## Contents

1. Introduction ...................................................................................................................... 2
2. Boolean Operators ............................................................................................................. 2
3. Phrase Searching ............................................................................................................... 3
4. Truncation ........................................................................................................................ 3
5. Wildcards .......................................................................................................................... 4
6. Using Search Techniques in Google .................................................................................. 4

Imprint .................................................................................................................................... 8

All links last accessed on 22 November 2018.
# 1 Introduction

This LibGuide presents some useful search techniques:
- Boolean Operators
- Phrase Searching
- Truncation
- Wildcards

Note, however, that search techniques might be used differently depending on the databases and search engines you choose. Therefore, always check the respective database help before starting your search.

# 2 Boolean Operators

Boolean Operators are used to connect search terms. With them, you can expand or narrow your search.

<table>
<thead>
<tr>
<th>Operators</th>
<th>Search Strings (Examples)</th>
<th>Results</th>
</tr>
</thead>
</table>
| AND or plus (+) or space | strategy AND management strategy +management strategy management finance AND accounting finance +accounting finance accounting | • AND finds records containing both terms.  
• It narrows the search.  
• Useful to make the search more specific. |
| OR                  | behavior OR behaviour Mayer OR Meier accounting OR bookkeeping leadership OR governance | • OR finds records containing one or both terms.  
• It expands the search.  
• Useful with terms with similar meaning (synonyms and quasi-synonyms) or with similar value. |
| NOT or minus (-) or AND NOT | marketing NOT digital marketing -digital marketing AND NOT digital accounting NOT balance accounting -balance accounting AND NOT balance | • NOT finds records containing just one of the search terms.  
• It narrows the search.  
• Useful to eliminate terms from the search. |

Boolean Operators can be used in combination with each other. In this case, terms connected with OR must be enclosed by brackets:
- finance AND (accounting OR bookkeeping) NOT balance
- (leadership OR governance) AND management NOT negotiation
3 PHRASE SEARCHING

Enclose your search terms in quotation marks to find records containing the search terms as an exact phrase, for instance:

- “big data”
- “economic policy”
- “business ethics”

Phrase searching can be combined with Boolean Operators, for instance:

- “business ethics” OR “economic ethics”
- “(business OR economic) ethics”
- “research methods” AND “business administration”
- “economic policy” AND “economic development” NOT BRIC
- “research methods” AND (statistics OR econometrics)

4 TRUNCATION

You can truncate your search terms, i.e. shorten them, replacing the eliminated letters with a symbol. Most databases use the asterisk (*) as truncation symbol. In some databases, a question mark (?) is used.

By truncating a search term, you can search for the root or stem of a word, expanding your search. The truncation symbol stands for any number of characters or no character at all.

Most databases allow the right hand truncation; some of them also use the left hand truncation, for instance:

<table>
<thead>
<tr>
<th>Truncation Type</th>
<th>Search String Examples</th>
<th>Finds...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Hand</td>
<td>*graphic</td>
<td>‘graphic’, ‘graphics’, ‘infographic’</td>
</tr>
</tbody>
</table>

Truncation can be used in combination with Boolean Operators and phrase searching, for instance:

- “business ethics” AND leader* with leader* for ‘leader’, ‘leaders’, ‘leadership’
- (accounting OR bookkeeping) AND audit* with audit* for ‘audit’, ‘auditing’, ‘auditor’
5 WILDCARDS

Also wildcards are symbols — mostly the question mark (?) or sometimes the dollar sign ($)) — used to replace characters. However, a wildcard matches exactly one character (or no character at all) and always within a word.

Wildcards are useful in cases of spelling variations, for instance:

<table>
<thead>
<tr>
<th>Search String Examples</th>
<th>Finds...</th>
</tr>
</thead>
<tbody>
<tr>
<td>behavi?r</td>
<td>‘behavior’ and ‘behaviour’</td>
</tr>
<tr>
<td>m???er</td>
<td>‘Meyer’, ‘Mayer’, ‘Meier’</td>
</tr>
</tbody>
</table>

6 USING SEARCH TECHNIQUES IN GOOGLE

Even Google and other search engines offer search techniques that are useful to refine, narrow or expand your search.

After doing a search, you can use Tools (1) to determine a date range of the last update (3), also in customised form (4, 5).
In **Settings** (2), you will find other search options. For instance, in **Search settings** (6), you can filter your search to show results from selected **regions/countries** (9).

In **Languages** (7), you can refine your search to show results in selected **languages** (10, 11).
And in Advanced search (8), you have a number of other filtering options. For instance, there is a search form that allows the use of Boolean Operators and phrase searching without having to type the symbols/words seen above:

The symbols/words are completed by Google, e.g.:

- **this exact word or phrase:** economic policy
  - "economic policy"

- **any of these words:** accounting bookkeeping
  - accounting OR bookkeeping

- **all these words:** strategy management

- **this exact word or phrase:**

- **any of these words:** accounting bookkeeping

- **none of these words:** auditing
  - strategy management accounting OR bookkeeping -auditing

  i.e.
  - strategy AND management AND (accounting OR bookkeeping) NOT auditing
In Google’s Advanced search, you can also select a language, a region and a date range (12).

And one of the most interesting features is the selection of a file type (13). For instance, selecting PDF, you can find full texts; selecting PPT, you can find conference slides. For that, you can also use the operator filetype in the Google basic search, for instance:
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