ACLA Presidential Address

Candide in cyberspace: Electronic texts and the future of Comparative Literature

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I'd like to do something a little adventurous today. Rather than talk with you about research I have already accomplished, I'd like to speculate about research I am just embarking on—and a topic that I think will figure prominently among those issues that shape the future of Comparative Literature.

Ironically, if there was ever a talk that should use technology, it is this one. And I was going to begin by showing you a short video clip—but fulfilling all my fears about technology, the clip has been pulled from YouTube by the original Norwegian television comedy show that produced it. I have decided therefore to do things the old fashioned way. So let me resort to good old venerable narrative to describe the video to you. Some of you may already have seen it. It was titled "Introducing the Book."

The scene opens with a nervous medieval monk, Ansgar, sitting at his wooden work table with a leather-bound volume lying closed before him. He peers anxiously at the book and awaits his colleague, Holger, who enters and says reassuringly, "well we all need help with a new system." He asks Ansgar if he has opened the book yet. Ansgar replies that even he has gotten that far—this wouldn't have required him to call for assistance from the monastery's "Help Desk." Ansgar explains that he was afraid to do anything more than open the

book for fear of losing text if he made a mistake. He asks for a demonstration. Holger patiently opens the volume and reveals the script inside. Ansgar frustratedly points out that the text just stops in mid sentence. Holger then explains "turning the pages" and that one can even turn them back to read again. An amazed Ansgar says, "Oh the text continues as you turn!" and practices turning while commenting that scrolls were much easier to use. Holger demonstrates closing the book and assures Ansgar that all the text is still safe inside. Ansgar, to be sure he has mastered the mechanism of the book, runs through the whole process of opening the cover and turning the paces once more—only to be confounded again by closing the book in the opposite direction and consequently being unable to reopen it.

What is most humorous here is how quickly most of us see ourselves as Ansgars at our computers afraid to touch anything lest we too lose our text. We may not be medieval monks, but we certainly feel archaic and not too many steps from wishing we could return to the scroll—or at least to the physical, printed book. In this paper, I would like to explore some of the implications of electronic texts and the internet, for our practice of Comparative Literature. I will not attempt to provide a sophisticated discussion of the technology or programming themselves—which my techno-savvy colleagues like N. Katherine Hayles could do much more effectively. Rather I would like to come at this issue from the other direction, the direction of the technologically naïve reader trained in old-fashioned theories of analyzing literary texts--theories such as close reading, structuralism, post-structuralism, historical and cultural contextualization.

I will examine this issue as a Candide in cyberspace in hopes of envisioning what changes computers and the internet might present to parallel that movement from scroll to bound text that so vexed our medieval friend Ansgar.

My own curiosity about cyberspace was piqued when I stumbled onto the internet while working on a book on Klytemnestra. Unlikely as it seems, I discovered a remarkable array of eponymous websites for various members of the House of Atreus--including: Electra.com, Iphigenia.com, and Orestes.com. Agamemnon.com was still available to be purchased from a website designer group when I first checked in 1999. By June 2000 the site had become Agamemnon Film, owned (appropriately, I think) by Charlton Heston and his son Fraser. I was fascinated to see the interaction between classical culture and cyberspace and wondered how the internet and computers would soon affect more than just my research projects.

In the past few years, our thinking about our world at large has been redefined by the ubiquity and indispensability of computers. Even the most established print news magazines such as *Time* have incorporated internet and computer vocabulary. The section that used to be called “Letters” is now labeled “Inbox” and the old “Notebook” has become “Dashboard.” Indeed, *Time*’s “Person of the Year” issue in January 2007 featured a cover picturing a computer with a mirrored screen that reflected the reader’s image. The “Person of the Year” was anyone who had entered the “information age” defined by computers and networks.

And this may not have been a bad choice. Not only are our students more likely to seek information on the web than anywhere else, but even those of us raised to love libraries and fingering our way through the old card catalogs are likely to turn to the web when we need information instantly. When students want to know about a book, they refer to blogs or to facebook for comments. *The Chronicle of Higher Education* took up this issue in a piece entitled “Lit-Blog Wars” in which Daniel Mendelsohn, a winner of the National Book Critics Circle Award, says that he is especially proud to receive recognition from knowledgeable judges “in an era in which anyone who owns a Dell laptop is a published critic.” [1]

We are faced with what has often been called a democratization of culture—a world in which each of us (and millions of others) can become instantaneous creators, consumers and critics of texts, art, and music. And along with democracy comes several challenges to authority of all kinds—including our own as teachers and as theorists. The real problem for those of us whose profession is the study of literature and culture is what status all this new electronic material has for us. When anyone who owns a laptop can publish, if by publish we mean make his or her work available to a very broad audience, what is our relationship to all this material? How do we deal with the ephemerality of much electronic material? How do we not just conceptualize but interact with a burgeoning electronic culture that seems more and more unavoidable not just in everyday life but in our professional lives as well? In this

democratization, will any critical judgment survive? How do we even define chaff in this system, let alone separate it from the wheat?

