A Scholars’ Typology of Database Management Programs
Bryan Pfaffenberger

By the thousands, today’s scholars—people who do library research and teach or write about their findings—are discovering the personal computer. For many, the discovery begins with word processing, and a treasure trove it is. But there’s a great deal more. Just about everything that scholars do, including compiling bibliographies and managing file cabinets full of reading notes, can be done with a personal computer.

It’s no easy trick, however, to find the right software for scholarly applications, as any scholar who has selected a word processing program knows only too well. And that’s particularly true when it comes to database-management programs, or software for creating, searching, sorting, and printing files (that is, databases) of facts.

Scholars can use database-management programs for such applications as managing bibliographies, storing and retrieving reading notes, and assembling citations and notes for writing. They can, that is, if they can find their way through the software jungle and select, in the end, the right program. It’s all too easy to waste a great deal of time and make an expensive mistake.

Here’s some help for scholars who’d like to choose data management software without taking a sabbatical leave to research the market: a typology of the three kinds of database-management programs that best suit scholars’ needs.

If you’ve ever encountered a typology of database-management programs in a computer book or magazine, you were probably bewildered by it, and for good reason: these typologies are based on criteria of interest mainly to business people and programmers. We won’t speak, therefore, of relational vs. hierarchical database-management programs and other mysteries. Most of the programs that fall into these categories are unsuitable for scholarly applications: they don’t permit you to enter more than a line or two of text in a single data field, and some of them are complex enough to boggle the minds of computer whizzes.

Happily for scholars, programs that are specifically designed for the storage and retrieval of written material have been developed, and they can be sorted into three convenient categories: free-format information storage and retrieval programs, text-oriented file management programs, and idea processing programs. These programs are, on the whole, easy to use, and some of them are available for bargain prices. It should be noted, before going further, that some would, on technical grounds, restrict the term “database-management program” to precisely the big, complex, and expensive programs that this paper doesn’t discuss. I’m using the term here to comprise all those programs whose purpose it is to help people manage data, whatever technique is employed. And specifically, we’re interested only in those programs which are of special interest to scholars.
Free-Format Information Storage and Retrieval Programs

Most scholars will wish to buy a program that's specifically designed for the management of text. The most approachable of these programs is the free-format information storage and retrieval program (FFISR).

An FFISR lets you use a word-processing program to set up your database, and it imposes no restrictions whatsoever on how you write down the information you want it to contain (hence "free format").

SuperFile (FYI, Inc., P.O. Box 10998 #615, Austin, Texas 78766; $195) well illustrates this type of software. To create a database with SuperFile, you use your word-processing program to create a data file, a word processor-created disk file that contains as many records as you wish to write. To demarcate the individual records, you insert special signal characters, prefaced with an asterisk, to inform the program how to tell where one record ends and the next one begins.

Here's a typical SuperFile entry, the example being drawn from a bibliographic database. The "*C" marker tells the program that a data record begins; the "*E" marker tells it that the record has ended. The "*K" marker tells it where the subject descriptors, or key words, begin.

* C


Abstract: This short essay well summarizes the development of the classic, strife-torn "plural society"—a society marked by ethnic rivalry and conflict—after the rise of mass political participation in colonial Ceylon and, especially, after the island's independence. Particular attention is paid to the rise of nationalist political organizations (particularly S.W.R.D. Bandaranaike's Sri Lanka Freedom Party [SLFP]) among the island's dominant ethnic population, the Sinhalese, which led to the adoption of Sinhala as the country's "sole official language," much to the dismay of minority Tamil speakers.

* K

PLURAL SOCIETY / ETHNICITY / ETHNIC CONFLICT / COLONIAL PERIOD / INDEPENDENCE / TAMIL / SINHALA / SINHALESE / BANDARANAIKE / SRI LANKA FREEDOM PARTY / SLFP / 1958 RIOTS / LANGUAGE / LANGUAGE CONFLICT / SRI LANKA

* E

SuperFile, like most other programs in this category, searches only for the words you've listed in this special key word section. You may include up to 250 key words in each key-word field.

