Search Logic, Boolean Operators and truncation symbols across **selected databases and platforms**

**COS210 MPH Practicum Students**

The Boolean operators, **AND**, **OR**, and **NOT** helps you connect search terms. It is particularly useful when there are multiple search terms / concepts in a search statement. The circle / Venn diagrams illustrate the relationships between the group of records containing a word or concept (Sets). The **shading** represents the outcome of the Boolean operation.

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<th>Connector</th>
<th>Example</th>
<th>Explanation</th>
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| **AND**   | Lemon **AND** Lime | Retrieves records with **all** the terms in the article. Narrows your search. The more the number of terms combined, the fewer the results. | Embase & Scopus: **and**  
Pubmed: **AND**  
By default in most databases. |
| **OR**    | Lemon **OR** Lime | Retrieves records with **either** of the terms. Expands your search. The more the concepts or keywords “OR” ed together, the more the number of results | Embase & Scopus: **or**  
Pubmed: **OR**  
Most databases use **or** |
| **NOT / AND NOT** | Lemon **NOT** Lime | Excludes records containing the term that follows it. | **Embase:** **not**  
**Pubmed:** **NOT**  
**Scopus and ProQuest:** **AND NOT**  
**Most other databases use NOT** |
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<td><strong>Use with caution!</strong></td>
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| **( ) Parentheses** | Require articles on Vitamin C content of Lemon and Lime  
**Vitamin C AND (Lemon OR Lime)** | Nesting combines search terms to make a comprehensive search statement. Use parentheses when there is more than one operator & three or more keywords.  
**Vitamin C AND (Lemon OR Lime)**  
**Vitamin C AND Lemon OR Lime** | **Generally, the terms and operations that occur inside ( ) is searched first.** |
| **Nesting/Mixing Boolean Operators** | | | |
| | | | |

In this eg, this excludes records that mention lime, **even** if also contains lemon. In other words, record with both the terms are excluded.

Retrieves Vitamin C and Lemon and Lime and Vitamin C  
Retrieves records with Vitamin C and Lemon or any record with the term Lime.
“QUOTATION MARKS”

Retrieves results with the exact phrase

Eg, “risk taking behaviour” retrieves results with the exact phrase "risk taking behaviour"

Works for most databases such as Embase, Cochrane Library, PubMed, Web of Science, BIOSIS, and on OVID, ProQuest and EBSCO platforms.

In Embase, single quotes or double quotes− ‘risk taking behaviour’ is more commonly used.

In Scopus, a double quotation mark is used for a loose or approximate phrase. Use {} to search for an exact phrase.

Eg, {heart-attack} the special character, hyphen is included in the search.

TRUNCATION & WILDCARDS

Finds variants of words beginning with a particular stem.

Truncation symbol: * truncation is unlimited (zero or any number of characters)

Eg, Nurs* finds nurses, nurse, nursing, nursed, etc.

Works for most databases such as Cochrane Library, PubMed, Web of Science, BIOSIS, Scopus and on OVID, ProQuest, EBSCO platforms.

Limited Truncation Some databases also have truncation symbols which limit the number of characters.

Wildcards Some database also have wildcard symbols to account for internal spelling variation such as Color or colour. Mandated wildcard must be replaced by a character but optional wildcard can be substituted by zero or more characters.

Limited truncation and wildcards are not available in PubMed.

The syntax varies across other databases.
Most databases automatically search for spelling and term variants. See the "help" / "Search tips" feature of individual databases for more information.

**Embase**

- **Truncation**: *
- **Limited Truncation**: NA, **use ?** at the end of a term for single character truncation, e.g. cat? retrieves cat, cats, catI, CatH.
- **Mandated Wildcard**: ? e.g. be?t retrieves beat, best (but not bet)
- **Optional Wildcard**: *, e.g. colo*r retrieves color or colour

*Wildcard and Truncation symbols will not work within phrases. e.g. A search for 'Type 1 diabet*' will produce an error message*

**Scopus Truncation and Wildcard**

- **Truncation**: *
- **Limited Truncation**: NA, **use ?** at the end of a term for single character truncation, e.g. cat? retrieves cat, cats, catI, CatH.
- **Mandated Wildcard**: ? e.g. be?t retrieves beat, best (but not bet)
- **Optional Wildcard**: *, e.g. colo*r retrieves color or colour

**EBSCO Truncation and Wildcard (Databases such as CINAHL)**

- **Truncation**: *
- **Limited Truncation**: :
- **Mandated Wildcard**: ? e.g. be?t retrieves beat, best (but not bet)
- **Optional Wildcard**: NA

