

Database Searching with Boolean Operators

To find relevant resources, it is important to search in a way that databases will understand. Database search screens may differ from each other, but they typically use the same basic commands to logically connect search terms. These commands are known as **Boolean operators**. Database advanced search screens often make these operators easier to use. If you know how to use these commands, you can be much more precise and effective in your searches.

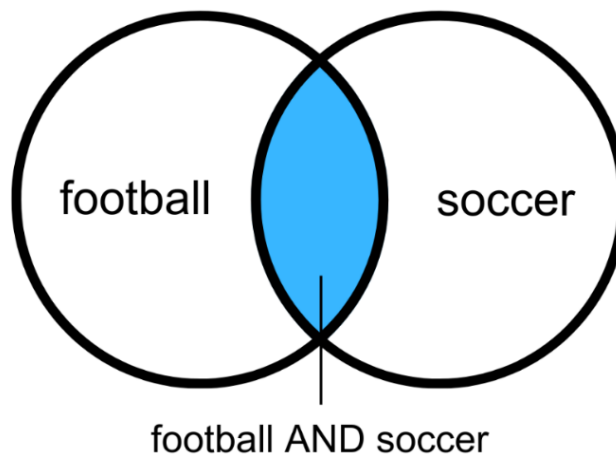
There are three main Boolean operators: **AND**, **OR**, and **NOT**.

AND, OR and NOT tell the database how to group your search terms and in what order to search for each. They can be used individually to join two terms, or they can be used in combination, to create more complex search statements.

AND

AND is used to retrieve documents that include all search terms connected by the operator. AND will **narrow** a search and **limit** the number of documents retrieved.

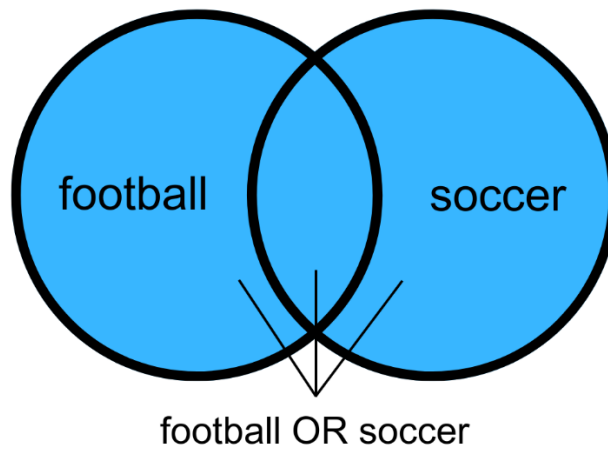
For example, a search for *football AND soccer* will only retrieve items that contain **all** the words entered. This means both the word “football” and the word “soccer” must be present in the same item retrieved. Each new term added to a search with AND will further limit the results.



OR

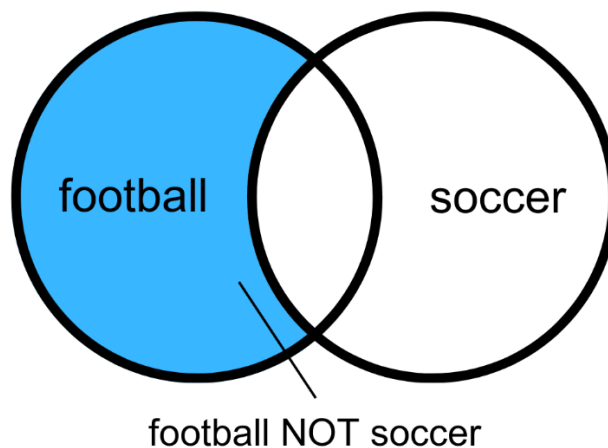
OR is used to retrieve all documents that include any search terms connected by the operator. OR will **broaden** a search and **expand** the number of documents retrieved. You can use OR to include synonyms or terms that are similar or related in meaning. Be careful to use it between words that can be substituted for each other and still find relevant results.

