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ABSTRACT

Vassar offers two types of computer courses: (1) the introductory courses in Computer Science Studies convey the intrinsic features of computer systems and stress their capacities to support established numeric and symbolic modes of inquiry and (2) the Freshmen Seminars which reveal the facility of computers for aiding man's critical process by displaying information so that patterns can emerge more readily from textual as well as numeric materials. The critical thinking process is said to involve: (1) the decoding of source material through observation and interpretation and (2) the encoding of original insights as a result of the interpretation. This act of translation--critical thinking--is essentially the processing of input information and the creation of output. Though much of the analysis is subjective, an honest attempt must be made to locate reliable patterns in what is observed and to restrict the tendency to guess or bias a study. This is where the computer is most useful. The subjects of the Freshmen Seminar for 1974-75 were an analysis of: (1) the literary language of John Milton's "Paradise Lost" and (2) the live communications of the Watergate Testimony. (SBM)

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FROM POETRY TO POLITICS: VASSAR FRESHMEN CONCORD WATERGATE

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I. Introduction: Computers and Criticism

In addition to conveying the intrinsic features of computer systems, the introductory courses in Computer Science Studies at Vassar stress the capacities of computers to support established modes of inquiry, both through numeric and symbolic data applications. The theory and coding-specifics of languages including PL/I, Fortran, Cobol, Assembler, and APL are, in the programming courses, related to scholarly research on current events and on long-standing issues. Consonant with the goal of introducing modern computational method into the classical liberal arts setting, another type of course is offered in both the first and second semesters of the freshman year. As shown here in Appendix I, all Freshman Seminars at the College are intensive, highly interactive colloquia encouraging close contact among students and professors within small class settings, and, in the case of Computer Science 17-197, providing a gateway into a specific field while at the same time promoting future integration of the field with other types of studies both in college and beyond.

A basic goal of education in the undergraduate liberal arts setting is the encouragement of critical thinking. Criticism is a complex activity, involving both decoding of source materials and encoding original insights. In terms of decoding, criticism implies discerning observation; in terms of encoding, it implies informed interpretation. In either case, critical thought is an act of translation, the processing of input information, and creation of an output which interprets "meanings."

Much of the analysis involved in the critical process is subjective, but a thoroughly honest attempt must be made to locate reliable patterns in what is observed, and to restrict as much as possible the tendency to guess or to bias a study. The ability to locate and relate essential patterns should stand the student in good stead throughout life, and should benefit him in any curricular discipline. What we strive to reveal in the Freshman Seminar is the remarkable facility of computers for sorting and displaying information so that patterns can emerge more readily from textual as well as numeric materials. This knowledge is widely spread throughout the computing profession, and is rapidly reaching fields such as literature, psychology, and political science. The study of patterns in language and the use of language as evidence are common to these varied disciplines.

II. A Prior Study and A Model

An example illustrating the boost which computers lend critical studies of language is the power of computer-sorting to reveal important patterns in a major work of literature. John Milton's great epic *Paradise Lost* is encountered by most students in college if not before; it has inspired vast critical controversies which have survived in discussion for three hundred years.

In the Vassar Freshman Seminar "Style and Self-Image," the poem is presented as typical of cases in which the very presence of patterns is disputed, and patterns where discerned inspire a host of disparate readings. The exemplary status of the poem in respect to complex "messages" at-large arises from matters of content and structure. The epic traces the history of "Man's first disobedience" (I. 1); the succumbing of Eve to Satan's flattery; her eating of the forbidden fruit; her persuasion of Adam; their miseries; their education by God's emissaries as to the envious origins of Satan's rebellion; and the future history of Man until Judgment. The work is lengthy (nearly 80,000 words) and events are not presented chronologically, but instead in epic-order, progressing from the midst of the action with Satan's fall to Hell upon defeat in the heavenly wars. In addition to profundity of issues in theology, and the structural complexities of shuffled time schemes and interrupted confrontations, local passages are marked by convoluted syntax, the verb often appearing near the end of thoughts spread over hundreds of words. It is not surprising that the questions which the work provokes require

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deep investigation of its elemental patterns. Is the work artistically designed, with style and structure supportive of themes? Are Satan's stated thoughts and his dramatized actions, for instance, consistent with his motives as narrated by the other "voices"?

The history of Milton scholarship is replete with both positive and negative responses to such questions. Indeed, when members of the Seminar read *Paradise Lost* early in the course, their own responses to such issues are diverse and discordant. A major topic of the Seminar is how computers aid in addressing such difficult matters. Although representing just one of several types of computerized searching discussed in the course, Appendix II displays selected instances of output from computer-sorting in the form of a "Context-Concordance." Such materials are explained in detail in the early meetings of the course, but may be understood here simply with reference to the keyword field (with neighboring text both to the left and right) and the context field, in this case identifying setting, speaker, and audience, to the far right on the page. It is essentially this type of contextual display, though with a varied format, which participants in the Freshman Seminar later employ in conducting their own original, computer-based studies. This output need only be given brief attention here to suggest how the computer-sorting of language patterns can be applied to contemporary issues.

