CHAPTER 2
ELECTRONIC RESEARCH TECHNIQUES

ELECTRONIC RESEARCH BASICS

As recently as a few years ago, if you wanted to be considered a cutting-edge expert in computer-assisted-legal-research (CALR) you only had to learn to use Lexis and Westlaw. While Lexis and Westlaw are still the major CALR vendors, you must be able to make use of other electronic databases as well as the Internet to do minimally competent research.

The general theory of electronic research comes in twos. Electronic information resources come in two basic levels of completeness - either full text records or abstract/index records. There are two basic linguistic difficulties in finding information - synonymy and ambiguity. There are two basic approaches for overcoming those difficulties in finding information - either subject or keyword search methods. There are two basic measures of search efficiency - precision and recall. And there are two basic tools for improving search efficiency - Boolean searching and field searching.

Completeness

Electronic resources have varying levels of completeness. Some resources are full-text databases, for example, newspaper articles on the Baltimore Sun's web site at http://www.baltimoresun.com. Other resources are abstracts or indexes; a common example is an online library catalog. This type of resource does not provide the full text of the item, but provides varying levels of detail about the item, and citations for retrieving the full text. Some vendors provide databases of both types -- Lexis and Westlaw both have databases that are full-text and databases that are indexes only. Databases available on the Thurgood Marshall Law Library's web page come in different varieties – full-text, partial full-text, and index/abstract only. Some resources that have full text may only have that text for a limited period of time. Beyond that time frame you may have to pay a document retrieval fee or use a subscription database to retrieve articles. The level of completeness is a factor to consider when you choose a certain resource.

Structure

Databases also come with varying degrees of structure. For example, a library's catalog has limited records, but the information is in a highly structured format that makes it easy to search for items by subject heading, author, or title. The Internet can be considered a database with virtually unlimited records and with virtually no structure. The nature of the database dictates the methods that should be used to most efficiently search it. One of the first steps in successful electronic research is selecting the appropriate database and learning enough about the database to pick an efficient search method.

Linguistic Difficulties

In all research the searcher combats some basic linguistic difficulties - ambiguity and synonymy. Electronic research, especially full text, compounds these difficulties. When searching, you are normally looking for a concept, not a particular set of words. But one of the major tenets of "good" writing is to vary your words and find creative, new ways of expressing your ideas. Synonymy is the problem of there being many ways to express a single concept. For example, "sentenced to die," "death penalty," and "capital punishment" all express essentially the same concept. Probably you are in law school because you want to become something that can be called an attorney, a barrister, counselor, lawyer, litigator, or solicitor. Electronic research deals only with words, not concepts. To do comprehensive research, the searcher must account for the possible synonyms for the concept being sought. The flip side of the problem is ambiguity. Ambiguity is the problem of multiple concepts all being expressed by the same words. If you were to search one of the case law databases for "release" you would find criminal cases where the sentence was life without release, cases where a plaintiff signed a liability release, and cases about faulty auto brake releases.   A counselor could mean an attorney, but it could also mean a social worker; a solicitor could mean an attorney, but it could also mean a salesperson. Overcoming synonymy and ambiguity is a first step in effective research.

Efficiency Measures

There are two ways to measure effectiveness of your search. The first measure is precision, which means finding *only* what you want to find. A precise search for documents about attorneys would include the documents where "counselor" means attorney but exclude all the documents where it meant a social worker. The second measure is recall. Essentially this means finding everything that you want to find.   A search for documents about attorneys with good recall would find articles that use any of the words barrister, counselor, lawyer, or litigator. No one but the searcher can determine how precise a search needs to be or how comprehensive the search needs to be. At times a quick and dirty search that retrieves a few examples is all that is needed. At other times the research has to be as comprehensive as possible to retrieve every single case or item on point.

Two major tools exist in electronic research for increasing search efficiency. The first is Boolean searching. You have most likely used this at least occasionally when doing research on the Internet. This tool is also available in a much more sophisticated fashion on Lexis and Westlaw and on many other electronic resources. The second is field searching. This technique takes advantage of the structure of the database. It is available to a degree on the Internet, but is much more helpful in the more highly structured databases like Westlaw and Lexis.

