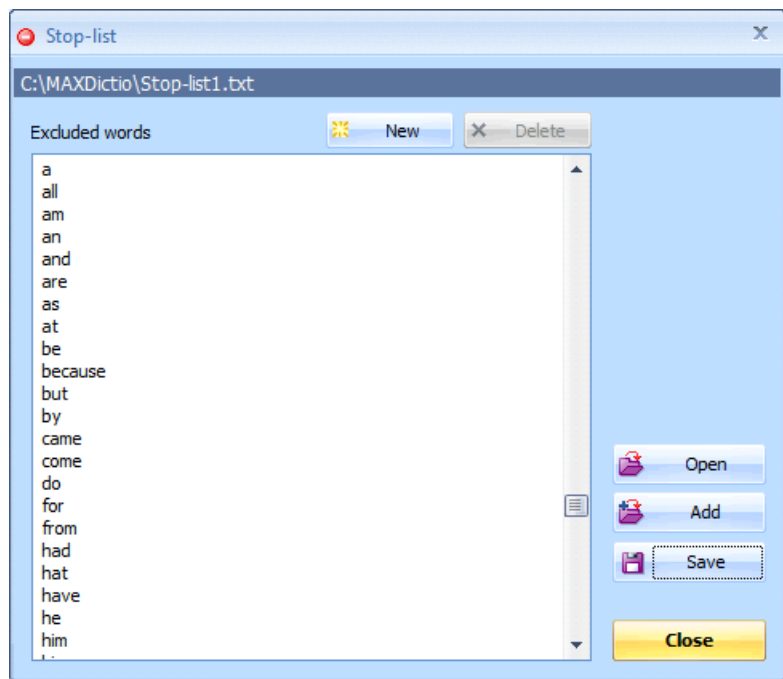
Creating Stop-Lists

To create a stop-list, you can either call up the option **Stop-List** in the **MAXDictio menu** or click on the quick-button in the MAXDictio tool bar.



There are two different ways to add words to a stop-list:


- First, you can enter them by hand by clicking on the **New** button found on the top of the “Excluded words” list and then typing the appropriate word.
- Second, you can select words form a word frequency list and add them to a stop-list by double-clicking on them. This allows you to avoid entering these words individually. It is also possible to transfer several words into a stop-list at once. To do this, select all of the desired words (**Ctrl + left mouse button**). Then, click on one of the words with the right mouse-button and select the option **Add to stop-list**.



The stop-list includes an overview of the words that are left out of the count

The words in a stop-list are automatically arranged in alphabetical order. This order is pre-set and cannot be modified.

Saving and Printing Stop-Lists

Stop-lists can be saved as files which allows you to manage as many stop-lists as you'd like. Such lists can then be opened when needed. Two stop-lists can also be merged (button: **Add**  **Add**).

If you wish to print out a stop-list for means of documentation, first save it using the **Save** option. The file will automatically be saved in TXT-format, which can be read with all conventional programs. Now you could, for instance, double-click on the file in Windows Explorer, which will open the Editor, from where you can print the file. You can also open the file in MS Word or Excel.

Dynamic Stop-Lists


The active stop-list is managed dynamically. When a word from the word frequency list has been moved to the stop-list, a red stop sign appears next to it. By clicking on the word anew so that the stop-icon disappears, the word will be removed from the stop-list.

6.2 Creating and Editing Stop-Lists in MS Office Programs

Stop-lists are saved as normal text files and can therefore be opened and edited in any MS Office program. The most suitable program for this would be Excel.

Open the stop-list by selecting the option **File > Open in Excel**. The file type must be changed to "All Files."

In Excel, you can add new words to the list or edit the existing list, and then save it. You don't have to bother sorting the list, as MAXQDA will automatically arrange it in alphabetical order when it is opened there.

Stop-lists can be employed for multiple projects simultaneously. It is recommendable to modularize them, which means you could create stop-lists of certain types (for instance: conjunctions) which can be used universally. Then the single modules can be merged in the "Stop-list" window, so that you can create a list that is appropriate for the current project (button **Add**  **Add**).



7 Viewing and Exporting Last Frequency Count

By selecting **Last frequencies** in the **MAXDictio drop-down menu** or clicking on the appropriate quick button (below) the last counting results of a word frequency function will be displayed anew.




Icon for calling up the most recent frequency count


Word	Word length	Frequency	%
jesus	5	601	1,56
man	3	476	1,24
god	3	320	0,83
father	6	266	0,69
lord	4	251	0,65

The format of the displayed frequencies table is the same as described above

The displayed results can be exported in Excel, RTF, or HTML format. To do this, click on the appropriate **icon** in the toolbar at the top of the window.

 **Excel table** – MAXQDA creates an XLS/X file and opens it in the program that you use for such files (usually Excel). If you want to hold on to this table for later use, choose to save it somewhere on your hard drive.

 **HTML table** – MAXQDA creates a table in HTML format and opens it in your internet browser.

 **Export** – MAXQDA opens a dialog window where you can enter a name for the file, the location you want it saved, and the format you want to save it in: XLS/X, HTML, or TXT (tab-delimited). The document will then be opened after the export is complete.

8 Creating and Managing Dictionaries

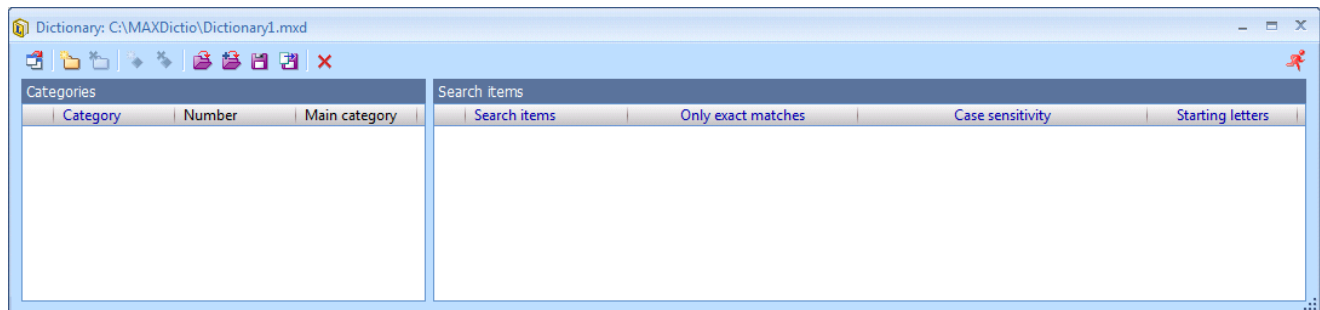
8.1 The Dictionary Function

There are two ways to access the MAXDictio dictionary function:

- the **Dictionary** option in the MAXDictio menu
- the quick button in the MAXDictio toolbar













When using the dictionary function, an empty window will appear at first:



An empty dictionary

The header of the window indicates the name of the dictionary currently being used. The default dictionary, "default.mxd," appears automatically unless other dictionaries have been programmed into MAXDictio.