**Ovid Truncation and Wildcards (Databases such as PsycInfo, Ovid Medline, Econlit) In advanced mode.**

- **Truncation**: *, $ or :
- **Limited Truncation**: add number to the $ symbol, e.g. cat$1 or cat*1 would indicate that only one letter can follow cat, such as cat, cats, Cato.
- **Mandated Wildcard**: # e.g wom#n retrieves woman and women, symbol must replace character
- **Optional Wildcard**: ? for characters following another, e.g. colo?r retrieves color or colour
**ProQuest Truncation and Wildcard** (Databases such as AIDS & cancer Research, Health and Safety Science, Toxline, Physical Education, Published International Literature On Traumatic Stress (PILOTS), Sociological Abstracts, Social Services Abstracts, ProQuest Sociology)

- Truncation : *
- Limited Truncation: ? indicate number of characters with number of ?s, e.g. dog? would retrieve dog, dogs but not dogma; fib?? would retrieve fiber or fibre
- Mandated Wildcard : NA
- Optional Wildcard : NA

**Web of Science Truncation and Wildcard**

- Truncation : * also use for left hand truncation, e.g. *bio
- Limited Truncation: NA, use ? at the end of a term for single character truncation, e.g. cat? retrieves cat, cats, catI, CatH
- Mandated / optional Wildcard : $ represents zero or one character within a word e.g. behavio$r? retrieves behaviour, behavior

**Cochrane library Truncation and Wildcard**

- Truncation : *
- Limited Truncation: NA, use ? at the end of a term for single character truncation, e.g. cat? retrieves cat, cats, catI, CatH
- Mandated / optional Wildcard : $ represents zero or one character within a word e.g. behavio$r? retrieves behaviour, behavior

**ADJACENCY OPERATOR / PROXIMITY OPERATOR**

Allows you to indicate how close you wish two terms to be to each other within a record/section of a record. This will ensure that only relevant records are retrieved. Some adjacency operators will also indicate the order in which the terms appear; with other operators, the terms can appear in any order.

The operators vary across databases. Not case-sensitive

**PubMed** Not available

**Embase Adjacency operators** NEXT/n NEAR/n
**Scopus Adjacency Operators**  \( \text{PRE/n} \) and \( \text{N/n} \).

\( \text{PRE/n} \): This will find terms which are within 'n' words of each other in the order specified. E.g. Determinants \( \text{PRE/2 health} \) indicates that the word determinants must precede the word health, but the two terms must be within two words of each other. Retrieves determinants of health

\( \text{W/n} \): This will find terms which are within 'n' words of each other, in either direction. E.g. brain \( \text{W/3 injuries} \) indicate that the word brain must appear within three words of injuries in any order. Retrieves Brain injuries, Injuries of the brain

**EBSCO Adjacency Operators**  \( \text{N (near)} \) and \( \text{W(within)} \)

\( \text{Nn} \): Terms must appear within n words of each other in any order, e.g. brain \( \text{N3 injuries} \) indicates that the word brain must appear within three words of injuries in any order. Retrieves Brain injuries, Injuries of the brain, Injuries after Penetrating Brain

\( \text{Wn} \): Terms must appear within n words of each other in the order specified, e.g. hospital \( \text{w5 beds} \) indicates that the words hospital and beds must be within five words of each other the order specified

**Ovid Adjacency Operator** (PsycInfo, Ovid Medline, Econlit databases) \( \text{ADJn} \)

\( \text{ADJn} \): where \( n \) is any number 2 to 99. If you do not include a number, the terms will be searched if they appear side by side in any order.

e.g. hospital \( \text{adj10 beds} \) indicates that the two words must appear within ten words of each other in any order. Retrieves hospital beds, beds in hospital, hospital managers analysis on use of beds

**ProQuest Adjacency Operators**  \( \text{W/n} \) (within n number) and \( \text{PRE/n} \) (within n number in the same field).

\( \text{W/n} \): Terms must appear within n words of each other in any order, e.g. determinant \( \text{W/3 health} \) indicates that the word determinant must appear within three words of health in any order.
NUS Libraries
Medical Library

**PRE/n:** Terms must appear within n words of each other in any order, e.g. *capacity pre/5 building* indicates that the words *capacity* and *building* must be within five words of each other in the same field (e.g. title field, abstract field, etc).

**Web of Science Adjacency Operators**  NEAR/n and SAME

**NEAR:** without n, is any number within 15 words of each other

**SAME:** in the Address field only, e.g.  AD=(Portland SAME Oregon)

**Cochrane Library Adjacency Operators**  NEAR/n

**NEAR:** without n, is any number within 6 words of each other in any order. Or else , specify, e.g.  Smoking NEAR/2 pregnancy

**NEXT:** Terms must appear next to each other in order specified. Use for phrase searching with wildcards e.g.  Hearing NEXT Aid* finds *hearing aid* and *hearing aids*.

**COMBINING SEARCH SETS**

Systematic review searches have to be built in steps – concept by concept. After searching for all the terms for a topic, they have to be combined, using the “Search History” feature.

This feature is usually found in the *Advanced Search* mode of most databases such as *Pubmed*. Search history is found in the “Results” tab in *Embase* and on basic search page in *Scopus* (it appears after running a search).