Search Approaches

There are two basic ways you can approach finding information in electronic format - a

subject approach or a keyword approach. A common example of a subject approach is the old library card catalog. (Modern online library catalogs offer both the option to search by subject and the option to search by keyword.) A classic example on the Internet is Yahoo™ http://www.yahoo.com/ - the directory approach. When you search by subject, you search subject headings that have been assigned to an item as descriptive of the item's contents. Another example of the subject approach specific to legal research is the West Topic and Key Number system. The important thing to remember about the subject approach is that someone (or even a program) has analyzed the item and assigned a subject descriptor to it. This means that some of the work is done for you. For example, by doing a subject search for the heading "homicide" you would find items dealing with that subject even if the item uses the words "murder," "stab," "kill," or "fatally wound" without using the term homicide. Also, a subject search for the heading "homicide" would *not* retrieve an item about the filming of Homicide: Life on the Street. The subject approach is one way to compensate for the problems of synonymy and ambiguity. While some of the work is done for you, subject searching also means that you are depending on the work having been done correctly, and you are limited to subject headings assigned by somebody else.

When you search using the keyword approach, you are searching for any appearance of your search term. In full text databases this method searches for your term in the title field of the item, the text field, the assigned subject headings, and any other field in the item. The important thing to remember about the keyword approach is that it searches for *character strings* only, and does *not* search for concepts. This means that for whatever information you seek, you must decide what terms best describe it. Keyword searching is particularly helpful when the concept you seek is very new and has not yet had a chance to be incorporated into subject headings.

BOOLEAN SEARCHING

Boolean logic is used to construct search statements using logical connectors. This kind of searching allows you to relate multiple search terms together to more accurately express the concept you are seeking.

The three basic logical operators are

AND   terms on both sides of the connector must be present somewhere in the document in order to be retrieved (Some search engines use the plus symbol (+), some use the ampersand symbol (&) while others require that the connector be spelled out.)

OR   if one of the terms connected by the OR connector appears in a document, that document will be retrieved. (Some search engines spell out the OR connector while some interpret a space as an OR connector.)

NOT   documents containing the term after the NOT operator will not be retrieved. (Some search engines call this connector BUT NOT, some call it AND NOT, others use simply NOT or a minus sign.)

The NOT connector can be a very tricky connector to use effectively. It takes only one instance of a word to eliminate a document from your results set.

These three connectors are available in just about any electronic research tool. More sophisticated connectors are available on Lexis and Westlaw, and are also becoming more prevalent in Internet search engines as well. One limitation to the basic connectors is that they work on the entire document. If you want to find cases about attorneys committing malpractice, the search **attorney AND malpractice** is too broad. It will find cases that are about medical malpractice, but have the word "attorney" anywhere in the document - even if it is just a sentence saying "the plaintiff's attorney objected to the evidence."

Proximity connectors help with this difficulty. Common proximity operators are

WITHIN – search terms must be within a specified number of words of each other. There is a great deal of variation among the search engines with this connector. Some search engines call it NEAR, some allow "w/*n*" where *n* is the number of words, some offer "w/s" for within the same sentence, and some offer "w/p" for within the same paragraph.

PRE – the first term must precede the second term. Some search engines call it BEFORE, and some allow specifying the maximum number of words in between the search terms, e.g. **attorney pre/5 malpractice**.

ADJ – adjacency or phrase searching requires the terms to appear directly adjacent to one another and in the specified order. Some search engines use quotation marks to indicate phrase searching.

Most search engines have some methods for dealing with word variations.

1) A root expander (often the **!** symbol, but different engines may use different symbols) substitutes for any number of characters, e.g., **depreciat!** will search for depreciate, depreciated, depreciating, depreciation.

2) The universal character ***** stands for one character, e.g. **advis*r** will search for advisor or adviser. You can use more than one universal character in one word, e.g. **bl**d** will retrieve **blood** and **bleed**.

