

Literary Computing and Literary Criticism

Theoretical and
Practical Essays on
Theme and Rhetoric

edited by

Rosanne G. Potter

Miles
Shakespeare
Scott
Gide
Camus
Celine
Beckett
Gobineau
Riffaterre
Chaucer
Gower
Milton
Blake
James
Ford Madox
Shaw

L I T E R A R Y
C O M P U T I N G

>> *and*

L I T E R A R Y
C R I T I C I S M

>> *Theoretical and Practical*

Essays on Theme and Rhetoric

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P R E F A C E

The mystiques of computer science and literary criticism differ considerably. These disciplines appear to stand at opposite extremes of knowledge—one rooted in facts, the other rooted in ideas; one focusing on the replicable, the other on the unique. This book consists of essays written and selected to demonstrate that computing, the ultimate tool of late twentieth-century life, can be effectively applied to basic questions of literary criticism.

The assertion that computers can be useful tools in literary study is, of course, no longer controversial. Constructing large critical editions or dictionaries, collating variant readings from different texts, concordancing entire corpora of prolific writers, deciding questions of disputed authorship by using indices of style so minute that they escape the most attentive reader—all of these activities, and numerous other equally complex tasks, now are routinely performed by computer methods; in fact, very few of these projects get funded without computers. The practice of computing is widespread and little disputed in these supporting areas of literary study. Essays about the utility of editorial or textual applications have therefore been excluded from this collection. This book confronts the more controversial question of what literary computing offers to literary criticism.

Several quotations from John B. Smith's 1978 essay, "Computer Criticism" (published in *Style* in Fall 1978 and included in this volume as chapter 2), will help to map out the shared ground between computing and criticism. Smith's analysis of twentieth-century criticism allowed him to assert that "the mainstream of recent critical thought has moved steadily, inexorably, toward greater formality and toward the notion of a 'science' or 'sciences' of criticism." Smith notes trends in the work of the Russian Formalists, the London School, the Prague Structuralists, the New Critics, and the French Structuralists which, taken together, form a "pattern of development in twentieth-century criticism." Smith's essay attempts to place Computer Criticism within the context of these other, more generally accepted, forms of criticism. His arguments do not imply that computer-aided criticism will supplant other, less "scientific" kinds of criticism. Literary computing does not, for instance, replace New Criticism's emphasis on the text as the central focus of study; indeed, it permits the closest possible

examination of textual surfaces. Literary computing so little disputes structuralism that it in fact discloses structures invisible to the unaided eye. To all these types of critical discourse, what literary computing offers is evidence, precision of measurement and widely-accepted (in the hard and social sciences) standards of validity. All these services or supports should, on the face of things, be of interest to traditional criticism; they are not replacements or supplantings of other methods but aids to the more convincing implementation of those methods.

Despite the cogency of arguments by Smith and others, literary computing still remains outside the recognized mainstream of literary criticism. It has not been rejected, but rather neglected. Lack of interest in computer criticism can be traced to the three principal factors. (1) The preparation of literature students generally omits scientific training; thus, most critics feel inadequate in the face of essays or books based on statistical assumptions or computational technology. (2) On the opposite end of the spectrum, those who, for whatever reason, move into the technical treatments of texts very rapidly fall into the jargon of those technologies, thus rendering their research results inaccessible to their colleagues. (3) Since there is little payoff in attempting to do criticism when fellow critics do not understand it, most critics who originally sought computer means to achieve literary critical goals very frequently turn away from criticism.

The final stage of this declension finds literature PhDs moving into computing centers or departments of Computer Science to gain recognition for their work. This process can, I believe, be stopped if computer-aided researchers write with a literary critical audience in mind. Essays that explain their scientific methods and inferences adequately will make literary computing accessible to the general critic and will fulfill needs and extend possibilities for all formalist and structuralist schools of criticism. When Computer Criticism takes its logical place in the development of twentieth-century criticism, more computer-using critics will probably choose to stay in literary studies.