The fact that SuperFile places no restriction on the data record format (you can include anything within those *C and *E markers) makes the program versatile and useful for scholarly applications. In dramatic contrast to most database-management programs, you can insert all the text you want—up to 65,536 characters' worth, if desired—in a single data record. The program excels for such applications as maintaining databases of research lecture notes whose structure and length may vary depending on the nature of the material you're taking notes on.

SuperFile gives you a powerful set of searching options. You can construct a complex, well-focused search question using logical operators—the connectors AND, OR, and NOT—to form search questions such as "Show me all the data records that mention 'Sinhala' AND 'language conflict' but NOT the ones that mention '1958 Riots.'"
Text-Oriented File Management Programs

File management software (FMS) represents the next step up in complexity and power from free-format information storage and retrieval systems such as SuperFile. These programs do not require you to create a database with your word processor; instead, they have their own word-processing functions (which are rudimentary, but sufficient for their intended purposes) built in. The most important difference is that a file management program lets you design your own data record format, using a pattern of named data fields (such as, for instance, “author,” “citation,” and “annotation”) that appears on each data record.

File management programs that permit you to enter at least 1000 characters in a single data field are well-suited for bibliographic work. With one of these programs, you can define distinct data fields, and you can sort the records on any of them (you can sort your bibliography, for example, by author, by date, or by call number). Moreover, you don’t have to print the whole record or the whole database; you can print only the fields you want printed (leaving out, for instance, the annotations), and you can select just the records you want (for instance, just those records that mention “Buddhism” and “Sri Lanka”).

You can set up a bibliographic search and retrieval system with any file management program that permits you to enter at least 1000 characters in a single data field. Two kinds of file management programs are, however, especially well-suited to this application: Notebook and Bibliography, both published by Pro/Temp Software (2363 Boulevard Circle, Walnut Creek, CA 94595).

Notebook ($150) is a text-oriented database management system that’s almost in a class by itself. Designed for scholars and for scholarly applications, Notebook is a sophisticated file management program that’s specifically designed for the storage and retrieval of text. In its IBM PC version, Notebook permits you to enter up to 4000 characters in a single data field, and gives you the full panoply of FMS utilities (searching, logical operators, sorting, selection, and printing). Up to 32,000 characters may be entered in a single data record. It’s suitable, therefore, not only for bibliographic applications but also for the storage and retrieval of lecture or reading notes. The program, moreover, is exceptionally easy to use. [ED. NOTE: a new version of the program, Notebook II, significantly increases the speed and data-field character limits of Notebook.]

Here’s a sample Notebook data record containing the same data as the SuperFile record shown above:

```
KEY
:CITATION
:Vijaya 1977
:Vijaya, Samaranweera, “The Evolution
:of a Plural Society,” in K.M. de Silva (ed.), Sri Lanka:

ABSTRACT
:Abstract: This short essay well summarizes the development
:of the classic, strife-torn “plural society”—a society marked
:by ethnic rivalry and conflict—after the rise of mass political
:participation in colonial Ceylon and, especially, after the
:island’s independence. Particular attention is paid to the rise
:of nationalist political organizations (particularly S.W.R.D.
:Bandaranaike’s Sri Lanka Freedom Party [SLFP]) among the
:island’s dominant ethnic population, the Sinhalese, which led
:to the adoption of Sinhala as the country’s “sole official
:language,” much to the dismay of minority Tamil speakers.

DESCRIPTORS
:Plural society, ethnicity, ethnic conflict, colonial period,
:independence, Tamil, Sinhala, Sinhalese, Bandaranaike, Sri
:Lanka Freedom Party, SLFP, 1958 riots, language, Sri Lanka,
:language conflict

MAIN LIBRARY
:yes

READ YET?
:no

ORDER A COPY?
:no
```

Note that, in addition to the data fields we’ve discussed thus far, there are three new ones. With these fields, you frame the following search question: “Select all the records in which the field DESCRIPTORS contains SRI LANKA and LANGUAGE CONFLICT, the field MAIN LIBRARY contains YES, and the field READ YET? contains NO. This is a
handy tool indeed for making a well-organized library trip! File management programs, in short, give you more ways to retrieve information than free-format programs do, and you can frame far more precisely phrased search questions.

