8
Searching Using Free Text

In chapter 7, we saw that searching using controlled vocabulary techniques can be effective and efficient. In many cases, we prefer to search using controlled vocabulary terms, because we often get higher-quality, more specific results. Sometimes, though, controlled vocabulary searching is either not good enough or not even possible. In these situations, we must rely on another set of techniques described in this chapter: searching free-text.

You may have run across or even used free-text searching before. It is sometimes called *keyword searching* and is used in many online library catalogs and other computerized information retrieval systems. Essentially, searching with free-text techniques involves using terms from everyday or specialized language rather than controlled vocabulary terms. You might want to take a peek at the search example at the end of the chapter now, just to get a feel for what we are describing and see how different it is from what we have done so far. It will look familiar; it's another version of the brain injury search, now taking advantage of all the techniques we've seen so far.

In this chapter, we shall explore online searching techniques used with free-text, the situations in which this searching works best, where free-text terms come from, some problems with free-text searching, and look at how to refine searches to broaden or narrow results. A search example and a discussion of Internet free-text searching conclude the chapter.

PROXIMITY OPERATORS

Recall once again how the inverted file is constructed. Each word (excluding stop words) that occurs in a document is marked with its position, and then an alphabetical list of all such words is created. Index terms that are intact phrases, such as descriptors and identifiers, are often included both as individual words and full phrases (we said these fields are both word indexed and phrase indexed). We do not know yet how to search for phrases in other, word indexed fields, such as titles or abstracts.

We can, at this point, search for such phrases, but in a very crude way, using single words joined by the AND operator. If we were looking for documents about the Graduate Record Examinations, for example, we could simply search GRADUATE AND RECORD AND EXAM? and see what comes up. But there would be no guarantee that documents we retrieved would have anything to do with the Graduate Record Examinations. We could get documents that talk about examinations of record buying habits of graduate students. Or we might retrieve a paper about record keeping of graduate schools for foreign language examinations. AND does not allow us to specify relationships between concepts; we can only say that terms occur in the same record.

There are techniques, however, that allow us to do just that. These are called *proximity operators*, and they are used to specify how close you wish two or more words to be in the documents which are retrieved. There are several proximity operators, but they all work in essentially the same way.

The simplest of these allows you to retrieve documents that have two or more words in direct proximity, that is, right next to each other. In this way, you can search for a phrase in word indexed fields. For example, if you wanted to search for the phrase "information industry" in titles (a rather specific tactic, by the way), you would use the (W) operator, as in the following example from *ERIC*:

```
Set  Items  Description
---  -----  -----------
```

?*s information(w)industry/ti*
```
         13082   INFORMATION/TI
          2152   INDUSTRY/TI  (PRODUCTIVE ENTERPRISES, ESPECIALLY
                 MANUFACTU...)
     S1     12   INFORMATION(W)INDUSTRY/TI
```
This command tells DIALOG to retrieve all documents which have the word "information" directly followed by the word "industry" in the title field.

     More than two words can be chained together, as in the following example:

?*s management(w)information(w)systems*
```
         41955   MANAGEMENT
        125433   INFORMATION
         53499   SYSTEMS
     S2   2173   MANAGEMENT(W)INFORMATION(W)SYSTEMS
```
This expression will retrieve documents with these three words in this order, in any Basic Index field.

     The general form of the command is

<div align="center">

S term(W)term
S term(W)term(W)term
... etc.

</div>

     Compare the following three expressions, again in *ERIC*:

?*s day care*
```
     S3   4735   DAY CARE  (CARE OF CHILDREN BY PERSONS OTHER THAN
                 THEIR...)
```
?*s day(w)care/de*

```
          7651   DAY/DE
         11423   CARE/DE
     S4   6841   DAY(W)CARE/DE
```
?*s day()care*
```
         22753   DAY
         27177   CARE
     S5   7907   DAY()CARE
```

The first of these searches for the bound descriptor DAY CARE. The second searches for the word DAY followed by the word CARE in the descriptor field, and retrieves over 2,000 more documents. Why? Because there are several descriptors which incorporate those two words in that order, including ADULT DAY CARE, DAY CARE CENTERS, FAMILY DAY CARE, SCHOOL AGE DAY CARE, and so on. S4 includes all of these. Finally, S5 includes all documents that have these two words in this order in any field and retrieves more than 1,000 more records than S4. You begin to see the power and some of the potential problems of free-text searching.

     Also note that there is no W between the parentheses in the search expression for S5. That is not a mistake--in this situation *only*, you can leave out the W. (W) and () work in exactly the same way, and the W can be either upper or lower case.

     Suppose you wanted to search for documents about the University of Michigan. You could use this same technique, and search on

?*s university(w)of(w)michigan*

but you'd get no hits. Not because none exist, but because OF is a stop word in the Dialog system, as we discussed in the chapter on database construction. Recall the process: when a document containing the phrase "University of Michigan" is processed to go into a Dialog database, each of those three words is numbered with its position in the

field. Then, the stop words are eliminated, but their positions are
preserved. So we have to reconstruct those phrases by allowing for the
presence of stop words (or any other words, for that matter). We do
this by extending the (w) operator, and allowing for space between the
words we search on. The command is

S term(nW)term

where n is any number one or greater.[1] To search for documents containing the
phrase "University of Michigan" in the Basic Index, we would search the
following:
?*s university(1w)michigan*
```
          66777  UNIVERSITY
           6678  MICHIGAN
     S6      890  UNIVERSITY(1W)MICHIGAN
```
which retrieves all documents with the word UNIVERSITY followed by the word
MICHIGAN, with at most one word in between.

        This tactic can also be used when you want two words close together but
not necessarily next to each other, as in the following example:
?*s (online or information)(2w)retrieval*
```
           5646  ONLINE
         125433  INFORMATION
           7013  RETRIEVAL
     S7    5555  (ONLINE OR INFORMATION)(2W)RETRIEVAL
```
        You could be interested in documents that have the phrase "information
retrieval," "online retrieval," "online bibliographic retrieval," "online
systems for retrieval of information," and so on, so you broaden the search a
bit. This set contains all documents with either ONLINE or INFORMATION
followed by the word RETRIEVAL with zero, one, or two words in between.

> In practice, a number higher than (3W) or (4W) tends to be counter-productive,
> as the farther apart terms get, the more we revert to the simple Boolean AND. -
> GW

Notice that we have a Boolean expression on the left side of the (2W). You
can also have set numbers here, truncations, or anything legal, as in the
following:
?*s s7(W)system?*
```
           5555  S7
         110345  SYSTEM?
     S8     662  S7(W)SYSTEM?
```
?*t 8/5/1*

```
 8/5/1
EJ546260   IR535161
  Shape Measures for Content Based Image Retrieval: A Comparison.
  Mehtre, Babu M.; And Others
  Information Processing & Management; v33 n3 p319-37 May 1997
  ISSN: 0306-4573
  Language: English
  Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)
  Journal Announcement: CIJNOV97
  Explores  the  evaluation  of  image and multimedia information-retrieval
systems,  particularly  the  effectiveness  of  several  shape measures for
```

---

[1]At present, DIALOG allows this number to be up to 127 in most files;
it's unlimited in files which provide the full text of documents - we'll
talk more about this later.

content-based retrieval of similar images. Shape feature measures, or vectors, are computed automatically and can either be used for retrieval or stored in the database for future queries. (57 references) (Author/LRW)
  Descriptors: Comparative Analysis; Content Analysis; Databases; *Evaluation Methods; Futures (of Society); *Information Retrieval; *Information Systems; Mathematical Formulas; *Measurement Techniques; *Multimedia Materials
  Identifiers: *Digital Imagery; Query Processing; *Shapes; Similarity (Concept); Vector Methods

    English grammar being what it is, the words you want may not always be in the same order. An author writing a document about relativity theory might use that phrase, but she might also use "theory of relativity," "theory of general relativity," "relativity theories," or "theory of special relativity." If you were looking for these documents, you might be tempted to use a command like the following:

?*s relativity(w)theory*
            384 RELATIVITY
        38845 THEORY
    S9   13 RELATIVITY(W)THEORY
?*t 9/5/1*
9/5/1
EJ456369   RC509090
  Relativity, Relatedness and Reality.
  Deloria, Vine, Jr.
  Winds of Change; v7 n4 p34-40 Fall 1992
  ISSN: 0888-8612
  Language: English
  Document Type: JOURNAL ARTICLE (080); POSITION PAPER (120)
  Journal Announcement: CIJMAY93
  Anticipated the modern physics relativity theory, American Indians gained information about the natural world through careful observation based on the principle that all things are related. American Indian students could radically transform scientific knowledge by grounding themselves in traditional knowledge about the world and working this understanding into the Western scientific format. (SV)
  Descriptors: *American Indian Culture; American Indian Education; American Indians; Epistemology; Higher Education; *Holistic Approach; Science Education; Scientific Attitudes; *Scientific Methodology
  Identifiers: *Knowledge Acquisition; World Views

    You might also want documents that contain the other phrases, so perhaps you could try the following:

?*s relativity(2n)theor?*
            384 RELATIVITY
        63161 THEOR?
    S10   49 RELATIVITY(2N)THEOR?
?*t 10/5/1*
10/5/1
EJ531451   SE556552
  The Utilization of Fiction When Teaching the Theory of Relativity.
  Hellstrand, Ake; Ott, Aadu
  Physics Education; v30 n5 p284-86 Sep 1995
  ISSN: 0031-9120
  Language: English
  Document Type: TEACHING GUIDE (052); JOURNAL ARTICLE (080)
  Journal Announcement: CIJFEB97
  Describes a way of teaching the theory of relativity with the help of a novel. Aims to contribute to the formation of didactic theories by means of

an evaluation of alternative methods. (AIM)
  Descriptors: *Fiction; Physics; *Relativity; Science Instruction;
Secondary Education; Teaching Methods
  Identifiers: Theory of Relativity

      This command uses the (N) proximity operator, which retrieves documents
that have the two terms near each other (hence the "N") with the possibility
of intervening words, in this case as many as two. The general form

S term(nN)term

is similar to that of (W), and the same guidelines apply about using set
numbers, Boolean expressions, truncation, and so on. In many cases, (nN) is
more useful than (nW), because of this tendency in English to invert phrases
and insert words.
      A couple of further examples illustrate the use of (nN): If a patron
requests documents on hypothesis testing (a technique from statistics), the
concept might be referred to in documents as "hypothesis testing," but you
might also see "testing the hypothesis," or "a test of two null hypotheses."
So instead of HYPOTHESIS(W)TESTING, you might prefer HYPOTHES?S(3N)TEST??? to
get many variant forms of the phrase.
      Also, you can use (nN) to save typing. If you were looking for
documents about public universities in Michigan, you could try a strategy such
as UNIVERSIT?(1N)MICHIGAN, which would retrieve documents with "University of
Michigan" and also "Eastern Michigan University," "Michigan Technological
University," and even "Michigan State University." Of course, you would miss
some things (notably Wayne State University), but these could be ORed in, and
you have still saved yourself quite a bit of typing.