There is a toolbar underneath the title that contains the majority of the functions available in MAXDictio, including the following, from left to right:

-  **Change view** – switches from the hierarchical display of the categories to the basic view (in Excel style)
-  **New category** – creates a new category or sub-category
-  **Delete category** – deletes the selected category as well as its sub-categories (if any)
-  **New search item** – creates a new search item for the given category (on the left side)
-  **Delete search item** – deletes one or multiple selected search items
-  **Open dictionary** – opens an already existing dictionary
-  **Add dictionary** – merges two dictionaries
-  **Save dictionary** – saves the current dictionary as a file
-  **Delete all categories** – deletes all categories and search items in the current dictionary
-  **Export dictionary** – exports the dictionary as a TXT file



Close window – closes the dictionary window

8.2 Creating a Dictionary with Categories and Sub-categories

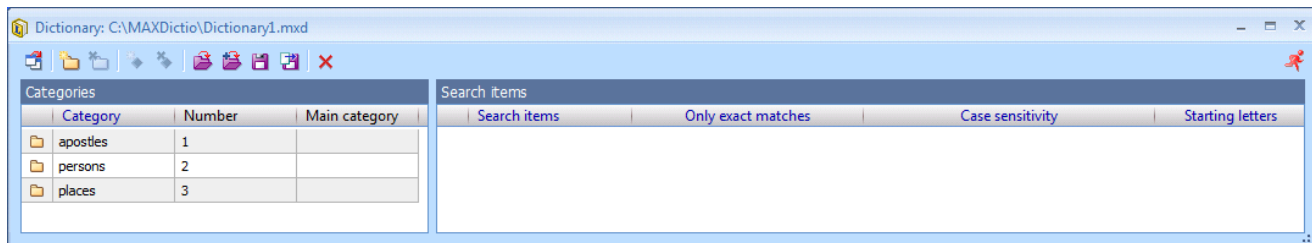
In MAXDictio basic and hierarchical types of dictionaries can be created. Hierarchical dictionaries are similar to the “Code System” of MAXQDA or Windows Explorer, as subordinated levels can be switched on or off as desired. There is no limit to the number of levels, but a dictionary normally doesn’t have more than three levels.

A dictionary consists of categories and sub-categories as well as a list of the search items that are allocated to each category.

A dictionary in MAXDictio can contain any number of categories. Exactly one list of search items belongs to each category. The number of search items is unlimited as well.

To add a new category, click on the **New category button** on the left side of the toolbar. Then a new category title can be entered. The title is not restricted to a certain length or form. It can also consist of several words, such as “old-age pension.” The title of a category can be modified later without effecting the dictionary itself.

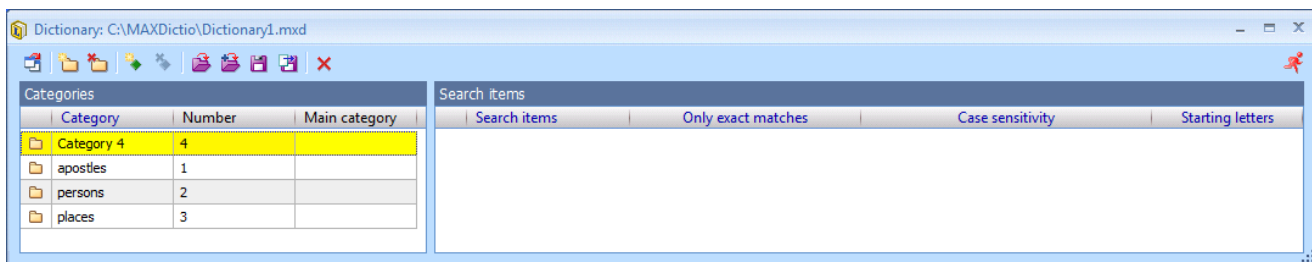
After clicking on **New category**, MAXDictio will add a category named “Category #.” Here the character # stands for the sequential number of the category in the existing category system. This means it always begins with “Category 1.”



The illustration above shows that there are already three defined categories, namely:

- apostles
- persons
- places

After clicking on **New category**, MAXDictio will add a new category named “Category 4” at the top of the list.



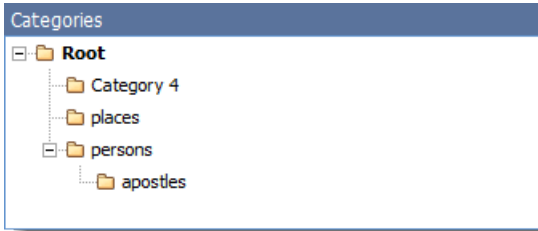
The new category “Category 4” is added to the list of categories

In most cases, you will want to change the title into a more meaningful title. To do so, double-click on “Category 4” and enter the new title. It is also possible to insert a string of characters from the Windows Clipboard with help of the shortcut **Ctrl+V**.

8.3 Sorting and Organizing the Category System

As mentioned above, the category system can be displayed as a list or as a hierarchical tree.

When using the hierarchical view, the category system may be organized in the same way as the “Code System” in MAXQDA. By dragging the mouse, categories can be placed at the desired position. If you’d like to make a category a sub-category of another category, just press the **Shift key** while moving the category to its new position.



The hierarchical view of the category system

When working in list view (see the following figure) you may sort the whole category system by clicking on the **column’s header**.

Category	Number	Main category
Category 4	4	
apostles	1	persons
persons	2	
places	3	

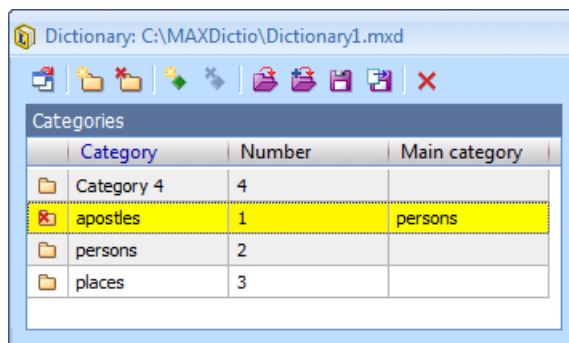
The list view of the category system

By clicking on the column title **Category**, the table will be arranged in ascending alphabetical order. Clicking again on the title will cause the reverse order, which means the list would start with categories that begin with the letter “Z.”

The same thing is possible with the columns **Main category** and **Number**. The Number Column contains an identification number that is created in the sequence the categories were created. Thus, the category defined first, is associated with the number 1.


8.4 Turning Categories On and Off

When working in the list view, the categories may be switched on and off so that you can decide which categories will be counted by MAXDictio. In the left column in front of each category is a symbol which indicates whether a category is turned on or off for the counting. The initial state of a category is the on-state. This is indicated by the plain folder icon. Double-clicking on the icon will change this to a folder with a red X over it. This shows that the category will not be included in the analysis.

