Centre for Computing in the Humanities University of Toronto 1.4 (December 1987)

Ontario Humanities Computing is produced for the Ontario Consortium for Computers and the Humanities by the Centre for Computing in the Humanities at the University of Toronto. We welcome news and notes concerning relevant activities in any institution of higher education in Ontario or elsewhere in Canada. Address all contributions and corrections to Willard McCarty, Editor, Ontario Humanities Computing, Robarts Library, 14th Floor, 130 St. George Street, Toronto, Ont. M5S 1A5, or by e-mail to cch@utorepas.bitnet, or in person to any of the OCCH representatives listed on the last page.

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OHC was prepared with The FinalWord II on an IBM PS/2 Model 50, previewed on an Apple LaserWriter, and printed on a Linotron 100 typesetter at the University of Toronto Computing Services. Our thanks go to IBM for its generous support of humanities computing through the Co-operative Agreement with the University of Toronto.

President's Report

The Ontario Consortium for Computers in the Humanities (OCCH) held its first Board of Directors meeting on 14 November 1986. In the short year since then, the OCCH has kept its promise to provide a series of informational, educational, and technical services to encourage the use of computers in the humanities. It has done so chiefly in five ways: through the *Ontario Humanities Computing* newsletter, the electronic database and printed *Directory* of computing scholars in Ontario, the series of 12 "Seminars and Workshops in Natural Language Computing" it co-sponsored last June, and the sharing of machine resources it was able to initiate and co-ordinate at five Ontario universities.

OCCH has effectively helped to establish and expand communication among colleagues, groups of scholars, and faculties throughout the province. Increased communication has in turn encouraged many humanists to pursue their own computer-related teaching and research, to envisage new projects, or simply to establish contacts in the field. These humanists have become part of a growing, inter-university community of scholars keen to develop computer-oriented educational and research activities, to pool resources, and to exchange information.

The success the Consortium has experienced in its first year of full operation can be attributed partly to the enthusiasm and hard work of its Board members and other colleagues and partly to the moral and financial support of the 16 member institutions. The OCCH is a grass-roots organization that has grown out of a real need for the services it now provides. These continue to benefit the scholarly community. We are planning a number of new activities and extensions of ongoing projects. These include, for example, organizing a new series of workshops, increasing the circulation of the *OHC* newsletter, updating our electronic database, publishing a user's guide to networking and a revised *Directory*, coordinating additional equipment and resource sharing between universities, and setting up a documentation centre and a non-commercial distribution facility for academic software.

In order to function efficiently and effectively in what is now our second year of operation, we need the support of all our member institutions. During the next few weeks your representatives will be asking the appropriate authorities to continue their support. As in the past this means assuming responsibility for sending representatives to meetings of the Board of Directors, making a small financial contribution to our annual operating budget, and donating human and technical resources to the Consortium. I urge you to support their requests and to become involved in one or more of our projects.

> Elaine F. Nardocchio President, OCCH Dept. of French, McMaster University

On Networks

[In this issue we continue our series on electronic networking with an article on another discussion group. -- ed.]

ENGLISH: An Electronic Forum.

ENGLISH is a means to exchange ideas about using computers in teaching and research, to ask questions

about diverse subjects, and to get to know people using computers in the humanities. It is primarily intended for faculty in Canadian departments of English, linguistics, and drama, and secondarily for people located outside Canada. It also includes people who help them and other faculty in the humanities with applications of mainframe and microcomputer systems. Since it is specific to a particular discipline and its close relations, its audience is more restricted than that of HUMANIST, which was described in *OHC* 1.3.

Like that group, ENGLISH is not a bulletin board where the messages are stored for reading; it is a mailforwarding list maintained by the NetNorth node at Guelph (CANADA01). It distributes any message sent to ENGLISH@CANADA01.BITNET to the list of subscribers. You send mail to it in the same way you send mail to anyone off campus, in the manner Nollaig MacKenzie described *OHC* 1.3.

You may subscribe to ENGLISH by sending a request to GILLILAND@SASK.BITNET, saying who you are and what you do if you are not teaching in an English department.