The issues I am raising here regarding electronic media and literature are obviously not new ones. A wide range of individuals and organizations have been studying them for some time. Critics such as N. Katherine Hayles,[2] Mark Poster,[3] George Landow,[4] Marie-Laure Ryan,[5] Espen Aarseth,[6] and Mark Hansen[7] (among many others) have written about electronic media and its relationship to literature; and organizations such as The American Council of Learned Societies have produced volumes exploring cyberinfrastructure for the humanities and social sciences.[8] Even the creation of new texts through writers' workshops has turned to the electronic. Online projects such as The Frontlist (thefrontlist.com) or Francis Ford Coppola's "Zoetrope: All Story" create virtual writers communities to critique one another's work in progress.[9]

What has changed—at least for me—and I will argue for Comparative literature as a whole is that these are no longer areas I can avoid. My own research, teaching and much of my academic service on campus, is caught up in the electronic one way or another. Whether it is committees considering how to assure the security of the campus backbone while allowing free scholarly interchange among professors working together over long distances, or students producing references that turn out to be chat rooms in courses at other colleges, or my growing interest in electronic poetry and hyper texts, the electronic has crowded my professional horizon with structures I had thought I could evade.

The repercussions have filtered into all aspects of my life as a

comparatist. In my teaching, for example, when an undergraduate wants to introduce me to a brilliant new writer, the reference she gives me is likely to be a website rather than a printed book. Young authors publish in cyberspace on their own websites, and while some of this material is superficial, some of it we would indeed all recognize as “literature.” This material has sophisticated narrative structures, fulfills our familiar set of expectations about how stories work, and uses recognizable poetic forms, tropes, allusions and imagery. This fact made me question my own skepticism about electronic literature.

Why did I think that work in cyberspace could not be literature simply because it existed in a virtual form rather than the old familiar printed one? Why should this work be less valued because it was on a website—where probably hundreds if not thousands more people might actually read it--than if it were printed by a small literary press for a group of literary connoisseurs? A growing discomfort with my own assumptions and limitations made me think more deeply about what makes something “literature,” about how we might have to realign our methodologies and theoretical assumptions to accommodate new forms of literary activity, and about what that all might mean for the discipline of comparative literature.

Let me provide one further example of how new technologies might force us to rethink our paradigms. In a doctoral examination, we were discussing how the construction of narrative texts is similar to the construction of computer programs, how the operations that drive narrative might also drive the programmer at some deep level. The doctoral candidate, who was a superb

reader of literary texts, was also an electronic game designer who had a thriving business creating sophisticated computer games.[10] The question arose as to whether such computer constructions could rise to the level of what we think of as "literature." Half of my colleagues on the examining committee were adamant that this was not possible, that electronic texts and internet material would never qualify as literature. However, the doctoral candidate pointed out that such games were inherently narratives and that our assumptions about how narratives should work were needed to construct the programs that underpin these games. It was not just a question of technology changing literature, but also the reverse.

The material embodiment of the text on a disk or in cyberspace discomfited some of us. However, the move from oral texts to printed pages might have been a similar technological shift, but literary texts predate and postdate the printing press. Does the amount of visual material in these texts disqualify them as literature? We have always had illustrated texts in which the illustrations play a crucial role in our reading (medieval illustrated manuscripts, for example, or illustrated novels or poems, not to mention the current development of graphic novels). It was not, therefore, the physical condition of the "text," the move from what my computer-savvy students now call a "codex" text (by which they mean any text printed in a book form) to the computer disk or to the internet that called into question the literariness of the work.

The physical condition of texts has shifted several times—as our little story of Ansgar and Holger reminds us-- from oral to written, from scroll to book, from hand penned manuscripts to set type, from set type to photocopies and now

to digitalized documents. The physical embodiment of the text does not define its “literariness,” but it does trigger different techniques of composition and reception. When we move from oral to written texts, we need fewer fixed epithets and repeated lines and phrases than an oral teller would require to remember his story. Fixed, printed texts also allow us to go back and reread, to discover subtle repetitions that affect our understanding and interpretation. We have a stable, printed artifact from which we can derive many interpretations that we can then debate by referring to that printed artifact. One question we need to ask, then, is what differences an electronic environment creates for the compositions and reception of a text?