3) Many search engines, including both Lexis and Westlaw, automatically search for both the singular and regular plural forms of a word when you enter the singular form. Keep in mind that while Westlaw searches for both regular plurals - those formed by simply adding the letter "s" to the end of the word - and irregular plurals - for example, woman/women - Lexis searches only for regular plurals. When in doubt, enter both the singular and irregular plural, or use the root expander to pick up the different endings.

In all search engines, certain very common words such as **on**, **under**, **with**, will not be searched. Such words are called stop words, and each database has its own set of stop words. For example, the word "law" might be a useful term in a medical database, but it is so common that it might be a stop word in a legal database. For databases you use frequently, learn the stop words and avoid using those words in your searches.

Again, in all search engines, the order of connectors will dramatically affect your search results. A search in a job listing database for **attorney AND (Chicago OR New York)** is quite different than a search for (attorney AND Chicago) or New York.

The first search will retrieve job listings for attorneys in Chicago and for attorneys in New York. The second search will retrieve job listings for attorneys in Chicago, and all job listings in New York.

Every search engine, including those for Lexis and Westlaw, has its own "order of processing," the order in which it processes the connectors if you don't explicitly set the order. For the multitude of general search engines, the best strategy is to explicitly set the order of processing by using parentheses and to avoid combining too many different kinds of connectors.

FIELD AND SEGMENT SEARCHING

In most databases the records or items are divided into parts that reflect the divisions in the documents themselves. The more highly structured the database, the more parts each record will have. Westlaw and Lexis both have divided their documents into extensive fields or segments and a search using them could, for example, find all the Maryland opinions written by Judge Marvin H. Smith. Without being able to specify a field or segment, a search for such a common word as **Smith** would make the search very difficult. With field or segment searching, a document is only retrieved if **Smith** is located in the designated field. This type of searching also can be very helpful in law review databases by giving searchers the option of running keyword searches only in the titles of articles.

LEXIS AND WESTLAW BASICS

Lexis and Westlaw are established components of legal research. It is no longer cutting-edge to be proficient in using these databases; it is mandatory. The good news is that both Lexis and Westlaw provide extensive, highly structured law-focused databases, and offer sophisticated research mechanisms.

Some advantages to searching Lexis or Westlaw rather than the Internet:

* **Focused, reliable content.** Information on Lexis and Westlaw is focused on primary law and secondary materials that are helpful to the attorney. If you run a search on "habeas corpus" you won't be inundated with retrieved items (hits) that

are postings from inmates requesting assistance, or advertisements from attorneys who specialize in habeas corpus matters.

∗ **Search engines that index the *entire* database.** Unlike the Internet, where even the best search engines index far less than all of its contents, every document in these commercial databases is indexed.

∗ **Search mechanisms that remain consistent.** With Westlaw you will always need to put a phrase in quotes, and in Lexis a string of words will always be treated as a phrase. While there are differences between the two vendors, only two systems need to be remembered, not the multitude of search mechanisms available on the Internet.

∗ **Highly structured format.** Both these vendors provide organization to the document collection as a whole (sources or databases) and detailed organization within each document (segments or fields).

To take best advantage of these features it is essential to become familiar both with the organization schemes used by each vendor and with their respective search mechanisms. Before searching by topic or issue on Westlaw or Lexis, you must identify and select the subset of the documents in the system most likely to contain the sources you want. Selection of the appropriate pool of documents in which to run your search or searches can greatly enhance your research efficiency.

WESTLAW: ORGANIZATION OF MATERIALS

On Westlaw, documents are organized into databases. Each Westlaw database has an identifier. Once you have signed onto Westlaw, you click on the "Directory" link at the top center of your screen to see a list of general categories representing groupings of sources by type. This online directory is organized by general categories of materials: federal materials (cases, statutes, legislative materials, administrative regulations and other sources); state materials (the same types of materials on the state level, with the user's state listed first); "topical practice areas" which arranges documents by areas such as environmental law, bankruptcy and the like; law reviews, legal periodicals, and current awareness, which includes various secondary sources; and several other categories.