Whether in the future or now, according to Smith, one of the major implications of Computer Criticism is

an altered concept of proof and what constitutes demonstration of a literary hypothesis. Because the computer requires coherent, formal rules/procedures to move from level to level within its stratified structure, abstract assertions remain closely linked to, if not coincident with, patterns within higher strata. Since a study progresses by developing successively higher strata in terms of patterns within lower strata, generalizations, no matter how abstract, can be traced back through the various levels to actual textual features and/or to closely observed primary responses. (39)

The close link between the text and the proof of a literary hypothesis described by Smith means that new critical concepts, like "pervasiveness and adequacy," can be tested before assertions are made. As Smith says:

in addition to offering confirming examples, the critic may indicate the pervasiveness of that feature or pattern; by offering a comprehensive description of the features considered for the particular focus of the study (for example, a comprehensive list of themes for a thematic analysis), the critic may address the question of adequacy of a particular assertion with regard to any specific combination of features. Thus, the computer offers the critic additional verificational concepts through its ability to address the entire text synchronically. (39)

Verification, though not a concept new to literary criticism, certainly represents a shift in focus away from brilliance of insight and assertion toward the detailed testing of scientific experimentation. Since the computer can both find and count all occurrences (and map areas of non-occurrences) of particular features, inductive proofs based on example are more typical than more traditional deductive proofs from authority (e.g., of earlier critics or one's own responses). Objective treatments of texts frequently involve not only finding examples of features, but also counting them and comparing the results with known facts about language. Things counted produce sums; the existence of new sums encourages comparison with other sums; statistical analysis follows almost inevitably. Only the presence of critical judgment saves the research from veering off into number juggling. It is easy to see why the linking of a text-centered criticism with a numbers-based analysis is not common. The usual impact of numbers on texts is reductionist. All of the beautiful specificity of figures of speech can get lost when each detail is represented by a number. A balance must be carefully maintained between acquired scientific methods and critical values.

A precise study of the language of literature results in two different levels of insight: the confirming and the redefining. Computing critics find it reassuring to discover that counting and analyzing features of texts very frequently leads to the confirmation of insights that other critics have presented. One would, however, be suspicious of this kind of evidence if it were all that was found; one might rightly wonder whether the researchers might simply be ransacking the texts to find proofs for their favorite positions. One need have no such suspicions when confirming insights are balanced by redefining ones.

The writers of the essays collected here routinely draw inferences from the data that would not have been predictable without the minute attention to detail made possible by the technology. Once formulated by the push of the data, these insights redirect researchers to new structural understanding of the text, the genre, or the period. (Readers interested in examples of this phenomenon should notice particularly the essays by John Smith, Paul Fortier, Nancy Ide, Julia Waggoner, and Rosanne Potter.) These previously unconceived directions can then be confirmed by the scientific test of replication in another sample. (Readers interested in replication would be especially interested in the essays by Donald Ross, Jr., Barbara Stevenson, and Joel Goldfield.) The tendency to be directed by the

data lures computing critics on in their search for explanations of how literary texts work. The contributors to this collection know that new and valid insights emerge from each new test and each new sample; since we are all critics, we also know that some of these insights are more important than others.

THE AUDIENCE FOR THIS BOOK

This book is addressed to two kinds of researchers. The first, and by far the larger, group are those literary critics who have considered computing as a method of answering significant factual questions. They may not have followed this impulse because they consider themselves mathematically or technologically incompetent. These critics may check into the existence of concordances to their primary texts, and probably know that computers are being used for various large editing jobs (the Jefferson papers, for example), but are not interested either in creating a concordance or in constructing a critical edition; they imagine, therefore, that the computer can do nothing to advance their work. If they have ever wanted the evidence to support a position they “knew” was true about a text, if they have ever wondered what would emerge if they could look at all the instances of “something” in a work, these critics are leaning toward computing.

This book is also addressed to a much smaller group, those computer critics who have become so involved in computing as an end in itself that they have forgotten their original critical aims. Many readers of criticism do not know what can be done with computing because, until now, most literary users of computer technology have not written the essays they could have written about their work. Beautifully clear essays about literary critical data have gone unwritten because of the necessity of using a generally accepted scientific style to meet the standards of reviewers (usually specialists in fields other than literary criticism) at the journals interested in computer research. As a result, many computer critics have written themselves out of the range of their natural audiences. We, the contributors to this volume, hope to prove to these computer-using writers that high standards of objective text-handling can be maintained while writing accessible essays.