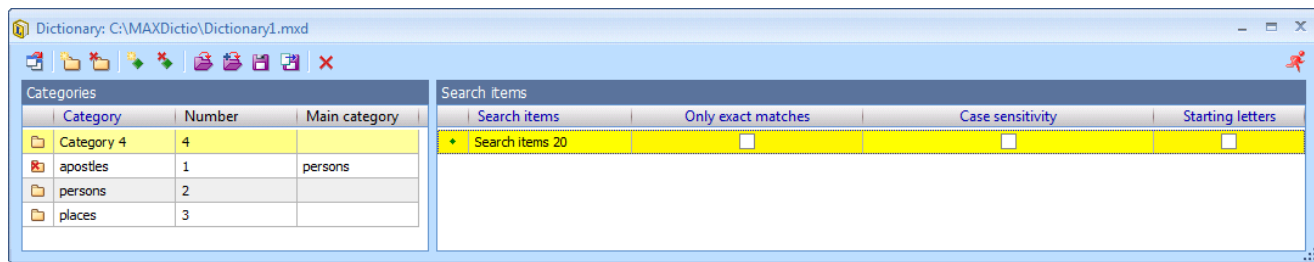


The red cross in the first column indicates that the category "apostles" is turned off

8.5 Adding and Deleting Search Items to the Dictionary

To add category search items, select the desired category by clicking on it with the left mouse button. Then click the **New search item button** in the toolbar . Now it is possible to enter a new search item. However, it is much easier to take a search item directly from a word frequency list and add it to the appropriate category (see description below).

An easier way to add terms is to simply drag them in from a word frequency list or right-click on them there and choose to add them to the dictionary.



A new search item is added to the category system

Individual or multiple search items can be deleted from the list by selecting them and then clicking on **Delete search item**. Several words can be selected by using the combinations **Ctrl+left mouse button** or **Shift+left mouse button** (to select all of the words between an already selected word and another).

8.6 Turning Search Items On and Off / Activating and Deactivating Words

Each search item of a category can be turned on or off individually for the analysis. The procedure is the same as with the categories. The symbol next to each word indicates its state: green = on, red X = off.

8.7 Setting Options

Options for future codings with the MAXDictio Coder can be set for each search item. Search items are strings of characters whose occurrences are supposed to be investigated in the text. These can be individual words, parts of words (such as the stem of a word), or terms consisting of several words or strings of characters.

The default setting is “Word Stem,” which means that all words in the text that contain the search item as a subset will be coded.

The following options are available:

- Only exact matches** – only exact search item matches will be counted
- Case sensitivity** – case will be taken into consideration
- Starting setters** – the search item must appear at the beginning of a word

Examples:

“Only exact matches”	“president” will code President, but not presidential
“Only exact matches” and “Case sensitivity”	“president” will not code President
“Starting letters” activated	“tree” will code trees and treehouse
“Starting letters” deactivated	“tree” not only codes Tree, but also street

8.8 Transferring Words from the Word Frequencies List into the Dictionary

Each word that is contained in a word frequency list can be sent directly to the dictionary. The best way to do this is to open both lists and arrange the windows on the screen so that they are next to each other and can be seen at the same time.

Select the desired category in the dictionary window by double-clicking on it. All of words you select from the word frequency list will be added to this category.

There are three ways to select search items:

- The recommended and simplest way involves double-clicking on the desired word in the frequency list. This will add it directly to the search item list in the dictionary.
- Or, you can drag-and-drop the word into the dictionary. These two options are new additions to the 2007 version of MAXDictio.
- Another option is to click on the desired word with the right mouse button and select **Add to dictionary**. In the illustration below, the word “jesus” was selected. After accessing the option Add to Dictionary, the word will be forwarded to the dictionary as new search item in the presently opened category in the left dictionary window (in our example this is the category “persons”).

You can also select several words from the word frequency list using the conventional key combinations: **Ctrl + left mouse button** for selecting diverse words one after the other; **Shift + left mouse button** for selecting a list of words between the first selected and the last requested word.

8.9 Transferring Search Items from One Category to Another

It is easy to transfer search items from one category to another. Just click on the term and hold the left mouse button down as you move it into the desired category. This is also known as the drag-and-drop function.

The search item will be removed from the old category immediately. The setting options for the given search item (such as "whole word") accompany the word to the new category.

8.10 Printing and Documenting a Dictionary

Documenting and printing a dictionary is best done with MS Word or Excel. Dictionaries are saved as MXD files. They are written in normal text format and can be opened with Word or Excel.

The following screenshot shows a dictionary opened in Excel. The categories are in column A, and the search terms are found in column B. The next three columns indicate whether was selected (1) or not (0).

	A	B	C	D	E	F	G
1	apostles	0	1	0	1		
2		apostle	0	0	0	0	
3		Simon	0	0	0	0	
4		Peter	0	0	0	0	
5		Andrew	0	0	0	0	
6		James	0	0	0	0	
7		John	0	0	0	0	
8		Philip	0	0	0	0	
9		Bartholomev	0	0	0	0	
10		Thomas	0	0	0	0	
11		Matthew	0	0	0	0	
12		Judas	0	0	0	0	
13	persons	0	2	0	1		
14		Abraham	0	0	0	0	
15		Adam	0	0	0	0	
16		Pilate	0	0	0	0	
17		Barabbas	0	0	0	0	
18		Mary	0	0	0	0	
19		Joseph	0	0	0	0	
20	places	0	3	0	0		
21							

A dictionary opened in Excel

8.11 Editing Dictionaries in MS Excel

Dictionaries can also be edited in Excel. For instance, search items may be added or category titles can be changed. However, in Excel, all of the names of categories and search items must be keyed in, while in MAXDictio they can simply be added from the results of the word frequency analysis.

9 Construction of Go-Lists

9.1 What are Go-Lists?

Go-lists are pretty much the opposite of stop-lists. While stop-lists contain a list of words which are disabled for the analysis and are supposed to be excluded from the counting, go-lists consist of words to which the analysis should be limited. That means that only these words will be counted.

In MAXDictio, go-lists are created and managed as dictionaries. But these dictionaries consist mostly of only one “dummy-category.” This category then contains all of the go-words.

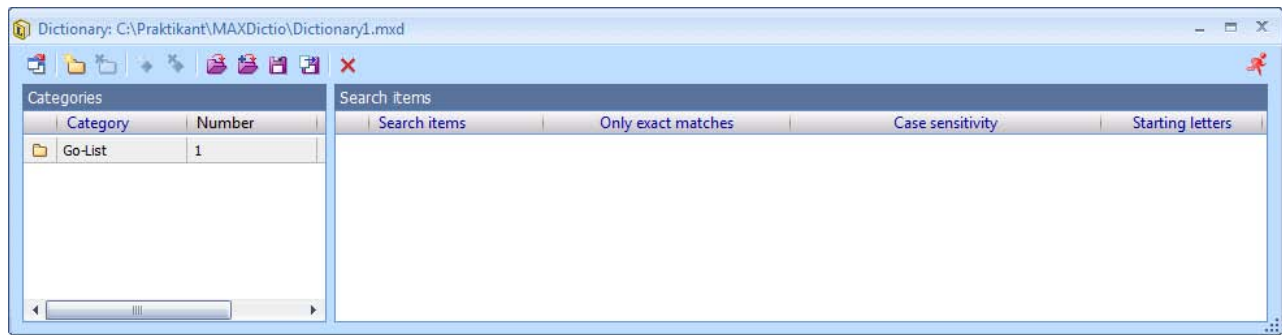
9.2 Accessing the Function and Setting Up Go-Words

First, you access the dictionary using the MAXDictio menu or the quick button **Dictionary**.



Then proceed as follows:

- If there are still categories listed, use the button **Delete all categories** to delete these. Attention: You should save the dictionary in use beforehand.
- Click on **New category**. Now “Category 1” will be created. Go-words can be entered here or transferred from any word frequency list (by double-clicking on selected words with the left mouse button or simply dragging-and-dropping them into the appropriate category).