> Marshall Gilliland, Dept. of English Univ. of Saskatchewan GILLILAND@SASK.BITNET

Outside the Province

[With this issue we begin a new series of reports on Canadian activities in computing outside Ontario. Anyone with material of this kind is welcome to send it to the Editor for consideration. -- ed.]

Report from Alberta

Four humanities departments at the University of Alberta (English, Philosophy, Classics, and Religious Studies) have established a committee to investigate the possibility of a joint computer lab to assist the research of faculty members and graduate students.

The five person committee has a small budget and one year to ascertain the needs and desires of those for whom the lab is intended, to view established labs at certain other institutions, and to draft a formal proposal for funding under a provincial government special initiatives program. If the proposal is approved by the cabinet of the Alberta government, the committee's budget will be renewed for a further twelve months, during which time the proposal would be implemented and the lab established. The committee would welcome any suggestions or news of particular successes and difficulties which others may have encountered while setting up similar facilities. Comments or queries may be sent to the committee through the undersigned.

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Brock University

A Language Learning Centre

This fall a new Language Learning Centre has opened at Brock University in St. Catharines, Ontario.

The new Centre replaces the former language laboratory and consists of two audio language laboratories as well as two newly equipped computerized facilities. One of these contains eighteen single-student computer monitors and is fully integrated with the audio equipment. (Ours is the first fully integrated installation of this kind in Canada.) The other computerized laboratory contains fifteen two-student computer stations, with the audio equipment in parallel to the computer monitors. In both labs the instructors can view at will each individual student monitor and offer advice and suggestions via the audio head-sets. The equipment, supplied by Tandberg and Sperry, offers maximum flexibility for language laboratory instruction, both visual and aural.

Four departments at Brock University (Applied Language Studies; Classics; French, Italian and Spanish; and Germanic and Slavic) are currently involved in implementing the resources of the new Language Learning Centre.

Professors Don MacRae and Barry Joe (German) are combining a pre-packaged German software program. TUCO, with two authoring programs, PROMPT and CALIS, and their own programs written in BASIC. Professor Viki Soady of the Classics Department is using CALIS with a Greek font to make up programs for first year Classical Greek. Professors Alan Booth and Frederick Bottley are using a pre-packaged program, Latin Computerized Grammar I, for the firstyear and intermediate Latin courses, and Professor Frederick H. Casler is working on producing Latin Computerized Grammar II for more advanced grammatical study. In addition to the regularly scheduled hours of the Centre for in-class use of the labs, additional hours are reserved for students working on their own.

The responses of students so far have been very favorable. The faculty members of the departments involved anticipate that the new labs will contribute to a much more efficient acquisition of second languages by their students.

> Frederick H. Casler, Chairman Dept. of Classics Education Services Committee, OCCH

McMaster University

Theatre: Software for Analysis of Dramatic Dialogue

Theatre is a program that allows the user to record his or her analysis of a dramatic dialogue and its stage elements in a database and then to manipulate and selectively retrieve the data. Theatre has been very successfully used as a teaching tool at the graduate level to demonstrate the importance of systematic, accurate, and comprehensive analysis. It helps students to undertake in-depth conflictual and theatrical studies.

Using Theatre you can analyze scenes in two ways. First you can designate the subject, object, and opponent of each dramatic conflict that you perceive in the verbal exchanges or otherwise. Second, you can enter the reader's interpretation of the various audiovisual effects referred to in the written text. These effects may include an actor's appearance and body movement, sound effects, and decor. (Thus the program can also be used to study reader response.) You can also regroup similar meanings and thus produce profiles of your interpretation of a play's theatrical elements.

A more elaborate version of Theatre is being tested. In this version four new subdivisions have been added to the analysis of dramatic conflicts. In addition to subject, object, and opponent, the new version will recognize sender, addressee, helper, and arbitrator, and it will display numerical information on all of these elements.

Theatre, written in Turbo Pascal, is in the public domain. It runs on an IBM PC or compatible with a

minimum of 256K RAM. Inquiries should be sent to the undersigned.