To meet the needs of both groups, each of the essays included here formulates the kind of questions that could easily be raised by any intelligent reader about a text. Each essay describes where the critic began, what knowledge was sought, why the decision was made to use computational methods. These matters may be brought up at the outset or raised as needed; regardless, the main body of each essay presents the critical insights made possible by using the power of computing.

THE STRUCTURE OF THE BOOK

This collection consists of twelve pieces: reprints of classic essays written in the late 1970s by three of the founding fathers in this field; and new essays written in 1987/88 by nine contemporary researchers, some well known and some just beginning in the field of computational criticism. The essays have been selected on the basis of several important principles: they treat authors (except for Gobineau) whose writings will be familiar to most readers; they treat texts from French, English, and American literature; they represent a variety of theoretical frameworks, and approach their texts looking for a variety of features—semantic and thematic, syntactic and rhetorical; they make assertions about genres, periods, authors, or individual works. They have been written under very strict stylistic guidelines: intelligibility and readability have counted more than the authority provided by dense statistical and linguistic terminology. Most of these writers cite their earlier published works; statisticians and linguists will find the rigorous descriptions of processes in those essays or (in briefer form) in the appendices.

The essays are arranged in three categories: those on theory, especially hypothesis testing; those on theme, all of which proceed from some form of semantic analysis; and those on rhetoric, all of which depend on syntactic analysis. It was not obvious when I began soliciting and inviting essays in the general field of literary criticism that they would fall into these categories. I had expected some broadly descriptive essays on the qualities of different genres or periods (having myself written essays in the early eighties about the qualities of syntax in drama across an eighty-year period), but at the moment most critics who are doing serious literary computing are contrasting one or two writers, comparing two or three works by the same author, or concentrating on one work at a time. The most extreme example of the present-day concentration on one author is J. F. Burrows's 1987 book on Jane Austen's novels, *Computation into Criticism* (Oxford: Clarendon Press), a 255-page book complete with sixteen tables, thirty-three graphs and two figures on

eight personal pronouns, six auxiliary verb forms, five prepositions, three conjunctions, the definite and indefinite articles, and four other words ('to', 'that', 'for', and 'all'). (1)

Following patterns established in the earliest computer-assisted author-attribution studies, Burrows's concentration on function words proves once again how critically revealing this approach can be when applied to a known author. Although very different from the thematic or rhetorical focus of the contributors to this volume, Burrows's work shows that much of critical interest can be derived from the study of what may seem to be empty words.

Richard Bailey, John Smith, Donald Ross, and Barbara Stevenson provide a critical, historical, and statistical background for the essays that follow. Bailey and Smith place the field of computational stylistics or computer criticism in the context of earlier schools of criticism; Ross provides an example of how objective critical tools enabled the evaluation of previous scholarship; Stevenson provides both some basic information about the terminology of statistical analysis and some cogent warnings about the uses of this methodology by critics. Paul Fortier, Joel Goldfield, and Nancy Ide, the writers interested in thematic analysis here, collect and map the occurrences of words across several works (or one long work) by one or more writers. They then draw their conclusions either from contrasts of image density at crucial moments in the plots or from comparisons of similar patterns across works. Julia Waggoner, Eugene Green, Eunice Merideth, Ruth Sabol, and I, the writers involved in one way or another with rhetorical analysis, look for syntactic features and focus on speech, reported speech, or narrative voice in an attempt to see how the manner of expression influences judgments of characters by readers. This structuring of the essays makes the book readable not only on an essay-by-essay or author-by-author basis, but also in sections, or from cover to cover.

Following are detailed descriptions of the essays that also identify those which are accessible to novices, as well as those which are predicated on some statistical knowledge.

THE ESSAYS

The collection begins with Richard Bailey's classic analysis of "The Future of Computational Stylistics," originally published by the *Association for Literary and Linguistic Computing Bulletin* in 1979. Bailey divides "applications of the computer to problems of style" into three generic types: those that focus on data retrieval, those that attempt to construct models, and those that formulate explicit hypotheses and test them against empirical evidence. These divisions allow him to discuss the imminent demise of concordance-building as an ultimate product of research, the limitations of Markovian models in literary criticism, and the problems with a potential "scientific poetics." Bailey's wide reading in various schools of criticism allows him to place each kind of application in an historical context of scholarship and criticism. This essay both summarizes the most important achievements of computer-using scholars until 1978 and points out, with amazing prescience, the directions that computational stylistics would follow in the next ten years.

