The term Boolean logic is named after George Boole, a 19th century English mathematician who devised algebra logic; Boolean logic uses logical operators (also called Boolean operators) to coordinate the search for information. It is an information retrieval technique effected mainly in computer operations and using the three Boolean operators OR, AND, and NOT.

### Boolean operator OR

Search: Italian OR French paintings  
Result: 50 records

The Boolean operator OR expands the search and retrieves everything within the blue shaded area of the two circles: the 38 records indexed under French paintings and the 20 records indexed under Italian paintings. The search retrieves 50 records, not 58 records, because 8 records are indexed under both schools of paintings (30 records are indexed under French paintings and 12 records are indexed under Italian paintings).
**Boolean operator AND**

Search: television **AND** violence
Results: 25

The Boolean operator **AND** limits the search and retrieves only the records that contains both indexed terms (indicated by the dark shade area in the middle here). In this case, only 25 records with both concepts are retrieved among the 100 records indexed under *television* and the 150 records indexed under *violence*.

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**Boolean operator NOT**

Search: paintings **NOT** portraits
Result: 160 records
The Boolean operator **NOT** is the least frequently used of the three operators. It limits the search and it is used when you want to exclude a specific and clearly defined subtopic within a whole subject area. Here, the operator **NOT** limits the search and retrieves only 160 records (indicated by the green shade area here) among the 200 records indexed under *Paintings* (of all types). The operator **NOT** excludes the 40 records indexed under *Portrait paintings*, hence only 150 records are displayed.