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Ontario Institute for Studies in Education

The DUAL3 Statistical Software Series

DUAL3 consists of six subprograms to perform dual scaling, a method to quantify and analyze a variety of qualitative or categorical data. Basic ideas behind dual scaling were developed by Richardson and Kuder (1933), Hirschfeld (1935), Fisher (1940), Guttman (1941) and Maung (1941). Their studies led to a method for optimal analysis of qualitative data, which bears a plethora of names, such as dual scaling, correspondence analysis, homogeneity analysis, optimal scaling, quantification theory, and the method of reciprocal averages. Each of these names, however, represents a development of the original ideas into several distinct styles of data analysis.

A unique aspect of dual scaling, developed in Toronto since 1969, lies in its versatility. Dual scaling provides optimal analysis not only for contingency tables and multiple-choice data (the main data types handled by correspondence analysis), but also for rank-order, paired comparison, successive categories (discrete rating), sorting and multi-way data. Dual scaling simplifies data types by identifying key patterns in data variations, and facilitates interpretation and elucidation of this data set. For instance, data on suicides tabulated in terms of gender, age groups, and forms of suicide, were once analyzed by the traditional method using the chi-square statistic. The results indicated significant association between age and forms of suicides in each gender group. But the analysis did not reveal what kind of association it was.

In contrast, dual scaling revealed, in part, (1) that both gender groups show suicide patterns changing over different age groups, except that the youngest group behaves more like the older group, (2) that younger males usually employ gas, guns, and explosives, while the older males resort to stabbing, (3) that middle and older females commit suicide by jumping and drowning, and (4) that two distinct patterns, one in relation to gender and the other in relation to age, explain the majority of information in the data. As in this example, dual scaling provides an exhaustive analysis, using whatever variables in the input data as units of analysis, i.e., not association between sets of variables, but relations between and among the variables themselves.

In addition to its expanded applicability, dual scaling offers useful statistics and unique kinds of analysis, such as its forced classification procedure, a method to identify variables which are highly correlated with a variable you specify. Dual scaling also offers so-called discriminant analysis of categorical variables in terms of the variable in which you are interested.

DUAL3 (Version 3.20) consists of the master routine. five subprograms to perform dual scaling of six types of categorical data, and a module for graphical display of output. The package is written for the IBM PC/XT/AT and can access up to 640K of memory, though it requires only 256K. The distribution diskette contains sample data files for all the data types. The DUAL3 Users' Guide (32 pages) explains step-by-step how to install the program, start the analysis, and deal with different types of qualitative data.

DUAL3 is menu-driven and interactive. Once the program starts, it will ask which subprogram you wish to use, and several questions about the data to be analyzed, e.g., the number of rows and columns, name of the data file, and the number of solutions, with several default options. All the input information is then displayed for final verification. Once the information is correct, the package will ask where the output should be directed, to the screen, printer, or disk drive. For contingency tables, paired comparison data, rank order data, and successive categories data, you can obtain high quality visual representation -- in both linear and planar projections -- of DUAL3 analysis results.

The DUAL3 Statistical Software Series (version 3.20) is currently priced at \$345 Can., with an education discount to qualified institutions. The package is

available from MicroStats, 9 St. George's Road, Islington, Ontario M9A 3S9.

S. Nishisato

University of Toronto

The Global Jewish Database Project

On Thursday, 29 October, the Centre for Computing in the Humanities officially inaugurated its connection to the Global Jewish Database at Bar-Ilan University in Ramat-Gan, Israel. A representative from Bar-Ilan joined several rabbis and other representatives and scholars from the Jewish community, York University, and departments of the University of Toronto to celebrate the event.

The University of Toronto is the first university outside Israel to have such a connection. It thus becomes a pioneering component of an international network of online access points to the world's largest collection of Hebrew texts in electronic form.