As seen in Appendix II (A), the surprisingly few occurrences of the conjunction "BECAUSE" (10) when compared with the term "AND" (2401) reveal the artful genius of Milton, and the significance of even those seemingly non-substantive terms which human study would most likely relegate to an "omissions" list. The linking "AND" is used by over twenty speaking voices in the poem; "BECAUSE," the lawlike and deductive term, is spoken only by Milton's obedient agents (including Eve before her fall and Adam after both repent). It is interesting to note the "THEREFORE," more inductive and self-serving, is distributed more broadly and is also spoken by those whose arguments the poet (through the Narrator) would not have us morally credit. Satan is included. This example exhibits the incredible consistency with which the blind poet, orating his masterpiece, controlled the style in adjustment to themes which thread through the entire work.

The computer also enables us to contrast characters within local settings. The consistency of Milton's rhetoric across speakers, and his suiting of speech to the character, is exemplified in Eve's affirmative uses of "LOVE" before her fall ("faith and love") and her increasing preoccupation with negative aspects of love just after her fall, posed in Book IX at line 781 (after which she laments the "agony of love" and "trial of love"). A separate context-concordance reveals the notable consistent restriction of the same word, "LOVE," as spoken by Satan, to only those situations in which he is alone, and generally in a negative mood. These occurrences (in Books IV and IX) are widely separated in the lengthy epic, but when retrieved and displayed by computer, they epitomize Satan's stark pride and his self-exiled emotions.

Such striking patterns in a complex work are not readily observed by an unaided reader. They are made explicit through the computer's unique capacity to sort, merge, and display by sets or on keys. Early in the Freshman Seminar, the participants study other and related ways in which the computer can support the critical process by retrieving evidence submerged in source texts, thus expanding both the range and types of information input to analysis.

III. The "Self-Image" Seminar Strategy

The multi-faceted task of conveying typical critical problems, providing model studies, introducing the computer, and converting to contemporary issues, might seem formidable given the definition of a Seminar as thirteen weekly meetings. Both in the Watergate Section and in subsequent studies of President Nixon's self-image, the feasibility and completion of original projects must be credited to the energies and talents of the students who participate.

Each two-hour meeting is segmented into two sections, one on the issues of *Paradise Lost* (specifically, style and self-image in the portrayal of Satan) and the other on practical aspects of studying current events with the aid of computers. By pairing discussion of specific stages in the prior study with specific stages in the

current project, the acquisition of precepts and experience in the application of computer-aided criticism can proceed at roughly the same pace.

The main topics treated are, in succession:

- (A) General goals of aesthetic inquiry and language study; how these matters relate to computer resources.
- (B) Project planning for document analysis; a systems-approach in the context of problem solving.
- (C) The preparation of machine-readable materials; comparative methods and practical tactics.
- (D) The analysis of computer-generated research aids; their relation to overall goals of inquiry in a psycho-historical setting.

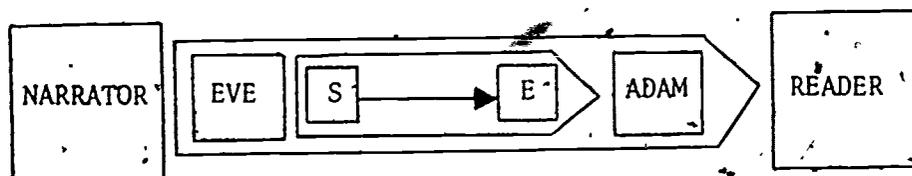
In each case, the construction of the *Paradise Lost* and sub-text concordances — their roles in the critical process — are given as background; the students' joint project remains in the foreground.

(A)

The goals of critical inquiry, especially regarding language studies, have been briefly sketched above in introductory discussion. While such abstract concepts as that of "the critical process" are briefly touched on in the Seminar, the more tangible frustrations of Milton's critics in attempting to "decode" his complex work, and to "encode" interpretations, are given more detailed attention. The students first address these controversies on an intuitive basis, and discover such a wide range of peer responses to the same basic source materials that their appetites for evidence enlarge appreciably. The analogy to Watergate-related issues is an easy one to make due to the students' interest in testimony and their awareness that the hearings transcripts and associated documents are both voluminous and complicated.

The class encounters the complexities of Milton's poem first, directly through reading the text, then indirectly by surveying critics in print and by writing their own highly diversified critical essays. The complexities of Watergate communications are established through listening to testimony tapes comprised of particularly convoluted reference — reports on reports and conversations on conversations — through reading contemporary accounts by political observers, and through in-class discussions.

The parallels between poem and politics which the students have been able to extrapolate are many. First, due to the "nested" nature of communications in both cases, the commitments of individual speakers are not simple to extricate. Just who said what to whom? In both cases, the unaided reader (or the listener) is hard-pressed to remember. In the poem, for example, one speaker's words are often voiced by another, and both voices (that reporting and that reported) are communicated by the Narrator, the "Epic Voice."



