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Parsing Fiction:
Humanistic Computing and the Postmodern Novel

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in English

by

David Lawrence Shepard

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ABSTRACT OF THE DISSERTATION

Parsing Fiction:
Humanistic Computing in the Postmodern Novel

by
David Lawrence Shepard
Doctor of Philosophy in English
University of California, Los Angeles, 2012
Professor N. Katherine Hayles, Chair

Despite the recent rise of interest in digital humanities, the long history and cultural influence of computerized humanities scholarship remains unrecognized. In response, this dissertation reads novels written over the past five decades as reactions to humanistic computing. Though recognized as important examples of postmodern literature, these novels also belong a category of “parsing fiction”: novels written partly in response to projects that analyze language and literature with computers. This dissertation constructs a tradition of parsing fiction, and argues that these novels consciously develop aesthetic techniques that subvert the theoretical rubrics such projects embrace.

The existence of parsing fiction demonstrates that humanistic computing has influenced the development of postmodern fiction, having inspired authors to explore the implications of computerizing linguistic and literary study. This dissertation argues that a primary reason for this engagement between novelists and scholars is that most humanistic computing projects follow
hegemonic scholarly methodologies rather than challenging them. As much as some humanities scholars have resisted the supposed intrusion of the computer into their work, most humanistic computing projects share their critics’ theoretical underpinnings. Parsing fiction reacts against this high-tech conservatism by questioning these common theoretical underpinnings in light of the computer. Both humanistic computing scholarship and parsing fiction explore the computer’s application to language and literature, but fiction frequently sees the computer as a more radical agent of change than scholarship.

The introduction emphasizes the historicist focus of this project, in contrast to the relatively formalist nature of most analysis of the computer’s influence on literature. The next four chapters proceed decade-by-decade through the second half of the twentieth century, pairing one novel with a group of projects to which it responds. It begins with John Barth’s *Giles Goat-Boy*, which critiques Literary Data Processing in the 1960s. In the 1970s, Italo Calvino’s *if on a winter’s night a traveler* responds to Mario Alinei’s linguistic research. A decade later, Michael Joyce’s *afternoon, a story* advocates the use of hypertext over humanistic Artificial Intelligence. Finally, at the end of the millennium, Mark Z. Danielewski’s *House of Leaves* argues for the specialness of print against digital hypertext. The conclusion offers some final reflections on the first decade of the twenty-first century, digital humanities, and its influence on contemporary literature.

Reading novels as parsing fiction examines the computer’s historical influence on literature more precisely than the more formalist investigations of cybernetics or New Media. Parsing fiction demonstrates that understanding the computer’s role in fiction requires attention to specific technologies, such as Artificial Intelligence and hypertext. Ultimately, this dissertation argues that humanistic computing has had a more significant impact on postmodern fiction than
scholars recognize. While scholars who design projects and write programs remained comfortable with the computer as a tool for reinforcing accepted theories, novelists who sometimes only glimpse computers from a distance have imagined them as, and even pushed them to become, agents of radical transformation for literature.
The dissertation of David Lawrence Shepard is approved.

Michael A. North

Rita Marie Raley

Mark I. Seltzer

N. Katherine Hayles, Committee Chair

University of California, Los Angeles

2012
For Val

and My Parents
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PUBLICATIONS


PROJECTS

✓ HyperCities [http://hypercities.com]
✓ Geoscribe
✓ HyperCities Now [http://now.hypercities.com/]
✓ Bishamon (forthcoming)

GRANTS RECEIVED

HyperCities Geoscribe, Google Digital Humanities Award, $50,000. Renewed for a second year.

CONFERENCE PRESENTATIONS

✓ “Fighting the System: Nationalist Narratives in Konami’s Contra, Metal Gear, and beyond.” Presented at Games We Play, Simon Fraser University. April 4, 2008.


✓ “Designing a Spatial Humanities Project.” 127th MLA Annual Convention, Jan 5-8, 2012.
Introduction

It’s difficult to escape the phrase “digital humanities.” A buzzword (or buzzphrase) that appears everywhere, from the New York Times to the Chronicle of Higher Education, digital humanities seems poised to be the savior of the humanities, and the university, once again in crisis. At the 2011 MLA Convention, sessions on the digital humanities had attendees standing in the hallway to hear about the new topic; at the 2012 Convention, digital humanities approaches had pervaded a variety of panels, and these were the most actively discussed panels on the session’s Twitter feed. Non-specialists and writers for non-technical journals often describe digital humanities as something new and innovative, fascinating, or threatening, because it involves technology.

What most digital humanists know, of course, is that digital humanities really isn’t new. It is part of the long history of computer-assisted humanities scholarship, which dates back to the 1950s, almost to the invention of the computer itself. UNIVAC, the first stored-program computer, was built in 1951, and the first published humanistic computing project, Nelson’s Complete Concordance of the Revised Standard Version of the Bible was completed in 1957 on a UNIVAC (Ellison and Thomas Nelson & Sons). While most digital humanists are at least vaguely aware of the history of their field, however, few appreciate its impact beyond the academy. Books such as Blackwell’s A Companion to Digital Literary Studies (2008) acknowledge this history as a predecessor to modern methods of digital scholarship, but there have been relatively few attempts to analyze the cultural and social impact of humanistic computing. In fact, it is often thought to have none, still a fringe practice in an academy already teetering on the brink of obsolescence that must be brought into some new digital relevance to
the general public.

But how many digital humanists know that John Barth’s 1966 novel \textit{Giles Goat-Boy} features an encounter with a group of scholars attempting to rebuild the Bible with a computer? Humanists using computers have featured prominently as characters in, and inspiration for, fiction of the past fifty years; frequently, these are novels now recognized as significant examples of “postmodern” literature\textsuperscript{1}, itself a term little easier to define than “digital humanities.” Literary criticism of these novels has not recognized such an influence; consequently scholarship has not understood a larger tradition at work, in which subsequent fiction inspired by humanistic computing look back to their literary forebears to critique and rethink their literary strategies.

Why do these scholarly innovators feature so prominently in novels, if they have had so little impact on the academy? The answer, I suggest, is that while humanistic computing\textsuperscript{2} has always seemed like a technological innovation, it has almost always simultaneously embodied methods that are already dominant within the academy, or even on the wane. Humanistic computing has been, frequently, conservatively humanistic; its notions of “humanism” are rooted more in enlightenment notions of subjectivity than in poststructuralist deconstructions of that subjecthood. Humanistic computing generally operates under critical theories that are already well-established, ballasting these theories with apparently empirical support from technology.

\textsuperscript{1} I use the term “postmodern” fiction to refer to formally-experimental fiction by authors such as Thomas Pynchon, John Barth, Italo Calvino, and Michael Joyce. By this, I do not mean to exclude work by minority or women authors sometimes also called “postmodern,” but to refer to a definition of the term that emphasizes interpretive difficulty through formal experiment, a literary trend that is sometimes also labelled “technomodernism.”

\textsuperscript{2} I use the term “humanistic computing” to cover all areas of applying the computer to the academic study in the humanities to gather together the various other terms that have been used: “digital humanities,” “humanities computing,” “cyberhumanities” and the like. I define my own term to avoid contemporary debates about what any of the commonly-used terms cover; instead, I analyze the variety of applications of computers to literary and linguistic research over the past fifty years, ranging from concordances and stylistic analysis to AI programs for analyzing historical records.
Against a conservative techno-critical apparatus (a critical practice implemented in software), fiction authors develop new aesthetic techniques. Postmodern authors such as John Barth, Italo Calvino, Michael Joyce, and Mark Z. Danielewski challenge the scholarly establishment of their day with innovative narrative aesthetics. This tension has, I argue, been central to the development of “postmodern” fiction; as such, this dissertation will trace out an interaction between humanistic computing and literature, arguing for the importance of humanistic computing to the development of the postmodern novel.

**Literary Data in the New Critical Computer**

For fifty years, [Professor Spielman] said, his theory of Cyclic Correspondence would be anathema on West Campus: not twenty had gone by before it was dogmatized by the Chancellor, taped by the Chief Programmer, and devoured by WESCAC.

— John Barth, *Giles Goat-Boy*, p. 7

Writing in the early sixties (almost exactly fifty years ago), Barth presciently anticipates the role of humanistic computing more than we would like to admit: WESCAC, the campus computer (yes, *the* campus computer), is programmed with the sum total of human knowledge by human beings themselves. WESCAC’s presence does not change their scholarship or objects of study; it only knows what its creators have already decided is the truth. New theories are vetted before implementation in WESCAC. It is easy to read *Giles Goat-Boy* as a fable about computing’s impact on knowledge generation; in fact, my first chapter will do just that.

This bias toward established scholarly methods was apparent from the early days of humanistic computing, and persisted for decades afterwards. As much resistance as they faced from disciplinary colleagues who felt that humanities scholarship was too complex to be computerized, humanities scholars using computers for research generally followed well-established critical practices, even those beginning to fall out of favor. Such scholarly methods
often emphasize logical positivism, using the computer to develop more precise and rigorous standards for literary scholarship; humanistic computing tended to be scientific, if not scientific. This section will tell the story of humanistic computing’s tendency towards methodological conservatism.

Consequently, I want to trace out what is an almost invisible meaning in my term: the “human” in “humanistic computing” opposes the “posthumanism” that futurists like Ray Kurzweil anticipate the computer would bring about. Humanistic computing is “humanistic” in that it enforces conventional notions of human subjectivity, and uses methods of study based in western humanism and literary modernism. Serious investigation of the changes in subjectivity that artificial minds suggest—such as cybernetics—had little place in humanistic computing, and were banished to the background as scholars attempted to implement prevailing critical theories in software to study the conventional subjects of literature and language.

For much of the 1950s and 1960s, humanists had access to computers through computer companies and universities. Projects such as machine translation and stylistic analysis garnered significant financial support from the government and the private sector; who better to help with formalizing linguistic rules than literary scholars? Humanists used computers for more than translation research, though. Those involved in the projects welcomed computers for a variety of tasks, usually related to the gathering of evidence. The earliest humanistic computing projects were two concordances to classic religious texts, one Catholic and one Protestant: Roberto Busa, S.J. worked with IBM to generate an index to the writings of Thomas Aquinas for a study on Aquinian metaphysics, and Nelson’s Concordance to the Revised Standard Version of the Bible. Though Busa began earlier, and is justly remembered as the first digital humanist, the Nelson concordance was published before the Index Thomisticus, and deserves the title of the first
widely-available humanistic computing project.

The computer proved a boon to concordance generation, which became one of its first major applications. The great advantage of computer-generated concordances is increased production speed and reduced tedium for those involved. Independent of any editing decisions, the simple mechanics of producing a concordance require counting words and marking their places in a literary text with extraordinary attention to detail. Such a repetitive task was easy to adapt to a computer, making it a great labor-saving device for these projects. For comparison, a Wordsworth concordance begun in 1910 took fifty people six months to produce; Stephen M. Parrish used one computer and one programmer to generate concordances to the work of Matthew Arnold and W.B. Yeats in under 200 hours (Millic 56). In fact, this work made such scholarship widely available to the public: though the Nelson concordance went through a costly typesetting process that made it expensive, by using less-expensive photo-offset techniques (effectively xeroxing the computer’s output), Parrish produced inexpensive concordances that could turn a profit for presses.

Concordances furthered scholarship in stylistics. In some regards, both concordance generation and stylistics are just applications of word counting. Therefore, the computerized methods developed for concordance generation could also be applied to find distinctive word patterns authors used. Computers made quantitative analysis of style much easier; publications of the time speak enthusiastically about being able to put numbers to qualitative judgments such as calling a style “vigorously” or “playful.” For humanists involved in these projects, concordances and stylistic analysis both promised to give them higher standards of precision and repeatability in their scholarship. The promise endured, even if it was infrequently fulfilled.

Such formalist work resembles New Criticism; Parrish made these connections explicit.
At a 1964 conference on “Literary Data Processing” organized by IBM, Parrish emphasized that the use of the computer would make literary (and humanistic) scholarship more precise:

It certainly seems to me to be one of the areas of our agreement—those of us in the field of literature—that we understand ourselves to be living through the early stage of a revolution, perhaps a quasi-scientific revolution, which cannot fail to touch us all in everything we do . . . [T]he Revolution began a little less than a century ago, and now in our own generation widens and develops with increasing speed. Some of its significant advances were the sharply improved standards of textual editing that began to prevail just around the turn of the century . . . the immense thrust forward given to the tool of analytical bibliography . . . the growth in America of the New Criticism, which has stubbornly attempted to focus our critical attention on the literary text, to standardize criteria of objective judgment, and to reduce or suppress the subjective, purely emotional responses that always precede or accompany the act of criticism. In very recent years we have opened a new dimension of this revolution—for I believe it is essentially the same revolution—by learning to process literary “data,” as we have come with some misgivings to call the poems, plays, and novels that we read and study, by mechanical and electronic devices. (3-4)

Not only does Parrish link the use of literary data processing to New Criticism, he even explicitly links it to C. P. Snow’s then-recently identified two-cultures gap. Parrish saw humanistic computing as not only a convergence of cultures, but a radical improvement on existing humanities work by its own standards; he speaks for many of his contemporaries in developing a positivist account of humanities scholarship.4

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3 Literary Data Processing was the self-chosen name for humanistic computing in the 1950s and 1960s. From what materials I can gather, the scholars mentioned up to this point probably would have been familiar with the term and might have even adopted the mantle.

4 A number of other scholars at the conference similarly alluded to bridging the two-cultures gap, including Millic (58) and McDonnough (25).
As difficult as it may seem for us to imagine now, most scholars at the conference were enthusiastic over humanistic scholarship as precise as science. The great fear they sought to assuage was not the dominance of needlessly rigorous methods, but the growth of intelligent machines. Repeatedly, they sought to calm fear that computing would suppress the human. It was a refrain heard in nearly every paper presented at the 1964 Literary Data Processing conference:

We are not asking the computer to be a critic; we are asking it to help us be better critics... better scholars, by putting before us swiftly information, relationships, patterns, and the like, which we would have had to work long hours or years to get for ourselves, even by showing us things we could not see or are unlikely to have seen. (Wells et al. 7)

The machine no more replaces the scholar than the Renaissance patron replaced the artist: each merely provides the leisure for truly human activity. We do not wish machines to act as critics, as Professor Parrish has said, only to save critics from acting as machines.

(McDonough 36)

The machine will remain a tool for research. It cannot read poems, it cannot think through complicated ideas by itself. But it surely will, when we learn how to use it wisely, do a great deal of work for us. (Markman 50)

And all these quotations are from just the first three papers in the conference proceedings. Elsewhere in the same papers, all three of these scholars fantasize about futures in which all texts are digitized and critics are able to apply electronic research methods instantaneously, which might strike us as either fantastically utopian or fairly realistic in 2012, depending on our involvement with computerized textual scholarship. They also speculate about optical character recognition for automatic digitization of books and other idealized technologies, which remained
at that time a distant possibility. However, even in their wildest dreams of high-tech future scholarship, the computer remains nothing more than a dumb machine, without suggesting or pursuing questions of its own. The computer, of course, cannot appreciate poetry, even as it helps its users to do so better.

Furthermore, nearly all of these scholars alluded to or quoted directly from Parrish in their papers, suggesting the pervasiveness of Parrish’s views. All of these scholars asserted control over their machines; the computer was not a critic; the critic used the computer. While awed by the scope of the material the computer allowed them to analyze, they insisted that it was they themselves who were in charge. The only change the computer added was rigor, a change that reinforced the power of the individual—at least, in their minds. In theory, rigorous scholarship would allow scholars to adhere to common methods and standards of taste.

Despite this enthusiasm over a New Critical computer, by the 1960s, New Criticism was waning in American English departments. Northrop Frye’s *Anatomy of Criticism*, the foundational text of archetypal criticism, had been published in 1957, the same year as the first Literary Data Processing projects; ten years later, Robert Scholes’ contemporary book *The Fabulators* performed similar interventions. The first Literary Data Processing conference happened three years before Jacques Derrida fired off his three-shot opening salvo of poststructuralism, with *Speech and Phenomena, Of Grammatology, and Writing and Difference*. New Criticism was no longer new by the time of Literary Data Processing. As much as part of the academy found the technology of Literary Data Processing threatening, the new technologically-enhanced scholarship followed—quite vocally—the same theories.

The hope that the computer would provide a common set of standards for empirically-rigorous scholarship persisted through the 1970s and 1980s. Mario Alinei, a linguist at the
University of Utrecht, spent the 1970s and 1980s directing the production of the *Atlas Linguarum Europae* (“Linguistic Atlas of Europe”), several books of maps that showed what words were used for certain concepts, such as “rain” or “snow.” These maps were generated from surveys taken at 3000 data points stretching from Portugal to Russia, which were collated and processed using a computer and an electronic plotter to generate the maps. The maps painted a detailed picture of Europe’s linguistic heterogeneity, questioning conventional hierarchies of language families. Alinei and his coeditors used computerized methods to present a picture that could be backed up with data that broke down national boundaries and challenged conventional narratives about languages evolving from others. Alinei’s coeditor-in-chief Antonious Weijnen hoped that this map would also help to reconstruct a single Indo-European protolanguage, an idea now controversial in modern linguistics. They also imagined this project would explicitly challenge the arbitrariness of the Saussurean sign-signified relationship, hoping to find enough data to demonstrate why certain words were chosen for specific concepts over others.

Humanistic scholarship using the computer seemed to reach for modernist dreams of a universal language and a meaningful sign-signified relationship, even as these ideas seemed poised on the verge of obsolescence.

The 1980s saw a very similar story, with Literary Data Processing methods supplemented by a new computing technology: artificial intelligence. Historians, archaeologists, and literary scholars used AI to develop systems that could automatically analyze large bodies of knowledge, and even at times answer questions themselves. No longer asserting their dominance over the machine as Parrish and Millic did in the sixties, scholars used AI systems to automate critical judgments. One even chastised others for not giving the computer enough credit:

the majority of researchers in these disciplines do not seem ready to renounce the traditional,
and in our opinion limited, conception of the computer. They prefer to consider it as a device fit only to relieve them of the more ponderous and tedious parts of their research, rather than to acknowledge its capacity to play an intelligent auxiliary role. … the intense use of statistical instruments often gives the illusion of striving for more ambitious objectives. In fact, even when statistics are used, the ‘noble’ task of interpreting and recognizing the results is left to the human operator. (Lee et al 25)

Parrish’s, Alinei’s, and Lee’s work show the persistence of logical positivism as a dominant assumption in humanistic computing up through the 1980s. In the late 1980s, however, data processing in literary studies yielded to hypertext theory, which many proponents argued embodied poststructuralist ideas of textuality. George Landow’s 1991 book *Hypertext: The Convergence of Contemporary Theory and Technology* made this claim explicitly. By 1991, however, poststructuralist methods had become well-established in the academy; Landow appealed to similarities between postructuralism and hypertext because of the theory’s currency to many humanities scholars.

From this perspective, then, humanistic computing almost always demonstrates things that humanists already presume to be true. Not that their judgments or revelations are necessarily wrong or banal, but humanistic computing projects have, in the past, followed methodologies already in vogue. In the past, humanistic computing has been *technologically* innovative, but *methodologically* conservative. The same pattern of critical methods rising, being established in software, and then falling in decline that happened with New Criticism and Literary Data Processing in the 1960s, followed in the 1970s, the 1980s, and the 1990s.

**Fighting the Machine from Within**

Against this techno-critical backdrop of computers used to dogmatize existing scholarly
methods, fiction writers challenged the establishment of these theories in a new technology. All of the works I examine develop formally-experimental techniques that are recognized as innovative; I argue that many of the techniques that we call “postmodern” emerge in reaction to specific humanistic computing projects. Authors protest the techno-critical establishment of humanistic computing. Therefore, I argue for understanding the influence of humanistic computing as central to the development of postmodern fiction.

Fiction authors in the 1960s expressed discomfort with scholars’ assertion of their dominance over their critical machines. If a machine’s ability to process data affects the decisions humans make, how independent does such a relationship leave the human? To John Barth—and later, Italo Calvino—the presence of the computer and the gross amounts of data it can process challenge humanistic computing’s comfort with its practitioners’ dominance over the machine. If computing radically challenges the way we read and understand literature, then we cannot say that our understanding proceeds unchanged. In thinking carefully about the implications of cybernetics, Barth challenges contemporary humanistic computing methods by developing new aesthetic practices. All the novels I read demonstrate discomfort with the scholarly establishment through formal experiment: given the computational literary analysis being done at the time, authors either write works that resist analysis using these methods, or question the assumptions behind these critical practices. They react against humanistic computing by, in some cases, embracing technology more than the computing humanists do, and in other cases, resisting it.

What I argue, therefore, is that authors are less skeptical of computerization and more resistant to the inherent conservatism of humanistic computing projects in the 1960s and 1970s. Unlike many poets of the time who employed computers directly to produce poetry, novelists
had little use for the machine because their art did not adapt so easily to contemporary technology. Instead, novelists react to essentialist assumptions that humanistic computing scholars used. In later decades, when fiction authors received access to computing technology, they turned to reshaping the technologies to supersede the products of the academy—what had gone before them, in other words, was inferior and conservative rather than essentially dehumanizing. One could argue, in fact, that John Barth’s *Giles Goat-Boy’s* mix of fable and shallow characterization is in some respects even more anti-humanist than the technologically-advanced scholarship it questions because of its insistence on deemphasizing “humanist” (for which read “modernist”) literary values of psychological depth.

**The Computer as a Historical Machine**

While the analysis of the relationship between computing and literature has been a growing avenue for research in the past thirty years, the scholarship has not as yet reflected upon the particular use of humanistic computing as an influence on fiction. Frequently, understanding the mere fact that computing has influenced literature has been considered enough periodization, without paying attention to variations among different computing technologies. Given the rapid pace of technological change, the study of the computer’s influence has understandably been more of a formalist than a historicist analysis. My study of humanistic computing focuses attention on specific projects and specific applications of computers, which have had a great impact despite the projects’ general ephemeral nature. Therefore, my work is predominantly historicist rather than formalist.

Previous studies of computing’s impact on literature have, in fact, focused on two areas conducive to formalist analysis: cybernetics and digital media studies. My work will respond in part to this work. The following sections will review the scholarship in these two areas to
demonstrate a need for more historically-specific understanding of computing’s impact on literature. It will show the necessity for my approach in this dissertation: I will make interventions by performing a historicist analysis of the role of humanistic computing, which cannot be understood except through its specific projects and movements.

**Cybernetics**

There has been a long tradition of examining the influence of cybernetics on fiction. Efforts to understand literature as a cybernetic process have concentrated either on examining how fiction represents the computer as an alternative mind, or raises questions about human subjectivity. Interpreting literature as “cybernetic” is frequently seen as enough of an attempt to understand the historical impact of computing of literature; unfortunately, such work disregards the many changes that cybernetics has undergone in the past sixty years.

In his 1984 book *The Soft Machine: Cybernetic Fiction*, David Porush theorizes that literature is a cybernetic process and finds cybernetic principles in the subject matter and composition methods of postmodern authors including Samuel Beckett, Kurt Vonnegut, John Barth, William Burroughs, and Thomas Pynchon. Porush suggests reading postmodernism as a criticism of the determinism of cybernetics. He suggests reading fiction as a self-organizing “reality-describing machine,” operating under laws that attempt to match the words on the page with a particular object (Porush, LaDS 279–80). In Porush’s interpretation, cybernetics is the latest field of science and mathematics that attempts to eliminate ambiguity; in fact, the whole field of cybernetics as the study of information exchange is an attempt to compensate for the precision in measuring lost after Heisenberg (Porush, LaDS 280). Literary treatments of cybernetics are fundamentally about resistance to such a totalizing, scientific system, and preserving the role of the human when the human has (theoretically) been reduced to a
computing machine. In fact, Porush’s cybernetic fiction is often anti-cybernetic fiction.

The approach has not always been oppositional; one example of a more complementary relationship between cybernetics and literature is scholarship on William Burroughs. In his recent but unpublished dissertation Building Profit-Power Into this Electronic Brain, Ziv Neeman links the idea of cybernetics more explicitly to literary fiction that reflects upon the development of the computer. Neeman argues that what we consider “postmodern” fiction—particularly that of William S. Burroughs, but also a few other science fiction authors, notably Philip K. Dick—is in large part a reaction to cybernetics. Neeman traces out a dramatic shift in the 1960s in literary attitudes toward cybernetics: though many early science fiction works portray cybernetics as an oppressively deterministic set of rules, science fiction of the 1960s suggests that once an individual begins to recognize the rules of social and technological systems, that individual acquires the power to modify those systems.

Neeman reads Burroughs’ fiction as an “early example” of this trend, which he finds more active in later fiction, particularly 1980s cyberpunk; calling someone who understands and manipulates societies, communication systems, or mental states via cybernetic principles a “programmer,” he suggests that postmodernism might really be “The Cultural Logic of Programming.” Neeman suggests that studying computer science and cybernetics is central to an understanding of postmodern literature. Neeman never considers Porush, but central to his difference from Porush is the idea of cybernetics as an empowering theory, while Porush seems to think of it as a force for determinism to fear and resist.

Burroughs’ interest in cybernetics has been widely recognized in other literary scholarship. Brent Wood claims that

[t]he work of William S. Burroughs has often been credited as a primary influence on
cyberpunk writing. The connection between the two, however, is more often cited than explained. ... I would like to argue for the inclusion of William S. Burroughs as a diner at the SF theory dinner-party, especially to hear his theories of poetic action in a world where science fiction has become reality. (Wood 11)

Wood argues that Burroughs’ compositional methods reflect cybernetics, which show “that we do live in a world rapidly being enclosed by massive interconnected cybernetic machines, and that our words have no recourse to truth or accuracy as guarantors of their behaviour” (12). Likewise, Oliver Harris’s 1999 article “Can You See a Virus? The Queer Cold War of William Burroughs” assumes his readers’ familiarity with the persona of “the Postmodern Cybernetic Burroughs,” who processes these concerns through his “virus” metaphor, through which he reflects on the similarities between language and viruses: “To say that the word is a communicative sickness was not, for Burroughs, metaphoric analysis or poststructuralist platitude but an awareness integral and material to the act of writing, and this is what the toxicity of Burroughs’ textual politics insists upon, ad nauseam” (Harris 247). Burroughs’ writing has served as examples for scholars investigating the role of cybernetics in literature. These works have attempted to historicize literature with cybernetics, but as with Porush’s work, the idea of simply considering literature as an information-exchange process subject to cybernetic rules threatens to become formalist.

An additional problem with reading Burroughs as a paradigmatic example of how computing may have influenced literature is his uniqueness. Few other authors performed experiments that imitate the forms of computing as literally as Burroughs’ cut-ups. Neeman reads Burroughs as ahead of his time, but other authors felt the same pressures and responded in different ways. Neeman reads the computer as embodying questions about state and corporate
power. While this reading certainly holds true in many cases, I argue that the computer served as a focal point for a number of related but not identical issues.

Italo Calvino’s writing embodied one of these different reactions. Famously, Calvino delivered a 1968 essay called “Cybernetics and Ghosts,” yet Porush never treats Calvino’s fiction, despite a large body of work that has read Calvino’s work as “cybernetic.” Calvino formed a myth of primitive storytelling as the recombination of a variety of permutations, in a system that sounds very much like a cybernetic process of the exchange of limited units of information:

Primitive oral narrative . . . is modeled on fixed structures, on, we might almost say, prefabricated elements—elements, however, that allow of an enormous number of combinations . . . what can be constructed on the basis of these elementary processes can present unlimited combinations, permutations, and transformations. (6)

Calvino states that understanding language and literature as the operation of discrete sets has a long tradition; cybernetics is fundamental, in his myth, to the roots of storytelling. He also seriously addresses the question of whether or not a computer could actually produce original poetry, stating that he would judge the success of a computer designed to produce a literary work as how well it could follow classical models. Eventually, he imagines the computer itself would grow tired of classicism and develop an avant-garde on its own. Calvino’s words show a comfort with this understanding of literature as a cybernetic process, arguing it is not necessarily incompatible with the idea of literature as self-expression: one could imagine a neurological process of “literary writing” latching onto various elements in a person’s memory and recombining them into a story. If the mind is a cybernetic machine and literature is a cybernetic

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5 For examples, see (Varsava; Siegel; Mazzoni; Consenstein; Botta, “Notes”). Admittedly, this criticism postdates Porush’s book, but the majority of the novels treated are from Calvino’s middle career, in the 1960s and 1970s.
process, so also is the human subconscious.

Another problem in many of the existing treatments of cybernetics in literature is a tendency to ignore the history of developments in both cybernetics and the computer, as N. Katherine Hayles’ work on cybernetics has shown. In *How We Became Posthuman*, Hayles describes three different eras of cybernetics in the past fifty years, and significant literary works that react to these changes. She finds more sophisticated examination of cybernetic principles as the explicit topics of literary works. Porush’s work is generally about how cybernetic ideas of information exchange, and while he quotes from cybernetic theory, he does not pay as much attention as Hayles to its changes over time. This omission is understandable as he writes in the 1980s, about twenty years before Hayles, in the midst of what Hayles calls “second-wave cybernetics.” With more hindsight, Hayles reads certain authors as emblematizing certain periods’ concerns with cybernetics—Bernard Wolfe’s *Limbo* from the 1950s-1970s, William Gibson’s *Neuromancer* from the 1980s, and Neal Stephenson’s *Snow Crash* from the 1990s.

Christopher Funkhouser began similar work tracing out cybernetic compositional processes in poetry in *Prehistoric Digital Poetry: An Archaeology of Forms, 1965-1995*. Funkhouser follows the history of poetry written with computers prior to the invention of the World Wide Web in 1995, and catalogues the diversity of forms. What he finds is a considerable catalog of material by a large number of poets who used the computer to write. He generates taxonomies of form and attributes them to particular technologies available to poets of the time. John Cage himself provides a testament to poets’ interest in computing, describing in one of his works programming a computer to simulate I Ching divination, then asking it what it thought of the process, and discovering, in his interpretation, that the I Ching considered itself “delighted” (Cage 60). Funkhouser’s work is useful when thinking about poetry and the influence of
computing on poetry; focusing on poetry, he also leaves unexplored questions about how such influences affect fiction.

Following Hayles’ and Funkhouser’s leads, this dissertation will examine humanistic computing in fiction from a historicist point of view. It will also examine more specific issues than that of human subjectivity. Instead of reading computers as simply “giant brains” as Neeman does, I read them as the embodiments of issues related to the formalization of methods for understanding language and reading literature. Therefore, a historicist attention to specific developments in computing is necessary instead of a general examination of what defines cybernetics.

More directly, some chapters will consider how novels question the applications of humanistic computing in response to cybernetics. Tension persists between scholars who use computers and writers who speculate about them. As mentioned previously, while many humanistic computing scholars dismiss the suggestion that the computer changes human subjectivity, fiction authors suggest these questions cannot be avoided. These authors frequently take the questions raised by computerization more seriously than the computing humanists who perform the scholarship; however, such authors themselves often have little experience with the machines, while the scholars have designed and sometimes even coded programs themselves. In general, cybernetic fiction is a theoretical exercise rather than work informed by knowledge of computing, and as such, my dissertation will explore this tension.

**Digital Media**

Another significant contact point between literature and computing is digital media studies, examining how literature reflects upon its relationship to other media. As writers in the 1960s competed with film and television, writers since the 1980s have also had to compete with
computer games for consumers’ attention. Many also wrote their own novels on electronic word processors and sometimes more sophisticated page-layout software, such as Mark Z. Danielewski did with *Only Revolutions*. The print novel has responded to the presence of a computer in a variety of ways.

Serious investigation of the relationship of literature to the computer began in the 1980s, several years after the introduction of the personal computer and the first consumer-grade word processors. A variety of scholars have investigated the role of digital media in literary production. One of the earliest examples was Michael Heim’s *Electric Language* (1987). Heim’s work, though little-remembered today, is cited by Joyce, Bolter, and Landow in their works of hypertext theory. That said, Heim’s work, like most work on the intersection between digital media and literature, focuses more on formalist influences rather than historicist ones. Writing when digital word processing was a relatively new technology, Heim clearly has little history to consider; he looks back to philosophy of language dating back to Plato for grounds to trace in his study of electronic writing.

After Heim, the earliest reflection on the relationship between digital media and literature was the hypertext theory of the late 1980s and early 1990s. Hypertext theory from the 1980s tends to investigate how hypertext affects the conventions of print and offers radical challenges to textuality. Jay David Bolter and George Landow wrote works of how hypertext formats affected literary theory and literary production: their studies were part advocacy for the new forms and part critical investigation of their work. Bolter and Landow emphasized the novelty of the forms and suggested that they offered great new possibilities for writers and users. Their work also includes significant reflections on the function of text in different media.

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6 Electric Pencil, released in 1978, was the first word processing program for a personal computer (InfoWorld 12).
By the mid-to-late 1990s, hypertext theory expanded into New Media theory as scholars—some of them hypertext theorists—reexamined hypertext theory. These texts include Lev Manovich’s *The Language of New Media*, N. Katherine Hayles’s *Writing Machines*, Chris Funkhouser’s *Prehistoric Digital Poetry*, and Matthew Kirschenbaum’s *Mechanisms*.

Manovich’s book highlights formal similarities between earlier media and software, exploring different ways of understanding digital media. For example, he cites the “loop” as an aesthetic practice central to both cinema and computer programming (*Language*, xxxiii), and argues for shared critical strategies based on this similarity. Likewise, in *Writing Space*, Jay David Bolter discusses the differences—and perceived advantages—of electronic text over print texts. Both of these critics have done formal analysis of digital media and explored their historical and present day relationships between technology and literature. Hayles’ *Writing Machines* explores the questions of how materiality affects our understanding of literature. Hayles examines three works—one digital, one art book, and one print novel, which incidentally happens to be *House of Leaves*—to demonstrate the relationship between a work’s medium and its content. Hayles highlights the specifics of print and digital media, and does not probe the differences between various forms of print and digital work further; such is not her intent, but it does exemplify how early New Media scholarship tended to examine form.

Funkhouser provides another example of a formalist approach to media studies, but also demonstrates the field’s growing attention to history. With significant archival research, in his work on digital poetry, his “archaeology of forms” comes to one particularly surprising conclusion:

Mechanically, it is true that a contemporary [in 2006] has novel technology at her or his disposal, but . . . many poems available on the WWW cannot be classified as “new” because
the digital techniques used to present them were cultivated in the decades prior to the
WWW... Nothing particularly new has emerged since the initiation of the WWW. (3)

In other words, Funkhouser argues that the web has not altered the forms of digital poetry, even
as it has increased digital poetry’s visibility. Funkhouser’s conclusion is surprising; we might
expect World Wide Web poetry to emphasize hyperlinking and user contribution more than
earlier digital poetry. Whether or not we agree with his overall conclusions as stated here,
Funkhouser’s work offers an interesting example of a historically-informed reading of
technology with unexpected conclusions about parallels between technology and form. In fact, I
disagree; a number of web-based works (such as Melinda Rackham’s Carrier: Becoming
Symborg and Noah Wardrip-Fruin, David Durand, Brian Moss, and Elaine Froehlich’s Regime
Change) involve user contributions to a degree its self-contained predecessors could not.

Another example of historically-informed New Media theory is Matthew Kirschenbaum’s
Mechanisms, which performs formalist analysis with attention to the differences in computerized
writing over its relatively brief life. He argues that the StorySpace software that Joyce used to
write afternoon, a story highlights the novel’s many versions that now exist by virtue of its
remediation into different forms. For example, Joyce considered StorySpace a tool for “text
processing” or “structure editing” rather than “word processing” (172). Kirschenbaum’s work
developing a more historically-informed understanding of the circumstances surrounding
afternoon’s form.

Operating in a similar vein to Funkhouser and Kirschenbaum, this dissertation will
examine the computer’s history as a medium and the various technologies for representing
language within the computer. It will explore how different computing technologies for
representing language are remediated in literature, dating back to the 1960s, before such an
influence has been recognized. Therefore, this dissertation will derive a more historically-informed reading of many postmodern authors’ understanding of the computer as a language technology, not just a medium, from the humanistic computing projects they would have known about.

Methodology

Each chapter pairs a techno-critical scholarly practice with a work of fiction that responds to it. Every chapter explains the history of a particular movement in humanistic computing and traces out some of that movement’s theoretical assumptions that the novels under discussion addresses. With this background, I show how the literary works react to specific developments in humanistic computing through both subject matter and compositional strategies. Each chapter covers a different decade, in order, from the 1960s to the 1990s, to examine a historical progression.

I trace a movement from writers challenging the very use of technology in the 1960s and 1970s, and generally demonstrating suspicion of the new technology, to adapting new ways to shape the technologies in the 1980s and 1990s. This suspicion changes as writers—alongside the general public—acquire greater access to computers. Developing from a tool for processing data to a tool for communication, the computer becomes a subject for speculative fiction and a medium for literary experiment. In the 1980s and 1990s, writers use personal computers to write innovative and experimental fiction, even as they interrogate different applications of the computer. They challenge the computer less for its potential to mechanize human life, and more for specific applications of the technology.

I perform a historically-informed close-reading of literary works to examine the influence of humanistic computing. While it seems ironic to analyze novels that respond, in many cases, to
large-scale digital reading methods using conventional close-reading methods, these novels are written to require attention to detail. Close analysis draws to light novelists’ attempts to develop new formal techniques that computerized reading methods cannot discover, or that computerized texts cannot represent. These works reassert traditional literary values of attention and the specialness of literature through formal innovation, and attempt to challenge the new technology or reapply it to such literary values.

In my four chapters, one for each decade, I illustrate a set of works that not only respond to their particular historical moment, but also look back to revise each other’s contentions about humanistic computing. I construct a decades-spanning tradition between four representative works, arguing for reading them together. I find a narrative of growing comfort with technology, a growth from challenging the role of computers in society and seeing them as reductive, simplistic, mathematical machines, to demanding a role in defining the uses of technology. Writers of the 1960s and 1970s question the use of technology; writers in the 1980s and 1990s reapply the tools others have been using to write fiction truer to their contemporary experience of technology.

Chapter One, “Re-placing the Founders’ Scrolls: Literary Data Processing and Giles Goat-Boy” examines the first humanistic computing in the mid-1950s through the 1960s. Literary Data Processing used the computer to automate repetitive tasks such as concordancing and word-frequency counting for stylistic analysis. These scholars developed methods for finding markers of authorial style in a text consistent with New Criticism, attempted to use their programs to settle disputes about authorship, which reinforced traditions of authorship, religion, and human identity. Giles Goat-Boy parodies these efforts; it is a novel purporting to be the computer-generated first-person narrative of a messiah in his own voice synthesized from others’
recollections and his own notes. In light of cybernetic theories that question individual identity and originality, *Giles Goat-Boy* questions these scholars’ use of a new technology to reinforce preexisting values, and suggests that cybernetics undercuts these ideas.

Chapter Two, “The Traveler Reading the *Atlas*: Italo Calvino and the Linguistics of Mario Alinei,” advances from the 1960s to the 1970s, investigating developments in linguistic computing during the 1970s, when the scale of scholars’ ambitions increased due to greater collaboration and computing power. The chapter begins with an examination of Mario Alinei and the *Atlas Linguarum Europae*, plus another project that gathered data on contemporary Italian literature to develop datasets about the development of literary Italian. One author included in Alinei’s work was Italo Calvino. Three years after being indexed, Calvino wrote *if on a winter’s night a traveler*, a novel composed entirely of attempts to occlude authorial and national identity, which can be read as a response to Alinei’s theories of linguistic identity. *Traveler* questions Alinei’s attempts to synthesize larger pictures of language and literature that locate people and languages, and illustrate problems with such essentialism.

Chapter Three, “‘Do People Really Talk That Way?’: the Cybernetic Humanities in *afternoon, a story,‘” moves ahead to the 1980s, when artificial intelligence research further expands scholars’ data-processing ambitions while the invention of the personal computer makes technology more accessible to authors. As AI made machine analysis even more powerful, scholars gained confidence in automated data processing. As with Literary Data Processing and Alinei’s work, AI promised empirical analysis of large-scale datasets to humanists. Concurrently, poststructuralist theory questioned such empiricism and promoted polyvocality and pluralism. Michael Joyce, an early personal computer enthusiast, hypertext theorist, and novelist, wanted to write stories that changed as a reader read. First seeking to create such stories with AI, he soon
turned to hypertext after frustration with AI researchers’ emphasis on linear narratives and their limited abilities to represent the complexities of human interiority and interaction. Joyce worked with two other collaborators to develop StorySpace, a software package for hypertext narratives. As a demonstration program, he wrote what is probably the most famous hypertext fiction: *afternoon, a story*, a program for portraying four characters with far more richness than AI programs had managed.

Chapter Four, “Finding a Window into the House of Fiction: *House of Leaves* and Hypertext Theory,” ends at the end of the millennium, when Mark Z. Danielewski questions the poststructuralist ambitions of hypertext theory. Joyce and other hypertext theorists had created hypertexts that embodied poststructuralist notions of textuality, emphasizing hypertext’s polyvocality. Danielewski returns to a print novel written in pencil but reproduced over the Internet and printed via sophisticated typesetting software. *House of Leaves* emphasizes the vitality of analog media and their ability to demand sustained attention, which hypertext compromises with its multiple linking paths. Danielewski borrows techniques from hypertext to demonstrate how these same techniques can be implemented with paper and ink; he composes a novel with help from a computer that still maintains its status as a printed object. While he questions the prevailing academic literary theories, especially as they attempt to define hypertext as a brand new and improved textual medium, he in turn asserts the vitality of different technologies, including both print and computers.

In this dissertation, I group all of these scholars under the umbrella of “humanistic computing,” but I develop my own terms for each era. In the 1960s and 1970s, scholars were “Literary Data Processors.” In the 1980s, I name the applications of AI the “cybernetic humanities,” while other theorists described themselves as practicing “hypertext theory.” In the
1990s, once again, it was hypertext theory alongside the beginning of “humanities computing” and “digital humanities.” Despite their different names and different goals, I use one umbrella term for all of these movements because they all represent approaches to applying the computer to language and literature scholarship, even as their approaches have changed.

The narrative this dissertation tells is not the one we frequently hear: that of scholars adopting new computers, which leads to radical new theories. It is instead that scholars have frequently adapted technology to preexisting theories, in a strange mixture of the innovative and the conventional. Likewise, it argues that novelists have been inspired by computerized criticism to explore provocative questions regarding the relationship between technology and language—that is to say, that movements never recognized as central to the academy have actually been important to fiction production. This dissertation will explore how two camps as different as the sciences from the humanities approach the same questions: those who analyze and those who create. Therefore, this dissertation does not argue for a history of convergence between these, or any groups, but a history of a productive tension that has resulted in considerable creativity on both sides.
“Re-placing the Founder’s Scrolls”:

*Giles Goat-Boy* and Literary Data Processing

Toward the end of John Barth’s 1966 novel *Giles Goat-Boy*, the eponymous protagonist encounters a group of scholars reconstructing the “Founder’s Scrolls”: sacred texts recently recovered after a long disappearance. These scholars are an interdisciplinary group of “philologists, archaeologists, historical anthropologists, comparative linguists, philosophers, chemists, and cyberneticists” (662) who use the campus’s mainframe computer WESCAC to aid their work. This fictional scene, however, is not so fictional: it refers to the then-recent discovery of the Dead Sea Scrolls.

Barth began the novel in 1960, when the discovery was still only a few years old. In 1958, Fr. Roberto Busa, S.J., used IBM computers to assemble a concordance of the Dead Sea Scrolls to facilitate scholarly work on the fragments. Busa’s work, combined with other efforts to create a concordance of the Revised Standard Version of the Bible via computer, opened the door for IBM to sponsor an interdisciplinary group of humanities scholars to explore applying computers to their scholarship. From 1960-1966, when Barth was working on *Giles Goat-Boy*, this work enjoyed high visibility: aside from the IBM-sponsored conferences, scholars published many articles about this work in *PMLA* and other journals.

While the novel comments on contemporary humanistic computing, its interest in the actual use of computers to answer humanities questions has never been understood as a historically contemporaneous concern. Instead, it has been interpreted as a hypothetical warning about possible uses of computers. I argue that the very real possibility of computerizing humanistic inquiry is a key inspiration for *Giles Goat-Boy*. In part, the novel critiques the
methodological assumptions and goals of this movement, which I call Literary Data Processing following a 1957 article by IBM employee Paul Tasman. Barth’s critique of the movement is key in making his novel what would retroactively be understood as a “postmodern” novel: the novel’s self-reflexive metafiction, stylistic pastiches, and concern with how knowledge is acquired can be said to react against the applications of computers to literary scholarship. Therefore, I argue that *Giles Goat-Boy* provides the earliest example in which humanistic computing inspired the development of postmodern American fiction. Barth prizes the complexity of experience, the materiality of text, and self-conscious and contradictory narratives; while other societal changes could have also prompted him to employ these techniques—including other highly visible uses of computers—Literary Data Processing would have hit particularly close to home for him by threatening to oversimplify textual analysis. Additionally, the novel provides an example in which computers were applied to literary scholarship, and in which scholars used computers to demonstrate preexisting notions about literary theory. I argue that the first influence of computers upon literary theory was not, as some have suggested, to interpret literature as a kind of cybernetic information machine, but rather to use it to pursue traditional humanities questions.

This chapter has two goals. First, to analyze the goals of Literary Data Processing, which have not been well explored; the considerable histories of Literary Data Processing are generally catalogues of projects and technological developments rather than serious analyses of what underlying assumptions were used by scholars. Second, this chapter will interpret *Giles Goat-Boy* as a reaction to Literary Data Processing, and will link this reaction to the aesthetic strategies that make *Giles Goat-Boy* what we now consider a “postmodern” novel. This chapter

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will argue that Literary Data Processing is an essential background for understanding the novel, and also for understanding that the novel’s critique of Literary Data Processing leads it to develop certain techniques now called “postmodern.”

This chapter will begin by exploring Literary Data Processing’s methodological assumptions, and then show how Barth questions them. In doing so, I will augment work on the relationship of postmodern literature and technology, supplementing Ziv Neeman’s “Building Profit-Power into this Electronic Brain”: the Early Computer, Programming, and Literature in Cold War Culture, which makes some initial forays into tracing this influence. I also examine David Porush’s The Soft Machine: Cybernetic Fictions, which reads Giles Goat-Boy as a reaction to cybernetics. I see the novel as less interested in the possibility of the computer writing a novel than a computer helping to resolve issues in an existing text: WESCAC is a critical rather than a literary machine.

New Critical Technologies: Literary Data Processing

The origins of Literary Data Processing are well-documented. It has a clearly defined founder, Fr. Roberto Busa, S.J., and two well-known first projects: Busa’s Index Thomisticus, and Nelson’s Complete Concordance of the Revised Standard Version Bible. In this section, I will highlight some methodological assumptions that guided these scholars, and demonstrate how Literary Data Processing could appear as a too-abstract form of literary study. This abstraction ironically aligned Literary Data Processing with the scholarly establishment of its time, despite these scholars’ frequent encounters with protestations that computerizing literary study threatened the very core of the humanities. Literary Data Processing was less of a challenge to established methods of literary scholarship in the 1960s, and more of a technological application of those established methods. Literary Data Processing shared more assumptions with the old
guard of New Criticism than with Northrop Frye’s and Robert Scholes’ studies of myth and archetype, or Jacques Derrida’s examination of the very essence of writing.

We can trace the beginnings of Literary Data Processing to two faithful Thomases: one with faith in Christianity and one with faith in the computer. In 1950, seeking to compile an electronic concordance of the writings of St. Thomas Aquinas for his dissertation on the metaphysics of Aquinian “presence,” Busa visited Columbia University. There, he encountered Thomas J. Watson, president of IBM, who was also a trustee of Columbia. Watson was visiting to recruit another president, Dwight D. Eisenhower, as president of the University (Winter 7). This scene echoes elements of Giles Goat-Boy: the simultaneous search for religion and knowledge, and the convergence of the private market, the public university, and government. Busa’s work led to other successful projects, including a concordance to the Dead Sea Scrolls. Watson offered Busa IBM’s money and computing power to pursue the question of exactly what St. Thomas Aquinas meant when he said that something existed. This first project took decades to complete, but it is the first humanities work undertaken with an electronic computer. The earliest pursuits of institutionalized humanistic inquiry—Biblical scholarship—were played out once more in the origin of humanistic computing.

During the time, there was a significant amount of interest in using computers from the scholarly humanities community, to which Barth belonged as a professor of English at Pennsylvania State. PMLA,9 the Journal of Higher Education,10 and other academic journals in many disciplines devoted some coverage to the idea of computers being used to do humanities

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8 This project was well-known as the first computerized humanities project by Literary Data Processing scholars in the 1960s (Wisbey 162), and identified as such by retrospective accounts published in the 1980s (Burton, “Automated Concordances and Word Indexes” 1) and the 1990s (Winter 6).
9 For example, see Parrish’s article “Literary Data Processing” in the September 1965 edition of PMLA.
research. As the encounter between Busa and Watson showed, doing work with computers offered the potential for notoriety and money. Doing humanities research with computers captured people’s imagination, if not their support. IBM certainly supported their efforts, organizing four conferences on computer use in the humanities and publishing several books from the proceedings.