Implement a go-list via a category in a dictionary

When creating go-lists, the options “Only exact matches” and “Starting letters” do not play a role, because only exact matches are taken into consideration when using go-lists.

9.3 Analysis of Go-Words

The analysis, e.g. the word frequencies of all texts, is limited to the words in the go-list, when you click the button **Count only dictionary words**.



10 The Coder

10.1 Accessing the Coder

The “MAXDictio Coder” automatically codes the texts on the basis of an active dictionary. If nothing has been defined, the standard dictionary is called “default.mxd.” However, the term “coding” in MAXDictio has a different meaning than the usual qualitative coding of text segments in MAXQDA. Normally, coding in MAXQDA means that a text section is selected and then assigned a code or sub-code in the “Code System”. The coding process in MAXDictio does not assign such codes to text sections, but performs more of a quantitative analysis of one or more texts on the basis of the categories and search items in a dictionary.

So, the coding process corresponds to the approach in quantitative content analysis, in which the actual text is redundant and substituted by counted results and categories. To explain this: In MAXQDA qualitative coding would mean, when coding the Bible, for instance, to select a text section and then allocate it to the code “apostles > Peter.” Later then, by activating this code, the according passage could be found again. When working with the “MAXDictio Coder”, you would define the category “apostles” with “Peter” as an attributed search item. If the coder finds the search item, this will be registered as a counting result for this category.

Processing the material with MAXDictio results in a matrix that contains the frequencies of the categories.

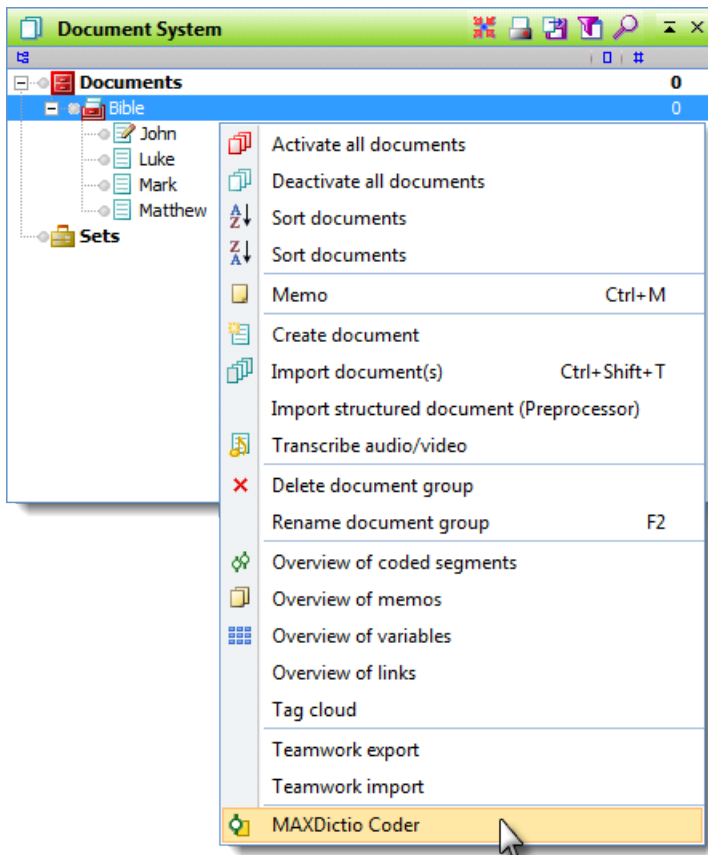
The coder can be accessed for:

- a single document
- a document group
- all documents of a project
- a certain document set

To access the coder, go to the “Document System”, and click on the desired level with the right mouse button. Then select the option **MAXDictio Coder**. Alternatively you may click on the **MAXDictio Coder** button in MAXDictio’s toolbar. As the illustration below shows, the option is the last one in the context menu in the “Document System”.



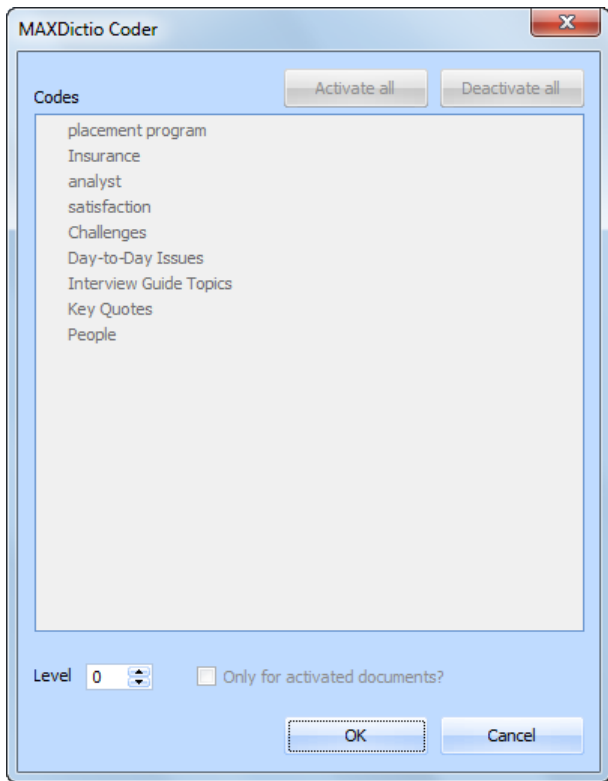
The icon for the MAXDictio Coder in the MAXDictio toolbar



Opening the "MAXDictio Coder" via right-clicking on a document group

MAXDictio can carry out such a quantitative content analysis for a whole text or single parts of texts. Texts can be divided into paragraphs or sections. These so-called text units are counting units for the coder, which means that for each counting unit, individual issue lines will be created in the results file. This option must be selected first, as the coder will not automatically consider the units when analyzing the text. When a text has been divided into sections, it is still possible to analyze it as a whole.

When accessing the coder, an additional window will appear, in which you can determine on which level a text should be analyzed and coded. The simplest selection would be just clicking on **OK** and so determining level 0 as coding depth – the least possible degree. In this case, each whole text counts as one text unit, and so for each text only one issue line will be created. The texts will not be differentiated any further.



Setting the level of text to be analyzed

10.2 What Does the Coder Do?

The “MAXDictio Coder” carries out an automatic quantitative content analysis. The procedure is as follows: Starting with the first word of the first text, the program checks the active dictionary to see whether this word is contained in it as a word or word segment. If so, and the word is active for the analysis, the category counter increases by one. The search continues with this word, as it is possible to assign one word to more than one category. If a further allocation has been found, MAXDictio will also increase the counter for this category by one. After the whole dictionary has been assessed, the coder proceeds to the next word in the text.

This automatic coding results in a data matrix, in which the texts are represented in the lines and the categories in the columns:

Docume...	Document	Document ID	Code	Words	apostles	persons	places
◆ Bible	John	1		20353	376	306	0
◆ Bible	Luke	2		27198	198	151	0
◆ Bible	Mark	3		15886	175	116	0
◆ Bible	Matthew	4		25101	253	208	0

A data matrix consisting of the automatic codings is shown in the “Results of MAXDictio Coder” window

Such a matrix resembles the illustration above. Each line contains the results of one text and begins by naming the document group and document name. The next column, “Code,” contains the name of the code of this particular

text unit, if any (see below). Then comes a column that contains the total number of counted words in the text. These numbers are followed by the frequencies of the categories.