John B. Smith's "Computer Criticism" (cited by Bailey and published in *Style* [Fall 1978]) specifies that the exact link between computer criticism and the

major schools of criticism of this century is their common concept of structure: “the notion of a horizontal, material text over which various abstract strata are projected.” Early in the essay Smith explains how the text appears to the computer and what this means for the builder of lexicons and concordances or the collator of variant texts. Those new to computing should certainly read this part of the essay. Smith uses examples from his own work to demonstrate various increasingly complicated ways of representing frequency data, relationships between themes, and distribution of thematic clusters across whole works by using ever more sophisticated statistical analysis. He asserts that once critics make “the conceptual move to consider the text from a functional point of view and to consider ‘meaning’ as originating from the reader’s interaction with features and patterns within that text” they are ready for “the variety of relational possibilities” offered by computing. The conclusion focuses briefly on his reasons for seeing Computer Criticism “as an emerging school in its own right.” In an addendum, Smith also gives a demonstration of the kinds of questions that critics must ask, and answer, to probe their own assertions and assumptions and translate them into the very explicit definitions that computers demand. This addendum should be read by anyone trying to focus insights into precisely formulated, answerable questions. For readers new to computer criticism, Bailey’s and Smith’s broad accounts of the field in general are meant to serve as orientations before plunging into an early example of practical computer criticism.

Donald Ross’s classic “Differences, Genres, and Influences” (also published in *Style* [Summer, 1977]) argues for developing a history of styles, an account of how texts were written at various times. This call for a broad-based account of how language has been used during different periods and within different genres, has not yet produced the sort of research in English that Ross hoped for. (French analysts of style, as we shall see, are much closer to what Ross envisioned.) In this essay Ross clarifies what would be required; he describes what kinds of instruments would have to be devised before a true history of styles could be said to exist. As an example, Ross transcribed Josephine Miles’s extensive surveys of English-language poetry to “computer cards and calculated various ratios, period averages, and other statistical relationships to suggest how word-class data can help with the history of style.” Ross has charted these relationships into very readable figures that pack a great deal of syntactic information into a small space; they merit detailed study by anyone interested in syntactic changes over time in English-language poetry. Ross draws attention to the difficulties of building up a history of styles from many accounts of smaller data sets. He insists that though these accounts must be provisional, they can be revised as more information becomes available if the presentations “have complete data so that other specialists may build on previous work without duplication.”

Many writers on the subject of computational stylistics argue that we will not

have a standard for measuring the styles of individual authors until we can describe the stylistic characteristics of all written language. Others acknowledge the truth of this assertion but, wishing to do research in the meantime, avoid this problem by describing the imagery, themes, linguistic characteristics, or syntax of a limited number of texts by one or two writers. Those who work in fields like French studies (where important external tools like frequency dictionaries exist) can measure an author's stylistic deviations from standards established for specific periods and genres. Basic differences of scope exist between working inductively up to generalizations from examples within a small corpus and working deductively down from generalizations about language to inferences about an author. The choice of methodology to follow depends in large measure, though not completely, on whether basic facts about the language have been systematized in generally accepted research tools; critics obviously cannot choose to use a frequency dictionary if none exists for their language. Nevertheless, I see considerable value in both inductive and deductive approaches, and include exponents of both.

Barbara Stevenson starts "Adapting Hypothesis Testing to a Literary Problem" with a provocative question: whether the "marriage of statistics and literary criticism, known as computational stylistics, does work." Stevenson discusses adapting statistical hypothesis testing to the literary problem of authorship attribution. She begins by giving a brief summary of the history of stylometric studies; the summary mentions both specific stages in the development of stylometry and principles that should guide such study. Stevenson focuses on the proper ways, given the qualities of language, to form an hypothesis, to collect random data from the population to be tested, to select a test that fits the data, and to understand how the commonly used chi-square test works. The essay ends by proposing some solutions to the problems raised by trying to treat language data as if they were independent. Stevenson describes how simulation studies on the numbers generated from literary texts might lead to more dependable results, but her essay closes with a call for skepticism. This essay confronts the potential problems inherent in the most common of statistical tests, chi-square analysis, and as such should be enlightening to all critics interpreting, or attempting to use, statistical tests in literary computing.