Another issue electronic texts present is that of “control” in the text. How much is the text controlled by the author and how much by the reader or, more complicatedly, by the computer programmer? Does the fact that the reader of a hyper-text constantly makes decisions that shape the action make it inherently different from a literary text or invalidate it as literature? Some printed texts allowed the same latitude-- Julio Cortazar’s Latin American text *Hopscotch*, for example, or Mark Z. Danielewski’s *House of Leaves*?[11] Does the interactivity itself make the work non-literary? Or does it take us back to a time when a live audience might call out to an oral teller that he was telling it all wrong and therefore might actually change the telling?

Let me explore these questions by describing my first experience with a hypertext volume. I bought Shelley Jackson’s *Patchwork Girl* [12] at the suggestion of one of my computer-gifted graduate students. From a literary standpoint, this

hypertext clearly belongs to our familiar literary critical universe. The novel is rich in allusions to a specific earlier text, Mary Shelley's *Frankenstein*. It participates in the feminist strategy of creating revisions of earlier texts[13]—in this case, it makes the monster female and gives both Mary Shelley and her female creation a voice. The narrative also incorporates pieces of texts from both male and female literary critics as well as giving the author, Shelley Jackson, a personal voice that surfaces in the text. So far we are in familiar feminist and literary territory. And much of what the novel accomplishes could be examined from these traditional perspectives. What makes the novel substantially different from other revisionary texts by contemporary women writers is the experience of reading itself. This experience begins with a vacuum wrapped CD.

I spent some time loading the CD onto my computer and becoming frustrated at being forced to wade through electronic instructions and "readme" files before I could get to the "real" narrative. It struck me in the process that it was precisely the narrative I was dealing with, but that its materiality had changed drastically. The narrative now at its most basic was not words—or even phonemes—but rather brief electrical impulses that were at such a deep level that my sensory equipment could not even process them. The tactile quality of a "codex book" gave way to a more abstract engineering and mathematical coding that was beyond or beneath my perception. A layer of programming and a type of software called "Storyspace" provided a deep "structure" for the narrative before I read word one.[14] This immediately broadened my vision of "structure" in the more familiar narrative sense. It also made me aware that any discussion of

genre for this text would have to include types of software and programming as well as types of literary narrative.

After finally installing the text, I began to read—or rather to double click on icons that held mysteries I had no way of anticipating. The reader of a hypertext moves through the narrative by being given a piece of text or illustration that is connected to one or several "links" that the reader can choose. Each choice begins to create a narrative strand that has the possibility of branching each time the reader makes another choice of links (which occurs after about one page of text or illustration). One opening page may thus lead to hundreds of possible narratives. Instead of being the comfortably trained reader of texts with a set horizon of expectations, I truly became a Candide in cyberspace, naively moving from adventure to adventure with the click of a mouse—and experiencing Candide's dumbfoundedness at how the world beyond my personal experience functions. While engrossed in the narrative, I was also in awe of the technology that could deliver it to me in such a non-linear and interactive way.

My first impulse when I began to find actual pages of text in *Patchwork Girl* was to print them out as hard copy. Having grown up on structuralism, I wanted at least a minimal stability in the text so that I could trace the meanings created by juxtaposition, repetition, and variations within patterns. From my earlier work on multilinear novels that followed several narrators, plots or motif strands, I was prepared for multiplicity and non-linearity.[15] I was not prepared for the inability to track the same pattern more than once. I eventually learned that I could save an individual "reading" for future perusal, but that did not solve my problem. It simply made it faster to find again one of the many branching paths

of the text that one might choose during any given reading. The site map was not really a blueprint to a stable arrangement but rather a dizzying series of possible choices—each of which created a slightly or hugely different narrative. I wanted desperately to stabilize this chaos into a hard copy. But I would need to interleaf so many different options that my narrative would again multiply into so many possibilities that Deleuze and Guattari's image of the rhizome would hardly cover it. What was a reader to do with narratives that kept opening onto other narratives and characters—some of whom I had not met earlier on or would not find again?

I was reminded of Hayden White's admonition (echoing Foucault) in *Tropics of Discourse* that " [. . .] if the present generation needs anything at all it is a willingness to confront heroically the dynamic and disruptive forces in contemporary life…. we require a history that will educate us to discontinuity more than ever before; for discontinuity, disruption, and chaos is our lot."[16] Perhaps this new hypertext narrative answered White's call in very concrete ways. It recalls White's stress on the fact that history is a chosen narrative, a conscious construction among many possible constructions.[17] This echoes the way in which N. Katherine Hayles discusses *Patchwork Girl.*[18] She points out that this hypertext's linking of intense present moments "reverses our usual sense that time is passing as we watch. Instead, time becomes a river that always already exists in its entirety, and we create sequence and chronology by choosing which portions of the river to sample" (section 48 of her essay). In effect, we become the shapers of the narrative (equivalent to White's historian) in each link we select.