There are numbers in the cells that specify how many times a given category has been found in the given text.

This matrix is like other tables in MAXQDA – similar to a table in MS Excel. By clicking on a column title, the whole table will be assorted in ascending or descending order.

10.3 Further Processing of the Results

The contents of the matrix can be copied and pasted into other Windows or MS Office programs by way of the Windows Clipboard.

By clicking on the button **Export** in the toolbar, the matrix can be saved as an Excel or text file.

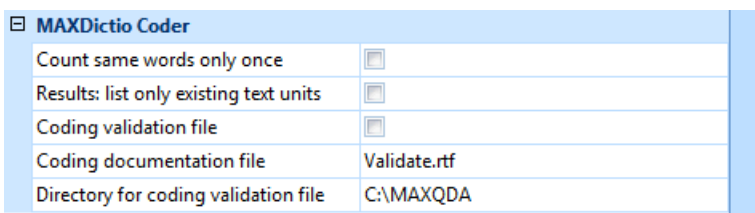


Export button

The table of results can also be shown in HTML or Excel format by way of the **Show as HTML table button** or **Show as Excel table button** resp. This can easily be printed or imported into other programs.

10.4 Coder Options

In the “Options” menu of MAXDictio, you can determine how the words or search items should be counted that appear more than once in the same text unit. If you only want the counter to count them once, select the appropriate option. If, for instance, a category contains the search item “Peter,” a text unit will be counted once, no matter whether “Peter” is found one or more times in the given text unit. Suppose the category “apostles” contains the names of the 12 apostles as search items. The counting result 12 means that all 12 apostles have been found in this counting unit, given that the option **Count same words only once** has been selected. Otherwise, if this option hadn’t been selected, the counting result would not allow such a conclusion.



Coding tool options

The second option only concerns structured texts. Here you can set the quality of the result table.

Further, you have the possibility to create a validation file. Such a file allows you to carefully review the coding process. To create the file, select the appropriate option and enter the file name under which the coding process protocol should be saved.

The validation file contains the original text of each text unit. The locations where search items have been found are marked. Behind each search item, you can find an identification number (ID-number) in brackets which points to the assigned category. The ID-number is determined when the category is created and is shown in the categories window. Categories can also be assorted by their numbers, and so you can create an assorted printout of the dictionary. This printout might be helpful when monitoring the validation file.

Category	Number	Main category
apostles	1	
persons	2	
places	3	

Each category has its own ID-number

The following lines are a short extract from a validation file:

Now in the fifteenth year of the reign of Tiberius Caesar, Pontius Pilate^[2] being governor of Judea, and Herod being tetrarch of Galilee, and Philip^[1] his brother tetrarch of Iturea, and the country of Trachonitis, and Lysanias tetrarch of Abilina; Under the high priests Annas and Caiphas; the word of the Lord was made unto John^[1], the son of Zachary, in the desert. And he came into all the country about the Jordan^[3], preaching the baptism of penance for the remission of sins;

The validation file may not be opened with another program while starting the coder. Otherwise, the coder will abort the process with an error message.

10.5 Coding of Structured Texts

The coder offers very complex possibilities of counting structured texts. Texts can be structured in many different ways. Suppose a text is divided into four sections (text units). This corresponds to a book with four chapters. This results in the following structure:

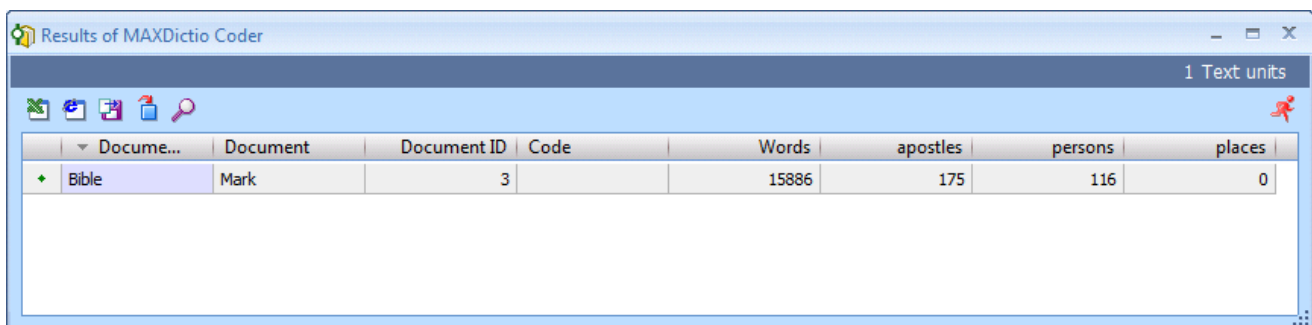
- Chapter 1
- Chapter 2
- Chapter 3
- Chapter 4

The chapter names are managed by MAXQDA as codes. The subdivision of texts into sections can be achieved simply by coding the relevant paragraphs in the "Document Browser".

Proceed as follows:

1. Create the codes "Chapter 1," "Chapter 2," "Chapter 3," and "Chapter 4" in the MAXQDA "Code System" window.
2. Open the text in the "Document Browser", select the first section with the mouse, and assign the code "Chapter 1" to it. Do the same with the sections two, three, and four. In the following example, this has been done with the first four chapters of the Gospel of Mark.

Now, start the "MAXDictio Coder" once more. If the setting of the coding depth were to be left at 0, the text would only be analyzed as a whole; that means the table of results would only contain one line for the four sections.

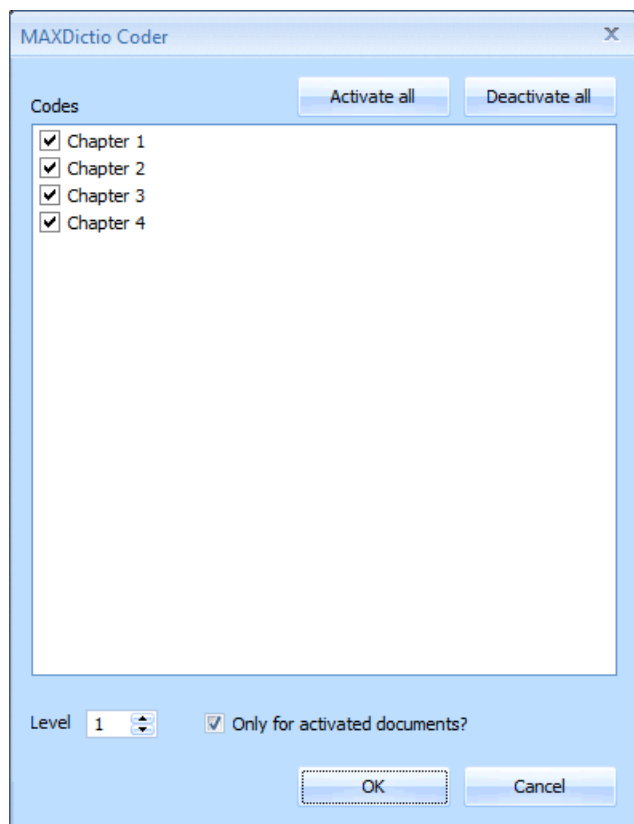


Docume...	Document	Document ID	Code	Words	apostles	persons	places
Bible	Mark	3		15886	175	116	0

Only one line for the four sections is shown in the "Results of MAXDictio Coder" window

As soon as the depth is set to a value greater than 0, the codes contained in the window will be released for selection. In the selection window, all level 0 codes from the “Code System” will be offered; these are the codes on the highest hierarchy level.

