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All links last accessed on 14 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 | lightning AND office  
lighting +office  
lighting office  
web AND usability  
web +usability  
web usability | • AND finds records containing both terms.  
• It narrows the search.  
• Useful to make the search more specific. |
| OR            | color OR colour  
Mayer OR Meier  
store OR shop  
glass OR plastic | • 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 | typography NOT digital  
typography -digital  
typography AND NOT digital  
materials NOT glass  
materials -glass  
materials AND NOT glass | • 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:
- lighting AND office AND (glass OR plastic) NOT manufacturing
- (typography OR lettering) AND poster NOT advertising
3 **PHRASE SEARCHING**

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

- “graphic design”
- “colour in architecture”
- “page layout”

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

- “interior design” OR “interior decoration”
- “product design” OR “industrial design”
- “(product OR industrial) design”
- “graphic design” AND “comic books” NOT “page layout”
- “folding techniques” AND “packaging design” NOT food
- “design materials” AND (furniture OR furnishing)

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>Right Hand</td>
<td>architect*</td>
<td>... ‘architect’, ‘architects’, ‘architectural’, ‘architectonic’</td>
</tr>
<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:

- “design material”* AND furni* with material* for ‘material’, ‘materials’ and furni* for ‘furniture’, ‘furnishing’
- “comput* design” with comput* for ‘computer’, ‘computational’, ‘computer-aided’
- (typograph* OR lettering) AND poster NOT advertis* with typograph* for ‘typography’, ‘typographic’ and advertis* for ‘advertise’, ‘advertising’, ‘advertisement’
5 **WILDCARDS**

Also wildcards are symbols — mostly the question mark (?) — 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>colo?r</td>
<td>... ’color’ and ’colour’</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:

Find pages with...

all these words:  Boolean Operator AND
this exact word or phrase:  Phrase Searching
any of these words:  Boolean Operator OR
none of these words:  Boolean Operator NOT

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

this exact word or phrase:  graphic design  →  "graphic design"

any of these words:  furniture furnishing  →  furniture OR furnishing

all these words:  lighting office
this exact word or phrase:  
any of these words:  glass plastic
none of these words:  manufacturing
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 your Google search, for instance:
Search Techniques

IMPRINT

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Fax +49 30 - 92 27 10 19

Webpages
https://www.berlin-international.de/en/university/academic-units/library
https://www.berlin-international.de/hochschule/hochschulstruktur/bibliothek

OPACs
https://bau.iopac.de/iopac (old iOPAC)
http://kohaadminkuhn.ch:4000/cgi-bin/koha/opac-main.pl (new Koha OPAC)

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