> The use of proximity operators is available on most of the major online systems,
> though their exact formats vary. On some systems, for example, the (W) operator
> is replaced by ADJ (adjacent to). So we may have a command in search mode,
> such as DAY ADJ CARE, that will be equivalent to DAY()CARE in DIALOG.
> Similar features are also available on the Internet, though formats vary in
> different search engines. - GW

      There are other, broader proximity operators in DIALOG. The (F)
operator will seek documents which have two words in the same field (i.e.,
both in the title, both in the abstract, etc.). You can specify which field
you want to search in or leave it unqualified. See the following examples:

S term(F)term
S term(F)term/field code

      A search in *LISA* for documents about the use of CD-ROM in school
libraries might go something like the following:

?*s cdrom? or cd()rom?*
              14   CDROM?
           2029   CD
           4426   ROM?
           1431   CD(W)ROM?
    S11   1436   CDROM? OR CD()ROM?
?*s school(w)(librar? or media)*
         291966   SCHOOL
          41884   LIBRAR?
          34797   MEDIA
    S12   4874   SCHOOL(W)(LIBRAR? OR MEDIA)
?*s s11(F)s12*

```
                    1436  S11
                    4874  S12
       S13            77  S11(F)S12
?t 13/5/1-3
```

13/5/1
DIALOG(R)File   1:ERIC
(c) format only 1998 The Dialog Corporation. All rts. reserv.

EJ544898   PS526458
  Using a CD-ROM Encyclopedia: Interaction of Teachers, Middle School
Students, Library Media Specialists, and the Technology.
  Albaugh, Patti R.; And Others
  Research in Middle Level Education Quarterly; v20 n3 p43-55 Spr 1997
  ISSN: 1082-5541
  Language: English
  Document Type: RESEARCH REPORT (143); JOURNAL ARTICLE (080)
  Journal Announcement: CIJOCT97
  Observed sixth-grade students and their ways of gathering information for
a science report from Encarta 94, a CD-ROM encyclopedia. Developed
recommendations for collaboration between the classroom teacher and the
school library media specialist during the implementation of CD-ROM
technology for information gathering, as well as ways to manage a
CD-ROM-based project. (AA)
  Descriptors: Access to Information; Case Studies; Classroom Techniques;
*Computer Attitudes; Computer Uses in Education; Educational Media;
Educational Strategies; Educational Technology; Elementary School Students;
*Encyclopedias; Grade 6; Information Seeking; Intermediate Grades;
Librarian Teacher Cooperation; *Multimedia Materials; Naturalistic
Observation; *Optical Data Disks; *Student Attitudes; Teacher Attitudes

 13/5/2
DIALOG(R)File   1:ERIC
(c) format only 1998 The Dialog Corporation. All rts. reserv.

EJ544781   IR535023
  Technology Use in North Carolina Public Schools: The School Library Media
Specialist Plays a Major Role.
  Truett, Carol
  North Carolina Libraries; v55 n1 p32-37 Spr 1997
  For related earlier study, see EJ 488 280. Journal availability: State
Library of North Carolina, 109 East Jones Street, Raleigh, NC 27601-1023.
  ISSN: 0029-2540
  Language: English
  Document Type: RESEARCH REPORT (143); JOURNAL ARTICLE (080)
  Journal Announcement: CIJOCT97
  This report on teachers and technology in North Carolina schools
continues an earlier report based on a survey of North Carolina schools
that focused on media specialists. Highlights include how teachers
incorporate CD-ROM and videodisk technologies, school library media
specialists as technology instructors, and teacher expectations of media
specialists. (LRW)
  Descriptors: *Computer Uses in Education; Curriculum Development;
*Educational Technology; Elementary Secondary Education; Learning Resources
Centers; Librarian Teacher Cooperation; Library Instruction; *Library Role;
*Media Specialists; Optical Data Disks; Public Schools; *School Libraries;
School Surveys; Staff Development; Teacher Attitudes; *Teacher Role; Use
Studies; Videodisks
  Identifiers: North Carolina; *Technology Utilization

```
 13/5/3
DIALOG(R)File   1:ERIC
(c) format only 1998 The Dialog Corporation. All rts. reserv.

EJ515154   IR532273
  Government Publications: A Forgotten Treasure.
  Ekhaml, Leticia
  School Library Media Activities Monthly; v12 n4 p28-31 Dec 1995
  ISSN: 0889-9371
  Language: English
  Document Type: PROJECT DESCRIPTION (141); JOURNAL ARTICLE (080)
  Journal Announcement: CIJAPR96
  Presents  information on government publications for school library media
specialists, notes problems, and identifies selection aids. Topics include:
the   "Monthly   Catalog"   on  CD-ROM,  the  Superintendent  of  Documents
Classification  System,  GPO  bookstores  and  depository libraries, how to
purchase  and  promote  the  use  of government publications, and a list of
current documents useful to teachers and students. (AEF)
  Descriptors:    Classification;    Depository    Libraries;   *Government
Publications;   *Information   Sources;   *Library  Collection  Development;
*Library Material Selection; Media Specialists; Optical Data Disks; *School
Libraries
  Identifiers: Bookstores; Government Printing Office; Monthly Catalog of U
S Government Publications; Superintendent of Documents Classification
```

        The first two documents in S13 look promising, but the third is off the
track because the strategy is so broad. However, we notice the good
descriptor SCHOOL LIBRARIES, so we use the following instead:

```
?s school libraries
      S14    3479  SCHOOL LIBRARIES
?s s11 and s14
           1436  S11
           3479  S14
      S5    103  S11 AND S14
?t 15/6/1-4
15/6/1
EJ544781   IR535023
  Technology Use in North Carolina Public Schools: The School Library Media
Specialist Plays a Major Role.


 15/6/2
EJ539702   IR534431
  Mediagraphy: Print and Nonprint Resources.


 15/6/3
EJ529708   IR533359
  Full-Text Magazine Indexes & More on CD-ROMs.


 15/6/4
EJ523175   IR532797
  What CD-ROMs Are Other Schools Using?
```

        With this strategy, we get improved results. There are other proximity
operators; we will see how to use some in later chapters.

WHY FREE-TEXT SEARCHING?
        As we have seen, controlled vocabulary searching is often an excellent
way to go. But that is not always the case. The following examples

illustrate several situations in which searching using terms selected from a
thesaurus or controlled vocabulary is not the best method.

- *There is no thesaurus.* Obviously, if there is no controlled vocabulary,
  you cannot use it. Some databases have no thesaurus at all. Others use
  one, but it is unavailable because it is not published or your
  particular institution does not have access to it. If there is no
  indexing at all (often the case with newspaper databases, for example),
  all you have left are free-text techniques. If documents in the
  database have been indexed in some way, but you do not know how, you can
  begin with free-text searching and then use pearl-growing techniques to
  weave in controlled vocabulary searching. This is an often used and
  successful approach.

- *There are no good terms.* In some cases, the vocabulary may simply not
  cover the subject area of the query very well. There may be several
  related, marginal terms, but no single good term.

- *The term is new.* It may also be the case that the subject area or
  terminology of the query is new, and so no term or terms have yet been
  accepted into the thesaurus. In general, it will take some time,
  probably years rather than months, for a new term to become widely used
  and incorporated into the printed controlled vocabulary. Some
  disciplines and databases move faster than others, but if you are
  searching for swiftly developing areas or very new terms, controlled
  vocabulary may not work. Further, when the term is included in the
  thesaurus, typically older documents will not be reindexed, so they will
  be accessible only using free-text searching.

- *There is only one good term, and it is not an index term.* This is
  particularly the case when there is a good term that is outside of a
  subject area. For example, if you were searching for documents about
  the how to develop good search strategies in Web-based search engines,
  you might decide to search in *ERIC*, but *ERIC*, as of this writing, has no
  good descriptor for the concept "search engine". There are some
  possibilities: INFORMATION RETRIEVAL, ONLINE SEARCH, and ACCESS TO
  INFORMATION, but no term "SEARCH ENGINES." In this case, we might
  choose to search for this phrase as a free-text expression like the
  following:

```
?s search()engine? ?
          13234  SEARCH
           1023  ENGINE? ?
     S10      77  SEARCH()ENGINE? ?
?s s10 and search strategies
            77  S10
          2350  SEARCH STRATEGIES   (COMPREHENSIVE PLANS FOR FINDING
                INFORMATION ...)
     S11      20  S10 AND SEARCH STRATEGIES
?t 11/5/1

 11/5/1
EJ546200   IR535073
  "Just the Answers, Please": Choosing a Web Search Service.
  Feldman, Susan
  Searcher; v5 n5 p44-50,52-57 May 1997
  Language: English
  Document  Type:  NON-CLASSROOM  MATERIAL  (055);  JOURNAL  ARTICLE
  (080);
PROJECT DESCRIPTION (141)
  Journal Announcement: CIJNOV97
```

Presents   guidelines   for   selecting   World   Wide   Web   search
engines. Real-life   questions   were   used to test six search engines.
Queries sought company   information,   product   reviews,   medical
information,   foreign information,   technical   reports,   and current
events. Compares performance and   features of AltaVista, Excite, HotBot,
Infoseek, Lycos, and Open Text. (AEF)
Descriptors: *Comparative   Analysis;   *Computer   Software
Evaluation; Computer   Software   Selection;   Guidelines;
*Information   Retrieval; Information Services; *Online Searching;
Search Strategies; *World Wide Web
Identifiers: *Query Processing; *Search Engines; Web Sites

- *There are not many hits, either in the database or using controlled
  vocabulary.* Free-text strategies are inherently broader than controlled
  vocabulary and thus will generally retrieve more documents. If an
  initial controlled vocabulary search pulls up very few or no good hits,
  or if you have some prior knowledge that there will be little good
  material in the database, you might decide to try a free-text strategy
  to widen the net and pull in more records. There is no guarantee that
  these will be desirable, but at least you will have a starting point.
  Always keep in mind that the file may not contain what you seek, no
  matter how good your strategy.