As reported in OHC 1.2, the Global Jewish Database is a 70-million-word online corpus of books and documents in Hebrew. The largest part of the database (53 million words, 253 collections) comes from the "Responsa literature." an historical collection of rabbinical answers to questions about all aspects of Jewish life and culture. This literature spans the millennium from the tenth to twentieth centuries and originates from more than 50 different countries. It thus comprises a very rich storehouse of information on Jewish law, history, philosophy, ethics, customs and folklore, and is of interest for both religious and secular scholarship. The other parts of the database include the Hebrew Bible (fully vocalized, with marks of cantillation), the Babylonian Talmud, the Jerusalem Talmud, Maimonides' Code, and the biblical commentaries of Rashi, Rambam, Radak, Sforno, and Metzudot. The database continues to grow.

Toronto and York faculty and students from the departments of Near Eastern Studies, the Centre for Medieval Studies, and the Jewish Studies Programme as well as local Jewish scholars have already searched the Global Jewish Database from our site.

Text on this scale presents a substantial challenge to software, just as formerly searching the printed Responsa (when volumes could be found in print) meant months of scanning page-by-page. To computing humanists one of the most impressive aspects of the Database is how this problem of coping with 70 million words of a highly inflected language has been solved. (Some details are given in the article in OHC 1.2; for further information contact the undersigned.) Although the morphology of Hebrew is quite different from that of English or any other non-Semitic language, much of the software is adaptable to other languages. Professor Yaacov Choueka, Head of the Institute for Information Retrieval and Computational Linguistics at Bar-Ilan and architect of the full-text retrieval software used by the database, has recently been working on an adaptation to English with very impressive and promising results.

Work towards the University's connection dates from February 1987 when Professor Choueka visited Toronto on his way to the University of Waterloo from Bell Communications Research, where he spent a sabbatical year. Interest generated by his lecture and his demonstration of the software was soon afterwards answered by corresponding support from the Canadian Friends of Bar-Ilan and other members of the Jewish community. The considerable work of local organization has been effectively handled by Professor John Corbett (Classics, Religious Studies, Toronto) with help from Professors Libby Garshowitz (Near Eastern Studies, Toronto) and Martin Lockshin (Religious Studies, York).

A IBM PC-XT has been donated by the IBM -University of Toronto Partnership as the Database workstation and other equipment has been supplied by the Centre for Computing in the Humanities. This workstation is located in the academic offices of the Center, on the 14th floor of Robarts Library. Visitors are welcome, but anyone wishing to use the system should call a few days in advance, since a certain amount of training is required. Plans are underway to hire an "expert user" to train others and in some cases conduct searches, but at present training must be done by one of the project organizers as time permits.

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University of Waterloo

The Analytic Criticism Module

Under contract to the Computers-in-Education Committee of the Ontario Ministry of Education, we are in the process of testing the prototype of an interactive authoring and computer-aided learning system. This system allows a teacher to create a non-hierarchical series of lessons on chosen texts, and then gives students the opportunity of following the lessons in a disciplined way. It runs in QNX on the ICON. Creating the lessons is assisted by menus, line commands, and selections from the text itself, using the cursor on screen. Teachers need no experience with programming to create sophisticated applications in computer-aided learning, particularly in language studies.

The authoring or creation module approximates as closely as possible the evidence encountered by students and the levels of choice they are subsequently given. In effect, the text, questions, suggestions, points of evidence, and critical methodology the teacher chooses conform closely to the format the student will see and work with. Teachers select the degree of detail for each part of the lesson, the various areas for amplification, and the options to use or modify in the module's databases of terms and critical concepts. Pathways through the material may be preselected and the student's levels of success initiated from the creation unit and easily modified in light of the student's subsequent performance. Modules may be linked and generic materials -- dictionaries, forms of demonstration such as explanations of phonetics, meter or rhyme -- may be copied and integrated into other lessons.

Both parts of the system emphasize use of the cursor and divide the screen into three horizontal segments. These segments are described in what follows.

