Quantitative Content Analysis with MAXDictio

MAXDictio is a quantitative text analysis module that is part of MAXQDA Plus and MAXQDA Analytics Pro. It is not a part of MAXQDA Standard. MAXDictio offers tools for word-based analysis of text and PDF documents:

- Analysis of word frequencies and word combinations
- Analysis of Keyword-in-context (results tables and Interactive Word Tree)
- Quantitative content analysis with a dictionary

Explorations – Word Frequencies

Select MAXDictio > Word Frequencies to count and list words in all (or only in activated) text and PDF documents. Alternatively, you can restrict the search to the text currently displayed in the “Retrieved Segments” window.

The result table lists all words in the analyzed text by their absolute and relative frequencies. The columns “Documents” and “Documents %” indicate the number and percentage of documents in which a word occurs.
Stop and Go Lists

Stop lists are a place to collect uninteresting words, for example to or and, that you wish to exclude from your analysis. You can send words to the stop list with a click on the green icon in result tables or open MAXdictio > Stop List to customize, export, import and merge stop lists.

Differentiate by Document, Document Group or Document Set

Result tables can hold additional columns to display word frequencies for documents or document groups. Columns can display how often a word occur, the rank of a word in this document (group) or if the word occurs at all (1, 0).

Lemmatization

Activate the lemmatization option to count words from the same stem together. For example, the frequency for “give” will include occurrences of give, gave, or given. Lemmatization is currently available for 14 languages.

Exploration: Word Combinations

Select MAXdictio > Word Combinations works similar to the Word Frequencies feature but counts and lists word combinations rather than single word occurrences. You can search for combinations of up to 5 words. You can decide if word combinations should occur within the same sentence or if word combinations should also be counted across paragraphs and full stops.

Tip: If you hover with a mouse over a row in the results table, all the lemmatized words or word combinations in this row will be displayed.
Exploration: Keyword-in-context

Select MAXDictio > Keyword-in-context to view selected keywords in a tabular view along with the words that appear before and after the word. The table also displays document information.

![Keyword-in-context table]

Tip: This table is interactively linked to the original source data. Click into a table row to highlight the search item in the original text in the Document Browser. Each column of a result table can be alphabetically sorted with a click on the column header. You can rearrange columns via drag & drop, and right click on a column header to filter for characters.

Exploration: Interactive Word Tree

Select MAXDictio > Interactive Word Tree to visually explore word and word combinations in your data. Drag all the documents, document groups or sets into the dialog window that you want to use to create a Word Tree.

The word “net adds” is the root of the tree with branches to the left and right showing the words before and after that word. The root can be placed in the middle (as shown above) or as the starting or ending point. The window to the right contains the complete analyzed text. Yellow highlighted passages are currently displayed in the tree view.

Tip: Click on another word to use it as the new root or search for word (combinations) in the search field.
Word Matrix Browser

The Word Matrix browser lets you produce a table like the code matrix browser, but instead of showing the distribution of codes in documents, document groups or document sets, it lets you see how words are used.

Word Matrix browser can use a set of search terms, words in a “go list,” or words in a dictionary (see below).

If you click on one of the cells, you will see the search results of that word or phrase and can then auto-code it if you want.
Dictionary-based Content Analysis

To conduct a dictionary-based quantitative context analysis, your first step is to create a dictionary via MAXDictio > Dictionary. A dictionary may contain any number of categories with an unlimited number of search items. For example, a simple dictionary may look like this:

This dictionary contains categories, like “Finances” or “Partnerships”, each of which includes search items. A search item can also consist of multiple words or phrases. As you can see, you can specify if you want whole word, case sensitivity, or starting letters. Like stop-lists, dictionaries can be imported, exported, and merged. By default, dictionaries and stop lists are saved within a MAXQDA project, to ensure that if you share your project data with your team, everyone can use them.
Selecting Search Terms

The hard work is in creating a functional dictionary that will capture the terms you are looking to include. Here you can draw on other MAXDictio tools, such as Word Combinations, and Word Frequencies to drag words into search terms in a dictionary.

Use the Analysis > Word Explorer or MAXDictio > Word Matrix browser to first explore the terms you are thinking of including in a dictionary. Word Explorer can let you see the usage of words or phrases in documents, groups, word combinations, context words, and associated codes. It is probably the best place to “beta test” words to include as dictionary search terms.
Frequencies of Dictionary Categories

Select MAXDictio > Dictionary-based Content Analysis to create a frequency table similar to the ones we discussed earlier. This time MAXQDA only searches for search items in active dictionaries.