Each main category is divided into many subcategories that correspond to individual databases. Clicking on a category at each stage of the menu screen leads you further into the database directory until you reach the point of selecting the database you wish to search.

For any database, detailed coverage information, along with helpful search tips, can be obtained by accessing the "Scope" service. Click on the "i" (information) button next to the database name in order to access "Scope."

LEXIS: ORGANIZATION OF MATERIALS

Lexis provides a directory of "Sources" which is similar to Westlaw's Directory. From the "Sources" screen you may choose to use one of the last 20 sources you have previously used or to "Look for a Source" by browsing through the hierarchy. Broad categories of materials are displayed that can be narrowed by clicking on subcategories until the desired set of materials is reached. For search tips and scope information specific to each source, click on the "i" (information) button next to its name.

SELECTING DATABASES/SOURCES

The database/source you select for a search is dependent on a number of variables. A rule of thumb that is often heard is to initially select the smallest database containing the type of documents you're looking for, but this is dependent upon the circumstances. The following tips may provide guidance:

* If you are doing secondary source research at the beginning of a project, it might make sense to run a search in one of the combined secondary source databases that combine materials from journals, treatises, and A.L.R. rather than searching separate sources/databases for this information. Depending on your fee arrangement with the vendor, however, note that higher rates might be charged for searching in the larger, combined sources (see below).

* On the other hand, if you are researching a problem that is controlled by the law of a particular jurisdiction, it would be more reasonable to search for case or statutory law in a database that contains only materials from that jurisdiction, at least until you determine whether your research will necessitate an examination of persuasive authorities.

* Both systems provide databases of materials for specialized areas of law. Often these databases include portions of statutory or regulatory codes, or of reporters, that are relevant to a particular specialty area. These specialized databases can improve search efficiency, but should be used with caution to ensure that relevant materials are not being overlooked because they do not appear in the selected database.

* When doing statutory research, you can sometimes opt to use either an annotated (including references to cases and other materials as well as the statutory language) or unannotated (including the statutory language only) version of the code. Often the annotated code is a better choice because the terms actually used in the statute may not be those generally used when discussing a topic. For example, a particular term may not actually appear in the statute but the term may appear in the case annotations, so your search will retrieve the statute you seek. In other situations, the annotations may be so voluminous or the topic so broad that searching the annotated version creates a large retrieval of irrelevant items.

∗ Probably the most difficult selection decision is among the case law databases. Both Lexis and Westlaw provide numerous databases/sources containing cases from various combinations of courts.

For case law, Westlaw has introduced databases composed of only the headnotes from the cases covered (e.g. MD-HN, headnotes from cases in the MD-CS database) on the theory that search efficiency could be increased by limiting the text searched to the major points of law addressed in each case. Combining this and the Topic and Key number system allows the researcher to use a subject approach if they desire. Lexis offers the capability in some circumstances of combining sources for searching, although so many preset combinations are offered that this capability may not often be needed.

Make certain you are familiar with your institution or firm's billing arrangement with Lexis or Westlaw. Unless you have a flat fee arrangement, you may be billed at a higher rate for use of some large combined databases (for example, on Westlaw, any database whose identifier contains the term "ALL", such as ALLSTATES or ALLFEDS, is billed at nearly twice the rate of regular databases. Similarly, Lexis' combined sources (e.g. All Sources : Combined Federal & State Case Law - U.S. : Federal and State Case law) may be expensive to search. Even if a flat fee contract is in place, however, searching in a larger-than-necessary database/source may slow you down considerably due to the need to sort through superfluous documents. Also, frequent use of the larger databases/sources may be the basis for fee increases the next time your institution negotiates its contract.

COMPOSING LEXIS AND WESTLAW SEARCHES

There are two basic approaches to searching for documents on Lexis and Westlaw. Terms and Connectors searching combines search terms that describe your issue into a query using Boolean logic. The Boolean search mechanisms available on both services give a sophisticated set of proximity connectors beyond the standard AND, OR, and NOT. Conventional wisdom is that this is usually the preferred method of searching if comprehensive results are desired, that is, if your goal is to find all the cases or other sources on a topic. Natural language searching allows you to enter your query as an ordinary sentence or phrase. Natural language searching is usually regarded as more appropriate if you are looking for a sample of relevant cases or secondary sources as part of more general preliminary research. Some studies are showing that the two methods of searching produce comparable results.