- *You are looking for a known item.* Known-item searches are a special
  case. If you know the document's title (to provide a bibliographic
  verification, for example), or a portion of it, there is no need to do
  an elaborate controlled vocabulary search. Just do a reasonable free-
  text attempt. Be careful, though, not to over-specify--your user's
  memory may not be perfect. In looking for Marcia Bates' well-known
  article on "the perfect thirty-item search," you might search in Library
  & Information Science Abstracts for the following:

?*s perfect()thirty()item()search/ti*
```
            90   PERFECT
            62   THIRTY
           463   ITEM
          4890   SEARCH/TI
S1           0   PERFECT()THIRTY()ITEM()SEARCH/TI
```

You would get nothing, but then try a broader strategy like the
following:

?*s thirty()item*
```
            62   THIRTY
           463   ITEM
S2           1   THIRTY()ITEM
```

This approach retrieves one item, which is correct:[2]

?*t 2/6/1*

```
 2/6/1
168472   85-2684
```

---

[2]Notice the hyphen in the title: "thirty-item" as it appears in the
title. In DIALOG, all internal punctuation (hyphens, apostrophes,
slashes, quotation marks, etc.) is removed and replaced by spaces.
Thus, when this document was processed, the hyphen was removed, and the
words "thirty" and "item" went into the inverted file next to each
other.

```
   TITLE: The fallacy of the perfect thirty-item online search
?t 2/3/1

 2/3/1
168472   85-2684   Library and Information Science Abstracts    (LISA)
   TITLE: The fallacy of the perfect thirty-item online search
   AUTHOR(S): Bates, Marcia J.
   JOURNAL: RQ
   SOURCE: 24 (1) Fall 84, 43-50. 11 refs
```

• *You do not want to deal with a new controlled vocabulary.* As we have
seen, thesauri and vocabulary differ, sometimes widely, from database to
database. If you are confronted with a search in an unfamiliar
database, you might decide that it is not really worth learning an
entirely new vocabulary for one search. If you are under time pressure,
you might try an initial free-text strategy and see what happens,
perhaps pearl-growing from good things as they come up. This can work,
but clearly it is not a preferred method. Some people, though, are good
at this sort of thing. If you find that your style works in this
setting, more power to you.

It should be pointed out early and often that neither technique--
controlled vocabulary nor free-text searching--is superior to the other. In
some cases, one will be preferable, but often they work in tandem: You begin
with a free-text search and pearl grow using index terms from good documents,
or you begin with a good index term or two, discover a useful free-text
expression, and use it. The blending of these two sets of techniques to
produce high-quality searches is part of the real art of searching.

CHOOSING FREE-TEXT TERMS

Once you have made the decision to use free-text techniques, how do you
generate your terms? You may have no controlled vocabulary from which to
draw. Or, if you do, you may have decided to use a controlled vocabulary term
or two, but in free-text fashion. This is not done frequently, though, so
where do these terms come from?

Your first and potentially best source of free-text terms is your user.
He or she may have quite a good idea about the vocabulary of the subject area
you will be searching and will be able to give you helpful clues for further
searching. This is particularly true with university faculty, researchers,
and other specialists looking for new or new-to-them documents in their
fields. In this situation, use the information they provide on search request
forms and through interviews.

However, many users really do not have that much background or
experience in the areas of their topics and may not be reliable sources of
terms. They are certainly worth exploring, and if they know of any good
documents, titles, or authors, these are often sources of good terms.

Further, you can also try pearl-growing with free-text terms from good
documents, in addition to index terms, if any. As you proceed through the
search and find good documents, look for additional good terms in abstracts
and especially in titles. If a word or phrase is used in the title, it is
often an indication that the document is really about that concept.

You need to strike a balance between generality and specificity. If you
use a very general, single-word term free-text, you may retrieve thousands of
documents, only a few of which are of interest to the user. On the other
hand, if your expression is too specific, you may retrieve very little, miss
good things, and perhaps get nothing at all. This balancing act can be very
tricky, but it gets easier with experience.

PROBLEMS WITH FREE-TEXT SEARCHING: FALSE DROPS

Free-text searching is certainly not a panacea, although it can be a
helpful complement to controlled vocabulary techniques. However, there are
situations in which free-text searching can be very problematic. The major
difficulty we encounter in searching free-text is false drops: retrieved
documents that are not germane to the topic. Because there is no control over
the vocabulary in title and abstract fields when you search for words in those
fields, the author or abstracter may or may not be using them in the same way
as the searcher.

The following are a few examples of common sources of false drops and a
few pieces of advice to help you to avoid them:[3]

Problem: Reverse concepts. If you were doing a search on school
libraries and used the expression LIBRAR? AND SCHOOL?, you would get not only
"school library" material but also "library school" material, which is not
what you want.

Solution: Use proximity operators to more closely tie concepts
together. A search on SCHOOL(W)LIBRAR? would not retrieve "library schools,"
but neither would it retrieve "libraries in schools" nor "libraries in
elementary schools." You would be tempted to try SCHOOL?(2N)LIBRAR?, but you
would be right back where you started. In many cases, you can avoid reverse
concepts by using (W), but in some instances you might have to go to
controlled vocabulary.

Problem: Homographs/conflation. These are two terms for the same
problem: two or more concepts which use the same word or words. Examples
include words like CRACK (cocaine or seismic fault?), FIELD (part of a
bibliographic record or a meadow?), and SDI (Strategic Defense Initiative or
selective dissemination of information?). We say that these terms are
"conflated."

Solution: Qualify or focus your expression. If you are interested in
crack cocaine, you might try something like CRACK AND (DRUG? OR COCAINE).
This will focus your results, and eliminate seismic or other extraneous
material. Alternatively, you might try CRACK/TI, qualifying the term down to
the title field. You will still retrieve some nonrelevant records, but you
will eliminate marginal or off-hand mentions of the word in the abstract
field.

Problem: Excessive truncation. Truncation is a wonderful thing, but
too much of any good thing is too much. It would not be a good idea, for
example, to search on BOOK? in *ABI/Inform* (you will also get BOOKKEEPING), or
to search on INTERN? in *ERIC*, which would get INTERN and INTERNS but also
INTERNAL and INTERNATIONAL.

Solution: Do not truncate too far to the left. Try to imagine all the
variant forms that your word can take (e.g., COMPUTER, COMPUTING, COMPUTERS,
COMPUTE, etc.) and either truncate further to the right (COMPUT? - still
pretty bad) or restrict the length of your truncation (COMPUT??? will only get
up to three more characters; COMPUTER? ? will only get up to one more) or do
not truncate at all (COMPUTER OR COMPUTING OR COMPUTERS OR COMPUTE), depending
on the database and the vocabulary.

Problem: Acronyms. Many acronyms (CBS, USA, NASA) are not a problem
because they have essentially entered the language as words in their own
right. Some, however, will conflate with other, common words. Acronyms such
as ADD (attention deficit disorder, from psychology), SAD (seasonal affective
disorder), AIDS (acquired immune deficiency syndrome), and so on will retrieve

---

[3]These are based on categories given in an article by Elaine Wagner
(September 1986), "False Drops--How They Arise...How to Avoid Them,"
Online 10(5), 93-96.

many more documents than you intend, because they will also retrieve based on the words "add," "sad," and "aids."
        Solution: There are several things you can try: focus or qualify your set (ADD AND ATTENTION). Use the full expression (SEASONAL()AFFECTIVE()DISORDER?). Search in the descriptor field and see if the expression or acronym is an index term (ACQUIRED()IMMUN?/DE).

        Problem: Negation. Suppose you are searching for documents about programs to teach older people how to use computers. A strategy like COMPUTER? ? AND (OLDER OR ELDERLY) might seem like a good start, but it retrieves documents that contain sentences like, "We had hoped to include elderly people in our program, but our funding wouldn't allow us to." Grrr!
        Although many databases instruct their indexers and abstracters not to incorporate negative phrases, it is not a universal instruction, and the instructions do not always do a lot of good.
        Solution: Shy of completely reworking abstracts and the way they are written, there is not a lot you can do about this. It is not a major problem, but it is particularly frustrating when it happens.

GOOD PLACES TO USE FREE-TEXT SEARCHING
        There are several situations in which free-text techniques are especially useful, situations in which controlled vocabulary simply will not work or cannot be used. The following are a few examples:[4]
  * *Geography*. Some databases have geographical descriptors (*ABI/Inform*, *PAIS*) or identifiers (*ERIC*), but many do not. If you are searching for documents that make mention of a particular geographic name, free-text techniques may be your only option: ANN()ARBOR, NEW()YORK. Keep in mind, though, that there may be several geographic names that refer to the same area. For a search on New England, you might want to do the following:

 (NEW()ENGLAND OR MAINE OR VERMONT OR NEW()HAMPSHIRE OR CONNECTICUT OR
                    RHODE()ISLAND) OR MASSACHUSETTS)

    and even then you might miss records which refer to Boston or Providence or the White Mountains or the Berkshires.

  * *Other proper names*. Again, some databases have personal name fields or include names as descriptors or identifiers, but if these are not available or if you are looking for other proper names, use free-text: GROUCHO(W)MARX, HOUSE(1W)REPRESENTATIVES, MICROSOFT()WORD.

When searching for personal names it is worth remembering that they may entered in some databases in inverted form (both as Groucho Marx and Marx, Groucho), so GROUCHO(N)MARX might be more useful. - GW

  * *Concepts marginal to the database*. Say you are looking for documents about virtual reality systems and their potential impact on teaching. Searching in *ERIC*, you discover a number of descriptors on "teaching" but none on virtual reality, so you might use VIRTUAL()REALITY as a free-text expression.