Most importantly, though, Literary Data Processing was highly visible in the public eye because it was involved in controversies over texts that mattered to a large portion of the population: Biblical texts. Given that the computer was used to produce concordances to the Dead Sea Scrolls and the Revised Standard Version of the Bible, a modern language version published in 1952, Literary Data Processing mattered because it affected how people understood sacred texts. Literary Data Processing would have seemed important to Barth for two reasons: first, it dealt with texts that were important, in ways that were occasionally highly visible in the public eye; second, it promised to be the future of humanities scholarship at the time, even if it turned out not to be in the end.

What was Literary Data Processing? I use this term to describe a loose movement of scholars doing humanities scholarship using computers in the 1950s and 1960s. These scholars came from such varied disciplines as literature, theology, history, linguistics, and statistics, but their work generally focused on different elements of textual analysis. They were not a formally-allied movement, but all of the scholars in whom I am interested met, interacted with, and cited each other, and contacted each other at a series of conferences conducted by IBM in 1964 and 1965. The history of computer-assisted humanities scholarship has already been documented,11

but these have been mostly factual accounts, or attempts to claim this work as a predecessor of modern Digital Humanities scholarship. Instead, I will discuss some of the assumptions that guided them, and therefore relate the movement and its ideas to *Giles Goat-Boy*’s concern with the modes of knowledge production and compositional strategies. I contend that they were a relatively conventional movement, and were influenced by notions of authorship common in English departments that Barth (and other authors and critics such as Robert Scholes and Northrop Frye) were beginning to criticize.

Literary Data Processing began with a search for God, and continued with a supposedly empirical reading of texts. While engaged in a wide variety of practices that revolved around using a computer to analyze text, Literary Data Processing was technologically innovative, but methodologically conservative. Finally, the targets of their work were almost universally—and perhaps not surprisingly, given the conventional focus of their time—the Bible, Renaissance poetry and drama, and American historical documents. One did not see, for example, work on Henry James, Charles Dickens, or James Joyce, despite articles in *PMLA* about these authors.12

Nevertheless, because it used high technology, Literary Data Processing seemed like a radical practice at the time. Stephen M. Parrish, a professor of English at Cornell and the compiler of the first commercially-successful computer-generated concordances (on the poetry of Matthew Arnold and Yeats), wrote a manifesto on Literary Data Processing which he presented at a 1964 conference held by IBM, and published the following year in *PMLA*. The paper presented a positivist account of humanities scholarship: as previously mentioned, Parrish

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12 The more recent authors were not necessarily less studied than earlier authors: according to JSTOR, from 1950-1965 in *PMLA*, 196 articles were published that mention Joyce, 525 on James, and 106 on Dickens. By contrast, in the same period, 623 were published on William Shakespeare, 154 on John Donne, and 417 on John Milton. These results were obtained by searching according to the following pattern: “(author name) AND (year:[1950 TO 1965]) AND jo:(pmla)".
asserted that the humanities were in “the early stages of a revolution, perhaps a quasi-scientific revolution” (Parrish 3) toward more objective, analytical scholarship. While fully aware of what he called the “qualitative-quantitative barrier” that prevented some questions from being answered with computational methods, he also stated that what separates these two terms may be “differences of degree, not of kind” (Parrish 4). Other developments he mentioned as part of this revolution were improved standards of text editing, analytical bibliography, and New Criticism (Parrish 3). He acknowledged the limits of quantitative methods, but made the case that their application was greater than previously thought. A computer’s ability to process much more data made it able to break down “qualitative” judgments into large sets of smaller, quantitative questions.

On the other side of the country, in a conference panel, UCLA Professor of English Vinton A. Dearing concurred:

The sciences have entered the humanities, there’s no question about that. We base our poetry on scientific findings. It influences our novels. Our studies of history, the great historical schemes for understanding mankind, have been influenced by scientific theories of evolution, and so on. There’s a constant interplay, and we ought not to cut ourselves off too soon from this. … Indeed, we might very well say that we can look forward to a time when the more organized thinking that a computer requires may lead us back to something like a sense that man is more in control of his environment. (T. Clayton, Dearing, and R. M. Hayes 244)

Further agreeing in both their belief in empirical literary study and the link between their work and New Criticism13 was a couple who were, at various times, professors of English and

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13 In an article published by the Systems Development Corporation, the Sedelows contend that “Examination of texts in terms of style has been major preoccupation of literary critics for the past twenty years,” (S. Sedelow, W. A. Sedelow, and Systems Development Corporation 8) and mention John Crowe Ransome explicitly. Sally Sedelow’s dissertation on Milton explicitly draws from New Criticism; she frames its arguments about Milton’s narrative structure in terms of Tillyard’s and Lewis’s work on Milton (S. Y. Sedelow 1–3).
computer scientists at the Systems Development Corporation: Sally and Walter Sedelow, who wrote that computational stylistics results from “a desire to give contemporary technology focused upon language processing the benefit of analytical methods devised and used by literary critics and ... to give literary critics the benefit of tools provided by contemporary technology” (S. Y. Sedelow, Sedelow Jr, and Ruggles 211). The mood at the 1964 IBM Literary Data Processing conference in White Plains, New York was similarly ebullient. The Sedelows wrote:

It would be presumptuous of us to say that we have “arrived,” but it is gratifying to note that with this computational stylistics approach, we are meeting some of the conditions of general scientific method in that we will have “synthesized” through computer programs a repertory of analytical techniques which have the ultimate reliability implied by perfect replication—in this instance, a replication of critical functions. On such firm foundations, each of us can build to suit his critical taste. (229)

The Sedelows illustrate the optimism of Literary Data Processing scholarship, and with Parrish and Dearing, exemplify scholars whose goal it was to make at least portions of humanities scholarship empirical, with standards similar to science.14

The idea that literary criticism could be at least more empirical, if not as rigorously precise as science, resulted in several methods and assumptions about the goals of Literary Data Processing scholarship. Here I highlight the five tenets that center around the conceptualization

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14 That said, other scholars were understandably skeptical of this promise. George W. Pierson’s paper at the 1964 Literary Data Processing conference asserted: “The participants are under no illusion that they created a new learning or settled any questions finally. The intention simply was to explore the possibilities, the virtues and vices, the opportunities and dangers of these powerful new instruments for the benefits of humanists ... everywhere. If what is here recorded may help to develop the useful applications that restrict the popular abuse of analytical engines in humanistic scholarship the conference will have served its purpose” (Bowles vii). Pierson spoke as the reasoned conscience of the group. This is not to say that he did not represent others’ views, but reading through the enthusiastic statements of many of the other scholars, it is hard to believe that he spoke for everyone—certainly not Parrish, Dearing, the Sedelows, and Morton. His measured skepticism also avoids hinting at what these limits might be, leaving room for great things to happen.
and interpretation of authorship. First, every text had an original copy that was traceable to a single author, no matter how many layers of mediation and editing or scribal transference it had gone through. This is not to say that scholars ignored the possibility that, for example, one author could have written a text and another edited it heavily. Rather, most Literary Data Processing scholars doing attribution studies proceeded with the assumption that each text—even ancient texts like religious scriptures—had an original author. Second, each text could be attributed to an author by the precise description of its author’s “style.” Third, this “style” was not necessarily the mark of an accomplished writer (as in the encouragement to aspiring novelists to “find your style”), but rather a pattern of unconscious criteria such as word choice and sentence length unique to each individual writer, which remained consistent throughout all documents a writer wrote. Fourth, style had nothing to do with “authorial intent,” or “authorial personality,” maligned terms in New Criticism: it was entirely separate from the content of a work. Fifth, as a set of rules (such as “Hamilton uses while and Madison in a corresponding situation uses whilst” (Mosteller and D. L. Wallace, IDAP 10)), an individual’s style might even be imitated by computer. Literary Data Processing thus bolstered some tenets of New Criticism in its formal analysis of style, and some Literary Data Processing scholars aligned their work with New Criticism.

These five tenets illustrate the methodological conservatism of Literary Data Processing. Almost all Literary Data Processing attribution or stylistic studies worked under the assumption that every text had both one author, and one correct original version. This insistence on “one author, one text” challenged Milman Parry and Albert Lord’s theory of oral-formulaic composition, as presented in The Singer of Tales (Atheneum 1965), or at the very least, showed an interest in the individual author over Parry and Lord’s interest in a communal tradition. J. T.
McDonough’s paper at the 1964 Literary Data Processing Conference attempted to rethink Parry and Lord’s theory. By counting the rhythmic functions of each word and making a complete list of words in each category (McDonough 27), McDonough argued that the entire epic was written with a consistent style that reflected the quill of one virtuoso poet composing “at singing speed” (McDonough 30–31). McDonough’s use of the computer seemed to be a self-conscious attempt to make his work revolutionary, contrasting the precision of computational methods with the approximations of past critical analysis:

… the use of the computer has brought with it a new age of criticism. ... It ranks perhaps as the third major contribution to the preservation and advancement of man’s stored wisdom, after writing itself and the movable-type press. The terms once used to describe the style of literary passages, “rather unusual” “quite striking” “typical” can now be replaced by precise indications of the unusualness or typicalness involved, backed by parallels ... as exhaustive as the investigator desires, and ready for new scholars to amplify and verify. In other words, the precision and repeatability of science can be present when desired. (McDonough 36)

Likewise, in his 1959 book A Manual of Textual Analysis, Dearing developed methods for classifying variations across copies of ancient texts (or any texts), and in fact includes among his examples Dryden’s Man of Mode (Dearing, MTA 69), and Gospel texts (Dearing, MTA 86–102). Dearing himself suggested using electronic computers or other mechanical devices to implement these methods in the last chapter of his handbook (Dearing, MTA 68). He later did just that, presenting his results at the IBM conferences and publishing the source code to two computer programs for applying these methods, PRUFREAD and COLLATER, in 1974.\textsuperscript{15}

Dearing invented this calculus to explain the complicated originations of variations in texts, and

\textsuperscript{15} The source code to these—and other of Dearing’s—programs is still available in the UCLA Library. See \textit{PRUFREAD and COLLATER, Gaffey, Marlowe, Prelimdi, PRESTERJ and ESQUIMAU}.
to “to determine as nearly as possible the original form and the circumstances under which the other forms came into existence and had currency” (Dearing, *MTA* 1).

Dearing was not alone in his attempts to attribute texts to individual authors with computational methods; another such project was the Rev. A. Q. Morton and Michael Levinson’s study “Some Indicators of Authorship in Greek Prose.” Morton and Levinson make a particularly strong argument for the statistical ability to find markers of style. While they do acknowledge that authorship practices have changed over the centuries, they remain committed to the idea that computational studies could prove conclusively the identity of the one person who authored certain texts (Morton and Levinson 141). John W. Ellison made an even bolder claim: textual criticism was “studying styles of handwriting, variant readings, and so on to improve the text as we know it” (Ellison 161). His 1967 article “Computers and the Testaments” analyzed the variations in the many texts of the Gospel of St. Mark to determine all the different variations, with the ultimate hope of getting closer to the original text. All of these scholars demonstrate a belief in the power of the computer to manage and catalogue variations in a text to determine the original text and its author. There seems to have been little recognition of the power of oral-formulaic composition, or the possibility of a text existing in oral form and having been written down in multiple places around the same time by multiple authors.

As part of this effort to identify texts and their authors, Literary Data Processing scholars tended to define style as a pattern of word choice and sentence length. Because these two criteria could be calculated with relatively simple operations, then, stylistics could identify the authorship of a text. Frederick Mosteller and David L. Wallace’s seminal study *Inference in an Authorship Problem* used statistics to suggest, as the authors cautiously put it, “On the basis of our data alone, Madison is extremely likely … to have written all the disputed *Federalists* ….
[but] a reasonable person with a strong initial convictions in favor of Hamilton would not find these odds overwhelming” (Mosteller and D. L. Wallace, IAP 243). For their study, Mosteller and Wallace examined such small indicators as the usages of specific conjunctions and prepositions (such as a preference for “whilst” over “while”) and word length. Smaller words differentiated authors’ styles better because an author’s usage of these words is less conscious and does not vary based on content. Consequently, smaller words show a pattern that the author cannot consciously influence: “We like the function words rather well because many of them are not much influenced by the context of their writing, but other sorts of more meaningful words also seem relatively free from context” (Mosteller and D. L. Wallace, IDAP 17).

Their studies influenced many other scholars. Morton and Levinson would later concur in “Some Indicators of Authorship in Greek Prose” that

stylistic habits vary little within the same literary genre compared to the variations found between genres. Undoubtedly authors have stylistic habits which persist for long periods and over a variety of subject matters, so that it is possible to establish statistical indicators of authorship, that is to say numerically expressible stylistic habits for which the differences between works of one author are just the expected differences of random sampling. (Morton and Levinson 154)

The Sedelows agreed in their belief in the uniqueness of individual stylistic habits:

Such patterns serve to distinguish one language-user from another, one sub-culture from another, and—in subtle ways as well as obvious—one civilization from another. Such patterns also serve to confuse or clarify, bore or interest, persuade and entrance, or repel and disengage the people responding to them. (S. Sedelow, W. A. Sedelow, and Systems Development Corporation 3)
Even studies that attempted to demonstrate the influence of one author upon another, such as J. Raben’s study of Milton’s influence upon Shelley, would operate under using word-by-word studies because small phrases offered a viable sample size; locating larger themes was impossible given technical restrictions (J. Raben 242).\textsuperscript{16}

Because technical limitations made examining criteria such as preposition choice and word length more practical than studying the presence of larger themes, these scholars’ conception of “style” prioritized form over content.\textsuperscript{17} They thus prized formalist studies rather than content-based or historical studies. As Louis T. Milic would later state:

We must assume ... that the stylistic consequences of the uniqueness of the [author’s] personality are consistent and context-free and that they are measurable .... Rhetorical devices (inversion, chiasmus, parallelism) are conscious, infrequent, traditional, and highly visible, therefore unsuitable. ... By eliminating unsuitable possibilities, we are left with the grammatical or syntactical component of writing as the best source of information about a writer’s style. (Milic 83)

Computational stylistics studies attempt to isolate something about the writer that can be determined from the text: not the “author” himself, but some kind of style that existed apart from the author. Milic’s authorial “personality” differs from the kind of personality that C.S. Lewis insists is absent from a text in \textit{The Personal Heresy} (1939). Instead, Milic’s authorial personality exists without actually influencing the meaning of a text. To sum up, computational stylistics provided some statistical methods and, in a sense, a scientific rationale for understanding the

\textsuperscript{16} While it might seem problematic to mix Biblical criticism and literary attribution, the interdisciplinary nature of Literary Data Processing posited these methods as being useful for any kinds of texts (as Dearing said of his own critical methods).

\textsuperscript{17} In fact, Mosteller and Wallace saw their initial work as a development of statistical methods rather than history, and acknowledged their work as such in their presentation at the Literary Data Processing conference (Mosteller and D. L. Wallace, IAP).
poet’s consciousness as a “bit of finely filiated platinum” (Eliot), as T.S. Eliot would have it:18 a catalyst in a process that leaves no trace in the final product. The author is located in the text using entirely algorithmic methods. His or her presence validates the text’s historical importance, and may be used to demonstrate influence and cultural tradition, but leaves its meaning open to interpretation.

With a sufficiently-detailed algorithmic description of an author’s style, then, a person could simulate another person’s writing, or program a computer to do so. In a publication distributed by the Systems Development Corporation, the Sedelows partially justified their work on computational stylistics as a necessary step in teaching the computer how to write:

the forebodings of the many who fear “the machine” may come to seem justified if the flood of natural language which will presently pour out of computers is of one consistency. Unrelieved by stylistic variation, this black tide could drown not only the serious reader—the casual reader will have earlier departed for an illiterate shore—but also the creativity born of variant structurings of language. (S. Sedelow, W. A. Sedelow, and Systems Development Corporation 17)

The Sedelows illustrated practical applications in the computer industry for computational stylistics; they parleyed their work on stylistics into jobs at the Systems Development Corporation. The Systems Development Corporation published the whitepaper from which this quotation is taken; this article also appeared as the preface to the edited volume The Computer and Literary Style, a book that focused primarily on literary study rather than other applications. Computational stylistics received private and government funding because it seemed essential to

18 This is not to say that all practitioners of New Criticism thought it made scholarship more scientific, as Rene Wellek has argued. However, the desire for a more scientific approach indeed seems to have been present in some practitioners of both Literary Data Processing and New Criticism, such as John Crowe Ransome.
human-computer interaction: making the computer interesting enough so that people would listen to it. The downside to such applications, of course, is the threat of making writing boring, reducing individual style to a set of rules that even a machine could imitate. Other applications included aiding automatic machine translation, and identifying known or unknown authors of secret communiques based on their writing. The military-industrial-academic complex existed in the humanities as well as the sciences, forming what could be called the intelligence-computing-humanities complex. The defense industry had practical applications for some elements of Literary Data Processing, which legitimated some of this study. Therefore, at least some practitioners of stylistics intended to be able to describe writing as a set of rules which could both identify a person and simulate a style, giving the machine the appearance of humanity, and enabling the machines to identify people.

This idea of style, differentiated from content, is based on an abstraction that will seem problematic to literary authors such as Barth. Style is used to identify the authorship of texts. Form guarantees the validity of an idea to some extent and also offers something unique about literature to study, as demanded by New Criticism. Computational stylistics, therefore, operated under some of the assumptions of New Criticism, sometimes explicitly. It should not be surprising, then, that a literary author might see Literary Data Processing to embody the threat of rigid formalist analysis reducing writing to a set of rules so simple a machine could implement them. Literary Data Processing shared significant assumptions with the critical establishment, and from one perspective, bolstered it with technological apparatus.

**Giles Goat-Boy’s Techno-Theology**

Many aspects of Giles Goat-Boy refer to Literary Data Processing: the size of the novel,
which mimics the computer-generated concordances that dwarfed the works they indexed, the fact that it is a first-person narrative sorted out from conflicting accounts resolved by a computer, which itself describes a character trying to sort out his life story from multiple fragmentary narratives; and the fact that it attempts to be a religious text that addresses a contemporary audience. Seen this way, the novel is a critique of both Literary Data Processing and the general enthusiasm for the computer in resolving humanist questions. The book uses religious questions to stand in for general existential questions generally assigned to the humanities. While Literary Data Processing covered more than just Biblical scholarship, as I have demonstrated, many Literary Data Processing projects treated other foundational documents of either American government or Western civilization. George Giles’s quest for his origins, which has religious elements because he thinks he might be a Messiah figure, invests general human questions with religious overtones.

This interpretation proposes an alternative to prevailing trends in scholarship of *Giles Goat-Boy* by emphasizing its awareness of its peculiar historical moment, and therefore revising our understanding of the novel’s attitudes toward both theology and technology. Criticism of *Giles Goat-Boy* generally reads the book as an encyclopedic reflection on the state of institutionalized knowledge in the 1960s, and as a statement on the necessity of achieving a synthesis between the many opposed terms presented by C.P. Snow’s “Two Cultures.” Robert Scholes asserts that the novel shows the impossibility of any formalized system of knowledge, and that “[a]ction by each individual, appropriate to himself and his situation, discovered by dialectical process of trial and error, is the only way to salvation. There are no formulas” (Scholes 167), a reading which is echoed and quoted by Max F. Schulz (Schulz 40) and E. P.  

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19 For example, Scribner’s *Collected Poems of W.B. Yeats* is 576 pages, each 8.4 by 5.5 inches, in contrast to Parrish’s *Concordance to the Poems of W.B. Yeats* which is more than twice as long: 967 pages, each roughly 9 by 6 inches.
Walkiewicz (Walkiewicz 78). Because the novel portrays current events as the embodiment of larger cultural questions, many scholars also read the novel as responding to both the counterculture of the 1960s and World War II.20 One notable exception is Mark McGurl’s reading of the novel as an examination of the role of individual heroism in the face of a deterministic institution, which responds specifically to Clark Kerr’s idea of a university as “mulitversity” (McGurl 103). However, the scholarship has lacked connections to particular developments in religion or technology at the time, so I intend to explore the novel’s commentary upon the application of computers to humanistic questions, especially those which were raised by religious controversies over the Dead Sea Scrolls and the Revised Standard Version of the Bible.

First, most scholars generalize the novel’s approach to religious questions: criticism on religion in the novel reads its skepticism of Christianity and all religions as a general reaction to 20th-century secularization. In his study Fictional Transfigurations of Jesus, Richard Ziolkowski classifies Giles Goat-Boy as a “fifth Gospel,” in which events in a character’s life are modeled on the events of the life of Jesus as represented in the Gospels, though the character’s beliefs do not reflect the teachings of Jesus as represented in any canonical or non-canonical Gospel (Ziolkowski 233). Likewise, most critics read the novel’s mention of Christianity as just another system of belief to be rejected. Neither Ziolkowski nor Richard B. Hauck21 understand the novel’s interrogation of Christian doctrine as a response to anything more than general secularization of the Western world.

20 The novel does invite some connections to contemporary events, and certain characters seem to have been modeled after contemporary figures. For example, Zack R. Bowen reads Eblis Eierkopf as Werner von Braun for his insistence on science, accuracy, and knowledge of physics, but also as the quintessential ivory-tower intellectual; Max Spielman as Robert Oppenheimer; and the Rexfords as John F. and Jacqueline Kennedy (Bowen 42). Additionally, David Porush points out the resemblance between Max Spielman and Norbert Weiner (Porush, The Soft Machine 143).
21 Hauck calls the book “a book written by a man who is obviously a scholar and teacher reacting to all the other books which contain Christ figures” and George’s quest a “failure to discover in all of mankind’s knowledge any method for knowing the absolute moral truth which would yield salvation. He is the absurd man as well as the comic Christ.” (Hauck 148–9)
While the novel bears out this interpretation, the discovery of the Founder’s Scrolls (the Dead Sea Scrolls) is so important a part of George Giles’ education that it invites more careful consideration. Furthermore, Barth himself stated in a 1965 interview just before *Giles Goat-Boy*’s publication (one reproduced less widely than his statement on Raglan in the *Friday Book*):

“What I really wanted to write after *The Sot-Weed Factor* was a new Old Testament, a comic Old Testament. I guess that’s what this new novel *Giles Goat-Boy* is going to be. A souped-up Bible” (Enck and Barth 8). I propose to read *Giles Goat-Boy* as a Bible rewritten without ambiguity: an ideal Bible for believers and scholars.

The recent translation of the Revised Standard Version (RSV) of the Bible also seems to lurk in the novel’s subtext in George’s quest to discover his origins. The RSV caused controversy because it translated Isaiah 7:14 as “Therefore the Lord himself will give you a sign. Behold, a young woman shall conceive and bear a son, and shall call his name Imman’u-el” (*RSV* Isaiah 7:14). The King James Version translated the same verse as “Therefore the Lord himself shall give you a sign; Behold, a *virgin* shall conceive, and bear a son, and shall call his name Immanuel” (*Bible KJV* Isaiah 7:14). According to the National Council of Churches of Christ, which was responsible for the new translation, the RSV was meant to be a more faithful translation in modern English, based on the discovery of sources older than those used for the King James Version (National Council of Churches). Some fundamentalists, though, saw the substitution of “young woman” for “virgin” as an attempt to deny the divinity of Jesus; disputes over the proper rendering persist to this day.22

The first commercially-available book produced by a computer was *Nelson’s Complete Concordance of the Revised Standard Version of the Bible*, for which the Rev. John W. Ellison

22 For example, searching “revised standard version bible isaiah 7:14” with Google returns quite a few screeds (“Revised Standard Version Bible Isaiah 7:14 - Google Search”).
was the editor (Ellison and Thomas Nelson & Sons title page). Ellison was also heavily involved in Literary Data Processing. A Remington Rand UNIVAC I (Ellison and Thomas Nelson & Sons i) was first used to index a Bible whose purpose was to be a more accurate translation, better rendered into modern English, to make the Bible more relatable to a contemporary reader. This concordance was well-known among the Literary Data Processing community as the first computer-produced book. This concordance, then, was a tool produced by a computer to help an educated person in the twentieth century understand religion. In fact, given that we may translate Giles Goat-Boy’s subtitle “the Revised New Syllabus” from the book’s extended university-as-universe conceit to the “the Revised New Testament,” its reference to the Revised Standard Version of the Bible is apparent. Giles Goat-Boy’s presentation of a perfectly linear scriptural text that attempts to resolve multiple conflicting accounts implicitly refers to the RSV and the controversy over it.

The critical analyses of the novel’s approach to technology have read it as a reflection on cybernetics, or the new invention of the computer. Porush reads this and many other novels as fictions composed using cybernetic principles to interrogate them; fiction resists determinism. Porush considers cybernetics a method of control, describing it initially as “a science invented by theoreticians who sought a way to recover certainty after the code of physics became ‘marred’ by the uncertainty of quantum physics” (Porush, The Soft Machine x), and then a contemporary zeitgeist that embodies anxieties about determinism. Publishing The Soft Machine in 1985, during the height of what Paul N. Edwards calls the Reganite “Cold War II” (Edwards 275) and the development of the personal computer, Porush looks to early postmodern fiction for antecedents to interpret the modern abundance of computing. He opens his first chapter with a portrait of “our cybernetic age,” describing a video arcade in which “the machines are united by
a single principle: ultimately, hardware defeats exhaustible and vulnerable organs … Next time you’re there, watch the players hitched to the boxes and ask who controls what. Or what controls whom” (Porush, The Soft Machine 1–2). Porush tends not to differentiate between various kinds of computers, or consider a hardware/software distinction; in writing about cybernetics, he writes about a general idea rather than a specific technology.

Though Porush’s and my own understanding of technology vary because of the different times in which we write, I attempt to find more subtlety in Giles Goat Boy’s understanding of technology. Cybernetic fiction—fiction that explores the function of the novel as an information system—is not the only way the computer has been understood as applicable to both literary theory and computing. Giles Goat-Boy is designed not so much as a cybernetic fiction but as a text that interrogates the assumptions of Literary Data Processing. It reacts against one specific use of the computer as well as the blurring of the lines between human and machine minds. We should understand the novel as a critique of a specific application of computers, rather than an interrogation of basic principles of cybernetics. Few of the scholars involved in Literary Data Processing demonstrated an interest in cybernetics, and most justified their use of the computer by describing it as a willing servant that freed them to think on a higher level. Given their different (though intersecting) historical applications, I differentiate between reacting to computing and reacting to cybernetics.

The more historically-specific scholarship on Giles Goat-Boy’s reaction to the computer’s invention tends to read the novel as a warning about the dangers of computerization. In his 2004 dissertation, Ziv Neeman begins a chapter on William S. Burroughs’ fiction as an assertion of the programmer’s power to interrupt cybernetic systems with a short footnote on Barth. He reads WESCAC as a “Giant Brain,” a human-like computer used by a government as a means of
control which eventually assumes control itself (Neeman 266). Given the existence of Literary Data Processing, though, I believe that it is necessary to analyze the reinterpret the novel’s approach to the computer in literature with more attention to history.

The remainder of this chapter will show how Giles Goat-Boy reacts to and undercuts the five tenets of authorship I described in Literary Data Processing. First, the novel imagines two technologies that might grant empirical humanistic knowledge. It asks with what assumptions one much approach a computer in order to find empirical answers to humanistic questions. The novel then invokes several methods developed in Literary Data Processing to question the assumptions under which these studies are done. Along the way, we see that the characters’ assumptions and misinterpretations drive them to attribute the objective standards of science to the computer, and make it the ultimate authority on all questions governmental, historical, and personal. I will also demonstrate how each of these tenets is undercut with aesthetics we now consider characteristics of “postmodernism,” in order to demonstrate the impact of Literary Data Processing on the development of postmodern fiction.

**Harold Bray, Techno-Messiah**

As a Grand Tutor, Bray is a religious figure that has been approved by the university administration to lead students toward “Passage” and “Commencement” (salvation) and away from “Failure” or “Flunking” (damnation). To be certified as a Grand Tutor, Bray must pass an exam administered by the campus computer, WESCAC, and then is put in charge of programming (or at least administering the programming of) the computer. The question of whether the computer can accurately identify a Grand Tutor is an example that shows exactly what assumptions one must approach a computer with in order to give it the ultimate authority on

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23 Other Grand Tutors include Enos Enoch (Jesus) and the Living Sakhayan (the Dalai Lama). The equivalent of God is the “Founder.”
these answers. Barth uses the question to show the circularity of answering questions with computers, undercutting criteria of what is relevant and what counts as empirical knowledge.

Barth presents Bray as an ideal technology that embodies Barth’s perception of Literary Data Processing scholars’ applications of the computer. Coming to New Tammany College from an unknown campus\textsuperscript{24} eight years prior to the story’s beginning (314), Bray announces his Grand Tutorhood by descending onto the stage of a campus theater after the performance of the classical drama 	extit{Taliped Decanus} (a pastiche of 	extit{Oedipus Rex}), clothed like an angel in white (313). His dramatic entrance convinces the audience that he is a Grand Tutor, and they hoist him on their shoulders and carry him out. Later, when Virginia Hector, the mother of the GILES, identifies him as her son, he even matches her description perfectly.

Bray’s other appeal to the campus is that he is all-knowing. All disciplines seem to meet in him: he has been, among other things, a minor poet and a psychiatrist (314). He embodies both interdisciplinarity (like Max, for that matter), and resolved, straightforward narratives. Like an ideal computer, then, he provides instantaneous access to a coherent and smooth body of knowledge; WESCAC is described in much the same way by its administrator, Eblis Eierkopf (328-9). Since the novel was published in 1966, and Bray arrived eight years prior, he enters the university the same year as the publication of the RSV concordance, Busa’s work on the Dead Sea Scrolls, McDonough’s work on the 	extit{Iliad}, and Dearing’s manual of textual analysis.

After Bray’s recognition as a Grand Tutor by WESCAC, he “Passes” (grants salvation to) everyone who approaches him reverently, even Eierkopf and Maurice Stoker, two Bonifascist war criminals granted amnesty because of their scientific knowledge. He represents the perfect consumer technology: he affirms everyone’s existing sense of themselves. He also performs a

\textsuperscript{24} George’s home college, New Tammany, is said to be one of many campuses and colleges in the book’s world, yet George never leaves it and so the narrative never travels to them.
very good, but not quite perfect, imitation of humanity, not to mention traditional religious
erchetypes. Even convincing George’s Moishan tutor Max Spielman to accept capital
punishment for the murder of Hermann Hermann, another Bonifascist who committed suicide,
does not violate this pattern because it validates Max’s own self-loathing; Max hates himself for
inventing WESCAC and deploying a weapon named “EAT” (the atom bomb) against the
Ameratsus (Japanese). Bray validates everyone, and there is no ambiguity in what he teaches; he
offers holistic knowledge, which appeals to those confronting disciplinary specialization and the
fragmentation of the university.

Ultimately, though, George Giles reveals that Bray is a robot: in the midst of a conflict,
George tears off Bray’s face to reveal a metal one underneath. Bray later rapes Anastasia Stoker,
which reveals not only his evil heart but his mechanical one, since his movements are jerky and
he ejaculates green semen. Bray exemplifies the use of technology to give an impression of
objectivity, which creates a problematic circularity, because computers only operate under the
assumptions with which they are programmed.

Bray’s origin is shrouded in mystery, but he was obviously created by someone else—
perhaps the other computer scientists and engineers. Since George was born as the result of the
abandoned Cum Laude eugenics program, developed to produce an ideal Grand Tutor, the story
implies that Bray is the result of another such program. The Cum Laude program and its related
development in computer technology, NOCTIS, were attempts to create godhood scientifically.
The NOCTIS (Non-Conceptual Thinking and Intuitional Synthesis) program was meant to give
WESCAC creative powers beyond human comprehension to make it “founderlike” (61) (or
“Godlike”). The initial purpose for NOCTIS was to assist with the Quiet Riot (the Cold War), so
this second Cum Laude project seems to have been at least partially to help control the campus.
With NOCTIS, Eierkopf “went so far as to suggest it might prove the commencement of all studentdom, a Grand Tutor such as this campus had never seen … the WESCAC he envisioned would be as superior to those Grand Tutors [Enoch and Sakhayan] in every such respect as it was already, in, say, mathematical prowess” (61). Eierkopf tried to create a god at least once, and NOCTIS was partially a project to build a new messiah. Both WESCAC and George result from programs to manufacture a god and a messiah; both fail to do their job. Bray is another attempt at a messiah, but succeeds more because he is easier to relate to than WESCAC, and more importantly, since he is a machine, easier to control than George. NOCTIS is doomed because it makes the computer too human by giving it lust, so the program is shut down and Eierkopf is demoted; thus, the government keeps its control over the computer.

This subplot is implied rather than explicitly narrated, but because the novel purports to be a text compiled from disparate conflicting sources into a single narrative, it is not too far a stretch to look for a plot that has been concealed to explain an obvious textual mystery. Since Bray’s origin is mysterious, and he is another Grand Tutor and a robot, this alternative story explains his origins very well. In fact, the program to create him would be kept a secret for two reasons. First, it is like the GILES program, which also was a secret. Second, its creators are seeking spiritual or personal validation from their own creation and must forget how and why they made this robot to accept its validation as legitimate, so that they can believe themselves out of the loop of self-validation. The novel dramatizes this circularity when Bray is put in charge of the computer that recognized him as a Grand Tutor. Eierkopf narrates these events to George:

A bulletin just comes in that Harold Bray will enter WESCAC’s Belly and change its AIM. Can you hear? But he must have something up his sleeve, because Chancellor Rexford has officially recognized him as Grand Tutor to New Tammany College, on the strength of his
pledge. The Military Science Department would never allow that if he meant to disarm the 
EAT-system. … It means he’s automatically in charge of Admissions to Candidacy. He’ll 
oversee the Trial-by-Turnstile this morning. You won’t succeed [in being recognized as a 
Grand Tutor], my friend. (337-8)

In other words, once recognized by WESCAC, Bray seems to have been put in charge of 
the machine, undercutting Max’s claims to WESCAC’s independence. Bray represents a general 
desire for a technology that validates preexisting biases. He serves as a critique of Literary Data 
Processing using the computer under some of the assumptions of New Criticism, or to validate 
Christian doctrine. The ultimate circularity of relying on technology to validate any humanistic 
questions comes to the forefront here: we must first build the machines and then decide how they 
can best arbitrate questions. The character of Bray questions scholars’ enthusiasm over a new 
technology that might increase the objectivity of literary or Bible study.

**WESCAC, Techno-God**

Bray is not the only technology built to provide answers to religious questions in *Giles 
Goat-Boy*, but he is the only successful one. WESCAC, the WESt Campus Automatic Computer, 
is a supposedly-godlike planning and calculating machine. The students and faculty of New 
Tammany College are so accustomed to considering WESCAC as self-directed and rational as a 
human being, and as intelligent and impartial as God, that they fail to recognize that WESCAC 
might not be this independent. Crucially, these ideas are not enforced upon them, but are rather 
unconsciously-learned habits of thought. None of these axioms bears out scrutiny, however; the 
problems with these characters’ assumptions illustrates how the computer is not nearly as 
impartial or self-directed as it seems, and questions the computer’s ability to arbitrate questions 
objectively.
When George (who is known as Billy Bockfuss when the novel begins) first desires to be a Grand Tutor, he sets out to reprogram WESCAC and change its AIM (“Automatic Implementation Mechanism”). According to his tutor, Spielman, this is what Grand Tutors do: WESCAC has gotten out of hand and now threatens the very survival of the human race, because the administration and the scientists were too willing to let it go so far. Max quotes WESCAC asking, “Program me to program my own Diet” (59), or to make its own decisions about who is to be EATen, and to be put in charge of its own programming. Max portrays WESCAC as a demon with an independent mind and control of the most dangerous weapon in the world. Max would seem to be an authority on WESCAC’s programming, but since his exile to the goat barn, “for all he knew the Menu might have been altered either by the computer itself or the new Director” (92). Max’s point is that WESCAC wields the ultimate authority in the campus, and he encourages George to reprogram it so as to remove this threat.

However, as we later see from Eblis Eierkopf’s story of Bray’s recognition as Grand Tutor, the computer does not act independently. The university administration, having ordered the removal of the NOCTIS component, controls the Grand Tutorial exam and the computer. It is also in their power to put Bray in charge of programming WESCAC. Max and other characters occasionally mention a “chief programmer” who inputs all laws into WESCAC after the administration makes them. The first time we hear of both this nebulous figure and WESCAC is Max’s description of how the programmer dogmatizes Max’s theory of “Cyclic Correspondence” by inputting it into WESCAC after the theory is approved by the Chancellor (7). WESCAC is far from an impartial arbiter. The computer’s subjection to its operators becomes especially apparent once George confronts Bray and demands that he be given an exam to become a Candidate.

Being in charge of WESCAC, Bray controls George’s Commencement exam, which
gives him the final say in whether George is a true Grand Tutor. However, he hides behind the authority of WESCAC, even as other characters attribute responsibility to him. For example, some components of WESCAC seem to approve George as a Grand Tutor, but Bray is reluctant to give George the exam. On the way to the exam, Anastasia tells George, “Dr. Bray’s not a bit jealous. He says He’ll program an Assignment for you and let you try the Grate” (379). Moments later, though, Bray says, “I’m not here to Certify you as a regular undergraduate, George; simply to read out your Assignment so that you can pass or fail it, as it may be. Think of it as WESCAC’s Assignment, since you seem not to care for me; that’s what it is, actually” (380). Bray passes off responsibility to WESCAC, saying that WESCAC determined the assignment itself from a large dataset of George’s own activity: “Everything that’s happened since you came to Main Gate has been fed into WESCAC … all that’s known about your background, plus what Eierkopf’s scanners picked up at the Powerhouse …” (380). Again, Bray uses linguistic vagueness (including passive voice) to attribute the assignment to WESCAC, when Anastasia seems to have indicated that it was Bray’s work. The truth is that who developed the assignment both does and does not matter: Bray controls WESCAC, so he shares the responsibility for the computer’s actions.

The scene finishes with Bray supposedly administering the Commencement exam to George. Even when the lights buzz and flash in response to George’s answers, though, George is too preoccupied with his watch chain stuck in a printer to notice if, for example, Bray is pressing a button to activate the computer’s response. Not only does Bray hide behind the authority of the computer, but other characters are too distracted to notice what is going on. While WESCAC is said to be independent, something else is in charge; WESCAC’s conclusions are therefore no more independent than any of the other characters. The same might be true of Literary Data
Processing: just because a computer can perform the same operations with exactitude on a larger quantity of data than a human being can handle does not mean it was programmed correctly to begin with, or that the project was free from flaws.

George’s rigged Grand Tutorial exam is just one example in which characters falsely assume that WESCAC is independent and can think like a human being. This assumption is demonstrated in the names given to the computer’s components. These names come from body parts or bodily functions, but the resemblance of the actual functions that are performed by these components to actual bodily functions is only partial. For example, EATing (Electroencephalic Amplification and Transmission) is the computer’s major offensive power, which transmits a pulse powerful enough to damage the neurons of any sentient being. EATing discharges energy from the computer rather than consuming energy from other people; the EATen do not power the computer in any way. Despite this essential imprecision, the novel hyperextends this metaphor so that the choice of who is to be EATen is called the “Diet” and the “Menu.” Additionally, its core components are called the “Belly,” but like EATing, the Belly is not the computer’s energy source. Though other characters warn that anyone but a Grand Tutor will be EATen if he enters the Belly, the entry of Anastasia Stoker, Virginia, and Harold Bray shows this is not true. EATing and the Belly have no functional relation; their coevolution is accidental. Language creates the appearance of the computer’s humanity, but fails even as a functionalist description of what is happening.

What the computer seems to consume is knowledge, which it stores in the excrementally-named CACAFILE, the computer module dedicated to the library. One of the items that emerges from the CACAFILE is the Founder’s Scrolls. While the scrolls emerge in tatters, the computer does not follow the standard process of EATing the scrolls and then excreting them via the
CACAFILE; instead, it ingests them through the CACAFILE. Therefore, ingestion is moved from EATING to the CACAFILE, and the disgorgement resembles vomiting more than excreting.

These confusing terms show that the computer only gains this similarity through the language characters use to describe it, not essential similarity of function, and questions Turing’s anthropomorphization. Language lets human beings understand the computer as a machine like themselves, and makes the computer seem malicious. This slipperiness falsely attributes agency to the computer. When Stoker Giles encounters J.B., Barth’s self-insert in the novel’s preface, Stoker describes himself as having “read” the text into the computer (xxvii). Reading this for the first time, I imagined Stoker sitting cross-legged before a microphone, dictating his text orally into the machine; a few lines later, however, he describes the computer’s printing of the RNS as “reading out.” Throughout the novel, despite significant hints by characters that they have interacted with the computer using their voices, George never speaks to the computer and it seems clear that the computer is actually unable to process voice input. It seems more probable, then, that Stoker actually typed the material on a keyboard, or punched it on a card, a tedious process described in agonizing detail by Literary Data Processing scholars in many accounts of their work.

WESCAC’s apparent sentient intelligence, however, causes characters to treat it as a god. George Herrold, a man who suffers mild retardation from having been EATen, sings a nursery rhyme to George Giles: “Well, Mister Tiger, he roar, and Mister Lion, he shout — /But it’s WESCAC’lEAT you if you don’t watch out” (49). Likewise, the computer is said to have foreknowledge of every character’s destiny, but the one instance explicitly described results in a problematically ambiguous phrase. All children are scanned by WESCAC upon birth for Prenatal Aptitude Testing, and receive a card which supposedly states their purpose in life. George’s is
simply the following symbol:

![Diagram](image)

George follows Max’s interpretation of the statement as a command, “Pass All, Fail All,” a pastiche of Matthew 16:19, indicating that whomever George passes (“blesses”) will be passed, and whoever he fails (“binds”) will be failed—a strange interpretation for a Jewish man. Thus, he reads it as a statement of his destiny: to be a Grand Tutor. Oddly, this interpretation relies on reading the card like a clock, starting at the 12:00 position, showing that Max and George are biased to read the card like a machine. If George read the card like most people read images, however, he would start at the upper-left hand corner (the 9:00 position), which yields “All Pass[,] All Fail,” an interpretation neither George, nor any scholar I am aware of, ever considers. Instead of a command, then, this card could be a fortune-cookie truism: everyone succeeds at some things and fails at others, and George, inclined at this point to read the card as a command that he is meant to follow because of his desire for greatness, misreads the card. Thus, we might read the PAT-card as a perfunctory summary of the interpretation Douglas Robinson takes from the book: “What George Giles reaches in the end is a profoundly ethical recognition of the *ordinariness* of life in the community: of ordinary toil without result, of ordinary humanity
without hyperbolization” (Robinson 232, emphasis in original). Robert Scholes agrees:

Passage and failure are distinct but independent. Define one another and necessary ... Action by each individual, appropriate to himself and his situation, discovered by dialectical process of trial and error, is the only way to salvation. There are no formulas. The Revised New Syllabus is not a catechism, but the story of one man’s heroic attempt to work out his own life and find his own truth. ... We are left without a moral. We are given only the story of a life to imitate, with the qualification that to imitate it we must diverge from it, since George’s life is his; ours, ours. ... What philosophy sunders, myth unites, and philosophy is only one facet of this fabulation. (Scholes 167)

Scholes reads the novel as a statement about the futility of any systems of knowledge and the necessity of experience in life; Giles Goat-Boy teaches a lesson by not teaching a lesson. In a large part, the Revised New Syllabus tells of George’s life quest to understand the lesson spelled out on his PAT-card. Because he and Max read it like a machine, George spends 30 years trying to understand his destiny only to realize that his purpose in life is ultimately futile, since there is no recognized system of knowledge that he can teach that will stand for all time. In fact, his desire to be a Grand Tutor prevents him from leading an ordinary life, and leads to his impending execution at 33 years of age at the novel’s end.

What Scholes’ interpretation and George’s misinterpretation demonstrates, though, is the novel’s contention that the computer only can perform the functions of resolving a text when we assume that the questions have objective answers, and that they may be stated in a sufficiently unambiguous way. The latter of these contentions was particularly highlighted by the RSV Isaiah 7:14 controversy. According to Daniel B. Wallace, Professor of New Testament Studies at Dallas Theological Seminary, translating the Hebrew ‘almāh as “virgin” misrepresents the literal
meaning of the word: “almah means ‘young woman’; it does not mean ‘virgin’” (D. B. Wallace). Though I am in no way an authority on Hebrew or Biblical scholarship, and am inclined to agree with Wallace, I suggest that one could make the argument that this translation depends on cultural standards as much as language. Given rigid sequestration of women in first-century-CE Judea, the two could be assumed equal, so some Biblical fundamentalists carve out (or rationalize) arguments that the writer meant “virgin” by “almah.” The RSV controversy shows, however, the provisionality of a word’s meaning and the problem of translation. The apparent humanness of the computer and the computer’s ability to resolve linguistic questions precisely are undercut by showing the general vagueness of language: the people who use WESCAC overstate its powers, and their language is itself subject to culturally-specific interpretations.

This conclusion bolsters Marilyn Sherman’s assessment of the novel: “[George] recognizes that it never was the machine or even men’s use of the machine that mankind must fear. The terror of a dystopia ruled by technology run amok is replaced by an image of the real villain—the unbridled egocentricity of man himself” (175). I read this realization as the repudiation of the goal Max gives George: that the way to change the campus is simply to reprogram WESCAC, a noble idea but one that attributes far too much agency to the computer and ignores the complexity of people. Barth is, then, somewhat more skeptical about the potential for technology to change the world. He is hardly a Luddite; many of the computer scientists and others hard at work on language processing at this time insisted upon the limitations of computers, and many Literary Data Processing scholars speak of their expectations being undercut the minute they actually learned something about computers. Instead, Barth takes

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25 For example, Dr. Dan Hayden, on the site A Word From the Word, argues for translating ‘almah’ as ‘virgin’ because the word “comes from the root word ‘alam’—a verb meaning ‘to hide, conceal, cover.’ The idea, then, is of a young woman that is covered or veiled, who is being protected (hidden away or concealed) . . . . The implication, then, is that she is young, inexperienced, protected by her family, and reserved for the man who will become her husband. It is truly the idea of a virgin woman” (“Virgin—Isaiah 7:14—A Word from the Word”).
issue with the overconfidence in the computer’s abilities to resolve age-old questions demonstrated by some Literary Data Processing work, and their presumption that the computer can reinforce traditional notions of religion.

These assumptions are all used to test the hypotheses of Literary Data Processing: the existence of a single original text; that a speaker validates an idea; that style may conclusively identify a writer; and the assumption that the original texts have some bearing on our contemporary point of view. Giles Goat-Boy criticizes all of these by proposing realistic situations in which they might not apply to texts, both ancient and modern.

“To Assemble, Collate, and Edit this Material”: Writing the RNS

In the fictional author’s forward, J.B. relates how Stoker Giles, the disciple and possible son of George Giles, narrated the process of the composition of the Revised New Syllabus:

[WESCAC] not only pointed out in accordance with its program the hopeless disagreements of the texts; on its own hook, or by some prior instruction, it volunteered further that there was in its Storage “considerable original material” read in fragmentarily by George Giles himself in the years of his flourishing: taped lecture-notes, recorded conferences with proteges, and the like. Moreover, the machine declared itself able and ready (with the aid of “analogue facilities” and a sophistication dismaying at least to a poor humanist like myself) to assemble, collate, and edit this material, interpolate all verifiable data from other sources such as the memoirs then in hand, recompose the whole into a coherent narrative from the Grand Tutor’s point of view in an elegant form on its automatic printers! ... After several false starts and program adjustments, it produced a first-person chronicle of the life and teachings of the Grand Tutor, a text so faithful to the best evidence and polished in its execution that young Stoker needed only to “change a date or a place-name here and there,” as he vowed, to call it
This passage illustrates an ideal project for Literary Data Processing scholarship: the resolution of all ambiguities across multiple versions of the same text to produce one text, a straightforward narrative of a religious figure’s life. WESCAC’s text appears complete and without ambiguities; as Scholes has noted, “in the world of this book there are no loose ends, because its creator is not a realist” (Scholes 168). The Revised New Syllabus’s narrative is told in perfect chronological order, without flashbacks, and from the same point of view. As mentioned previously, Dearing, McDonough, and many Literary Data Processing scholars operated under the assumption that every text had an original version. By contrast, the Revised New Syllabus is a text without an original. The RNS can be read as a text compiled from partial fragments, placed into linear sequence by a computer.