Both Lexis and Westlaw publish manuals, some written expressly for law students, which provide extensive explanations and examples of techniques for online research. Copies of current editions of these manuals are usually available from the vendors' student representatives, or ask your instructor about availability.

Define your issues

Just as with general electronic searching, you must first determine the issues raised by your problem. If you generate your Internet search on-the-fly, the only cost is your time

and perhaps your connect charges. If you generate your Lexis or Westlaw searches on-the-fly you are incurring significant charges from the vendor as well. Identifying the legal issues involved may require some background reading and research. It is very difficult to formulate an effective terms and connectors search if you are unclear about what your issues are. Sometimes a natural language search can help you to find some background information.

Select search terms

Once you have a reasonably clear idea what your issues are, list the key terms, including synonyms, antonyms, and related concepts that could appear in an opinion or other document discussing your issue. For example, a medical doctor could be referred to as a doctor, physician, surgeon, or M.D. An opinion discussing the constitutionality of a statute could use "constitutional," "unconstitutional," or both.

When one inputs a terms and connectors search, Lexis and Westlaw search exactly what is entered. As sophisticated as the search mechanisms are, they still only search character strings, not concepts. Therefore you must: 1) spell terms correctly; 2) anticipate alternative terms; 3) write your search to pick up different word forms of your search terms. Natural language searching, on the other hand, will automatically look for alternative forms of words you have included as part of your search. However, neither Lexis nor Westlaw will automatically look for synonyms, antonyms, or related concepts in either type of searching.

They do, however, provide the searcher with access to a thesaurus that facilitates selection of additional words and phrases to add to either a natural language or terms and connectors search. On Westlaw, after selecting a database and typing in your search terms, but before running your search, click on "Thesaurus" on the query editor screen. You will see a list of terms related to or synonymous with the terms you entered. On Lexis, once you have selected a source and entered your search terms, click on the "Suggest Words and Concepts for Entered Terms" option.

Inclusion of a particular word or phrase within a terms and connectors search mandates that the word appear within a retrieved document *unless* that word is coupled with another in the search by the **or** connector or the rarely used **and not** of Lexis or **but not** of Westlaw. On the other hand, words and phrases included in a natural language search do not have to appear in every document retrieved. Rather, the documents retrieved are presented in order of statistical relevance, with those documents containing the greatest number of the least common words or phrases from the search being presented first. However, both Lexis and Westlaw allow the researcher to make particular words and phrases mandatory in a natural language search. Both systems recommend that this feature be used with great caution.

In terms and connectors searching on both Lexis and Westlaw, use root expanders and universal characters to include words with variant endings or spellings. On both Lexis and Westlaw, the root expander is the exclamation mark (!) while the universal character

is star (*). Neither system allows the use of these characters in natural language searching.

In both systems, certain very common words will not be searched, including a, an, as, on, under, with. Avoid using these words in your terms and connectors searches. In your natural language searches these words will be automatically excluded from your search.

To search for phrases using terms and connectors searching:

   ∗   On Westlaw, place the phrase in quotes: **"summary judgment"** or **"blood alcohol"**
   ∗   On Lexis, simply type the phrase: **last clear chance**

In natural language searching on both Lexis and Westlaw many, but not all, phrases will be automatically recognized and searched. However, to insure that a phrase is recognized, you should place it within quotation marks on both systems.

The two systems treat compound (hyphenated) words and acronyms (such as E.P.A.) somewhat differently. For detailed discussions, consult the manuals for the services. A useful strategy is to enter alternative versions of the term (e.g., **EPA or E.P.A. or "Environmental Protection Agency"**).