In Book V, for example, the Narrator tells us that Eve tells Adam that Satan has spoken to her. Similarly complex are instances in Watergate-related documents, in which a witness tells what he has been told that a third party said; and it is of interest that the critics of Milton and the critics of Watergate often themselves cite citations of others.

Secondly, just as the individual voices in *Paradise Lost*, once separated, have inspired extreme and clashing reactions by critics, so does the Watergate testimony provoke contradictory responses (in popular media and in the classroom). Perhaps most significantly, just as the great length and structural intricacies of the poem have disrupted many a serious attempt to elucidate its central themes, so have the sheer bulk and cross-referencing tendencies of the Watergate testimony confounded its interpreters (as witnessed by the common lament of 'oversaturation' in otherwise widely varying editorials and news reviews).

Thus, the prospects of computer assistance in sorting out exigencies of poetry or politics seem equally attractive. Both domains of discourse are approachable as 'complex message sets', within communication settings which themselves are highly intricate.

(B)

The approach to project planning which is taken in the Seminar is goal-oriented. With a mass of source materials and a correspondingly unmanageable collection of issues, questions, and problems, it is both helpful and necessary to elucidate precisely what one hopes to learn by enlisting the aid of computers (as opposed to all the questions one can think of asking). Arriving at some useful evidence respective to a given and anticipated issue is essential, as is the formulation of a specific plan for achieving an "answer." The necessity of defining a concrete, achievable goal, and of formulating a feasible route or a critical path through the problem becomes very clear to the students when they hold their first self-directed discussions on materials selection. In the romantic spirit associated with the early stages of most projects, the Seminar members almost invariably first propose to concord what might be described as "the world" (here, all of the Watergate testimony; in later courses, all of the White House Tape-Transcripts). Learning of the limits of the Vassar Computer provides some constraints, but it is the actual labor of preparing their card decks which in most cases has appropriately narrowed the sights of the Seminar students. Selection of materials depends a good deal on goals and on givens.

Given the severe restrictions on data-base size and the limitation to thirteen sessions for the total course, Freshman Seminar students (most of whom have not previously used computers) have among themselves devised selection principles to delimit their domain of inquiry. In the Fall term of 1973, when the Watergate studies began, the text-base was considerably narrowed through restriction to the witnesses' descriptions of communications to and from the President, a topic which seemed to promise insight into both the self-concepts of different witnesses, and, at the same time, their views on the role of the highest official. Taking this approach from the givens (Watergate testimony in the early Seminars and Richard Nixon's discourse in more recent courses) and proceeding toward a set of concrete goals, the division of labor which is to resolve the unknowns (build and analyze the evidence-base) has been democratically decided. Because the initial, Fall-term session of the Seminar in 1973 preceded the "instant" publications by two publishers of the testimony, the earliest students were thrown into basic research by the necessity of searching microfilms for "candidate" passages. This they achieved by assigning to themselves specific spans of dates to scan. Finding and keypunching just those excerpts which most clearly qualified as comment on communication to or from the President was to prove a challenge of sufficient scope to introduce the freshmen to the intractable demands of data-acquisition; for the Spring-term 1974 students, with their paperback editions of the testimonies, the establishment of validation procedures was to replace acquisition as an immediate goal, and the editing role was to prove equally demanding of precision and patience.

(C)

The data-base to be input into the computer in order to produce contextual concordances can be thought of as 'duplex'. The text (here, Watergate testimony) is one constituent, and observation on the testimony is another. Two messages are to be intertwined by virtue of the central concept of context-concording, which is to advance critical thinking by presenting directly on the computer page initial findings that contribute to interpretation.

Encoding the first component, the original text itself, is the more obvious starting place for freshmen without prior experience in language data processing. Appendix II, here, displays the output from a Harris Intertype Fototronic type-setting system, a somewhat sophisticated expression of computer printout since it

includes upper/lower case, boldface, full punctuation, and special symbols. It is of significance for the teaching of data encoding in more modest processing environments that the input to the FOTO was a print-tape based on data punched on a standard 026 keypunch.¹⁰

Appendix III (A) shows a sample of the input data-base, with transcription conventions where appropriate and necessary, such as the dollar sign symbol (\$) preceding letters to be capitalized and the plus sign (+) postfixed to initial words in lines, which on FOTO transcription were to be preceded by the solid black ball (●) to keep the separate lines distinct. Part B of the figure displays data from the Freshman Seminar text component, with the asterisk postfixed to indicate capitalized words, and the ampersand (&) placed at card-initial position. Similarly, approximately one dozen transcription codes have been adopted across the four-course series "Computers for Students of Language," in order to model on the Vassar 48-character printer the more desirable resources for a text scholar, upper/lower case and even multiple type fonts. The students, mindful of the need for scholarly standards in despite of economic limits, adapt readily to the notion of encoding-conventions for the text-base, as they do to that of mnemonics and abbreviations, within the "observer" component to be treated next.