_Bibliography_ ($99): Notebook is of special interest to scholars, not only because it’s a particularly suitable FMS, but also because it’s designed to work with an ingenious ProTem product called Bibliography. Bibliography “reads” a manuscript you’ve created with your word processing program, finds the works you’ve cited in it, reads your Notebook database, and constructs an alphabetized list of the references you’ve cited. What’s more, it does so in any bibilographic format, including those required by academic journals.

**Idea Processing Programs**

Idea processing programs can, for our purposes, be considered a special kind of free-format information storage and retrieval program: the best of them let you write an outline, and under its subheadings you may store free-format textual information under the various headings and subheadings. What differentiates an idea processor from an FFISR is that you can impose a very complex, hierarchically structured framework on the free-format textual entries.

To illustrate what this means, let’s take a look at the idea processor par excellence: _ThinkTank_ (Living Videotext, Inc., 2432 Charleston Road, Mt. View, California 94043, $150). Here’s a _ThinkTank_ bibliography:

```
+ COMMUNAL STUDIES BIBLIOGRAPHY
  + THEORETICAL STUDIES
  + 19TH CENTURY COMMUNES
  + 20TH CENTURY COMMUNES
```

The plus signs (+) in front of the headings indicate that there is a subordinate heading (or headings) which may be visible or hidden from view. The hidden or collapsed, headings may be made visible if you wish. Here’s the result of opening, or expanding, the subheadings under “Theoretical Studies”:

```
+ COMMUNAL STUDIES BIBLIOGRAPHY
  + THEORETICAL STUDIES
    + 19TH CENTURY THEORETICAL STUDIES
    + 20TH CENTURY THEORETICAL STUDIES
    + 19TH CENTURY COMMUNES
    + 20TH CENTURY COMMUNES
```

The plus signs in front of these newly-exposed, third level headings indicate that there’s more stored under them, too. Here’s what the “20th Century Theoretical Studies” field looks like when expanded:

```
+ COMMUNAL STUDIES BIBLIOGRAPHY
  + THEORETICAL STUDIES
    + 19TH CENTURY THEORETICAL STUDIES
    + 20TH CENTURY THEORETICAL STUDIES
      + Abrams and McCulloch 1976
      + Armytage 1961
      + Bestor 1950
      + Holloway 1951
      + Kanter 1968
      + Kanter 1972
      + Kephart 1976
      [Etc.]
    + 19TH CENTURY COMMUNES
    + 20TH CENTURY COMMUNES
```
You're seeing a list of key words that provide a handy index to the bibliographic citations stored under them and, as well, give ThinkTank a way to alphabetize them. The program can sort any set of subheadings (subheadings of the same level under a single heading) in alphabetical order.

The citations themselves are stored in free-format textual entries under the key word subheadings. Here's an example of what happens when you expand or open the free-format textual entry under one of the subheadings:

<table>
<thead>
<tr>
<th>+ COMMUNAL STUDIES BIBLIOGRAPHY</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ THEORETICAL STUDIES</td>
</tr>
<tr>
<td>+ 19TH CENTURY THEORETICAL STUDIES</td>
</tr>
<tr>
<td>+ 20TH CENTURY THEORETICAL STUDIES</td>
</tr>
<tr>
<td>+ Abrams and McCulloch 1976</td>
</tr>
<tr>
<td>+ Armytage 1961</td>
</tr>
<tr>
<td>+ Bestor 1950</td>
</tr>
<tr>
<td>+ Holloway 1951</td>
</tr>
<tr>
<td>+ Kanter 1968</td>
</tr>
<tr>
<td>+ Kanter 1972</td>
</tr>
</tbody>
</table>


There's room for more than just a citation. ThinkTank permits you to place up to 20,000 characters (or 900 lines) of free-format text under any subheading of the outline. That's plenty of room for an abstract and even your reading notes. And the data file itself can take up the entire space on a floppy disk, or a large chunk of a hard disk, if you've got one. Note, however, that this nifty text storage feature is not available with the versions of ThinkTank available for the 128K Macintosh and PCjr.