Relate your terms logically

The next step with terms and connectors searching is to use logical connectors to arrange your terms into ideas and concepts. The basic connectors OR and AND function the same on Lexis and Westlaw as on the Internet.

There are several other connectors that allow you to search for terms occurring in some proximity - and therefore presumably in some logical relationship - to one another in the documents.

> **/p** searches for terms appearing in the same paragraph;
>
> **+p** on Westlaw requires the first entered term to appear before the second entered term;
>
> **/s** searches for terms appearing in the same sentence;
>
> **+s** on Westlaw requires the first entered term to appear before the second entered term
>
> **/n** searches for terms appearing within n words of each other (n may be set as any number from 1 to 255). Example: **dog /5 bit!** retrieves **dog** or **dogs** within 5 words of **bite, bites, biting, bitten**;

and not (Lexis) and **but not** (Westlaw) exclude documents containing the specified terms (use **and not** and **but not** with extreme caution as it is easy to exclude relevant documents).

Order the connectors properly

Both systems process search terms and connectors in a specified order depending upon which connectors are used. Failure to understand the order in which connectors are processed by the computer can lead to unintended results and missing important documents. Following is the basic order of processing:

* OR is always processed first;
* proximity operators are processed next;
* AND is processed next, and;
* AND NOT or BUT NOT processed last.

Evaluate your search

Beginning online researchers often write searches that are long and complex and contain unnecessary or non-specific terms. Usually simpler searches are better, provided they contain the terms most likely to be used in the documents dealing with the issues. As noted above, if you are having trouble even getting started because of unfamiliarity with the topic to be researched, do some background reading, perhaps coupled with a natural language search.

When should you edit your search? Sometimes the cases you retrieve with your first query suggest other terms that should be incorporated in your search query. If your original search was too broad (retrieved too many citations or irrelevant citations), you can modify it by adding other terms after an "and" or a proximity connector. If your original search was too narrow (few or no citations), you can add terms (synonyms, antonyms, concepts) after an "or" connector.

Field Searching

All documents are divided into parts, called segments on Lexis and fields on Westlaw. Field searching can be used in terms and connectors searching, but not in natural language. Available segments or fields vary depending upon the type of documents in the source or database. From the search screen, you can identify the segments available for the documents in a particular source on Lexis by clicking on the plus next to "Restrict Search Using Document Segments" and the fields available in a particular database on Westlaw by clicking the blue arrow next to "Field Restrictions." One of the most useful segment limitations is to limit by date.

Typical segments or fields for case law include:

LEXIS	WESTLAW	

Name	Title	Parties to the case
Court	Court	Court that decided the case
Counsel	Attorney	Attorneys representing parties to the case
Number	Opinion	Docket number of the case
Cites	Citation	Citation of the case
Writtenby		Judge who wrote any portion of the opinion – the majority, dissent, or concurrence
Syllabus	Synopsis	Summary of opinion
Opinionby	Judge	Judge who wrote the majority opinion
Opinion	Opinion	Opinion of the court

Both services provide a list of database or source specific fields. To view this feature in Westlaw click on the arrow on the search screen next to "Field Restrictions." To see this list on Lexis click on the "Restrict Search Using Document Segments" option and then use the drop-down menu to see the available segments.

It takes practice to compose searches that are both effective (high recall of relevant documents) and efficient (minimal retrieval of irrelevant documents). Law school is the best time to gain this experience. Because terms and connectors searches are literal, they will not pick up documents with spelling errors, unanticipated variations in language, or that discuss concepts and facts analogous but not identical to your issues.

Natural language searching will sometimes overcome some of these limitations. However, it does much less than many researchers realize in automatically searching for synonyms and related concepts. Natural language searching through both Lexis and Westlaw is also preset to provide a specified number of documents in the result, 100 on Lexis and 20 on Westlaw, no matter how many or few there are of actual significance. While these numbers can be raised or lowered by the researcher, this preset result can still obscure the perspective the results of a terms and connectors search can provide. Nonetheless, a natural language search can often be a good starting point in an area unfamiliar to the researcher, especially if followed by a well-crafted terms and connectors search. More than that, however, most experienced researchers rely on a combination of online and manual research techniques to ensure comprehensive results.