Appendix III (B) shows, to the left, a listing or "log" of the forty-one appearances of Satan as speaker in *Paradise Lost*. Epic or "reader" order is adopted here, though not in the computational study, in numbering the rows which stand for separate records in the data-base. Secondly, the displacement of chronology or "behavioral time" which are effected by the epic ordering are shown in the second field of contextual items Book number, line and page numbers in the Ricks edition, name of Audience and Setting then follow. Similarly, and to the right of this figure, a "log" can be constructed to display in matrix format the communications to and from the President located by the students, several class periods each term are devoted to discussion of assumptions and commitments which accrue to category construction and construct labeling. The fields of information chosen to be coded by the Fall-term class of the 1973 Seminar included identification of speakers, day of testimony, modality, medium, and principal topic. 'Modality' was defined as a mode and sometimes mood indicator (was the communication actual, hypothetical, theoretical, private? etc) and 'medium' described the type of discourse (for example, testimony, conversation, letter, memo, meeting, and vaguely defined questioning). In the last field, the students identified one central topic of discussion, such as the listening box, bugs, records, abstract concept of authority, or tapes, as abbreviated in the first few rows. In regard to this latter subject — the topic — the difficulty of assigning just one code to complex topics escaped no one.

Deciding on a practicable list of codes within each field proved as strenuous an intellectual exercise as was the original division of the observation field into four basic units. Certain subtleties were pre-designed by the students, such as the uses of dashes, periods, and commas (- . ,) to identify the President as 'source' or 'receiver' of the communications in one column and identification of the keypuncher in another. Such coding novelties were, of course, most inconsistently applied. In addition to purposive devices, *ad hoc* procedures abounded. While seated at the keypunch itself, creativity bloomed. In a general session dedicated to decoding the carefully pre-planned content codes, there were several inspired, punch-time innovations which defied translation, even though at that particular evening session no one was absent. This mirthful state of affairs and others like it introduced welcome touches of recreation into what the students had ardently defined for themselves as a deeply serious production plan.

(D)

As to the processing of the merged text-and-observation based data, the specific algorithm which produces the *Vassar Context Concordance* is essentially the same as that for the original *Context Concordance to Paradise Lost*. The main exception is that here the keyword field is to the right, with contextually observed content keys to the left.¹² The relation of their data to subsequent phases of processing is expressed to the Seminar students in terms of the basic elements of job streams: input, processing, output, but it is to the rigors of interpreting the output to which their attention, in this first course, is directed. One of their jobs is to derive interpretations (here, about self-image) from a document provided through computational aid, this is one sense in which the computer aids critical judgment. Another job is to evaluate the relation of computer-aids to the

overall process of critical thinking. An example of the first type of yield — that from analysis of a specific product of computing — is displayed here as Appendix IV. Just as we can ask if Eve's use of "LOVE" in Milton's poem changes over time, or whether Satan ever, ironically, expresses "LOVE" — and, if so, in what contexts — so can we ask if terms of feeling, self-esteem, logic, admission, or basic changes of tone occur across time for particular Watergate witnesses.

An exemplary case, examination of discrepancies between 'admitted knowledge' and 'asserted facts', is derived in part from the computer output and in part from intuition. As shown in Appendix IV, the computer program gathers uses of such terms as "KNOWLEDGE" (Part A) across several speakers (just as in *Paradise Lost*) and annotates them contextually with reference to semantically-bound features of the different occurrences or tokens of the given (word) type. While the term "KNOWLEDGE" seems fairly well distributed across speakers and topics (relative to communications to and from the President) John Dean's uses of related terms¹³ have their own 'personalities', as do the usages of others. The denial phrases "DON'T KNOW . . . DID NOT KNOW . . ." and "DIDN'T KNOW" seem prominent, and yet Dean is shown clearly to have confidence in many a "FACT." Among them are the far from neutral facts of set-ups, collusion, and political usury, charges strong enough to have warranted assertion of personal knowledge, had not the speaker (perhaps) been so immediately vulnerable to indictment for conspiracy to cover up such arrangements. As one student writes, generalizing from the *Watergate Contest Concordance*:¹⁴

None of the Watergate conspirators accepted responsibility. If facts weren't definite and unincriminating they were never discussed or the witness conveniently "didn't know."

In conclusion, I found one witness who only talked about facts, one witness who offered almost no new information, and one witness who was a parrot. If these men are a sample of the individuals that lead our country, the United States is in trouble. How men of their intelligence, importance, and stature can perform tasks without thinking and recognizing the consequences or possible harm is very hard to believe and I have to wonder how many of the facts remain untold!