Although ThinkTank gives you tools to restructure the patterns of headings and subheadings, it's most useful when the general framework for data storage is known in advance (as in the example). This program might be of interest for bibliographic purposes, therefore, when you're trying to get material (citations and reading notes) organized for a specific project, such as a book or dissertation.

Conclusions

Each of the programs we've discussed—free format information storage and retrieval programs, text-oriented file management programs, and idea processing programs—has particular strengths (and weaknesses):

- **SuperFile** is wonderful for storing large amounts of free-format text, but it gives you only limited tools for sorting and printing the information. That makes it preferable for storing reading notes, but it's less useful for bibliographies.

- **Notebook** gives you sophisticated tools for sorting and selecting data records on any of up to 20 data fields, but you're limited to 4000 characters per field for free-format text storage. That makes it useful for bibliographies, but less so for storing reading notes.

- **ThinkTank** gives you a way of imposing a complex, hierarchically-structured pattern of headings and subheadings on free-format text entries. The structure is so prominent, however, that the program is best used for organizing material for specific projects in which its overall structure is predictable.
And that's exactly why there's a good argument for having all three. Use Notebook for your bibliographic database; use SuperFile for your reading notes; and use ThinkTank to organize citations and notes for writing projects. The three programs together comprise a powerful and, what's more, an integrated system for scholarly information management.

The key to the integration of these three programs, or their ability to work together, is that all three can read standard ASCII disk files, meaning that you can easily incorporate material into a database. They can also write ASCII disk files, meaning that it's not difficult to exchange data among all three programs. An ASCII disk file is simply a file of information, stored on a disk, that contains nothing more mysterious than the American Standard Code for Information Exchange characters (letters, numbers, and punctuation).

You could use Notebook, for instance, to write an ASCII text file of bibliographic citations on a subject of interest. Then, you could use your word processing program to create separate SuperFile data records out of each citation, adding to them your SuperFile reading notes database. Next, after you've read the material and put your notes in the SuperFile database, you could use the program's powerful search facilities to retrieve (and write to a disk file) the notes relevant to a paper you're going to write. Finally, you could use ThinkTank to put the notes in a rhetorically logical order as you prepare to write the paper.

Database management, in sum, isn't just for people who have been initiated into the mysteries of procedural languages and relational database structures. It's for scholars, too. And you don't have to have corporate financial resources at your disposal (or a programmer's skills) to get involved in scholarly database management. For what you'd have to pay for one business-oriented, relational database program, you can buy all three of the gems I've discussed in this article. For your money, you'll get an integrated software package that's superbly suited to the work you're doing every day.

[ED. NOTE: Dr. Bryan Pfaffenberger is a writer and anthropologist who's currently on leave from his teaching post at Knox College. He's the author of The College Student's Personal Computer Handbook and Macintosh for College Students, both published by Sybex Computer Books (2344 Sixth St., Berkeley, CA 94710). He's currently working on a book called The Electronic Scholar, which will be published by Little, Brown and Co. Comments or questions are welcome: send all inquiries to Dr. Bryan Pfaffenberger at 3856 Longmeadow Way, Ft. Worth, TX 76133.]

