

This research retrieval system, currently in experimental usage, permits the flexible entry of data, allows use of data editing routines, facilitates high-speed access through field indexes, and offers the user a simple English-like language with which to interrogate and manipulate computer files.

SUMMARY

We have discussed in this paper an approach to the rather difficult task of real-time retrieval of information filed away against complex character strings, in this instance rapid access to drug information by way of drug name. The approach has been a phonetic indexing pro-

cedure, which not only detects spelling errors, but actively seeks to be helpful and suggestive to the user.

An experimental research-oriented retrieval system of programs has been described wherein the researcher has been afforded the ability to converse with the computer in a reasonably natural language, in terms which the researcher himself has stipulated. In this system, the possibility of indexing items by selected information fields permits the much more rapid search technique of matching lists of item addresses, as opposed to linear item-by-item scans.

The Time-Shared system, with rapid program intercommunication, further permits the researcher to send the tabular results of his searches to an on-line, real-time mathematical program, with which the researcher may then analyze his data.

Rapid Structure Searches *via* Permuted Chemical Line Notations. IV. A Reactant Index

ALAN GELBERG

Diamond Alkali Company, T. R. Evans Research Center, Painesville, Ohio 44077

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Previous publications in this series have discussed the concept of permuted Wiswesser chemical line notations (1) and methods of preparing a permuted index (2, 3). The applicability of this technique has been extended to develop a reactant index. The line notations of the chemical reactants that formed the chemical products were added to the punched cards which contained the notations of the reaction products. These notations easily fit within a 60-column field of the 80-column punched card. Also, there is available space, in this field, for indicating the catalyst and the preparation conditions. There is no need to permute these last two items, but they can appear in the index as part of each notation entry.

It has been found that an input of 1050 punched cards containing the notations of the products and reactants generated a permuted record count of 10,068, or 9.6 lines of print per punched card entry. This is in contrast to 5.5 lines for the products alone, as previously reported (3), which had included the R symbol (phenyl ring) as well as an experimental use of maximum contraction (4). For this study, the "Revised Rules" (5) were followed. The R symbol was not made a separate line entry. Also, after the entry of the first G symbol (chlorine atom) in a notation card, additional G symbols were not entered as separate line entries. However, both the R and multiple G symbols were included in the Quick-Scan area (3). The R and G symbols are the most frequently occurring groups in this file and have been found to be useless

index search terms. Wiswesser analyzed the frequency of occurrence of symbols in 66,660 notations of chemical structures and reported the R as being the most frequently occurring symbol after the space, while the G symbol placed 19th out of 41 characters (which had included 26 letters, 10 numbers, 4 symbols, and the space). However, it appears that he included locants in this table as well as multipliers (6). All of the G and R symbols appearing in the notations are of value in the Quick-Scan area and serve a useful purpose for browsing before reading the total notation. The Quick-Scan symbols are now alphabetized, as suggested by Sorter (7), rather than being listed in their order of appearance in the notations.

For the forementioned deck of cards, the card-to-tape input time was 78 minutes for the IBM 1401. The computer sorting time was 35 minutes to alphanumerically organize the 10,068 records. Listing, to create the index, took 22 minutes. At an estimated cost of \$52.00/hour operation time, each line entry cost about \$0.013, or approximately \$0.125 for each punched card.

The new index has enhanced the utility of this overall program since it now allows the user to rapidly locate all products from specific or similar starting materials. This is in addition to locating all compounds having the same functional group and rings (other than phenyl) as well as locating specific and similar structures. It is also of value in organizing composition of matter patents. The possibility of further developing this method to a reaction

index, wherein functional group reactions can be indexed, is being considered. It appears likely that format and program modifications may be required to accomplish this approach. However, the notation will still be the key to identify the functions and the structures.

LITERATURE CITED

- (1) Sorter, P. F., Granito, C. E., Gilmer, J. C., Gelberg, A., Metcalf, E. A., *J. Chem. Doc.*, **4**, 56 (1964).
- (2) Granito, C. E., Gelberg, A., Schultz, J. E., Gibson, G. W., Metcalf, E. A., *ibid.*, **5**, 52 (1965).
- (3) Granito, C. E., Schultz, J. E., Gibson, G. W., Gelberg, A., Williams, R. J., Metcalf, E. A., *ibid.*, **5**, 229 (1965).
- (4) Granito, C. E., Gelberg, A., unpublished independent studies.
- (5) Smith, E. G., "Revised Rules of W. J., Wiswesser's 'Line-Formula Chemical Notation,'" (copyright 1965), to be published. For further information, contact Professor Smith, Mills College, Oakland, Calif.
- (6) Wiswesser, W. J., *CWIK List News* (October 1965).
- (7) Sorter, P. F., private communication.