The uppermost level is composed of a series of terms or phrases, some established by the designers as the central concepts of analytic criticism, some identified by individual instructors. The instructors are free to use or ignore any of the established concepts, to modify their underlying definitions and functions, and to select as many as they wish to employ. Links among these topics can be specified and described in the support and definition areas of each topic. Thus a lesson can be brief initially and gradually build as the students indicate what they need. Users select topics by individual preference, in any order. The central segment of the screen is always the text under study. It may be scrolled and even extended into the other two levels to permit students to look at larger amounts of text. The central segment is always present; it forms the creative center of the lesson in all cases. The cursor here may be used to establish definitions for words and phrases, to link patterns of form and imagery, and to set out the instructor's answers to correct, wrong and missed answers. Both instructor and student may move from any point in the text to supporting materials developed in conjunction with the main lesson.

The lower level is given over to the necessary exchanges between the user and the system and, subsequently, between the user and the instructor by a function-key comment command.

We are currently testing the authoring facilities. Several supporting devices -- interactive models in critical definitions, for instance -- are under construction.

Paul Beam Dept. of English

University of Windsor

At the University of Windsor, three projects in computer-aided language learning (CALL) are nearing completion.

1. Mastering the Morphology of the French Verb System

Carl W. Querbach, Department of Classical and Modern Languages, has recently finished beta-testing a program for mastering the morphology of the French verb system. The instructional design is aimed at process learning rather than content learning. The process taught is a rule-based system developed according to the principles and procedures of generative phonology. Oriented solely toward correct oral production rather than spelling, the module teaches the forms of the five simple oral tenses of French (présent de l'indicatif, présent du subjonctif, imparfait, futur et conditionnel) for all verbs except a few very irregular ones that will be covered in a subsequent advanced level.

The process involves two distinct stages. In the first stage a hypothetical form is built up by placing three basic elements, represented by phonemic symbols derived mostly from the International Phonetic Alphabet, one after the other. The elements are (1) the base of the verb, (2) the tense/mood marker, (3) the person/number marker. In the second stage, this hypothetical form is processed through a series of morphophonemic rules that modify it step by step until the actual spoken form is derived.

The instructional design, implemented primarily through the CALL module, aims to give learners a flexible tool rather than subject them to a rigid curriculum. Users can select the order of treatment of the material, the level of difficulty, the amount of help presented automatically, and, in particular, the mode of interaction with the computer. They can use the program as a reference book, a personal tutor, a patient drill master, or an examiner, according to the learning style they individually prefer. The program supports the user with correct answers whenever called for and allows for repeats and exits as desired. Colour coding is used to highlight each element in the process. In addition to the computer program, the module contains the necessary charts and lists, as well as detailed instructions for teachers and sample tests for each unit.

Despite the apparent complexity of the program, our test subjects have been able, in about ten hours of practice, to get accustomed to the process, learn the phonemic symbols and other symbols used in the system, master all the markers except for some phonemic bases, and learn a significant number of the morphophonemic rules.

The expected date of release is May 1988.

2. Determining Primary Stress in Italian Words

Similar research and design methods have been used in the development of a second module, created by Dr. Querbach and Dr. Sergio Adorni, which sets out to teach in an organized way how to determine the position of primary stress in Italian words. The process taught in this system also uses a series of rules, in this case based on the phonetic configuration of the final two syllables of the word in its dictionary form. The user is taught to convert those syllables into a phonetic transcription (a far easier task in Italian than in French, except for the problem of the ambiguity in the orthography between situations of diphthongization and hiatus), and then match that transcription to the first rule in the series which applies to it. Though far simpler than what is required for the French verb system, there are far more exceptions to be learned; these are given special treatment in the instructional design.

The interface and the larger features of the instructional design for this module are the same as for the French module. In particular, the same interactive options are available. In addition, the program is designed to help the student make the phonetic conversion, isolate the relevant segment, locate the rule group in which that kind of element is treated, check for exceptions, and mark the correct stress position.

Beta-testing of the Italian Primary Stress module is scheduled for January and February 1988. The anticipated release date is July 1988.