Now you can click on the newly created subdivision codes “Chapter 1”, “Chapter 2”, “Chapter 3”, and “Chapter 4”. The text will now be counted on a more differentiated level, relating to the individual sections (here: 4).



Existing codes can be selected in the “MAXDictio Coder” window

The following table of results will be created:

The results of the automatic coding are displayed in four lines, one for each of the selected codes

When adding the relevant category frequencies, their sum will be the same as the numbers contained in the overall table. However, this only applies when the option **Count same words only once** has not been selected. Otherwise, subdividing a text into sections can produce results that would differ from those of the overall analysis.

If you had only selected “Chapter 1” and “Chapter 2” in the coder window, the result table for this text would only consist of two lines, one for each of the counted text units (Chapter 1 and 2 of the Gospel of Mark).

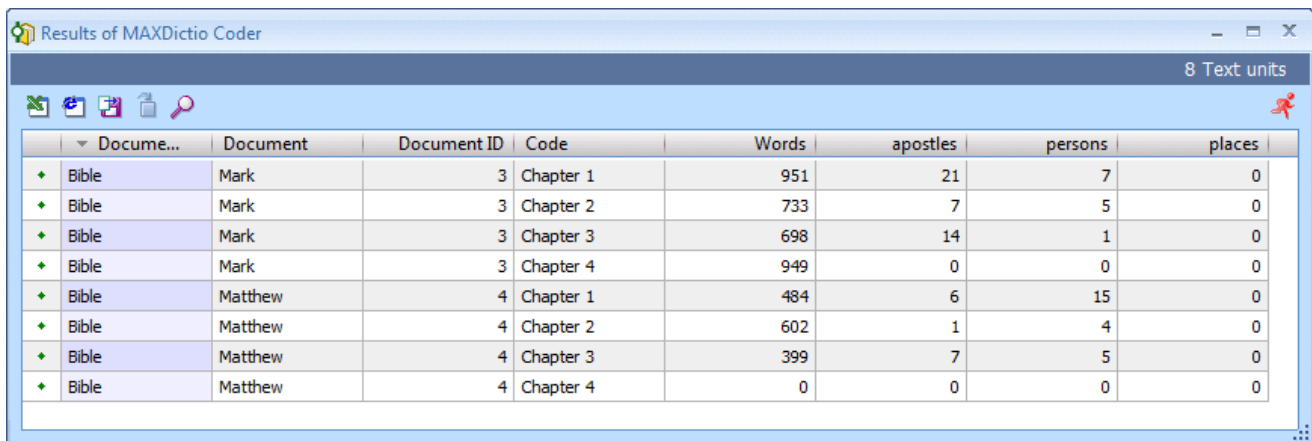
The following norms for structured texts should be taken into consideration:

- The structuring features must be level 0 codes on the highest level of the “Code System”.
- Overlapping of structuring features is allowed.
- The number of structuring features is unlimited.

Structuring texts can be simplified considerably by using the MAXQDA text pre-processor (**Documents > Import structured document**). With its help, structuring features can already be created while a text is being imported, meaning that they can be written directly into the imported text.

10.6 Results Table for Structured Data

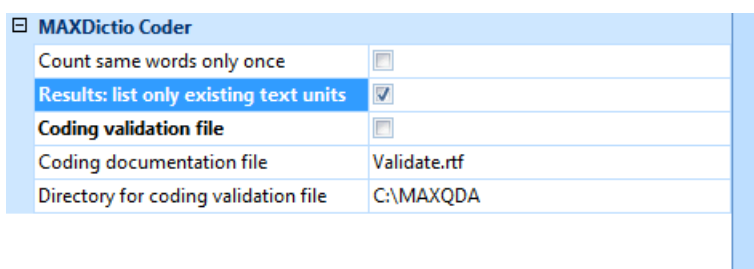
When analyzing structured texts, the analysis is itemized by the existing (or selected) text units. In the example above, the text has been differentiated by chapters. Suppose we want to analyze two texts, the first text consists of four chapters, the second of only three. In this case, the table of results still will be comprised of two times four lines (total: 8 lines), as in the illustration below. Here the text “Matthew” only consists of three text units, a fourth chapter didn’t exist. This is visible by the entry 0 in the last line in the column “Words” of the table of results (Matthew Chapter 4).



Docume...	Document	Document ID	Code	Words	apostles	persons	places
Bible	Mark	3	Chapter 1	951	21	7	0
Bible	Mark	3	Chapter 2	733	7	5	0
Bible	Mark	3	Chapter 3	698	14	1	0
Bible	Mark	3	Chapter 4	949	0	0	0
Bible	Matthew	4	Chapter 1	484	6	15	0
Bible	Matthew	4	Chapter 2	602	1	4	0
Bible	Matthew	4	Chapter 3	399	7	5	0
Bible	Matthew	4	Chapter 4	0	0	0	0

The results of the autocoding are shown in a table with 8 lines, where the entry “0” in the column “Words” indicates that there exists no “Chapter 4” in the document “Matthew”

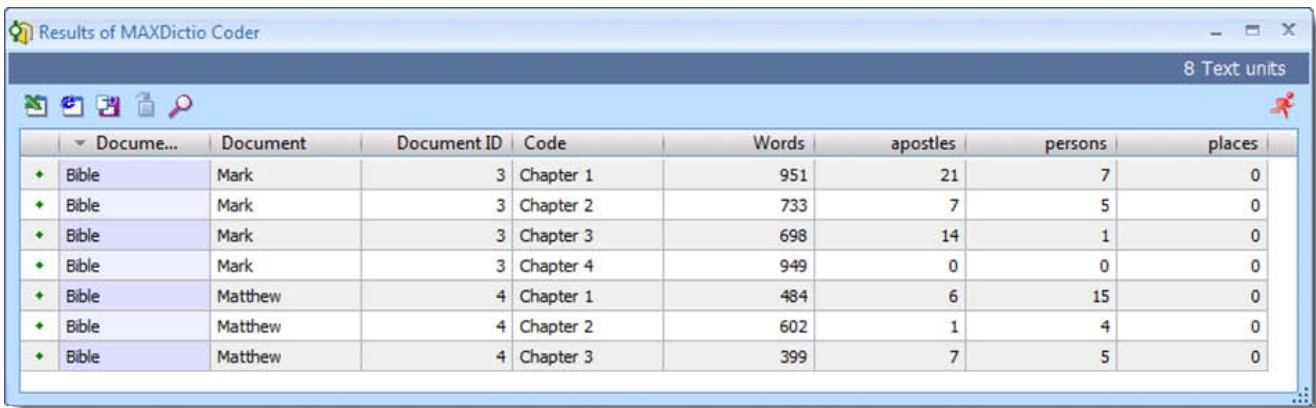
There are cases, in which it is not desired to create empty lines for non-existing text units. This can be prevented by selecting the appropriate setting in the options menu.