Such applications of context-concordance are typical of the role of computer-based reference documents in leading to interpretations; they gather the evidence but do not force a conclusion. In as short a course as this, the final projects listed in Appendix V must be taken as exploratory efforts and not finished papers. The frustrations of the class in completing their concordances so close to the end of the term are, in fact, acknowledgments that completing the computational phase of a critical project merely leads one into long and scrupulous deliberation over the portent of evidence gleaned. A satisfactory conclusion to the course, from the point of view of this teacher, is the stimulating mix of frustration at having so little time left in which to analyze, and excitement over achieving the context-concordance, moods which prevail in the course's last sessions.¹⁵

A realization that computer-output is itself an input to decision making, not an end to thinking or a panacea, is precisely what leads a good proportion of the Seminar students into enrolling in programming courses or further classes in computing for students of language, even though the Computer Science program as it now stands has no major and comprises all electives.

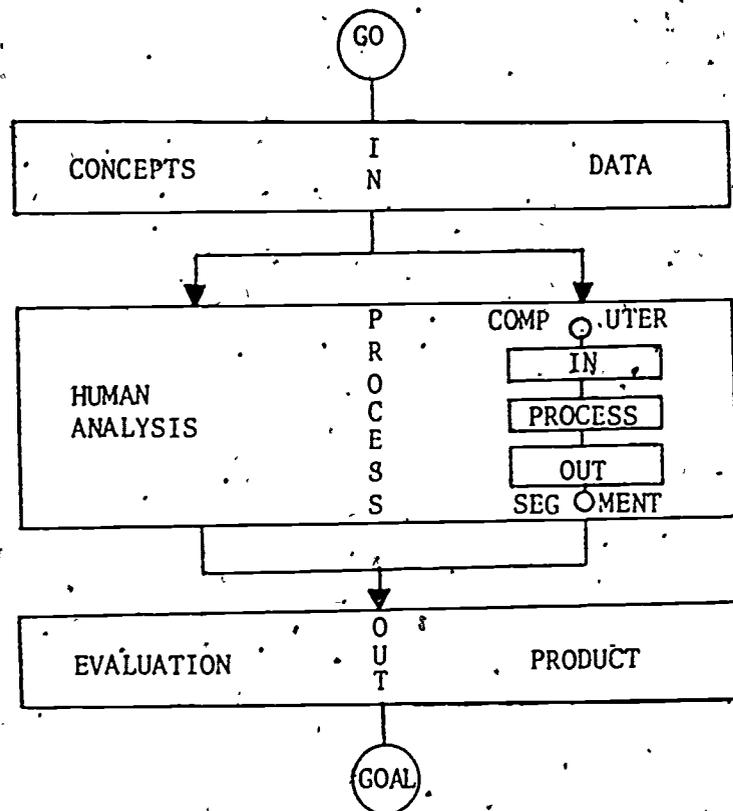
IV. Conclusion and Qualification

The critical process is very complex. It involves both decoding of patterns and encoding of one's observations on that pattern. How much does the human being want to be helped with this process?

In the Freshman Seminar, as students enter college to explore their interests and themselves, we try to suggest that machines can help man to bring focus to his queries in a problem-solving manner. The computer is a resource — without man, just an appliance. It is neutral, that is, and control can be transferred to it as man wishes.

Later in the course series, we explore methods for allbting the computer more control than is enfranchised through concordances. An example is the method for producing essay-writing programs in which texts are searched for lexical and other keys that increment counters associated with the output of motivational inferences." But even at this more advanced stage, where 'human character' is limned and 'purpose' hypothesized on the basis of detecting many types of textual features, the critical process is always aided, never replaced, by computer support. Even computer-simulation of the testimonies given by separate witnesses, and of the President's own discourse, seems not to produce in this new generation of students a preference or untowardly reverence for machines over and above human judgment." Indeed, it appears to intensify their desire to merge the sensitivity with which man can perceive, and the precision with which machines scan

As may be diagrammed, the computer component is only one segment, but a vital and 'unimpeachable' one, in the chain of critical processes which lead to well informed judgment.



We are constantly adjusting the courses in Computer Science Studies at Vassar, in response to the increasing familiarity of entering students with respect to automation. However, the comparison of problems of self-representation based in poetry and those in politics seems to be proving a viable constant, since critical thinking is required in traditional scholarship and in the realm of worldly affairs. Although the specific origin of the project text-base and the exact sequence of course assignments have varied, our three semester experience with this Freshman Seminar concept indicates that students can be made aware of the computer as a desirable resource option, and its sophisticated implications relative to critical analysis can be incorporated into their scholarly repertoires, as early as the first term of their freshman year in college.

NOTES

Winifred A. Asprey, Professor of Mathematics and Director of the Computer Center. Facilities: onsite IBM 360/30E batch-processing system, four APL terminals into an off-campus time-sharing service. Author's status: Assistant Professor.

This is the first in a series of four courses in "Computing for Students of Language," surveying alphanumeric applications from Data-Processing to Artificial Intelligence. Advanced work includes computer simulation of natural language, automated essay analysis for psycholinguistic inference; consultant-based Project Design for Document Analysis. The series is taught by this author.