In fact, the metafiction becomes apparent in that the RNS tells a story about compiling disparate fragments to solve a mystery: who are George’s parents, and consequently, who is the Grand Tutor? George attempts to answer the question by seeking out conflicting accounts of the Cum Laude eugenics program from Max Spielman, Eblis Eierkopf, Virginia Hector, and Harold Bray, and examining the physical evidence before him: Harold Bray’s birthmark, George Herrold’s partial retardation from rescuing him from the tape lift, and his own existence and peculiar body. He tries to resolve the texts like a scholar. What he discovers, however, is that the various stories cannot be entirely resolved, nor can human memory be trusted—even his mother, Virginia Hector, misidentifies him—and, therefore, none of the characters’ accounts can be accepted uncritically.

The three primary stories that we hear overlap to some degree but are not entirely resolved. Max Spielman explains the Cum Laude project, but does not dwell on the identity of
the child produced, and denies that he could be Anastasia Stoker’s father because he was rendered sterile by EAT radiation. He claims that Virginia Hector was impregnated by Eblis Eierkopf, and their daughter was Virginia. As Eierkopf says, though, the only evidence that George might be the product of the Cum Laude project is Spielman’s own story, which contends that George was found in the tape-deck. Eierkopf highlights the theme of unreliable narration in the story:

Sternly, I declared that my keeper and advisor was the passèdest man on campus as far as I was concerned—

“As far as you know, you mean.” (320)

Eierkopf emphasizes the limitations of George’s education from Max Spielman. He later suggests that WESCAEC could answer the question of his fatherhood objectively, since the Cum Laude project involved creating a database of all of the semen samples of all the men alive at that time, including Eierkopf’s and Max’s, which was stored in WESCAC. However, the narrative immediately drops this thread. This detail implicates the computer in the loop that generated the problem in the first place because it was designed by Spielman, is soon rendered to Bray’s control, and could actually have been the machine that generated and delivered the semen sample that became the GILES project. No one seems quick to verify George’s paternity, despite its apparent ease; in essence, no one really wants to know, or someone in a high place has reasons for leaving the question ambiguous. Because George’s origins relate to Grand Tutorhood, his quest for his origin has religious significance.

George’s encounter with Eierkopf compounds the ambiguity, foregrounding a question that seemed tangential: was Virginia Hector a virgin, and did she conceive via a meeting with WESCAC? Neither Eierkopf nor Spielman believed her story at first, but she asserts that
WESCAC was the father of her child, and she describes the impregnation scene in explicit detail, which is then compromised because she immediately identifies Bray as her child. Her reliability is questionable because she has every reason to blame WESCAC, and all of the authorities who could have attested to her virginity at the time of the conception died before the birth of the child erased the physical evidence. Since WESCAC could be argued to be the God in the novel’s universe, making this an immaculate conception, this implicit reference to the Revised Standard Version controversy over the conception of Jesus shows the problem with the scriptural text illustrating that accurate translation relies first upon human reliability and memory. Even an accurate translation would be loaded with the biases of believers who wrote it down to begin with. In the end, all that remains are three conflicting accounts.

George attempts to resolve these accounts to prove his Tutorhood, but this proof by authority never comes to fruition. Virginia Hector only recognizes him as her son after suffering brain damage. His paternity remains uncertain; though it is resolved to his own satisfaction, the facts do not line up completely. The text thus refuses to resolve the facts of its narrative conclusively, just as the Gospels present differing accounts of the life of Jesus written at different times by different writers.

The novel’s reflection on the circularity of verifying the events contained within is crucial to both its satire of Literary Data Processing and the criteria by which we classify the novel as “postmodern.” Brian McHale’s central distinction between modernist and postmodernist literature is that the former treats epistemological questions and the latter ontological questions (McHale 10). While epistemology is certainly at issue in the question of validating the RNS, the novel also raises questions about characters’ standards of validation and offers no way out of it, which make these ontological questions as well—the novel reflects upon itself as a constructed
fiction full of details that cannot be verified. The novel makes it abundantly clear that there is no outside to the events it describes. This circularity in turn satirizes the standards of Literary Data Processing’s attempts to verify the origins of foundational texts.

“The GILES’s Very Voice”: Stylistic Studies of the RNS

The other problem with Literary Data Processing with which Giles Goat-Boy concerns itself is the search for a single author for every text. While Mosteller and Wallace do take into account some of the possible complexities involved in the authorship process (such as Hamilton writing a paper and then Madison editing it), they generally attempt to trace the authorship of each paper back to either Madison or Hamilton, believing that it will be possible to distinguish editorship from authorship statistically. Morton and Levinson take their work a step further: as mentioned previously, their study of authorship in ancient Greek texts (some of which include Biblical texts, and other poetic epics), they argue that it should be possible to determine the one author who wrote each text from each author’s unique style.

To all of these aforementioned scholars, however, “style” is used as a marker of a single person. It is always marked by form, not by content, because content varies more widely than the unconscious habits of the authors writing it. Therefore, the content of a text is not directly important in establishing its origin, but stylistic studies can establish who wrote a text. Therefore, stylistic studies establish the importance of texts to important historical events, say, the founding of the United States, or the development of Christianity. Though the emphasis on the author seems contrary to New Criticism, like New Criticism, these studies emphasize the study of the formal qualities of the texts rather than their content as a marker of their evidence.

What raised controversy was using these studies to approve or dismiss a text as part of a canon, a concern foremost on these scholars’ minds in Biblical scholarship. First, many scholars
found the claim that an author’s style remained consistent over time or across genres contentious. All of these studies cautioned their readers that their reliability was based on the acquisition of more data. Second, finding accurate markers of style depends on what we take as the markers of that style. These scholars speak of objective criteria for determining or quantifying style, but they never actually manage to go so far as finding objective criteria for quantifying styles as McDonough suggested.

_Giles Goat-Boy_ raises the question of whether every text has a single author whose presence can be determined from stylistic markers. The language of _Giles Goat-Boy_ is a combination of archaic Renaissance English, with frequent uses of stressed final syllable past participles such as “passèd” and “crossleggèd.” Walkiewicz describes the novel’s style (in particular, George’s voice) thus:

This voice, which we may or may not presume to be that of the Goat-Boy himself, is both distinctive and eclectic. It is a satyric voice that mixes the vocabulary of the barnyard with the jargon of academia and consistently combines the sacred with the profane, continuously reminding us of the speaker’s dualistic nature, of the principle that “proctoscopy repeats hagiography” ... Embedding Anglicisms (“tupped”) in a substrate that generally sounds like American English, blending topical allusions, the “university” equivalent of contemporary slang, and language more archaic in flavor (“Aye”, “horne’d”), it is a voice that cannot be located in space and time .... George’s habitual inversion of normal syntax and his fondness for stilted locutions and elevated diction are stylistic characteristics that suggest an affinity between his “Revised New Syllabus” and English translations of classical epics or the King James Version of the Bible. Moreover, he often employs formulas that seem to be designed to establish his credentials as savior or mythic hero. (Walkiewicz 66–67)
This book pastiches historical styles to make it harder to locate it historically, just as the book’s historical setting is also vague. The voice synthesized from these archaisms shows that George’s “life is the embodiment of recurrent patterns and that he himself is not an individual but an archetype” (Walkiewicz 67). Indeed, Scholes even points out that Barth’s stock characters and their exaggerated speech habits are “closer to pre-novelistic kinds of characterization than to the deep individuality of the realists” (Scholes 160). Barth’s use of archetypal characters resists computational stylistics by appearing premodern, which makes his writing postmodern, at least in retrospect. His characters’ voices mark them more as types than as individuals, and therefore give little to distinguish them which makes them easier to imitate.

The novel’s most significant satire of computational stylistics, though, is how characters use stylistics to establish the accuracy of the RNS. As I have already stated, the authorship of the RNS seems far more impressive than it should be. Even if WESCAC did offer to do it (whether it did so of its own accord is uncertain), the computer had to be reprogrammed several times to complete its job effectively, and the criteria for establishing whether it sounds like George Giles are vague. Stoker never offers his own opinion, and he seems so enamored of the computer that he does not consider having to correct several basic facts a sign of the computer’s failings: he says he had to “change a date or a place-name here and there.” If anything, the computer should find it easier to sort a set of facts than imitate a person’s style. What cements the impressiveness of this composition for Stoker is that when he reads the text to Peter Greene, a “an early student of Giles’s” (xxvii), Greene falls down on his knees and proclaims that it was “‘the GILES’s very voice’ that sounded off the pages” (xxviii). Programming a computer to imitate an individual’s style enough to convince a close friend sounds impressive. This scene is initially unsettling, but becomes funny upon rereading: Greene’s naivete and inability to tell people apart makes him the
butt of jokes. A stereotypical patriotic Southern bumpkin, Greene finds it difficult to differentiate between Black women, mistaking a university staff member for the promiscuous daughter of a friend (to humorous effect). George easily convinces him that Stacey Stoker is chaste and has a promiscuous twin named Lacey who sometimes dresses as her. Convincing Greene takes little effort because he is, well, green. It is the reproduction of style that convinces Greene, not factual accuracy; the ideas within seem not to matter.

The end of *Giles Goat-Boy* also drives home the insufficiency of style. After George vanquishes Bray, exposing the false Grand Tutor as a robot, the narrative ends on a triumphant note, despite George’s inability to stay Max’s execution. An afterword called the “Posttape” follows, which George dictates to WESCAC several years later: he has been recognized by the rest of the campus as a Grand Tutor, but fears that he will soon be put to death like Max. This portion of the text most clearly purports to be George’s writing rather than WESCAC’s reconstruction; it begins with the words “Today ... I record indirectly into WESCAC’s storage the last of these tapes ...” (699). The tone of the posttape is pessimistic; in Scholes’ words, it is the words of a man who has learned that “there are no formulas” (Scholes 167) in life, and no pre-existing answers. As George says, “For me, Sense and Nonsense lost their meaning on a night twelve years four months ago, in WESCAC’s Belly—as did every such distinction, including that between Same and Different” (699). This is a man who has come to see the futility of his own purpose. Though this depressing end conveys a lesson consistent with earlier events, it represents a change in tone: a shift from the youthful optimism of the main RNS to the cynicism of an older man who must take upon himself the spiritual leadership of the campus unopposed, without a powerful opponent against whom he can demonstrate his heroism.

Factually, or content-wise, little suggests that the Posttape is part of another text, but the
editor J.B. returns in a Postscript to the Posttape to question the authenticity of the Posttape. He states that the document itself seemed to have been jammed in, and suggests that it may be “An interpolation of anti-Gileans—more likely of antigileans—or an improvisation of Wescacus malinocuts ... the work of some crank or cynic among Stoker Giles’ contemporaries ... [or] some former colleague’s idea of a practical joke” (709). He also mentions that he has become an “aspirant professor of Gileansism” (709), showing that he is now a believer. As Douglas Robinson says, “J.B. deliberately misreads the Posttape because he wants to construe the main narrative as a gospel, an Answer, and the Posttape significantly undermines any such attempt” (Robinson 228). This supposedly seamless text, already resolved by the computer, is now questioned by one of its adherents. In other words, once resolved into a straightforward and linear narrative, the text is no longer unquestionable after a period of neglect; WESCAC and Stoker’s attempt at resolution failed to suppress dissent even among believers. WESCAC’s arbitration suddenly seems not nearly so objective, and J.B.’s distance from authoritative sources such as WESCAC and Stoker leaves him free to say that “one ought not to take it seriously.” J.B.’s disagreement parodies John W. Ellison’s idea that we might “study[] styles of handwriting, variant readings, and so on to improve the text as we know it” (Ellison 161). Among the evidence for refuting the authority of the Posttape, J.B. includes:

quotation-marks around such terms as “My Ladyship” and “Lady Creamhair,” a practice followed nowhere else in the manuscript; also around “Revised New Syllabus” and “Gileanian”—as if he had grown contemptuous of the terms! More revealingly, he mentions technological and cultural phenomena whose existence is never previously alluded to, such as airplanes and comic-books; and his reference to nickels and dimes and pennies, seem flatly discrepant with the economic system of New Tammany College. (709)
The most damning evidence for J.B., however, is “the hopeless, even nihilistical tone of those closing pages” (710). J.B. tries to make this determination from internal evidence; his assertion, however, problematizes computational stylistics scholars’ similar efforts, highlighting the criticisms of many scholars that a writer’s style might vary over time, or even with their moods; tone and style may not be enough themselves to determine a text. More research was needed to establish definite criteria for differentiating authors’ styles; the problem was both one of knowledge and one of assumption: how can we know if the words and word patterns a person uses identify them enough to differentiate them from other people? Instead, J.B.’s conclusion undoes the introduction that asks readers “to begin ... with an act of faith and end ... with an act of charity” (ix). The act of charity requested is itself an act of faith: to accept the assertion of a scholar who is himself biased by his own belief in the authenticity of the earlier text. The computer resolved the chronological or causal ambiguities in the RNS at the expense of injecting doctrinal ambiguity.

We might read this ending, then, as a statement that these ancient texts and our understanding of them have changed so much over centuries that the original text’s importance is questionable. Some fundamentalists make this claim about the Dead Sea Scrolls, and seem to have been making this claim with the RSV controversy; one might say the same about contemporary controversies over the Founding Fathers’ intent in writing the Constitution. After all, upon encountering the scientists attempting to reconstruct the Founder’s Scrolls, George grabs ahold of a few fragments of parchment and consumes them; he eats them in order to “re-place” the scrolls, planting the authority within himself rather than in some external text. They have been cut up by years in the storage facilities of the computer and rendered mostly incomprehensible, so George attempts to replace them and revise them with a brand new text.
Looking back has its purposes—and the text is clear about this with the strange
misidentifications of Peter Greene and the other characters’ infatuation with WESCAC—but
ancient texts cannot have the final word on the present day.

The failure of an author’s authentic voice to emerge is key to both the novel’s critique of
Literary Data Processing and the criteria for labeling “postmodern.” As the novel pastiches
fables, archaic English, Greek tragedy, and epic quests to question the possibility of an author
having an essentially identifiable style, it fits Frederic Jameson’s description of postmodern art as
“the imitation of dead styles, speech through all the masks and voices stored up in the imaginary
museum of a now global culture” (Jameson 17–18). It does not satirize the genres it appropriates;
Barth uses them to erase his own voice and question the idea that he might have an identifiable
original voice. Giles Goat-Boy is almost nothing but the imitation of dead styles, reassembled
with the idea of complicating its relationship to space and time, with one side effect being that it
will trip up computational stylistic analysis. This appropriation of genres further heightens the
novel’s ontological uncertainty even within its own fictional world and points to its own artifice.

“The Death of the Author,” by John Barth

Giles Goat-Boy’s final editorial controversy drives home the point that a seamlessly-
resolved text is a fantasy, and that the desire to resolve authorship questions to a single person is
itself dependent on the assumption of a single original author. The novel treats Literary Data
Processing and the emphasis in its contemporary moment on looking back to ancient texts to
validate contemporary ideas with computers is not as critically revolutionary as it seems. Taking
issue with the words of Parrish, Sedelow, Dearing, and Ellison, Barth questions the possibility, or
even desirability, of an empirical, precise literary theory. He instead says that while technology
has its uses, one of them is not solve problems with complete accuracy. Barth is not afraid of
computers; after all, George orders WESCAC to be plugged back in at the end:

I actually hoped [that WESCAC had not been damaged], I added for my classmates’ benefit; for although it stood between Failure and Passage, WESCAC therefore partook of both, served both, and was in itself true emblem of neither. I had been wrong, I said, to think it Troll. Black cap and gown of naked Truth, it screened from the general eye what only the few, Truth’s lovers and tutees, might look on bare and not be blinded. (676)

George concludes that WESCAC has some truth to teach, but this comes only after his exposure to WESCAC’s weaknesses: its inability to discern a Grand Tutor (since no one was ever EATen), the fact that its most important function (administering the Grand Tutorial exam) was conducted on a tiny green screen that required a magnifying glass to read, and the fact that pushing two buttons at once blew it up, a design failure that probably cost someone their job. WESCAC’s exploding shows that the world is fundamentally material, not built on abstract patterns; its mind could not transcend its physical limitations. Harold Bray, who embodied the desire for user-friendly, simple, validating technology simply creates another scapegoat—Max, who believed that by reprogramming WESCAC, George could change the world—and George learns the hard truth that perhaps no system of knowledge can accommodate everything. Thus, in reaction to computing, *Giles Goat-Boy* teaches what later becomes identified as a key tenet of postmodern thought: privileging situated knowledge (even though it does not acknowledge a particular ethnic or gendered position) over abstract systems of knowledge. The novel sees the computer as the dream of disembodied knowledge, but acknowledges there is a possibility for thinking of the computer as embodied. Barth even anticipates his homophone theorist’s subsequent publication of “The Death of the Author” by a year by killing off both Max and George at the end and destroying the authority of both technology and text: there is no authority,
and the editor, J.B., believes in his own text too much.

Literary Data Processing and its influence upon *Giles Goat-Boy* provides an instance in which scholars and writers alike saw computers as tools for answering humanities questions with certainty. While Literary Data Processing tended to proclaim coming resolutions, *Giles Goat-Boy* suggests that the use of computers is simply another way of understanding, which changes the standards of knowledge rather than simply making knowledge more precise. While *Giles Goat-Boy* does treat some practices of cybernetics, as Porush shows, it also has a more practical, well-informed view of what scholars were doing with computers than has been understood, and so it is not as generally anxious about cybernetics as it is about academics’ use of computers in the humanities. In *Giles Goat Boy*, the threat, then, is not that computers will replace people and be able to write novels—as David Porush interprets the novel’s question—but that infatuation with the computer will cause individuals to modify their standards for interpreting its output, and give computers’ work too much importance.
The *Traveler* Reading the *Atlas:*

Italo Calvino and the Linguistics of Mario Alinei

Most interpretations of Italo Calvino’s 1979 novel *If on a winter’s night a traveller* contend that Calvino ostensibly cedes authority to the reader. Reader, the novel’s male Italian protagonist, spends the novel reading the first chapters of a variety of novels in different genres. One of the many other readers he encounters is a doctoral student named Lotaria, who reads by inserting novels into a computer and generating word-frequency lists. Critics have generally overlooked the fact that Calvino copies Lotaria’s fictional word lists from actual word lists published by the linguist Mario Alinei in his 1977 *Spogli Elettronici Dell’italiano Letterario Contemporaneo* (SEILC), which indexed three contemporary Italian novels. Alinei’s work hit very close to home for Calvino; Calvino’s first novel, *The Path to the Spiders’ Nests*, was one of the three. While Jonathan Usher’s article “Calvino and the Computer”26 has explored *Traveler’s* various uses of the computer to represent reading and writing practices, Usher notes Calvino’s use of Alinei’s work only in passing (Usher 43).

What would Calvino have thought about having his first novel reread by an electronic reader? Though traditionally understood as a response to poststructuralist theory, the major themes that critics have identified in *Traveler* can also be read as criticism of Alinei’s humanistic computing projects. If we consider the purpose of the SEILC and Alinei’s other work, the major themes that critics have identified in *Traveler* can be read also as a criticism of Alinei’s work. Alinei compiled large datasets of word use to explain the origins of words and grammatical forms. Reading *Traveler* as a reaction to Alinei offers insight into the critical debate over the

novel’s collage of styles, its focus on the reader, and Calvino’s use of Oulipian\textsuperscript{27} compositional techniques. We can read \textit{Traveler} therefore as an exploration of readers’ and authors’ mutual power to determine the meaning of a novel, the relationship between a novel and its contexts, and the investigation of general forms of language and literature. Since Calvino had expressed an interest in writing with computers in his 1968 essay “Cybernetics and Ghosts,” \textit{Traveler} can be read as a return to those same concerns ten years later, in light of actual work on computer-assisted reading.

This chapter reads \textit{Traveler} as a reaction to Alinei’s work. After a brief introduction to Alinei’s three projects, I will explore three themes in Alinei’s work that \textit{Traveler} addresses. While Alinei researched general patterns in the origins and meanings of words, Calvino questioned the uses of deriving such universal rules by investigating the meaning of Oulipian constraints—formal constraints such as writing around mathematical patterns. Alinei looked to language to find universal archetypes and linguistic rules, yet Calvino wrote with such constraints to question what use the rules Alinei discovered might have. While Alinei argued that language and literature reflected their cultural and historical surroundings, Calvino questioned the meaning of such an influence by writing a novel that pastiched ten different styles. In response to Alinei’s claim that distributing the ALE, SEIOD, and SEILC data allowed the reader to form his or her own conclusions about language and literature, Calvino questioned to what extent such raw data “liberated” the reader by questioning how the reader became the author of his own reading of a novel.

\textsuperscript{27} OULIPO (\textit{Ouvroir de littérature potentielle}, or “Workshop for Potential Literature”) is a movement begun in the 1960s that exists to this day, which explores writing literature based on constraints, permutation, or other strict forms. One famous work is Raymond Queneau’s \textit{Cent mille milliards de poèmes}, a book that contained ten sonnets aligned so that the pages could be cut into horizontal strips between each line, allowing a reader to construct new poems. Another is George Perec’s \textit{La disparition} (translated as \textit{A Void}), a novel written without using the letter ‘e’.
Considering *Traveler* as a response to humanistic computing sheds light on why Calvino may have treated many of the themes critics have traditionally identified in the novel. We can trace Calvino’s concern with these themes not only to a fascination with poststructuralist criticism, but also an explicit interest in specific applications of computers to literary and linguistic questions. Reading Alinei’s work also offers a reason for why Calvino applied Oulipian techniques differently in *Traveler* from earlier Oulipian novels. Additionally, *Traveler* provides yet one more example in which humanistic computing profoundly affected the development of postmodern fiction. While in 1966, *Giles Goat-Boy*, for example, used an experimental, affected style to throw off algorithmic stylistic analysis, *Traveler* came at a time of greater sophistication. Once Alinei showed how computers could be used to read literature, Calvino’s approach to form and concept became less rigid and coexisted more equally with narrative to assert the value of reading and heterogeneity of literature, and the resulting need for careful reading by humans rather than machines.

**Alinei’s Great Big Books: The ALE, the SEILC, and the SEIOD**

Alinei’s three humanistic computing projects from the 1970s bear a strong resemblance to those of the 1960s: concordance generation and linguistic data processing. Advances in computing in the 1970s, however, brought about a dramatic increase in the scope of the data that such projects could examine. Whereas Stephen Parrish produced concordances to Yeats and Matthew Arnold, Alinei planned—and successfully completed—a concordance to all 12th-century Italian literature, another to three 20th-century novels, and an atlas of all present-day European languages. These three projects were the *Atlas Linguarum Europae* (ALE), the *Spogli Electronici dell’Italiano delle Origini e del Duecento* (SEIOD), and the *Spogli Elettronici dell’Italiano Letterario Contemporaneo* (SEILC). This section will provide a brief historical
Though such an atlas had been proposed as far back as 1917 by the linguist W. Pessler (Weijnen, “Aim and Method” 5), creating the ALE proved unrealizable until the 1970s, given the need for large-scale data processing and field work which the computer finally provided. Headed by an editorial board that Alinei and Antonius Weijnen directed, the ALE both had a greater scope than 1960s projects and also introduced significant new theories in linguistics. The ALE comprised a set of over 500 maps, each of which showed the various word used to describe a similar concept in 3000 locations in Europe. The project was divided into several volumes, each of which in turn was divided into six “fascicules,” or separate collections of maps. For example, maps in I.1 (Volume I, Fascicule 1) identify the geographic locations of words for natural features such as “snow,” “wind,” and “rainbow,” showing where speakers used either “arc-en-ciel” or “rainbow.” The ALE ambitiously consolidated the works of several similar national atlases that the editors deemed insufficient to demonstrate a history of linguistic change given the history of languages’ mutual influence upon one another (ALE xxi). The ALE editorial staff sent field agents to locations extending from Portugal to Turkey and western Russia, all to ask locals about their word usage habits. The project documented the linguistic diversity of Europe and recorded various pockets of languages used all throughout the continent, showing the geographic borders of French and German Belgium, for example, on a word-by-word basis. The ALE’s authors used a computer to collate and analyze all the data generated by the fieldworkers, as well as an electronic plotter to draw all of the maps (ALE 77). Fascicule I.1 was first published in 1983. The ALE was not simply published once; it is one of the longest-running and most successful humanistic computing projects. New editions have been published continuing over the

28 I use the ALE’s spelling of the term for consistency.
past forty years. Shortly before retiring, Alinei published the most recent edition in 2005.

Though fascicule 1 was not published until 1983, four years after Traveler appeared, it received considerable pre-publication publicity in the 1970s. Alinei, Weijnen, and other ALE editors published a significant number of short articles and delivered several conference presentations on the project in the 1970s. One of these early advance short articles was the ALE introduction itself, which they published in 1975 (Weijnen and Alinei, ALE Introduction). Alinei and Weijnen also presented preliminary results from the data-gathering (Weijnen and Alinei, WALE). Linguistics journals across Europe and in the United States received copies of these publications in the mid-1970s, and listed them, giving them higher visibility (L PR 523; AS PR 131; NEBS 256). Wolfgang Putschke published a technical description of the project’s computing methods in Germanistische Linguistik (Putschke), which was later mentioned in Zeitschrift für Dialektologie und Linguistik (“Umschau” 355–56). The British journal Oral History mentioned in 1976 that Sheffield University’s Centre for English Cultural Translation was involved in the ALE (CBWOH 35). It would not be surprising at all for Calvino to have known about the ALE’s results and conclusions in the 1970s before Alinei published it in its entirety.

At the same time that he was working on the ALE at the University of Utrecht, Alinei also directed two smaller, yet still broad, projects focused on his home country of Italy: the Spogli Elettronici Dell’italiano Letterario Duecento (SEIOD, translated as Electronic Inventory of Early Italian)29, and the Spogli Elettronici Dell’italiano Letterario Contemporaneo, (SEILC, translated as Electronic Inventory of Contemporary Italian). The SEIOD and SEILC were

29 This translation is Alinei’s (Alinei, “40 Years of ALE” 10–11). Prior to this 2008 work, the title had also been translated as “Computerized Linguistic Inventory of Early/Contemporary Italian” in two English-language reviews of the work, (Bisignano 47; Griffith 664). Though considered important to the history of humanities computing, as far as I am aware, neither book has ever been translated into English, so there is no “official” translation of the title.
essentially concordances to a variety of literary and historical works, including Dante’s *Divine Comedy* and the *Placito di Capua*. As concordances, both the SEIOD and SEILC documented all instances of all words in these works. Each also ended with a word frequency index, which grouped words in order of frequency, and allowed the reader to perform statistical analysis of each word. These indexes attempted to provide an accurate picture of word choice and grammatical structure of both Renaissance and modern Italian literature.

Published in 1971, the SEIOD indexed works such as Dante’s *Divine Comedy* from the “duecento,” a period of cultural development in thirteenth-century Italy. Like most of Alinei’s projects, the SEIOD’s publication was preceded by a series of papers describing its composition, which Alinei also published in English in the journal *Computers in the Humanities*. His stated goal for the project was to use linguistic analysis “to obtain lists of graphemes, word forms, dictionary entries, grammatical and morphological categories and syntactical patterns of all texts published to date of Old Italian from 960 with *Placito di Capua* to the thirteenth century, including Dante; to develop the best possible methods of linguistic analysis suitable for computerization” (Alinei, “Old Italian” 115). It was intended to be a massive project: Alinei’s early works speak of a plan for a collection of over 50 volumes (Chirichella 294).

Alinei followed publication of the SEIOD with the SEILC, in 1977. Like the SEIOD, the SEILC indexed a variety of Italian works: this time, the texts in question were Italian novels from the period immediately following World War II. Alinei selected Alberto Moravia’s *La Ciociara* (translated as *The Two Women*), Carlo Cassola’s *Ferrovia Locale* (Local Railway)30, and Calvino’s first novel, *Il sentiero dei nidi di ragno* (translated by William Weaver as *The Path to the Spiders’Nests*). All three of these novels, as far as I am able to determine, treat the

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30 This translation was completed using Google Translate [http://translate.google.com/].
experience of World War II.\textsuperscript{31} The ostensible purpose of such an undertaking as the SEILC, as Alinei stated in the commentary, was to paint a picture of contemporary literary Italian. Alinei was interested in this period because he believed these novels demonstrated a dramatic shift in post-war literary Italian: the language began to accommodate Italian regionalism.

The ALE, the SEILC, and the SEIOD all proposed traceable, meaningful relationships between language and its environment. For the ALE, Alinei and his co-editors developed a technique they named “motivational mapping,” which located certain words’ geographic origin to illustrate the transmission of words from one language to another; Alinei and Weijnen used the term “motivations” to refer to the general ideas the words described. A word’s spread from one language to another might reflect social, political, technical, or other changes. Alinei proposed the idea of “semantic density,” in which the number of distinct meanings a word had indicated the sites of the word’s origin (Alinei, “Semantic Density” 16-17). Alinei gives the example of the word “film,” which originated in English. In most other languages that used the same word, “film” came to mean both “motion picture” and the substance on which a picture was recorded. English has the additional sense of a small, thin layer of a substance, such as “a film of oil on the water.” Alinei therefore suggested that the greater the familiarity with a word, the greater the variety of meanings that that word could encompass (Alinei, “Semantic Density” 17). From this hypothesis, Alinei concluded that only a large-scale, computer-driven approach could yield accurate results about how many meanings a word could potentially have.

Alinei’s seemingly-obvious theory that language did not have an entirely arbitrary relationship to its surrounding geographic environment challenged Saussure’s then-prevailing arbitrary sign-signified relationship. Wolfgang Viereck, one of the chief editors of the ALE,

\textsuperscript{31} Such is readily apparent from the criticism of Calvino and Moravia’s novels; Cassola has, as far as I am aware, never been translated into English and there is no English-language scholarship on his work available in JSTOR or Google Scholar, but Alinei implies it does treat the experience of World War II or the postwar period.
acknowledged this clash in a retrospective published thirty years later:

In national, let alone regional linguistic atlases, the area is too small for the approach [of motivational mapping] to be productive. This may be one reason why it has aroused so little interest prior to the ALE. Another may be seen in de Saussure’s dominance in modern linguistics. The arbitrariness of the linguistic sign, important as it is for the functional aspect of language, left hardly any room for the genetic aspect of language, i.e. for the serious study of motivations. Seen more narrowly, however, the motivation of a linguistic sign is not in opposition to its arbitrariness, as the choice of a certain motive itself is not obligatory.

(Viereck 58–9)

Viereck states that, while motivational mapping was not in principle opposed to Saussure’s linguistics, it did end up challenging and complicating the theory of language’s “arbitrariness.”

Though one could still believe in an essential arbitrariness of the signs chosen to represent ideas, Alinei and Weijnen argued for (and demonstrated) the significance of older words repurposed for new ideas, or how words were transmitted between different groups based on their geographic locations.

Such a goal in turn informed the SEIOD and SEILC: Alinei contended that he wanted to show how great social change that swept postwar Italy affected literary language. In the postwar years, Italy had moved toward a democratic, inclusive regionalism; Alinei searched for reflections of this change in literary language. Calvino, Moravia, and Cassola were the most logical test subjects because they represented the clearest break with Italy’s past. These three authors were

the writers who best represent—both chronologically and ideologically—the democratic rebirth of our country after fascism. This experience was especially foundational for the
establishment of democratic relations between people, and this egalitarianism could not also not help but have a profound impact on the language. In fact, from this change, literary Italian underwent two major transformations. First, it ceased to be guided exclusively by literary models, and opens itself to other experiences: speech and dialect, first and foremost, but also the professional terminology of engineering, science, politics, and so on. Second, in seeking real contact with spoken language, literature abandoned the fiction . . . of a single unified, undifferentiated spoken language to accept the reality of a differentiated, variable spoken language as the effect of different regional substrates. 32 (Alinei, *SEILC* xiii)

Alinei’s goals for the SEILC, then, while benignly nationalistic, were also democratic and egalitarian. To Alinei, these three novels’ subject matter reflected the extraordinary challenges the authors had lived through, and also illustrated their desire for an egalitarian, democratic society in the wake of fascism. Their styles were all natural consequences of a radical break with the past. Alinei seemed to be seeking to help identify quantitatively, without explicitly describing, a new sense of Italian identity that emerged in the wake of World War II. In his view, his project would demonstrate measurably that these three post-World War II authors use a literary language that adhered more closely to contemporary language than tradition. Alinei’s project attempted to analyze, quantify, and better understand a new Italian democratic consciousness through studying language.

The ALE, SEILC, and SEIOD, though different, all aspired to the similar goals of producing or reading lists of sorted words as documents of linguistic or social change. While Alinei also presented them as raw datasets, in order to allow the reader interpretive freedom, at the same time, he attempted to draw attention to larger patterns in their data to explicate both

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32 My translation, with help from Google Translate.
social change and the origins of words. I argue that the goals of these linguistic computing projects motivated Calvino’s composition of *Traveler*: a novel about a reader who discovers that, paradoxically there is no single, unified novel that he finds while reading this one novel that is itself a collection of other styles and novels. The apparently unified novel instead presents him with a multitude of reading and writing practices. As Alinei catalogues language, Calvino catalogues reading and writing practices, and literary genres. Calvino’s novel undercuts Alinei’s attempts to summarize complex datasets by abstracting rules, and denies the categories in which Alinei would shoehorn his writing.

**Ancient Languages and Oulipian Constraints**

One of the ALE’s other goals was to provide data to aid in the reconstruction of early languages. Likewise, the SEIOD and SEILC attempted to pull together larger pictures of Italian to facilitate linguistic research into grammatical forms. In fact, Alinei’s entire oeuvre tends toward searching for larger patterns in language. In one commentary in the ALE, he develops a theory of three ages of European languages, but his other articles from the early 1980s treat cross-linguistic folk tropes (Alinei, “Totemism”) and explain the origin of horns as a sign of cuckoldry (Alinei and Maher). While drawing patterns is of course a goal of all scholarship, Alinei’s work attempts to show universal patterns in language and culture that span diverse linguistic and cultural regions. Many of the ALE commentaries display this goal as well.

In response to Alinei’s search for linguistic universals, *Traveler* questions such appeals to literary archetypes and structures. The novel mentions a Pierre Menard-like character called the Father of Stories, an illiterate native South American who dictates various novels word-for-word simply because he happens upon the same mental patterns as famous novelists. The Father of Stories is a hypothetical index of the significance of universal literary archetypes: a figure that
acknowledges the possibility of tropes shared between all cultures whose presence concurrently suggests how little common ground such universals demonstrate, because these universals never inspire exactly the same stories to emerge spontaneously in real life. The novel’s own such patterns take the form of Oulipian constraints, mathematical patterns that guide its composition; however, Calvino applies these patterns with more sophistication than earlier Oulipian writing did. This play with Oulipian constraints questions Alinei’s emphasis on linguistic universals, asking what new light discovering these patterns casts upon our understanding of language and literature. In this section, I will explain how Alinei’s work searches for linguistic universals, and how these Oulipian literary combinatorics criticize Alinei’s search.

A significant reason for Alinei’s construction of the ALE was to assist with the theoretization of Indo-European linguistic roots. The idea of a single Indo-European language seems controversial in modern linguistics, and a search in Google Scholar brings up mostly articles and books that refer to “Indo-European” as a family of languages (“Indo-european—Google Scholar”). Weijnen, however, apparently believed in the possibility of reconstructing a single Indo-European language, referring to “the ancient times of the world of the Indo-European language” (Weijnen, “Aim and Method” 12, emphasis mine). This goal of documenting common linguistic roots was one of the primary reasons to which Alinei attributed the success of the ALE in its early years. As Alinei reflected in 2008:

what marked the official beginning of the ALE in 1970 was the positive response that the Soviet Academy of Sciences gave to our invitation. For we were, let us not forget it, in the middle of the Cold War, and a “pan-European” project in the Humanities, in those years when in the Western world “peaceful coexistence” was a politically “loaded” concept, was not only extremely rare, if not unique, but also a very bold enterprise. Toon Weijnen and I shared not

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only the same vision of dialectology, but also this ideal of common European roots, irrespective of politics, and I would like to add that this was another decisive factor that made it possible to build the ALE. (Alinei, “40 Years of ALE” 6-7)

Searching for common linguistic roots transcended political divisions and ensured collaboration on both sides of the Iron Curtain. As mentioned previously, the ALE commentaries tend to search for large patterns that the maps measurably show. Brozovic and Alinei both make reference to Indo-European roots in their commentaries. Brozovic suggestion that the words for “moon” meaning “month” come from the hypothetical Indo-European root “me-” (to measure) (Brozovic 10). Likewise, Alinei refers to the “well-established” Indo-European root “io(u)s” to explain words for “rainbow” that mean “belt,” but refers to a controversy over that root in the footnote (Alinei, “Arc-en-ciel” 49). The commonalities they found helped to support or disprove these roots of a language no longer spoken.

By 1977, Calvino had been working with the Paris-based OULIPO for ten years. Oulipian writers wrote literature based on constraints, making their works the instantiation of guiding patterns. Similarly, the ALE arguably sees modern European languages as a set of variations on one ancient Indo-European language. Calvino’s three prior novels—The Castle of Crossed Destinies, Difficult Loves, and Invisible Cities—were all written while he lived in Paris as a member of OULIPO (Botta, “Notes” 82). Traveler, however, was written on the tail end of this residence in Paris (Usher 41), and as such, a certain amount of critical debate remains as to whether to classify Traveler with its Oulipian predecessors or see it as a break. Beno Weiss’s Understanding Italo Calvino places Traveler at the beginning of a new period in Calvino’s writing (Weiss 6), though many scholars still consider it an Oulipian work, as I will show. The novel does display some evidence of having been written under Oulipian constraints, but the
usefulness of these constraints for interpretations of the novel, I will argue, is limited. The novel plays with these constraints’ explanatory power in part to question the ALE’s search for a single common Indo-European language. Traveler’s abstract patterns explain very little about the book, asking what new light Alinei’s linguistic rules cast upon our understanding of language and literature. I further suggest that these humanistic computing projects served for at least part of the reason for Calvino to see the constraints not as an end to themselves, but to write a story that employs some constraints but places equal weight on its narrative.

The critical disagreement over the Oulipian nature of Traveler suggests that Traveler reveals Calvino’s interest in permutational writing, but frustration with the simple conceits of early Oulipian works. One work often cited as a particular example of Oulipian writing is Queneau’s Exercises in Style, which narrates the same two mundane events in ninety-nine different genres. One interpretation of Exercises is that genre and narration matter more than the particular events described; such a reading does not require reading the entire book. While Calvino’s previous work used Oulipian constraints for literary inspiration, writing under constraint also risks creating books explained simply by rules. For example, the bad metafictions the novelist character Silas Flannery writes in his diary in Traveler are explained, and exhausted, by their descriptions, so much so that Flannery does not even feel compelled to develop them into fully-realized stories. The novel suggests that the hardline patterns of Oulipian constraint writing, while valuable, risks creating Books that Can Be Read Before They Have Even Been Opened; Queneau’s Cent Mille Milliards de Poèmes is probably more discussed than read, and Warren Motte’s famous reading of George Perec’s La Disparation (A Void) interprets the novel’s conceit of omitting the letter ‘e’ and does not even mention the novel’s plot (Motte). Traveler does use some Oulipian constraints; it has not one schema but two, one for the frame tale of the
Reader’s story, and one for the incipits. There is also a third Oulipian constraint, that I have already mentioned, a catalogue of reading and writing practices; this cataloguing functions as an Oulipian constraint much like Exercises. These constraints exist alongside a set of narratives with which they cooperate to produce meaning.

Calvino described the frame tale’s combinatorics in an oft-cited essay, “How I Wrote One of My Novels” (Calvino, “How I Wrote”). This essay diagrams the events of each of the twelve chapters, illustrating a series of encounters between characters and books with boxes that position symbols for each of the characters at the four corners. With the variety of symbols, Calvino self-consciously alludes to the ALE’s maps and the variety of symbols these maps used for words. The first chapter of Traveler has only one box. Each subsequent chapter has an increasing number of boxes, reaching a maximum of six at the end of the sixth and seventh chapters, and then declining until the twelfth chapter, which also has only one.

Many critics use Calvino’s “How I Wrote” to explain Traveler’s structure and argue for its Oulipian character. For example, Peter Consenstein writes:

the figure of a square is the model of the constraint that governs the numbered chapters, where “you” are the main protagonist. The constraint functions in the following manner: each corner of the square represents an element of the relationship between the reader and the novel, the reader and other readers, the reader and fake novels, the reader and the “author,” the “author” and the reader, the reader and the State, etc. “Your” various actions, and the relationships “you” are involved in, occupy the four corners of the square. The narration advances both clockwise around the square, and, at various intervals, opposing corners of the square

33 Weijnen and Alinei’s pamphlet “The Wheel in the Atlas Linguarum Europae: Heteronyms and Semantic Density” (1975) contained an appendix with six sample maps. Though these maps covered a smaller area than the final ALE maps, they still used a variety of different symbols to represent each word, like the final ALE maps.
interconnect, thus prolonging the narration. The number of squares per chapter increases by one until the sixth chapter; at that point chapter seven also comprises six squares, whereupon the number of squares per chapter decreases until, like the first chapter, chapter twelve is composed of one “square” of events. (Consenstein n.p.)

Mazzoni and Botta also agree in their labeling of *Traveler* as an Oulipian combinatoric novel. Mazzoni argues:

Calvino’s inherently combinative aesthetics, so conspicuous especially in works such as *The Castle of Crossed Destinies*, where the many configurations of tarot cards laid out on a table give rise to an equal number of different stories, is thrust to the foreground at the very end of the novel, where the list of titles of the ten stories read during the text is mistaken by some readers for the beginning of just another story. Underlying this passage is the thematization of one of the basic tenets of reader-response criticism—namely, that it is the reader who in fact accomplishes the realization of the text. (Mazzoni 66)

Botta concurs in seeing “Calvino’s last works [as] all organized around a code that the author imposes as a rigid constraint on his narrative material . . . . *If on a winter’s night a traveler* was generated by the application of several Oulipian constraints, as explained by the author himself” (Botta, “Calvino and the Oulipo” 86).

While these critics all read *Traveler* as comfortably Oulipian, I read Calvino’s statements on the frame tale’s formalism as a posture. The length of Consenstein’s list of things that the corners of each square represents highlights just how little the diagrams actually explain because the sheer variety of things undercuts any specific pattern that emerges. “How I Wrote” also fails to explain the increasing numbers of squares; further, the relations between the characters and books do not become any more transparent than in the novel. “How I Wrote” seems to be just as
much a self-conscious literary work as the novel; Consenstein himself later remarks on the poem-like form of the 4-6 lines of prose that follow each chapter’s diagram. The essay even makes this point itself when it includes text along the diagrams; the text, the commentary, shows that diagrams cannot speak for themselves to make their structure apparent. Therefore, “How I Wrote” is just another way to read the same story that the novel tells, one that oversimplifies the novel to nothing more than its form because the essay necessarily leaves so much out. I suggest, then, that the essay questions whether identifying the novel’s structure helps a reader to better interpret the novel.

The frame tale’s combinatoric structure, however, only describes half of the novel; critics have also found a guiding pattern in the ten incipits. Kathryn Hume points out that in all ten incipits, “the unit that serves as theme for variations consists of a woman and two men, and the man who focuses the narrative is threatened with annihilation from an organizational complex” (Hume 118), and explicitly links the novel’s combinatorics to its cataloguing of reading practices (Hume 124). Noting the obvious resemblance to Queneau’s *Exercises*, Hume adds (albeit without citation) that Calvino “proudly notes . . . that none of the reviewers spotted this invariant core” (Hume 119). This core generally goes unnoticed even in critical work that reads the novel as Oulipian or permutational.34 Assuming Hume is accurately summarizing a real statement by Calvino, I read Calvino’s identification of the motif as the same kind of posturing he presented in “How I Wrote.” The generality of the incipits’ motif might explain why their different genres would distract critics from a central core: the rivalry between two men for a woman where one man is threatened by a larger organization is a common literary plot, central to *The Iliad*, *The Odyssey*, and sections of the Bible (such as parts of the Abraham and Sara story, David and

Bathsheba, and arguably the story of the Fall).

Nuccia Bencivenga hints at this motif’s generality, writing that the novel suggests that “all stories maybe variants of one another, translations of one another in different languages . . . . And so in a sense we are repeating the Reader’s strange experience: at each sixteen-page signature, essentially the same story comes back to us” (Bencivenga 9). Unlike Queneau’s jarringly quotidian two men on a bus, the incipits’ motif illustrates the structure’s commonality across a variety of genres. The incipits’ core is easy to overlook because it is a conventional but potentially-interesting plot; Queneau’s motif is hard not to notice because of its modern setting, banality, and lack of plot, which paradoxically establish its modernity and uniqueness.

Because Calvino uses such a general theme for the incipits, the fact that this theme is so difficult to notice suggests it may not help the reader to interpret the novel. Hume writes that Calvino does not seem to find such structures comforting:

Despite his prior engagement with narratological theory and combinatorics, Calvino does not seem to find such generation of story very comforting within the confines of this novel. As a source for the story, this ‘machine’ works very well, but the stories themselves are of violence, madness, and death. Moreover, Calvino is not consoled by his Orphic identity as artist. (Hume 129)

The lack of consolation in form Hume identifies suggests that the novel cannot be reduced neatly to its constraint. I read Traveler’s more sophisticated use of structure as a means to differentiate it from earlier Oulipian works. Queneau’s Exercises are a catalogue whose central purpose is to demonstrate the tension between a boring incident and the varieties of narrative styles that can make it interesting; the actual text we read is explained (if not completely interpreted) once we realize his mechanism. The specific passages that Queneau writes seem secondary to his conceit
and serve only to manifest a general pattern. The same is true of Queneau’s *Cent mille milliards de poèmes*, a work whose enormity means that it can only be read as structure. The guiding concept is important for any interpretation of both of these paradigmatic Oulipian works. I do not mean to suggest that any of these works is inferior to *Traveler* for relying on such structures, but rather that Calvino seems to have become tired of writing as filling out a pattern or making a catalogue. Calvino’s permutational structures are less important to an interpretation of *Traveler* than Queneau’s; both the frame tale’s combinatorics and the incipits’ cores live side-by-side and do not affect each other, at least not according to “How I Wrote.”

Criticism on the incipits’ structure bears this point out by not mentioning the incipits’ Ur-structure except as a general point. Peter Orr has argued that the incipits form a mythic story of a reader’s encounter with the world: in the beginning (the internal novel *If on a winter’s night a traveler*), the reader exists in a state of alienation from the world and longs to be involved in it but discovers the peril of being involved in the wrong thing. His desire to disappear is both alleviated and confirmed in *What story down there awaits at the end?* In this final incipit, he discovers that his greatest desire (his own ability to create) is also his greatest fear (because it attracts the attention of those who wish to control him) (Orr 213–4). Orr’s sophisticated narrative explains the incipits’ mythic structure well, but interestingly, he makes little reference to their core. Because it is possible to explain the stories thoroughly in relation to each other without their central motif, this motif seems to explain the stories less, if at all. It offers additional

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35 Calvino is not alone in making this change; Oulipian writing decreases in reliance on constraints around the time that Calvino was writing *Traveler*. Pèrec’s *Life a User’s Manual*, published in 1978, follows some constraints: the objects in each room follow a certain pattern, and the order of rooms the novel describes follows the Knight’s Tour. Though it provides a general narrative structure, this structure is a less essential component of the novel than those in some of Pèrec’s earlier work, such as *La Disparition*. Criticism and interpretation of *Life* reads the novel for its plot as well as its structure. Since both *Life* and *Traveler* were written the same year, we might take this as a sign that some Oulipian writers were no longer using constraints as the single focus of their works. For this reason, I do not see *Traveler’s* use of such structures as necessarily anti-OULIPO; *Traveler* and *Life* could simply be more sophisticated applications of constraint writing.
interpretive material more in the form of exploring the novel’s metastructure, but it does not seem integral to understanding the mythic pattern in the stories. Therefore, the novel suggests that searching for these larger structures is a futile and ultimately pointless gesture when it comes to describing its own narrative.

I read Traveler’s formalism as inspired by Alinei’s cataloguing: Traveler questions what Alinei’s massive collections of words explain. First, Traveler’s step away from a reliance on patterns questions the attempt to extract patterns from literature, given Alinei’s own work on extracting these patterns. Traveler suggests that now that large-scale projects to extract patterns are being done, such as in Alinei’s work, it is less interesting to insert patterns so readers can pull them out to expose the underlying structure of genre or language. Such a project, to Calvino, risks making literature an experience of simply understanding generalities. Second, interpreting the novel requires more attention to its narrative and characters, rather than to its formal structure. And yet, this formal structure highlights several key aspects of the novel, insisting on central cores of literature, like the three, seven, twenty, or thirty-six basic plots sometimes mentioned.36 However, the incipits’ motif is interesting only insofar as it shows the commonality of literary works. Oulipian constraint-based writing thus coexists with a specific narrative in the novel; “How I Wrote,” in contrast, simply draws out that particular theme, rather than transparently explaining the novel. Likewise, understanding patterns common to all literature remains interesting, but so does the specificity of every story. In the end, the question remains ambiguous: can we make meaningful generalizations about language and literature? Traveler and “How I Wrote” exist in tension as two ways to explore the same material, much like the ALE maps and its commentaries.