---

[4]Markey et al. (1980), "An Analysis of Controlled Vocabulary and Free Text Search Statements in On-Line Searches," *Online Review* 4(3), 225-236.
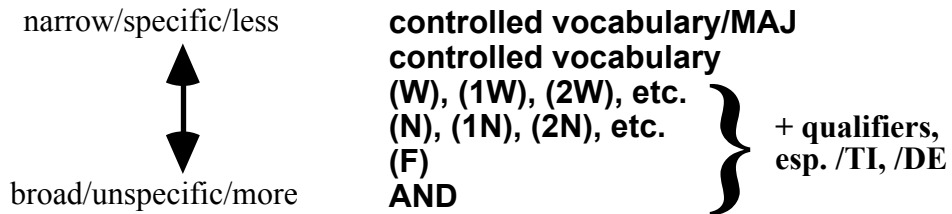
THE LADDER OF SPECIFICITY: BROADENING AND NARROWING SEARCHES

You will have noticed, as we have discussed searching techniques using controlled vocabulary and free-text, that the idea of broadening and narrowing search statements has come up more than once. It is possible to think of these methods of searching as falling on a continuum, or ladder, of specificity.

We have already seen that controlled vocabulary searching is a very specific technique. The fact that an indexer, after evaluating a document, has assigned it a particular term, gives us a reasonably good idea that that document is about that concept. With free-text techniques, because you are dealing with parts of the document that are in natural language (titles and abstracts), you do not have that kind of confidence about the topic covered based on the simple presence of a word or phrase.

Consider the diagram in figure 8.1:

Fig. 8.1. The Ladder of Specificity.

narrow/specific/less

controlled vocabulary/MAJ
controlled vocabulary
(W), (1W), (2W), etc.
(N), (1N), (2N), etc.
(F)
AND

broad/unspecific/more

} + qualifiers, esp. /TI, /DE

As you move from the bottom of this ladder toward the top, you will see that your strategies become more specific and narrower and will retrieve fewer documents. Conversely, as you move down, your strategies become less specific and broader and retrieve more documents. The /MAJ limit moves you up the ladder, as do field qualifiers, especially /TI to qualify to titles and /DE to limit to the descriptor field.

I always think of this concept as a triangle, rather than a ladder.

DE
(W)
(N)
(F)
AND

This illustrates the idea of moving up from broad to narrower or down from narrow to broader. - GW

This may be intellectually interesting, but it is also of considerable use in searching. Depending on the nature of the topic, the user, and the database, you can choose to begin your search with a strategy or set of strategies at a selected level on the ladder. After reviewing initial results, you may decide that your documents are too broad, or that you have

too many or too few. One of the ways in which you can cope with this is to
move up or down on the ladder.

        Similarly, if you are finding fewer documents than you had expected or
even none, or if you think they are maybe a bit too narrow, you might want to
move down the ladder. You can move from controlled vocabulary to free-text,
drop /MAJ or field qualifiers, or move to a broader free-text strategy: (W)
to (1W) or (N) or (N), (N) to (1N) or (2N) or (F), and so on.

        These are not the only ways in which you can broaden or narrow searches,
though. You can broaden a search by using more terms (ORing them together),
using broader controlled vocabulary terms as they are marked in the thesaurus,
or dropping a marginal concept altogether. You can narrow a search by using
fewer terms, using narrower controlled vocabulary terms, adding another
concept, or NOTing out a concept.

> I am not a big fan of NOT--it is a seductively easy way of reducing the size of
> sets, but I think that it is often a bad idea. It is really easy to lose good documents
> that way. If you NOT a term out, especially using free text, any good documents
> that happen to have that term will also go away. If you are **positive** that **any**
> document which contains that term is bad, under **all** circumstances, you might
> **think** about trying NOT, but I would be very careful about it. - JWJ

        The following is a brief example showing this "ladder" at work in *ERIC*
on the two-word phrase "test bias." We begin with the broadest strategy, by
searching for the two words in the same document, using AND:

        Set Items Description
        --- ----- -----------
?*s test and bias*
             71282 TEST
             14735 BIAS (AN INCLINATION, OR A LACK OF BALANCE (NOTE: ...)
        S1   3127 TEST AND BIAS

        There are over 3,000 documents in *ERIC* that contain both the word TEST
and the word BIAS. Now we move to a slightly narrower strategy, (F), and look
for those words in the same field:

?*s test(f)bias*
             71282 TEST
             14735 BIAS (AN INCLINATION, OR A LACK OF BALANCE (NOTE: ...)
        S2   2767 TEST(F)BIAS

        We get fewer documents. Let us NOT to see what we lost when we went to
a narrower strategy:

?*s s1 not s2*
              3127 S1
              2767 S2
        S3   360 S1 NOT S2
?*t 3/5/1*

3/5/1
DIALOG(R)File   1:ERIC
(c) format only 1998 The Dialog Corporation. All rts. reserv.

EJ531824   UD519585
  Teacher Disapproval, Delinquent Peers, and Self-Reported Delinquency: A
Longitudinal Test of Labeling Theory.
  Adams, Mike S.; Evans, T. David
  Urban Review; v28 n3 p199-211 Sep 1996
  ISSN: 0042-0972
  Available from: UMI

   Language: English
   Document Type: REVIEW LITERATURE (070); RESEARCH REPORT (143); JOURNAL
ARTICLE (080)
   Journal Announcement: CIJFEB97
   Uses data from the National Youth Survey to assess the effects of
individual students' perceptions of teacher disapproval on self-reported
delinquency. Results indicate that the perceptions of teacher disapproval
are   associated   with   subsequent delinquency. This relationship was
significant when controlling for prior delinquency, thus weakening the
argument that labeling is merely a result, not a cause of delinquency. (GR)
   Descriptors: *Delinquency; High School Students; Junior High School
Students; *Labeling (of Persons); *Peer Influence; *Secondary Education;
*Social Bias; Social Science Research; Socioeconomic Status; Stereotypes;
*Teacher Attitudes
   Identifiers: National Youth Survey

        The above is one of those documents excluded by limiting to the same
field (F). You see that the words TEST and BIAS appear, but they are
unrelated and not in the same field. The document has nothing to do with
"test bias," and the extremely broad strategy using AND did not serve us well.
We will continue to use narrower strategies like the following and view
documents we exclude to demonstrate how moving up the ladder focuses searching
more closely at each step.

?*s test(10w)bias*
          71282   TEST
          14735   BIAS (AN INCLINATION, OR A LACK OF BALANCE (NOTE: ...)
      S4   2103   TEST(10W)BIAS
?*s s2 not s4*
           2767   S2
           2103   S4
      S5   664   S2 NOT S4
?*t 5/5/1-3*

5/5/1
DIALOG(R)File   1:ERIC
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EJ546738   TM520217
   Estimating the Importance of Differential Item Functioning.
   Rudas, Tamas; Zwick, Rebecca
   Journal of Educational and Behavioral Statistics; v22 n1 p31-45 Spr 1997
   ISSN: 1076-9986
   Language: English
   Document Type: JOURNAL ARTICLE (080); EVALUATIVE REPORT (142)
   Journal Announcement: CIJNOV97
   The mixture index of fit (T. Rudas et al, 1994) is used to estimate the
fraction of a population for which differential item functioning (DIF)
occurs, and this approach is compared to the Mantel Haenszel test of DIF.
The proposed noniterative procedure provides information about data
portions contributing to DIF. (SLD)
   Descriptors: Comparative Analysis; *Estimation (Mathematics); *Item Bias;
*Maximum Likelihood Statistics; *Test Items
   Identifiers: Item Bias Detection; *Mantel Haenszel Procedure

 5/5/2
DIALOG(R)File   1:ERIC
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EJ546729   TM520205

A Multidimensionality-Based DIF Analysis Paradigm.
Roussos, Louis; Stout, William
Applied Psychological Measurement; v20 n4 p355-71 Dec 1996
ISSN: 0146-6216
Language: English
Document Type: JOURNAL ARTICLE (080); EVALUATIVE REPORT (142)
Journal Announcement: CIJNOV97
A multidimensionality-based differential item functioning (DIF) analysis paradigm is presented that unifies substantive and statistical DIF analysis approaches by linking both to a theoretically sound and mathematically rigorous multidimensional DIF conceptualization. This approach results in the potential for DIF analysis more closely integrated with the whole test development process. (Author/SLD)
Descriptors: Cluster Analysis; *Estimation (Mathematics); Hypothesis Testing; Identification; *Item Bias; *Models; Test Construction; *Test Items
Identifiers: Item Bias Detection; *Multidimensionality (Tests)

 5/5/3
DIALOG(R)File 1:ERIC
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EJ545074 PS526650
Restricting a Familiar Name in Response to Learning a New One: Evidence for the Mutual Exclusivity Bias in Young Two-Year-Olds.
Merriman, William E.; Stevenson, Colleen M.
Child Development; v68 n2 p211-28 Apr 1997
ISSN: 0009-3920
Language: English
Document Type: RESEARCH REPORT (143); JOURNAL ARTICLE (080)
Journal Announcement: CIJOCT97
Used new test to determine whether 24-month olds interpret novel words in accordance with Mutual Exclusivity Bias. Found that when asked to select exemplars of a familiar noun, they avoided objects from previously read story in which novel nouns were used as atypical exemplars of familiar noun. When pronouns and proper names replaced novel nouns, toddlers did not avoid story objects. (KB)
Descriptors: *Familiarity; Measures (Individuals); Novelty (Stimulus Dimension); *Toddlers; *Vocabulary Development
Identifiers: *Mutual Exclusivity Bias; Naming Response; *Word Learning

        The above are documents which have TEST and BIAS in the same field but not within 10 words of each other in that order. A couple of these are close, referring to item bias in tests, but they are still not quite on the mark. Another attempt yields the following:

?*s test(3n)bias*

        71282 TEST
        14735 BIAS (AN INCLINATION, OR A LACK OF BALANCE (NOTE: ...)
    S6   2068 TEST(3N)BIAS
?*s s4 not s6*

         2103 S4
         2068 S6
    S7   69 S4 NOT S6
?*t 7/5/1-3*

 7/5/1
DIALOG(R)File 1:ERIC

EJ536974   TM519883
  The University Entrance Examinations in Turkey.
  Berberoglu, Giray
  Studies in Educational Evaluation; v22 n4 p363-73 1996
  ISSN: 0191-491X
  Language: English
  Document Type: PROJECT DESCRIPTION (141); JOURNAL ARTICLE (080)
  Journal Announcement: CIJMAY97
  Issues related to the two-stage college entrance examinations used in
Turkey are explored. Focus is on the first stage, the selection phase of
the examination, rather than on the second stage, the placement phase.
Further study is needed of the dimensionality of the test and sources of
item bias. (SLD)
  Descriptors: *College Entrance Examinations; Foreign Countries; *Higher
Education; *Item Bias; *Selection; Student Placement; *Test Use; Test
Validity
  Identifiers: Dimensionality (Tests); *Turkey