MAXDictio Coder	
Count same words only once	<input type="checkbox"/>
Results: list only existing text units	<input checked="" type="checkbox"/>
Coding validation file	<input type="checkbox"/>
Coding documentation file	Validate.rtf
Directory for coding validation file	C:\MAXQDA

In the “Options” menu, you can set whether blank text units should be included

Now only the actual existing text units will be counted and listed. The illustration below consequently contains only 7 lines; the last line for the non-existing Chapter 4 has been left out.



Docume...	Document	Document ID	Code	Words	apostles	persons	places
Bible	Mark	3	Chapter 1	951	21	7	0
Bible	Mark	3	Chapter 2	733	7	5	0
Bible	Mark	3	Chapter 3	698	14	1	0
Bible	Mark	3	Chapter 4	949	0	0	0
Bible	Matthew	4	Chapter 1	484	6	15	0
Bible	Matthew	4	Chapter 2	602	1	4	0
Bible	Matthew	4	Chapter 3	399	7	5	0

As soon as you check the option to only show existing text units, the empty rows in the table disappear

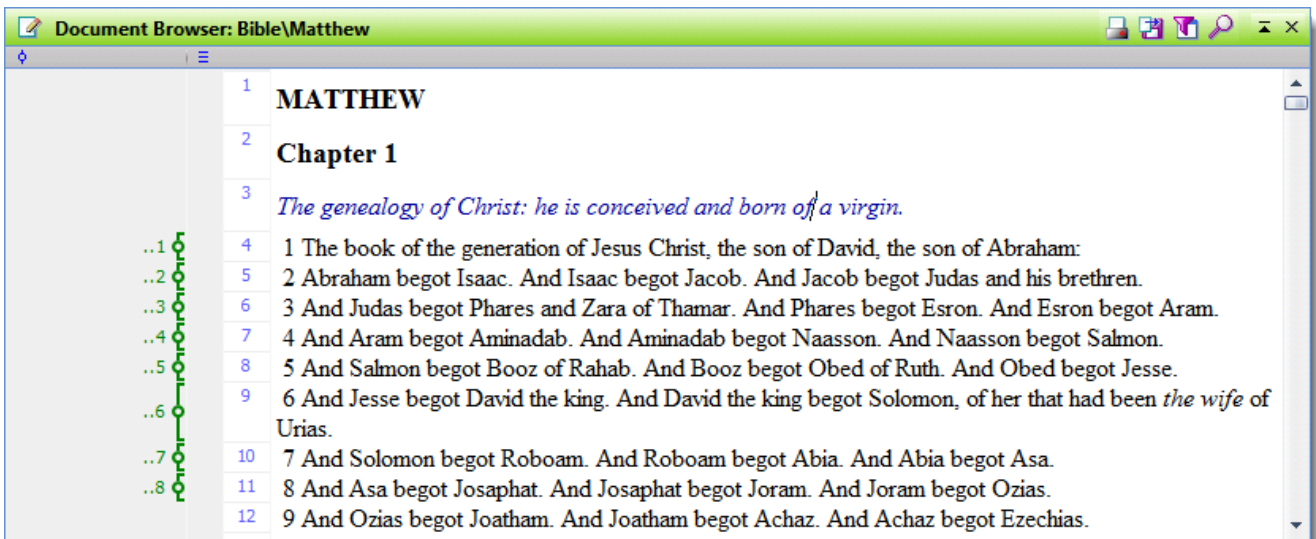
Many diverse possibilities result from subdividing texts on a more differentiated level. Analogue to a book, you can divide a text into:

- Chapter 1 – Paragraph 1
- Chapter 1 – Paragraph 2
- Chapter 1 – Paragraph 3
- Chapter 2 – Paragraph 1
- Chapter 2 – Paragraph 2

Now you can carry out the analysis on the lowest level of the text – the paragraphs. To do this, select level 2 as coding depth. Even after differentiating a text this way, there still remains the possibility to analyze the text on the first level. Then the text will be counted on the level of the chapters. This only functions if there are no allocations to the first order codes “Chapter 1” or “Chapter 2;” the text must be coded consistently on the lowest level. This means that MAXDictio demands proceeding the same as when making a book. If a chapter is subdivided, each chapter starts with the first sub-chapter. Hence, there are no paragraphs that do not belong to a sub-chapter.

Example:

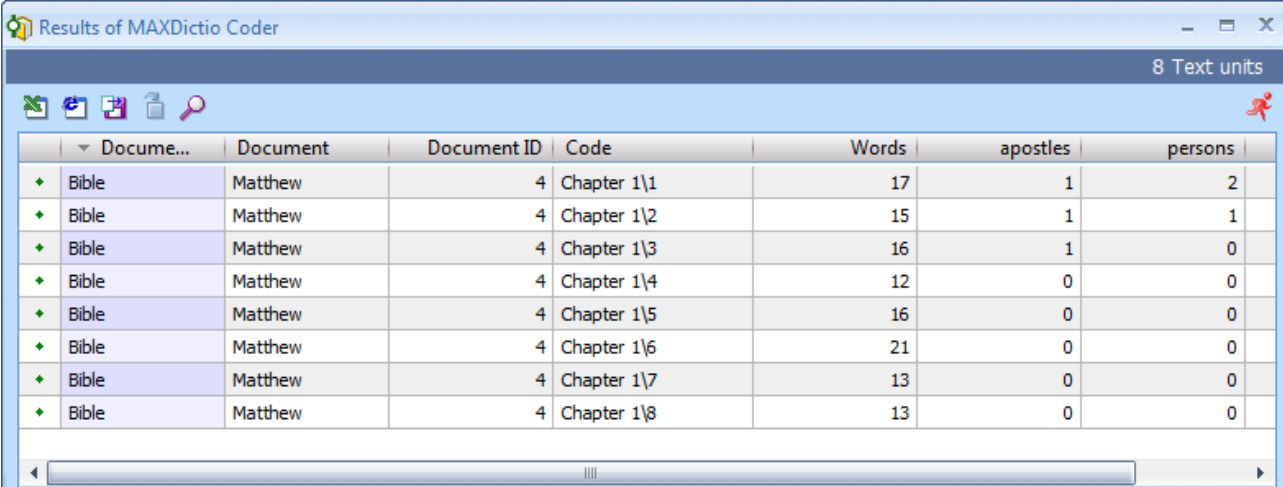
The text below has been processed so that each sentence in the chapters has been coded individually, beginning with the codes “Chapter 1/1,” “Chapter 1/2,” and so on.



	1	MATTHEW
	2	Chapter 1
	3	<i>The genealogy of Christ: he is conceived and born of a virgin.</i>
..1	4	1 The book of the generation of Jesus Christ, the son of David, the son of Abraham:
..2	5	2 Abraham begot Isaac. And Isaac begot Jacob. And Jacob begot Judas and his brethren.
..3	6	3 And Judas begot Phares and Zara of Thamar. And Phares begot Esron. And Esron begot Aram.
..4	7	4 And Aram begot Aminadab. And Aminadab begot Naasson. And Naasson begot Salmon.
..5	8	5 And Salmon begot Booz of Rahab. And Booz begot Obed of Ruth. And Obed begot Jesse.
..6	9	6 And Jesse begot David the king. And David the king begot Solomon, of her that had been <i>the wife of</i> Urias.
..7	10	7 And Solomon begot Roboam. And Roboam begot Abia. And Abia begot Asa.
..8	11	8 And Asa begot Josaphat. And Josaphat begot Joram. And Joram begot Ozias.
	12	9 And Ozias begot Joatham. And Joatham begot Achaz. And Achaz begot Ezechias.

