More ... About ... OR

OR is one of the most powerful Boolean Operators you can use. It is particularly useful when you combine it with AND.

However, when you use both operators – OR and AND – at the same time – in the same search blank you can run into problems (for more on the problems – see the end of this unit).

To avoid problems - experienced researchers always enclose the words they combine with OR by putting all of those words inside parentheses.

Example 1

You want to look for books on education and the Internet.

You might decide that both the word Internet and the word online are similar enough (synonyms) that you would like to look for:

education AND Internet

but also for

education AND online

If you decide to use the basic Books/Media search in OneSearch – you can look for both of these as follows:

education AND (Internet OR online)
What if you wanted to get a bit fancier and look for either teaching or education and Internet or online --- and you wanted to get all the different forms of the words education and teaching?

**Group the like terms in separate parentheses and put OR between like terms:**

(education OR teaching) (Internet OR online)

**Truncate** words that can have different useful endings:

(educat* OR teach*) (Internet OR online)

Then stick **AND** between the different (unlike) terms:

(educat* OR teach*) **AND** (Internet OR online)

If you use an advanced search – you may want to combine all your like terms in separate blanks - and the **AND** will be automatically included:

For this unit - and this class - **you just need to know** that when you combine words with **OR** you need to put parentheses around them to avoid problems.

Still, if you’re curious as to why - you can read on. (**WARNING** – it’s a bit complicated).
So why do we need the parentheses with OR?

It all has to do with order of operations and the way computers behave.

Think back to your earliest days with mathematics.

What is the answer to the following?  \[2 + 3 \times 7 - 4\]


The answer depends on what you do first.  In mathematics the rule is that you first multiply and divide (from left to right) and then you add and subtract (from left to right).

So \[2 + 3 \times 7 - 4 = 2 + 21 - 4 = 23 - 4 = 19\]

But what if instead we wrote \[(2 + 3) \times (7 - 4)\] ... then the answer is 15.

Why? Because in mathematics we do what is inside parentheses first, then we multiply and divide, and then we add and subtract.

Well what does this have to do with the Boolean Operator OR?

It turns out that Boolean Operators are “logic” operators ... and logic is a form of mathematics.  (George Boole – the inventor of OR and AND and Boolean Logic – was a mathematician among many other things).

AND and OR behave somewhat like multiplication and addition.

Some databases (like OneSearch, PsycINFO, and ERIC) process the AND first - and then the OR ... unless there are parentheses present ... in which case the computer will do what is inside the parentheses first.

Other databases (like the news database LexisNexis or the medial database PubMed) simply go from left to right and do whatever comes first ... unless there are parentheses present ... in which case the computer will do what is inside the parentheses first.

So unless you want the database to simply do ... whatever! ... you need to place parentheses around the words combined with OR.
Example 2

Suppose you were looking for books on Iowa rivers and streams in OneSearch.

If you type the search rivers OR streams AND Iowa

Without parentheses ... OneSearch will do the AND first and the OR second.

So OneSearch will first look for all books that contain both the word Iowa and the word streams. (So far so good).

But then the operator OR will tell OneSearch that you are also interested in rivers. Any rivers (like the Amazon, the Danube, the Nile, and even the Styx) ... and will find all the books that contain any mention of the word river (with or without Iowa).

This means you’re going to get lots of books about rivers, (any rivers!), as well as a few books about Iowa streams. 😊

What to do? Use parentheses!

If you type the search (streams OR rivers) AND Iowa

The computer will first look for all books that contain either streams or rivers (because the computer will do what is inside parentheses first).

Then the computer will do the AND and then make sure that all the books you receive have the word Iowa in them (as well as either the word streams or the word rivers).
Example 3

So if you want books on advertising or marketing on the Internet don’t just type:

   Internet AND marketing OR advertising

... because if you do, OneSearch will first locate books on Internet and marketing (so far so good) and then OneSearch will toss in all the books that have anything to do with advertising (advertising on TV, advertising in newspapers, etc.). ☹

What if you simply change the order and try ...

   marketing OR advertising AND Internet

Well OneSearch will still perform the AND first – so this time OneSearch looks first for books on advertising and the Internet (so far so good) ... but then OneSearch will combine these results with every book it has on marketing (marketing to other countries, marketing to school age children, marketing sports apparel ... and none of this marketing has to happen on the Internet because now the computer is just looking for ... marketing). ☀

Be sure to use the parentheses around the words connected by OR ...

   Internet AND (marketing OR advertising)

OneSearch will do what’s inside the parentheses first. So this time OneSearch will perform the OR first ... looking for any books that contain either the word marketing or the word advertising ... and then OneSearch will do what is outside the parentheses ... the AND ... and will therefore make sure that all these books also contain the word Internet. ☺