 7/5/2
DIALOG(R)File   1:ERIC

EJ528234   PS525393
  Anxiety and the Processing of Emotionally Threatening Stimuli:
Distinctive Patterns of Selective Attention among High- and
Low-Test-Anxious Children.
  Vasey, Michael W.; And Others
  Child Development; v67 n3 p1173-85 Jun 1996
  ISSN: 0009-3920
  Available from: UMI
  Language: English
  Document Type: RESEARCH REPORT (143); JOURNAL ARTICLE (080)
  Journal Announcement: CIJDEC96
  Tested for bias toward shifting attention toward threatening stimuli
among high-anxious children and away from such stimuli among low-anxious
children, ages 11-14. Results supported the predicted attentional bias
toward threat cues among high-test-anxious children. Unexpectedly, the
predicted attentional bias away from threat cues among low-anxious children
was found only for boys. (HTH)
  Descriptors: *Anxiety; Attention; *Early Adolescents; *Emotional Response
; Personality Traits; Sex Differences; Test Anxiety

 7/5/3
DIALOG(R)File   1:ERIC

EJ521000   TM519386
  A Blended Qualitative-Quantitative Assessment Model for Identifying and
Rank-Ordering Service Needs of Indigenous Peoples.
  Loos, Gregory P.
  Evaluation and Program Planning; v18 n3 p237-44 Jul-Sep 1995
  Research supported by a consortium of human care agencies and funded by
the Bishop Estate, a private trust in Hawaii.
  ISSN: 0149-7189
  Available from: UMI
  Language: English
  Document Type: EVALUATIVE REPORT (142); JOURNAL ARTICLE (080)
  Journal Announcement: CIJJUL96

   This article describes a series of qualitative and quantitative methods
used to test a community-based needs assessment model that is bias free and
socioculturally relevant for indigenous populations. Results of a field
test involving 100 Hawaiian children are presented, and implications for
policy formation are discussed. (SLD)
   Descriptors: Children; *Community Programs; Cultural Awareness; Field
Tests; *Indigenous Populations; Models; *Needs Assessment; *Policy
Formation; *Qualitative Research; Statistical Analysis; *Statistical Bias
   Identifiers: Hawaii

      Again, the above are marginal at best, documents that have the two
words within 10 words of each other but not within three. Narrowing
still further, we get the following:

?*s test(n)bias*

        71282 TEST
        14735 BIAS (AN INCLINATION, OR A LACK OF BALANCE (NOTE: ...)
     S8   2009 TEST(N)BIAS
?*s s6 not s8*

        2068 S6
        2009 S8
     S9   59 S6 NOT S8
?*t 9/5/1-3*

 9/5/1
DIALOG(R)File   1:ERIC
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EJ519378   CG548093
  Perceiver Bias in Expectancies for Sexually Abused Children.
  Briggs, Kathleen; And Others
  Family Relations; v44 n3 p291-98 Jul 1995
  ISSN: 0197-6664
  Available from: UMI
  Language: English
  Document Type: RESEARCH REPORT (143); JOURNAL ARTICLE (080)
  Journal Announcement: CIJJUL96
  Presents a study in which 134 college students judged children in
vignettes varying on child gender and family history to test perceiver
bias. Perceiver bias was confirmed. Perceptions of female sexual abuse
victims were more biased than perceptions of male victims. (Author/SR)
  Descriptors: Behavior Problems; Child Abuse; Child Behavior; Children;
*Questionnaires; *Sex Bias; Sex Differences; Sex Stereotypes; *Sexual Abuse
; Surveys
  Identifiers: Child History Expectation Questionnaire

 9/5/2
DIALOG(R)File   1:ERIC
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EJ503271   HE533895
  Effect of Anonymous Test Grading on Passing Rates as Related to Gender
and Race.
  Dorsey, J. Kevin; Colliver, Jerry A.
  Academic Medicine; v70 n4 p321-23 Apr 1995
  ISSN: 1040-2446
  Available from: UMI
  Language: English

   Document Type: RESEARCH REPORT (143); JOURNAL ARTICLE (080)
   Journal Announcement: CIJSEP95
   Because of concern about potential gender and racial bias in medical test
grading, score patterns were examined for male and female and for white and
African American medical freshmen (n=476) before and after implementation
of an anonymous test grading policy. Results indicate no widespread grading
bias before the policy change. (Author/MSE)
   Descriptors: Black Students; Females; *Grading; Higher Education; Males;
*Medical Education; Professional Education; *Racial Bias; *Sex Bias;
*Testing Problems; White Students
   Identifiers: African Americans

 9/5/3
DIALOG(R)File   1:ERIC
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EJ497098   TM518438
   Comparison   of   Empirical   and Judgmental Procedures for Detecting
Differential Item Functioning.
   Hambleton, Ronald K.; Jones, Russell W.
   Educational Research Quarterly; v18 n1 p21-36 Sep 1994
   ISSN: 0196-5042
   Available from: UMI
   Language: English
   Document Type: EVALUATIVE REPORT (142); JOURNAL ARTICLE (080)
   Journal Announcement: CIJMAY95
   A judgmental method for determining item bias was applied to test data
from 2,000 Native American and 2,000 Anglo-American students for a
statewide proficiency test. Results indicated some shortcomings of the
judgmental method but supported the use of cross-validation in empirically
identifying potential bias. (SLD)
   Descriptors: American Indians; Anglo Americans; Comparative Analysis;
*Decision Making; *Evaluation Methods; *Identification; *Item Bias; *Test
Items
   Identifiers: Cross Validation; *Empirical Research

       The above documents are getting closer. The words are now within
three words of each other but not directly adjacent. There are probably
some good retrievals in there. But we can go still further with the
following:

?*s test(w)bias*

        71282   TEST
        14735   BIAS   (AN INCLINATION, OR A LACK OF BALANCE (NOTE: ...)
    S10   2002   TEST(W)BIAS
?*s s8 not s10*

        2009   S8
        2002   S10
    S11   7   S8 NOT S10

?*t 11/5/1*
11/5/1
DIALOG(R)File   1:ERIC
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EJ213055   RC503536
   In North Carolina: Overlooked Causes and Implications of School Finance
Disparities.
   Nord, Stephen; Ledford, Manfred H.

```
   Growth and Change; v10 n4 p16-19 Oct 1979
   Available from: Reprint: UMI
   Language: ENGLISH
   Document Type: JOURNAL ARTICLE (080); RESEARCH REPORT (143)
   Journal Announcement: CIJAPR80
  Describes model, data, results, and implications of a study attempting to
clarify  two  issues  previously  overlooked in studies of financing public
education  with  local  property taxes: (1) that regionally aggregated data
may bias test results, and (2) that local fiscal response to grant programs
may vary with the wealth of school districts. (SB)
   Descriptors: Assessed Valuation; *Educational Finance; *Equalization Aid;
Federal  Aid;  *Financial  Policy; *Government School Relationship; Grants;
Models; Policy Formation; *Property Taxes; Public Education; *School Taxes;
State Aid; State School District Relationship; Tax Allocation
   Identifiers: *North Carolina
```

        You can see what happened: Asking for the two words directly
adjacent but in either order pulls up false drops like this. This is to
be expected in this case, because "bias test" is not the same as "test
bias." However, a strategy such as BIAS(2N)TEST, which would look for
"bias of a test" would also pull up documents such as the one above.
Note that there are very few documents in this set.
        As an aside, let us see what happens when we qualify one of these
sets down to the title field alone:

?*s test(w)bias/ti*

```
         10163  TEST/TI
          1407  BIAS/TI  (AN INCLINATION, OR A LACK OF BALANCE (NOTE:
                 ...)
   S12      76  TEST(W)BIAS/TI
```

        The unqualified set, S10, had over 1,700 documents; this one has
70. Obviously, the vast majority of occurrences of "test bias" as a
phrase are in the abstract, descriptor, or identifier fields.
Qualification can be an important tool, but at times it may also be too
specific.
        We can narrow still further with the following:

?*s test bias*

```
   S13    1951  TEST BIAS  (UNFAIRNESS IN THE CONSTRUCTION, CONTENT,
                 ADM...)
```
?*s s10 not s13*

```
         2002  S10
         1951  S13
   S14     51  S10 NOT S13
```
?*t 14/5/1-3*


```
 14/5/1
DIALOG(R)File  1:ERIC
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EJ528731   UD519339
  Black  Scholars Hold a Pessimistic Outlook for African American Prospects
in Higher Education.
  Cross, Theodore, Ed.; And Others
  Journal of Blacks in Higher Education; n11 p74-77 Spr 1996
  ISSN: 1077-3711
```

Language: English
  Document Type: REVIEW LITERATURE (070); RESEARCH REPORT (143); JOURNAL
ARTICLE (080)
  Journal Announcement: CIJDEC96
  Discusses   survey   findings   that   show   black   academics   are   highly
pessimistic   in   their   view   of   the future of blacks in higher education.
Reasons   include   the   following: curtailment of federal support for black
colleges   over   the   next   five years; continued built-in test bias against
blacks; no   improvement   in   campus   race relations; and persistent racial
barriers against black faculty. (GR)
  Descriptors: Affirmative Action; *Black Colleges; *Black Education; Black
Teachers;   Educational   Research;   Educational   Trends; *Financial Support;
Futures   (of   Society);   Higher Education; Postsecondary Education; *Racial
Bias; *Racial Relations; Scores; Surveys; *Teacher Attitudes
  Identifiers: Scholastic Aptitude Test

 14/5/2
DIALOG(R)File   1:ERIC
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EJ296328   UD510634
  Beyond   IQ Test Bias: The National Academy Panel's Analysis of Minority
EMR Overrepresentation.
  Reschly, Daniel J.
  Educational Researcher; v13 n3 p15-19 Mar 1984
  Language: English
  Document Type: REVIEW LITERATURE (070)
  Journal Announcement: CIJJUN84
  Questions   educational   relevance of direct measures of learning such as
the Learning Potential Assessment Device, assessment of biomedical factors,
and adaptative behavior measures. Notes increased discrepancies between EMR
and average students in high school. Suggests a generic classification for
the   mildly   handicapped   and   the   combining   of   groups for educational
purposes. (CJM)
  Descriptors: Academic   Achievement;   *Classification;   *Educational
Diagnosis;   Elementary   Secondary   Education;   *Learning Disabilities;
Mainstreaming; *Measurement Techniques; *Mild Mental Retardation; Minority
Group Children; Racial Bias; Racial Composition; Research Needs; *Special
Education
  Identifiers: Learning Potential Assessment Device; National Research
Council