Published in twelve Books in 1674. Basic texts for the present treatment are: Todd, Henry J., ed., *The Poetical Works of John Milton* (London: J. Johnson, 1809); Ricks, Christopher, ed., *Paradise Lost and Paradise Regained* (New York: The New American Library, 1968).

Misek, L. D., *Computing a Context. Style, Structure, and the Self-Image of Satan in Paradise Lost* (Ph D Dissertation, Case Western Reserve University, 1972).

A discussion of Bar-Hillel's distinction between "context" and "co-text" (the latter exemplified by H. Luhn's concept of KWIC fields) is found in Misek, *Automated Contextual Analysis of Thematic Structure in Natural Language* (Cleveland: A. R. Jennings Computing Center, Report 1103, 1970).

I appreciate the suggestion of my Vassar colleague Stephen Hopper (Chemistry) that I consult Polya's *How to Solve It* in this regard.

Richard Moore voiced sensitivity to the difficulties of interpreting words on his first day of testimony: "...when two men communicate... there is a two-fold hazard... the man who spoke might not have expressed himself clearly, and may not have expressed what was in his mind... the man who heard may have put a different interpretation on the words than did the man who spoke them." (personally transcribed from TV).

The quip is not mine. I am indebted to the (anonymous) source.

The 360/30E is a single-user system with 32k total core, approximately 17k user core.

More exactly, the *Context Concordance to Paradise Lost* (Jennings Computing Center, 1971) produced from 026 input was stored on a print-tape; the FOTO read this tape. (Vassar uses 029 rather than 026 keypunch machines).

This is clearly less crucial for prose, especially here, since the boundaries of text on the punched cards do not match a given newspaper rendition. The ampersands (&) appearing in the KWIC field, however, do flag card-initial position.

L. D. Misek/Thomas Mylott III, design/implementation in PL/I; adapted from L. D. Misek/William Cornwall, original design/implementation in ALGOL at CWRU.

These are co-constituents of the same base-concept set.

Michael Diamond (Vassar '77).

Seminar projects can be carried over into individualized "Independent Studies."

In COMSC. 307a ("Principles and Practice of Computer-Aided Criticism") automated extraction of meaning is pursued both theoretically and through working programs.

A misconception which unfortunately plagues their elders, especially those with no hands-on computing experience.

APPENDIX I: COURSE ANNOUNCEMENT

Freshman Seminars

In the Academic Year 1974-75, Vassar College will offer a series of Seminars designed especially for, and limited to, freshmen. These Seminars will permit the specialized exploration of an area of, or an approach to, a discipline. They are intended to give the freshman student a chance to work closely with a faculty member on a specialized subject of his own interest. The Seminars will involve greater emphasis on sustained independent inquiry and closer association with instructors than is ordinarily the case in regular freshman courses. The Seminars will be ungraded, and each carries either ½ or 1 unit of academic credit. A freshman may not enroll in more than one Seminar during a semester.

In selecting a Seminar, you should consider its relationship to planned future work in that field. Attached to each Seminar description is a statement indicating whether and under what circumstances it serves as a prerequisite for intermediate or advanced work in the field.

17 Computer Science 197a or 197b: Style and Self-Image. (1 unit)

When we read, we react individually to the same "messages". What about a written work *allows* or even *guides* us to interpret meanings differently?

In this Seminar we will focus on an especially provocative figure, a source of critical controversy for over three hundred years. The Satan of John Milton's *Paradise Lost* has been called "HERO" or "FOOL", "COHERENT" or "RAMBLING", "DYNAMIC" or "WEAK".

The computer will be explored as a means of recognizing patterns — for untangling complex themes and structures in the poem which both draw our attention to Satan's centrality and at the same time distract us from his dramatic consistencies, public and private.

Satan's "self-image", in particular, will be studied as a model for many cases in which a speaker attempts to persuade us (and others) to evaluate his words and deeds as he himself would.

As a second topic of this Seminar, transitions from the analysis of "literary" language to "live" communications will be demonstrated through group study of *Watergate Testimony*. Emphasis will be on "self-image" and social role as revealed in messages to and from The President.

APPENDIX II: CONTEXT-CONCORDANCES, POETIC MATTER
A: Displaying Patterns Across the Entire Text of Milton's Paradise Lost
B: Displaying Patterns Across and Within Individual Characterizations

PARADISE LOST CONTEXT CONCORDANCE COPYRIGHT © 1971 L.D. MISEK

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Table with 10 columns: Text snippet, Part of speech, Word, Line, Book, Chapter, Verse, Part of speech, Word, Line, Book, Chapter, Verse. Includes text like 'river over the marsh glides' and 'gather ground fast at the labour vapour'.

occurrences = 1401 .126051

Table with 10 columns: Text snippet, Part of speech, Word, Line, Book, Chapter, Verse, Part of speech, Word, Line, Book, Chapter, Verse. Includes text like 'lessen or degrade thine own' and 'thou heest, though throned in high'.

occurrences = 10 .01251

Table with 10 columns: Text snippet, Part of speech, Word, Line, Book, Chapter, Verse, Part of speech, Word, Line, Book, Chapter, Verse. Includes text like 'own, since easier snuned' and 'cannot hurt ye, and as just'.

occurrences = 40 .05011

Table with 10 columns: Text snippet, Part of speech, Word, Line, Book, Chapter, Verse, Part of speech, Word, Line, Book, Chapter, Verse. Includes text like 'knowest: 'Tis happy, and without' and 'no happiness. Whatever pure tho' but, first of all'.