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**Position in Applied Linguistics**

Teachers College, Columbia University, has a tenure-track opening for an applied linguist at the level of Assistant/Associate Professor. The major responsibilities of this position will be (1) to teach basic courses in the graduate program in applied linguistics (these courses also service related programs such as TESOL, English Education, Bilingual Education, The Teaching of Writing, and Language and Reading); (2) to direct dissertation research in the various areas of applied linguistics; (3) to direct and obtain funding for a program in computers and language teaching. Anyone who wishes to apply for this position must have a doctorate with a specialty in applied linguistics and substantial experience in using computers in language teaching. Applications are especially encouraged from those who have taught in multicultural classrooms, worked in teacher-training programs, and published research in applied linguistics. Please send a letter and vita by February 15, 1985, to Professor Clifford Hill, Program in Applied Linguistics, Box 665C, Teachers College, Columbia University, New York, New York 10027.
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Call for Papers: IEEE-ASEE Frontiers in Education Conference

New research in the humanities and other disciplines is breaking faster than engineering education can absorb it. Sponsored by the Institute for Electrical and Electronic Engineers and the American Society for Engineering Educa-
tion, the October 19-23, 1985, conference—to be held at the Colorado School of Mines in Golden—will attempt to close the gap between research and education. January 21, 1985, is the deadline for submitting 200- to 500-word abstracts. Completed papers will be due July 1, 1985, and will be published in the Conference Proceedings. Contact Prof. Bill Astle, Mathematics Department, Colorado School of Mines, Golden, CO 80401.

Association for Computers and the Humanities

As its name implies, the Association for Computers and the Humanities monitors the applications of computers in the various humanities disciplines. American memberships are $15.00, which includes the quarterly ACH Newsletter. An annotated bibliography section of the newsletter is entitled "Word/Writing Process News." For $25.00, members can also subscribe to Computers and the Humanities, an international journal. Contact Donald Ross, Jr., Secretary, ACH, Dept. of English, 216 Lind Hall, Univ. of Minnesota, Minneapolis, MN 55455.

Humanities Communication Newsletter from England

A free subscription to the Humanities Communication Newsletter is available by writing to Dr. May Katzen, Office for Humanities Communication, University of Leicester, Leicester, UK LE1 7RH. Published irregularly as a monthly, the newsletter reports primarily on English computer applications and research in the humanities, but includes some American research as well. Its third issue was published in November 1984.

Call for Papers: Association for Computing Machinery

The Association for Computing Machinery (ACM) will hold its annual conference in Denver, Colorado, on October 14-16, 1985. Word-processing research and applications to writing will be considered in the call for papers, panels, and tutorials—underway until February 15, 1985, when proposals are due. Contact Dr. Judith D. Schlesinger, Program Chair, ACM '85, P.O. Box 24102, Denver, CO 80224 or call (303) 758-2951.

Conference: American Society for Information Science

The Special Interest Group for the Arts and Humanities of the American Society for Information Science will focus on scholarly applications of databases and database management software in the arts and humanities at the ASIS annual convention to be held October 20-25, 1985, at the MGM Grand in Las Vegas, Nevada. Abstracts of 250-300 words and personal bibliographies are due immediately, but final papers won't be needed until the end of March, 1985. At his new address, contact Ralph Dumain, Editor, SIG/ASH Newsletter, American Society for Information Science, 302 E. University Parkway #1, Baltimore, MD 21218, or call (301) 889-6017.

Apple Education News

The quarterly Apple Education News offers news about computer applications in the classroom and the availability of Apple-related software for teaching. A no-cost subscription is available to educators. Contact Sue Talley, Editor, Apple Education News, Apple Computers, Inc., 20525 Mariani, Cupertino, CA 95014.
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Bibliography Update


——. "Bibliography Programs for Humanities Scholars." MLA Newsletter. 15:3 (Fall 1983), p. 6.


Woolston, Donald C. "Incorporating Microcomputers into Technical Writing Instruction." Engineering Education. 75:2 (November 1984), pp. 88-90.

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Textra Extra

In the September ‘84 issue of the Newsletter we reviewed Textra, a powerful, inexpensive word-processing package published by Ann Arbor Software. Well, AAS’s president, Scott Anderson, and company have made Textra even better since then. Here’s a rundown of the added features—and decreased price.