Paul Fortier's "Analysis of Twentieth-Century French Prose Fiction: Theoretical Context, Results, Perspective" situates his work in the context of new theories of literature of the past twenty-five years. All of Fortier's writings since the early 1970s have been designed to analyze the process whereby a novel produces its effect on the reader. Fortier uses the computer to foster more objectivity in the study of fiction, but as a critic he is firmly in control of the end product through his personal judgment. The computer, with its ability to compare texts and synonym dictionaries, to calculate frequencies and distribution, adds new informa-

tion, but Fortier asks traditional questions like “How is literary effect achieved?” He takes from psychological criticism an interest in repeated images and use of vocabulary to evoke common themes like death and warmth; however, he uses the gathered information not to reconstruct the author’s subconscious but (once the thematic structure of the text has been identified) to deduce how theme and other formal characteristics of the text like plot and characterization produce literary effects.

Joel Goldfield’s essay, “Computational Thematics, a Selective Database, and Literary Criticism: Gobineau, Tic Words, and Riffaterre Revisited,” enters the lists in a famous critical dispute between Leo Spitzer and Michael Riffaterre about the use and significance of “tic words” in the writings of Arthur de Gobineau. (Riffaterre defines “tic words” as “linguistic tips of a psychological iceberg”; they “repeat at striking frequencies.”) Goldfield’s purpose is to “refine and apply the quantitative aspect of Riffaterre’s approach to another work by Gobineau to discover any significant quantitative and stylistic value in the tic word group.” While presenting his work on Gobineau, Goldfield also discusses what he calls computational thematics: the building of an adequate textual base for thematic computing without having access to the entire machine-readable text. He explains how he decides what to include, how to group words into conceptual groups, how to test for their significant presence or absence, and how to interpret the results for use in literary criticism. Goldfield uses frequency data (from a frequency dictionary divided chronologically by genre) as a standard against which to measure major repetitions or omissions within and between the six novellas contained in Gobineau’s *Nouvelles asiatiques*. He demonstrates with great specificity how the statistical tests work on the tic word data.

Readers who already know basic statistical terminology, or who have read Barbara Stevenson’s extremely useful explanation of the chi-square test, will recognize many of the terms assumed by Goldfield’s work (null hypothesis, expected vs. observed, significance level). Goldfield’s essay moves to a somewhat more complicated statistical level when he applies the central limit theorem to what he calls “phatic” and “emphatic” word data. This research, along with that of Ross and Stevenson, exemplifies the ways in which earlier critical disputes can be objectified applying the scientific standard of replication. Goldfield accepts Riffaterre’s intuitive collection of tic words so that he can submit it to rigorous testing against newly available information about the characteristics of literary speech in Gobineau’s period. This essay exemplifies Ross’s description of how a history of styles is built up; earlier insights by Riffaterre are here revised in light of newly available information about literary language used in the period 1850–79. Ross, Stevenson, and Goldfield all build on the work of earlier scholars by demonstrating what statistical analysis can add to our understanding of its validity.

Nancy Ide's "Meaning and Method: Computer-Assisted Analysis of Blake" begins the concentration on English-language literature that characterizes the balance of the book; the essay's thematic focus, however, connects it to the earlier essays on French literature. The statistical level achieved here (even though much has been submerged for this presentation of Ide's Blake data) is the most sophisticated in this collection. The essay defines the critical issues by focusing on a basic anomaly of *The Four Zoas*: the "fragmentary and often transitionless narrative of the poem" does not prevent readers, even those unfamiliar with Blake's symbols, from having a clear perception of what the poem is about. Ide finds that a close investigation of Blake's images, their frequencies, and their distribution across the poem reveals broader semantic patterns which uncover the real shape of this long prophetic work. When it became clear that images related to specific themes appear at decided points in the poem, Ide could assert that they act as significant vehicles for conveying meaning in the poem. The patterns of distribution also collectively reveal configurations which differ from standard critical descriptions of the structure of the poem. Frequency distributions and statistical measures show distinct patterns of density that provide evidence for a five-part rather than the traditionally accepted three-part structure of the poem. What is clear from this study is that thematic analysis based on the frequencies of images can reveal organizational principles in a literary work. Thus, highly sophisticated statistical analysis enables a kind of insight into structure that was not previously possible. This analysis, like all the others described in this collection, was not automated. At each stage the researcher as critic must intervene, deciding what to make of the evidence accumulated and what the tests reveal that the researcher knows to be true about the text, even as the tests uncover facts that were previously unnoticed.