Table with 10 columns: Text snippet, Part of speech, Word, Line, Book, Chapter, Verse, Part of speech, Word, Line, Book, Chapter, Verse. Includes text like 'accuse: But Heaven's fit free' and 'to be equally to bliss'.

occurrences = 8 .11388

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25 FEB 71

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APPENDIX III: FROM POETRY TO POLITICS
(Paradise Lost to Watergate)

SHEFALL+ THEE SEVERED FROM ME; FOR THOU KNOWEST
 SWHAT+ HATH BEEN WARNED US, WHAT MALICIOUS FOE
 SENVYING+ OUR HAPPINESS, AND OF HIS OWN
 SDESPAIRING+, SEEKS TO WORK US WOF AND SHAME
 SBY+ SLY ASSAULT; AND SOMEWHERE NIGH AT HAND
 SWATCHES+, NO DOUBT, WITH GREFOY HOPE TO FIND
 SHIS+ WISH AND BEST ADVANTAGE, US ASUNDER;
 SHOPELESS+ TO CIRCUMVENT US JOINED, WHERE EACH
 STO+ OTHER SPEEDY AID MIGHT LEND AT NEED:
 SWHETHER+ HIS FIRST DESIGN BE TO WITHDRAW
 SOUR+ FEALTY FROM SGO'D; OR TO DISTURB
 SCONJUGAL+ LOVE, THAN WHICH PERHAPS, NO BLISS
 SENJOYD+ BY US EXCITES HIS ENVY MORE!

I * DON'T KNOW IF THE PRESIDENT'S* STATEMENT WAS MEANT TO BE A
 VERY LITERAL PLAY ON CAREFULLY CHOSEN WORDS OR WHETHER HE INTENDED
 TO GIVE IT THE BROAD-BRUSH INTERPRETATION THAT IT LATER RECEIVED.
 THE* ISSUING OF THE SO-CALLED ((DEAN* REPORT*)) WAS THE FIRST TIME
 I * BEGAN TO THINK ABOUT THE FACT THAT I * MIGHT BE BEING SET-UP IN
 CASE THE WHOLE THING CRUMBLD AT A LATER TIME;

R D X	C H O R E	B O O K	LINES	-RICES		-AINTENCE	SETTING
				D	E		
1	10	I	84-134	49-50	HELLSERUB	BURNING LAKE	
2	11	I	157-191	51-52	HELLSERUB	BURNING LAKE	
3	12	I	242-270	53-54	HELLSERUB	SHORE IN HELL	
4	13	I	315-330	56	FALLEN ANGELS	SHORE IN HELL	
5	14	I	622-662	64-65	FALLEN ANGELS	SHORE IN HELL	
6	15	II	11-22	70-71	COUNCIL-FALLEN	PANDIONIUM	
7	16	II	430-465	81-82	COUNCIL-FALLEN	PANDIONIUM	
8	17	II	681-687	83	DEATH	GATE OF HELL	
9	18	II	737-745	90	DEATH-SIN	GATE OF HELL	
10	19	II	816-844	92	DEATH-SIN	GATE OF HELL	
11	20	II	968-987	96	LOUT	GATE OF HELL	
12	21	III	25-30	117	SELF	2ND OF SUN	
13	23	IV	37-113	120-121	SELF	2ND NITRATES	
14	23	IV	355-392	130-131	SELF	TREE OF LIFE	
15	24	IV	505-532	134-135	SELF	TREE OF LIFE	
16	28	IV	827-832	142	RAFAEL+ITHURIEL	BOILER IN EDEN	
17	29	IV	851-854	144	RAFAEL+ITHURIEL	BOILER IN EDEN	
18	30	IV	848-901	143	GABRIEL, SEP, ITH	BOILER IN EDEN	
19	31	IV	925-945	146	GABRIEL, SEP, ITH	BOILER IN EDEN	
20	32	IV	970-976	147	GABRIEL, SEP, ITH	BOILER IN EDEN	
21	25	V	30-45	150-151	EVE	(EVE'S DREAM)	
22	25	V	58-63	151	EVE	(EVE'S DREAM)	
23	27	V	67-81	151	EVE	(EVE'S DREAM)	
24	1	V	673-693	167-168	HELLSERUB	KINGDOM OF GOD	
25	2	V	772-802	170-171	ANGELS	LUCIFER'S PALACE	
26	3	V	853-871	173	RAFAEL	LUCIFER'S PALACE	
27	4	VI	150-173	178-179	RAFAEL	NORTHERN PLAIN	
28	5	VI	282-295	187	MICHAEL	NORTHERN PLAIN	
29	6	VI	418-445	185-186	FULLO+RAS	NIGHT CAMP	
30	7	VI	470-492	187	MICHAEL	NIGHT CAMP	
31	8	VI	554-567	189	MICHAEL+OTHERS	NIGHT CAMP	
32	9	VI	609-620	191	MICHAEL	NIGHT CAMP	
33	11	IX	99-124	234-235	SELF	EDEN'S RIN	
34	12	IX	173-193	248-249	SELF	GARDEN OF EDEN	
35	13	IX	532-545	251	EVE	GARDEN OF EDEN	
36	14	IX	568-612	251-252	EVE	GARDEN OF EDEN	
37	15	IX	626-630	253	EVE	GARDEN OF EDEN	
38	16	IX	656-658	253	EVE	GARDEN OF EDEN	
39	19	IX	679-712	254-255	EVE	GARDEN OF EDEN	
40	20	A	168-171	257	INSTIN	BRIDGE FROM HELL	
41	1	E	400-503	260-261	FALLEN ANGELS	PANDIONIUM	