<table>
<thead>
<tr>
<th>Document set</th>
<th>Words</th>
<th>Finances</th>
<th>Global</th>
<th>Partnerships</th>
<th>Content</th>
<th>Service</th>
<th>Strategy</th>
<th>Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-Q1</td>
<td>9082</td>
<td>70</td>
<td>29</td>
<td>22</td>
<td>121</td>
<td>48</td>
<td>35</td>
<td>21</td>
</tr>
<tr>
<td>18-Q2</td>
<td>9485</td>
<td>67</td>
<td>53</td>
<td>23</td>
<td>85</td>
<td>41</td>
<td>28</td>
<td>11</td>
</tr>
<tr>
<td>18-Q3</td>
<td>10286</td>
<td>72</td>
<td>60</td>
<td>32</td>
<td>151</td>
<td>61</td>
<td>34</td>
<td>18</td>
</tr>
<tr>
<td>18-Q4</td>
<td>9397</td>
<td>93</td>
<td>25</td>
<td>24</td>
<td>108</td>
<td>56</td>
<td>24</td>
<td>8</td>
</tr>
<tr>
<td>19-Q1</td>
<td>9888</td>
<td>85</td>
<td>55</td>
<td>21</td>
<td>99</td>
<td>70</td>
<td>25</td>
<td>8</td>
</tr>
<tr>
<td>19-Q2</td>
<td>10228</td>
<td>86</td>
<td>57</td>
<td>32</td>
<td>119</td>
<td>52</td>
<td>35</td>
<td>11</td>
</tr>
<tr>
<td>19-Q3</td>
<td>10508</td>
<td>124</td>
<td>52</td>
<td>24</td>
<td>131</td>
<td>46</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>19-Q4</td>
<td>11163</td>
<td>100</td>
<td>87</td>
<td>12</td>
<td>108</td>
<td>64</td>
<td>47</td>
<td>2</td>
</tr>
<tr>
<td>20-Q1</td>
<td>10568</td>
<td>79</td>
<td>29</td>
<td>11</td>
<td>93</td>
<td>80</td>
<td>21</td>
<td>2</td>
</tr>
<tr>
<td>20-Q2</td>
<td>10921</td>
<td>115</td>
<td>18</td>
<td>13</td>
<td>97</td>
<td>56</td>
<td>18</td>
<td>8</td>
</tr>
</tbody>
</table>

Tip: You can also right click on a document or document group to start the quantitative content analysis for the selected document(s).

Visualize Frequencies of Dictionary Categories

Select MAXDictio > Category Matrix Browser to visualize the same type of frequencies in a visual matrix. The image below visualizes how often search items from different categories occur in different fairy tales. You can also start this feature by clicking the matrix browser icon in the result table of a quantitative content analysis.

Like in the code matrix browser, or code relations browser, you can choose to view the results with symbols (circles or squares), numbers, or numbers in a heat map.
Auto-code documents with Dictionary Categories

Select MAXDictio > Auto code with dictionary to automatically search for occurrences of category search items. Each search result can be coded with the name of the category, that holds this search item. All the usual auto code options of MAXQDA are available, e.g. to code just the search item, or the (adjourning) sentence(s) or paragraph(s) it occurs in.

Reviewing Auto-coded segments in a dictionary-based content analysis

While dictionary-based auto-coding is powerful, you need to be sure that what you are coding is relevant, and that it codes all of the relevant segments in your documents. There are multiple ways of doing this:

- Manual review of the coded segments in your documents. Read through the documents to see if what you coded is comprehensive or even relevant. One way to assist in this is to activate the new codes and use the Document Browser settings to only display activated coded segments.

- Use the Smart Coding tool to review coded segments. This can be both a check for accuracy, and a powerful tool to do secondary coding. If you treat the coded categories like themes in a thematic analysis, you can use smart coding tool to easily add sub-codes.

- You could also use the Word Explorer to double check some of categories you coded to determine if your results appear to be accurate and complete.

- A good workflow for dictionary building might be to begin with Word Explorer and Word Frequencies/Combinations, and Word Matrix Browser to develop a dictionary. Test it out by running the Dictionary Content Analysis and Category Matrix Browser to see if the results seem to be capturing what you are hoping to capture. Then auto-code and review the results in the document browser and smart coding tool.

For More information contact. Dr. Michael Gizzi, Certified MAXQDA Trainer

https://www.4stagesofresearch.com  mgizzi@ilstu.edu or mgizzi@gmail.com