All of this made me reconceptualize what I thought of as "reading." I would need to think of it more as exploration than as analysis of a stable (even if

multilinear) novel. The act of reading was becoming irresistibly interactive. The hyper-text did not unroll in time; it sat there and made **me** choose the direction and duration of that unrolling. It was like reading a *Tristram Shandy* in which all the many promised narratives were not only provided but multiply illustrated, fragmented, reassembled, extended into near infinity and then piled on top of one another. Reiterability, structural stability, and the meaning I was used to deriving from them became frustratingly impossible. Backtracking led to new options rather than allowing me to reaffirm an interpretative move. I would begin to admire a page of prose only to have it end and force me to choose among several narrative strands. I had no way of charting the narrative in advance or jumping back to earlier passages as I read on. A narrative line following Mary Shelley's experience of piecing together her female monster suddenly opened on to Shelly Jackson's piecing together her own narrative from bits of her own voice, as well as that of an imagined Mary Shelley, the monster she creates, and many other feminists, creative writers, and literary critics. This gesture recalls the listing of the authors on the text's title page as "Mary/Shelley Jackson and herself." (The "herself" here is the patched together female character.) The sense of author, character and reader here is multiple and crossing just as the text itself is.[19]

I was rapidly forced to understand that this kind of "reading," like playing an electronic game, was not meant to end, was not an act that would stop when I got to the final pages of a bound volume. The next time I opened the hypertext, I would be in a new universe of juxtapositions and therefore meanings. "Reading"

this "book" was not going to allow me even a very multivalent "closure." For a mildly compulsive interpreter of literary texts, this was a new experience. I didn't mind open-endedness, but this was open beginning, middle and endedness.

I had to confront the many critical concepts in my own thinking that were making this experience a frustration rather than a joy. First, my assumptions about "genre" were undermined. Many different genres (novel, essay, sociological and biological texts, fictitious personal journal, drawings) merged in this hypertext. That wasn't so unusual; many of the multilinear novels I had worked on (Döblin's *Berlin Alexanderplatz*, for example, or Joyce's *Ulysses*) used similar strategies. The same was true for the multistrandedness of *Patchwork Girl*, but the number of strands possible in the hypertext was greatly multiplied—and they refused to provide me with a platform for saying "aha, this juxtaposition of two scenes or strands 'means' such and such." I was forever creating new juxtapositions, being forced to create myriad new structures and meanings. It was an embarrassment (and annoyance) of riches. Why did I find the challenge of reading very complicated codex texts enjoyable while being aggravated by the hypertext?

One of the problems for me was the concept of a narrator—either reliable or not—a guiding consciousness that could lead me through the lexias of the text deciding what to reveal at any moment and what to withhold, the shaper of the story.[20] But I realized that it was I who was moving through the lexias, deciding which information would surface at any given moment, but not because I was purposely creating suspense or meaning. My clicking on links may have been a

performative gesture, but not one I could control. I was moving blindly through lexias I had never seen and could not anticipate with the help and guidance of a machine, a cyber consciousness not a human one. Narration becomes not the interaction of my consciousness with that of the author or his/her narrator, but an interaction among me, the author, the machine, and the programmer—the last two of whom cannot have had intentional control of the process of creating meaning in this text. Lyotard's words from *The Postmodern Condition* were echoing through my mind: "the narrative function is losing its functors, its great hero, its great dangers, its great voyages, its great goal. It is being dispersed in clouds of narrative language elements [. . .]." [21] How did I get dragged into the process not of interpretation, but of composition itself? This was not just a metaphorical complicity, but a mechanical one as well. My nostalgia for even an unreliable narrator was overwhelming, and yet the excitement of interacting in a new kind of narrative adventure was nevertheless irresistible.

Most disorienting, however, was my inability to get at a concept of "wholeness" and unity in the experience of reading a hypertext. I can revel in the multiplicity, multivalence and fragmentation in novels by Faulkner or Sterne because I feel that I have some control over their totality, that I have "read the whole book." If I have not "mastered" the text, I have at least gotten pretty com-fordable with all its oddities. But in this reading universe, I come to a new text every time I sit down. I suppose it is conceivable that eventually I could follow every possible arrangement for the text, but even then I would have no stable record of it. This was a wholeness and unity that had to be tied to each act of

reading; the narrative as a whole couldn't be exhausted. It was theoretically finite (i.e., there are a set number of small pieces of text, or lexias), but practically endless. This hypertext is like its female monster, who forms a wholeness built up of many disparate parts and lives, who is a composite of body parts that themselves are tied to the narratives of the humans to which they belonged. In a world that cruises the Internet by gobbling up random bits of information, by jumping among many small lexias, Shelley Jackson creates a text that shares in this habit of mind. It is built of discontinuities. Lyotard might appreciate its aptness for our time.