BUTR-1, ACTUTEST-LBOX
 BUTR.1, ACTUCONV-BUGS
 BUTR.1, ACTUCONV-RCRD
 BUTR.1, ACTUCONV-AUTH
 BUTR.1, ACTUCONV-TAPS
 BUTR.1-ACTUCONV-TRNS
 MARD.1-ACTUCONV-BRKN
 MARD.1-ACTUCONV-BRKN
 EHRL-1, QUESHEAR, INTG
 EHRL-1, SOGTPLAN-VIET
 EHRL-1, WANT INFO, POLI
 EHRL-1, TRYD GATH, INFO
 EHRL-1, THEOLETR, GENR
 EHRL-1, THEOMEMO, GENR
 EHRL-1, THEOMEET, GENR
 EHRL-1, ASKDQUES-WORK
 EHRL-1, THEOMEET, GENR
 EHRL-1, GRUPMEET, CAMP
 EHRL-1, ACTUQUES-WORK
 EHRL-1, ASKDQUES-PLUM
 EHRL-1, ASKDQUES-TAPE
 EHRL-1, ASKDQUES-TARE
 EHRL-1, ACTUDISC, TAPE
 EHRL-1, ACTUSPCH-COVR
 EHRL-1, THEOASKD-BUGG
 EHRL-0, ACTUCONV-CLEM
 EHRL-0, ACTUCONV-CLEM
 EHRL-5, GRUPMEET-INTS
 HALD.1, PRVTCONV, GLNE
 HALD.1, PRVTCONV, BRKN
 HALD.1, PRVTCONV, GLLM
 HALD.1, PRVTCONV, MUNDY



APPENDIX V: REPRESENTATIVE PAPER TOPICS

Fall 1973 Student Projects

STUDENT/CLASS YR	PROJECT
Fe... '77 Elk... Bradley '77	"Nixon, Ervin, and Baker: A Study in "Knowledge." "
Sullivan, Karen '77	"A Brief Analysis of Words of Emotion in The Testimony of John W. Dean 3rd"
Maychick, Diane '77	"Context Concordance to Watergate Testimony: Words of Authority."
Krenzel, Lauren '77	"Conveyance of Emotion by Butterfield and Mardian."
Kiser, Barbara '77	"The Testimony of Nixon, Moore, and Gray in the Watergate Affair: Never use "Always." "
Castagnozzi, Mary '77	"WATERGATE: Words Having to do with Communication in John Mitchell's Testimony (Computer Concordance)."
Reiser, Maya '77	"Watergate Communications with Nixon, According to John Dean."
Hookaway, Gillian '77	"Hear no Evil, See no Evil, Speak no Evil: A study of the communications of President Nixon, and Messrs. Butterfield and Mardian."
Stern, Sandy '77	"Butterfield's Pronouns."
Diamond, Michael '77	"Emotional words used by Mitchell and Erlichman."
Driscoll, Philip '77	"Words of "knowledge" used by LaRue, Gray, Mardian, and Butterfield."
Lwin, Khin Sabai '77	"The Use of Personal Pronouns by Ehrlichman and Michell."
Taylor, Susan '77	"Presidential Communication Routes in the Watergate Affair."
Shea, James '77	"The Communications of Messrs. Ehrlichman and Haldeman (Watergate Testimony)."
Hall, Patricia '77	"John Dean and John Ehrlichman: States of Knowledge."
Abeln, Maura '77	"The Verbal Communications of John Mitchell (re/"knowledge.")"
	"A Project of Society and Changing Times: John Dean; Self Image and the Image created for the Senate Select Committee on Presidential Campaign Abuses."