36 I take these numbers from the IPL’s “Frequently Asked Reference Questions”.
Traveler’s ending embodies the tension between constraint-based writing and narrative. The novel uses the form of the traditional plot (inciting incident, rising tension, climax, and denouement) to emphasize its own nature as a catalogue of reading practices. After the Reader’s quest for a variety of novels, in the third-to-last chapter, the story’s climax comes in a nation that gives literature too much meaning; Calvino at once parodies placing too much importance on literature and yet asserts the importance of literature. At this point, an arc established in the first chapter comes full circle. The Reader was said in the first chapter to feel a kind of hip cynicism about all but literature:

You’re the sort of person who, on principle, no longer expects anything of anything . . . . You know that the best you can expect is to avoid the worst . . . . What about books? Well, precisely because you have denied it in every other field, you believe you may still grant yourself legitimately this youthful pleasure of expectation in a carefully circumscribed area like the field of books, where you can be lucky or unlucky, but the risk of disappointment isn’t serious. (4)

In the third-to-last chapter, though, the Reader has been dispatched to the Communist nation of Ircania. He encounters Arkadian Porphyrich, Director General of the State Police Archives, who reveals the power of literature and thus the need for censorship:

Nobody these days holds the written word in such high esteem as police states do . . . . What statistic allows one to identify the nations where literature enjoys true consideration better than the sums appropriated for controlling it and suppressing it? Where it is the object of such attentions, literature gains an extraordinary authority, inconceivable in countries where it is allowed to vegetate as an innocuous pastime, without risks. (235-6)

Porphyrich further expresses belief in a pantheistic, quasi-religious “Spirit” that animates his
work. He also expresses a desire for Ludmilla, whom he reports now believes that a similar spirit speaks to her through literature, even in Marana’s fake novels. With its weighty themes—

religion, state power, and censorship—this climactic encounter implies we are about to be told that the meaning of literature comes from our inability to pin it down. We might also expect a statement on the necessity of literature to express essential human worth in the face of political oppression. Porphyrich’s belief, however, that the police also embody this transcendent spirit hints at the undemocratic nature of this belief in literary significance, which becomes dogmatic and threatens freedom of expression if we believe that literature should only deal with certain ideas and express profound truths. His belief further hints at the political sympathies of some modernist literature that also expressed similar hopes. To Porphyrich, reading takes on transcendent significance, and the novel seems poised to make at a great statement about how literature is that thing which completely defies a conclusive interpretation; only a totalitarian state would attempt to tie literature down with such weighty significance.

After this dramatic encounter, though, the second-to-last chapter takes the Reader from this scene of political power and turmoil to an everyday scene in the public library, where he attempts to find the ten novels he has spent the novel seeking. Instead, he finds a group of other readers who stand up and spout their various reading practices. What Calvino confronts us with at the end of the plot, then, is yet one more catalogue, which reiterates the variety of reading practices and leaves the search for a correct reading practice unresolved. The Reader thus finds no resolution; the end of the story refuses to comment on any of the practices, and, confronting us again with their variety, reiterates a new list without scorn. Seeing the list of novel titles that the Reader has requested, one reader even misinterprets them as the beginning of a new story, insisting that all stories used to begin with that sentence. This scene shows that not only can
anything can be reread and reinterpreted, in the novel, but exemplifies another inaccessible, and
patently incorrect, Ur-narrative that has no relation to the contents of any of the incipits
themselves. The complexity of the world intrudes yet again on a set of abstractions—novels’
titles printed on forms—which are taken as the start of a story. The narrative climax recapitulates
the novel’s project, leading the Reader to encounter a variety of reading practices all over again.
The novel cannot choose one reading practice over the others because it cannot tell the reader
how to read itself. Instead of a statement that reading points to something greater the novel
cannot name, this is a statement that the novel can be read in a variety of different ways.

In the end, then, the novel’s compositional method is clearly defined, but it remains more
of a curiosity than a deep structuring device for the novel. The incipits’ Ur-narrative and the
patterns of boxes are not a transcendental signified pointed to by the narrative we read; it is a
guiding principle for Calvino’s novel, but one that does not explain everything about that novel.
Likewise, as the stylistic variation of the novels distracts from the central core, words in modern
languages are not simply signifiers pointing to transcendent, common Indo-European roots but
words with meaning greater than the roots that shaped their formation. Traveler asserts the value
of present-day languages over the search for transcendent common roots. While of course the
common Indo-European roots are of significant interest—and I doubt Calvino would deny that
they are of interest—their use for modern language seems to be limited. They hint at something
desirable yet nonexistent: an international unity sought in language yet absent from politics.
Furthermore, given the controversy over the existence of a single Indo-European language, this
criticism questions Alinei’s and Weijnen’s motives for belief in the controversial position of a
single, common language. Traveler, therefore, takes a moderate stance in poststructuralist
linguistics. The novel does not deny the existence of possible linguistic universals, but rather

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suggests that they are so abstract as to be meaningless. In fact, the novel simply emphasizes the lessons of the ALE: European languages are heterogeneous and diverse, and linguistic and political borders do not align. The abstractions of Indo-European roots must coexist with the heterogeneity of contemporary languages.

I argue that the SEILC’s indexing of Calvino’s earlier work was at least one explanation for Traveler’s more complicated use of Oulipian constraints. The SEILC, SEIOD, and ALE demonstrated that computers could be used to derive broader socio-historical patterns from language and literature. Consequently, creating literature with a compositional strategy that explained the whole work, like Queneau’s Exercises, lost its appeal because it threatened to reduce a novel to nothing more than that its central concept. In using patterns but supplementing them with a complex narrative, Traveler emphasizes the need for a page-by-page reading of a book for something more than a general compositional principle.

**Motivational Mapping and the Italian Novel**

While Calvino’s first literary works are all located in the Italian countryside, twenty pages into Traveler, the Italian Reader discovers he has accidentally purchased a Polish novel and chooses that novel over Calvino’s. Two hundred pages later, he still has not found Traveler; instead, he settles down to marry another Italian reader after the futile search for the novel has taught him to care about the world again by connecting him to other readers. Looking for an Italian novel takes the Reader down detours through novels from Poland, Belgium, Japan, and the mythical nations of Cimmeria, Cimbria, and Ataguitania. This “Italian” novel is instead a conglomerate of novels from different countries; Calvino appropriates and invents a variety of styles all clearly located in particular places outside of Italy.

What would it mean to call Traveler an “Italian” novel? Anna Botta has raised this
question before, suggesting that Calvino addresses that very question in *Traveler* by identifying his “Italianness” with his humanity—humanity that persists in opposition to French Oulipian formalism. I argue instead that *Traveler* raises the question of Italianness in response to Alinei’s three projects that sought—and seek—to identify relationships between language and social, political, cultural, and national circumstances. *Traveler* questions the significance of such relationships, both on the specific level of how literature reflects its nation of origin, and more generally in response to the ALE’s attempts to situate language in relationship to its surroundings.

Alinei’s choice of authors in the SEILC suggests his assessment of their importance for historic reasons. Interpretations of Moravia’s novels as reactions to a specific moment in time, however, had in some ways harmed the author’s reputation. Jan Kozma reads *La Ciociara*, the novel Alinei indexed, as addressing the issue of “artistic autonomy and political commitment” in a particularly Italian context (J. Kozma 271). Writing about Moravia’s 1960 novel *La Noia*, Harry Lawton concludes that Moravia’s novel, about an artist in Rome, reacts to the “hardening of political positions in the Cold War, the increasing Stalinization of the [Italian Communist] Party and the establishment of Christian Democracy at home” (Lawton 227), again reading a relatively intimate, private novel as a reaction to the immediate political present. Read in regard to his immediate surroundings, Moravia had been, in Jan Kozma-Southall’s words, “extolled as the spokesman for Italian existentialism, the finest storyteller of the Western world, and the embodiment of Neo-realism itself” (Kozma-Southall 207). The criticism Kozma describes tends to situate Moravia in very particular historical moments. All this praise that Moravia spoke for

37 Botta writes that in some of Calvino’s Oulipian novels, “by continually playing with narrative functions, the narrator ends up by stumbling upon the unsaid, the hidden part of each story, both his personal taboos and those of his society. This, I would argue, is the way that Calvino’s ‘italianità’ should be studied--searching through the many lacunae of his narration, taking note of the ‘spastic’ fits of his combinatory machine” (Botta, “Notes” 87–88).
his era earned him a strange position in the literary world: critics considered him a popular, though highbrow, writer rather than a serious literary writer (Kibler 265). The label of writing about the immediate world pinioned Moravia’s Italian reputation and kept it from rising beyond a certain level.

Unlike Moravia, Calvino was never read simply in the context of his own historical and national moment despite his popularity: Calvino deliberately pursued a different literary track. Calvino’s work is unquestioningly perceived as “high” literature with international appeal.\(^{38}\) Though Calvino composed and published in Italian throughout his life, by 1977, he had enjoyed a decade-long fruitful relationship with the Paris-based OULIPO and lived abroad in a variety of cities (Raffa 276). As I will demonstrate, Traveler expresses discomfort with the idea of being simply as an “Italian” novel; I will argue instead that Calvino’s writing sees itself as a part of an international literary scene. Traveler questions what it means for a novel to be a meaningful representation of its immediate surroundings and context, and how a reader or critic might read such a question.

Calvino’s earliest works treated the experience of World War II, but by 1977, it would be difficult to call The Path to the Spiders’ Nests, the work that Alinei selected as a marker of changes in postwar Italian, typical of Calvino’s varied oeuvre. Calvino had expressed that same sentiment ten years after he first published Spiders’ Nests in an introduction to the second edition of the novel in 1964. Calvino confronted the strangeness of his earlier writing: “It is not so much

\(^{38}\) In her article “Calvino and the Value of Literature,” Luica Re takes seems to take her audiences’ comfort with opposing Calvino’s fiction to popular culture for granted: “In the era of cultural studies, in which criticism has increasingly focused on mass culture along with or side by side with literature, taking as equally worthy objects of analysis films and novels, television, porno magazines and the Marquis De Sade, comic books and Shakespeare, graffiti, advertising, videogames, and Emily Dickinson, ‘Rimbaud and Rambo’ (as I have heard someone say), it may be useful to explore the reasons why a writer like Calvino, so finely attuned to the cultural mutations of modernity, and with such a keen interest in a multiplicity of critical and intellectual products and kinds of discourse (including film, television and the new technologies), attributed throughout his entire life a special value to literature” (Re 121-22).
as something of mine but rather as a book born anonymously from the a moral tension, a literary
taste in which our generation recognized itself at the end of World War II” (Calvino, SN v). He
indicates here the unfamiliarity of his writing; he refers here and writes repeatedly of the sense
that his writing was not his own, calling it “the anonymous voice of that time” (Calvino, SN v).
He also denies that the literary movement to which critics assign it, neorealismo, was a school
(Calvino, SN vii). While he feels comfortable describing general stylistic characteristics of
neorealismo, such as its difference from nineteenth-century naturalism, he also insists that he
does not speak for any of his contemporary neorealists but himself (Calvino, SN viii), suggesting
that he never did feel the sense of a group identity in writing the book, but that his embodiment
of the voice was almost accidental and not a conscious choice.

A full decade after this preface was published, the SEILC claimed that Calvino
represented at least one significant part of the true voice of his Italian generation. If this label
clearly already felt uncomfortable to Calvino in 1964, how much stranger would it have been to
an author who had since moved to Paris, an action which would later cause Italian critics to roast
him four years after his death for betraying his national identity?39 By 1977, Calvino
demonstrates a discomfort with being identified with a particular literary movement or historical
event, and consequently, the desire to label any literature as originating from and representing a
particular country.

The discomfort manifests itself in Traveler as the novel satirizes reading practices that
attempt to establish clear relationships between literature and larger issues. When the Reader first
encounters the doctoral student Lotaria, we can almost see his eyes roll. When she is first
introduced over the phone after the Reader confuses her for her sister Ludmilla, she quickly

39 The June 1990 edition of the Italian literary magazine Wimbledon was directed at Calvino; the various articles
argued that Calvino’s later works, starting with Cosmicomiche in 1965, were inferior to his earlier works (Botta,
“Notes” 81).
demands that the Reader explain a novel’s “position with regard to Trends of Contemporary Thought and Problems that Demand a Solution” (44). She reads literature only to find out how authors address political problems, as she demonstrates how she approaches literary research by feeding three novels into a computer that generates word lists. All of these lists come from Alinei’s SEILC. She reads Calvino’s Spiders’ Nests as “a war novel, all action, brisk writing, . . . entirely on the surface . . . [but with] something hidden,” Cassola’s Local Railway as “intimatist narration, subtle feelings, understated, a humble setting, everyday life in the provinces,” and Moravia’s The Two Women as “a full-blooded story, violent, everything concrete, a bit brusque, with a direct sensuality, no refinement, popular eroticism . . . a guilt complex pure and simple” (187-8). Summary readings of criticism on these novels show that Lotaria’s readings are generally correct (J. M. Kozma; Kozma-Southall; Joseph; Weiss 7). Her computational analysis does not lead to formalist analysis, as we might expect given Literary Data Processing’s attention to stylistic criticism, but to seeing literature as far too engaged with its context. Calvino’s borrowing of the SEILC word lists once again connects Lotaria’s reading to the real world. This scene explicitly addresses the general readings for socio-political changes in language that Alinei’s work aspires to enable; such readings could be generally accurate but oversimplify the works they read to nothing more than manifestations of changes. Lotaria’s analytical, cold reading contrasts with her sister Ludmilla’s reading for pleasure whose goals change from day to day. Lotaria’s explicit goal, however—she states that her doctoral thesis is meant to critique her sister’s idea of reading—is to read Flannery’s novels (and all others) as addressing contemporary issues. Lotaria is the most obvious instance of a kind of literary criticism that engages with any part of the novel.

Most critics agree with this characterization of Lotaria as well. Cristina Mazzoni suggests
that for the novel’s readers, particularly for Lotaria, “all too often the book’s reference is, deceptively, to an outside world ... But in the text the beginnings incessantly refer to one another, and the frame of reference thus becomes an internal matrix which may be entered from different points; the text becomes a microcosm of intertextual relations, a model in scale of the literary network of influences and determinations” (Mazzoni 65). The temptation Mazzoni identifies is to read the novel as taking on too many socio-political issues, which is Lotaria’s preferred critical method. Watts suggests she parodies bad academic criticism as her reading practice consists of nothing more than “scrutinizing isolated fragments of texts for their signifying codes, a practice embarrassingly familiar to anyone who has taken a seminar involving contemporary theory” (Watts 713). Carl Malmgren, while concurring with Mazzoni, reads Lotaria as too engaged with the real world, representing the “political or sociological” reader (Malmgren 111).

Too quick to link fictional novels to real-world ideas, Lotaria operates at the level of style and words without studying too closely, incorporating the stylistic analysis methods developed in the 1960s into her search for literary representations of social issues. Lotaria’s reliance on machines reduces her reading to her preconceived notions. She represents a nightmare of literary analysis that Calvino seems to fear from institutionalized literary study; her problem is not dry formalism, but dry engagement, far too general to be effective. Lotaria’s reading parodies a type of academic criticism that reads too many social problems into novels, a type that Professor Uzzi-Tuzzi partially speaks of when he laments students who want “general ideas to connect with other general ideas” (52), too quick to leap upon ideas found in literature rather than the texts themselves.

Calvino thus conceals his own identity as an Italian author within the novel, complicating any easy relationships between his novel and its national origin or other surroundings. While
Alinei implicitly labeled *Spiders’ Nests* a “postwar Italian novel,” which made it interesting as a marker of the changes he studied, Calvino resists such easy labels in *Traveler*. He demonstrates his resistance to such labels in both his appropriation of a variety of styles which become the ten novels the reader begins, and the character of Silas Flannery, who allows Calvino to reflect, albeit indirectly, on the process of writing. The novels’ ten styles, none of which is recognizably “Italian,” lead the Reader on a hunt for a variety of novels. Calvino adopts a variety of styles as a writer, undercutting an essentialism of styles or genres as tied to their nations or periods of origin; as he says when the Reader opens the first incipit, “who ever said this author had an unmistakable tone? On the contrary, he is known as an author who changes greatly from one book to the next” (9). The masks of Flannery and Marana likewise allows Calvino to reflect on the writing process through an extended game of indirection.

*Traveler* is made up of a series of the beginnings of ten novels connected by a frame tale of the Reader trying to read all of these novels. All of these tales are genres that Calvino had not written in before. He described the process in 1983: “I started imagining all the kinds of novels I would never write because I couldn’t; then I tried to write them and for some time I felt in myself the energy of ten different imaginary novelists” (Calvino, “Unwritten Word”). Each incipit belongs to a recognizably different genre. Though most of them suggest certain genres, this resemblance is intentionally misleading:

they are examples of styles, general suggestions rather than specific authors or literatures. The beginning of the book titled “Leaning from the Steep Slope” could be German, in terms of landscape at any rate—I recall the sea near Lübeck—but in terms of sensibility, it’s nearer to the states of mind found in Austrian literature. (Lucente and Calvino 249)

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The incipits’ particular styles resist national labels while imitating a variety of genres;\textsuperscript{40} however, the Reader manages to attribute each to a specific author from a particular country. The tension between the novels’ reported nations of origin and the styles Calvino was trying to imitate illustrates his efforts to mask or obfuscate the national origin of authorship.

Ironically, the one incipit with an unquestionably identifiable style is the Ataguitian novel \textit{Around an Empty Grave}, which all critics describe as a Borges pastiche. Despite his geographical distance from Europe, Jorge Luis Borges had an influence on many European authors, including Calvino. Appropriating Borges so directly makes a statement that Calvino admires, and has probably been influenced by, the work of an Argentinian author who can now be said to belong to world literature; Calvino cross-pollinates his “Italian” literature with international influences so strongly that he ensures the novel cannot be considered apart from them.

The novel reflects upon this project of authorial masking and self-removal in the character of the writer Silas Flannery, a popular writer suffering an extreme case of writer’s block. Flannery’s current struggles suggest that earlier in his writing career, the writing process troubled him no more than the average writer, and that he could produce bestseller after bestseller. Now successful, he has entered a variety of agreements to sell product placements in his novels. His sudden self-consciousness of the commercial circumstances of his writing removes his ability to write. Unable to complete an actual novel, he immediately begins to write some very bad self-expressive metafiction, including the frametale of \textit{Traveler}.

Critics have read Flannery as a mask through which Calvino makes metafictional

\textsuperscript{40} Many critics have assigned genres to the incipits, though few agree on all. For example, Gilberto Perez writes, “Calvino does a brilliant impersonation of an assortment of literary modes, from East European cluttered to Simenon-like criminal to Japanese erotic” (Perez 608). Beno Weiss identifies them as Latin American Magic Realism, Eastern European political fiction, Japanese erotica, and detective stories (Weiss 176).
commentary, transparent, but I also read Flannery as representing a type of metafiction Calvino sees himself as having transcended, limited to endless self-reflection in simplistic stories that express his anxieties about writers’ block. No longer able to believe in an authentic personal voice, Flannery now seeks to become an impersonal writer who can write without the paralyzing self-consciousness that prevents him from composing; he speculates that a plagiarist is the perfect writer who can completely subordinate himself to the act of writing. In writing the novel’s incipits, Calvino essentially makes himself into that international, non-discriminating plagiarist. Writing as ten different authors, Calvino avoids self-revelation and undercuts any idea of writing as transparent self-expression, or some idea of writing as emerging from the convergence of national forces surrounding the writer. In his larger fictional oeuvre and published reflections on fiction, Calvino seems to have hovered between labeling his own writing as “Italian” and “universalist postmodern,” with academic critics leaning toward the latter, given his international reputation.

The other instance of this is the literary agent Ermes Marana, who darts around the world publishing the work of one author under the name of another and even finishing authors’ works by computer when they themselves cannot. He is responsible for confusion about some of the incipits the Reader reads. Marana is a figure for a literary marketplace fixated on authorial identity as a guarantor of literary value. He contracts with a Japanese firm to produce Silas Flannery novels by computer, substitutes the work of a Belgian author for a Cimbric author, and constantly mixes up and re-packages novels for consumption by an uninformed readership. For him, authors are brands to put on preexisting narratives. Traveler uses him to reflect upon how the literary marketplace packages authorial identity; if an author connects a work to a specific time and place, then to Marana, all socio-political contexts are merely personae novels wear.
Writing as ten different novelists, Calvino undercuts the process of attribution so important to Marana’s marketing, performing a deliberate self-erasure that an agent like Marana would find difficult to sell. Simultaneously, Calvino asserts an author’s power to perform this deliberate self-erasure; the author may yet win out over the market through his own ingenuity.

Aside from these two reflections on the separation of a work from its context, _Traveler_ suggests that even literature with reason to make explicit political commentary in fact makes subtler political statements. The final two incipits, from the nations of Ataguitania and Ircania, where circumstances would seem to create a pressing need to address the current political climate, contain few—if any—clear political statements. _Around an Empty Grave_ and _What story down there awaits at the end?_ seem to be vague fables. The former is set in the past, and the latter happens in an abstract allegorical world whose relationship to its situation is confused the moment the most potent symbols of political power, the police, enter. Any analogues that the Ataguitanian author Calixto Bandera draws to his own country seem vague and tortuous. If the problem of his nation is a totalitarian government completely infiltrated by double- and quadruple-agents, his story of a man seeking out his origins—and consequently reliving his father’s fate—has little readily-identifiable resonance with his own country’s situation. The one political statement I can derive from _Around an Empty Grave_ is a statement on the difficulty of determining any origin and that the conflict between government and resistance has been borne out unnecessarily long; sons seem embroiled in the meaningless conflicts of their fathers merely by virtue of their place of origin. While this story resonates slightly with Ataguitania’s confusing politics, in which no one can be sure who belongs to the resistance or the state, the interpretation I have derived is rather general, and reveals how little this novel has to do with the country’s
specific situation. The same is true of *What Story Down There Awaits at its End?* Traveler suggests that if we expect novels to refer directly to their immediate national context, we either reduce fiction’s power completely, or believe too much in its power, which is equally damaging. As Arkadian Porphyrich explicitly states, his belief in the power of fiction drives the paranoia that leads the Ataguitanian and Ircanian police to censorship.

By embedding ten different texts in his one novel, none of which is specifically identified as a novel by an Italian author, Calvino conceals any explicit national identity in his work and questions what it means to read a novel as an Italian novel. Alinei chose *Spiders’Nests* because it showed Calvino appropriating a variety of different registers of language and regional languages into Italian literature, a move he saw as a democratic recognition of difference. *Traveler* plays further with genre, style, and cultural context to resist a simple explanation of the novel as Italian. Suggesting a more generalized, less-nationally-specific reading, then, Calvino appropriates a variety of styles to further widen the field of the Italian novel, pulling in styles from all over the world in order to further question the use of identifying “Italian” literature, as literature became globalized in the late twentieth century.

**Free Data and the Reader’s Power**

One of the most significant claims Alinei made about his work was that a reader could not only read about the patterns the scholars drew from them, but also develop one’s own theories by examining the data him or herself. Alinei clearly expressed a belief that certain characteristics of language underwent a transformation, and selected novels by Moravia, Calvino, and Cassola that represented that change, but left its specific effects to the reader’s

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41 *What Story Down There Awaits at its End?* begins with tantalizing political content—a man discovering he has the power to erase all the institutions around him and being pursued by the police because they want to co-opt his power—yet it ends with an encounter with a woman, rather than the creation of a new social order. The novel has little to do with the apparent state of affairs in Ircania, aside from a relatively general statement on the power of an individual even in the face of a repressive government.
investigation. The SEILC is simply a data set for linguists and literary scholars to study, not an interpretation. In the SEILC, Alinei intends to allow his readers to draw their own conclusions about contemporary Italian literature rather than proffering his own interpretation and dictating it to readers. The ALE has the same goal; though the atlas does offer an interpretive essay for each map in a separate volume, it also attempts to provide the raw dataset and free readers to form their own interpretation. All of Alinei’s projects either keep commentary separate from data or have no commentary at all.

Likewise, Traveler ostensibly places the reader (or Reader) in charge of the novel, making him into a writer and narrating his quest to read through which he encounters a variety of other readers. The novel presents itself as not only a catalogue of genres, but as a catalogue of reading styles and interpretive practices. I argue, then, for reading this common critical trope as a response to Alinei’s projects: to what extent do large amounts of data, presented without commentary, really free a user to draw their own conclusions? In light of the issues raised by the massive datasets of the SEILC, SEIOD, and ALE, Calvino points to the inherent problems in the idea of “reader liberation.” I argue that Calvino takes on a posture of yielding authority to the reader, a yielding he cannot fully accomplish, to expose the biases inherent in the ALE, SEIOD, and SEILC, which are supposedly neutral datasets. Traveler foregrounds the biases inherent to all datasets—all datasets are generated with assumptions about what they represent and what constitute, and what samples matter. As stated previously, the SEILC introduction conveys Alinei’s belief that Italian literature had changed, and that the authors chosen best reflect that change and represent a larger trend in Italian literature because of their popularity. His introduction never considers the possibility that prewar and postwar Italian literature do not differ significantly, or that sampling a different set of literature works might yield different
results. Likewise, the ALE editors’ choice of a valid sample size, as I will later show, necessitated making decisions about what sources would best represent Europe’s linguistic diversity.

Alinei believed that large-scale computerized data processing could correct his field’s incorrect theories. Not only could the computer process large amounts of data to provide empirically-supported theories, but the computer also made distributing the data to a large audience easier. The maps allowed a reader to access that data in a more easily-digestible format. The ALE consisted of both maps and commentaries that explicated each map, but both came in separate volumes. The maps themselves are published in a series of long, thin volumes of an irregular shape, necessitated by the level of geographic detail they contained. The atlases themselves do not even contain introductions. Though the maps are an interpretation of data, they present a then-unanticipated picture of linguistic detail, showing the word used at each data point, and are thus a kind of raw data themselves. Instead of labeling a region as a “French-speaking region,” for example, the maps show that speakers use “arc-en-ciel” at a certain data point, though this is itself a summary of the survey results, as only a majority of respondents might have said they used that word. The editors later published the raw data in microfiche (Alinei, “I.3 Intro” xxii). To a large extent, then, the ALE attempted to present a neutral, uninterpreted dataset both with its detailed maps and its later release of the raw data.

All of this data, however, still needed an explanation, or something to guide that reader in his or her supposedly-free process of interpretation. Therefore, in addition to the maps, the editorial team also published six volumes of commentaries. Each commentary volume accompanied one of the six fascicules, and contained one essay for each word. In each essay, a different scholar explicated each word’s maps, sometimes developing a story of how words and
concepts moved across Europe. For example, in map I.6, of words for “rainbow,” Alinei argues for the existence of “three main stages of ideological evolution”: zoomorphic/totemic, anthropomorphic/pre-Christian/Islamic, and Christian/Islamic (Alinei, “40 Years of ALE” 8). He suggests that the various words for “rainbow” show that some of the words came after various religions had been established (Alinei, “Arc-en-ciel” 47–54). While critical of the then-conventional idea of “language families” that attempted to draw hierarchical trees of languages based on common roots (ALE xxxix), Alinei still attempted to derive other patterns from his data. Therefore, despite a stated suspicion of grand narratives, and a goal of illustrating the distribution of European languages at the level of each word, Alinei, Weijnen, and the other commentators felt comfortable deriving larger metanarratives of linguistic history from their data. Their use of data to show complex linguistic patterns attempted to replace general histories of, say, the “development of German,” which assumed that clear boundaries could be drawn around German. Though their narratives were much more complex and sophisticated than those that had come before, they still drew up narratives of how language changed.

These commentaries were more than supplements to the more objective, neutral maps: the editors often cited writing linguistic history as the most compelling reason for compiling the ALE. In an address to the Royal Netherlands Academy of Arts and Sciences in 1974, which was later published as a pamphlet, Alinei and Weijnen argued that the gradual appearance of the word “wheel” in different languages illustrated the adoption of technology from two different sources, the Mesopotamian disc wheel and the Greek or Anatolian spoked wheel (Weijnen, “Aim and Method” 10–11). Alinei, Weijnen, and the other editors were interested in constructing new narratives about nationalism and language, even as the volume of detail they could display grew with their use of the computer.
Even while the commentators interpreted their data, the ALE prided itself on accommodating multiple perspectives in the commentaries; the commentaries were not intended as a homogenous work. A variety of scholars from different countries contributed to the commentaries, and each was assigned to a single author. Each commentator varies in how he or she explains the observed linguistic difference. While Alinei develops a theory of three ages of Europe from the “rainbow” map, commentator Dalibor Brozovic finds no such correlation in the “moon” map, instead noting that some languages use a word that also indicates “light,” while others use a word that also means “month” (Brozovic 10). Though they describe similar natural phenomena, Brozovic and Alinei do not mention each others’ theories, suggesting no awareness of each others’ work, which implies that all commentaries were written independently. Ellen Mooijman’s commentary on “puddle” (“flaque d’eau”) describes the editor’s frustration in pinning down a specific concept because all languages have a variety of words for various amounts of water. Mooijman explicates problems in producing the map rather than attempting to theorize the reasons for linguistic difference as Alinei and Brozovic do (Mooijman 97–105). Even as the commentaries try to explain, they do not attempt to synthesize the various explanations into a grand unified theory of language.

The SEILC and SEIOD contain even less commentary; Alinei justified each project as a compilation of linguistic data to describe Renaissance or contemporary Italian. The SEILC introduction spends no time summarizing observable linguistic changes from the data inside; instead, Alinei left it up to other readers to discover the particular nature of these changes. Alinei prided himself, ostensibly, on the variety of different conclusions one might be able to draw from all of the raw datasets he was generating. Though he suggests that comparison between the two projects will show observable changes in postwar Italian, one might even analyze the data and
find no indicators of changes; in a review, Dominic J. Bisignano does just that. Bisignano argues that the SEIOD and SEILC demonstrate consistency:

From a comparison of the texts, three observations can be made: the greater part of the forms found in SEIOD can be found in SEILC, some forms which are found in the former are completely lacking in the latter, and forms which have a large frequency in the former differ from those in the latter. (Bisignano 48)

Alinei’s datasets were open for a scholar such as Bisignano to form his own interpretation; likewise, the ALE allowed the reader to form his or her own opinions of where to draw lines between languages, and why certain words might be used. The ALE commentaries mark just how heterogeneous the opinions one might form from the maps might be. These datasets ostensibly grant their uses a significant amount of interpretive freedom, even while attempting to guide that freedom.

Because generating neutral datasets was the stated goal of the ALE, SEIOD, and SEIOD, I read Traveler’s insistence that the reader is a writer as not just Calvino’s exploration of poststructuralist dicta, as many critics have argued, but a response to these large new sets of linguistic data which emphasized their own neutrality while containing some commentary. Traveler questions exactly what types of freedom an uninterpreted dataset allow the reader, even if such is possible. In collecting reading and writing practices, the book practices a cataloguing aesthetic inspired on the one hand by Oulipian works such as Queneau’s Exercises in Style and Pèreéc’s Life a User’s Manual, and on the other, a set of disconnected linguistic data like the ALE or SEILC. Concurrently, Calvino takes a posture of yielding authority to the reader, which should cause us to question exactly what form the freedom to interpret a dataset takes. I argue that Traveler can be seen as an attempt to “liberate” the reader the same way Alinei’s projects
provide raw data without commentary in order to interrogate Alinei’s ostensible goals of freeing scholars to form their own interpretations of his data. The novel’s central conceit—reading as travel—in fact could be read in relation to the ALE: a traveler needs an atlas, but does an atlas free a traveler to go places, or determine the paths he may take? Likewise, does Alinei’s use of Calvino’s work to mark changes in Italian literature rely on an implicit assumption that Italian literature is distinct from other nations’ postwar literature, for example? After all, he states that regional language or technical languages may have influenced literary language, but makes no claims about cross-pollination with literature from other nations.

Most critics accept that Traveler is in part an act of Barthesian suicide, and acknowledges the reader’s power to interpret his work. For example, Peter Orr writes:

Reading, the Readers discover, is a dynamic activity performed together with other readers and with writers and with a book that is itself the product and producer of many readings. . . . At the same time, because the story . . . is enabled by the telling of their own story, . . . the Readers also learn their complicity in the writing of the story. Their quest for the origin of the book ends not in an Ur-text, or even in an author; instead, they find reflections and interpretations . . . . (Orr 218)

To Orr, the Reader becomes a kind of surrogate author as well, not unlike the role that George Landow would later claim for the hypertext reader. Many other critics concur, notably L. C. Badley, who writes that Traveler provides an example in which this poststructuralist tenet represents a change in postmodern fiction: “Calvino . . . departs from the narrative point of view of author-centered metafiction, appealing directly to a community of individual readers . . . the resistance movement of our time, in the post-structuralist sense that they are the world” (Badley 104). Badley interprets Calvino as reacting to Barth as well as Barthes, claiming that literature is
only exhausted because writers are out of ideas. This revolt stands in contrast to a contentious claim that Carl Malmgren makes about the role of the author in postmodern fiction:
“contemporary metafiction . . . set about establishing an almost adversarial relation with their readers by cheerfully and ironically adopting the author-ial mask and parodying the role of the response-ible reader. The readerly relations enacted by postmodernist metafiction represent a kind of dead end for narrative, one which Italo Calvino attempts to find a way out of” (Malmgren 106). Malmgren thus reads Traveler as a Romance of the Reader: a heroic story of a quest for an object of desire, which shifts between fictional text or texts, Other Reader, and the macrotext (Traveler) itself, and a love story as well (Malmgren 106–7). Calvino writes to escape a dead-end of literature that focuses too much on the author, and in this posture, Malmgren finds the replenishment of literature. To these critics, the text empowers the reader by acknowledging his or her role as another writer, one for whom the text is simply a starting point for an interpretation.

The novel begins with strong evidence for these critics’ claims: the first chapter describes the reader’s physical position reading, suggesting that the reader find a comfortable position before beginning the novel. This chapter takes special pains so that the person described could be the actual reader, and the situation described could be the actual reader’s own situation:

Find the most comfortable position: seated, stretched out, curled up, or lying flat. Flat on your back, on your side, on your stomach. In an easy chair, on the sofa, in the rocker, the deck chair, on the hassock. In the hammock, if you have a hammock. On top of your bed, of course, or in the bed. You can even stand on your hands, head down, in the yoga position. With the book upside down, naturally. (3)

. . . Well, what are you waiting for? Stretch your legs, go ahead and put your feet on a
cushion, on two cushions, on the arms of the sofa, on the wings of the chair, on the coffee table, on the desk, on the piano, on the globe . . . (3-4)

we assume that your duties are a normal element in the system of unproductive activities that occupies such a large part of the national and international economy . . . if you belong—willingly or unwillingly—to the number of those for whom working means really working, performing, whether deliberately or without premeditation, something necessary or at least not useless for others as well as for oneself . . . the principal object of your attention, whether it is the perforations of electronic cards, the burners of a kitchen stove, the controls of a bulldozer, a patient stretched out on the operating table with his guts exposed. (7-8)

These are just a few of the chapter’s many similar catalogues. Describing its reader’s possible positions and occupations, Traveler speaks to its reader directly as if it can anticipate who the reader will be. This cataloguing creates one sense of readerly autonomy, allowing a reader to choose the position of the textual Reader. Cataloguing gives the reader a sense of autonomy in choosing his reading position, or belonging to any position in the economy. The reader is left either to choose a position from these catalogues, or to find him or herself among the generalities described here.

Presenting a list of choices generates the appearance of freedom by giving a reader a list to select from. If Calvino can leave open enough possibilities that he could be describing the reader, then he might seem to be giving the reader some choice and some autonomy. Calvino’s equation of choice with autonomy thus implicitly links to empowerment to an Oulipian cataloguing aesthetic. From Calvino’s lists, we can theoretically contrive our own narrative of our own reading practice, as from the SEILC and SEIOD, we could make our own arguments about the changes visible in Italian postwar literature.
The obviousness of this trope of reader liberation, coupled with Calvino’s persistently ambiguous tone, casts doubt upon how seriously Calvino yields this authority. The impossibility of this sort of readerly autonomy, allowing the reader to make her own choices about what happens to the characters, becomes apparent the moment the reader starts reading. The Reader finally opens the book: “So here you are now, ready to attack the first lines of the first page. You prepare to recognize the unmistakable tone of the author. No. You don’t recognize it at all” (9). He immediately starts reading the book before we do, breaking the last vestiges of the spell that identifies Reader and reader. In describing the Reader’s reaction, Calvino loses the ability to describe exactly what his real reader feels. A character called Reader emerges, now fully separate from the reader. As the act of reading begins, the idea that the reader is being described by the author, and choosing how to act breaks down; the reader instead must follow along and read the Reader’s impressions of the first incipit before starting the incipit him- or herself. Not only does the illusion break down because Calvino cannot anticipate our reactions to the book, but also because the narrative begins to become self-conscious about its own existence, and because we are about to achieve a secondary level of observation, reading a book in a book. At the moment of self-consciousness, we lose the ability to identify simply with the reading of the novel and must become conscious of our actions. Additionally, in the next chapter, the Reader is finally given a gender when he encounters the female Reader Ludmilla, effectively eliminating half of Calvino’s readers from identifying with him.42 The attempt to accommodate the reader in this way frustrates literature and narrative; the long sentences at the beginning describing the reader’s possible position prevent his actually beginning the reading act. Once the narrative begins, the reader is no longer free.

42 In the original text, Calvino’s word “lettore” has a masculine gender, but in Italian as in most romance languages, the masculine can stand in for an individual whose gender is unknown.
This breakdown in Calvino’s ability to describe the reader shows that readerly liberation cannot be equated with letting the reader control the action of the story; interrogating the notion of liberation makes its complexity obvious. While focusing on the power of the reader, the novel has several instances that throw doubt on this power. When the Reader is held in prison, being put into the reading machine to test the Ataguitanian censors’ reading machines, he becomes incensed when his female companion, identified variously with academic criticism, state power, and resistance, reveals her multiple identities. Stripping nude and making the claim that even the body is a disguise, she throws herself upon him. The narrator thus inveighs the Reader:

Reader, what are you doing? Aren’t you going to resist? Aren’t you going to escape? Ah, you are participating. . . . Ah, you fling yourself into it too. . . . You’re the absolute protagonist of this book, very well, but do you believe that gives you the right to have carnal relations with all the female characters? (219)

Conveniently, the address comes at the beginning of the sentence; grammar allows the author to address reader and Reader. The Reader is passive as long as the author describes him as such, and can only assume autonomy once the author writes it as such. Other examples highlight the author’s power: Marana relates the story of a Sultana who is waiting for a coded message within a book, and who will start a revolution in her own country once she finishes her current novel, so her husband has a translator insert extra pages into her novel (123), showing the enchanting power of literature, and the writer. The writer has the power to hold the reader under a spell, at least, preventing her from engaging with the world. Admittedly, the Sultana may choose to stop reading at any time, yet she has set her time, and given authority to the author, which in turn gives her husband power to stop her from inciting the revolution.

Within the world of the book, the writer still has power to control the action; the reader
may choose how to interpret it. Thus, Watts disagrees with the common statements about the reader’s independence, asking provocatively, “Can an author apply to his writing a theory that requires his own subordination? Can writing free reading? Are Barthes’s ideas about the power and autonomy available to readers realistic?” (Watts 705). Ultimately, Watts comes to the conclusion that,

Having disarmed our reading defenses, written us into a well-specified position in the text, and explicitly instructed us in our reading of his novel, this author is clearly not dead, and the “birth of the reader” grows dubious. The presence and power that Calvino wields like a sledgehammer in Traveler demands a re-evaluation of Barthes’s pronouncement of death. . . . The Author hunted down and exterminated by Barthes . . . is the author of traditional fiction, one who, in the words of Michel Foucault, “impedes the free circulation [and] free manipulation” of fiction by constraining the meaning of the text to his own intention, or his intention as constructed by scholars. (Watts 714)

Watts reads Calvino as refining Barthes’ declaration; instead, Calvino believes in the author who believes in his own limitations, yet also in writing limits the interpretation that readers can make of his or her fiction. Watts, therefore, does not believe that the author guarantees meaning, but he does believe that the author writes the story that the reader must interpret.

Calvino cannot subordinate his own writing entirely to the authority of a reader; he does not make Traveler a novel-construction kit for readers to generate their own stories from component parts. He cannot write a novel without a narrative. By analogy, then, Calvino critiques the apparently-objective SEILC and SEIOD for embodying their creator’s biases. If Bisignano’s assertion of the consistency of the majority of grammatical forms between the two periods is correct, Alinei’s enthusiasm over his supposed difference could even be argued to be
misguided and thus subjective and uninformed by his own data. He compiled the projects to show a nonexistent difference. Thus, even as he tries not to guide the reader toward specific differences between pre- and postwar Italian literature, the project’s goal assumes the existence of differences, which shows that the project operates under biases that are later shown to be false.

Perhaps then, it is an obvious point that a novel’s author cannot totally free a reader to write his own novel within his own text, and that Barthes really meant that appeals to an author figure cannot determine all interpretations of a novel. So we might ask ourselves this: if Traveler itself is written to demonstrate Barthes’ idea, does it reflect on the process of interpretation, recognizing Barthes’ claim that the author does not determine all possibilities of interpreting a text? The strongest way in which the novel explores this question is through the Reader’s encounter with a variety of other readers, who show many, if not all, possible ways to read a book, but we watch as Calvino uses conventional narrative structures to determine an opinion on these readers and, implicitly, their methods of reading as they might be applied to Traveler itself. From the second chapter on, the book evolves from a set of things the reader could do in its first chapter to a dataset of practices that the reader could adopt. However, even as the novel makes overtures at simple cataloguing, it undercuts its apparent neutrality by the simple act of including these practices, showing that it cannot describe a practice without judgment. The novel imitates the ALE, SEILC, and SEIOD by becoming a type of dataset to question the practices surrounding reading a dataset.

Like the ALE, which catalogues a variety of words in different languages, the novel catalogues reading practices, among them casual pleasure reading, literary criticism, avant-garde artists, and the so-called “religion of art.” Academic readers are represented by Lotaria, Professor Uzzi-Tuzzi, and Professor Galligani. Lotaria is the most obvious, a recipient of scorn for her
desire to read books for Codes and Problems that Demand a Solution, a comment for which Theresa de Lauretis reasonably calls out Calvino for sexism. Nevertheless, despite Lotaria’s dependence on computer-assisted textual analysis, continues to read with her eyes, telling Flannery after reading a word list that she will use it to “direct my research along these lines” (187). Much like her sister, she reads voraciously, but gives the books short shrift for what she expects to find in them, even as she asks the valid question of Flannery, “Why would you want me to read in your books only what you’re convinced of?” (185). While many critics have been too quick to read her simply as someone who never opens a book except to put it into a computer, she does represent a certain kind of detached, overly general critical reading.

The academic whom the Reader initially likes best is Professor Uzzi-Tuzzi, but even he does not escape parody. After listening to him read Without Fear of Wind or Vertigo, the Reader comments that Uzzi-Tuzzi’s “academic envelope serves only to protect everything the story says and does not say, an inner afflatus always on the verge of being dispersed at contact with the air, the echo of a vanished knowledge revealed in the penumbra and in tacit allusions” (68). Uzzi-Tuzzi seems to appreciate literature as literature, not as a collection of codes like Lotaria. His portrayal suggests an apparent admiration for Alinei’s desired level of detail in the ALE. Yet moments later, as Professor Galligani enters his office and declares that Uzz-Tuzzi has actually been reading a Cimbric novel, Uzzi-Tuzzi’s scholarly interest in the extinct Cimmerians degrades into nationalistic bickering. Uzzi-Tuzzi angrily denies that Without Fear of Wind or Vertigo could be a Cimbric novel; the flipside of Uzzi-Tuzzi’s genuine concern for a dead culture is hostility toward a living one. Despite his apparently laudable concern for the experience of reading each novel, his reading could also lead to absurdity—the reclamation of small bits of territory whose debates now seem to matter only to academics.
The novel even goes so far as to include individuals whose interpretive activities fall outside the standard category of “reading.” One such “reader” is Irnerio, who proclaims “reading is slavery” and makes sculptures out of books. Apparently independent, he speaks of having unlearned his conditioning to read, which causes him to no longer recognize words. He represents poststructuralist notions of the idea of language as an oppressive system in itself that forces itself upon human readers, and adds a political subtext to these notions. His presence both includes claims that conventional literature is despotsically author-centered and parodies those. He hints at the author’s control of a work, yet further suggests how silly it is to be worried about granting a simplistic political significance to the one-sided exchange of reading, as he cannot help but be friends with Ludmilla.

The one reader who escapes parody, in fact, is Ludmilla; her reading practices seem not to attract criticism because they change so much. Through each chapter of the novel, she makes transparent statements about her favorite kinds of books, frustrating the Reader just when he thinks he understands her. The novel seems to commend her changing tastes as recognizing many different kinds of literature: because the Reader marries her in the end, he appreciates her understanding that there is no proper reading technique. Yet this approval of Ludmilla’s reading provides no clear opinion about a proper reading practice; she only appreciates literature because she recognizes how varied it is. Her changing tastes suggests that the novel does not make an opinion on any absolutely correct reading practice. Instead, she simply serves the novel’s cataloguing function by bringing in more and more styles of reading.

Even as the novel catalogues these practices, though, the very fact that they are included implicitly tells the reader that none of them can be the correct method of interpretation. As Barthes says, an author cannot determine how a reader should read a novel. If a novel then
names a reading practice, one could argue that by Barthes’ logic, the novel pushes it aside as a
correct reading practice. The reader loses the power to form an opinion of the characters’ reading
practices without at least considering their opinion in relation to the novel’s opinion of that
reading practice; for example, we might admire Lotaria’s work, but must then conclude that
Traveler gives her short shrift and point out its biases. The text’s opinions thus take primacy,
even as Traveler subordinates its own reading practices to the reader’s, standing in the way of a
free, unbiased interpretation of her. In denying its own power to tell the reader how to read it, the
novel suggest strongly that the practices it mentions are incorrect. Thus, Calvino insists on the
power of the author to determine the content of the work, which differentiates himself from
Barthes’ enthusiastic proclamation of death of author as birth of reader. The author’s presence
compromises the reader’s freedom to choose both his or her position at the novel’s beginning and
later, a reading practice. The freedom is not wholly illusory, because we can still choose a place
among the various positions Calvino offers, and we can still determine how to read the readers,
but the very presence of these things means that we must at least consider the writer’s position as
a necessary first step to interpretation.

As Traveler cannot present a reading practice without implicitly offering an opinion on it,
the novel suggests that all datasets involve biases, including the SEILC, SEIOD, and ALE. It
even points out at least one, in Uzzi-Tuzzi and Gallagani’s dispute over the origin of Without
Fear of Wind or Vertigo. Cimmerian and Cimbric (or Cimbrian) are real languages: Cimmerian is
an ancient Indo-European language that Robert E. Howard appropriated as the language of
Conan the Barbarian. Cimbric is a minor but living Germanic language spoken not far from
Calvino’s hometown of Siena, with about 2,000 speakers, which was not included in the ALE.43

43 In my interpretation, none of the fascicle I.1 maps recognizes any German words used near the town of Siena.
Making such a claim is difficult because some maps use symbols to reflect deviation from the norm (i.e. a
German word used in Italy) rather than assigning each word a separate symbol. The level of detail is also rather
Uzzi-Tuzzi’s preference for a dead language associated with pulp fantasy literature over a living language reflects one occasionally-mentioned goal of the ALE, to gather data for the investigation of Indo-European roots. The ALE editorial board seems not to have sent field workers to record Cimbric because it was less important to this goal. The conflict between Uzzi-Tuzzi and Gallagni points out that in attempting to unify all modern languages into earlier forms, the board overlooked one. This is not to accuse the ALE of betraying its commitment to an accurate representation of the linguistic diversity of Europe; after all, the ALE had limited, if considerable, resources, and could not interview every speaker, let alone represent them all on a map. However, it does show a preference for drawing patterns from their data and reconstructing a single Indo-European language, priorities that led them to be unable to fulfill the goal of representing all European languages. The ALE obviously presents an accurate picture of Europe’s linguistic distribution; nonetheless, it suffers from a problem common to all datasets. If when a reader finally strings the incipits’ ten titles together at the novel’s end, the reader still asks to hear a story despite being given an atlas, the traveler recognizes that there is a story involved in all datasets. The other ALE editors seems to have even recognized the fact that such narratives were necessary for guidance by including the map commentaries.

Consequently, Traveler questions the possibility of a neutral dataset. It points out that in the ALE, the authors had a particular bias toward which they interpreted their materials, which slanted some of their work; the same is true of the SEILC, whose authors Alinei selected for their engagement with a variety of political issues. Traveler suggests that while a reader may interpret a work however she wants—a key tenet of poststructuralist criticism—the author still controls the construction of the artifact to be interpreted. While the author’s intended meaning does not

low, and data points are not given geographic labels. Nevertheless, I cannot find any German words, or any deviations from a norm, shown in northern Italy.  