- directory support
- print selected lines and/or pages
- print letter and envelope prompts
- expanded page-numbering options
- enhance (bold and underline) text blocks
- set all text and command-line colors
- WordStar/Textra/ASCII conversion programs
- full online HELP facilities (user-creation supported)
- revised users’ manual

In addition, a number of other time-saving keystroke improvements have been made. And another important point—Textra now costs only $49.95. That’s right! Finally, a bargain becomes even more of one. In addition, educational institutions should contact Scott for information about site licensing for Textra.

When we reviewed Textra, a few errors made their respective ways onto our data disk. Here’s a formal apology and correction:

1. Textra does support boldering (see “Merge”)

2. Textra does not support proportional spacing or right justification (but it will soon, we’ve been told).

3. Ann Arbor Software’s address is as follows:

   407 N. Main
   Ann Arbor, MI 48104
   Phone: (313) 769-9088

Add an enhanced major-upgrading policy and friendly, helpful support people, and you have a program that—pricewise and featurewise—is nearly perfect.

WordStar Tips and Tricks

For those of you who use Micropro’s WordStar, a feature that you might not know about significantly speeds up any find/replace operation you might perform. Even when you specify “G” (global) “N” (no prompting) after your ‘QA command (‘QAGN), you still have to sit and watch the program’s cursor clunk away at your text—unless, of course, you turn off your monitor and go get a snack. The way to expedite changes, and to avoid the snailish pace of find/replace, is to do the following:

Immediately after entering ‘QAGN, tap the spacebar once. You will see the cursor freeze on your screen, then shortly thereafter flash to the end of your file—all corrections having been made in much less time than if you let WordStar control the speed.

While the time savings might not be great for shorter documents, it is for longer pieces. Try it!
International Database Conference Set for Grinnell College

The International Conference on Data Bases in the Humanities and Social Sciences will be held June 22-24, 1985, at Grinnell College in Iowa. Made possible in part by a grant from the Ewos Education Foundation and sponsored by various organizations in the field, the conference has attracted hundreds of scholars from around the world who will "share information about creating, using, and maintaining data bases in the humanities and social sciences."

Applications of data-base technology to academic-writing programs include the University of Cincinnati's Raj Singh on "Softsearch: A Microcomputer Data Base for Freshman English Composition Specialists," but far more papers and presentations address the needs of scholars involved with literary research and linguistics. The $125 registration covers expenses such as meals and the published proceedings, and residence hall rooms will be available for $8-$12 per night for each individual. Contact Thomas E. Moberg, ICDBHSS/85 Coordinator, Grinnell College, Grinnell, IA 50112-0810.

International Council for Computers in Education

Since 1974, the non-profit International Council for Computers in Education has monitored computer applications at all educational levels. Its journal, The Computing Teacher, especially provides information for "precollege educators who are making instructional use of computers or who are concerned with how computers are affecting the content and process of education. Each issue contains information of use to the beginner as well as to the more experienced computer user."

The Computing Teacher also features articles, software reviews, book reviews, film reviews and special columns, including Computers in the Teaching of English and Computers in the Arts and Humanities. The annual U.S. membership rate of $21.50 includes a subscription to The Computing Teacher, which is published nine times a year, August to May. Various other books and instructional materials are also available, including Robert Shostak's 1982 Computers in Composition Instruction. Contact ICCH, University of Oregon, 1787 Agate Street, Eugene, OR 97403.

Manuscript Submissions Welcome

The newsletter welcomes from our readers article submissions which pertain to word-processing applications in academic writing. Manuscripts should be OCR readable (Courier, Letter Gothic, or similar letter-quality typefaces) or may be submitted on disk using WordStar, Leading Edge WP (1.xx), Microsoft Word, or standard ASCII code in IBM-PC DOS (5¼" diskette; 1.xx, 2.xx, or 3.0) or CPT 8500 (8" disk) formats. All manuscripts should include a short biographical sketch. The Editors reserve the right to edit articles, if necessary. If you want your manuscript returned, please enclose a stamped, self-addressed envelope with your submission. Address all correspondence to the Editors, Research in Word Processing Newsletter, Liberal Arts Department, South Dakota School of Mines and Technology, 500 E. St. Joseph, Rapid City, SD 57701-3995.

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