Before moving from the essays on theme by Smith, Fortier, Goldfield, and Ide, we should note that all four focus on word-level data. Since words are discrete, very sophisticated statistical analysis can be applied to the numbers generated by counting them; equally sophisticated graphic representations of the number of occurrences can also be drawn against a stable line representing the length of a text. On the other hand, the essays on rhetoric by Waggoner, Green, Merideth, Sabol, and Potter look at sentence-level data. Some syntactical features, since they are also tied to simple markers (like the word "that" in nominal complement *that*-clauses or the question mark in questions), present no more challenge to computer searching than any other single string of characters. Other features that have clear markers, for instance negatives in English, can be handled with the aid of some rather complex searching procedures. One can define all the letter combinations that usually indicate negating (*no*, *un-*, *non-*, *-n't*, *dis-*, *in-*, etc.), then cover the words where the prefix is not a negative (like "unity" or "infuse") with a stopword list, and come out fairly close to the mark. Im-

peratives and other features that can take many forms present either a massive challenge for a parsing program or a minor bit of hand-encoding drudgery. Eventually, those who devote all their energies to computer analysis of language will devise methods for automatic text parsing. In the meantime, most computer-assisted critics do not expect artificial intelligence to find most of the syntactic features easily recognized using human intelligence. These critics just type the text into the computer's memory along with specific markers for each complex syntactic feature.

The most important difference between the word-level critics interested in thematics and the sentence-level critics interested in rhetoric is that words are easier to define than sentences, so the numbers are firmer on one side of the divide than on the other. The essays about semantic or thematic issues tend to rely on statistical analysis and graphic representation more than the essays about syntactic or speech-act issues, which rely on discussions of the rhetorical dimensions of attributed speech or narrative discourse.

The difficulty in syntactical parsing of texts has resulted in various *faute de mieux* methods of finding the particular items sought by different critics. At the simplest level one encodes only the sentences containing the items sought; more sophisticated methods include either selecting from the items found by preexisting software or designing one's own software. Eugene Green uses the first solution—essentially hand-encoding; Ruth Sabol follows the second, using concordance programs designed at the University of Wisconsin. My students, Julia Waggoner and Eunice Merideth, also follow this second method; they use programs and concepts designed at Iowa State University. However, Waggoner uses no statistical tests, and Merideth uses statistical methods different from those in the package. Designing programs to find exactly, and only, what the individual critic seeks, as I have done, might seem to be the final stage in gaining control over the computer's output. It is only the beginning. Other, far more complicated linguistic coding of language, of course, can be done. However, thus far only linguists and others interested in the characteristics of language as language have devoted themselves to these heavily labor-intensive, abstract codings word by word as they are typed into computer memory. Though these five critics use substantially different approaches to the stylistic features that interest them, they only *begin* to present all the ways of performing rhetorical analysis with syntactic features.

Julia Waggoner's "*Samson Agonistes*: Milton's Use of Syntax to Define Character" concentrates on Milton's methods of using syntax to define Samson, and to differentiate him from all the other characters, especially Dalila. Although Waggoner does not move beyond simple numerical analysis, she finds that the concepts derived from my research on syntax in modern drama can be applied to a very much earlier literature's methods of defining character in a poem. A close

analysis of the lines found and sorted by the computer allows Waggoner to see previously unnoticed aspects of how Milton creates character. Waggoner assumes that Samson is dominant; she then looks at the syntax that usually correlates with dominance. Her work elucidates the techniques used by Milton to define Samson as a weak, demoralized character and then turn him into a strong, heroic character. In the process of her investigation, she discovers exactly where the software does not adequately provide for certain qualities of Milton's syntax. His sentence length does not easily fit into the defined units designed for the shorter sentences of twentieth-century drama. Milton's extremely high use of definitions, and his almost nonexistent use of fragments and pauses, also point to stylistic qualities of seventeenth-century dramatic poetry; these byproducts of her research could be investigated in follow-up work.