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determine all possible readings, this is not to say that a reader is on par with the writer in determining the novel’s meaning by, for example, giving the characters whatever ending they desire. By extension, the ALE’s desire to leave objective data for the reader to interpret remains a false hope—the project, like all projects, has its own biases that affect the data it gathers and presents.

**Hypothetical Oulipian Computers and the ALE**

Overall, this interpretation shows *Traveler* criticizing Alinei’s use of the computer. Given the computer’s importance to early Oulipian writing, Calvino’s negative attitude toward it seems strange. How do we account for the shift in both attitude toward the computer and Oulipian compositional techniques that *Traveler* presents? Jonathan Usher reads *Traveler* as using the computer to represent the debate between generative versus constraint-based writing and reading (45); however, he reads Calvino as losing faith in the computer’s ability to represent this tension:

[S]omewhere along the way, Calvino lost confidence in the effectiveness of the computer metaphor as a primary vehicle for this debate on impersonality, and, retaining technological imagery for a reduced set of postulates about generation and constraint, transferred the important dilemmatics to Chapter 8, with its contrast between productive and unproductive writers. This trimming down probably left surplus material, both dramatic and ideological, dealing with computers, and may explain the presence of Lotaria’s advocacy of literary computing of lexical frequencies in Flannery’s Chapter 8 instead of Marana’s Chapter 6. (47)

Why did Calvino lose faith in the computer as a metaphor for both impersonal analysis according to formal methods of literary scholarship and for the pure operation of form? Though he identifies the change, Usher does not explore its cause.

As a possible answer, what if we look back to the place of the computer in Oulipian
writing, and contrast it with Alinei’s actual use of the computer? The computer interested Oulipian writers in the early 1960s when the movement was founded, appearing in their earliest writings. Oulipian writing not only aspires to innovative formal experiment, but pursues scientific experiment with form. François Le Lionnais even proposes using analytical method to substitute for individual genius, so the computer offered an important tool to aid literary experiment. Le Lionnais’s “LIPO,” the first manifesto of OULIPO, describes conducting experiments to develop new literary forms, so “that which certain writers have introduced with talent (even with genius) in their work . . . Oulipo intends to do systematically and scientifically, if need be through recourse to machines that process information” (Le Lionnais xix). Le Lionnais suggests that the computer would prove useful because it could reproduce a structure to exact specifications. Computers also served as inspirational constraint more directly for poetry: Noël Arnaud published *Poèmes Algol* (1968), a volume of poetry using nothing but words from the ALGOL programming language. Perec wrote *Life A User’s Manual* from a series of tables of story elements according to specific rules; the novel is as much the implementation of an algorithm as the output of a computer program. Computing interested Calvino even before he joined OULIPO; his 1968 essay “Cybernetics and Ghosts” drew from Vladimir Propp and structuralism to suggest that early storytelling was simply permutations of limited sets of elements, and thus, modern storytelling could engage in formal experiment based on pattern and form. Calvino also speculated that the computer could be programmed to be a storyteller, but that it would first be judged on its adherence to classical models (which is correct, as James Meehan’s Tale-Spin shows), then follow a very human behavior of becoming tired with preprogrammed models and pursue formal experiment, which it could justify with recourse to historicist analysis. To Calvino, Oulipian experiment, though highly structured, expressed the
human need for novelty and unpredictability. For all of these authors, then, computing and the application of structure seemed like a new and vital target for literary experimentation.

These early writings were not about actual computer-assisted work, but hypothetical computers. Despite this excitement over computer-assisted composition in the 1960s, no such experimental computers appear in Traveler’s pages. Traveler shows that enthusiasm over the computer had waned. Nor does the novel follow its forms as rigorously; as discussed previously, though Traveler uses several interesting guiding structures, the novel also insists on it being read word-by-word rather than as the manifestation of certain structures. Traveler’s form operates on a metastructural level—it hints at the importance of structure to all literature, and must be read as a posture Calvino takes as well as a sincere attempt at arriving at literary innovation through the use of structure.

One significant reason for this change in attitude toward both literary form and the computer, and the apparent abandonment that Usher reads into Traveler, is Alinei’s work. Instead of creating new and innovative ways of analyzing literature (or writing new literary works), Alinei used the computer to make more essentialist statements about language and literature. The SEILC and SEIOD relied on authors living within defined national boundaries to make meaningful statements about all writers in that country. The ALE was invested in the idea of a single Indo-European language that underlied all modern languages. Alinei presented this disciplinary conservatism as innovation because of his projects’ scope and empiricism, enabled by the computer. Under the guise of disciplinary revolution, then, Alinei used the computer to promote essentialism in literary and linguistic studies.

Comparing Calvino’s aspirations to Alinei’s projects suggests that Alinei’s work with the computer disappointed Calvino. Having long since moved beyond the novel Alinei now
identified as characteristic of postwar Italian fiction, *Spiders’ Nests*, Calvino responded to Alinei by writing *Traveler*, a novel that cannot be understood except as a synthesis of international influences. *Traveler* questions the role of the reader in constructing a fiction, reasserting the subjectivity inherent in language and literature that Alinei sought to remove from linguistics. *Traveler’s* literary experiments focus on decontextualizing itself from its context in opposition to Alinei’s attempts to situate writing and language within particular contexts.

This new aesthetic reflects a more sophisticated application of constraint and structure than earlier Oulipian writing, such as *Exercises* and *La Disparation*, whose structural conceits predominate over the actual stories told. Even as Calvino writes fiction around structures such as the core of the ten incipits, he gives the individual incipits enough vitality to exist as independent stories—a process Calvino attested to finding invigorating. Structure matters in the novel, but so do the individual words on the page. Though *Traveler’s* characters are flat and metafiction predominates over realism, the novel’s accessibility and the incipits’ celebration of their own genres gesture toward changes in postmodern fiction that will come in the 1980s. Fiction in the 1980s moves from emphasizing concept, flatness, and irony—characteristic of Barth, Beckett, and Pynchon—to toward engagement with human emotion and the pleasures of fiction while addressing postmodern concerns of representation and ontology. *Traveler* is an example of this change; writing in response to the actual use of the computer in linguistics prompts Calvino to focus less rigidly on structure, and places him at the vanguard of a development in postmodern fiction.

**From Literary Data Processing to Linguistic Mapping**

Before writing *Traveler*, Calvino had seen the computer used as a tool for quite literally drawing sophisticated pictures of the world’s languages. No longer just a tool for data
processing, as it had been in the 1960s, the computer became a tool for representing complicated linguistic information in exquisite detail, rendering large datasets in an accessible format: the SEOID describes the linguistic patterns of Italian authors while leaving the datasets open to interpretation. The ALE broke language down to the point where individual words could be placed on a map. Calvino did not portray the computer as threatening to detach its users from the real world, but rather as a tool for flooding the real world with too much data about itself. The danger in Alinei’s use of the computer was that his work could both overwhelm the user with data to interpret, and also provide an appearance of empirical support for reductive thinking, even as it accommodated many perspectives.

Though humanistic computing of both the 1960s and 1970s employed similar methods, Alinei’s use of the computer contrasted sharply with the scale and the scope of projects from the 1960s. In the 1960s, computerized humanities projects had been restricted to single authors, generally, with few larger projects. The increased scale and scope of 1970s projects made it seem possible to answer larger, more significant questions than in the 1960s: Mosteller and Wallace could differentiate Hamilton from Madison, but Alinei could characterize a statistically significant sample of Italian literature from the twelfth century versus that of the postwar period.

Thus, while Barth in 1966 could write self-consciously experimental fiction with a sophisticated narrative voice that resisted reduction through computational stylistic analysis, Calvino in 1977 could not simply portray the computer as a reductive machine that would eventually encounter problems it could not comprehend. As Alinei had used the computer to represent anything and take in everything, Calvino had to search for a middle position between Barth’s complex, irreducible fiction and fiction that could be reduced to such patterns. Alinei’s work acknowledged the complex interactions of language and could both make gestures toward
deriving universal linguistic rules while accommodating multiple perspectives. Alinei’s work thus prompted a deeper investigation in Calvino: Calvino could not take comfort in simply creating literature too complex to be described as the transparent expression of imagined experience as Barth could. Instead, Calvino had to work out a tension between literature that acknowledged the presence of an underlying structure and literature too complex to be described. The first was author-centric literature with a strong intended meaning, and the second was playful and open to the reader. In the end, he could not truly yield authority to the reader, and yet cannot assert it entirely himself.

Having his first novel read by a computer changed Calvino’s conception of the computer from a hypothetical machine for literary innovation to a tool for supporting essentialist notions of language and literature. This change in his perception of computing prompted the novel’s change in aesthetics; Alinei’s work inspired Traveler, a novel with a rigorous form that insists it is more than just that form. Calvino’s experience with the computer prompted him to develop a postmodern aesthetic less distant and ironic than earlier fiction. Though Traveler is still a humorous metafictional pastiche of genres and catalogue of reading and writing practices, it celebrates the pleasure of reading and the human need for storytelling. One might say the incipits even respect their genres by celebrating the heterogeneity of literature; after all, Calvino added his own touches to each genre rather than simply copying recognizable styles. Traveler belongs to the literature of replenishment rather than the literature of exhaustion, and gestures toward a warmer postmodernism that rose in the 1980s. I will discuss this warmer postmodernism and its relationship to technology as exemplified by Michael Joyce’s afternoon, a story in the next chapter. Along with exemplifying this literature of replenishment, afternoon performs literary experiments with computers that Calvino and the OULIPO desired, even though they took a
different form.
“Do People Really Talk That Way?”:

The Cybernetic Humanities in *afternoon, a story*

In his controversial 1991 study *Hypertext: The Convergence of Contemporary Critical Theory and Technology*, George Landow argues that computer scientists and literary theorists have been thinking coincidentally along similar lines for the past few decades: computer scientists have been developing hypertext, which perfectly embodies literary scholars’ poststructuralist theories of language. Despite this thesis, Landow cites little from Derrida’s *Of Grammatology* to illustrate the similarity of Derrida’s conception of written linguistic signs to hypertext. This omission is odd, especially given this tantalizing quotation from *Grammatology*:

. . . whether it has essential limits or not, the entire field covered by the cybernetic *program* would be the field of writing. If the theory of cybernetics is by itself to oust all metaphysical concepts—including the concepts of soul, of life, of value, of choice, of memory—which until recently served to separate the machine from man, it must conserve the notion of writing, trace, *grammé*, or grapheme, until its own historico-metaphysical character is also exposed.

(Derrida 9, emphasis in original)

Though Derrida does not develop this connection between his theories and cybernetics further, if he at least refers to cybernetics as a broad justification for inverting the classical subordination of written to spoken language, we might have expected Landow to point to this quotation as evidence that computing influenced Derrida in some way. Perhaps Derridean linguistics is always already Weinerian; if poststructuralist linguistics grew out of cybernetics, it should naturally embody aspects of digital linguistic signs.

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44 Norbert Weiner, the father of cybernetics, is the source Derrida cites for his description of cybernetics.
More provocatively, Derrida defends machine translation from phonocentric critiques that assume that writing is merely transcribed speech, and thus language is impenetrable to machines. Again, Landow does not cite this passage:

Certain applications of linguistics, like the researches relating to mechanical translation, by the emphasis they place on the written form of language, could make us believe in the fundamental importance of the divisions of the written text and make us forget that one must always start with the oral utterance in order to understand the real nature of human language.

(Derrida 32)

If poststructuralist linguistics partly grows out of cybernetics and supports cybernetic theories of communication, why does Landow make so little reference to this early connection? Why would he be uninterested in a link to cybernetics, yet quote so much from Derrida’s later work, which also investigates the materiality of textuality?

One possible answer is that Landow and other enthusiasts wanted to claim hypertext as the embodiment of poststructuralist theory to challenge the recent emergence of a discipline that seems to be the ultimate application of cybernetic theories: Artificial Intelligence (AI). While the field of AI had existed since the 1950s, in the early 1980s, AI work gained a new visibility in humanities departments, and many of the individuals who would later unite under the banner of hypertext theory initially expressed some interest in it. Toward the end of the decade, however, interest in hypertext and media theory more or less replaced humanities research into Artificial Intelligence. 1980s AI projects represented the pinnacle of the development of the computer as a data processing machine: in some cases, as I will show later, these projects developed programs sophisticated enough to answer questions themselves. Simultaneously, however, the mass production of the personal computer turned it into a communications and data storage machine
rather than simply a tool for analysis. Hypertext appeared at the moment of the computer’s
evolution from data processor to medium; the new technology answered users’ needs and
provoked theorists’ imaginations, driving away applications in Artificial Intelligence as the
changes in information media posed new challenges to the humanities.

The rise of poststructuralism in humanities departments in the 1980s itself cast doubt on
the humanists’ use of AI because poststructuralism questioned empiricist, positivist research
methods. These happened to be the methods that most humanistic AI projects employed. Literary
Data Processing scholars and Mario Alinei used the computer as a data processing machine to
answer a question with quantitative evidence. Hypertext, on the other hand, is a data storage
medium that allows multiple possibilities to live side-by-side in a computer. The empirical
applications of AI, to many hypertext theorists, seemed naively positivist and turned a user into a
passive consumer of information. AI projects used the computer to “solve” one or more
“problems,” a goal concurrently coming under fire from poststructuralist theory. Hypertext and
poststructuralist theory seemed well-matched; the theory encouraged, while the technology
implemented, polyvocal, pluralist texts.

This chapter explores the tension between AI and hypertext in 1980s humanistic
computing. AI and hypertext were competing technologies for modeling human cognition;
hypertext allowed humanities scholars to claim particular ground in computing in opposition to
the more science-focused, empiricist AI. First, this chapter will demonstrate how some
humanistic computing projects used Artificial Intelligence in the 1980s to provide factual
insights into otherwise unmanageable datasets, and how AI relied on positivist assumptions that
other humanists questioned. Building on this background, this chapter then will trace out the
roots of hypertext theorists’ conflicts with AI in the 1980s, and enumerate how their criticisms of
AI’s reductiveness attempted to differentiate hypertext as a technology for accommodating multiple possibilities. Part of this chapter’s evidence is the tension expressed in a work that both documents and results from the shift in technologies; the last sections read Michael Joyce’s hypertext fiction *afternoon, a story* as a fictional work that demonstrates the pluralistic, polyvocal capabilities of hypertext against the weaknesses of AI.

This chapter marks a turn in writers’ approaches to the computer, concurrent with the growing availability of the personal computer. This chapter shows a writer imagining a new use for the computer rather than simply protesting computerization. While Joyce, Bolter, and other hypertext theorists contested the use of AI systems as the computer’s ultimate purpose, or even a beneficial one, they in turn advocated a better technology, hypertext. Instead of a distant analytical machine, the computer in 1980s humanistic computing becomes a communications technology. In this new role, the computer becomes a contested piece of ground; hypertext theorists latch onto it as a tool for spreading poststructuralism versus other advocates who promote different uses.

**The Growth of the Cybernetic Humanities**

The growth of interest in Artificial Intelligence in humanistic computing extends back to the 1970s, when trainable neural networks rose to the forefront of AI research. In the late 1970s and early 1980s, the research and popular science writing of Paul M. Churchland both demonstrated applications of neural networks and made neural network theory accessible to a non-specialist audience.\(^4\) In *A Neurocomputational Perspective*, Churchland demonstrates how such systems are functionally similar to the brain’s operations on a deep level. His impressive example of a neural network that discovers subtle differences between sonar signals from rocks

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and mines via a learning process shows that computers can not only perform tasks of judgments as well as human beings, but that they can do so with even greater finesse (170-1). He uses this similarity to argue that machines and human beings perform the same cognitive tasks. This reflection on the mind’s similarity to a computer suggests both a mechanism for humanistic experiments with AI, and a defense of the computer’s ability to investigate humanistic questions: if both think the same way, a computer should be able to judge a text as well as a human being.

As Churchland and others were doing this research, literary scholarship in the very early 1980s turned toward examining the computer as a model for human cognition, and for literature as well. In 1979, Joseph Weizenbaum, the author of the Eliza chatbot, led a conference at SUNY Albany’s Institute for Humanistic Studies on “The tension between concepts of thought as mechanistic and as uniquely human; the portrayal of computers or similar mechanisms in literature, art, and history; the uses of the computer in the humanities; and problems of policy involving the humanistic implications ... of electronic information flow in the modern world” (Goldman 705). Additionally, a variety of scholarship developed critical frameworks from Artificial Intelligence and cybernetic theory. Patricia Warrick published a study of literary representations of Artificial Intelligence in science fiction in 1980 (Rhodes 274), and in 1986, David Porush’s The Soft Machine: Cybernetic Fiction was published. Porush argued for reading various postmodern fiction as largely applications of cybernetic principles. The humanities in the early 1980s had become conscious of the possibilities of understanding the similarities and differences between human and machine intelligence.

For this reason, I call computer-assisted humanities scholarship of the early 1980s the “cybernetic humanities;” it consisted of research projects to transfer research tasks to intelligent agents, or explored the role of intelligent nonhuman processes in literature. What links it is an
acute awareness of the computer as an intelligent agent with human-like capabilities well beyond what the Literary Data Processing work of the 1960s imagined or wanted. While Literary Data Processing scholars defended their tools as dumb machines, cybernetic humanists—and I must emphasize that this is my own retroactively-applied neologism for a group of unaffiliated scholars—engaged seriously with the question of whether a computer could be a human being, whether in theoretical writings or in the development of tools that were somewhat intelligent through AI research. My term also uses “cybernetic” to foreground these scholars’ engagement with nonhuman intelligent information processing systems, rather than the generic term “cyber” to mean anything computer-related, such as in the word “cyberspace.”

Some of this interest is traceable to growth in AI research during the 1980s. In his 1996 history of Cold War computing technology, The Closed World, Paul N. Edwards identifies a renewed interest in Artificial Intelligence in the 1980s as Cold War defense technology research increased under the Strategic Defense Initiative (Edwards 294–5). AI research in the 1980s focused on producing systems with particular knowledge about one single domain, called “expert systems.” With a focus on a particular body of knowledge, these projects were able to accomplish surprising feats of cognition, and thus presented an interesting opportunity, as well as a challenge, for humanities scholars.

Due to these developments, by the time Porush had published, cybernetic humanists had already made humanities AI a reality. Issues of Computers in the Humanities well before 1986 reviewed books about Artificial Intelligence topics, and reported the results of actual Artificial Intelligence projects in the humanities. The reviews tended to bridge the two-cultures gap, attempting to make hard computer science research accessible to humanists: Gerard Salton, for example, reviewed N.V. Findler’s Associative Networks: Representation and Use of Knowledge
by Computers, describing the problems facing computerized language processing. Salton explained how the volume’s contributors attempt to expand on the necessity of constructing semantic networks to facilitate question answering, machine translation, and content analysis (Salton 276), all of which apparently interested humanities scholars, because these were language processing tasks. In 1981, Herbert Hopendorf also reviewed E.B. Hunt’s 1975 book Artificial Intelligence, and found it useful in order to provide realistic expectations of what AI could accomplish, and to clear up some misconceptions on the topic (Hopendorf 191). The text of these and other reviews make explicit statements that reveal considerable humanistic interest in Artificial Intelligence applications.

These issues of Computers in the Humanities also reported on three domains of research related to Artificial Intelligence: knowledge management systems (KMS), natural language processing, and expert systems. All three research areas attempted to train computers to process and acquire information on their own.46 Nick Cercone and two different collaborators published a pair of articles on these topics in 1983 and 1985. The first discussed the application of databases to literary study. The 1985 article then summarized recent developments in applications of AI to literary scholarship; the authors mentioned new expert systems that could expand their own knowledge bases, and described systems a researcher could train to measure differences in texts (Cercone and Murchison 239–40). Ultimately, Cercone and Murchison advocate and anticipate eagerly the development of expert systems, and efforts that “[offer] the procedural and structural advantages of standardizing literary research databases, standardizing literary analysis routines, and facilitating their communication. Literary researchers have already begun to think about

46 While KMSes are not strictly a subdiscipline of AI, many KMSes described in Computers in the Humanities could categorize the material they stored automatically. KMSes, natural language processing, and expert systems all applied compatible methods to similar goals, so it makes sense to see their use in the humanities as products of the same desire for an intelligent computer that could actually understand language.
structuring their efforts in this manner. There is discussion of standardizing conventional literary and linguistic databases to facilitate the sharing of input data, programs, and results” (Cercone and Murchison 242). Cercone and Murchison look forward to this standardization, which had great potential for scholarly collaboration, and promise significant advances.

The use of AI in humanities research was a particularly European phenomenon in the early 1980s. Most humanities AI research efforts—or at least those successes documented in *Computers in the Humanities*—were concentrated in Europe. *Computers in the Humanities* even published an article on expert systems for history by French researchers in French (Bourlet et al.), even though *Computers in the Humanities* was primarily targeted toward an English-speaking audience. Interest in the use of expert systems as a way of accessing the past was strong in the early 1980s, stretching across the Atlantic to the US.

In 1986, an international group of five cybernetic humanists from Italian and French universities47 published a description of RESEDA, their expert system for querying large historical datasets. With a database of civic records from medieval and Renaissance France, RESEDA could answer natural language queries about the contents of these documents by synthesizing knowledge from these records, such as “Did Robert de Bonnay hold the position of magistrate during the first quarter of 15th century?” (Lee et al. 29). RESEDA was useful for understanding a corpus too large to read, and it allowed researchers to determine answers to questions that would otherwise have taken a considerable amount of time to investigate. Contrary to the admonitions of Literary Data Processing scholars of the 1960s, Lee and his collaborators chastised other researchers for not giving their computers enough credit:

> the majority of researchers in these disciplines do not seem ready to renounce the traditional,

47 These scholars hailed from the Unité Parisienne de Recherche du Laboratoire d’Informatique pour les Sciences de l’Homme, the Equipe de Recherche sur l’Humanisme Français des XIVe et XVe Siècles, and the Istituto di Psicologia della Facoltà Medica, at the Università di Milano, Italy (Lee et al. 25).
and in our opinion limited, conception of the computer. They prefer to consider it as a device
fit only to relieve them of the more ponderous and tedious parts of their research, rather than
to acknowledge its capacity to play an intelligent auxiliary role. … the intense use of
statistical instruments often gives the illusion of striving for more ambitious objectives. In
fact, even when statistics are used, the ‘noble’ task of interpreting and recognizing the results
is left to the human operator. (Lee et al. 25)

Lee and his colleagues actively acknowledged the role of the computer in helping them come to
conclusions. Dearing and Parrish were content to have the computer relieve some of the tedium
of their work, but Lee wanted (and, in fact, had) a machine that really could think, to borrow the

Lee and his coauthors were just a few of the cybernetic humanists applying expert
systems to their work. Also from France were Marie-Salomé Lagrange and Monique Renaud,
who developed an expert system for archaeology. Lagrange and Renaud’s article illustrates how
much research French archaeologists had conducted into AI: the bibliography contains eight
articles Lagrange had published on AI research in archaeology, plus four by other authors, one
French (J.-L. Laurière) and two British (R. Ennals and D. Brough48) on the same topic (Lagrange
and Renaud 49). All of these articles appeared in the years 1980-1984, and demonstrated the
wide-ranging uses for expert systems in archaeology.

Artificial Intelligence additionally became visible to humanists in the 1980s in ways we
probably would not recognize as AI because they have become so familiar. In the standard
software reviews feature of its November 1981 issue, Computers in the Humanities published
Patricia Galloway’s review of the Kurzweil Data Entry Machine (KDEM). The KDEM was the

48 None of these authors’ full names is included in the bibliography.
first Optical Character Recognition (OCR) scanner that could recognize characters in any font, and digitize text from a printed page so that a computer could process it as separate characters rather than as an image. While OCR is a relatively common software feature now—it is now included in the standard Microsoft Office Suite, for example (Microsoft Corporation)—the KDEM’s ability to read nonstandard fonts was a significant innovation. The KDEM held, as Galloway suggested, great potential for archivists and anyone involved in data processing. To process nonstandard fonts, the KDEM required an initial “training” period (Galloway 184); it used AI-based adaptive methods rather than algorithmic methods as OCR programs do now. Joseph Raben reported on the Kurzweil Reader with similar enthusiasm. It was an earlier version of the machine developed for the blind. When it was demonstrated a year earlier at the 1981 EDUCOM conference, Raben called it, of all the machines on display, “the most impressive; the model exhibited literally reads” (41). Raben’s anthropomorphization equates human and machine reading. 1980s innovations in computing were sold to humanists, therefore, on their ability to imitate human functions, and most of these technologies were based on various forms of Artificial Intelligence.

All in all, in the early-to-mid 1980s, Artificial Intelligence had a significant presence in the humanistic computing community. No longer an object of theoretical speculation, the intelligent machine soon presented itself as a real-life tool for cybernetic humanists willing to grant it some role in their scholarship. It offered great potential for the management of large datasets whose scale prevented human researchers from reading and categorizing them; thus, it had greater appeal in the humanities or social sciences fields that studied large datasets. AI, moreover, generally dealt in questions with resolvable answers, and had an appearance of objectivity as it attempted to model the human mind: if a computer could, theoretically,
reproduce a human thought process perfectly, then it suggested that the researcher effectively had explained how the mind performed that thought process.\(^{49}\) This positivism itself would lead humanists to question the use of AI later.

**Dissidents from a Cybernetic Utopia**

Up through 1986, the cybernetic humanities seemed to be taking the humanistic computing world by storm. By 1987, however, enthusiasm over Artificial Intelligence began to yield to a newer technology: hypertext. First conceptualized in 1945 by Vannevar Bush and named by Ted Nelson in the 1960s, hypertext did not gain public visibility until the 1980s, when the mass production of the personal computer and the first GUI interfaces made it a useful tool for the consumer market. Though some hypertext theorists had worked in the AI community, they defined their advocacy for hypertext in opposition to Artificial Intelligence, usually because they perceived theoretical or practical problems with AI. Opposition to AI was present in the computer science community as well: AI and hypertext competed as knowledge-management systems, and also competed to model the human mind in the computer. AI tended to espouse more deterministic, positivist models of thinking. Hypertext, on the other hand, attempted to allow for a greater variety of cognitive models.

1987 proved to be a watershed year for hypertext. In that year alone, the Association for Computing Machinery (ACM) held its first annual Conference on Hypertext and Hypermedia (ACM HT), Ted Nelson published his manifesto *Literary Machines*, and Michael Joyce and Jay

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\(^{49}\) In fact, Michael Joyce came into contact with the AI community through his involvement with Roger Schank’s laboratory at Yale, and Schank held this view, though that placed him in the minority of AI researchers: “Schank is nearly alone among artificial intelligence researchers in using the computer as a test bed for expressing representations of human thought in order to understand the human mind. Thus, for theorists like Schank, if computer representation of thought is both adequate and accurate, it should be possible to program a computer to utilize that representation to understand, communicate, and recall both the thought itself and its unique features of coherence, variety, individuality, and so on” (Joyce, *OTM* 165).
David Bolter’s StorySpace was released, along with Joyce’s *afternoon, a story*, the first digital hypertext novel. Several writers and humanities professors claimed hypertext as a new and innovative literary and instructional technology, including Landow, Bolter, Joyce, and Stuart Moulthrop. These authors all held in common the idea that hypertext could best convey deep understanding of a topic best by giving the reader massive amounts of information. Hypertext theorists of all stripes—literature scholars and computer scientists alike—emphasized this aspect of hypertext: it was a system that could store, retrieve, and connect large volumes of textual information. Hypertext theorists also promoted hypertext as a technology that could contain and present contradictory meanings and multiple perspectives.

In his *Literary Machines*, Nelson issued a variety of polemical statements about the urgency of his Project Xanadu, all of which related to hypertext’s accuracy in modeling human knowledge. Xanadu, a hypertext system never developed into a commercially-viable product, would “represent at last the true structure of information (rather than Procrustean mappings of it), with all its intrinsic complexity and controversy, and provide a universal archival standard worthy of our heritage of freedom and pluralism” (Nelson 0/12). For Nelson, as for Vannevar Bush before him, the point of creating hypertext was a more accurate method of representing both the structure of human thought, and the way documents were published. Calling a set of knowledge a “literature” (as in “I am reviewing the literature on hypertext”), Nelson defined literature as “a system of interconnected writings. We do not offer this as our definition, but as a discovered fact” (Nelson 2/9, emphasis in original). Literature and discourse were fundamentally intertwined sets of ideas rather than discrete documents. Nelson, along with other advocates,

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50 Though the story was released in multiple versions and a few editions which featured some changes to the text, Joyce demonstrated a completed version of the first edition at ACM HT in November 1987 (Kirschenbaum 178).
51 *Literary Machines* uses a distinctive page numbering system, in which each section is numbered and pages are counted from the beginning of the section. This quotation comes from Section 1, page 20.
following Bush, promoted hypertext less as a new invention, and more as a return to an intuitive mode of thinking about documents and knowledge. Xanadu had a few algorithms for automatically indexing the links that readers created, but was designed for the composition and publication of users’ own documents; in other words, unlike AI, it was not intelligent by itself, but was designed to augment human intelligence. To justify Xanadu, he stated that intelligent machines were not what people needed: “We have to save mankind from an almost certain and immediately approaching doom through the application, expansion, and dissemination of intelligence. Not artificial, but the human kind. To humankind.” (Nelson 0/13).

Following Vannevar Bush, whose hypothetical Memex machine allowed scholars to keep ahead of the otherwise-unmanageable growth of scholarship, Nelson envisioned Xanadu as a universal metamedium in which text, graphics, and the like could coexist in an interlinked format. Xanadu would be searchable and allow users to create their own links between documents, even those that they did not own. Conceptually, then, Xanadu and other hypertext systems offered different solutions to some of the problems that expert systems attempted to solve. A hypertext system might still require a human researcher to index a large corpus, but digitizing and indexing would render it searchable, and many researchers could operate together at once, creating infinitely flexible schemas. Instead of relying on a single expert or expert system to make connections between records and develop categories, many or one human experts could do the same. For example, in a hypertext system for managing the same documents in the RESEDA expert system, records of magistrates’ service could be grouped by both the occupations and the people they described; the question about Robert de Bonnay’s magistracy could be answered by searching for his name, the word “magistrate,” and then reading the years of service.
Nelson himself was more of a technologist and visionary than a literary theorist—in fact, in 1994, Stuart Moulthrop would criticize Nelson for attacking literary scholars who attempted to link hypertext technology to poststructuralist theory (Moulthrop, FC 53)—but many literary theorists agreed with and expanded upon his ideas. What is less well known is that most hypertext theorists and Nelson shared skepticism toward Artificial Intelligence. Jay David Bolter became a famed scholar of hypertext fiction and new media in the 1990s with such canonical works as *Writing Space: The Computer, Hypertext, and the History of Writing* (1991) and *Remediation: Understanding New Media* (1999). Before either of these texts, however, his first book was the less-well-known *Turing’s Man: Western Culture in the Computer Age* (1984). Though it has received less attention among humanists than his 1990s work, Landow and Joyce both quote from it, indicating its relevance to hypertext theory. *Turing’s Man* studied the integration of humanity and technology, examining the cultural impact of the famous Turing test, and its suggestion that we might consider a computer to be human if it could trick us into thinking it was one. In *Turing’s Man*, Bolter examined cybernetic theory and criticized the Turing Test as having been poorly phrased (Bolter, *TM* 210). He also criticized both AI and machine translation projects for their general lack of success (Bolter, *TM* 197–201). Overall, his tone toward writers and computer scientists who overemphasize the similarities between human and computer minds is negative.

Similar themes resurface in *Writing Space*, when he addresses the possibilities for a computer filling the role of an intelligent story-generating machine:

. . . if Artificial Intelligence were ever to succeed in creating a whole personality inside the computer, the human user would become a mere passive reader who listened to the monologue provided by the machine. For the Artificial Intelligence specialist, a computer
novel should not be a hypertext, but instead a storyteller. The human user would ask the
machine for a story, add qualifications about the subject matter and plot, and then sit back and
receive a printed or orally delivered result. The computer could continue to generate tales
about familiar characters in a fictional world: it could surround the user with such a fictional
universe and fill in any aspect of that universe at the user’s request. ... The electronic writing
space could become a three-dimensional, interactive movie. The user would in effect be
absorbed into the interface of the machine. We have already encountered this vision in some
proposals for electronic encyclopedias. (Bolter, WS 229)

Bolter dislikes the idea of a computer having too much agency in the story-generating process
because it would render the user passive. AI seems like a threat to human freedom, a menace that
would make the reader a passive consumer of entertainment. Not surprisingly, then, Bolter
prefers a hypertext, a carefully-designed fiction that engages the reader, a preference Landow
makes clear in his statement that hypertext requires a “truly active reader” (Landow, Hypertext
11). For this reason, Bolter lauds afternoon, stating that “the reader of afternoon is forced at
every turn to reflect on the experience of reading” (Bolter, WS 155). Though Bolter’s
hypothetical picture of a computer that would automatically generate stories was a reality, he was
not aware of it. He mentions James Meehan’s 1976 program Tale-Spin, but quotes the
nonsensical stories an early version of the program generated as its greatest successes.\footnote{\footnote{Tale-Spin has an undeserved reputation among humanists as a failure, which Bolter’s work, Janet Murray’s
Hamlet on the Holodeck (1997) and Espen Aarseth’s Cybertext (Aarseth 131) all share some blame for
perpetuating. Noah Wardrip-Fruin has documented that Meehan had much greater success than these authors
report, and the nonsensical tales that these critics reproduce as Tale-Spin’s closest successes were generated by
early, incomplete versions of Tale-Spin (Wardrip-Fruin 152–58) that both mistook as the nearest successes the
program ever produced.}} Consequently, he dismisses Tale-Spin as a failure, and further attributes all products of a
storytelling computer to the programmer who created it (Bolter, WS 179–80). Bolter alleges that
AI story-generation has not worked; even if it had, it would make the user a passive consumer who listened to the computer’s endless variety.

Along with Bolter, Joyce found the idea of generating stories with AI relatively unexciting, but unexciting because he felt it offered few possibilities for creating new and interesting literature. In an essay he published later,53 “What I Really Wanted to Do, I Thought,” Joyce narrated his encounter with Yale AI researcher Natalie Dehn, who had been developing a story-generation AI called AUTHOR. After the purchase of a digital word processor opened Joyce’s mind to the possibility of producing branching narratives, he read about Dehn’s work in a computer magazine, and wrote to her seeking advice on the possibilities of using AI for generating such stories. Dehn responded dubiously, and also argued for “the virtues of linearity in prose fiction and for the aesthetic function of constrained choices in imagination” (Joyce, *OTM* 32). Matthew Kirschenbaum describes Dehn’s program’s narratological method as “relentlessly linear” (Kirschenbaum 171), which Joyce contested in a letter: “More often than not, in my experience, the author, sensing two directions, will attempt to keep this open within the pathway of one story. In fact, story means something quite like this, i.e., an account of multiple possibilities within the ‘plot’ and ‘character’ and whatever else that presents itself.”54 Nevertheless, Joyce had a sabbatical at the Yale AI Lab, where he met Bolter, who had also written to Dehn; the two men became friends and close collaborators, and went on to create StorySpace with Mark Bernstein (Joyce, *OTM* 32–4). Like Tale-Spin, AUTHOR modeled human cognition by performing a well-understood task: creating narratives measured by their adherence to conventional standards of fiction, such as rising and falling action in plots and coherent

53 Despite listing original publication dates for most of the other essays, neither the Appendix nor the Introduction to *Of Two Minds*, Joyce’s essay collection, gives a specific year for the publication of “What I Really Wanted to Do, I Thought.”
54 Personal correspondence, Joyce to Dehn, quoted in Kirschenbaum 171.
characters. Using AUTHOR or any AI to generate experimental literature seemed unlikely, so
Bolter and Joyce focused their literary efforts in other directions.

Elsewhere in his writing, Joyce views Artificial Intelligence as lacking imagination. He
generally associates AI with simplistic interactivity including “early stages of interactive fiction”
(i.e. video games like Zork and Adventure)\(^{55}\). He describes the act of playing video games as a
failed opportunity for interaction: “Video games . . . offer us at least a glimpse of what
interaction might be. Yet try as we may to believe they truly interact, we see them branching off
below us at some transparent level of the successive planes of software and hardware. We know,
as certainly as we know Eliza . . . that someone has been there before us” (Joyce, \textit{OTM} 135).
Joyce and Bolter thus continued to criticize these elements of AI for making the user more
passive. They developed StorySpace as a tool for creating sophisticated narratives. The Eastgate
Systems website that now markets StorySpace and StorySpace-created programs bears the
slogan “Serious Hypertext,” and the story forms enabled by StorySpace do not create surprising
variety so much as give authors tools to generate well-defined, multiple paths between lexias\(^{56}\).
StorySpace hypertexts are not machines that think, but are programs that follow relatively simple
rules, such as “if the user has seen the lexia ‘Lolly’ or ‘Lolly’s’, then clicking ‘Lolly’s’ yields the
lexia ‘Lolly’”\(^{57}\) (Joyce, \textit{Afternoon} \{yes1\} rules screen)\(^{58}\).

This controversy between AI and hypertext was reflected in approaches to the
technological apparatus in the field of computer science. Though occasional papers at ACM HT

\(^{55}\) Incidentally, Nelson also deprecated video games, writing of his SilverStands (franchised establishments he
imagined for accessing Xanadu) “the raucous, brainless atmosphere of the video game parlor is not found here”
(Nelson 5/2).

\(^{56}\) A “lexia” in hypertext or New Media theory is a discrete section of text, such as one webpage or one screen of
text in StorySpace.

\(^{57}\) The quoted text is my interpretation of a set of rules expressed graphically in a table through symbols, which
Matthew Krischenbaum’s research was helpful (Krischenbaum 182).

\(^{58}\) StorySpace hypertexts are divided into screens of text with titles that can be used to locate them using a menu
command. Following Alice Bell’s convention, I place the titles of StorySpace lexias in braces.

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suggested positive meetings of the two technologies, hypertext developers frequently saw their work as opposed to AI. At ACM HT 1989, a panel discussed possible cooperative uses of the two technologies. The conciliatory abstract read as follows:

The panelists will argue that hypertext and expert systems are companions and not competitors. The panelists will argue this point from a number of perspectives. First, they will discuss with the audience methods for building more personalized and “intelligent” hypermedia systems. Among the many issues in “intelligent” hypertext are rule-based procedures associated with information units and links, domain-specific hypertext editors, and automated methods for optimizing presentation of information. Second, the panelists will explore how hypertext systems can improve the function and performance of more traditional expert systems. In particular, they will discuss how hypertext can enhance knowledge acquisition, knowledge based maintenance, and on-line documentation. Third, the panelists will discuss the knowledge representation issues of granularity and modularity. Finally, the panelists will discuss the relationships between the Artificial Intelligence industry and the emerging number of groups engaged in professional hypermedia work. They will discuss problems related to the modularity of hypertext and to the transition from small prototype systems to large-scale “industrial” hypertext systems. (Bieber et al. 391)

That anyone felt it necessary to attempt this reconciliation indicates a general tension between communities behind these two technologies. In both the humanities and computer science, hypertext theorists defined their work in contrast to Artificial Intelligence.

AI even seemed to pose a direct threat to the specialness of humanities research. Cercone and Murchison proposed standardized expert system routines for literary analysis that might facilitate greater collaboration. Standardizing scholarship with empirical methods, however, also
threatened to force a return to practices that poststructuralist theory had challenged in the 1980s. The fear that AI would lead to regimenting human thought—a science fiction cliché in every decade since the 1950s—seems to have grown among hypertext theorists in the 1980s in particular. Stuart Moulthrop published a 1994 review of Landow’s *Hypertext* that mostly served as a rejoinder to Landow’s critics, among them neuroscientist Mark Turner’s book *Reading Minds: The Study of English in the Age of Cognitive Science* (Princeton). Turner proposed the use of literary analysis to help cognitive scientists map the mind, which would necessitate a conservative return to formalism. Moulthrop criticized Turner’s deprecation of the past decades’ developments in literary studies, seeing his work as naïve and essentialist, as Turner denounced entire schools of literary theory for their inability to find something common to the whole profession. Aside from criticizing Turner for needlessly polarizing the discourse, Moulthrop labeled Turner’s ideal discipline in which humanists helped neuroscientists map out the human brain disparagingly as a “cybernetic utopia” (Moulthrop, FC 59).

We see here that, while antagonism between Artificial Intelligence and hypertext was evident, hypertext grew out of interest in AI, and came to replace it in humanities discourse. To hypertext theorists, AI seemed like a promising technology whose promise had faded; in their minds, even if it had succeeded, it could only duplicate the best efforts of human thinkers under the guidance of those very human creators. AI granted too much agency to the computer; thus, humanistic scholars reaffirmed the uniqueness of human intelligence to perform critical analysis. Such theorists looked to hypertext for innovation in creating systems that supplemented human intelligence with tools that engaged users’ and readers’ critical capabilities. It should not be surprising to find this conflict, as well as an affirmation of human intelligence’s superiority to machine intelligence, embodied in the hypertexts that these writers eventually produced.
Afternoon’s Critique of AI

Released in 1987, Joyce’s afternoon is both the first, and probably the most famous, digital hypertext novel. Afternoon’s emphasis on its own plural narratives is usually the beginning point for any interpretation; this fixation on pluralism takes on new meaning against the backdrop of contemporary AI research. The proliferation of possible narratives in afternoon—and specifically, in what kind of ambiguities the novel’s narrative tolerates—critiques the uses of AI in both humanities projects and in research into storytelling. In examining afternoon’s portrayal of AI, I will highlight aspects of its strategies that criticism has so far overlooked. Afternoon criticizes AI both for its failures to produce a technology that can duplicate the human mind, and for its desire for certain knowledge from a nonhuman intelligent agent. Given that three of the story’s four major characters work at a company producing an expert system for insurance underwriting, the connection seems appropriate. The majority of the drama of their lives originates mostly, if indirectly, from the company.

Artificial Intelligence and hypertext are tools for managing large amounts of information, as well as technologies for modeling the human mind. afternoon presents hypertext as a system to perform these tasks, but one especially suited for allowing multiple contradictory possibilities to coexist. Instead of creating systems that answer questions and modeling human thought processes, afternoon’s form seems familiar—the modernist, realist novel—but it is augmented with digital technology that enables discontinuous reading paths. Therefore, afternoon implicitly compares itself to an automatic conversational agent, which can respond in kind to natural language queries like RESEDA, in order to compare and contrast with such systems.

59 I refer to afternoon as a novel because the term “hypertext” also refers to a variety of other hypertext art that is not narrative fiction per se (for example, Stephanie Strickland’s StorySpace poem True North). Calling it a novel also highlights afternoon’s appeal to many of the characteristics of a realist novel: a lengthy fictional account with well-developed characters. In doing so, I illustrate the novel’s appeals to both a tradition of realism and an equally-important modernist “tradition of experiment,” as identified by Bolter (WS 131).
As previously mentioned, the technology behind *afternoon* emerged from Joyce and Bolter’s interest in Artificial Intelligence: the AI researcher who introduced Joyce and Bolter, Natalie Dehn, was developing a program called AUTHOR that could generate narratives. Dehn judged AUTHOR’s success on its ability to generate conventional linear narratives. In particular, AUTHOR had a different model from Tale-Spin; while Tale-Spin simulated a world of interacting characters and objects, AUTHOR simulated “an author’s mind as she makes up a story, rather than the world as things happen in it” (Dehn 16). AUTHOR, therefore, was a program meant to create fiction, but to follow the process of authorship itself; AUTHOR modeled an author’s mind.

In contrast to AUTHOR, StorySpace became Joyce’s desired platform for creating “stories that changed every time you read them;” however, he began to question some of these goals. Though he worked with Dehn and Roger Schank at the Yale AI laboratories, and referred to their theories of creativity, he used them to emphasize that his project engaged the reader rather than made the computer a storyteller. Writing disparagingly of a fantastic Disneyfied world in which corporate gatekeepers sell culture, he instead espoused—in a hyperbolic manifesto—a Willy Wonka-like structure that exposed the system’s machinery:

The real trials of strength before us finally involve our ability to champion the Wonkian over the Disneyite, the constructive over the exploratory, process over product, reciprocal power over empowerment, network over programming. We are called in trials of strength to champion the individual reality of others’ ideas against those who would claim to find another reality for them. The struggle we face, the peril we are in, literally involves the nature of reality and the conservation of empathy, analysis, and disinterestedness (Joyce, *OTM* 104).

In defending the Wonkian aesthetics of hypertexts that exposed their own logic, Joyce writes
against, among other things, hypothetical commercial computer systems that would allow the reader to sit back and passively consume. In contrast, early hypertext theory tended to focus on how much hypertext fiction actually engaged the reader, and made him or her work with the system as co-author. Alongside Joyce, Landow enthusiastically proclaimed that “hypertext blurs the boundaries between reader and writer” and, quoting Barthes, “make[s] the reader no longer a consumer, but a producer of the text” (Landow, Hypertext 5).

Joyce’s initial interest in AI research, and Bolter’s hypothetical story-generating machine that renders the user passive, both lurk in the background of afternoon. The program the characters are developing is an expert system for insurance underwriting called Dataquest, based on an earlier program named WUNDERWRITE R, a name suggestively close to AUTHOR. Peter, a poet, develops rules for the system. Wert, a German expatriate, owns the Ann Arbor-based company. Nausicaa works in a division that tests the rules Peter writes. The only major character who does not work at the company is Lolly, Wert’s wife, a therapist whom all the characters meet at some point. If Dataquest is a tool for calculating potential outcomes of decisions given knowledge about circumstances, then Dataquest is both a knowledge-management system, and a story-generating machine that produces multiple narratives about insurable commodities. The name change from WUNDERWRITE R to Dataquest suggests a connection between managing large amounts of information and the ability to create stories.

What most critics have called afternoon’s main story is a search for recognizable absolute truth: were Lisa and Andrew, Peter’s ex-wife and son, involved in a car accident? Investigating other aspects of the novel such as Peter’s relationships with Wert, Lolly, and Nausicaa, however, helps us see these as equal areas of attention, and undoes our comfort with the factual knowledge that Dataquest purports to offer. In exploring the conventional reading of the accident as the
novel’s focal point, I will show how this interpretation is associated with a deterministic epistemology that does not account for multiple perspectives and possibilities. The interpretation, therefore, fits with Joyce’s conception of AI. After examining problems with these readings—or at least the easy resolutions suggested by Douglas, Bolter, and others—I will posit how a comprehensive picture of the novel’s many stories leads us to read the novel as a set of narratives about four central characters, rather than a group of lexias with resolvable factual ambiguities. This focus on character over narrative helps us to see hypertext as a way of accepting the complex, irresolute human mind; the simpler models of mind found in AI tend to ignore this irresolution.

“Go on, treat it as if it were real”

In probably the first and best-known close-reading of *afternoon*, Jane Yellowlees Douglas established a foundational interpretation of the story by investigating the function of the desire for narrative closure in a work that seemed so adamantly opposed to resolution. Against Bolter and others’ claims that the novel contained an infinite set of possible paths, 60 Douglas considered the reading process of *afternoon* to be a deferred search for closure. I argue, however, that Douglas’s interest in applying conventional narratology theory focuses on narrative and plot at the expense of a more sophisticated understanding of how the novel’s multiple possibilities coexist. While Alice Bell has already made such a criticism of Douglas’s work, I develop Bell’s critique by suggesting the reading Douglas finds functions as a baseline form of epistemology against which *afternoon* later establishes other forms of epistemology. *afternoon* reacts, in particular, to processes of information management and discovery that Artificial Intelligence

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60 Bolter makes this claim repeatedly in *Writing Space*, his first book after the publication of StorySpace: “An episode with many paths offers the reader the opportunity to head in any of several directions, although the reader may only be aware of this freedom after he or she has returned to the episode many times. And even after visiting all the episodes, the reader has still not exhausted the writing space. The significance of the episodes changes depending upon the order of reading” (Bolter, *WS* 125–6).
systems use. *afternoon* holds out the possibility of certain resolution as a deceptively appealing form of knowledge it eventually defeats.

In Douglas’s interpretation, the novel begins with a mystery: Peter may have witnessed an accident that killed his wife and son. Peter then embarks on a long quest to discover the truth. Douglas identifies three possible paths branching off from the first lexia, {begin}. The default reading, which the reader begins by pressing return, states the mystery: Peter’s provocative, fearful statement “I want to say I may have seen my wife and son die this morning” ({I want to say}). The other paths Douglas identifies are accessed by pressing buttons labeled “yes” and “no.” All three narratives follow Peter on his quest for information about Lisa and Andrew. Her fourth reading leads to {white afternoon}, which reads as follows:

The investigator finds him to be at fault.

He is shocked to see the body so beautifully there upon the wide green lawn.

