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 First bibliographic databases, then directories, other reference books, full text journal articles, and electronic books, online information systems became the norm for searching and retrieving a wide variety of content. Today it is difficult to imagine scholarly research without online resources., but early information retrieval works provided readers of the time with a first glimpse into a new world.

 Information retrieval is now seen as an interactive or social activity with the various situations and aspects of the user influencing overall system performance. The most common criticism of Boolean logic systems throughout the 1980s and 1990s was that end users had trouble understanding Boolean logic and thus query formulation is too difficult. Despite these concerns, Boolean logic remains the underpinning of most information retrieval systems today.

 In the 1970s and into the 1980s the information industry was a world of secondary publishers of indexes and abstracts who leased their bibliographic databases to third party vendors or large library systems. The bibliographic databases and early search

systems served as pointers to primary publications that remained in print containers such

as printed journals. Today secondary publishers and third party vendors both still exist,

but primary publishers are also electronic publishers and the lines between the three are

less sharply drawn. While bibliographic databases pointed to printed content; today's

content is most often completely digital. Therefore, in 1973 it was conceivable for an

online searcher to know the characteristics of every available online database; but today

they may know well just those few in a specific subject area or on selected search

services.

 While government agencies still produce major databases and search systems (for

example, the National Library of Medicine), the database industry now includes a

majority of commercial organizations and professional societies. Databases of today often have millions of records and extensive full texts. Visualization and clustering of search results help searchers cope when they retrieve thousands or tens of thousands of potentially relevant items. Many commercial online systems have added clustering or visualization techniques to their system displays recently after years of testing and development Add to that RSS feeds, podcasting, multimedia content and links to other software tools such as spreadsheets, bibliography management software, and online systems are at last beginning to go beyond the search and retrieval systems of the past decades.

 While nearly everyone does at least his or her own Web search engine searching today, the controversy comparing the effectiveness and efficiency of end user vs. professional searching has not gone away. Because now, except in some special library settings, it is expected that end users will do their own searching, the focus of concern has turned to improving reference encounters, more effective education or training sessions, and the design of better systems.