Boolean Searching

Boolean logic defines logical relationships between terms in a search. The Boolean search operators are and, or, and not. You can use these operators to create a very broad or very narrow search.

- **And** combines search terms so that each search result contains all of the terms. For example, `travel and Europe` finds articles that contain both travel and Europe.
- **Or** combines search terms so that each search result contains at least one of the terms. For example, `college or university` finds results that contain either college or university.
- **Not** excludes terms so that each search result does not contain any of the terms that follow it. For example, `television not cable` finds results that contain television but not cable.

**Note:** When executing a search, **And** takes precedence over **Or**.

The following table illustrates the operation of Boolean terms:

<table>
<thead>
<tr>
<th>And</th>
<th>Or</th>
<th>Not</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each result contains all search terms.</td>
<td>Each result contains at least one search term.</td>
<td>Results do not contain the specified terms.</td>
</tr>
<tr>
<td>The search <strong>heart and lung</strong> finds items that contain both <strong>heart</strong> and <strong>lung</strong>.</td>
<td>The search <strong>heart or lung</strong> finds items that contain <strong>either heart</strong> or <strong>items</strong> that contain <strong>lung</strong>.</td>
<td>The search <strong>heart not lung</strong> finds items that contain <strong>heart</strong> but do not contain <strong>lung</strong>.</td>
</tr>
</tbody>
</table>

Using Booleans and Parentheses

To make even better use of Boolean operators, you can use parentheses to nest query terms within other query terms.

You can enclose search terms and their operators in parentheses to specify the order in which they are interpreted. Information within parentheses is read first, then information outside parentheses is read next. For example,

When you enter `(mouse OR rat) AND trap`, the search engine retrieves results containing the word mouse or the word rat together with the word trap in the fields searched by default.

If there are nested parentheses, the search engine processes the innermost parenthetical expression first, then the next, and so on until the entire query has been interpreted. For example,

`((mouse OR rat) AND trap) OR mousetrap`

Using Booleans When Phrase Searching

When Boolean operators are contained within a phrase that is enclosed in quotation marks, the operator is treated as a stop word. When this is the case, any single word will be searched for in its place.