 14/5/3
DIALOG(R)File   1:ERIC
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EJ285500   EC152888
  Assessing Adaptive Behavior: Current Practices.
  Cantrell, Joan Kathryn
  Education and Training of the Mentally Retarded; v17 n2 p147-49 Apr 1982
  Available from: Reprint: UMI
  Language: English
  Document Type: JOURNAL ARTICLE (080); RESEARCH REPORT (143)
  Journal Announcement: CIJDEC83
  Twenty-nine   elementary   school   psychologists   were   interviewed about
assessment of adaptive behavior. Over 95 percent reported they routinely
assess adaptive behavior skills, and 90 percent felt the assessment useful
in planning instruction. They rated methods of assessment (home observation
ranked   first), cited safeguards against test bias, discussed school
policies, and recommended changes. (CL)

   Descriptors: *Adaptive Behavior (of Disabled); Attitudes; *Disabilities;
Elementary Education; Evaluation Methods; *School Psychologists; *Student
Evaluation

        Interesting. The second of these documents is about "IQ test
bias" among minority students, and so is marginal at best. The first
refers explicitly to "test bias" in the abstract but has not been
indexed with the descriptor TEST BIAS. The indexers must have thought
that this concept was marginal in this document. And the third one
mentions safeguards *against* test bias, yet is retreived along with
others which also contain that phrase. We have one further step on the
ladder to explore.

?*s s13/maj*

     S15   1087   S13/MAJ
?*s s13 not s15*

            1951   S13
            1087   S15
     S16   864   S13 NOT S15
?*t 16/5/1-3*

16/5/1
DIALOG(R)File   1:ERIC
(c) format only 1998 The Dialog Corporation. All rts. reserv.

EJ546747   TM520226
  Flawed Items in Computerized Adaptive Testing.
  Potenza, Maria T.; Stocking, Martha L.
  Journal of Educational Measurement; v34 n1 p79-96 Spr 1997
  ISSN: 0022-0655
  Language: English
  Document Type: JOURNAL ARTICLE (080); EVALUATIVE REPORT (142)
  Journal Announcement: CIJNOV97
  Common strategies for dealing with flawed items in conventional testing,
grounded in principles of fairness to examinees, are re-examined in the
context of adaptive testing. The additional strategy of retesting from a
pool cleansed of flawed items is found, through a Monte Carlo study, to
bring about no practical improvement. (SLD)
  Descriptors: *Adaptive Testing; *Computer Assisted Testing; *Item Banks;
Monte Carlo Methods; Test Bias; *Test Items
  Identifiers: *Flawed Items

 16/5/2
DIALOG(R)File   1:ERIC
(c) format only 1998 The Dialog Corporation. All rts. reserv.

EJ543873   CE530793
  Career Assessment with Lesbian, Gay, and Bisexual Individuals.
  Prince, Jeffrey P.
  Journal of Career Assessment; v5 n2 p225-38 Spr 1997
  ISSN: 1069-0727
  Language: English
  Document Type: POSITION PAPER (120); JOURNAL ARTICLE (080)
  Journal Announcement: CIJOCT97
  Sexual identity development and environmental factors are central to the
career assessment of lesbian, homosexual, and bisexual clients. Counselor
biases and biases in career assessment tools must be recognized and dealt
with. (SK)
  Descriptors: *Career Counseling; Environmental Influences; *Homosexuality

; *Lesbianism; Measures (Individuals); *Sexual Identity; Test Bias
  Identifiers: *Bisexuality; *Career Assessment

 16/5/3
DIALOG(R)File   1:ERIC
(c) format only 1998 The Dialog Corporation. All rts. reserv.

EJ541216   HE536582
  Educational Histories and Academic Potential: Can Tests Deliver?
  Yeld, Nan; Haeck, Wim
  Assessment & Evaluation in Higher Education; v22 n1 p5-16 Mar 1997
  ISSN: 0260-2938
  Language: English
  Document Type: EVALUATIVE REPORT (142); JOURNAL ARTICLE (080)
  Journal Announcement: CIJAUG97
  A new South African testing approach designed to assess potential
university students' ability to cope with English-medium academic education
is also designed to take into account the effects of educational
disadvantagement and minimize reliance on students' content-based secondary
school experiences. The approach incorporates principles from
constructivist learning theories. Preliminary results of the testing
approach are discussed. (Author/MSE)
  Descriptors: *Academic   Achievement;   Constructivism   (Learning);
*Educationally Disadvantaged; English; *English for Academic Purposes;
Foreign Countries; Higher Education; *Language of Instruction; *Learning
Processes; Learning Theories; Program Effectiveness; Secondary Education;
Test Bias; *Testing Programs; Test Use
  Identifiers: *South Africa

        The documents above have the descriptor TEST BIAS but not as a
major descriptor, and they make up fewer than half of the total number
of documents that have been indexed with this term. Clearly, these
documents are about test bias, but it appears that this is not a central
concept in any of them. If we look at the /MAJ set, though, we see the
following:

?*t 15/5/1-3*

15/5/1
DIALOG(R)File   1:ERIC
(c) format only 1998 The Dialog Corporation. All rts. reserv.

EJ546768   UD519986
  Equity and High Stakes Testing: Implications for Computerized Testing.
  Sutton, Rosemary E.
  Equity & Excellence in Education; v30 n1 p5-15 Apr 1997
  ISSN: 1066-5684
  Language: English
  Document Type: JOURNAL ARTICLE (080); POSITION PAPER (120); PROJECT
DESCRIPTION (141)
  Journal Announcement: CIJNOV97
  Considers equity issues of highstakes tests conducted by computer,
including whether this new form of assessment actually helps level the
playing field for students or represents a new cycle of assessment
inequality. Two computer tests are assessed: Praxis I: Academic Skills
Assessment; and the computerized version of the Graduate Record
Examination. (GR)
  Descriptors: Adaptive Testing; *Computer Assisted Testing; Educational
Assessment; Educational Testing; Secondary Education; Student Evaluation;
*Test Bias
  Identifiers: Graduate Record Examinations; *High Stakes Tests; Praxis

Series

 15/5/2
DIALOG(R)File   1:ERIC
(c) format only 1998 The Dialog Corporation. All rts. reserv.

EJ546752   UD519970
  The Overrepresentation of African American Children in Special Education:
The Resegregation of Educational Programming?
  Russo, Charles J.; Talbert-Johnson, Carolyn
  Education and Urban Society; v29 n2 p136-48 Feb 1997
  ISSN: 0013-1245
  Language: English
  Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)
  Journal Announcement: CIJNOV97
  Reviews the historical background of special education as a major factor
in the placement of many children with disabilities, and examines data that
reveal a disproportionately large number of students in these programs are
children of color. Suggestions are offered to help lead to a more equitable
placement of all children in appropriate educational settings. (GR)
  Descriptors: *Blacks; Educational Change; Instructional Improvement;
Minority   Groups;   School Community Relationship; *Special Education;
*Special Needs Students; *Student Placement; Teacher Education; Teacher
Recruitment; *Test Bias
  Identifiers: Individuals with Disabilities Education Act

 15/5/3
DIALOG(R)File   1:ERIC
(c) format only 1998 The Dialog Corporation. All rts. reserv.

EJ543826   TM520091
  Test Fairness: Internal and External Investigations of Gender Bias in
Mathematics Testing.
  Langenfeld, Thomas E.
  Educational Measurement: Issues and Practice; v16 n1 p20-26 Spr 1997
  ISSN: 0731-1745
  Language: English
  Document Type: EVALUATIVE REPORT (142); JOURNAL ARTICLE (080)
  Journal Announcement: CIJSEP97
  Presents two approaches to evaluating gender measurement bias in
mathematics testing, and discusses how to assess these approaches. The two
approaches are the study of internal test structure and external test
relationships. Ensuring a gender-fair test requires attention to both
areas. (SLD)
  Descriptors: *Mathematics Tests; *Measurement Techniques; Psychometrics;
*Sex Bias; Sex Differences; *Test Bias
  Identifiers: Internal Structure Analysis

     We see immediately that this is a very focused set. For a real
search, then, we may decide to begin with a controlled vocabulary term
or even limiting that to a major descriptor and then broaden out if
necessary. Of course, in practice, you do not have the time or
opportunity to know this kind of detail about terms, so you make your
best judgment about where to begin and then move up or down the ladder
as you see fit as the search progresses.

> Your initial choice of where on the ladder to start your search depends on your
> expectations of search outcome. How much material do you expect to find?
> Postings figures in the thesaurus, when available, can help you make this

> decision, as can personal experience and perhaps information from the user. -
> GW

SEARCH EXAMPLE

For the search example, we'll use (for the last time, I promise) the traumatic brain injury search. Now that we have all of these technical possibilities at our disposal, we can use them to create a high-quality search.
I should note a couple of things at this point:
This isn't a perfect search. There aren't any perfect searches. It's pretty good, and is the result of doing it and refining it many times over many years. Don't despair if you can't imagine coming up with something like this right now. (If you can, or did, you've found your career!)
It uses several different techniques, both controlled vocabulary and free text, and a few other things such as exploding. Not every search uses such a variety, but see how they all contribute.
Having said all that, let's proceed.

```
File  11:PsycINFO(R)  1967-1998/Jan
     (c) 1998 Amer. Psychological Asso.

    Set  Items  Description
    ---  -----  -----------
?ss brain damage and (injuries/df or trauma)

    S1    3973  BRAIN DAMAGE
    S2    1285  INJURIES/DF
    S3    5528  TRAUMA
    S4     171  BRAIN DAMAGE AND (INJURIES/DF OR TRAUMA)
```

This small set is a focused subset of documents with BRAIN DAMAGE as a descriptor; that term is used not only for traumatic brain damage but also (more commonly) for congenital brain damage. The parenthetical component restricts the set only to documents which include the one-word descriptor INJURIES or the word TRAUMA anywhere.

```
?ss head injuries or closed()head()injur?

    S5    1946  HEAD INJURIES
    S6    3722  CLOSED
    S7    8229  HEAD
    S8   10541  INJUR?
    S9     653  CLOSED(W)HEAD(W)INJUR?
   S10    2009  HEAD INJURIES OR CLOSED()HEAD()INJUR?
?s s4 or s10

           171  S4
          2009  S10
   S11    2134  S4 OR S10
?s children! or adolescents/df

        105632  CHILDREN!
         28016  ADOLESCENTS/DF
   S12  124526  CHILDREN! OR ADOLESCENTS/DF
```

I chose to explode CHILDREN, since it has several narrower terms, including INFANTS, and many of these narrower terms also have narrower terms. It's an economical way to get those documents. ADOLESCENTS, on the other

hand, has only two narrower terms, ADOLESCENT MOTHERS and ADOLESCENT FATHERS,
both of which have very few postings. Not worth the trouble.