For example, a search for *football OR soccer* will retrieve any results that contain **either** of the words entered. This means either the word “football” or the word “soccer” must be present. Both “football” and “soccer” may be present in the same document, but not necessarily.



NOT

NOT is used to exclude documents from your search results. NOT will **narrow** a search and **limit** the number of documents retrieved. For example, a search for *football NOT soccer* will only retrieve records that contain “football.” This means the word “soccer” will not be present in any of the resulting records. NOT can be useful when you are searching for a word that can have very different meanings (e.g., “salsa NOT dance”). NOT should be used sparingly, as you may unintentionally eliminate useful results when you use it.



Combining Boolean Operators

You can use Boolean operators in combination to do a more complex search, rather than having to do multiple searches using variations on the words that best express the key concepts in your topic.

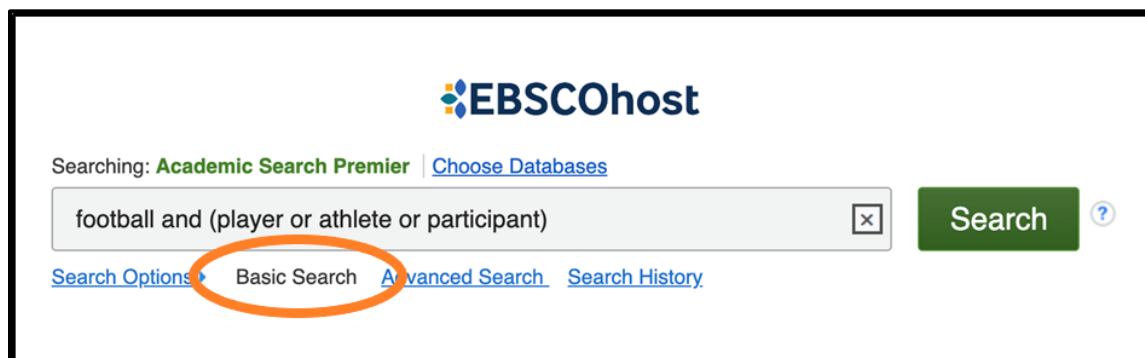
When using both **AND** and **OR** in a basic search, you need to group your terms logically: use **AND** to join *different* concepts together and **OR** to join *similar* concepts together. Put parentheses around groups of *similar* terms joined by OR. The parentheses tell the database in which order to perform the search: terms in parentheses are found first, then the results for each concept joined by AND. Your total retrieved results are the subset of these combinations.

Here are a few examples to illustrate:

football AND (player OR athlete OR participant)

(football OR soccer) AND (referee OR official)

(hockey OR soccer) AND (varsity OR intercollegiate) AND sports



This example uses the Basic Search screen in Academic Search Premier, one of the Library's databases. The "Advanced Search" screen in many databases can make this grouping easier.

In the next example, using Academic Search Premier, each box is joined by AND to enter the separate concepts in the topic, and OR is used within the second box to add additional keywords that express the same concept.

(Note that the Boolean operators in the above example are not in capitals. However, some databases and Novanet require that you do this. If you don't know, then it's generally a good idea to capitalize.)

The screenshot shows the EBSCOhost search interface. At the top, there are navigation links: New Search, Publications, Subject Terms, Cited References, Images, and More. The main header includes the EBSCOhost logo and the text "Searching: Academic Search Premier | Choose Databases". Below this, there are three search input fields. The first field contains "football", the second contains "AND" followed by "player or athlete or participant", and the third is empty. Each field has a "Select a Field (optional)" dropdown menu to its right. A green "Search" button is located to the right of the first field. Below the search fields, there are links for "Basic Search", "Advanced Search" (which is circled in orange), and "Search History". There is also a "Clear" link and a "+" "-" button.

Need Help?

Boolean operators, particularly AND and OR, can be extremely helpful to increase your searching precision so you get more relevant results from database searches.

If you need any assistance when searching databases, please email, call, or visit us at the Research Help Desk on the first floor of the Patrick Power Library. You can also schedule an appointment for assistance. See our [Research Help page](#) for more information on how to contact us.