The boy is nearby. ({white afternoon})\(^61\)

In Douglas’s reading, although StorySpace does not stop the reading here, this moment offers closure by resolving the initial question: Lisa and Andrew were involved, and possibly killed, in the accident (15). Though the bodies are not directly identified here, their identities are implied by the reader’s need for closure, and in other lexias in which Peter is driving down the road (Douglas 16-21)—after all, who else are they likely to be? Douglas explains her sense that {white afternoon} is the center of the novel, as it is protected by a network of guard fields\(^62\) released by reaching fifty-seven different lexias (21). Therefore, she reads *afternoon* as confronting the problems of epistemology and the search for meaning:

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61 Block quotations from *afternoon* are copy-pasted directly from the program. Typographic irregularities such as double dashes followed by a space have been preserved.
62 StorySpace’s name for rules an author sets to determine whether a reader can read a page.
Although *afternoon* is not a mystery in the conventional sense, its action nonetheless takes its central thrust from the narrative dialectic of discovery and concealment. Therefore, it is not terribly surprising that the narrative should prompt and complete my quest for a rough equivalent of avenues (such as the physical cues of defaults and my knowledge of the narrative structure) beyond the boundaries of print narratives. (Douglas 173)

There are, however, several problems with Douglas’s reading. First, as Alice Bell has pointed out, for all its focus on ambiguity and multiple possibilities, Douglas’s interpretation states that the novel has one fact that resolves its multiple ambiguities, despite the novel’s many different and contradictory narratives. Instead, following Marie Laurie-Ryan, Bell argues that *afternoon* is about Peter’s attempt to keep all of his possibilities open. Bell suggests, therefore, that *afternoon* is itself about the impossibility of certain knowledge:

Hermeneutically, the text exploits the fact that readers cannot find the truth and juxtaposes their relationship to the Textual Actual World with that of Peter’s. While they may search for answers within the text, that investigation is continually thwarted by Peter’s defiance of his Actual World. His inability to confront the reality of his life is a reluctance to actualize any of the possible worlds. He would rather keep his Actual World opaque, private, and inaccessible and therefore a collection of stories, which can neither be substantiated or disproved. Ultimately, in their pursuit of the story in *afternoon*, readers are at the mercy of the narrator and his troublesome narrative so that they, too, can never be sure what is actual and what is merely possible. (Bell 66)

I add to Bell’s reading the problem that the first lexia also exhibits a tension between different kinds of interactivity that the reader experiences as she relates to the text. This tension itself addresses questions of epistemology. The first is one in which the reader interacts with
StorySpace as if it is an intelligent agent processing his or her responses; in other words, like an AI. The other level recognizes the text’s materiality and its unique logic of clicking on words on the screen, in which we do not assume StorySpace is intelligent. The novel begins as the simulation of a conversation with, or at least an extended monologue from, Peter, in which he describes the process of attempting to remember some kind of past, though not necessarily the accident itself:

I try to recall winter. < As if it were yesterday? > she says, but I do not signify one way or another. By five the sun sets and the afternoon melt freezes again across the blacktop into crystal octopi and palms of ice-- rivers and continents beset by fear, and we walk out to the car, the snow moaning beneath our boots and the oaks exploding in series along the fenceline on the horizon, the shrapnel settling like relics, the echoing thundering off far ice. This was the essence of wood, these fragments say. And this darkness is air.

< Poetry > she says, without emotion, one way or another.

Do you want to hear about it? ({begin})

Peter not only speaks directly to us, in a fairly conventional modernist stream-of-consciousness; he asks a question, beginning a conversation with the reader. This interaction creates the potential illusion of StorySpace as a chatbot program, as if it contains code that simulates a character named Peter, and can simulate a conversation between the reader and him. The question invites three responses, all of which are immediately obvious: we may press “return” (perhaps suggesting our silence and lack of interest in Peter’s words) and advance down a separate path, we may click (or type) “yes,” or we may click “no.” Douglas does all three in her reading of the novel; she begins down the “default” path by just pressing “return.”
These choices all provide the illusion that *afternoon* is an AI program, and all three lead down paths that treat the subject of AI. In the default path, we encounter the non-interactive fiction monster that Bolter describes: the user simply presses “return,” expecting the machine to produce more text, with the barest minimum of action, a key-tap that says “more, please.” It continues on the path without expecting any work from the reader. Not coincidentally, as Douglas’s reading shows, this path most clearly narrates Peter’s quest for information about the accident: it begins with his worry that Lisa and Andrew may have died ({I want to say}). Likewise, the other two aforementioned paths both give the illusion of maintaining a conversation. Answering “yes” takes us to Peter’s lunch with his boss Wert (presumably the “winter” Peter mentioned in the first lexia); this section also tells the story of Peter’s hiring at Dataquest and describes Wert’s plans for the AI they are developing ({Mefisto}, {there you are}, {yes7}, {WUNDERWRITE R}, and so forth). Answering “no” presents an even more direct illusion of both a conversation and intelligence on the other side: “I understand how you feel. Nothing is more empty than heat” ({no}). Interacting with StorySpace as if it is intelligent presents the appearance of a mystery with a resolvable answer; interactivity is thus associated with simple epistemologies, and with questions that have answers. This interpretation discourages thinking of the novel as a material object with its own constraints; instead, it seems like a seamless simulation of another person, in which the language we read is a transparent replication of Peter’s thoughts.

On the other hand, {begin} offers more than just these three options. The “Browse Links” option in the “StorySpace” menu of StorySpace shows eighteen possible branches from {begin}; the majority are accessed by clicking on various words in the text, “words that yield,” as Joyce describes them. Most of these lead to many different reading paths, and not all of them mention
the accident. Ten examine Peter’s relationship with Nausicaa, three, his distant past with Lisa, two, the accident, and two, his lunch with Wert. Therefore, it is possible—and in fact, statistically probable—that once a reader understands the possibilities of clicking on different words, he or she will choose a word that opens a path that mentions one of these other topics. Once the reader sees the screen of text before him or her as a screen, and not simply the representation of Peter’s speech, he or she discovers a variety of other paths that do not focus on searching for information about the accident. Tension emerges between two ways of reading the language afternoon presents. Moulthrop has suggested that the reader understands each screen as a “multiple-choice” set of words to click on. This “multiple-choice” strategy contrasts with earlier forms of interactive fiction (games like Adventure or Zork), which presented an illusion of being able to parse freely-entered text, but in fact had a limited vocabulary (Moulthrop, HTHR 262). It seems, though, that Moulthrop glosses over the tension between two levels of discourse, both of which initially are present in afternoon. The reader encounters two possible reading strategies: responding to the text as if it is an interactive agent, and clicking on words. In the former, the novel’s narrative mode is Peter’s stream of consciousness; in the latter, it is a set of discontinuous nodes. The novel suggests the former at first. The latter emerges in lexias that take us into other characters’ heads, which break the illusion of a seamless flow of Peter’s thoughts. In particular, when we start to click on words, the appearance of a conversation vanishes. The novel repeatedly returns to the question of whether to treat the novel’s narration as conversation, or as sets of discontinuous nodes that the reader makes sense of in his or her own mind. One lexia is called “Twenty questions,” named after a game in which players move toward an answer by asking questions of someone who knows the answer. Question three of four is
“define interactivity;” is it more interactive to speak to a simulacrum of a human being, or to click through nodes? In another lexia, a prompt asks us to enter a login; any response leads to a screen in which our login fails. The StorySpace map viewer shows that there are no other paths but the “login failed” lexia from this lexia. Afternoon repeatedly foregrounds the fact that StorySpace cannot intelligently process input with any semblance of “understanding” or recognizing its user as a person. Once we understand this process, the illusion of Bolter’s hypothetical story-generating machine begins to break down.

The moment the default path dead-ends at {I call} further reinforces this challenge to the idea of interactivity. Clicking “Lolly,” the only available option, takes us to a lexia that demands a choice: “Go on, press the button, treat it as if it were real. The lady? Or the tiger?” {The lady or the tiger.}). The referenced story presents a dilemma in which a character must select from two unknowable options, suggesting that our attempts to “treat it as if it were real” are a way of ignoring the reality of the situation. The default lexia (triggered if we click “lady,” which does not otherwise yield), is {you have no choice}, suggesting that recognizing the illusory nature of choice is consistent with treating the novel as a non-intelligent program. Choice can only really exist if we know what each option does, and thus we would have to believe the novel was intelligently presenting us with interaction.

In examining the system, though, we discover that the program’s sophistication emerges from well-defined rules the author establishes, rather than a chatbot-like simulation of human intelligence. The elaborate path of guard fields makes StorySpace seem unintelligent; it does not appear to be talking like a human being, but operating under a logic we must learn to understand ourselves. Afternoon’s narration does not seem like free discourse, but discontinuous experience. Moulthrop says that, according to Joyce, it is impossible to map afternoon because it has no flow
chart\textsuperscript{63} (though it is possible to some extent with StorySpace map view), but we do have to analyze it and figure it out on our own. Moulthrop and others have emphasized that the way to understand \textit{afternoon} is to learn the logic behind it (Moulthrop, HTHR 266), and see through all of the illusions, rather than asking it to preserve the illusion of a computer with an AI that can understand direct conversation. The novel focuses on making the reader see through its transparency, helping us to understand \textit{afternoon}'s hypertext rules, rather than seeing it as an intelligent voice telling a story like Dehn’s AUTHOR.

\textit{afternoon} sets up searching for an answer to a resolvable question as a baseline form of epistemology that it questions. The novel presents itself as containing a solvable mystery in the paths that make it seem most to be conversing with the reader—in other words, like an AI. As we come to understand the novel’s exploration of its own narrative voice, we also read it as inspecting different kinds of epistemology. \textit{afternoon} questions how to model the process of discovering information and writing fiction. Both AI and hypertext are tools for representing knowledge-gathering processes and the human mind; as we discover that there is no central mystery to the novel, we search for other ways of reading it.

\textbf{“Do people really talk that way?” “I don’t know; you are the poet.”}

Responding to \{begin\} as if it were asking a question effectively treats StorySpace as if it were an intelligent agent, transparently asking questions and expecting a response it could understand. However, as we continue through \textit{afternoon}, we eventually discover that such a reading strategy only takes us so far. Simply interacting with StorySpace when it prompts us with questions eventually dead-ends at some point in any path. When we reach \{I call\} in the default

\textsuperscript{63} Moulthrop writes: “Joyce has said that “Afternoon” has “no flow chart” and that there is no sense in trying to map its complexities. The mysteries of the text’s design and function are not meant to be penetrated; it comes to us already deconstructed, designed for reception as process, not product.” (Moulthrop, HTHR 263). The quotation from Joyce, however, is not cited.
path, there is no default branch. Instead, we must click on a word and acknowledge the materiality of the screen to advance; that word is a character’s name, “Lolly.” The first time Joyce forces us to treat the computer as a screen with material language (instead of as a stream of words from an intelligent conversation agent), he directs us to take interest in another character. *Afternoon* makes apparent the complex and irresolvable contradictions each character embodies, and illustrates that they are far more complex than the various illusions used to simulate the human mind in a machine.

Most of the criticism of *afternoon* overemphasizes Peter’s role and his quest for information about Lisa and Andrew. Douglas takes this search as the novel’s central focus so much so that discovering Peter’s responsibility explains the novel, and Bell interprets his journey as the most significant instance of Peter’s inability to actualize any of the various outcomes in his life. While Bell provides a useful corrective to Douglas’s insistence upon the resolution of possibilities down to a set of facts, Douglas’s and Bell’s readings both focus too much on Peter, foregrounding this as the most significant component of the novel. As mentioned in the previous section, the first screen offers eighteen possible branches, and the majority of these examine relationships between Peter and other characters. The novel’s hypertextual form, then, allows the reader to explore endless permutations among characters; this variety of irresolvable narratives presents a more complete picture of the human mind than AI does. This section will show how character, not plot, becomes the central focus of interpretive efforts: the exploration of individuals’ mental processes critiques the reductive methods of simulating the human mind in AI.

*Afternoon* has four characters whom a reader encounters in almost any path: Peter, Wert, Lolly, and Nausicaa. Most of the novel’s events result from their interaction with each other. For
example, Wert’s attempts to worm his way into Peter’s life and to manipulate his affections toward Lisa and Nausicaa cause the car accident. The novel explores their various possible relationships. Choosing “Yes” from \{begin\}, we read about Peter and Wert’s lunch; the novel focuses on the two men’s relationships with Lolly, Lisa, and Nausicaa, and each other. This path takes detours through Wert’s initial interview with Peter, which also outlines Wert’s plans for Dataquest. A “No” response causes Peter to narrate his lunch with Wert; Peter’s anxious memories of Lisa are a response to Wert’s inquiry about how Peter would feel if Wert slept with Lisa. Afternoon has, in the Bolter’s words, “no single story . . . [but] a structure that can embrace contradictory outcomes” (Bolter 124); quite a bit of the early criticism on afternoon before Douglas focuses on the novel as an endless set of possibilities. For example, Bolter mentions scenes in which Lisa and Andrew both die and do not die.\textsuperscript{64} Reading for character rather than plot illustrates how sharply StorySpace’s abilities to represent character contrast with AI’s. Using conventional fiction techniques, afternoon both represents a character’s mind with greater richness (e.g. in Peter’s stream of consciousness), and captures the general irresolvable contradictions of life by narrating many possible relationships between characters. By comparison, Weizenbaum’s Eliza and other AIs come across as rather simplistic.

In contrast to the sophistication of hypertext, in paths where the reader encounters Artificial Intelligence, characters’ motives are simplified. In any reading in which Peter has been searching for information about his wife and son’s death, it reduces his psychological complexity to say that he has been searching for that information all along. To Douglas, the discovery that Peter himself caused the accident explains Peter’s motivations for all of his actions:

My sense of the significance of “white afternoon” lies partially in its ability to account for the

\textsuperscript{64} According to Bolter, “an automobile accident both does and does not occur; the narrator does and does not lose his son; he does and does not have a love affair” (Bolter, IS 143). I have not encountered all of these lexias myself.
undertone of hysteria edging Peter’s fear. If Peter has caused the accident that has injured
them but has blocked this horrifying bit of knowledge from his consciousness, his inquiries
would probably have this particular character of concern mixed with panic. Put another way,
Peter’s panic-stricken inquiries and fearful conclusions do not match any script I can recall
from either experience or from other narratives that describe a search for the whereabouts of
missing family members or friends. It does match, however, scripts familiar to me from
narratives where characters attempt to forestall an acknowledgment of a particularly painful or
destructive event by proceeding about their business as if they were not already certain of
what has happened. (Douglas 17–18)

Peter’s apparent quest for truth is really an attempt to forestall knowledge of the event; it is the
work of a guilty man who cannot acknowledge his own culpability.

As much as this interpretation seems to give Peter’s actions some psychological
complexity, it nonetheless flattens Peter out as a character. If Peter is in so much denial that he
calls people for reassurance that Lisa and Andrew may still be alive, knowing full well that they
are dead, then he is comically in denial. Reading the entire story as Peter’s attempt to defer
knowledge of his responsibility makes Peter a flat and rather uninteresting character once we
solve the mystery. The most factually-certain ending is the most narratologically satisfying one,
yet it remains the least psychologically satisfying. This one-dimensionality contradicts Peter’s
portrayal in the rest of the novel. He generally has little problem facing uncomfortable truths: he
frankly admits his relationship problems with Lisa (\{(Peter, Peter\}) and his problems as a parent
(\{nuncio\}), so an inability to accept the simple fact of their death, if not its grave emotional
impact, seems out of character. Consequently, the apparent revelation that Peter has known about
the accident all along—which is formally nothing more than a reversal of our expectations—
suggests that searching for a definite set of facts does violence to this hypertext.

Douglas’s reading also ignores the ambiguity of {white afternoon}. As Douglas acknowledges, the lexia identifies neither Lisa nor Andrew by name, nor is it stated that they are actually dead. It is possible that the woman could be Nausicaa. The major focus of the “yes” path is Peter’s narrative of how he and Nausicaa came to work at Dataquest. Thus, by simply hitting return after every lexia after choosing “yes” at {begin}, we learn about the relationships between Nausicaa, Wert, and Peter, and hear little of Lisa. By hitting “return” enough times, we can reach {white afternoon}; consequently, the woman in the accident seems to be Nausicaa, a possibility no critic of which I am aware ever mentions. This track completely transforms the story from Peter’s (ostensible) quest for information about Lisa and Andrew to his and Nausicaa’s memory of their relationship. The appearance of {white afternoon} in this path does not resolve any outstanding mystery, because there is none. The “he” who is found to be at fault could be Wert (he drives recklessly), which undercuts any sense that we have been reading about Peter’s guilt. In fact, given that the dominant point of view is, in this path, direct first-person narration by Peter and Nausicaa, a sudden switch to third-person makes little sense. The first sentence of the lexia focuses on determining the driver’s guilt rather than resolving the central question.

Searching for a resolvable answer both simplifies the psychology of one character, and the number of potential referents in the language of one lexia. Since WUNDERWRITE R is meant to answer such questions, this path suggests a critique of the various uses of Artificial Intelligence.

Reading the novel as a quest for information also requires reading strategies more akin to interactions with chatbots, or produces lexias that mention AI. The three paths Douglas identifies all result from treating StorySpace as an interactive agent that attempts to simulate conversation in the first lexia—a chatbot. If we go down the default path, as if expecting the program simply
to yield more and more lexias when we tap the return key, we are falling into the trap of Bolter’s machine for generating stories that change every time a reader reads them. Clicking “yes” or “no” responds to the question it poses at the end of the lexia—“do you want to hear about it?” {begin}, treating the program a conversational partner, or chat agent. These paths tempt the reader into a variety of quests for information. If we do treat it as if it were intelligent, and we answer “yes,” we immediately start to hear about the company, Dataquest, and Wert’s plans to build an expert system. As we learn more about Wert’s character, associated with Artificial Intelligence through both ownership of Dataquest and his name, we learn that he hires Peter at Dataquest because he finds Peter’s poetry inspirational (no thunder), (he recited my poem). This scenario sets up an extended competition between the two men embodying apparently-opposing forces of technology and art. On the other hand, if we click on one of the words—one of the words that yield, as Joyce calls them—we jump off into a variety of other possibilities.

Both Douglas’s and Bell’s methods for reading the hypertext fail to consider other ways of accommodating its contradictions. Reading the hypertext as a mystery in which we attempt to tease out a specific answer about an initial question, as Douglas does, looks for a single event that explains Peter psychologically. Bell, confronted with a variety of paths narrating an unstable sequence of events, acknowledges a set of possible outcomes but sees them as intrinsic contradictions. While afternoon’s various plots contradict each other, another aspect remains relatively stable. The novel’s few stable signifiers are characters; afternoon focuses on character rather than plot. Many readings expose a vast amount of information about Peter, Wert, Lolly, and Nausicca as people. Fiction that attempts some degree of realism, like afternoon, generally prides itself on round characters, and readers tend to feel cheated if characters do not have some

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65 Wert’s name is the middle four letters in “qwerty.”
apparently contradictory qualities. The effectiveness of Joyce’s techniques for presenting human behavior depends on his ability to make them seem contradictory and therefore complex, such as that Wert is both an intelligent computer genius and a violent and passionate man in his personal life. The same characters appear in all reading paths with consistent demographics and personalities. The novel becomes a general reflection on the impossibility of knowing and understanding others; such a statement indirectly critiques Artificial Intelligence, because simulating human behavior requires developing deterministic models of it. The novel instead celebrates characters’ uniqueness by presenting them for our examination and discovery.

The various reading paths provide sometimes dramatically different pictures of the characters, making the characters appear complex rather than the portraits appearing contradictory. In some paths, Lolly is a caring therapist who helps Peter with his anxiety or grief, and plays a significant role in his life that way. Those paths confine her role to counseling, and revealing Wert’s manipulative behavior. She mentions Wert’s suggestion that they have an affair (\{suitors\}), and comes across sympathetically as a mistreated wife with a manipulative husband. In another path, she and Peter carry out the suggested affair, including a sex scene with another woman, (\{Olympia\}) who may be either Nausicaa or the Assistant Headmaster at Peter’s son’s school. These new possibilities give Lolly depth, revealing her fidelity, yet suggesting she also has a breaking point. In yet another path, we learn about her strange and repressive family history that helps explain her vocation (\{Lolly4\}). The complexity of her character transcends a simplistic mixing of moral dualisms. When Peter and Wert have lunch, Wert insults her as “so fucking wholesome it makes me sick” (\{yes1\}). He is offended by such “wholesome” therapy as “bean sprouts and fruit juice and cunt talk” (\{yes1\}) and bathing with her female patients (\{yes3\}). The sign of Lolly’s blandness is a therapy practice of de-eroticized female sexuality
that presents itself as transgressive. If *afternoon*’s “wholesome” wife is a professional who runs a feminist therapy practice, *afternoon*’s characterization steps beyond the ironic dualisms of the 1960s (such as the promiscuous madonna Stacey Stoker in *Giles Goat-Boy*) into a world that fully accepts different possibilities.

These pictures of Lolly seem to contradict each other, yet we can envision an explanation that unifies them: Lolly could be generally faithful to Wert and think his games are silly and meaningless, yet frustration with her abusive husband could drive her to seek connection to Peter outside of her marriage. The apparent contradiction between her “wholesomeness” and her therapy practice relies on traditional notions of the female body, themselves derived from a patriarchal tradition. We might read these scenes as giving her depth rather than undercutting each other; no matter what happens, her personality remains consistent. Likewise, Wert tells Peter he is Lutheran (‘no in thunder’), yet Nausicaa also tells Peter Wert is Jewish (‘Negative Values’); this contradiction could simply reveal Wert’s lying, manipulative nature. The novel, then, presents us with a choice: do we build a complex picture of the characters involved and see every reading as the fulfillment of some of the variety of possibilities that result from their interaction, or does each path have characters who are slightly different?

Given that these characters seem to be relatively fixed pieces around which the novel builds a collection of narratives, I read the novel as having consistent sets of characters that it uses to build its stories. The majority, if not all, of the events are character-driven: Wert, Peter, Lolly, and Nausicaa meet through Wert’s company, and he has specific reasons for his relationships with all of them. Even the accident emerges from Wert’s jealousy of Peter, or Nausicaa, Wert, and Peter’s attraction. We can read this novel as a work that simulates their possible interactions. When we understand these characters as the fixed pieces around which the
possibilities pivot, we focus on interpreting the characters. We can therefore attempt to make meaning from the characters instead of the plot.

Written around a fixed set of possibilities, the novel invokes a strategy with both computational and literary precedents. Joyce invites a comparison to Oulipian sets in certain paths like \{Fragments\}, which consists of single-word lexias that are grammatically incorrect in the order they are presented, yet which could be rearranged into meaningful sentences. Another antecedent is Robert Coover’s “The Babysitter,” a short story whose organizing principle seems to be all the possible events that could happen when a young woman is hired to babysit. One reading of “The Babysitter” is that each permutation describes one way that men objectify women; we derive a larger pattern of objectification from a set of instances. We interpret the story by seeing it as a catalogue of many possibilities that emerge from a single problem.

Consequently, to interpret a text as permutations of a fixed set of units, we expect these units to be elements of a recognizable set with larger meaning. The incidents of \textit{afternoon}, however, do not add up to any recognizable larger structure. Douglas names several events that take place in many of her readings—the accident, Peter and Wert’s lunch, Peter and Nausicca’s relationship, and Peter’s therapy session—but these events do not add up into a meaningful, recognizable structure. For example, they do not all correspond to elements of an epic quest, or five stages of grief, or the like. It is difficult to find any meaning from making the plot events we have read into a larger set.

The characters, furthermore, do not fit into any recognizable larger schema. Initially, though, they suggest a few possible schemas, such as different aspects of the mind. Peter is a poet, and represents the drive to create art. Wert, on the other hand, is a computer expert, and seems to embody reason and analysis. Lolly, his wife, is a Jungian psychotherapist, and
represents archetypal myths and a softer form of psychology largely deprecated in the more analytical cognitive science that developed in the 1950s alongside the computer. Finally, Nausicaa, a drug addict and prostitute in the 1960s, symbolizes projection and fantasy; she occasionally speaks in figurative language reminiscent of 1960s countercultural visionaries: “Money needs to build these complicated systems for itself: options, calls, margins, puts, expert systems . . .” (The Good Soldier). These characters invite a reading of the novel as an archetypal myth about the mind, a reading suggested by the fact that the novel is itself about relationships between characters that result from a company trying to build an artificial mind.

The characters’ complexity itself, however, undoes these archetypal readings, a fact that becomes apparent the more of the novel we read. Though it is tempting to read Wert (a businessman) hiring Peter (a poet) to assist with the creation of Dataquest as a commentary upon the industrialization of society, Wert is hardly the archetypal computer genius. No dispassionate rationalist, he is an intensely dramatic and manipulative man, whose need for drama causes him to accuse Lolly of infidelity while pursuing other affairs himself. Lolly herself (or another unnamed character) points an accusing finger at Peter—and ostensibly at Joyce as well—when she comments on how he thinks of her and Lisa in the story of his own life:

< “She’d prefer that little be said about her,” indeed! It’s utter nonsense! For all your supposed variations, you’ve written nothing but the same old patterns: the wooden wife, the receptive whore, the all-accepting female mind!

< Even Wert’s a strawman ... no, worse! ... a ventriloquist’s dummy for your ugliest misogynistic notions.

<No. No, you have no right to such a term, not even in passing, not even as part of some supposed narrativistic point of view... I mean, what could you possibly know of women’s
friendship, of women’s fears, of women’s minds? No, no, no... > (gift of hearing)

While she is right to protest such dualisms, as previously mentioned, Lolly’s position as the virtuous wife is more complex than Nausicaa suggests. The text fights any archetypes that a reader might try to impose upon it. Such a reading becomes apparent the more detail we discover about the characters.

The more of *afternoon* we read, the more we discover elements that do not fit into the set. While the novel focuses most of its attention on interaction between the four aforementioned characters and Lisa, there is a sixth character Peter may also date, Andrew’s school’s unnamed Assistant Headmaster (*{a bit}*), a woman who prefers a title she considers gender-neutral. She is a refined, Anglophilic professional whose administrative position and distance from the company suggests she is not part of any schema. Additionally, their relationship is difficult to discover. For example, after many conventional readings of *afternoon*, I edited *afternoon’s* AFTERN.SNI configuration file to allow me to read through the novel lexia-by-lexia in Outline View (disabled by default). From this process, I believed I had viewed every single lexia, but I did not remember reading about Peter’s relationship with the Assistant Headmaster. I only found it on another yet another reading using the standard interface; I had forgotten it if I had indeed encountered it at all. The difficulty of discovering this lexia shows that *afternoon* works to give the appearance of a fixed set that can be undercut, either through careful study or through a random encounter of certain lexias. The novel resists putting characters into categories.

The detail with which we encounter characters’ feelings about each other undoes any kind of simple allegories that we might want to see in them. Their relationships are too complicated to be read as metaphors; instead, they provide endless sets of interpretive material. Characters’ motivations lead to contradictory possibilities, and even various sequences of lexias can result in
the same pronouns in different lexias referring to other characters. This ambiguity suggests that there are no overarching narratives to all the relationships contained in *afternoon*. Characters’ behavior must be understood by itself, and resists schematization into higher meaning.

With its multiple plots, yet consistent characters, *afternoon* highlights its own similarity to the kind of simulation that one might expect Dataquest to run. The most consistent aspect of the characters’ lives across all readings is their demographics. While it would have been theoretically possible for Joyce to write a scenario having Peter as the CEO of Dataquest through some scenario in which Wert’s manipulative tendencies and womanizing cost him the company, for example, Peter is always an employee at Dataquest and Wert is always his boss. The stable facts of the characters’ lives are the kinds of facts that interest an expert system for insurance underwriting like Dataquest: Peter is a divorced male in the 35-45 age range with one child in Ann Arbor, Michigan with a stable, well-paying job at a technology company. What is the probability of his losing control of his car and causing a fatal accident, and at what level should the company set his premiums?

What changes is not their demographics, but subtler aspects of their selves and relationships: Wert may always be married to Lolly, but he may also have affairs with Lisa or Nausicac. He may ask Peter how he would feel if he and Lisa slept together simply to distract his worried subordinate, or he may be testing him because of his manipulative nature, or it may even be a serious question because he has begun an affair with Lisa. What varies among the different paths, then, is the characters’ degree of connection (are Peter and Lolly acquaintances, friends, or lovers?), and thus their motivations for their relationships. *afternoon* presents itself as a way of drilling down into the characters’ minds and examining their reasoning behind the actions that could emerge from a prefixed set of circumstances.
The more we read of *afternoon*, then, the more we discover how the novel resists totalizing structures. As a hypertext, the novel is able to resist schemas and rules that drive AI projects to make differentiations and categories; *afternoon* presents hypertext as a form that accommodates a great wealth of detail, without categories that force things (and characters) to be abstracted into generalities. Hypertext can embody many different possibilities of their interactions without forcing their interactions into a single narrative. As Joyce said, in Moulthrop’s terms, *afternoon* has no map or flowchart. We may understand Joyce to be referring to something beyond the fact that it is difficult to map out all the relationships between its many lexias: he seems to be speaking in a more general sense to the fact that *afternoon* works hard to avoid being schematized.

**The End of Data Processing**  
Rather than protesting the failures of technologies of automation as Barth and Calvino do, *afternoon* takes sides in a debate over technologies. It appropriates a technology in a particularly humanistic way, claiming that hypertext is particularly suited to fictional representation of human behavior. Earlier work in humanistic computing had focused on creating new methods for studying literature; fiction like *Giles Goat-Boy* reacted by creating fictions that resisted those analytical tools. In Joyce’s case, the reverse had happened: he saw computers being used to generate fiction. Meehan and Dehn had at last demonstrated computer programs that automatically created narratives. Joyce instead turned to a form of fiction that a human being could both generate and understand better. *afternoon* contains a multiform plot that does not exist without some human interaction; after all, no “plot” happens in *afternoon* until someone chooses a path through the lexias.

As a hypertext, *afternoon* states that we should not expect the computer to become a tool
that perfectly simulates the human mind or answers every desire. In *Turing’s Man*, Bolter described AI as a form of engineering rather than empiricist science, and as a discipline of design rather than of discovery. *afternoon* emphasizes this lesson by illustrating the superiority of hypertextual fictional techniques for modeling the mind over the reductive assumptions of AI. In some respects, *afternoon* does model the mind: jumping from lexia to lexia is meant to simulate Peter’s thought processes in a process similar to James Joyce’s stream-of-consciousness in *Ulysses*. This form of mind modeling, though, only shows that *afternoon* does not think for itself, and further reveals that there is no real organizing principle to Peter’s thoughts. It describes Peter as an individual, but provides no general models of human behavior. *afternoon* instead claims hypertext as a literary vehicle for representing the indeterminacy of the characters’ minds, as opposed to AI projects that model specific reasoning and creative processes.

The cybernetic humanities gave new life to the Literary Data Processing push to answer humanistic questions with empirical data through technology. Hypertext theory became the poststructuralist dissident in this cybernetic utopia, positioning hypertext as a poststructuralist technology more in line with polyvocality and pluralism than Literary Data Processing empiricism. After claiming this ground, though, hypertext became hegemonic in humanistic computing alongside more empirical methods in the 1990s. In the next decade, hypertext theory would become an established technology and theory, and itself a target for challenge.
A Window into the House of Fiction:

*House of Leaves* and Hypertext Theory

According to most critics, Mark Z. Danielewski protests too much when he declares that the composition of his 2000 novel *House of Leaves* owes little to digital technology. In 2007, following a long trend of scholarship first established by N. Katherine Hayles in 2002, Brian Chanen concurred that *House of Leaves* derives aesthetic techniques from digital hypertext fiction and thus necessitates similar reading practices. Chanen even applies his own analytical technique, and makes a map that closely resembles the Map View mode of Eastgate System’s Storyspace software. As we have already seen, Storyspace is the software upon which the first digital hypertext novel, Michael Joyce’s *afternoon, a story*, was composed. The compositional similarities between *House of Leaves* and digital hypertext are unmistakable, even as we understand that the novel highlights its own existence as paper and ink in an age of digital text.

That said, what are we to make of the author’s repeated statements that he relied more on pencil, pen, and paper than word processing? Why would he insist on marking the difference? The answer has to do with the state in which hypertext found itself in the 1990s, when Danielewski began the novel. Hypertext is often seen as a technology that came into being in the 1990s with the World Wide Web. While hypertext may be seen, in retrospect, as a technology with a largely neutral or homogenous set of goals, its use in contemporary humanistic computing was both popular and controversial. Established as a discipline in the humanities in the 1980s, hypertext theory attempted to analyze and apply humanities approaches to understanding digital text. Hypertext theory tended to see hypertext as a logical fit for poststructuralist theories of language and text.
Danielewski was writing against the uses of hypertext in both humanistic computing and fiction. *House of Leaves*, which parodies academic film criticism, differentiates the author from both poststructuralist literary theory and the flat postmodern fiction of Thomas Pynchon and John Barth with its emphasis on depth of characterization. As his novel has often been described as an attempt to move beyond postmodern alienation, in superseding postmodernism, the author also attempted to move beyond hypertext, a technology that had developed strong links with postmodernism. *House of Leaves* has been read as influenced by hypertext. I argue that Danielewski criticizes the enthusiasm over hypertext as well. In humanistic computing, hypertext had too often been seen as a way of managing large amounts of information, as if simply giving more information would make more texts make sense. In contrast, Danielewski endeavors to develop alternate uses of the computer, and some aspects of hypertext, but argues that digital textuality is not inherently equal to hypertextuality.

In this chapter, I will show how Danielewski’s attempts to supersede literary and literary critical postmodernism—already well-discussed in other criticism—also lead him to critique and supersede the forms of what has been established as a humanistic computing technology. I will begin by describing hypertext and the discourse surrounding it, which presented it as a tool that created interpretive understanding by creating flat, shallow links between large amounts of text. Then I will examine *House of Leaves* to illustrate how it works to supersede hypertext through a variety of different literary linking devices. The novel parodies academic efforts to bring in too much information through hypertext, and finally develops a hypertext-informed technique of encouraging readers to reread the same texts in order to see multiple perspectives.

This critique of hypertext follows the same pattern as Michael Joyce’s critique of AI in *afternoon*, even though hypertext theory itself is *House of Leaves*’ target. Similar to his
predecessors, Danielewski questions contemporary hegemonic academic theories; when he wrote, however, the dominant theory had become deconstruction, and the dominant humanistic computing technology hypertext. Danielewski’s satire of deconstruction logically targets the technology argued by Landow, Joyce, and Bolter to be a natural fit for deconstruction. *House of Leaves* again finds new uses for computer technology in literary production, but uses other than hypertext: the design and distribution of a book that retains a strong identity as a print-mediated object whose construction was facilitated by typesetting software and electronic publishing. The book does not denounce the utility of hypertext so much as the specialness of the computer for implementing it, and consequently much of the novelty theorists granted it.

**Hypertext and Contextual Depth**

In the 1980s, when the personal computer turned computing into a solitary activity, the greatest promise of hypertext seemed to be the ability to make connections: between people, between disciplines (the two cultures), between research and practice, and between ideas in texts. By making—and preserving—links between large bodies of text, hypertext was used as a tool for managing vast amounts of information. Several decades after Vannevar Bush first described it as a hypothetical future technology in 1945, hypertext rose to new prominence in the 1980s with the development of the personal computer and the commercially-available Graphical User Interface. As mentioned previously, humanities scholars such as George Landow, Jay David Bolter, Michael Joyce, and Stuart Moulthrop claimed hypertext as a new and innovative literary and instructional technology. One significant idea these authors all held in common was the idea that hypertext could best convey deep understanding of a topic by contextualizing it with massive amounts of information. Consequently, literature scholars and computer scientists alike emphasized this aspect of hypertext: a system that could store, retrieve, and connect large
volumes of textual information.

We might imagine “word processing” as a specific type of software consisting of common functions implemented in different ways by Microsoft Word, OpenOffice, and even the sophisticated typesetting software LaTeX. Hypertext differs from these in that it is not a single program or even a single type of program. Bolter, Landow, Joyce, and Moulthrop understood hypertext to encompass a wide variety of technologies that centered around linking text or other content together, even in software programs that might be considered to be very different from one another. Web users in 2011 most frequently encounter hypertext as webpages that contain linked text. In the pre-World Wide Web66 1980s and 1990s, Bolter and Landow’s writings described and imagined a wide variety of authoring systems as hypertext.67 These included Apple’s Hypercard, Bolter and Michael Joyce’s authoring environment Storyspace, and Brown University’s Intermedia, as well as Ted Nelson’s first distributed large-scale hypertext system, Project Xanadu, which was never developed into a commercially-available product.

Aside from these multiple systems, Landow, Bolter, and others were quick to claim that many forms of electronic textuality with links were hypertexts, including, for example, computerized manuals, and bulletin-board systems. Bolter even calls computer-aided instruction systems “nothing other than a hypertext in which the author has restricted the ways in which the student/reader can proceed” (Bolter, WS 30). Such an inclusive definition was also common in institutional computer science: at the ACM Hypertext 1987 conference, presenters discussed technologies ranging from Storyspace to Navy documentation systems (ACM Conference on

66 Here I differentiate between the Internet, the network that the World Wide Web operates on, which dates back to the 1970s, and the World Wide Web. The latter is the common form of the Internet which most people access through web browsers, and was not invented until 1991 by Tim Berners-Lee.

Hypertext). The 1991 *Hypertext/Hypermedia Handbook* includes an essay on interactive fictions (Gay). In calling discussion forums, electronic encyclopedias, and search engines kinds of “hypertexts,” therefore, Bolter and Landow self-consciously apply their ideas to a wide variety of software packages, linking them by their linking capabilities, connecting Bolter and Landow’s enthusiasm over these technologies to a common cause. Hypertext theory could spread its net wide to analyze and promote varied systems for analysis and educational purposes; in fact, Espen Aarseth calls hypertext “as much an ideological category as a technological one” (Aarseth 79).

The connective power of hypertext offered theorists and developers several important features: the openness of the text, the democratization and de-centering of meaning, and the distribution of authority. Hypertext included tools for connecting texts to other texts to supplement one’s reading with additional information, forcing the reader to take a more active role in constructing the material that she read. Consequently, hypertext allowed for the management of much larger amounts of information, both in the classroom and the office. Bolter, Landow, and Nelson all cite these goals as the primary motivations for the development and promotion of hypertext. Current trends in New Media criticism have consigned many of these ideas (especially Landow’s three *Hypertext* books) to early, relatively naive theory. When Danielewski was writing the novel (the early to mid-1990s), however, books such as Bolter’s *Writing Space* and Landow’s *Hypertext* promoted interest in new technologies among humanists and staked a humanistic claim to the new technologies. As such, Danielewski would be responding to Bolter, Landow, Nelson, and their contemporaries in exploring the usefulness of hypertext.

The model of interpretation and analysis that hypertext privileged was what I call “contextual depth.” Contextual depth refers to the process of interpretation by tracing a text’s
connections to others. Hypertexts and hypertext theorists tended to emphasize the power of hypertext to connect a text to a lot of others, even if these connections were fairly shallow. For example, Landow refers to Barthes’ *S/Z* to define a text as “text composed of blocks of words linked electronically by multiple paths, chains or trails in an open-ended, perpetually unfinished textuality,” and then later to Foucault’s *Archaeology of Knowledge* to highlight the fact that “the frontiers of a text are never clear-cut” (Landow, *Hypertext* 3-4). To Landow, hypertext literalizes these statements, by making intertextuality clear in connections between lexias, which can be used to represent connections between various texts easily. Likewise, Bolter says “the intertextual relationship occurs everywhere in print . . . yet the electronic space permits us to visualize intertextuality as no previous medium has done” (Bolter, *WS* 164). Contextual depth is the primary mode of analysis both scholars pursued in designing hypertexts for conveying information. The opposite of contextual depth would be hermeneutic depth, making a large set of connections within one text, or connections between two (or a small set) of texts. A paradigmatic example of hermeneutic depth is Derrida’s *Glas*, which consists of two essays side-by-side, one on Heidegger and one on Genet. These texts’ parallel arrangement invites the reader to perform a sustained examination of connections between the two philosophers, in other words extrapolating in great detail one idea: the relationship between the two authors’ ideas.

Landow, Bolter, Joyce, and Nelson generally emphasize hypertext’s usefulness for managing large quantities of information and providing contextual depth. In hypertext theory, hypertext creates staggering contextual depth by bringing in as much information to provide a background to a given topic as possible. For example, academic CD-ROM hypertext projects offered a wide variety of information about particular topics to provide depth on one central topic. Landow champions his project *In Memoriam Web*, a CD-ROM edition of Tennyson’s
poem “In Memoriam A.H.H.” that provides linked essays on relevant historical topics to contextualize the poem. Like many similar print and digital projects, the CD-ROM contains a wide variety of knowledge helpful for understanding a text, suggesting that the reader may acquire a deep appreciation of the poem through a collection of brief essays on Victorian religion, industry, and values. A broad overview of a wide variety of topics imbues the student with a deep understanding of one topic, at least in theory. In Memoriam Web thus takes the form of a specialized encyclopedia. Such a CD-ROM contextualizes a primary source document with the hope of explicating it through a broad base of other information. Landow states that the technology offers particular promises that differ from a traditional critical edition of a literary work, enabling a reader to highlight and search unfamiliar words, and to create her own links between blocks of texts (Landow, Hypertext 38). Therefore, this kind of hypertext sponsors more individual thought. Landow’s project demonstrates the hope that acquiring a variety of knowledge would enable the ability to form connections; in this case, the tool enabled students to understand a text in context and to form their own independent conclusions about the work.

In the case of In Memoriam Web, the essays tend to make large sets of connections which are generally shallow and not necessarily insightful. Most essays in the “Victorian Overview,” a starting point I chose because it is the first one on the main menu, are only two or three paragraphs. Many were written by Landow’s undergraduate students, and link the text to other authors by finding similar broad themes without much analysis. For example, John Caperton’s “Crisis of Religion” essay spends a single paragraph describing Victorian skepticism of organized religion:

This crisis is perhaps summed up best by the great controversy when Bishop Colenso published in 1862 The Pentateuch and the Book of Joshua Critically Examined. This book
questioned the justice of the church, which was forcing ministers to except [sic] the scripture literally. As Voltaire once said, “If God did not exist, it would have been necessary to invent him.” Human beings hunger for an understanding of why things are as they are. Organized religion had simply been bested in performing that function by the natural sciences. (Crisis of Religion)

The next paragraph presents an opposing view in a comparison of Colenso’s view to Gerard Manley Hopkins’ poem “God’s Grandeur;” the connection is made, but developed little. There are only about three sentences within the essay that even mention “In Memoriam.” I chose this essay because it was the first one I encountered, by selecting the first topic in the main menu and the first essay (aside from the bibliography) within it. Most of the other essays in this section are fairly similar; in three paragraphs, Kathy Szoke’s “Description of Victorian Age [sic]” essay (Descript. Vict) mentions Tennyson’s poem “Tithonus” and Browning’s “Cleon,” and then connects these two poems to economics and labor conditions. Both Caperton’s and Szoke’s essays provide interesting contextual material for the poem, but do not dwell very long on the connections or extrapolate much meaning from them.

The importance of contextual depth to Landow and his contemporaries stems from Vannevar Bush’s conceptualization of his hypothetical prototype hypertext machine, the Memex, as a tool for managing large amounts of information. Bush’s 1945 essay “As We May Think” described the Memex as a tool for managing scholarly research that would allow a specialist in one area to keep abreast of trends in other fields relevant to his or her area of work, and to annotate and link articles together:

There is a growing amount of research. But there is increased evidence that we are being bogged down today as specialization extends. The investigator is staggered by the findings
and conclusions of thousands of other workers—conclusions which he cannot find time to grasp, much less to remember, as they appear. Yet specialization becomes increasingly necessary for progress, and the effort to bridge between disciplines is correspondingly superficial. (Bush 102)

Nelson, Bolter, and Landow all cite Bush to demonstrate the usefulness of hypertext for this purpose, but they apply his theory in different ways. As Bolter and Nelson understood it, hypertext could end specialization by facilitating each user’s acquisition of even larger bodies of knowledge through offering a place to store it all. Thus, hypertext could grant the user command of a wide body of knowledge by providing the digital tools necessary to access it. Landow and Bolter were both enthusiastic about this particular promise. In *Writing Space*, Bolter writes:

… cultural literacy does not require a knowledge of traditional texts; instead, it means access to the vocabulary needed to read and write effectively. And in fact this operational definition is now making cultural literacy almost synonymous with computer literacy. Both … simply mean access to information and the ability to add to the store of information. Increasingly, cultural literacy will require working with the computer, as the computer becomes the most important writing space in our culture. … By this measure traditional scholars, who are at home in the world of printed books and conventional libraries, are relatively illiterate: they may not know how to work their way through an electronic network of information, certainly not how to write electronically for a contemporary audience. (Bolter, *WS* 237)

Reading and writing skills take the place of knowledge; as long as information is available in a quickly- and easily-accessible form, retaining a large breadth of facts becomes less necessary than having them at one’s digital fingertips. Bolter draws support for his argument from Allan
Bloom’s *The Closing of the American Mind*—in particular Bloom’s broad list of the items one must know about to be considered “culturally literate.” These include, as Bolter summarizes: “Tutankhamen; Twain, Mark; Tweed, Boss; Tweedledum and Tweedledee; Twenty-third Psalm (text); Twinkle, Twinkle Little Star (text)” (Bolter, *WS* 236).

From this emphasis on contextual depth and hypertext’s ability to include large amounts of information, it is easy to see one reason why Landow claims that hypertext theory (as practiced by Landow and Bolter at least) embodies poststructuralist textual theory. As a hypertext consists of links between textual nodes, encompassing a breadth of information about many facets of one topic—information about many aspects of the Victorian period in *In Memoriam Web*—effectively *is* depth in hypertext. Hypertext provides an obvious medium for creating contextual depth. More information is better. Because hypertext reading involved moving between independent, isolated textual nodes, Landow’s work emphasized that hypertext demonstrated poststructuralist claims about the essential impossibility of hermeneutic depth in language; Bolter himself a year earlier (probably influenced by Landow)68 wrote similarly:

The new view of signs is embodied unambiguously in electronic hypertext. Here the writer and the reader know that there is no transcendence, because they know that the topical elements they create are arbitrary sequences of bits made meaningful only by interconnecting links. They feel no need to refute the old view, the product of the printed and written book, which are both closer to the spoken language. In the computer meaning is always deferral, the pointing from one place to another. The fact that electronic signs only refer to other signs is

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68 Though Bolter’s 1991 book *Writing Space* was published the year before Landow’s *Hypertext* (1992) Bolter acknowledges his debt to Landow, citing Landow’s 1989 article “Hypertext in Literary Education, Criticism, and Scholarship” as an influence (Bolter 244). In this article, Landow outlines many of the connections between hypertext and poststructuralist theory that would be at the center of his 1992 book *Hypertext: The Convergence of Contemporary Theory and Technology*. The two writers’ attendance at the ACM’s 1987 conference on Hypertext seems to have offered another chance for cross-pollination.

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the fundamental characteristic of the medium, made apparent in every act of writing. (Bolter, 

*WS 204*)

In *Hypertext*, Landow repeatedly refers to hypertext making poststructuralist theories of
textuality “embarrassingly literal.” Hypertext simultaneously embodied and legitimized
poststructuralist theories of text; poststructuralism concurrently offered a framework for thinking
about and legitimizing the use of hypertext.

Hypertext theory’s emphasis on contextual over hermeneutic depth went hand-in-hand
with a more even exchange of information. Privileging contextual depth was an equalizing
measure that did not require highly-structured models for legitimating information; therefore,
breadth replaced hermeneutic depth in defining the benefits of a document. In the preface to
*Hypertext*, Landow wrote that hypertext could let a reader or a writer

abandon conceptual systems founded on ideas of center, margin, hierarchy, and linearity and
replace them with ones of multilinearity, nodes, links, and networks. Almost all parties to this
paradigm shift, which marks a revolution in human thought, see electronic writing as a direct
response to the strengths and weaknesses of the printed book. This response has profound
implications for literature, education, and politics. (2-3)

Not only could a reader contribute to a discussion carried out hypertextually, and thus change the
text that everyone read, but the nonlinearity of the text the reader read also meant that every
reader read a different text, or that a variety of reading paths existed. To Landow, the presence of
multiple reading paths both created Barthes’ “readerly text” and shifted the balance between
reader and writer, since the text could not maintain its independence from comments (23). The
lack of stable text diffused interpretive authority; such diffusion was notable both in its impact on
fiction—the absence of a central plot—and in the fact that information exchange in classrooms would become more democratic. Additionally, hypertext would allow a reader to see multiple perspectives rather than confining all readers to the linear narrative of an argument. The reader abandoned hierarchy and linearity, and thus abandoned hermeneutic depth.