QUICK TIPS FOR COMPOSING ONLINE SEARCHES

Terms and connectors searching

Select terms & connectors searching when you are familiar with the topic and its language/jargon and/or when you want a comprehensive search (e.g., case research).

Define issues

Analyze your facts - determine the legal issues raised by your problem.

Select search terms

* Identify key terms, along with alternative forms, synonyms, antonyms, and related concepts;
* Make sure all terms are spelled correctly;
* Truncate terms appropriately with the **!** or **∗** symbol to pick up variations in endings;
* On Westlaw, place a phrase in quotes; on Lexis, simply type the phrase;
* If you need help, use a legal dictionary or the online thesaurus.

Relate terms logically and order connectors properly

Use the logical connectors to arrange your terms into ideas and concepts. The most commonly used connectors are essentially the same on Lexis and Westlaw and include, in order of processing: **or**; **/n**; **/s**; **/p**; **and**; and **not/but not**.

If in doubt about order of processing, use parentheses to vary the prescribed order of processing to make sure your search retrieves the documents you intend. Terms enclosed in parentheses are searched first.

Select source (Lexis) or database (Westlaw)

You must first determine the controlling jurisdiction. Usually it is most efficient to begin searching in the smallest database containing mandatory authorities.

Limit your search to a field/segment and use date restrictions when appropriate

Search efficiency may be greatly improved by limiting your searches to particular segments or fields of the documents in the source/database you are searching, or by specifying a date or time period for your search result.

Run your search and evaluate your results

Browse the documents you have retrieved by looking for highlighted search terms in the text of the documents. Terms are automatically highlighted on Westlaw and one may move easily to points in documents at which search terms appear by clicking on the "Term" arrows at the bottom of the document screen. Use the KWIC - Key Word in Context - option on Lexis to view search terms within documents.

Use locate (Westlaw) or focus (Lexis) to look for specified terms within your search result

This can include terms that were not part of the query you entered.

Natural language searching

Select natural language searching when you are beginning a research project and are not yet familiar with the vocabulary, or when you need only a sampling of relevant documents. For example, natural language searching can be useful in locating secondary source materials that provide background on the subject of your research.

Define your issues

Analyze your facts. Run a natural language search first if unsure what search terms would create a successful terms and connectors search.

Decide how to express your search

You can express your natural language search as a question or simply as a string of words related to your legal concepts.
* Natural language automatically searches alternative forms of words you have included as part of your search.
* In natural language searching on both Lexis and Westlaw many but not all phrases will be automatically recognized and searched. You may put phrases in quotes to make sure they are searched as phrases.
* A thesaurus is available with natural language searching and should be used if you are uncertain about whether to add terms to your search.
* Unlike in terms and connectors searching, words and phrases included in a natural language search do not have to appear in every document retrieved. Both Lexis and Westlaw allow the researcher to make particular words and phrases mandatory in a natural language search.

Select your source (Lexis) or database (Westlaw)

You must have already determined the controlling jurisdiction. Usually it is most efficient to begin searching in the smallest database containing mandatory authorities.

Run your search and evaluate your results

Keep in mind that natural language search results are displayed differently than results of terms and connectors searches:
* Natural language searching in both Lexis and Westlaw is preset to provide a specified number of documents in the result. There may be additional relevant documents. You can change the number of documents retrieved at the initial natural language search screen.
* Results are not displayed in reverse chronological order, or with cases from the highest courts first. They are displayed in order of relevance as determined by the search engine.

INTERNET RESEARCH

The Internet as a research tool is both an astoundingly rich resource and an astoundingly frustrating one. The Internet cannot be ignored as a research tool, however. It falls to the searcher to be aware of its limitations.

The Internet is not nearly as structured as the databases from commercial vendors such as Westlaw and Lexis. Most Internet searchers use one of the many search engines as a means of finding information. Each search engine works a little differently, however, and those differences can affect search results. It is easy to think that when you've run a search in a couple of search engines that you've done a fairly thorough search. However, a comprehensive search is impossible on the Internet.