3. Determining the Gender of a French Noun

Dr. Querbach is engaged in a third project of comparable method and scope designed to teach students how to determine the gender of a French noun. The process employed in this module subjects the phonetic characteristics of the final syllable of the noun to hierarchical analysis; if that test is inconclusive, the orthographic ending and, in a few cases, the semantic category are also analysed. Although there are many exceptions to be learned, the series of rules leads the student to determine the gender of the vast majority of nouns in a simple, reliable, and obvious fashion.

This program, which is in the final stages of research, will use an instructional design quite different from the preceding programs. The computer will pose a basic question to the user, such as. "Does the noun end phonetically in a vowel sound or a consonant sound?" Further questions will depend on the answers to earlier ones as the program follows a branching algorithm until the correct final node is reached. Thus the process the student follows is directly modeled by the program. Beta testing of this module is tentatively scheduled for April 1988. Release by the end of the year is anticipated. All programs are designed for the IBM PC/PC-Jr/XT/AT and compatibles. For further information contact the undersigned.

> Dr. Carl W. Querbach Dept. of Classical and Modern Languages

University of Western Ontario

Criminal Speech

Dr. Jean-Paul Brunet of the French Department reports the near completion of his computer-assisted study of French and English criminal speech. The first result of the study is a bilingual, specialized dictionary entitled, *Dictionnaire de la police et de la pègre: A Dictionary of Police and Underworld Language*. This work will be a 10,000-word thesaurus of the graphic, realistic, and forceful lingo used by law enforcers and law breakers on both sides of the Atlantic.

There are several reliable dictionaries of slang and colloquial speech, but most of them are unilingual. The few existing bilingual dictionaries are either obsolete or based closely on British English. Brunet's study is original in translating North American English terms and phrases into their closest contemporary French equivalents.

Students of language should find this dictionary a fascinating case-book of the dynamics of linguistic change and development. It demonstrates the persistence of words which have figured in thieves' cant for hundreds of years, and highlights the evolution of new words adapted to the purposes of criminal society in a post-industrial age. The dictionary will be most useful to:

 linguists (fields of dialectology and comparative socio-linguistics);

- translators (criminology, penology, crime fiction);
- court interpreters;
- law enforcement agencies;
- language students (translation schools);
- the general public interested in deviant speech patterns;
- lawbreakers?

The dictionary has been prepared as a database and will be published shortly by the major French publisher, "La Maison du Dictionnaire," in Paris.

The Johns Hopkins Guide to Literary Theory and Criticism.

This new book, co-edited by Michael Groden and Martin Kreiswirth (Univ. of Western Ontario), will consist of alphal etically arranged entries on individual literary critics and theorists and on critical schools and movements. Each entry will range from about one-half to ten printed pages and will attempt to offer an objective overview of the critic's or school's main contributions to critical discussion. Each entry will also include a selective bibliography of works by and about the critic or school.

The chronological range will be from Plato and Aristotle to the present, with the majority of the entries necessarily dealing with the twentieth century. Most of the entries will discuss critics working in English, but we will include substantial discussions of their French and German colleagues and, to some extent at least, other European and non-Western critics. A general bibliography at the end of the volume will include texts that do not fit into the bibliographies following the entries (histories of criticism, for example), and two indexes (names, topics and concepts) will allow readers to locate all discussions of critics and of terms and concepts.

Professors Groden and Kreiswirth are planning the *Guide* as a single volume of approximately six hundred pages, with the option of electronic publication. They will write about a tenth of the entries; the others will be written by scholars at the Univ. of Western Ontario and at other universities throughout Canada, the United States, and Europe. Two student researchers are also employed on the project.

Work on the Guide relies considerably on microcomputers. A large bibliography has been compiled to serve as a general working list, and full bibliographies are prepared for each entry as it is researched and written. The published book will include selected versions of both the general and the entry bibliographies. The lists are usually prepared first on a Radio Shack 100 portable computer and then uploaded onto a Zenith 150 or Tron AT. They are then formatted so that they can be entered into Wordperfect's Notebook database program. All the entries are prepared on the microcomputer using Wordperfect 4.2 word processing program; many of the contributors from outside our university submit their entries on diskettes or via modem. Eventually the project may use the much larger word processing and data base capabilities of the university's mainframe computer.

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