

Searching with Truncation, Wildcards, and Proximity Operators

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Welcome to the Dalhousie Libraries tutorial on searching with truncation, wildcards, and proximity operators. In this tutorial you will learn how these techniques can be useful in your database searching and see some examples of how to use them in Embase, CINAHL, Ovid Medline, and PubMed.

First of all, it's important to understand why we use truncation, wildcards, and proximity operators. These tools allow keywords to be more flexible so that your search includes similar, related words like plurals or alternate spellings. However, please note that you cannot use these techniques with subject headings, and if you do the database will give you inaccurate results.

Let's start by discussing truncation and why we use it. If we were searching for articles on immunizations by simply entering the keyword immunizations into a database, we might not retrieve results that talk about immunization in the singular tense, immunizing, immunity, and so on. This would be risky because we could leave out some very relevant results! To solve this problem, you could use the truncation technique and instead search immuni asterisk, with the asterisk representing various possible word endings. Just be careful not to truncate too short of a word, because you might get too many irrelevant results. An example of this would be to enter cat asterisk, which could retrieve articles on cats, cathedrals, catamarans, and more.

Searching with truncation is easy in Embase, CINAHL, Ovid Medline, and PubMed. Simply enter your keyword in the search box and add the asterisk to the end where appropriate. Here we have the search bars from all four databases with our keyword Immuni asterisk truncated and ready to be searched. Truncation works in many other databases and search tools as well.

Now let's talk about wildcards, and how they could apply to our example. Wildcards are used to replace a letter inside your keyword that could vary because of alternate spellings. Depending on the database the wildcard could be a question mark, a dollar sign, or a pound/hashtag symbol. Using our example keyword of immunizations, we could search using a wildcard in place of the z, because sometimes the word is found with an s in the middle instead of a z. The wildcard symbol will search for those variations and include results with either spelling.

Embase will let you do a wildcard search within your keyword using the question mark or dollar sign, and here we have one example of our keyword in the Embase search bar, typed as Immuni?ations with a question mark in place of the z. You could also go a step further with this search in Embase and use the asterisk on the end, which could be typed as Immuni?ation asterisk, giving you a larger number of results. CINAHL will also allow wildcard searching within a keyword, and you can do this using the question mark or pound/hashtag symbol. Here we have our same example of Immuni?ations, but similar to our Embase search we could have removed the S on the end of our keyword and used the asterisk symbol instead. Ovid Medline also allows the use of a wildcard symbol within a keyword, and like CINAHL you can use either a question mark or a pound/hashtag symbol to achieve this. In PubMed, wildcard searching within a keyword is not an option, but you could enter alternate spellings of your keyword using OR. For example, if we searched Immunizations (with a Z in the middle) OR Immunisations (with an S in the middle). Also, you could still use truncation here to get even more results, as we previously did with our immuni asterisk example.

Proximity operators (also referred to as adjacency operators) are another way to search, and they help us specify what phrases we want in our search results. For example, if we wanted articles that discuss Immunization record, we might also want results that mention phrases like record of immunization or recorded date of immunization. With proximity operators we can do that.

Embase, CINAHL, and Ovid Medline allow flexible use of proximity operators that find keywords within a certain number of spaces between each other, in any order. Using Embase, proximity operators for phrases can be done using the capital NEAR command, and you can tell Embase how close your keywords must be together. In our example, we have entered Immunization NEAR/5 Record in Embase, which means our two keywords (Immunization and Record) must be within five words of each other in the results. Repeating our search in CINAHL, our proximity operator will be a capital N then a number. Therefore, our search in CINAHL will be Immunization N5 Record to retrieve results that mention both keywords within 5 words of each other. Within Ovid Medline, the proximity operator is a lowercase adj then a number. Therefore, our Ovid Medline search will include Immunization adj5 Record. In PubMed we also have the option to use proximity searching, but the command will be formatted differently than other databases. Using our immunization record example, we will enter double quotes Immunization Record double quotes, then opening square bracket tiab colon tilde 5 closing square bracket. We have just instructed PubMed to find the keywords immunization and record within five words of each other, in the title or abstract fields of PubMed's records. You can modify this to search other fields, like the title only (by replacing tiab with ti), and you can also change the number to be smaller or even larger, thereby adjusting your results. Truncation, wildcard, and proximity searching can also be used in other databases, but the exact search functions may be different. It is also important to note that these examples provide a basic overview of these search

functions, and for your specific search it is best to check with a librarian who can assist you with crafting a well-developed search that meets your research goals.

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