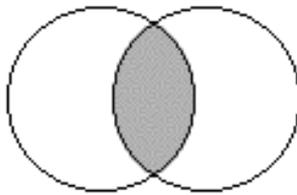


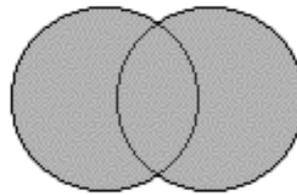
# Boolean Logic

You need to understand Boolean logic if you are to search a journal article database effectively. Boolean logic allows you to use three Boolean operators (**AND**, **OR**, **NOT**) to refine your search strategy so that you find just the references that you want from among the many millions of references that there may be in the journal article database.

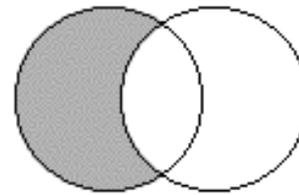
The effect of the three Boolean operations can be described visually using the Venn diagrams shown below. The shaded areas represent the set of references that result from that particular Boolean operation.



AND



OR



NOT

## AND LOGIC

I would like to find references about desertification in Morocco.

To answer this query you need to retrieve references in which both of the search terms (*desertification*, *Morocco*) are present. Using **AND** logic does this, narrowing down your search so that you find fewer, more relevant references. The search statement that would retrieve references on the above topic is:

*desertification AND Morocco*

## OR LOGIC

I would like to find references about global warming or climate change.

To answer this query you need to retrieve references in which at least one of the search terms (*global warming*, *climate change*) is present. OR logic is commonly used to search for synonymous terms or concepts. OR logic retrieves all the references containing one term, the other term, or both terms.

---

The more terms or concepts that you combine with OR logic, the more references you will retrieve. The search statement needed to retrieve references on the above topic is:

*global warming OR climate change*

## NOT LOGIC

I would like to find references about global warming but I want to exclude any references that mention Antarctica.

To answer this query you need to retrieve references which mention one of the search terms (*global warming*) but not the other search term (*Antarctica*). The search statement needed to retrieve references on this topic is:

*global warming NOT Antarctica*

Take care! The order of your keywords matters with NOT logic. Searching for *desertification AND Morocco* will retrieve exactly the same set of references as searching for *Morocco AND desertification*. The order of the keywords surrounding the AND operator doesn't matter. But it does matter with NOT logic. Searching for *global warming NOT Antarctica* retrieves a very different set of references from searching for *Antarctica NOT global warming*.

## USING BRACKETS TO GET THE SEARCH RIGHT

AND, OR and NOT operators are usually evaluated in that order, so you may need to use brackets to ensure that your search is carried out correctly, e.g. if you want to find references about desertification in Morocco or Tunisia or Algeria searching for *desertification AND Morocco OR Tunisia OR Algeria* will give the wrong result. Why? Because the journal article database's search engine will first find references about *desertification AND Morocco* and then find any references at all about *Tunisia or Algeria*. To get the correct result from your search you need to use brackets as follows: *desertification AND (Morocco OR Tunisia OR Algeria)*. This ensures that the three countries are searched for first and then any references about them are combined with the keyword *desertification*.

## TRUNCATION OF KEYWORDS

It is often helpful to shorten (truncate) a search term using the wildcard character (usually the \* symbol although sometimes another symbol is used, e.g. % or \$) so that you gather together related words in a single sweep, e.g. searching for *desert\** would find all the words beginning with that stem: *desert, deserts, desertification* etc, rather than you having to specify each word separately. But this truncated term would also retrieve references containing the word *deserted*, maybe not quite what you wanted!