?*s s11 and s12*

```
          2134  S11
        124526  S12
   S13     195  S11 AND S12
```
?*ss psychsocial or behavior/maj or neuropsycholog?*

```
   S14       1  PSYCHSOCIAL
   S15   67633  BEHAVIOR/MAJ
   S16   10683  NEUROPSYCHOLOG?
   S17   78066  PSYCHSOCIAL OR BEHAVIOR/MAJ OR NEUROPSYCHOLOG?
```
?*s psychosocial or s17*

```
         21585  PSYCHOSOCIAL
         78066  S17
   S18   97601  PSYCHOSOCIAL OR S17
```
?*s s13 and s18*

```
           195  S13
         97601  S18
   S19      71  S13 AND S18
```


      When doing this search for inclusion in this chapter, I made the error
you see in S14. I didn't catch it until too late, and was about to restart
the search so it would look perfect for the book when I decided to keep it to
demonstrate (a) that we all make mistakes like that, no matter how experienced
we get and (b) how to recover from an error like that. Note that I recreated
that concept set by ORing it with the correct spelling. Somebody else made
the same mistake I did (hence the 1 hit in S14), and that document is in S18.
      I took three different approaches with those three terms. PSYCHOSOCIAL,
as we have seen, is part of a descriptor, PSYCHOSOCIAL READJUSTMENT, but it
also was mentioned by itself by the user in her original request. Since it is
a fairly concrete and specific term, even in a psychology database, I chose to
search it as is. "Behavior" is a far broader concept, especially in a
psychology database, so I searched it very narrowly by restricting it to use
in major descriptors. I could have chosen specific descriptors and ORed them
together, but again the user gave us just that word, so I let it go to all
descriptors, yet limited it as best I could. Finally, I truncated on
NEUROPSYCHOLOG?, figuring any word beginning with a stem that specific (and
that long, for that matter) would be appropriate.

?*t 19/8/1-10*

 19/8/1
DIALOG(R)File 11:(c) 1998 Amer. Psychological Asso. All rts. reserv.

01115654   85-01830
 A typology of psychosocial functioning in pediatric closed-head injury.
 Major Descriptors: *HEAD INJURIES; *PSYCHODIAGNOSTIC TYPOLOGIES;
   *PSYCHOSOCIAL READJUSTMENT; *SEVERITY (DISORDERS)
 Minor Descriptors: ADOLESCENCE; CHILDHOOD; SCHOOL AGE CHILDREN
 Descriptor Codes: 22360; 41640; 41940; 46824; 00920; 08750; 45540
 Identifiers: typology of psychosocial functioning, 6-16 yr olds with
   mild vs moderate vs severe closed head injury
 Section Headings: 3290 -PHYSICAL & SOMATOFORM & PSYCHOGENIC DISORDERS

```
 19/8/2
DIALOG(R)File  11:(c) 1998 Amer. Psychological Asso. All rts. reserv.

01113060        35-71943
  Age  at injury as a predictor of outcome following pediatric head injury:
A longitudinal perspective.
  Major    Descriptors:     *AGE     DIFFERENCES;    *HEAD    INJURIES;
    *NEUROPSYCHOLOGICAL ASSESSMENT;  *RECOVERY (DISORDERS)
  Minor  Descriptors:   CHILDHOOD;  LONGITUDINAL  STUDIES;   SCHOOL  AGE
    CHILDREN
  Descriptor Codes:  01360; 22360; 33835; 43390; 08750; 28760; 45540
  Identifiers:  age  at  injury  &  recovery  from  pediatric head injury,
    children  injured  before  vs  after  7  yrs  of  age,  4  mo to 2 yr
    longitudinal study
  Section Headings:  3297 -NEUROLOGICAL DISORDERS & BRAIN DAMAGE;  2820 -
    COGNITIVE & PERCEPTUAL DEVELOPMENT


 19/8/3
DIALOG(R)File  11:(c) 1998 Amer. Psychological Asso. All rts. reserv.

01110231        84-42833
  Mild  head  injury  in  children  and  adolescents:  A  review of studies
(1970-1995).
  Major Descriptors:  *HEAD INJURIES;  *LITERATURE REVIEW
  Minor Descriptors:  ADOLESCENTS;  CHILDREN
  Descriptor Codes:  22360;  28580;  00950;  08830
  Identifiers:   neuropsychological  or  academic or psychosocial outcomes,
    children  &  adolescents  with  mild  head  injury,  literature review,
    1970-1995
  Section Headings:  3297 -NEUROLOGICAL DISORDERS & BRAIN DAMAGE


 19/8/4
DIALOG(R)File  11:(c) 1998 Amer. Psychological Asso. All rts. reserv.

01103462        34-78878
  Clinical  neurological  indicators  are  only  moderately correlated with
quantitative  neuropsychological  test  scores  in  patients  who  display
mild-moderate brain impairment following closed-head injuries.
  Major  Descriptors:  *BRAIN  DAMAGE;  *NEUROLOGY;  *NEUROPSYCHOLOGICAL
    ASSESSMENT;  *ORGANIC BRAIN SYNDROMES
  Minor  Descriptors:   ADOLESCENTS;   ADULTS;   CLINICAL  JUDGMENT  (NOT
    DIAGNOSIS)
  Descriptor Codes:  06780; 33740; 33835; 35670; 00950; 01160; 09620
  Identifiers:   reliability   of  qualitative  vs  quantitative  clinical
    neurological  indicators  &  neuropsychological  measures, 17-52 yr old
    patients with brain damage due to closed head injuries
  Section Headings:  3297 -NEUROLOGICAL DISORDERS & BRAIN DAMAGE


 19/8/5
DIALOG(R)File  11:(c) 1998 Amer. Psychological Asso. All rts. reserv.

01098489        34-76427
  Behavioural  adjustment  and  parental stress associated with closed head
injury in children.
  Major  Descriptors:  *BEHAVIOR PROBLEMS;  *PARENTAL ATTITUDES;  *STRESS;
    *TRAUMATIC BRAIN INJURY
  Minor Descriptors:  ADOLESCENTS;  ADULTHOOD;  CHILDREN;  MOTHERS
  Descriptor Codes:  05650;  36620;  50170;  54115;  00950;  01150;  08830
    ;  32140
```

```
    Identifiers:    parental   stress   levels  &  perception  of  children's
       behavioral problems at least 1 yr after injury, 24-50 yr old mothers of
       children (aged 4.5-15 yrs) who had traumatic brain injury
    Section Headings:  3297 -NEUROLOGICAL DISORDERS & BRAIN DAMAGE


 19/8/6
DIALOG(R)File  11:(c) 1998 Amer. Psychological Asso. All rts. reserv.

01064659          34-85262
  Applicazione  della Batteria Neuropsicologica Luria Nebraska nell'analisi
funzionale di soggetti con pregresso trauma cranico e coma. (Application of
the Luria-Nebraska Neuropsychological Battery in the functional analysis of
subjects with head injury and subsequent coma.
   Major   Descriptors:   *NEUROPSYCHOLOGICAL  ASSESSMENT;   *COMA;   *HEAD
      INJURIES;  *TEST RELIABILITY;  *FOREIGN LANGUAGE TRANSLATION
   Minor  Descriptors:  CHILDHOOD;   ADOLESCENCE;   ADULTHOOD;   SCHOOL AGE
      CHILDREN
   Descriptor Codes:   33835;   10450;   22360;   52250;   20130;   08750;   00920
      ;  01150;  45540
   Identifiers:   reliability  of Luria-Nebraska Neuropsychological Battery,
      male 10-22 yr olds with head injury & subsequent coma, Italy
   Section Headings:  2225 -NEUROPSYCHOLOGICAL ASSESSMENT


 19/8/7
DIALOG(R)File  11:(c) 1998 Amer. Psychological Asso. All rts. reserv.

01064566          34-70722
  Behavioral treatment of children after severe head injury: A pilot study.
   Major  Descriptors:  *TOKEN ECONOMY PROGRAMS;  *ADAPTIVE BEHAVIOR;  *HEAD
      INJURIES;  *COMA
   Minor  Descriptors:   SCHOOL  AGE  CHILDREN;   PRESCHOOL  AGE  CHILDREN;
      ADOLESCENCE;  CHILDHOOD
   Descriptor Codes:   53410;   00793;   22360;   10450;   45540;   40160;   00920
      ;  08750
   Identifiers:   token  economy  behavior  therapy,  maladaptive  behavior,
      5.9-15 yr olds with severe head injury & resulting coma
   Section Headings:  3312 -BEHAVIOR THERAPY & BEHAVIOR MODIFICATION


 19/8/8
DIALOG(R)File  11:(c) 1998 Amer. Psychological Asso. All rts. reserv.

01038990          83-17735
  Neuropsychological  deficit  and  academic  performance  in  children  and
adolescents following traumatic brain injury.
   Major  Descriptors:   *HEAD  INJURIES;   *NEUROPSYCHOLOGICAL ASSESSMENT;
      *ACADEMIC ACHIEVEMENT PREDICTION;  *COGNITIVE ABILITY
   Minor  Descriptors:   CHILDHOOD; ADOLESCENCE; FOLLOWUP STUDIES;  SCHOOL
      AGE CHILDREN
   Descriptor Codes:   22360;   33835;   00210;   10050;   08750;   00920;   20040
      ;  45540
   Identifiers:  neuropsychological testing, prediction of academic outcome,
      9-15 yr olds with moderate to severe traumatic brain injury, 1 yr
      followup, Australia
   Section Headings:  3297 -NEUROLOGICAL DISORDERS & BRAIN DAMAGE


 19/8/9
DIALOG(R)File  11:(c) 1998 Amer. Psychological Asso. All rts. reserv.
```

```
01030979          83-06998
  Differential   performances   on   the   WRAML   in   children   and   adolescents
diagnosed with epilepsy, head injury, and substance abuse.
  Major Descriptors:  *MEMORY;  *NEUROPSYCHOLOGICAL ASSESSMENT;  *EPILEPSY;
   *HEAD INJURIES;  *DRUG ABUSE
  Minor  Descriptors:   MENTAL   DISORDERS;   SCHOOL   AGE   CHILDREN;   BRAIN
   DAMAGED;  ADOLESCENCE;  PRESCHOOL AGE CHILDREN;  CHILDHOOD
  Descriptor Codes:   30570;  33835;  17680;  22360;  15220;  30740;  45540
   ;  06790;  00920;  40160;  08750
  Identifiers:   performance on Wide Range Assessment of Memory & Learning,
   5.9-17.9  yr  olds  with  epilepsy vs head injury vs substance abuse vs
   psychiatric disorders
  Section   Headings:    2225   -NEUROPSYCHOLOGICAL   ASSESSMENT;   3200  -
   PSYCHOLOGICAL & PHYSICAL DISORDERS


 19/8/10
DIALOG(R)File  11:(c) 1998 Amer. Psychological Asso. All rts. reserv.

00998391          82-25937
  Clinical    neurological    trauma    parameters    as    predictors    for
neuropsychological recovery and long-term outcome in paediatric closed head
injury: A review of the literature.
  Major  Descriptors:   *LITERATURE   REVIEW;   *HEAD   INJURIES;   *PROGNOSIS;
   *METHODOLOGY;  *NEUROPSYCHOLOGY
  Minor   Descriptors:    CHILDREN;    SEVERITY    (DISORDERS);    RECOVERY
   (DISORDERS)
  Descriptor Codes:   28580;  22360;  40830;  31140;  33840;  08830;  46824
   ;  43390
  Identifiers:   use of clinical neurological trauma parameters, prediction
   of  neuropsychological  recovery  &  long  term  outcome, children with
   closed head injury, literature review
  Section Headings:  3297 -NEUROLOGICAL DISORDERS & BRAIN DAMAGE
```

