USING BOOLEAN LOGIC IN SEARCHES

Boolean logic is named after George Boole, a mathematician who lived in the mid 19th Century. Mr. Boole developed a method that allows us to compare individual bits of information and in doing so to refine search results. Stated simply a set of inputs are used and compared to another set of inputs. If the connector “and” is used to compare inputs then all inputs must be present for there to be an output. If the connector “or” is used then if any output is on then an output will be on.

In essence Boolean logic is a form of algebra in which all values are either “true” or “false”. This fits nicely with computer science because it fits with the binary numbering system used, where each bit has a value of either 1 or 0.

In online searching three connector words are used: “and”, “or” and “not”. These words are used to search databases for outputs matching the relationship between search terms connected by one of the Boolean connectors. When the work “or” is used then the set of results will consist of any work in the database that contains either one of the search terms used. When “and” is used then the results will be narrower because only those works containing both search terms will be returned.

Let’s say a search of a database is conducted where the user wants information about college. The user knows that she might find results using the search term “college” and/or the search term “university”. The user may search for records containing the work “college” or the word “university”. An initial search for records containing the word “college” can be represented by a circle. An initial search for records containing the word “university” can be represented by a second circle. If the two circles are moved so that part of the first circle overlaps part of the second circle that area in the middle that is in both circles represents results for the terms “college” and “university”. The total area under both circles represents results for the search “college” or “university”.

The diagram depicting the two circles is referred to as a Venn diagram. The third connector commonly used in database searching is the word “not”. This word is used when a user wants to get rid of a certain search term when she is trying to narrow down search results. The search would be structured A and B not C.

There are some good sites on the web that discuss Boolean logic and its use in electronic searching. A good place to go for a visual depiction of the process of Boolean logic is http://www.Kathyschrock.net/rabs3k/Boolean/. A good article on performing Boolean
searches online can be found at 

A user needs to remember that she is trying to find a reasonable number of relevant records when conducting a search. An online search of a database is not a contest to see who can find the most records. It does little good for a user to get 10,000 records from a search. No one can review that many records. Boolean connectors can be used to broaden or narrow a search as appropriate. Using the connector “or” will broaden a search while using the word “and” will narrow a search.

Two other concepts that will help a user refine searches involve the use of “proximity operators” and the use of “truncators”. Proximity operators allow a user to refine a search by searching for terms in records that are located within a specified distance of each other. The concept of “truncation” involves broadening a search by looking for various forms of a word. A user might want to find results for not only the term “drug” but also “drugged” or “drugs”. Truncators are symbols that command a search for various forms of a word.

A discussion of the above concepts can be found at
http://www.usg.edu/galileo/skills/unit04/primer04_10.phtml. A user can find other good sites by doing a Google search (or whatever search engine search is preferred) using any of the terms discussed in this short paper.