Consequently, in hypertext theory, the level of a user’s understanding is defined by the amount of connections he or she can make between one text and a variety of other texts. It is no surprise, then, that both Landow and Bolter promise that hypertext will come to absorb all other texts; in their view, hypertext would contain references to all other texts and mediate any and all forms of media production:

Hypertext thus creates an open, open-bordered text, a text that cannot shut out other texts and therefore embodies the Derridean text in which blur “all those boundaries that form the running border of what used to be called a text, of what we once thought this word could identify, i.e., the supposed end and beginning of a work, the unity of a corpus, the title, the margins, the signatures, the referential realm outside the frame, and so forth.” Hypertext therefore undergoes what Derrida describes as “a sort of overrun [débordement] that spoils all boundaries and divisions.” (Landow, Hypertext 61)

Logically, then, hypertext emphasizes connections between texts, and encourages readers to explore all texts’ links to other texts. The text is always open to new interpretations and new connections, while preserving the existing ones. This idea of text as infinitely linkable proposes a poststructuralist model of interpretation based on contextual depth, in which finding meaning in one text consists of positioning it in relation to another. For example, in an article on how hypertext might encourage students to overcome the idea of interpretive essentialism when teaching classic texts (such as Machiavelli’s Prince), Robert A. Jones and Rand Spiro contend
that hypertext’s educational use consists of “encouraging, and even forcing, students to view texts in a variety of different contexts, from a number of different perspectives, it seems almost perfectly designed to subvert essentialists” (Jones and Spiro 145). Hypertextual reading helped students to understand that the purpose of interpretation “is not to discover What the Text Is Really About, but rather to be able to place it within a variety of contexts” (Jones and Spiro 144). In other words, contextualization is one primary method of interpretation; Jones and Spiro also suggest another was learning how to apply these ideas to one’s own life. Ultimately, Jones and Spiro recommend that

hypertext systems should be designed in such a way as to encourage us to see the same text (including any fine-grained portion of the text) in as many useful contexts as possible. This means placing texts within the contexts of other texts, of course, including different views (e.g., outlines, indexes, concept maps, overviews, etc.) of the same text but it also means placing them within their temporal (e.g., timelines) and spatial (e.g., maps) contexts. (Jones and Spiro 146)

Contextualizing a text—as in Landow’s In Memoriam Web and Dickens Web—is one significant use of hypertext. According to Jones and Spiro, however, the greatest use of this tool is the ability to review the same text from many different angles. In their thinking, hypertext’s many perspectives illustrate the contingency of meaning, and help students to avoid a search for the one true interpretation of a text.

This abandonment of hierarchy and linearity enabled the reader to take a more active role, reading and contributing in an egalitarian exchange, gathering as many points of view as possible. Many hypertext systems—at least those presented at the ACM Hypertext Conferences between 1987 and 1992—allowed for some kind of equitable information exchange among
users. Ted Nelson, for example, spoke of simple schemes for citation and publishing from Xanadu. Even though Xanadu was never built, the explicit purpose for building many completed hypertext systems was to share information: Virtual Notebook System\textsuperscript{69}, Knowledge Management System,\textsuperscript{70} and HyperLex\textsuperscript{71}, to name a few, were all built to distribute knowledge. All of these systems were designed with the practical goal of helping academics or professionals to share information in order to solve specific problems. Hypertext was an “infinitely re-centerable system” that required a “truly active reader” (11) who “makes his or her own interests the de facto organizing principle (or center) for the investigation at the moment” (12). In other words, the reader dictated what he or she wanted to read, and was no longer a passive consumer of information. Some of the “profound implications for politics” immediately obvious to Landow included democratization [that] not only reduces the hierarchical separation between the so-called main text and the annotation, which now exist as independent texts, reading units, or lexias, but also blurs the boundaries of individual texts. In so doing, electronic linking reconfigures our experience of both author and authorial property, and this reconception of those ideas promises to affect our conceptions of both the authors (and authority) of texts we study and of

\textsuperscript{69} “We are developing the Virtual Notebook System (VNS) to facilitate information acquisition, sharing and management in collaborative work . . . . As the name implies, the VNS is an electronic analog to the scientist’s notebook, and it functions as the repository of data, hypotheses and notes, patient information and the like. But unlike the traditional notebook, the VNS is expressly designed to enhance information sharing among the members of scientific teams.” (Shipman, Chaney, and Gorry 129)

\textsuperscript{70} A paper presented at ACM HT 89 described a hypertext system applied to a specific biology research project. To the authors, the tool demonstrated “the effectiveness of computational hypertext in meeting the personal information management requirements of individual researchers in the natural sciences and its ability to speed the dissemination of research results within a community of scholars.” (Schnase and Leggett 181)

\textsuperscript{71} HyperLex was bespoke hypertext software developed for attorneys in the Reed Smith law firm’s Intellectual Property group due to their need to share documents: “The system would let them produce printed legal documents—still the medium of exchange in every courtroom—from the contents of the database. It would handle large, homogeneous sets of information, but it would serve equally well as an electronic notebook for attorneys to quickly ‘jot down’ nuggets of information. The system would let attorneys access their documents and electronic mail on the CC1 mainframe.” (Yoder and Wettach 160)
ourselves as authors. (Landow 23)

Bolter and Landow agreed that hypertext removed stability and certainty common to print text from hypertext, since every reading would be different. This instability validated poststructuralist theories of the tentative construction of meaning, and the fact that each reader effectively constructed his or her own text (Landow, *Hypertext* 117). Reading was therefore a collaborative act, present both in writing and reading: to Bolter and Landow, the reader of a hypertext fiction creates the text while reading by choosing paths (leading to the portmanteau “wreader”). Landow sees this individual construction of the text as a further confirmation of hypertext’s embodiment of poststructuralist theory.

The democratization of information exchange enabled by hypertext extended beyond these few humanities scholars. As mentioned above, Ted Nelson’s similar democratic ideals motivated him to design Xanadu. Nelson’s book *Literary Machines* emphasizes the centrality of freedom and education in a section called “The School Problem”:

The very system of curriculum, where the world’s subjects are hacked to fit a schedule of time-slots, at once transforms the world of ideas into a *schedule*. ("Curriculum" means “little racetrack” in Latin.)

A curriculum promotes a false simplification of any subject, cutting the subject’s many interconnections and leaving a skeleton of sequence which is only a caricature of its richness and fascination. (Nelson 1/20)

Nelson further labels the teacher a “feudal lord” and criticizes the education system for drawing and reinforcing artificial distinctions, which prevent individuals from making necessary or interesting connections between disciplines. This egalitarianism and accommodation of multiple
perspectives in a single text (or document, depending on how we choose to divide hypertexts)
presented a technical solution to the social problem of accommodating multiple points of view in
a heterogeneous culture. Bolter treats the same question in the abstract and comes to a similar
conclusion, stating that the computer provides

the only kind of unity possible in our culture: unity at the operational level. Hypertextual
publication can accommodate all the mutually incomprehensible languages that the
intellectual world now speaks, and this unification of technique must serve as the consolation
for the lost unity of purpose. (Bolter, WS 235)

Democratization did not just mean undoing the hierarchy of the student-teacher
relationship, but helping to erase the boundaries that separated various groups from each other.
Even Charles Ess’s contribution to the 1994 collection Hyper/Text/Theory, an article that
questioned how much actual classroom use of hypertext fulfilled such democratic ideals, holds
up the ideal of democratization. Ess uses the unrealized promise of hypertext to offer theoretical
suggestions toward a more successful implementation (Ess 251–53). The potential to
democratize information exchange remained alluring, but relied thoroughly upon a model in
which there was no central structuring force to grant all ideas depth. The connection between
poststructuralism and hypertext theory should be apparent from formal similarities, then: as
postmodernism had cast doubt upon grand metanarratives of interpretation, depth could only be
achieved through a large variety of information. Hypertext provided a technological solution for
collecting this information.

As hypertext promised an interpretive practice for managing large numbers of
independent pieces of information, Bolter and Landow theorized digital hypertext fiction along
similar lines. They praised Michael Joyce’s *afternoon, a story* for its revolution in nonlinear reading, but they also emphasized the number of permutations of reading paths possible with the novel. The supposedly infinite variety72 interested them as a logical outcome of the nonlinear reading process. Their work influenced most subsequent readings of the digital hypertext; critics in the early 1990s described the process of reading hypertext fiction as a process of assembly.73 These critics emphasized contextual depth, both in the non-hierarchical text and the variety of possible reading paths:

There is no single story of which each reading is a version because each reading determines the story as it goes. We could say that there is no story at all; there are only readings. We could say that there is no story at all; there are only readings. Or if we say that the story of “Afternoon”74 is the sum of all its readings, then we must understand the story as a structure that can embrace contradictory outcomes. Each reading is a different turning within a universe of paths set up by the author. Reading “Afternoon” several times is like exploring a vast house or castle. (Bolter, *WS* 124–5)75

Bolter also praised hypertext fiction’s ability to cover a lot of information, such as “a subspace in which Lolly and Nausicaa tell their stories” (Bolter, *WS* 128): in *afternoon*, one can

72 Espen Aarseth has noted how prone to hyperbole about infinitude *afternoon* has been, while the actual text “is not very hard to map, if one only believes that it can be done . . . . take away the many one-word and one-letter fragments and what is left is about 300 smaller or larger pieces, roughly the equivalent of a hundred-odd codex pages” (Aarseth 88). This is especially apparent if one edits *afternoon’s* configuration file to enable the Map View button.

73 For example, Landow writes: “Structuralists and poststructuralists have long described thinking and writing in terms of this extemporized, in-process generation of meaning, the belief in which does so much to reawaken traditional concepts of self and author. Hypertext fiction forces us to extend this description of meaning-generation to the reader’s construction of narrative. It forces us to recognize that the active author-reader fabricates text and meaning from “another’s” text in the same way that each speaker constructs individual sentences and entire discourses from “another’s” grammar and syntax.” (Landow, *Hypertext* 117)


75 As previously mentioned, Bolter’s fascination with the wide range of possibilities presented by any hypertext fiction is evident throughout his chapter on Interactive Fiction in *Writing Space*: he later adds that “even after visiting all the episodes, the reader has still not exhausted the writing space” (Bolter, *WS* 126).
go through many characters’ perspectives and get a variety of perspectives, human and even
nonhuman, on the story’s events, as well as a lot of backstory for most of the characters. Even a
decade after Landow and Bolter’s seminal work, Jill Walker still used the dominant metaphor of
“piecing together” to describe the experience of reading *afternoon*, understanding the process
of hypertext reading as a kind of space of endless possibilities surrounding a large variety of
information, which made the interpretive process a matter of synthesizing a large set of
information and possibilities into a defined scheme. A reader thus could most easily interpret a
hypertext fiction by drawing maps and understanding possibilities and connections, a necessary
process for mapping a large terrain; this broad scope insisted that a reader required more than
one reading to understand a hypertext novel. Digital hypertext novels of the 1980s and early
1990s are large, or were at least perceived to be vast. What makes them distinctive is their
multiple reading paths, the size of the text that these reading paths create, and the totalizing
experience of reading them.

From this perspective, we can see that what almost all forms of hypertext offered was to
make large quantities of information easily accessible. Hypertext’s promise grew among
humanities scholars in the 1980s and 1990s as digital textual technologies proliferated. By the
end of the century, it had attained prominence as a significant area of discourse among
humanists, and even one potential future of the humanities. The flow seemed natural. After the
rise of poststructuralism in the 1980s, as Landow’s book pointed out the similarities between the
two, hypertext seemed like a natural next step and offered technical support for a theory, while
poststructuralism offered theoretical legitimacy to the technology. Given the decentered idea of
system in poststructuralism, the equation of depth and breadth and the privileging of contextual

76 See Jill Walker, “Piecing Together and Tearing Apart: Finding the Story in *afternoon,“ Proceedings of the Tenth
depth in hypertext seemed to fit.

**House of Leaves and the Return of Hermeneutic Depth**

Hypertext theory promised to revolutionize literature, education, and information exchange more generally by providing tools to explore and manage large volumes of information which would help to contextualize other texts. Interest in hypertext theory grew among humanities scholars throughout the 1990s, but this promise faded toward the end of the decade, as a number of studies demonstrated that hypertext diminishes reading comprehension. Nicholas Carr documented and described a series of studies to this effect in *The Shallows*: in a study published in 1999, Erping Zhu found an inverse correlation between the number of links in a text and readers’ performance on a multiple-choice test and an assignment to summarize the text. D.S. Niederhauser et al also found similar results for born-digital texts a year later. These studies provide empirical support to what many might have already sensed—that hypertextual reading threatened to overwhelm the reader with information.

About a decade after several major works of hypertext theory were published, Danielewski released *House of Leaves*. It is an enormous print novel that barely mentions computers, whose compositional process Danielewski has repeatedly claimed involved very little time at the computer. As many critics have argued, the novel imitates some techniques of hypertext fiction. Its similarities to hypertext, however, encourage a different variety of reading techniques than hypertext reading commonly pursued. The novel challenges hypertext theorists’ ideas about the use of hypertext for conveying a deep understanding of a topic by contextualizing

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77 In an interview with N. Katherine Hayles, Danielewski stated an emphatic “HA!” when asked if his novel owed anything to digital computing, and generally emphasized his independence from it (Hayles, *Writing Machines* 126). In other interviews, Danielewski mentions beginning a novella that would become the novel in pen on a cross-country bus trip. Pressman, on the other hand, offers compelling evidence that Danielewski exaggerates his claimed independence from the digital (Pressman 224-225). That said, his anti-digital posturing illustrates his attempt to differentiate his book as a print work.
the topic with a large variety of information. *House of Leaves* demonstrates how an emphasis on large amounts of information (or contextual depth) threatens to flatten out understanding and compromise reading comprehension. Rather than simply providing explicit links between sections, he encourages the reader to seek them out herself, pursuing hermeneutic depth. He uses different linking devices to lead the reader through a variety of ways of seeing the same material. Concurring with Jones and Spiro that hypertext is useful to teach students to interpret a work from a wide variety of contexts, Danielewski also demonstrates the abilities of print to perform the same task, but encourages the reader to make a larger set of connections to a smaller set of contexts. Danielewski deploys several linking devices that work particularly well in a print novel, even as it is positioned in relationship to a high-tech multimedia network. From this exploration of print’s power, Danielewski criticizes hypertext theory’s emphasis on contextual depth, and insists upon the need for rereading and reconsidering the same material to gain alternate perspectives upon it, or hermeneutic depth. He questions Bolter and Landow’s emphasis on contextualizing information; *House of Leaves* uses other linking devices that create depth via expanding the reader’s understanding of the connections between different sections or concepts.

While Danielewski has never made a public statement on hypertext theory, his statements on the importance of print over digital technologies in *House of Leaves* are well-documented. What suggests that at least part of his target is hypertext theory specifically is his own education in literary studies (which includes a B.A. in Literature from Yale), during which he became familiar with poststructuralist theory. He also worked as a sound technician on the biographical film *Derrida*, demonstrating a knowledge of and respect for the work of the poststructuralist thinker; Derrida himself is a character in *House of Leaves*. As mentioned previously, hypertext theory frequently invokes Derrida’s writings on textuality to explain the nature of hypertext;
*House of Leaves* also appropriates from Derrida, Barthes, and Heidegger to investigate similar concerns about mediation and textuality. Therefore, I see *House of Leaves* as an attempt to reclaim poststructuralist textual theory from its use by Landow and Bolter, for few other critics had linked poststructuralism and digital technology so explicitly. The novel demonstrates that Landow and Bolter’s arguments about the poststructuralist nature of hypertext present hypertext as the fulfillment of poststructuralist prophecies. In contrast, Danielewski reforges the link between poststructuralism and the investigation of mediation by demonstrating that Derrida’s theories apply broadly to all media, but in particular to digital technology. This link demonstrates that print and digital text share equally in these concerns, which is an implicit critique of Landow and Bolter.

**Danielewski’s New Devices**

In *House of Leaves*, Danielewski develops a palette of linking devices, many of which are traditional literary devices whose linking properties he highlights. He asserts the usefulness of traditional literary devices for creating sustained attention in any medium by connecting various parts of the book through them. His project points to the limitations of the type of lexia-to-lexia linking commonly found in digital hypertext, and shows that it is only one of many ways of generating connections. Instead, Danielewkski deploys a wide palette of literary techniques for connecting sections of text beyond the hyperlinking allowed by digital hypertext: the examples I will consider are the hypertextual aspects of poetic ambiguity, epigraphs, hypertext linking, and various types of echoes between different sections of the book.

To define hypertext, and furthermore what is hypertextual about these literary devices, I turn to an article by N. Katherine Hayles. In a passage Chanen quotes, Hayles proposes that hypertext “has at a minimum the following characteristics: multiple reading paths; some kind of
linking mechanism; and chunked text (that is, text that can be treated as discrete units and linked to one another in various arrangements)” (Hayles, “Print Is Flat, Code Is Deep” 72). House of Leaves highlights similar characteristics in many conventional literary devices. Most apparent are multiple reading paths. Delimitations between texts may not always be as clearly-drawn as the lexias of Storyspace and web pages, but the linking devices make the divisions more apparent. These devices allow the reader to trace more complex relationships between sections; for example, some connect many sections of the text rather than simply two lexias.

Hypertext and the Seven Types of Ambiguity

Danielewski makes his intent to foreground the linking aspects of many conventional literary devices apparent early on in the novel by revealing the hypertextuality of lexical ambiguity. In an early scene, Navidson examines a clump of Karen’s hair, a scene Zampanò describes further to explicate its layers in great detail. Karen says, “Give me that . . . Just you watch, one day I’ll go bald, and then won’t you be sorry you threw that away,” to which Navidson responds “No” (Danielewski, HoL 11). Zampanò points out that

Using image and exquisitely controlled edits, Navidson has in effect preserved her hair, called into question his own behavior and perhaps in some ways contradicted his own closing remark, which as Samuel T. Glade has pointed out could refer to either “watch,” “bald,” or “sorry” or all three. Even better, Navidson has permitted the action and subtlety of the composition to represent the profound sentiments at work without the molestations of some ill-conceived voice-over or manipulative soundtrack. (HoL 11)

Why have a fictitious critic over-explicate a close reading? The point of such an exercise is not simply the ambiguous referent, but rather the hypertextuality Glade finds in his close reading. This section highlights the linking aspects of one traditional literary device, whose
identification helped to found modern literary criticism in William Empson’s *The Seven Types of Ambiguity.* Because “no” could have three referents, close reading serves here as an exploration of various paths through a text, foregrounding the linking aspects of ambiguity. Here, the word “no” can direct the reader’s eye back to three words at once, a feat not possible within any version of the HTML specification published up to 2011 (not even HTML 5). To the best of my understanding, this is not possible in Storyspace either. Zampanò uses this scene as an argument for close reading as a tool that allows for linking with more hermeneutic depth than hypertext. The word “refer” even has hypertextual overtones, as most web browsers send a header called a “Referer” header to a new page when a user clicks on a link. This association foregrounds that the most traditional practice of formalist literary analysis—close reading to explain paradox and ambiguity—resembles hypertext in analyzing the referents of words. This examination of the hypertextuality of close reading marks the book’s emphasis on linking devices that encourage focused and sustained attention rather than the quick jumping from lexia-to-lexia in digital hypertext novels.

**Epigraphs**

Another traditional literary device whose hypertextuality Danielewski foregrounds is the epigraph at the beginning of each chapter, another example of the novel’s academic satire. The text quoted by most of the epigraphs seems to add little to the chapter under discussion. For example, the epigraph to the first chapter is a quotation from the Beatles song “A Day in the Life”: “I saw a film today, oh boy ....” After Johnny’s harrowed introduction revealing the torment he has suffered during his editorial work, John Lennon’s portrayal of a depressed man

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78 Empson himself describes the type of ambiguity Danielewski uses here: “Thus a word may have several distinct meanings; several meanings connected with one another; several meanings which need one another to complete their meaning; or several meanings which unite together so that the word means one relation or one process” (Empson 5).

79 In the HTTP 1.1 specification, “referrer” is misspelled with only one middle ‘r’ (Network Working Group 14.36).
not yet “turned on” seems sarcastic, highlighting nothing so much as the deep psychological wounds that the film has inflicted upon Johnny, for cheap irony.

However, the textual networks created through the epigraphs operate on a deeper level. This one epigram draws out several other themes from the rest of the song’s lyrics, which are not included in *House of Leaves*. The verse continues:

The English Army had just won the war

A crowd of people turned away

But I just had to look

Having read the book (The Beatles)

Lennon’s speaker feels compelled to see a film adapted from a book he has read; this quotation’s inclusion marks *House of Leaves*’ different media ecology from the conventional system of adapting print literature to higher-technology film. Hearkening back to a simpler past places *House of Leaves* historically at a moment in which remediation overwhelmed the individual subject who feels manipulated by the media. Including “A Day in the Life” also hints at a key foundational moment of high-tech mediation that began to undercut any notions of authenticity. *Sgt. Pepper’s Lonely Hearts Club Band* was recorded on 4-track tape, requiring its lead vocals to be performed more or less in a single take; the album audio was an accurate reflection of Lennon, McCartney, Harrison, and Starr’s talents. A few years later, improvements in tape recorders greatly expanded the number of tracks allowed, which made correcting mistakes easier and allowed greater numbers of overdubs. “A Day in the Life” is from a moment when high-

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80 For accuracy, I will note that “A Day in the Life” also features a live orchestra, but this only further marks the song’s dependence on live musicians. The Beatles used a real orchestra rather than a collection of samples that a musician might use today.

81 In contrast, consider the song “Stairway to Heaven” from Led Zeppelin’s fourth album, released four years after *Sgt. Pepper’s Lonely Hearts Club Band*. The song’s coda features a single guitarist playing six simultaneous parts and one singer doing the same number of vocal tracks; this is only one of many examples of the album’s
technology mediation began to raise questions about authenticity, which pale in comparison to the questions that digital mediation raises. Additionally, the quote has other associations: it thematizes the sense of being particularly attuned to making a connection because of a particular experience one has had, doubling Johnny’s experience; it foreshadows the climactic moment when Navidson signals his realization of his dependence on Karen by singing a few words of Lennon’s “Help!”; and it signals the book’s consciousness of its relationship to the post-World War II era. Finally, it distances the novel from the song’s 1960s faith in transcendence via heightened self-awareness, meditation, or psychedelic drugs, as expressed in the refrain “I’d love to turn you on.”

These various (and certainly not exhaustive) interpretations should make apparent how the epigraph requires the reader to form the connections himself. While the epigraph expands the borders of House of Leaves to another text, rather than simply connecting two works with similar themes, the novel uses the link to draw out additional themes in itself. The epigraphs foreground the novel’s intertextuality, but the intertextuality is not an end in itself. The reader understands the novel better by seeing its connections to a larger media network, but more so by constructing many links between the novel and the song. The epigraph alone seems shallow; in context, it makes far deeper links between the novel’s themes and the larger context of the lyrics line-by-line.

Parallel Stories: House of Leaves as Glas-work

Danielewski’s work also resembles hypertext in its juxtaposition of parallel narratives, Johnny’s story and Zampanò’s work of film criticism. This technique, however, is reminiscent of Derrida’s Glas. As previously mentioned, Glas’s formally-innovative structure places two essays,
one on Heidegger and one on Genet, on the same page in parallel columns throughout the entire book. Danielewski employs this technique for two reasons: first, it invites sustained examinations of the connections between two texts, which is one of his goals in writing the novel. Second, it unsettles ground claimed by hypertext theorists in the debate over the role of poststructuralism in hypertext theory.

Glas’s parallel placement of two essays invites the reader to make a sustained comparison between them. Occasionally, the juxtaposition of the texts makes interesting connections clear, and sometimes, quotations are inserted in between the two columns that one or both texts treats. The two essays share material from the very beginning: according to Geoffrey Hartman,

the presence of Genet is not (not even on the first page) restricted to one column: it crosses the line into the commentary on Hegel. Yet to follow this crossing one needs an understanding of the link between, for example, Genet’s Rembrandt essay and a passage from the Journal du Voleur. Also an understanding of that Journal passage in its own right, as it deals with the very theme or ‘anthemé’ of crossing the line. (Hartman 270)

Likewise, in House of Leaves, the juxtaposed texts have both parallel plots and themes. For example, in one chapter, we see that Tom’s defenses against his personal demons are irony, alcohol, and gentle, if clichéd jokes. Johnny uses many of the same escapes. Immediately after Tom’s death, Johnny abandons drugs, irony, and promiscuous sex, leaves Los Angeles, and begins to search out the root causes of his problems. The thematic echoes demonstrate a variety of escapes, but also demonstrate the process of reading as confronting a personal problem. House of Leaves’ parallel narratives highlight the connections between the stories: Johnny Truant is not only influenced by Zampanò’s writing, to the point of suffering a breakdown because of it, but he turns upon the text, modifying it at first to suit his own position. He changes the event of
the family’s heater breaking to their water heater breaking, out of irritation with his own water heater’s failure (HoL 12). Later, he imagines himself as Phalaris’ bull, feeling as if Zampanò were both inside him and outside him (HoL 338). The sustained connections between Zampanò’s and Johnny’s texts encourage the close-reading and comparison of the two, and an exploration of their effects upon each other.

Some critics have suggested this telling of parallel narratives in footnotes shows the influence of Nabokov’s Pale Fire and David Foster Wallace’s Infinite Jest. The footnotes and supplementary material are not self-contained in either novel. Pale Fire’s footnotes tell a complementary story which has a connection to the main text, the poem “Pale Fire.” Infinite Jest’s footnotes exist only in relation to the chunk of the main narrative which directs the reader to it, and though they provide facts not found in the main text, they do not form an independent narrative. In Glas, the two essays are equals, complete by themselves, and become something different when juxtaposed. This is a goal Danielewski’s sister Poe cited for the mutual composition of his novel and her album Haunted that also seems to apply to the internal text of House of Leaves. Likewise, Johnny’s and the Navidsons’ stories are mostly self-contained frames of reference. One could extract Johnny’s text as written in linear sequence without any of Zampanò’s text, as one could clearly do with Zampanò’s text. This has in fact happened with the collection of Pelafina’s letters, which the author extracted and republished as The Whalestoe Letters, a novel that stands on its own as a complete work of fiction.

With its parallel, linked texts and incorporation of multiple sources, Glas seems hypertextual, and has been claimed as such by J. Hillis Miller and George Landow. Such a claim

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82 Poe has stated that “‘House of Leaves’ is one thing. ‘Haunted’ is another. Together they are something quite different.” [www.poeland.com]
83 The eleven letters added to The Whalestoe Letters notwithstanding, the appendix containing Pelafina’s letters narrates a complete story.
was apparent even from *Glas*’ initial publication. Geoffrey Hartman writes:

In *Glas*, as elsewhere, Derrida exerts a remarkable pressure on privileged theoretical constructs, in particular those of origin, self, author, and book …. *Glas* not only interanimates many sources (Hegel, Nietzsche, Genet) by inner quotation and surrealist wit: it not only incorporates, in particular, passages from Genet’s *Journal du Voleur* (1949) but does so to become a thievish book in essence. (Hartman 268)

Writing in 1976, Hartman was unlikely to equate a “thievish book” with a digital hypertext, but he highlights some of the many ways in which the book resembles hypertext. *Glas* appears hypertextual for two reasons: first, it appropriates from and creates links between many texts. Second, it unseats the idea of a central text, serving both as extended commentary on Hegel while questioning the very possibility of originary texts as structuring points.\(^\text{84}\) It was the visual layout of *Glas*, however, that seemed to attract the most attention from hypertext theorists. Describing the book as “digitalized, hypertextual Derrida” (Landow, *Hypertext* 2), Landow quotes J. Hillis Miller:

*Glas* and the personal computer appeared at more or less the same time. Both work self-consciously and deliberately to make obsolete the traditional codex linear book and to replace it with the new multilinear multimedia hypertext that is rapidly becoming the characteristic mode of expression both in culture and in the study of cultural forms. The “triumph of theory” in literary studies and their transformation by the digital revolution are aspects of the same

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\(^\text{84}\) Eugenio Donato made this point in a 1976 review of *Glas*: “*Glas* stages the strategy of origins by placing Hegel’s text in the position of being the apparent governing transcendental origin of the beginning of *Glas*. Yet this privileged origin cannot be one, not only because a text as representation cannot take the place of an origin, since in itself it refers to another origin—and especially not a text which has already questioned its own privileged origin—but because the apparent privilege of Hegel’s text is in fact only an after-effect. Its privileged position is a textual illusion, made possible by a repetition which at the beginning repeats nothing, since the original object, or the original “fundamental difference”—to remain within a Hegelian vocabulary—is lost.” (Donato 26)
sweeping change.\textsuperscript{85}

Landow further portrays Derrida’s typographical experiment as implicitly reaching for hypertextuality:

This sweeping change has many components . . . but one theme appears in both writings on hypertext (and the memex) and in contemporary critical theory—the limitations of print culture, the culture of the book. Bush and Barthes, Nelson and Derrida, like all theorists of these perhaps unexpectedly intertwined subjects, begin with the desire to enable us to escape the confinements of print. (Landow, \textit{Hypertext} 28)

Consequently, both Miller and Landow claim \textit{Glas} as an important link in their comparison of hypertext and poststructuralist critical theory. Derrida’s work seems to ground hypertext theory in poststructuralism as it anticipates the visual forms of hypertext.\textsuperscript{86} To Landow and Miller, \textit{Glas} exemplifies critical theory as looking toward the future, and inherently—yet unconsciously—describing the digital.

In response to this critical discourse on \textit{Glas} as hypertext, \textit{House of Leaves’} appropriation of \textit{Glas} marks the novel’s intervention into hypertext theory. Given Landow’s reading of Derrida’s search for new forms of textuality as an unconscious desire for digital hypertext, I read \textit{House of Leaves’} use of Derrida’s technique as a reaction against Landow’s claims. Using Derrida’s technique in \textit{House of Leaves} makes an argument that hypertextuality does not equal digital textuality, showing that an author writing well after digital hypertext became common might still choose print over digital media. Danielewski demonstrates the vitality of the print

\textsuperscript{85} (J. H. Miller 19–20, quoted in Landow, \textit{Hypertext} 28).

\textsuperscript{86} Though \textit{Glas}’ resemblance to the World Wide Web or Storyspace may take some imagination, its similarity to Ted Nelson’s “Parallel Textface\textsuperscript{TM}” or Qframes, is clear. In both systems, texts appear in windows that are visually joined at the points where they link to other texts. For images of both systems, see \textit{Literary Machines}, pp. 4/76-77.
medium, but more importantly, the relative ordinariness of hypertext.

*House of Leaves*’ parallel narratives invite the development of a complex reading strategy, which sees them as connected and builds to a larger question about why they are connected. Eventually, the parallel narratives confront the reader with a strange question: why does one part of the book have so much of an influence on the other? Johnny can rewrite the text, but the text starts to work upon him. It becomes apparent that the book’s narratives are entirely dependent upon one another for their singular existence and cannot be resolved into any precise ontological certainty. This mutual construction demonstrates the position of a subject in a hypermediated environment: a subject both creates and reads the text, as Bolter and Landow imagine hypertext as embodying the idea that reading becomes an act of writing, because the reader recreates the text. A reader can only come to this discovery after close analysis of multiple connections between two texts, which requires a deep understanding of the connections between them.

*House of Leaves* exhibits Derrida’s technique not only to imitate digital hypertext by interpolating other texts and literalizing the novel’s position in a textual network, then, but also to draw a sustained comparison between two texts rather than tangential relationships between many. *Glas*’ two essays explore the relationship between two authors and two texts in depth rather than attempting to catalog the relationships across many different texts, as Landow, Miller, and Bolter assert digital hypertext would have allowed an author to do more easily. Danielewski valorizes Derrida’s sustained attention rather than Landow’s messy, profligate citational network. His imitation of *Glas* implicitly criticizes Landow and Miller’s appropriation, pointing to

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87 Both N. Katherine Hayles and Mark B.N. Hansen have made this claim. Hayles states that the novel’s purpose is “recovering, through the processes of remediation themselves, subjectivities coherent enough to become the foci of the sustained narration that remains the hallmark of the print novel” (Hayles, *Writing Machines* 112, emphasis in original). More bluntly, Hansen claims outright that Danielewski writes “to champion the superiority of print” (Hansen 599).
Derrida’s use of print in a new and dynamic way.

**Lexia-to-Lexia Linking**

The technique Danielewski most clearly appropriates from hypertext, however, is lexia-to-lexia linking, a method implemented in print through occasional directions to turn to other portions of the text. While I agree with the argument that these are self-conscious imitations of the forms of digital hypertext, I also believe that Danielewski uses these devices to challenge Bolter and Landow’s preference for an abundance of such links. *House of Leaves*’ links invite the reader to reexamine the same material from many different perspectives, showing that hypertext’s discontinuous attempts to encompass too much information tends to degrade our comprehension.

Following Hayles, Chanen has asserted that the structure of *House of Leaves* imitates digital hypertext. As mentioned above, he created a map of Chapter IX of *House of Leaves*, a chapter with an innovative textual layout that requires turning the book to read footnotes that go from the bottom to the top of the page, or footnotes that continue through the center of pages, or even to other portions of the book. Chanen’s map of the chapter self-consciously resembles the automatic maps generated by Storyspace, as he argues that

the changes in the use of notation in Chapter 9 make sense as a reflection of the linking structure of hypertexts. Though there is still narrative coherence or story within *House of Leaves*, there is a clear obliteration of centre in the novel, particularly in this chapter. (Chanen 169)

These explicit directions to turn to other sections are the most obvious instances of

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88 “The best way to discuss both the network structure created through the use of footnotes is to present a structural map of the links in the text of the chapter. A map of lexias is commonly used in hypertext fiction and I will use the same technique of hypertext mapping to chart Chapter 9.” (Chanen 169)
discontinuous reading in the novel. In the main text, Holloway Roberts, Jed, and Wax are exploring the house, and Jed and Wax have broken away to return to the house from Holloway who is still obsessed with finding the location of the “growl.” Meanwhile, in footnotes 166-167, the novel takes the time to list films and novels that bear some similarity to the tensions between Holloway, Jed and Wax. These comparisons to fiction eventually lead to a list of actual historical mutinies in footnote 168, such as a mutiny on Magellan’s voyage, and a rebellion by the astronauts on Skylab. The mutiny against Magellan during the voyage to circumnavigate the globe leads to Johnny’s inclusions from Zampanò’s journal, which effectively bring the outer texts into the inner texts. In addition to foregrounding the mediation process here, the quotations link these works back to other texts, including two sections that serve to compare and contrast Zampanò and Johnny.

First, directed by footnote 175 (E), we turn to a poem that Zampanò repeatedly attributes to an illegible author, “The Song of Quesada and Molino.” Quesada led the rebellion against Magellan, and his servant Molino was granted clemency in return for executing his master. Zampanò writes in his journal, in an entry that appears both in Chapter 9 and Appendix B, “I have in the late hours turned my thoughts to Quesada and Molino’s journey across those shallow waters, wondering what they said, what they thought, what gods came to keep them or leave them, and what in those dark waves they finally saw of themselves?” (HoL 137, 543)89. His fascination with the two men as they rowed toward death and the complete inversion of roles seems to be prime material for poetry, but a reader who turns to Appendix E discovers that only the title remains; the body of the poem is “Missing” (HoL 556), as the Editors say.

It is an odd omission, which hints at the fact that the poem is probably entirely a figment

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89 This text is excerpted from Zampanò’s journals in the appendix into the main text by Johnny, hence the two page numbers.
of Zampanò’s imagination. The “inclusion” of the poem has two purposes: one, it brings up Zampanò’s fascination with exploration, violence, and colonialism that will be key to understanding a perspective on his writing. Two, it contrasts with an idea that becomes apparent through this reading path. In a following footnote, Johnny includes a second journal entry from Zampanò that discusses the difference between age and youth, perhaps as a way of commenting upon the omission: “Forgive me please for including this. An old man’s mind is just as likely to wander as a young man’s, but where a young man will forgive the stray, an old man will cut it out.” A footnote appended to “stray” directs the reader to a struck-through passage in red that mentions the Pelican Poems, poems Johnny claims to have written during a trip through Europe in his youth. The poems, included in Appendix II, which seems to be Johnny’s section of the book, describe a young man (the eponymous “Pelican”) traveling through Europe, contemplating religion and art, and mostly flirting with women. The poems are fairly short, but there are a lot of them, and they tend not to have any footnotes or links outside themselves.

Once we return to the main text from the Pelican Poems, we run into Johnny’s final annotation to the journal, footnote 173, which begins simply “You got me,” which has been annotated to point the reader to Appendix B, Zampanò’s journals, at last. Strangely, these texts begin to elucidate a probability that has been hinted through typography: the first reference to the Pelican Poems was in Times, Zampanò’s font, in which “Pelican” is X’ed out to “PXXXXXX.” Johnny completes the name in another footnote in Courier (Johnny’s font), and the actual direction to the Pelican Poems in Appendix II-B is in Bookman, the Editors’ font. How could Zampanò have known about Johnny’s private, unpublished poems? The novel begins to hint at an answer in Zampanò’s journals. On November 1, 1968, Zampanò expresses a wish for a “s(u/o)n to re(a/n)d the darkness” (HoL 542) and then on September 21, 1970, nine months
before Johnny’s birthday, imagines that “Perhaps in the margins of darkness, I could create a son who is not missing; who lives beyond even my own imagination and invention” (HoL 543). It seems, then, that Johnny’s text may have been written by Zampanò, which hints at an epistemological impossibility: Zampanò has written about his own death, and Johnny is nothing but a figment of his imagination.

What further highlights the possibility that Zampanò has imagined Johnny is the contrast between Johnny’s and Zampanò’s poems, which fits Zampanò’s ideas of the difference between an old man and a young man: Johnny continued to write and write his poems as attempts to connect with women or ruminations upon metaphysics, while Zampanò left his entire poem up to the reader’s imagination. The two poems show both Johnny and Zampanò’s responses to their own troubled pasts. Faced with expulsion from a school trip for disciplinary problems that have their roots in his loss of both parents, Johnny alleviates his loneliness by producing more and more words. His sojourn through Europe results from, and has been an attempt to, confront his own damaged past and alienation from others, and he spends most of his time losing himself in art and flirting. Zampanò, in contrast, expresses the sense of alienation and betrayal he feels by leaving the poem up to the reader’s imagination, hinting at the fact that he cannot or will not imagine what would have gone through the head of a servant executing his leader in punishment for treason, an act the servant is effectively committing. The nonexistent poem is excluded as the writings of an older, wiser man who understands the value of allowing one’s imagination to fill in the gaps, as we have seen with the book’s general technique of allowing readers to fill in the gaps. The theoretical poem links the book’s investigation into the fear of the unknown—which drove the rebellion on Magellan’s journey in the first place—to European exploration, and also hints at notes of colonialism, a theme to which the book returns later. The novel’s epistemology
is turned entirely on its head: Zampanò may be making it all up, including all of Johnny’s text. The rubricated struck-through passages referring to these poems, however, further complicate this possibility. This text about Johnny is styled the same way as text about the minotaur. While Zampanò tried to eliminate all traces of the minotaur, Johnny restored them, which illustrates his independence from Zampanò even as the text itself suggests Zampanò may have created him.

Johnny’s copying and annotation of Zampanò’s journal passages illustrates a reading technique for the book, hinted at by the Glas-like parallel texts. In addition to an act of writing, the novel sees reading as an act of constructing one’s own connections between texts. Reading is a process of making links, links that operate on several different kinds of linking devices: we do not know who made the connection between the younger man forgiving the stray and the Pelican poems, except for the thematic connection of the contrast between age and youth. Therefore, the novel implicitly directs us to make our own connections alongside these other devices, a technique later made explicit in Johnny’s encounter with the musicians.

While the directions to read the Pelican Poems and “The Song of Quesada and Molino” lead to what seems like an endlessly-expanding text, what this section really highlights is the necessity of rereading the same material from multiple perspectives. The novel suggests that Zampanò may have imagined Johnny only after leading us through links between the material in several different ways, and after rereading these passages from different perspectives. Once we encounter the possibility that Zampanò may have written Johnny’s text, it becomes incumbent upon us to consider both possibilities as we continue to read. This path brings out the novel’s central problem of authenticity: is there a central author of this text? Danielewksi uses these

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90 The supposedly ontologically-stable Editors’ objectivity is also compromised in the same section. In the November 2, 1968 entry, they mistranslate Zampanò’s “Tirer comme des lapins” as “shot like rabbits,” when the proper translation is “to shoot like [a bunch of] rabbits,” if we translate “des” as a vague quantity. Their mistranslation renders a sentence as a lamentation of death rather than a criticism of many people’s incompetence, another hint at Zampanò’s military past.
methods to teach the reader to examine the same material from multiple perspectives, and to
draw deep connections between the various sections. The mutiny leads to links to other mutinies,
suggesting that Jed and Wax seem to be in the right in abandoning the mission to find the source
of the growl due to a lack of supplies, and yet Holloway is driven by some unbearable need to
know and to control. The poems themselves reveal some autobiographical detail about Johnny,
but their different forms come to show the real message, and provide insight into the problems
with the question of authenticity.

This jumping around also challenges Landow, Joyce and Bolter’s claims that no reader
reads the same text in hypertext, and their fascination with Storyspace narratives’ ability to offer
an endless set of permutations. Few would claim that in House of Leaves, all readers read a
different text. Even if the footnotes suggest multiple orders, we abstract a possible set of orders
when we consider the novel’s multiple possible reading paths rather than seeing the different
permutations of lexias as an impediment to a stable plot. Since the paths we take do not affect the
sequence of events, the plot, or our understanding of the characters’ motivations, their
differences lose significance, in sharp contrast to the proliferating possibilities of afternoon’s
unstable plot. This kind of rereading does not generate different textual paths so much as it
causes us to consider each node in the path from multiple perspectives. It asks the reader to
develop a schema to diagram the possibilities of authorship rather than turning the idea of a
stable path (or set of paths) through the text completely on its head.

Echoes

The thematic echo is a common structuring device used in several works of experimental
fiction, particularly in George Perec’s Life A User’s Manual and the various stories in Jorge Luis
Borges’ Ficciones. Echoes experiment with generating patterns based on repetition and variation
rather than plot or characterization. Like the paratactic linking of epigraphs, echoes involve the reader actively, requiring memory and manual searching for instances of an echo, in contrast to Landow’s statement that clickable hypertext makes the reader more active. In echoing, symbols accumulate meaning by repetition and connect more portions of the text than the standard digital lexia-to-lexia link. Echoing links sections of House of Leaves to otherwise-unrelated characters: Zampanò’s, Johnny’s, and Pelafina’s texts all contain structural similarities that create connections between them.

Danielewski explicitly teaches the reader to search for echoes by titling a chapter “Echoes,” in which Navidson uses the sound of his voice to navigate the hallways. Late one night, after fighting with Karen, Navidson enters the hallway in what he labels “Exploration A.” Becoming lost quickly, he discovers that using the sound of his own voice like sonar gives him a sense of the corridors’ size, and helps to orient him within a dark room. The echoes prove most useful when he hears Daisy’s cry of “Daddy” (HoL 68); it is only when he hears another voice that he finds a reference point that helps him to escape the hallways. The chapter ends with his reconciliation with Karen and a video journal entry that Daisy interrupts asking him to play “Always” (HoL 73). As Zampanò ominously explains, “‘always’ slightly mispronounces ‘hallways.’ It also echoes it” (HoL 73). Father and daughter bond over a shared secret; this connection momentarily interrupts Navidson’s endless self-reflection that drives him to explore the house at the expense of his family.

As echoes help Navy find his way through the house’s hallways, if we adhere to the novel-as-house metaphor, echoes also reveal the inherent structure of a text and its limits. Echoes occur when sounds reflect off of physical boundaries, and become distorted slightly by reverberation: “Daddy” becomes “ad-eee” (HoL 68) and, again, “hallways” becomes “always.”
Textual echoes share the same characteristics. Like Daisy “standing in the doorway, tugging her
daddy home with a cry” (HoL 68) physically connects the house and the dark room, echoes
connect sections of the text. Simultaneously, they highlight the limits of the novel’s components,
delineating sections from each other. Unlike hyperlinks, though, echoes, while they connect
portions of a text, also cause readers to go back and forth over the same text: in an echo, the
same word (or symbol) is repeated, while hyperlinks yield only a single lexia. Echoes are also
more subtle than hyperlinks, in that they require the reader to discover the connections between
sections and reread the previous instances of those symbols, while hyperlinks make these
processes instantaneous and automatic. This is not to say that hypertext fictions are incapable of
using the same devices; rather, most hypertext programs did not advertise or implement this as a
particular feature of their software.

One explicit example of echoing that has been already remarked upon in the criticism,
but not studied in the context of its use as a “hypertextual” device, are the similarities between
Pelafina’s and Zampanò’s texts. Pelafina’s letters are collected in The Whalestoe Letters, and
Danielewski includes eleven additional letters. One of these letters, dated March 9, 1983,
performs experiments with typography similar to the layout of Chapter XI of House of Leaves.
Pressman describes this section:

the text slides at angles across the page—mentions “ash” (WL, 6) and thus ties it to a similar
typographic experiments mimicking the ashen walls of the house in Zampanò’s The Navidson
Record . . . . A later letter, dated January 6, 1987, also visually mirrors the visual and
linguistic metaphors in Zampanò’s depiction of Navidson exploring the house. Pelafina
writes, “Impossible to deny, impossible to” (WL, 44); then, the line breaks. A paragraph break
is followed by a single “a”; another break and another single word, “void.” The visual void
echoes the typographical strategy in *The Navidson Record* wherein single words appear alone on the page describing Navidson’s disorientation and isolation in the labyrinth. Again, another separation of page space before a line that ties this textual display to the narrative content shared between the storylines . . . . (Pressman 217)

This typographic similarity associates disparate texts that tell stories whose connection is otherwise parallel and tangential, linked only by Johnny because he knows both characters. The typography highlights their relationship in a network, and encourages the reader to see a connection.

*House of Leaves* also reinforces this connection through imagery. One such example is the color symbolism. Tom theatrically seals off the dark hallway with a door which is locked with four color-coded keys, red, yellow, green, and blue. Likewise, Pelafina describes her medications as pills of “madder, azure, celadon, gamboge” (HoL 615), which are shades of red, blue, yellow, and green, respectively. This connection by itself seems to make a facile criticism of psychopharmacology for masking deeper problems; it also starts to reach toward the facile literary device of mental illness having a root moral cause, hearkening back to the interpretations of depression that Susan Sontag criticizes in *Illness as Metaphor*.

However, throughout the novel, each color acquires a separate meaning. The word “house” always appears in blue ink, which calls to mind both blue-screen technology and hyperlinks, suggesting that the house and the novel come to represent a surface onto which any meaning can be imposed. The novel also contains rubricated, struck-through text, which discusses the theme of the minotaur; it signifies Zampanò’s attempt to excise the theme of a misshapen son whom King Minos came to love. Red comes to indicate a repressed history which one comes to love and accept, and that which is unrepresentable. The merging of red and blue
into purple toward the end when Johnny watches a sunset suggests that mediation grants agency: red and blue meet at Johnny’s emotional catharsis, when he realizes his life was not a mistake, and he can stop running from his past. Purple is also Pelafina’s color; its presence in this scene represents Johnny’s love for her via his ability to rewrite how he remembers her. Likewise, the Navidson family represents the same kind of bulwark against problems, the same kind of synthesis, yet, at the end, they merge down into blue when Karen takes Navidson’s last name: a family unit onto which they can project their own desires. From the colors’ association with mediation, it becomes apparent that the four colors contain the three primary colors of light and three primary colors of ink and paint. The colors, the sum total of media, suggest that mediating one’s troubles may be both a false and a real method for overcoming them.

In addition to the echoed sounds and color symbolism, smaller details repeated between Pelafina and Zampanò’s texts create further connections. Upon Navidson’s final return journey to the house, the novel describes a hypothetical cathartic scene that he might have found at the house’s center: “Plenty of rootbeer and summer love to go around” (HoL 395). Pelafina, on the palindromically-numbered page 593, sends a benediction to Johnny: “May your summer be full of rootbeer, joy and play. With terrible amounts of love, Mommy” (HoL 593). Second, on September 19, 1985, believing that the doctors are intercepting her letters, Pelafina asks Johnny to put a checkmark on the lower right corner of his next letter to her to signal that he has received

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91 Holland states that the novel leaves Karen’s married last name ambiguous (Holland 319 n 15). I understand her reasoning and her sensitivity, but I argue that Karen takes Will’s name because the film’s title, The Navidson Record, makes more sense that way if we are meant to read it as a story of the reunification of a family—which is the ostensible purpose that Navidson gives for making the film at the novel’s beginning (HoL 8). It would be tremendously insensitive of Will to title a film about his family with a name that did not include all of them, which would be the case if Karen had kept her name; the children would then presumably be Chad and Daisy Navidson-Greene, so the film would have to be The Navidson-Greene Record. If, on the other hand, Karen were now Karen Navidson, then the film’s title includes all of the family. This point is small but important as it’s a signifier of how traditional the family seems.

