Boolean Search Operators

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

**Using Boolean Operators 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*