Waggoner's work demonstrates that literary critics can use the insights of pre-existing software packages to approach texts in new and revealing ways. By borrowing simple techniques for rearranging text and an already-proven concept (like the correlation between dominance and a cluster of syntax), Waggoner can make quite interesting assertions about a text without any knowledge of or support from statistical analysis. This essay, designed for Miltonists, should also encourage critics contemplating the move from traditional stylistic analysis to computational stylistics.

Eugene Green's "Speech Acts and the Art of the Exemplum in the Poetry of Chaucer and Gower" contrasts "force of expression" in carefully matched exempla from *Confessio Amantis*, *The Legend of Good Women*, *The Man of Law's Tale*, *The Physician's Tale*, and *The Wife of Bath's Tale*. After gathering sentences with potential speech act verbs, Green carefully distinguished genuine speech acts from inapplicable verbs and built a database of commands, promises, and requests. In order to build the database, Green had to code the entries as performative verbs, imperatives, and miscellaneous verb phrases (which function as speech acts). Encoding the speech act verbs forced Green to make difficult choices and to begin forming rules about what constitutes a command, promise, or request. Even though he did not, in this round, expect the computer to find these speech act verbs in the texts, he began to make attempts at defining the forms of Middle English words that would have to be sought if a program were to do the syntactic searching. After computer sorting of the sentences into groups, Green applied statistical analysis and found that the poets' instances of commands, promises, and requests yield no significant differences. His analysis, however, abetted by computer sorting, enables him to find that, within their comparable exempla, Chaucer and Gower vary significantly in their modes of expressing speech acts. In instances of deception, in moments depicting a woman at risk or in search of a goal, or during the utterance of an apostrophe, Chaucer relies primarily on the direct expression of a speech act, while Gower prefers to

report it. Green closes by generalizing about the relationships between the two stylistic patterns and the poets' separate moral and aesthetic perspectives.

Eunice Merideth's essay, "Gender Patterns in Henry James: A Stylistic Approach to Dialogue in *Daisy Miller*, *The Portrait of a Lady*, and *The Bostonians*," demonstrates that a study of simple syntax can reveal gender differences between characters in a piece of fiction. Merideth chose these three novels centered on women to avoid the predictable strength of men in major roles and weakness of females in minor roles. She contrasts the speech of the major female character and that of the minor male character who interacts with her. Merideth starts with the assumption that socially defined gender characteristics correlate with assigned speech habits. Chi-square analysis shows significant differences between male and female use of the features which correlate with dominance. The speech of males is direct, clear, and commanding; that of females is weak and submissive. The three novels chosen for this study feature thematically strong women (James calls them heroines), yet the language assigned to them tells quite a different story. Their speech is polite and uncertain, while the men, all secondary characters, use the language of dominance. The sorted lists of dialogue produced by the programs also provide Merideth with evidence about semantic features that emerge in a contrast of male and female self-definitions.

C. Ruth Sabol's "Reliable Narration in *The Good Soldier*" uses three products of the Wisconsin Old Spanish Dictionary Project to test the reliability of Ford Madox Ford's narrator. Her assertions, grounded in the work of theoretical linguists like Paul and Carol Kiparsky, Marc Rosenberg, and Deirdre Wilson, depend on linguistic evidence garnered from a concordance, a verbal index, and a field of reference. She proves that Dowell, the narrative voice in the novel, is a reliable narrator by analyzing eleven situations where Dowell uses nominal complement *that*-clauses; this analysis contrasts the level of factual knowledge asserted by Dowell with other information coming to readers from the implied author. This study provides a method, no longer based on intuitive judgments, for deciding whether a narrator is reliable or unreliable; the availability of computer evidence gathering, in combination with a linguistic system for categorizing the factive or world-creating qualities of verbs, has made this objective study possible. As Sabol says, "only a thorough semantic analysis of the truth conditions of a narrator's assertions can give a reader hard evidence of a narrator's reliability or unreliability."

Since concordances may be the computer-generated tool most commonly available, many critics will find the computer criticism practiced by Sabol quite accessible. Using a concordance does not require learning programming or statistical analysis; it necessitates only a guiding theoretical framework, which provides a clear sense of what information is sought, and a willingness to seek the words that signal the possible sources of evidence. As it happens, Sabol has a