DREXEL LIBRARY SCHOOL ADJUNCT FACULTY

Eleven adjunct faculty members will be teaching at the Graduate School of Library Science, Drexel Institute of Technology, during the Winter Quarter, 1966, announced John F. Harvey, Dean. Four of them will teach in the Information Science program and seven in Library Science.

The adjunct instructors in library science include Donald Riechmann, Howell Heaney, and Clifford Crows, all of the Free Library of Philadelphia; Jay Lucker of the Princeton University Library; and Assistant Professor Saul Herner of Herner & Co., Washington, D. C.

Information science adjunct faculty include Associate Professor Isaac Welt, American University Center of Technology & Administration, Washington, D. C.; Instructor Fred Whaley, *Engineering Index*, New York; and Instructor Roger Sission, Moore School of Electrical Engineering, University of Pennsylvania.

Special courses offered in the Winter Quarter include Medical Librarianship, taught by Robert Lentz, Jefferson Medical College Library; Law Librarianship, taught by Morris Cohen, University of Pennsylvania Biddle Law Library; and Search Strategy, taught by Visiting Associate Professor Claire Schultz, Institute for the Advancement of Medical Communication, Philadelphia.

GOVERNMENT PUBLICATIONS WORKSHOP

A workshop on the Acquisition and Organization of Government Publications will be held on May 11-13, 1966, cosponsored by the Graduate School of Library Science, Drexel Institute of Technology, and the Pennsylvania Library Association. Kathryn Oller, Associate Professor at Drexel, will be the Director.

The Workshop will be concerned with methods of acquiring government publications from the various governmental and commercial agencies and with selection aids and check lists of materials. It will also cover the problems of organizing such publications for effective use, including cataloging, the value of published indexes and check lists, the separate versus the dispersed collection, classification systems, processing and shelving, and records and routines.

Visits are planned to depository collections of U. S. documents and United Nations documents within the Philadelphia area, as well as other well-organized collections. Opportunity will be given for work with documents and consideration of special problems.

SLA TRANSLATIONS CENTER

For the tenth consecutive year the National Science Foundation has awarded the Special Libraries Association's Translations Center a grant of \$46,930 for partial support of the Center's operations. The Clearinghouse for Federal Scientific and Technical Information, National Bureau of Standards, U. S. Department of Commerce, has also renewed its contract with the Association for the fiscal year 1965-1966. Under this agreement the Translations Center will provide the government agency bibliographic citations and subject analysis for the 5,000 or more translations that it is collecting annually from nongovernmental organizations in return for an amount not to exceed \$27,600.

Located at The John Crerar Library, 35 West 33rd St., Chicago, the SLA Translations Center is a depository and information center for published translations into English from the world's literature on the natural, physical, medical, and social sciences and their related technologies. After 13 years of steady growth, its collection now totals more than 108,390 translations, which have been donated by scientific and professional societies, industry, business, universities, and other nongovernmental institutions in the United States and abroad. As a nonprofit, cooperative organization, the Center's objectives are to help eliminate costly duplication of translation effort and to disseminate copies of translations and information about them. All translations received by the Center are listed in *Technical Translations*, the semi-monthly publication of the Clearinghouse.

PEOPLE

KARL F. HEUMANN has accepted a position with the Federation of American Societies for Experimental Biology, 9650 Wisconsin Ave., Bethesda, Md. 20014. Dr. Heumann was the director of the Office of Documentation, National Academy of Sciences, National Research Council.

PHILIP E. MANGAN has been appointed Examiner-in-Chief in the Patent Office. His appointment as an Examiner-in-Chief makes him a member of the Board of Appeals of the Patent Office of the U. S. Department of Commerce. This tribunal, which is composed of the Commissioner of Patents, Assistant Commissioners, and the Examiners-in-Chief, reviews adverse decisions of examiners on patent applications. Mr. Mangan has served for the past three years as Director of the Chemical Examining Operation. Prior to that he served as an Acting Examiner-in-Chief, Supervisory Primary Examiner, and Assistant Chief.