        These results are quite encouraging. Not perfect by any means, but
several look very good, especially the third one (a literature review). One
is in Italian, so I limited the set down to English:

?*s s19/eng*

    S20   67 S19/ENG

        and only eliminated 4 documents. Here are the titles of the first 25
documents, for your information.

?*t 20/6/1-25*


```
 20/6/1
01115654          85-01830
  A typology of psychosocial functioning in pediatric closed-head injury.


 20/6/2
01113060          35-71943
  Age  at injury as a predictor of outcome following pediatric head injury:
A longitudinal perspective.


 20/6/3
```

01110231   84-42833
  Mild head injury in children and adolescents: A review of studies
(1970-1995).

 20/6/4
01103462   34-78878
  Clinical neurological indicators are only moderately correlated with
quantitative   neuropsychological test scores in patients who display
mild-moderate brain impairment following closed-head injuries.

 20/6/5
01098489   34-76427
  Behavioural adjustment and parental stress associated with closed head
injury in children.

 20/6/6
01064566   34-70722
  Behavioral treatment of children after severe head injury: A pilot study.

 20/6/7
01038990   83-17735
  Neuropsychological deficit and academic performance in children and
adolescents following traumatic brain injury.

 20/6/8
01030979   83-06998
  Differential performances on the WRAML in children and adolescents
diagnosed with epilepsy, head injury, and substance abuse.

 20/6/9
00998391   82-25937
  Clinical   neurological   trauma   parameters   as   predictors   for
neuropsychological recovery and long-term outcome in paediatric closed head
injury: A review of the literature.

 20/6/10
00986554   82-14036
  Cognitive and psychosocial outcome after head injury in children.

 20/6/11
00963345   81-38159
  Motor, visual-spatial, and somatosensory skills after closed head injury
in children and adolescents: A study of change.

 20/6/12
00946741   81-22194
  Children's adaptive behavioural competence after head injury. Special
Issue: Issues in the neuropsychological rehabilitation of children with
brain dysfunction.

 20/6/13
00946740   81-22193

   Head   injury   during   childhood.   Special   Issue: Issues   in   the
neuropsychological rehabilitation of children with brain dysfunction.

 20/6/14
00938681   81-14248
   Premorbid emotional and behavioural adjustment in children with mild head
injuries.

 20/6/15
00934739   81-10353
   Predictors of outcome following severe head trauma: Follow-up data from
the Traumatic Coma Data Bank.

 20/6/16
00930845   81-07205
   Effects of intact versus non-intact families on adolescent head injury
rehabilitation.

 20/6/17
00930205   81-06413
   Multiple partial seizure-like symptoms following "minor" closed head
injury.

 20/6/18
00924261   81-00115
   The use of a rating scale of attentional behaviour.

 20/6/19
00918261   80-42034
   Cognitive effects of mild head injury in children and adolescents.

 20/6/20
00914535   80-38257
   Long-term outcome of head injuries: A 23 year follow up study of children
with head injuries.

 20/6/21
00893517   80-18385
   Head injured children and education: A need for greater delineation and
understanding.

 20/6/22
00881190   80-06343
   Comparison of families with and without adolescents with traumatic brain
injury.

 20/6/23
00873489   79-43783
   Cerebral correlates of disturbed executive function and memory in
survivors of severe closed head injury: A SPECT study.

```
 20/6/24
00869725          79-39816
  Premorbid  behavioral  and  psychosocial  adjustment  of  children  with
traumatic brain injury.


 20/6/25
00860380          79-31938
  Mechanisms   of   interhemispheric   transfer   and   patterns   of   cognitive
function  in  acallosal  patients of normal intelligence. Annual Meeting of
the Child Neurology Society (1990, Atlanta, Georgia).
```

Here is a summary of the complete search strategy:

?*ds*

```
Set     Items    Description
S1       3973    BRAIN DAMAGE
S2       1285    INJURIES/DF
S3       5528    TRAUMA
S4        171    BRAIN DAMAGE AND (INJURIES/DF OR TRAUMA)
S5       1946    HEAD INJURIES
S6       3722    CLOSED
S7       8229    HEAD
S8      10541    INJUR?
S9        653    CLOSED(W)HEAD(W)INJUR?
S10      2009    HEAD INJURIES OR CLOSED()HEAD()INJUR?
S11      2134    S4 OR S10
S12    124526    CHILDREN! OR ADOLESCENTS/DF
S13       195    S11 AND S12
S14         1    PSYCHSOCIAL
S15     67633    BEHAVIOR/MAJ
S16     10683    NEUROPSYCHOLOG?
S17     78066    PSYCHSOCIAL OR BEHAVIOR/MAJ OR NEUROPSYCHOLOG?
S18     97601    PSYCHOSOCIAL OR S17
S19        71    S13 AND S18
S20        67    S19/ENG
```

THE INTERNET

The most important thing to understand about searching using
Internet search engines is that the technique which is available to you
is far less sophisticated and powerful than Dialog or other commercial
search vendors. The databases involved are huge; most search engines
have indexed the full text of many tens of millions of Web documents,
and as such, the overhead involved in creating the kind of inverted file
we've been working with is unrealistic. So while most search engines
will allow you to do Boolean searches, you won't find, for example,
proximity operators. AltaVista does, however, have a NEAR operator,
which works like a (5N), finding target words within 5 words of each
other.

Two other important factors: first, the underlying documents are
encoded in HTML, so there is less information in that structure than in
a bibliographic document record--no author, maybe a title, and certainly
nothing like subject headings or abstracts, which gives you less to work
with as a searcher, and fewer opportunities to use sophisticated search
techniques in refining or polishing searching. Secondly, the type of
writing found in Web documents varies greatly: a great deal more
casual, metaphorical, ironic, and sarcastic usage, not to mention

terrible spelling, new words and new uses of old words (who would have
thought "spam", now used to describe unwanted email, would be so
common?). This means many more false drops, especially with words or
phrases with multiple uses.

On the other hand, if you have a really specific name or word or
phrase, use it. You can get better results in this environment than
perhaps anywhere else, taking advantage of these circumstances rather
than viewing them solely as problems. One of the most common reference
questions is "What is the other word in the English language, besides
"angry" and "hungry" which ends with -gry?" This is the sort of
question that drives reference librarians nuts, because there's no
really good way to look for it, other than a book of language
curiosities, or just knowing the answer from having dealt with the
question several times before.

The Internet is the ideal place to look for this. Do a search on
almost any search engine on the words "angry" and "hungry", and besides
some junk, you'll get several, perhaps contradictory, answers to the
quesiton. I answered a reference question for someone looking for an
old poem. He remembered a fragment of it from childhood (these are
horrible questions, too--invariably you get half-correct lines and these
poems are never in books, especially if they're Ann-Landers-type poems),
and it had the phrase "piddling pup" in it. I figured there couldn't be
that many documents on the Net with a phrase like that, so I searched
for it, and found exactly one, a page from Australia with the full text
of the poem.

Remember that most search engines work this way: if you enter
words in the search box and push the button, they'll be searched
together and you'll get documents back, ranked in order by some
proprietary (and therefore unexplained) mechanism, and the first ones
you see are allegedly the best. This is, for all intents and purposes,
a big OR, getting all documents which have any of the words you asked
for, and then ranking them by their frequency of occurrence, perhaps
giving higher weight to words in the title, <h1> tag, <meta> tag, or
early in the page.

the phrase "coconut milk" and prefer documents which also including
"recipe". I'd really prefer to truncate on "recipe", but not all
engines allow you to, while others will implicitly truncate unless you
specifically tell them not to.

These search engines continue to evolve, both in operation and
interface, so it pays to check the help pages, especially if you see the
front or search pages change, to see if the command language or
operation has also changed.

There is a lot of money to be made here. As the Internet becomes more
of a presence in lives and commerce, and as more people use and depend
on it for information, a search engine which consistently outperforms
others will be very popular, generate more business, get more traffic
and advertising, and make more money. All of a sudden, information
retrieval is big business. Therefore, there is a great incentive to
make these engines work as effectively as possible. Research in areas
such as computational linguistics, natural language processing, improved
categorization or classification, intelligent agents, and so on, might
well prove to make the difference, but so far, no one engine has emerged
as the obvious winner...yet. It would be nice to believe that
librarians and librarianship will be in on this, helping to design and

build technological assistants based on our traditions and expertise in
searching and understanding the needs of users.