Visualization of the coded sentences in the “Document Browser”

The results for the first 8 sections that have been analyzed with coding depth 2, appears as follows:



The screenshot shows a software window titled "Results of MAXDictio Coder" with a subtitle "8 Text units". The window contains a table with the following data:

Docume...	Document	Document ID	Code	Words	apostles	persons
◆ Bible	Matthew	4	Chapter 1\1	17	1	2
◆ Bible	Matthew	4	Chapter 1\2	15	1	1
◆ Bible	Matthew	4	Chapter 1\3	16	1	0
◆ Bible	Matthew	4	Chapter 1\4	12	0	0
◆ Bible	Matthew	4	Chapter 1\5	16	0	0
◆ Bible	Matthew	4	Chapter 1\6	21	0	0
◆ Bible	Matthew	4	Chapter 1\7	13	0	0
◆ Bible	Matthew	4	Chapter 1\8	13	0	0

You can see that each sentence has been counted individually and the results are represented by an individual line in the table. In the first sentence of Chapter 1, for instance, 17 words have been counted and in sentence 2 there were 15.



11 Further Processing of the Coder Results with Excel or SPSS

11.1 Questions

The results matrix is an initial point for further statistical analysis. This can help answer further questions, such as:

- Which category is named most frequently in which texts or text units?
- In which text (or texts) is a category coded especially often? Where does it appear very seldom?
- How do the categories correlate?
- Can patterns be found in the category frequencies?

11.2 How to Transport the Matrix into Excel

The simplest way to transfer the data would be to use the Windows Clipboard. Select the whole result table, copy it, and then paste it into a spreadsheet in Excel.

The second possibility would be to create a text file of the matrix by clicking on the option **Export**. Then you can open this file in Excel.

Both versions work with the same grade of reliability.

11.3 How to Transport the Matrix in SPSS

To export the matrix to SPSS, select to export the file in TXT format by way of a button on the toolbar in the results window. Exporting by saving the file temporarily on the clipboard does not work well due to SPSS's restrictions regarding variable names. In addition, only numerical variables can be copied into the SPSS data editor, so string variables would be lost.

11.4 Convert the Results Matrix into MAXQDA Variables

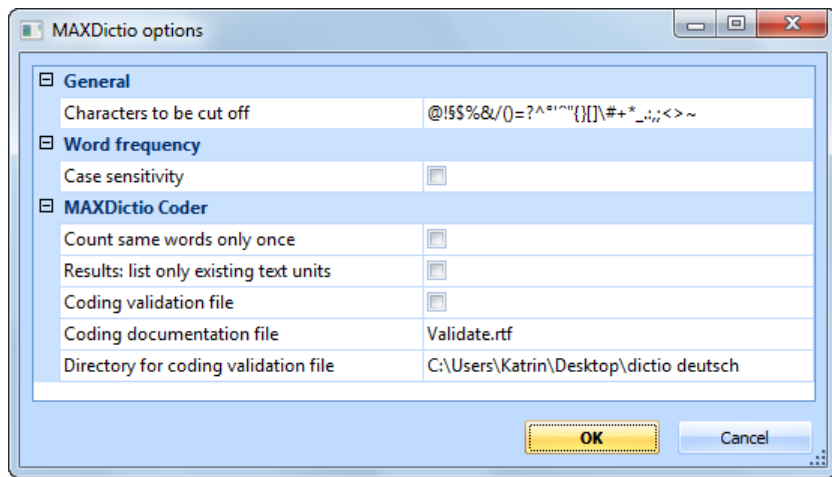
It is possible to save the columns of the results matrix permanently in MAXQDA in the 2007 version of the program by converting them to MAXQDA variables.

The category frequencies have been added to MAXQDA's variable function as individual variable types. They appear in a different color (yellow) so that they are easier to recognize. The dictionary name serves as the variable name for the converted category frequencies. If, for example, a dictionary category is called "Legal Aspects," this will serve as the variable name in MAXQDA's variable list. The number of times the category appears in each of the texts on the list will be shown in the column of the variable matrix entitled "Legal Aspects." To start the conversion process, click on the icon **Transform into variables** in the table's toolbar. This type of variable cannot be updated by importing a variable matrix.

Because the variables in MAXQDA are case variables, i.e. only one data set is available per text, the results matrix can only be converted into variables that have the same case structure. This is, however, only the case at coding level "0;" hence, converting category frequencies into variables is limited to this level.

12 Options

All important options for MAXDictio – especially for word frequencies and the coding tool – can be found under **Options** in the **MAXDictio drop-down menu**.



The characters that act as cutoffs can be set in the options menu

Characters to be cut off – A “word” is defined in MAXDictio as any grouping of characters a) between two spaces, b) between a space and a cutoff character, or c) between two cutoff characters.

Case sensitivity – When this option is checked, capitalization is always taken into consideration. The words “mom,” “Mom,” and “MOM” are then treated as three different words.

The options for the MAXDictio Coder are all explained in the section **Coder Options**.



13 Tips and Hints for Working with MAXDICTIO

For MAXDICTIO to operate efficiently, it is advisable to create a suitable working environment. Setting up a functional directory structure is the first priority.

It is best to create a "maxdictio" folder in your "My Files" folder. There you can save project files, such as stop-lists, dictionaries, or exported results.

Files created by MAXDICTIO can be recognized by the following file extensions:

Type	Extension
Dictionary	mxd
Word Frequencies	txt
Index of Finding Locations	txt
Stop-Lists	txt

As long as you only use MAXDICTIO occasionally, and the number of the files you create stays manageable, it will be sufficient to just save all of the files in this folder. With a growing number of files, however, it might become necessary to set up sub-directories, such as a folder "results" or a folder for all your dictionaries.

When working with the functions, it is advisable to have MS Excel opened at the same time. Then data can easily be moved using the Windows Clipboard and results of the word frequency function or dictionaries (these only via the Export-function, though) can be inserted in Excel as a spreadsheet and printed out in a clear form.

Besides this, it is important that MAXQDA has sufficient resources so that that the program can work as efficiently as possible. Other Windows programs should be closed when starting the function for the word frequencies. The more central memory available, the quicker the word frequency function and the coder can work.

14 Limits of MAXDictio

Neither the number nor size of the texts nor the amount of text units or words per text unit are limited. The same applies to the dictionary – the number of categories and allocated words are also unlimited.

To a high degree, working with MAXDictio depends on how fast the computer is and how many resources it has. If the number of texts to be counted at the same time reaches a certain quantum, the computer becomes noticeably slower. Projects of up to a million words are manageable for today's average computers. This should be sufficient for usual projects of qualitative social science.

The more text to be processed simultaneously, the more time the computer needs. All functions also have a bar that indicates the progress. Hence, it is visible how much text MAXDictio has already processed and, thus, possible to calculate how much time will still be needed to complete the entire analysis.