

LETTER TO THE EDITOR

Automatic mapping of free-text to thesaurus: good policy?

Fremer and Larsson correctly state that MEDLINE free-text searching can be a helpful complement to thesaurus-based retrieval [1]. In my comparison of three MEDLINE interfaces [2] I did not dwell exhaustively on this topic and certainly did not claim that relying on the thesaurus only is to be preferred in all circumstances. Searching bibliographic databases can be a deceptively complex process and no matter how sophisticated the retrieval engine is, a thorough knowledge of both the database, its keywords system, and alternative search options will generally help to get optimal results.

Most of the arguments used to either criticize or defend the MeSH system [3-6] are not necessarily contradictory. The MeSH classification is generally considered a state-of-the-art thesaurus, which is applied fairly consistently [7], yet professional indexers may differ in opinion or make mistakes. Examples of both excellent and poor thesaurus output can easily be found [8, 9]. In the latter case, experienced users will generally know if free-text words will yield better results and have the necessary skills and patience to select appropriate free-text words to achieve their goal.

MEDLINE retrieval is now increasingly being performed by inexperienced and often database-naïve end users. In my experience, novice end users often are reluctant to use the thesaurus and tend to start their searches using free-text terms, often based on natural language phrases. If these entries result in at least a few hits they may conclude that they have retrieved all available records on this topic. This mental trap is even more tempting when such free-text entries yield thousands of records

(e.g., using 'children' it may not occur to them that the MeSH term 'child' is a more appropriate and productive search term). Multiple word concepts may be found accidentally in the literal format in which they were entered, while using the correct MeSH entry is far more proficient and relevant (e.g., when using 'cancer treatment' [849 hits] instead of 'explode neoplasms/drug therapy' [18,131 hits] or 'explode neoplasms/therapy' [16,425 hits; together 33,057 hits]; all search results are from SilverPlatter MEDLINE, disks 1993-1995, 1997 version). For non-English speakers this is even more problematic, as they find dozens of records using the French or Dutch term 'tuberculose' (167 hits, but these are limited to 'original title' and somewhat surprisingly even 'author address') while 'tuberculosis' (7,388 hits) features an almost fifty-fold success rate. This issue may seem somewhat far-fetched to an English-speaking audience, but now that WinSPIRS also offers non-English interfaces, the misconception that using French, German, or Spanish words in free-text searches leads to acceptable recall is encouraged.

Free-text searching will indeed often generate many extra hits, but a large proportion of these may not be sufficiently relevant (especially when appearing in the abstract only), so that in addition to doubtful recall (sensitivity), the precision (specificity) of free-text retrieval is dubious and may put off end users. As such, free-text searching can in my opinion be said to present illusions. In this respect, it can be useful if the software automatically prompts you to use the thesaurus. In the Ovid interface you are immediately alerted if search terms are not or cannot be mapped to MeSH terms. That this is a mandatory procedure is not such a great thing, as this precludes consciously intended

free-text searching. WinSPIRS is less strict in this matter and gives a warning only if the search term cannot be found anywhere in the database, so nothing special happens when one introduces non-MeSH terms. The optional 'suggest' function generally does a good job when one is consciously looking for a relevant MeSH term (though occasional irrelevant or downright silly suggestions appear to be inevitable). While making this the unchangeable system default (as with Ovid) would equally be too restrictive, this might be a good option when independently activated by local systems managers.

Basically, Fremer [10, 11], Lowe and Barnett [12], and probably most experienced searchers do agree that while some topics are best served by a controlled vocabulary and others by free-text, using both is generally the best methodology. But if only one of them is to be used, I still believe that whatever its obvious shortcomings, thesaurus searching still has the most aces. While the assumption that MeSH terms are always applied correctly and exhaustively is indeed an illusion, it generally takes a fairly complex combination of free-text searches to get better results. The fact that thesaurus terms are automatically integrated in the free-text search (which is indeed not limited to title and abstract fields) is helpful (and logical), but does not make that much of a difference, as they will be found only when the actual thesaurus term is entered literally; besides, no MESH 'explosion' is invoked.

The appreciation of the issues discussed obviously depends on the basic motivation for accessing MEDLINE. There is big difference between looking for a limited number of useful articles and searching all potentially relevant records available in the database. In the first case, thesaurus searching will generally suffice while the

extra hits generated by free-text searching may be too 'noisy' to be worth their while. In the second case, the free-text complement is mandatory, while discarding the thesaurus completely and solely relying on free-text is generally asking for trouble. And as Fremer and Larsson [13] have pointed out, the MEDLINE database alone may not suffice. Even if the full MEDLINE potential is realized, it remains a fact that not all the potentially relevant world literature is included, but this is not an interface-related issue.

As for MacSPIRS, I agree that including it would have improved the article's value. Unfortunately, I have no experience with Macintosh software and at my workplace less than 5% of staff happen to be Macintosh users. While I have no idea whether on a global scale MacSPIRS is indeed that much

more popular than PC-SPIRS, the fact that SilverPlatter is still issuing new PC-SPIRS releases (version 3.41 to be shipped in the second half of 1997) indicates that it is not necessarily being used only by a small breed of old-fashioned mouse-haters rapidly becoming extinct. The fact that PC-SPIRS has relatively low memory requirements will certainly contribute to its continuing popularity.

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