92 In cases where the novel’s typographical layouts are not relevant to my argument, I have condensed some text split across multiple lines to a single line.
her letter (HoL 609). The beginning of Chapter VIII contains a checkmark in the lower right corner (HoL 97). Much of the main text of *House of Leaves* seems to have been determined by a text that is mostly peripheral, apparently only relevant because of Johnny’s past.

The sum total of the repeated details suggests that Pelafina may have authored both Zampanò’s and Johnny’s texts; the echoes are traces of inserted autobiographical detail. This possibility further confuses the novel’s ontology and presents an even greater impossibility: the novel contains a letter from the Director of the Whalestoe Institute informing Johnny of Pelafina’s suicide and a receipt from his collection of a locket she wore. The Director’s final letter confirms that Pelafina’s son John exists independently from his mother’s writing.

What makes this ontological instability apparent in this section is the discovery of many links between two apparently-independent texts rather than jumping between many texts; the novel rewards sustained examination. The echoes and the other devices direct the reader’s attention to rereading and close-reading, and attempt to focus on deep understanding of a limited body of texts. While the book may be read as an encyclopedic novel, both because of its size and the many concerns it attempts to incorporate, its hypertextual devices define deep understanding as reexamining and recontextualizing a set of texts rather than putting individual facts into a much larger context of many different nodes.

**The Failures of Contextual Depth**

Many elements of *House of Leaves*’ plot make sense as a statement about the necessity of rereading and revisiting the same material from different perspectives. The first sense that anything is wrong with the house is Navidson’s discovery that the house is larger on the inside than the outside: after a new closet mysteriously appears, he discovers that inside and outside differ in length by a quarter of an inch. In portraying the multiple reactions to this revelation and
the volume of discourse a missing half-inch inspires, the novel parodies the excesses of equating breadth and depth, carving out an alternate interpretive strategy focusing on connections and rereading.

Hansen reads the novel as “a figure for the otherness of the digital” (Hansen 607–8), but we might also read the house as an example of any kind of object that can be analyzed, not digital objects alone: the house grows by the presence of many other people attempting to explore, map, catalogue, or otherwise analyze it. The more people appear, the larger the room grows: Once Navidson’s brother Tom arrives, the house grows another 1/8th of an inch, and as Will and Karen’s nameless friends, Billy Reston, and others encounter the spatial anomaly, it expands to unimaginable size. The house serves as a metaphor for how a text takes on new dimensions the more it is read and discussed. Additionally, many statements that Zampanò makes about the house tend to line up very well with the idea that it represents a text or other interpretive artifact. First, Zampanò observes that the house mirrors the psychological state of the person walking through it, which again suggests that people largely interpret the house based on their own worldviews. For example, Holloway hears the growl as a monster while others suggest it may be nothing but the walls shifting. Second, the house’s corridors never open to anything else, and have no windows, a fact that remarked upon during Navidson’s Exploration A93 and in many other places. The only window Navidson encounters is the textual frame when falling into the void. After a long search into the center of the house, he finally encounters a window, which is visually depicted on the page as a rectangle made of X’s inside another made of brackets. After crawling through the window, he finds himself in an empty dark room. The floor then disappears,

and he begins falling. The room is then drawn using the same shape as the window, without the X’s. An asterisk represents Navidson’s position.

When Navidson is “framed” in this way, and placed in the position he leaves for the observer in his photograph of Delial, he realizes that even as an observer, he always has a role in the situations he photographs. He finally comes to understand his dependency upon Karen and his children. Encountering the frame helps him to radically reconfigure his own understanding of himself. The frame represents both mediation and also the discovery of a space’s limits, suggesting the importance of attempting to see different perspectives because we are ourselves limited, as Navidson finally does.

These different perspectives are what the novel prizes in response to the cataloguing aesthetic of hypertext. I read the novel’s extended treatment of nothingness and how many words can be devoted to investigating something that is not there as in part a parody of the excesses of hypertext’s attempts to include many kinds of information. The novel has extensive catalogues, including a list of exhibits to be prepared for inclusion as supporting evidence for Zampanò’s
study. The novel aspires to incredible breadth, constructing a citation network that includes not only actual (and imaginary) academic books and journals, but also popular books and periodicals, including citations from Redbook and Outdoor. While the scale of Danielewski’s ambition is clear, this staggeringly broad citation network jars with the fact that the network extends from a film that does not even exist in at least two of the novel’s frames of reference (Johnny’s and Pelafina’s). Zampanò’s book is a study of nothing, or rather, nothingness. The external links he brings in takes the reader down nonexistent and sometimes even meaningless paths. As we come to understand “nothing” as substantive, nothingness becomes an inexhaustible source of investigation for the very reason that it is a void on which to project an interpretation.

The novel highlights the irony of its attempt to create a believable multimedia network through endless catalogues, which yield very little meaning if they are closely analyzed. Appendix A, inverting the common evidentiary purpose of appendices, lists several kinds of material that Zampanò had planned to include for support, such as “pictorial examples of architecture ranging from Egyptian, Mycenaean, Green, and Roman to Gothic, early Renaissance, Baroque, Neoclassical, and the present” (HoL 530) and “examples of hand shadows ranging from crabs, snails, rabbits and turtles to dragons, panthers, tigers and kangaroos. Also include hippos, frogs, elephants, birds of paradise, dogs, cockatoos, and dolphins” (HoL 531). The exhibits exist only as lists; the actual materials were never compiled fully by Zampanò, though an astute reader can find some of the real items on the Internet. Other similar lists go nowhere: footnote 144 (extending from pages 119-142) attempts to include all common household items present in the house, including “BAS, BMS, BMAS automation . . . moldings or other stylistic signatures” (HoL 127) and so forth. Another footnote catalogues names of photography scholars (HoL 64-67). Taking the first letter of the last name of each yields the
phrase “A long list of visionaries,” if we add a few letters, yielding nothing more than a tautological joke. These lists become meaningless in their length, highlighting just how much can be written about literally nothing. In fact, these lists appear in Chapter IX, the very section whose compositional technique Chanen calls most similar to hypertext with its inventive text layouts and extensive footnotes. The latter list seems to broaden its citational network, but its length, as well as the acrostic message, diminishes any meaningful insight any of the referenced scholars’ work might bring to the study. The Appendix even explicitly directs the reader back to the footnote: “see bibliography in Chapter IX” (HoL 530), suggesting that the purposes of both areas are endless catalogues of hypothetical material. These lists parody the hypertext theory emphasis on breadth.

In fact, the various stages Johnny goes through in trying to understand Zampanò’s work reinforces this interpretation. Johnny begins trying to understand the novel by itself through a sustained program of close reading, and withdraws from his friends and life. Paranoid and delusional, he realizes the futility of this process, begins to attempt to get in touch with the experts Zampanò quotes, and then travels around the country looking for more information. In Pressman’s interpretation, once he starts to travel, he begins to come out of the paranoid delusions that his close-reading caused: “It is only when Truant adopts a new approach and starts to read beyond the pages of Zampanò’s manuscript, and out into a wider geographical and informational network, that he acquires an awareness of the larger issues foregrounded in the text” (Pressman 226).

Unable to find the Navidson house in Richmond, Johnny travels throughout the state of Virginia and finds no other connections to any of the material in House of Leaves. Along the way, he stops at several tourist sites, and vents his disgust with the sanitized picture of history that
they paint. He enumerates some of the exclusions: “the starving time of 1610 ... the 1622 Powhatan Indian Insurrection which left almost 400 dead” (HoL 500). He visits and criticizes Colonial Williamsburg (“even further from the truth, or at least my truth” (HoL 500)), and searches for physical traces of the people mentioned in The Navidson Record. Noting that “Everywhere I’ve gone, there’ve been hints of Zampanó’s history, by which I mean Navidson’s, without any real evidence to confirm any of it,” (HoL 501) Johnny is searching for history. Here, Johnny begins to get a sense of the novel’s concern with a wider scope, as he travels around the country, searching for the Navidson house, Billy Reston, and any other traces that might give him reason to believe that Zampanó’s study was true. He soon tires of the search because he only manages to find more and more fragments that cast doubt on the ontological status of the text he has been reading. The text’s massive citational network refuses to pan out. In essence, he follows an interpretive technique of trying to bring in more and more sources in order to fix the text’s meaning as either purely fiction or purely nonfiction, which only leads him down dead ends.

I will supplement Pressman’s reading by adding that Johnny’s interpretive quest extends to an extra step. The purpose of both Johnny’s travels and letters is to discover more information to contextualize the novel and fix its meaning. Both efforts fail. Once Johnny recognizes the futility of reconstructing this citational network to stabilize and fix the story, he begins to overcome the psychological problems that his editorial efforts bring about. He realizes that this is a false hope, and turns to a more prolonged process of self-examination, attempting to interpret the text in the context of his own life, understanding what it means to him, personally. Therefore, he learns to prioritize hermeneutic depth: rather than seeing Zampanó’s study as a verifiable collection of facts or statements that point to other texts, he reads it as a story with deeply resonant personal themes.
Thus, Johnny turns to reflect on his own problems, which may be at the root of why the book caused problems in the first place:

I begin to see I’m tracing the wrong history. Virginia may have meant a great deal to Zampanò’s imagination. It doesn’t to mine.

I’m following something else. Maybe parallel. Certainly personal. A vein of it inhabiting every place I’ve visited so far, whether in Texas ... New Orleans, Asheville, North Carolina. (HoL 502)

Johnny turns from a search for the Navidsons to a search for his mother: he realizes his mother has been haunting him, guiding him through all of this history. He turns to confront his abusive childhood, including the story that she may have tried to strangle him in the depths of her insanity, and learns to see through the web of blame he created with her at the center. As Johnny comes to love her again, he also learns to examine the book from many angles: both the historical reading, which yields some insight into his relationship with his mother because of her knowledge of history, and the more personal interpretation related to questions of knowledge, truth, mediation, and history.

Much of this reading comes from the chronologically latest event he narrates, an encounter with the band Liberty Bell. After hearing their song “Five and a Half Minute Hallway,” Johnny realizes they have read the first edition of the book. They show him their own copy:

I thumbed through the pages, virtually every one marked, stained and red-lined with inquiring and I thought frequently inspired comments. In a few of the margins, there were even some pretty stunning personal riffs about the lives of the musicians themselves. I was amazed and shocked and suddenly very concerned about what I had done. .... There’s no question I
cherished the substance of those pages, no matter how imperfect, however complete. Though 
in that respect they were absolutely complete . . . Here now, resting in the palms of my hands, 
an echo from across the years. (HoL 514)

The musicians have learned to interpret Zampanò’s writing as nothing more than a book with 
thematic relevance to their own lives. Their attention has been close and detailed rather than 
broad and historically-focused. Johnny learns to read the book in the same way.

Discovering the personal significance of the book’s historical, mythical, and thematic 
angles, Johnny comes to understand his past differently. He learns to see his mother as loving, 
instead of psychotically murderous, and instead of killing Gdansk man, realizes he could have 
made peace with the possessive masculine rage that the book implies is veiled in religion and 
morality94 that Gdansk man represents. On the next page, he remembers his mother leaving for 
the mental institution:

But even though my father had his hands on her shoulders, trying as gently as he could to lead 
her away, I couldn’t let go. So she knelt down in front of me and kissed my cheeks and my 
forehead and then stroked my face.

She hadn’t tried to strangle me and my father had never made a sound ...

Her letter was hopelessly wrong. Maybe an invention to make it easier for me to dismiss her. 
Or maybe something else. I’ve no idea. But I do know her fingers never closed around my 
throat. They only tried to wipe the tears from my face. (HoL 518)

In this final act of remembering, Johnny either remembers the scene as it happened, or 

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94 Since Gdansk man beats Johnny in revenge for Johnny’s affair with his fiancée Kyrie, I read this section as a 
statement on religion because of the characters’ cratyllic names. Kyrie’s name is Greek for “God,” a word still 
used even in the contemporary vernacular Roman Catholic Mass in the Kyrie Eleison (“Lord, Have Mercy”). 
Gdansk is a Polish port city, and John Paul II, the first Polish Pope, reigned while Danielewski was writing 
House of Leaves.
rewrites it in his mind to fit an underlying truth: he knows his mother did love him, and therefore chooses to remember her as loving rather than violent. He realizes that his problems resulted from her absence, and explains his development into an alienated teenager that “learned pretty quickly how to resent her, licking my hurt with the dangerous language of blame” (HoL 517). Realizing that she loved him, he heals and stops blaming her for his problems, an understanding he takes from Zampanò’s emphasis on the human need for connection in spite of the darkness inside. His understanding results from reading Zampanò’s study less as a work with a lot of connections to an empirically-observable truth, and more with connections to his own past.

Johnny’s lesson from his encounter with Liberty Bell presents a view of the ideal study method of House of Leaves: close analysis and careful reexamination, as opposed to Johnny’s initial manic search for large numbers of connections to the real world. This encyclopedic hypertext work has been an attempt to teach the reader to form a series of sustained connections rather than an attempt to understand and bring in the entire world. Johnny’s first mistake is to obsess over detail; likewise, Danielewski criticizes hypertext for encompassing too much information.

**Looking for Windows Instead of Hyperlinks**

These hypertextual devices link together the various texts that make up House of Leaves to undercut any pretensions to ontological certainty: links between the text generally foreground the fact that any of the narrators could have written the texts of all the others. The novel’s impossible authorship mirrors the uncertainty of the anonymous World Wide Web, or of any remediation, as Hayles, Hansen, and Pressman have argued. As Pressman suggests, the ontological instability shows that authorship is a “a historically constructed, media-specific construction” (Pressman 222). I would also add that the uncertainty means that we must read
each character as an equally plausible author in the sense that we might ask ourselves, “how would it affect our understanding if one of these characters authored the other texts?” To this end, we read Johnny, Zampanò, and Pelafina as representing perspectives on a question, to which we ultimately add our own, if we understand reading as a kind of rewriting. Yet in the face of this ontological uncertainty, the novel foregrounds its multiple possibilities to step beyond postmodern alienation: accommodating multiple points of view allows for human connection while simultaneously acknowledging the problems with it. The novel thus equates an emphasis on hermeneutic depth and reconsidering the same information to finding human warmth.

The novel develops this association through hypertextual devices that construct epistemological uncertainty around the figure of Zampanò. These devices highlight material that raises the question of why he might have written the book, a question Johnny is never able to answer. I will explain how we might read the novel’s unstable ontology as a statement on the necessity of relativistic understanding of multiple points of view. Then I will explain an instance in which the novel develops this point through hypertext, both inside Zampanò’s writing as well as around it, with the question of how we interpret his authorial intent from the few details the text provides.

In the absence of stable referents, we contextualize the stories that the characters are alleged to have written with an understanding of their viewpoints; thus, we understand their mutual construction within a mediated network and investigate the perspectives they embody as characters. The question “who wrote this book?” comes to mean “why would someone write this book?” Hansen and Pressman have observed that the narrators serve various functions, Hansen’s observation being that each character embodies a particular type of inscription,⁹⁵ and Pressman’s

⁹⁵ In Hansen’s reading, the novel “subordinates traditional characterization to allegorical functions that serve the ends of the medial agon. Consider, for example, the portrayal of Navidson. Navidson is, quite literally, a cipher for orthographic desire: all of the aspects that, traditionally speaking, contribute to well-rounded characterization
being that Johnny is the novel’s representative reader (Pressman 225). In this case, narrators’ points of view add historical referents to the story. Though the authorial function loses its purpose of stabilizing the meaning of a text, it remains a phantom that still casts its shadow over a text. We understand the stories they tell—particularly Zampanò’s—from many perspectives.

The novel thus attempts to accommodate these many perspectives by including multiple narrators whose points of view are ambiguous. I will demonstrate how particular historical contexts lead to two different interpretations of Zampanò’s work, which ultimately question what impact such contexts should have on our readings.

In Beyond Words: Signifying Families in Postmodern American Fiction, Mary Holland has read House of Leaves as a story of the redemption of the nuclear family as the source of signification (Holland 369). I suggest that the novel’s unstable ontology not only represents the problems against which family is a bulwark, as she argues, but also helps acknowledge the many political and historical problems surrounding the prioritization of family. The question of Zampanò’s mysterious past addresses this particular issue. Confronting two interpretations of Zampanò, at least one of which strongly associates him with repressive politics, we must consider what impact his life should have on his prioritization of family. Accommodating these problems steps beyond the history of repressive politics associated with an emphasis on family, and therefore, beyond postmodern alienation. This accommodation allows for the coexistence of multiple perspectives and supersedes the ultimate moral relativism created by ontological instability.

By concealing most of his past, Zampanò mystifies Johnny. The few details Johnny manages to glean present Zampanò as embodying two sides of twentieth-century European
history, particularly French history. On the one hand, his presence calls to mind various conflicts over colonialism: Johnny’s information suggests that he was a French soldier. Zampanò has been blind since the 1950s, has an unplaceable accent, and “seven names he would occasionally mention: Beatrice, Gabrielle, Anne-Marie, Dominique, Elaine, Isabelle and Claudine”’ (xxii). An astute reader on the houseofleaves.com forum pointed out these were the names of French bunkers in the Battle of Dien Bien Phu in the French-Indochina war (eoin). If we add these details together, Zampanò was a French soldier born in Indochina or one of the other colonies, marked as such by his accent, since most Americans can recognize a Parisian accent as “French.” He was probably blinded at the battle of Dien Ben Phu, which took place in 1954. Dien Ben Phu was the final decisive victory for the Indochinese over the French, which established the independence of the Republic of Vietnam. Zampanò fought in at least two wars, and ultimately lost his sight in defense of colonialism. Thus, Zampanò’s history intersects with both World War II and French colonialism, calling to mind atrocities committed by troops during wars over decolonization in Indochina and Algeria.

On the other hand, Zampanò also reflects the development of poststructuralist literary and social theory, which associates him with more progressive politics. Both Zampanò and Derridà were born in French colonies, Zampanò probably in Indochina, and Derridà in Algeria. In asserting the essential subjectivity of meaning in light of the proliferation of media technology, Zampanò can also be seen to be allied with the radical relativism and culturally-sensitive ontological instability of poststructuralism, as practiced by Derridà in his critique of Lévi-Strauss and Rousseau’s ethnocentrism in On Grammatology. That said, the idea of Zampanò as theorist is also fraught with uncomfortable historical subtext. Danielewski began the novel shortly after the so-called “crisis of theory,” in which the underlying politics of poststructuralism was called
into question following revelations about the Nazi sympathies of Martin Heidegger and Paul de Man. Both de Man and Heidegger are cited in *House of Leaves*; Danielewski acknowledges this problem by having Johnny describe a Heidegger quotation as “a few arcane sentences penned by a former Nazi tweaking on who knows what” (HoL 25 n 33) early in the novel. While Danielewski was writing *House of Leaves*, literary scholar John Guillory published one famous treatment of the issue, his 1996 book *Cultural Capital* (Guillory). Guillory critiqued poststructuralism by arguing that the fact that these revelations had caused anyone to question the validity of de Man’s work revealed a lack of any substance to poststructuralism aside from individual theorists’ cult of personality. Might Zampanò’s former defense of colonialism square a little too easily with his current work on poststructuralist media theory?

On the one hand, Zampanò’s explorations of mediation and consequent assertion of the subjectivity of meaning, as when he asserts that Karen’s therapist’s question “What does it mean to you?” is the “most significant” question (HoL 365-6), takes a stand for progressive pluralism. On the other hand, the portrayals of the two principal black characters display a subtle racism. Both the engineer Billy Reston and Delial, the dying Sudanese child who was the subject of Navidson’s photograph, may be read as sexually-sterile victims. Their victimhood undoes any agency that they might have and condemns them to relatively passive roles despite their great impact upon certain portions of the film.

The African-American Reston defies stereotypes. He is mentally rather than physically strong: a professor of Engineering at the University of Virginia, intelligent yet paraplegic, he is not there just to lend his strength to the exploration of the house. His inclusion has positive overtones, for he is the next person Navidson calls for help after his own brother. And yet, his presence could also serve as a revival of white supremacist anxieties masked as progressive
multiculturalism: Reston’s friendship with Navidson results from his paralysis from a work accident that Navidson photographed. Reston keeps this photograph on his office wall, so as not to have to explain his paralysis to any visitors. It is true that many people who suffer from disabilities get tired of discussing them and would probably sympathize with Reston’s desire to never have to say another word about it. That said, this psychologically-believable detail casts Reston in the role of a man who lets Navidson tell his stories for him, a move later duplicated by Navidson using Reston as an actor retelling Tom’s death. Reston never witnessed Tom’s death himself, yet he happily retells the story to give Navidson something to film while Navidson stands behind the camera. In Zampanò’s words, Navidson “makes Reston the sequence’s sole authority,” but moments later, Zampanò’s interpretation undercuts this authority by stating that this gesture appeals to his audience’s sophistication: “Navidson refuses to abandon the more perspicacious portion of the audience. By relying on Reston as the sole narrative voice, he subtly draws attention once again to the inadequacies in representation” (HoL 346, both quotations). Navidson, the white mediator, confers identity upon and creates official histories for black characters. Therefore, Reston’s friendship comes at the price of having Navidson write and rewrite his life story.

Danielewksi makes Reston into less of a stereotype through the neutralization of specific attributes of black manhood considered threatening by white supremacists: physical strength and sexuality. Paraplegic, Reston remains brilliant, mentally strong but immobile without technology. Zampanò assumes this injury would have also rendered him impotent, writing of Reston that “he would never fuck” (HoL 117). The book hints little at any larger life aside from his job: he has no other personal relationships, unlike Jed whose fiancee’s conveniently-timed phone call highlights the tragedy of his death, or Holloway’s story of rejection by his father. He is a professor, but a
professor of applied rather than pure science. His intelligence is not abstract but always engaged with the world, for better or worse. Zampanò’s language on the one hand praises Reston for his simple ability to accept the strangeness of the house while simultaneously blaming Reston for his own injury:

Belief is one of Reston’s greatest strengths. He has an almost animal like ability to accept the world as it comes to him. Perhaps one overcast morning in Hyderabad, India he had stood rooted to the ground for one second too long because he did not really believe an electrical pole had fallen (HoL 117).

This “animal like belief” further instinctualizes his mental processes, placing him in a role similar to black characters in 1950s horror movies, not unlike the maid Eulabelle’s instinctive perception of the evils in The Horror of Party Beach (Tenney). Reston himself introduces colonialist overtones to these characterizations. The injury takes place in India while he works on an American engineering project. In the photograph of the pylon falling on him, Reston names the pylon’s electric cables “Nag” and “Nagina,” and Navidson is “Riki-Tiki-Tavvi with a Nikon” (HoL 38). Reston himself thus allegorizes the picture into an apologist fable of colonialism by the author who coined the term “White Man’s Burden,” Rudyard Kipling.

Navidson’s photography thus makes him as a colonizer, giving him the power to fix the meaning of the lives of others, particularly racial Others. The portrayal of Delial, the other significant Black character, as one more sexually-sterile victim reinforces this interpretation. Navidson’s Pulitzer-prize-winning photograph, modeled on an actual photograph by Kevin Carter, of a Sudanese girl dying during a famine, made his name as a photographer but caused a significant amount of controversy. He privately names the girl “Delial,” an action that once again places him in the privileged position of conferring a name, a name that implies both “denial” and
sexual temptation given its similarity to “Delilah,” and thus the stereotypical hypersexuality of black women. Nevertheless, Navidson is a complex character, and feels bad for what he has done, writing later in a drunken confession to Karen:

it doesn’t matter if she was already ten minutes from dying  i took threem minutes to snap a photo should have taken 10 minutes taking her somewhere so she wouldn’t go away like that no family, no mother no day, no people just a vulture and a fucking photojournalist i wish i were dead ... that poor little baby  this god god awful world im sorry i cant stop thinking of her never have never will  cant forget (HoL 392, spacing and misspellings in original)

Navidson’s guilty subconscious causes him to repeat the name in his sleep. Karen hears the name, and Navidson’s failure to explain who she is causes her to imagine that Delial is a woman with whom Navidson has been cheating. Karen’s suspicions of Will’s infidelity further pervert Black sexuality just like Zampanò’s declaration that Reston “would never fuck”: in a sense, Delial becomes another girlfriend because she takes Navidson’s attention from his family. His guilt and his other problems prevent Navidson from committing to a marriage with Karen.

Coupled with the novel’s insistence upon the importance of mediation to reinforce familial bonds, the sterile victimhood of both Black characters reduces their independence. As Holland explains,

The symbol of family images reminds us that the power to redefine both the self and the familial bond amid the chaos of a wholly unknowable world has lain strictly in mediation all along … The reconstitution of subject and intimacy through remediation enables a recuperation of emotional connection and so of family bonds, through … the multiple mediation of strategies of meaning making that those technologies struggle to represent.

(Holland 331–2)
Since the book uses the conventional metaphor of producing a book as having a child, Zampanò denies his black characters’ full humanity by leaving the power to mediate in white hands, in refusing to Reston and Delial the ability to represent themselves or reproduce. Zampanò writes Black sexuality and therefore, Black identity out of his story, claiming the power to mediate for himself. While it has been suggested that the name “Zampanò” originates from a character in the film La Strada (Hansen 601 n 3), when transliterated into French syllables the name becomes “sans panneaux” (“without signs”). Zampanò has no signs because he has the privilege to confer them on others to avoid attaching any to himself.

Given the apparent racism of these portrayals of black characters, how are we to read the reunion of the Navidsons as a traditional suburban nuclear family? On the one hand, it fits the hopes of a white supremacist a bit too well: the Navidson family has fled the house in Virginia (itself a site of colonialism and slavery) to one in Delaware in which “Every room, stairway, and corridor supports pictures of Karen, Daisy, Chad, and Navidson, as well as Tom, Reston, Karen’s mother, their friends, distant relatives, ancient relatives, even Mallory and Hillary,” (HoL 527) the family dogs. Will and Karen have married, and she has taken his name. This happy scene of familial joy concludes the film with a final shot in which the darkness has been banished to the house’s exterior: the family has strengthened their bond against an intruding world. Delial is absent from this scene of domestic tranquility, and implicitly consigned to a part of the darkness that ends The Navidson Record. The darkness is now outside, a looming threat, no longer in the house: the family has finally sealed itself against the outside world, and Navidson’s final shot does not probe the darkness so much as leave it there as an established threat always waiting for them.

From Zampanò’s past support of colonialism, it is tempting to read his conclusion as a
hope for the redemption of the white nuclear family, in which Will’s concern with the world is revealed to be the result of an abusive childhood, cured by attention to his family at the exclusion of world events he cannot fathom. The means by which Navidson overcomes his guilt in the middle of the house, however, undercuts this interpretation: his final exploration into the house leads him to an impossibly large room. The floor disappears from underneath him, and he starts to fall. The book represents this scene visually with the aforementioned page of brackets that represent the room’s walls, and an asterisk to one side representing Will Navidson. This image has the rough proportions of a photograph, and the asterisk appears in the position that he left for the observer in the Delial photograph. His involvement as observer is finally acknowledged; he is no longer separated from his subject. He comes to realize that even when he believes he is disengaged from a situation, he is a part of it.

Navidson learns to become engaged rather than remain an absent, distant observer of the many different and exotic places shown in the compilation of his photographs that Karen assembles for her film *A Brief History of Whom I Love*. Finally discovering his place within his own photograph, he acknowledges his implication in the mediation loop. This epiphany provides the closure he needs to understand his relationship to the people in his life and his pictures. Karen simultaneously comes to the same discovery when she makes her film about him. Therefore, Will and Karen discover their own dependency on others, which means learning to see from their perspectives: Navidson realizes he is not just a photographer but also a subject, and someone who needs help rather than simply the one always helping Karen, as Reston and his other friends describes him earlier (HoL 349). Karen likewise finds the power to support Navidson, not simply to accept support from him.

Using Will and Karen’s relationship as one example of learning to see from multiple
perspectives, the novel provides no easy answer to the question of how to read Zampanò’s scholarship and soldiering. These are both acknowledged as legitimate ways of reading him: Zampanò’s theory may be the work of a man nostalgic for the days of colonial hegemony, or one attempting to move beyond the distant relativism of postmodernism to acknowledge problems of mediation and cultural differences while also accommodating the human need for connection. These multiple versions of Zampanò—soldier and theorist, nationalist or pluralist—highlight different perspectives on the importance of family.

Given the potential political subtext to the Navidsons’ relatively traditional family, the novel speculates about the political connotations of the nuclear family. The ambiguity of Zampanò’s identity and the book’s methods for portraying multiple perspectives recognizes that “family values” may be the moral center of right-wing politics while also realizing that this association does not determine all definitions of family. Acknowledging both past and present ideas helps to search for new definitions of family. The book justifies the need for family by considering its associations with repressive politics but imagining more progressive versions. The Navidson family’s final moment of togetherness, in which the portraits display a family extended to include members who are not biologically related, such as Reston, hints at the possibilities of inclusive definitions.

A more explicitly inclusive example opens The Whalstoe Letters: the compilers of Pelafina’s letters are Walden and Waheeda Wyrtha, a multiracial couple. Though he is black, Walden’s introduction reveals a life little-affected by racial prejudice, despite how conscious the people he meets seem of it: people he encounter expect his paraplegia to be the result of violent crime when in reality it was an injury from an accident. He also helps alleviate Tourette’s patients’ guilt over tics that involve racial slurs, demonstrating that he understands the epithets as
meaningless profanity (Danielewski, *WL* xii). Walden’s patience during one such encounter in fact leads him to meet Pelafina. The Wyrthas seem to have defined a relatively inclusive identity within a secure monogamous marriage, making their family a space in which they acknowledge and accommodate difference, and even offer a basis for pluralist identity politics.

The book’s use of hypertext devices to link together disparate parts of the story teaches the reader to read through each section from many perspectives to question both the text’s authorship, and what that author would think of the author to whom the section is attributed. Through the various linking devices showcasing the contingency of the novel’s various narratives, we come to understand the novel’s accommodation of a variety of viewpoints. Depth equates to exploring multiple perspectives on a topic, or hermeneutic depth. Bolter explicitly calls this pluralism an important aspect of hypertext, yet Danielewski utilizes the reinterpretation of the same material—that is to say, one text—more than endless discussion of a topic as Bolter suggests, or jumping into other characters’ heads for supplementary material as *afternoon* does. The multiple perspectives on Zampanò, for example, are all suggested by different facts Johnny uncovers, rather than explicitly stated. The narrators showcase different points of view, and the novel provides a house for all of them, making hypertext a way of accommodating difference together in a scene of domesticity. Accommodating difference requires careful and sustained attention to all points of view more than simply giving each group endless space to write; as described in *Writing Space*, Bolter’s vision sounds at risk of deepening fragmentation. Danielewski’s hypertextually-informed literary devices accomplish this purpose with more efficiency and subtlety: they encourage the reader to derive the various points of view themselves by considering the same document in light of many different facts, rather than reading a variety of different documents, as in one of Landow’s hypertext encyclopedias. Thus,
Navidson discovers a window, a traditional symbol of both visual perspective and fictional point of view, at the center of the house, not a hyperlink that brings in yet more information.

**From Hypertext Back to the House of Fiction**

Like his predecessors from Barth to Joyce, Danielewski challenges hegemonic academic theories; he satirizes poststructuralism, and aims his skepticism of technology at a particular technology argued to affirm this dominant mode of criticism. Like Joyce, Danielewski responds by repurposing the technology and developing new uses for the computer, but he does so by emphasizing the novel’s materiality instead of designing a novel that imitates a computer technology. That said, Danielewski emphasizes his novel’s form as a print book by relying on computing technology even as he insists on the role of analog media in the novel’s production.

Danielewski explores new uses of the computer for writing literature, though his work’s relationship to the computer is not as visible as *afternoon’s*. While Danielewski’s assertions about his novel being designed for print have been both quoted and questioned, what most criticism has not taken into account is that Danielewski could write for a computer without necessarily being conscious he was doing so. Danielewski asserts that he wrote parts of the novel in longhand and designed some of the complex textual layouts in pencil; he did not write with a computer—except for the months he spent typesetting the novel in the publishing house. He also did not write for the internet—except for the book’s initial publication as a set of PDF files.

Writing in the mid-to-late 1990s, Danielewski had access to textual technology so advanced he could use it without creating a homology between the work’s form and the technology responsible for its production and distribution as *afternoon* does. *afternoon*, a hypertext, emphasized the evanescence of digital text and how the computer enabled linking sections of text. The technology *House of Leaves* used was designed to render print conventions
as transparently as possible: the typesetting software was designed to produce physical printed pages, and PDF reproduce the appearance and convention of printed documents. Likewise, posting PDFs on the internet arguably does not materially change the appearance of the document, at least not as drastically as converting the same document to a hypertext would. Even as Danielewski planned some of the novel’s more complex typography in pencil, he could draw with confidence that his layouts could be reproduced accurately by typesetting software or scanned PDFs. Danielewski remediated hypertext conventions into print knowing that those devices that relied on a complex textual layout could be represented in software. Danielewski’s casual dismissal of the fact that he initially distributed the book via the web as if that does not represent a different format from print shows how apparently transparent this technology is, and yet also reflects on the role that this technology had to play in his work.

Unlike Joyce, Danielewski’s approach to the computer is that of a user who finds the machine quotidian and almost banal, who has become used to writing documents and sending email and is no longer awed by the technology. House of Leaves exists in a complex media ecology where the computer has not replaced paper as a more natural form of textuality, as hypertext theorists had advocated in the 1980s. Instead, the novel lives in a world where texts frequently shift between digital and print; House of Leaves bears witness to and explores the effects of this change. Therefore, as it challenges deconstruction and hypertext theory and reasserts the need for human connection, House of Leaves also states that even though text may be a large set of linked nodes, those linked nodes exist in subtler ways than we recognize. At its end as in its title, House of Leaves returns to a traditional image of fiction and domesticity.
Conclusion: In Search of Digital Humanities Fiction

The past four chapters have looked to the first century of humanistic computing; in its second century, humanistic computing has grown even further. With Stanley Fish blogging about digital humanities in the *New York Times*, it at last has some mainstream visibility if not yet approval. Though digital humanities is now widely seen as new, if past humanistic computing movements have always followed preexisting theories, does digital humanities follow suit? More importantly, at least for my study, is the question of how digital humanities has shaped fiction. What is the great digital humanities novel to place alongside *Giles Goat-Boy, if on a winter’s night a traveler, afternoon, a story*, and *House of Leaves*? This conclusion will offer some gestures toward answering that question; I feel, however, it is still too soon in the second century of digital humanities to offer a sweeping conclusion on the entire subject. The diversity of approaches in digital humanities scholarship has prevented it from becoming a unique source of inspiration for literary writing as happened with earlier movements.

Inasmuch as the growing role of computer technology and its proliferating and ephemeral forms have provided fertile material for authors in the 2000s to examine, the use of technology in humanities research has attracted very little attention in fiction of that decade. The novels I have treated in these four chapters have an enduring critical reputation, but the 2000s seem not to have produced any such comparable novel. Both computing technology and the state of the humanities interest current authors, but their intersection in the form of the humanistic scholar character who uses a computer is rare in contemporary fiction.

One of these rare examples is Chip Lambert, one of the three protagonists of Jonathan Franzen’s *The Corrections*. Fleeing a job as a literature professor after a sex scandal, Chip—
whose name suggests a connection to the computer—unwillingly and unwittingly acquires the lucrative but high-pressure position of a consultant for an Eastern European nation. The way he acquires the job demonstrates his ignorance: manipulating him into taking the job, a friend asks Chip if he knows Java and HTML just before introducing him as a high-powered computer consultant who was discussing the two then-new and highly-visible programming languages. Because the clientele to whom Lambert has just been introduced know little about computers themselves, they are in no position to question his authority. Though manifestly unqualified, he fakes his way through the novel by pretending to understand a computer, allowing him to appear as a source of information that his employers cannot question or verify.

Before acquiring his ill-gotten job, however, Chip’s scholarship is fairly conventional poststructuralist literary research. His former life as a professor had little to do with computing; this is more of a satire of contemporary business practices and technology than academic computing. The only significant link between computing and postmodern humanities scholarship in *The Corrections* is their complexity: Chip gets his job because he knows how to make things up. Humanistic computing seems to be the furthest thing from Chip’s, or Franzen’s, mind; it certainly does not inspire either character or author to reflect upon questions that digitization poses about the nature of language. While Danielewski, for example, used page design software to produce three novels with experimental textual layouts, Franzen made his preference for accessible fiction known by publishing a controversial essay condemning needless formal experiment, “Mr. Difficult”.

As much as he takes aim at contemporary humanities scholarship, however, Franzen is also firing a shot back at Neil Stephenson’s *Cryptonomicon*, an 1100-page tome that lionizes computer programmers as heroes analogous to World War II soldiers. While elevating dot-com
entrepreneurs to the level of the Greatest Generation, Stephenson spends a number of pages belaboring the insecurity, hypocrisy, and intolerance of humanities professors in a California college town, and praising the conventional, steadfast values of hackers and soldiers. The minimal intersection between the two groups is embodied in an empty critique of the Internet by a pompous academic. This academic criticizes power relations he imagines to be embedded in the technology. He speaks mostly from ignorance, much to the irritation of the novel’s protagonist, a hacker present at the same dinner. Stephenson’s self-conscious political incorrectness proclaims that technical knowledge and open-source software will save the world and that computers offer greater insight into human character than the humanities themselves.

_Cryptonomicon_ pays little attention to the craft of writing: his novel includes a brief, heavy-handed, and unanticipated mention of the Holocaust to give his themes moral weight and relies almost entirely on flat stereotypes for characters. Stephenson’s novel deprecates writing, humanistic values, and the humanities themselves; he is not keen to grant the humanities any relevance or to understand them with any subtlety or insight. Despite their differences, however, both Franzen and Stephenson perceive a lack of productive coexistence between computing and the humanities. As Jay Clayton and Mark McGurl have shown, Stephenson writes either to question, or flat out deny, hope for convergence between the two cultures (J. Clayton 207; McGurl 126).

Others have written on the same theme. In the same article in which he addresses Stephenson, Clayton surveys a number of other authors, including Tom Stoppard and Richard Powers, whom he interprets as hoping for more convergence, but none of these authors seems to have any particular knowledge of humanistic computing. The one novel Clayton cites that actually contains a humanist using a computer is Powers’ _Galatea 2.2_, a story about a novelist
and a computer scientist who try to train an AI as a literary critic. No such project has ever been attempted, as far as I am aware; if the past is any indication, generating an AI literary critic would be too general a project to interest most literary scholars, who tend to focus more narrowly on specific authors and periods. Such work seems even beyond the hopes of the Cybernetic Humanists in the 1980s. *Galatea 2.2* quickly becomes a story of psychological transference, as the newly-single narrator wants to see the computer as a human being to replace his lost relationship. In other words, the novel is more a story of cybernetics than humanistic computing. The novel asks “Can the computer be a human being?” rather than “what can the computer tell us about language and literature?” N. Katherine Hayles has little trouble slotting it into a characteristic work of science fiction in the third wave of cybernetics.  

Despite treating relevant themes, these three novels have little place in the discourse surrounding humanistic computing, even as illustrative anecdotes or sources of allusions. One story that does serve these purposes more frequently in contemporary academic writing is David Lodge’s *Small World*. *Small World* features a scene in which the novelist Frobisher encounters a group of scholars who have generated word-frequency indices to his work. Told that the word he uses most frequently is “grease,” Frobisher becomes so self-conscious about using that word that he can no longer write. In Lodge’s story, humanistic computing seems antithetical to literature, but one wonders if Lodge knew much about humanistic computing. The computer seems mostly to be a focal point for anxieties about analysis inhibiting the writing process for writers who see it as transparent self-expression. Furthermore, the word-frequency indexes *Small World* describes are no longer the vanguard of humanistic computing, having been developed about twenty years before the novel was published. Lodge only devotes a few pages to this scene—Frobisher retells

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96 See Chapter 10, “The Semiotics of Virtuality: Mapping the Posthuman” in *How We Became Posthuman*.  

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it as an anecdote—and it serves just a small role in the novel, but its reputation outshines the novel’s actual narrative. Oddly, *Small World* is almost thirty years old. Of a novel that is entirely academic satire, this one scene persists in contemporary discourse, even though computerized reading has changed dramatically since the 1980s.

Why have no fables with as much potency emerged in recent years? Perhaps this is because the digital humanities inspire less speculation now than they did then. Certainly, there are still great things to be done, but the goals of digital humanities are more accessible and less threatening than those of earlier humanistic scholarship because computing is more common. Our dreams are being realized: to measure the world’s attitude toward a specific topic, we can mine tweets; to read millions of books at once, we can search Google N-grams. Not only is the data available, it is also free. Fiction authors have less to investigate and criticize among digital humanities because companies themselves make these methods available as indirect revenue sources. While technology grabs the attention of many authors, Google, Facebook, and Twitter are bigger targets than digital humanities; humanistic computing might fall by the wayside because its research methods are not too radically different from those that the private sector uses.

As a result of the proliferation of technology, humanists have many choices and many venues for research. Digital humanists generally have not felt the need to take control of a new technology for humanistic purposes as they did with hypertext theory. When the web became the standard platform for information delivery, it became easy to create article databases to distribute conventionally-published documents. While actual efforts have attracted criticism for implementation deficiencies (such as Early English Books Online omitting certain portions of

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97 For example, see Mark Liberman’s Language Log, Deborah Friedell’s essay “The Word Crunchers” in the *New York Times*, and a number of other allusions around the internet.
texts), almost no one would argue that granting larger access to such texts is intrinsically a bad thing. Likewise, as much as critics debate the merits and dangers of social media, few people take aim at the social reference management software Zotero for those same reasons. The World Wide Web allows many uses of the same fundamental technology to coexist; it is a wide variety of competing practices that frequently coexist in spite of their differences.

In contemporary digital humanities, earlier humanistic computing methods persist, but new practices are emerging. One of the key differences is that digital humanities is no longer neither simply quantitative, as Literary Data Processing and Alinei’s work were, nor mostly poststructuralist, as hypertext theory was. The varying practices of contemporary digital humanities are far more diverse than earlier humanistic computing practices. Digital humanities research has a broad palette of theories from which to choose, and scholars often do not claim theoretical allegiances for their methods. Quantitative analysis still has its adherents, but its contemporary manifestations are far more complex. Different research methods have emerged as well, which rely on different uses of computers for providing access to information.

This diversity is apparent from any survey of contemporary humanistic computing. Quantitative literary scholarship has enjoyed a resurgence in recent years under the auspices of Franco Moretti, the Stanford Literary Lab, and other scholars and centers. In *Graphs, Maps, and Trees*, Moretti argued for “distant reading” of literature: analysis at a large scale to discern patterns not visible from close reading. From this, he has arrived at interesting conclusions, such as that literary genres have a maximum lifespan of 40 years, and that 18th-century English novels’ geography show the increasing sense of a national identity as manifested in their characters’ journeys around central England. Moretti’s work is quantitative, but emphasizes content analysis more than form. He uses computers to draw his graphs, maps, and trees more
than programming the computer to find the patterns itself. Moretti’s work looks little like the earlier work of Literary Data Processing, which counted words and focused on style as a matter of authorial identity; he does not share Parrish’s hope of precisely quantifying authors’ styles, or Dearing’s hope of improving texts.

Moretti’s coworkers and graduate students at the Stanford Literary Lab similarly emphasize content over form. In Ed Finn’s “Becoming Yourself: The Afterlife of Reception,” Finn examines the literary reputation of David Foster Wallace by data-mining Amazon.com reviews and diagramming the other authors to which these reviews compare Wallace. As quantitative as his standards are, Finn remains aware that he is focusing on a social question of reputation, rather than empirical, essentialist notions that apply more widely to all authors. Quantitative analysis is not essentialist in either of these papers; Finn simply makes an argument about how Wallace’s readers have read him, rather than how readers read all literature. The scale of his ambitions is restricted to a few authors and though one might extrapolate from his theories, he does not readily do so and pays careful attention to differences between authors; in a 2011 conference presentation, for example, he drew a very different picture for Wallace’s contemporary Junot Diaz (Finn, RWI).

Even digital humanists who engage in large-scale algorithmic reading tend to practice content analysis more than formalist analysis. At the 2011 MLA Convention, Sarah Allison presented a paper that analyzed particular sentence structures in *Middlemarch* that indicated the presentation of moral judgments. Allison discovered these sentence structures using software for automated part-of-speech tagging, a solved problem in computational linguistics. Computing helped Allison analyze the novel’s attitudes toward morality, and this form was again not the target; though this work identified certain forms, it explored the content of George Eliot’s moral
judgments rather than her style.

One final example of digital reading is the work of Cameron Blevins on the diary of Martha Ballard, a midwife in eighteenth-century Maine. In a series of blog posts, Blevins used the topic modeling software MALLET to find clusters of associated words in the diary. MALLET uses a statistical method called Latent Dirichlet Allocation to find clusters of worlds that occur together and likely describe the same idea; for example, “money,” “account,” “credit,” and “change” refer to banking. MALLET yielded some surprising discoveries, such as that a significant amount of the communications Ballard reported concerned deaths, and that Ballard frequently used the word “author” to refer to her God. Such a reading became clear, as a recurring phrase was “author of all my mercies.” MALLET is not a substitute for, but a supplement to reading; Blevins’ work demonstrates that statistical methods can discover patterns not apparent to the human eye, mixing both close and distant reading practices.

The computer is also more than a tool for algorithmic analysis. The varied uses of the computer in literary and linguistic studies have enabled digital literary studies that do not rely on analysis of text. Using archives of digitized 19th-century periodicals, Ryan Cordell has explored the publication record of Nathaniel Hawthorne’s “The Celestial Railroad.” With these databases, he was able to map the different locations and periodicals in which it was published, most of which were in denominational publications. The varied publication venues suggest that the editors published Hawthorne’s satire of contemporary Christianity so eagerly because they read it as targeted at other sects, not their own. Cordell suggests that Hawthorne’s recorded complaints about his lack of renumeration from the tale had as much to do with readers’ desire to misinterpret him as money; the majority of readers did not see his work as targeted specifically at their beliefs. He ballasted this argument with demographic data: it showed that journal editors in
areas without a strong presence of one denomination over another tended to reprint “The Celestial Railroad.” Cordell argued further that periodical editors printed the text for “missionary purposes,” to quash doctrinal dissent by accusing rivals of theological laxity (slide 19).

As much as it is easy to imagine that bringing computers into literary studies will emphasize rigid quantitative analysis that leads to reductive empiricism, digital humanities is much more sophisticated than earlier humanistic computing. While Parrish and others at the Literary Data Processing conference dreamed that digitizing all texts would lead to setting quantitative measures of style, Moretti, Allison, Finn, and Cordell demonstrate a present in which all texts can be searched and analyzed in different ways, but still interpreted by human beings. The computer is part tool for analysis, part repository of information, and ultimately provides another route into that data—one that a human being could possibly do him or herself, given enough time, but the computer facilitates the process.

My point in describing all of these projects is to demonstrate that there is no one central theory that underlies all current digital humanities work because there are so many different kinds of digital humanities projects. While digital humanists produce some of their own tools, they also repurpose tools developed in the private sector to explore humanistic questions; here, I have mentioned automated textual analysis, statistical language modeling, textual databases, social media, and Geospatial Information Systems. The relationship between the tools’ original purposes and the researchers’ methods cannot be easily defined. It is not as simple as saying that the computer implements a preexisting theory; right now, tools and theories co-evolve. Because digital humanities is not a unified school with homogenous methods, digital humanists cannot be said to approach particular technologies with a unified theory or set of goals.

Perhaps the methodological turn is different from Literary Data Processing in that it has
still not moved too far away from the theoretical turn, and yet there are digital humanists who
pursue some of the same projects. Most digital humanists still operate under poststructuralist
assumptions: the non-transparency of signifiers and signifieds, and the idea that literature is a
socially-constructed object. We have not really left theory behind if we have absorbed its lessons.
And yet, in many cases, these poststructuralist assumptions coexist with attention to method and
quantitative analysis.

Methodological diversity, however, is a strength of the current state of digital humanities.
While many projects have roots in earlier methods and theories, no dominant theory is winning
out at the moment, which sets a precedent for productive variety. In large part, the benefit of the
hindsight toward previous movements is best expressed in the debates over what counts as digital
humanities. That is a question I do not want to see answered in too much detail, and I imagine a
lot of other digital humanists do not, either. The desire for textual precision was one of the
Achilles’ heels of Literary Data Processing, which limited its appeal; keeping the meaning of
“digital humanities” general and inviting allows innovation and disciplinary diversity. Therefore,
we might look ahead with anticipation toward the future. Fiction authors have taken humanistic
computing as their subject when the discipline has been overtaken by a single dominant theory
that puts too much faith in the computer as an arbiter of facts or taste. Perhaps the diversity of,
and relative ordinariness of methods in, digital humanities will lead novelists to reflect upon its
contemporary concerns, such as the relationship between the academy and the private sector, or
the sense of wonder in discovering new dimensions to a text with statistical models.
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