Probably the biggest difficulty with search engines is their lack of standardization. One search engine may treat a search for **attorney malpractice** as a phrase search, another one may treat it as a search for **attorney OR malpractice**, and a third may treat it as **attorney AND malpractice**. Again, there are too many search engines to spend time learning the peculiarities of each one. To learn how to maximize the effectiveness of a search on a particular search engine, click on the Help link, search tips, or advanced search instructions.

With all these negatives, why should a legal researcher use the Internet at all? The Internet can be a cheap alternative to the use of commercial databases such as Lexis and Westlaw for finding primary legal materials such as U.S. federal and state statutes, bills, cases, and regulations. Depending on the topic, some materials can be available more quickly on the Internet than on Lexis and Westlaw. The Internet can augment an average law library's resources by providing alternate copies of print materials, and information that cannot be found in the law library in print or electronic format.

This text can't go into an exhaustive list of Internet legal resources, but a sampling of what is available would include:

http://www.findlaw.com/
FindLaw, a Web portal focused on law and government, provides access to an online library of legal resources for use by legal professionals, consumers and small businesses. FindLaw's mission is to make legal information on the Internet easy to find.

http://www.fdsys.gov
The Federal Digital System disseminates official information from all three branches of the Federal Government. This site includes regulations, the *United States Code* and Presidential Documents.

http://thomas.loc.gov/
Extensive federal legislative information.

http://www.law.cornell.edu/

The Legal Information Institute offers extensive holdings of case and statutory law, and some administrative sources. Materials are arranged both by jurisdiction and by topic. Most of the case law is fairly recent - there are not full runs of court decisions.

http://www.asil.org/resource/home.htm

The American Society of International Law Guide to Electronic Resources for International Law.

STRATEGIES FOR INTERNET RESEARCH

Learn how your favorite research engines operate

There are a number of major Internet search engines. None of them use the same syntax for organizing search requests. Serious researchers are advised to select several, and familiarize themselves with their syntax.

Use more than one search engine for important projects

The various search engines do not index the Internet the same way and they do not rank the results of their findings the same way and as previously pointed out, no one engine covers more than a fraction of all the web pages. For this reason, you will want to use more than one. There are "meta search engines" that will send your search request to more than one search engine simultaneously.

Plan your searches

There is no surer way to waste time on Internet legal research than to cast about without a plan. Just as you would with Lexis or Westlaw make sure you:
1) define your issues;
2) analyze your facts;
3) decide how to express your search;
4) select the most relevant electronic resources to search; and
5) run your search and evaluate your results.

Evaluate reliability

In drafting a brief, would you cite and rely on the National Enquirer or a high school student's essay to support an important point? It's not that hard to identify and avoid the Internet equivalents. To evaluate the quality of an Internet site as a research tool, consider objectivity, expediency, timeliness, accuracy, authenticity, and scope.

Some considerations: Is the site free or fee-based? If it costs, are there any guarantees of quality control? Who is the author/publisher - government agency, university, organization, company, law firm, a good-hearted individual? What is the source of the data - who provided it and in what format? Was the original pagination of paper versions

retained? Is there an electronic signature to confirm authorship? What is the date of the web site/document? When was it last modified/updated? Is the document full text, index or abstracts? Is it complete or excerpted? Is the content of the electronic version as accurate as the print? Are there archives? How long is data retained at the web site? Broken links? Ease of navigation? Search mechanisms? How easy is the web site to access? Slow connections? Is information on the site stable? Is there a contact person? Are broken links quickly fixed?

If you have a choice of publishers for a document, choose the originator of the document such as a government agency, international organization or similar source. Rely on documents only where it is possible to verify date, authorship, and other indicia of authenticity.

Genie Tyburski, librarian for the law firm of Ballard, Spahr, Andrews & Ingersoll, has written an excellent guide to evaluating the quality of information on the Internet. This guide is available at http://www.virtualchase.com/quality/checklist.html and has been updated each year since its creation.