Boolean Logic and Special Characters

What is a bibliographic database?

Databases contain formatted and searchable records about documents (which usually link to the full-text). You will often need to search several databases to sufficiently cover your topic. Though there are variations across databases, there is a basic language to use when searching databases.

Note: Before you search, always break your research question into its core concepts.

Boolean (Logical) Operators are used in databases to connect your search terms to narrow or broaden your results.

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
<th>When do I use it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR</td>
<td>Use OR to find records that contain at least one term Example: (pediatric OR neonatal OR infant) Tip: Enclose your “OR” terms in parentheses</td>
<td>• To broaden your search • Link together related terms or synonyms</td>
</tr>
<tr>
<td>AND</td>
<td>Use AND to find records that contain both terms Example: pediatric AND nutrition</td>
<td>• To narrow your search • To find the overlap between two different concepts</td>
</tr>
</tbody>
</table>

Find records with one or both terms. Find records with both terms.

There are several platforms that you can search different bibliographic databases on.

<table>
<thead>
<tr>
<th>Ovid: Medline, Embase, PsycINFO</th>
<th>PubMed</th>
<th>Ebsco: CINAHL, SPORTdiscus</th>
<th>Proquest: Nursing and Allied Health</th>
<th>Search+</th>
<th>Web of Science</th>
<th>Scopus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do my Boolean Operators need to be Uppercase?</td>
<td>Use either uppercase or lowercase</td>
<td>Always capitalize</td>
<td>Use either uppercase or lowercase</td>
<td>Use either uppercase or lowercase</td>
<td>Always capitalize</td>
<td>Use either uppercase or lowercase</td>
</tr>
</tbody>
</table>
# Special Characters

When you are searching in free-text fields (e.g. title or abstract), there are several special characters you can use to improve your search. These characters can vary dependant on the database being searched.

<table>
<thead>
<tr>
<th>Database Platform</th>
<th>Truncation</th>
<th>Wildcards</th>
<th>Proximity Searching (# = number of spaces that are permitted between terms)</th>
<th>Phrase Searching</th>
</tr>
</thead>
</table>
| Ovid: Medline, Embase, PsycINFO | * or $ (right-hand, middle or limited) | ? (0 or 1 character) # (1 character) | adj# (regardless of order)  
Note: if a number is not included, default is 1 space in consecutive order | “ ” NOT required |
| Ebsco: CINAHL, SPORTdiscus | * (right-hand or middle permitted) | # (0 or 1 character) ? (1 character) | N# (regardless of order)  
W# (consecutive order) | “ ” required  
Truncation (*) permitted in phrases |
| Proquest: Nursing and Allied Health | * (right-hand, middle, left-hand or limited) | ? (1 character) | NEAR/# (regardless of order)  
PRE/# (consecutive order)  
Note: if a number is not included, default is 4 words | “ ” required  
Truncation (*) permitted in phrases |
| PubMed            | * (right-hand) | Not available | Not available | “ ” required  
Truncation (*) NOT permitted in phrases |
| Scopus            | * (right-hand, middle, left-hand) | ? (1 character) | PRE/# (the first term must precede the second)  
W# (regardless of order) | “ ” required  
Truncation (*) permitted in phrases |
| Web of Science    | * (right-hand, middle, left-hand) | ? (1 character) $ (0 or 1 character) | NEAR/# (regardless of order)  
Note: if a number is not included, default is 15 words | “ ” required  
Wildcard (?) NOT permitted in phrases |
| Search+           | * (right-hand, middle) | ? (1 character) | Not available | “ ” required  
Truncation (*) NOT permitted in phrases |
| Google Scholar    | Not available | Not available | Not available | “ ” required |

**Truncation:** Finds alternate variations to a root word.  
Right-hand truncation is used to find alternate endings. Example: migrat* retrieves migrate, migrates, migration, migratory etc.  
Left-hand truncation is used to find alternate beginnings to a word. Example, *oxide retrieves peroxide, sulfoxide etc. (not available in all databases)  
Middle of word truncation is used to find alternate variations within a term, sul*ur finds sulfur or sulphur.  
Limited truncation is used to limit the number of characters that can stand-in. Example: dog*1 retrieves dog, dogs, but not dogma.

**Wildcard:** Substitutes for one or no symbol. Example, colo?r retrieves color or colour  
Mandated wildcard is used to stand in for one character. Example, colo?r retrieves colour, but not color

**Phrase Searching:** to find words beside each other in a prescribed order. Example: “neonatal care”

**Proximity Searching:** search for terms near each other within a prescribed number of words. Example, in Ovid databases, chronic adj2 pain retrieves *chronic pain or chronic neck pain* etc.