But Jackson also works with continuous flow. The many discontinuities are linked by the reader's constant movement among them. It is the process of movement that becomes the point. For Jackson it is the flow itself that creates meaning and literary value. Wholeness and unity consist ironically of discontinuity and flow for Jackson. The speed of the electronic medium keeps the narrative blood flowing in her story. The sites the reader does not follow in any given reading remain skeletal. We must, in essence, keep reading to keep the narrative alive. In so doing, we are forced as readers to play the author's narrative game according to the author's deep-structure rules. We cannot play by our old literary rules and retain our old literary expectations.

And yet we eventually revel in participating in the endless flow, in rethinking structure as constant process of inconstant fragments, in experiencing an aesthetics of instability or "open suspendedness." We become ourselves "patchwork girls." We are forced to rethink both our aesthetic categories and our

own identities. This rethinking of ourselves also leads to a rethinking of the practice of Comparative Literature. We begin to understand that hypertexts demand a new kind of interdisciplinarity--not the familiar comparisons to art or history or film, but ones that will require interaction with computer science or engineering. We might need to understand programming language as well as literary language or to adapt our internet browsing techniques to critical analysis. We will certainly be challenged to allow the machine more and more into our cultural sphere since it is so heavily involved in the production of art and literature.

Indeed, hypertext technology is already “old” and is being upstaged by algorithmically created poetry and communal creative writing sites. Let me give you just a few examples of these new texts. Consider the following haiku:

> Crazy moon child
> Hide from your coffin
> To spite your doom.[22]

Most of us would judge this to be not a bad little poem. It taps into several familiar images of impending death--the moon, the coffin and doom. It is in a recognizable poetic form and makes a condensed but decipherable narrative sense. The surprise comes in learning that the author of this poem is Ray Kurzweil’s Cybernetic Poet--a machine driven by a program. Kurzweil analyzed the work of several contemporary poets and created algorithms that would generate similar linguistic structures and usages. As the website explains:

> Version 1 of Ray Kurzweil's Cybernetic Poet was written by Ray Kurzweil in the mid 1980s (in "C") and is described in Ray Kurzweil's

> book *The Age of Intelligent Machines* (MIT Press 1990) …Version 1 of RKCP was based on simple markov-like models (markov models are mathematical models similar in some respects to neural nets) to create language models of how the analyzed poets used words and word sequences, and then to write original poetry using these models. [23]

In short, we are reading a haiku produced by complex algorithms programmed into a machine. In a test of audience responses, Kurzweil read 15 poems and asked the listeners to decide if the poems were written by human beings or by machines. The audience was correct less than 50% of the time. Critically, then, it is difficult to tell the artificial intelligence, the cyberpoet, from the human being. Does the fact that the texts are generated by a machine make the poems less literary? Let me provide you with one more example:

> ***Imagine Now And Sing***
>
> Imagine now and sing,
> creating myths
> forming jewels from the falling snow.[24]

Again, this is the Cybernetic Poet. Again, if we did not know this, we would undoubtedly count the poem as literature. It echoes earlier literary texts, (the *Aeneid's* opening line, "I sing arms and the man," for example). Ironically, perhaps, the poem also calls to mind the singer Orpheus, the very image of the human being who makes song and poetry, and who often figures the creative capacity of the human poet. The little poem might even evoke Wallace Stevens's *Snow Man*. The poem is thus securely situated in a context of literary allusion and experiences. We recognize it as a literary piece.

But if it is not the human author in the composition that marks it as literature, what does? Is there a magic inherent in the language itself that creates literature even without a specific human author? Partially. Language has the capacity to generate meaning beyond the control of any writer. Authors profit from this in that they can create texts richer in their many interpretations than the actual author could have intended. This fact gave birth to our critical tenet of the "Intentional Fallacy" as an arbitrary and unfair limitation on the meanings of a text. Poetry, in particular, calls attention to language itself, to its form and condensation, in a more intense way than prose. The metaphor of poetry as dance and prose as walking comes to mind here and is instructive for its emphasis both on the creative activity of language in poetry versus its more pedestrian use in prose and on the highly structured nature of dance versus the uni-directed walking. Poetry is thus the perfect medium for the complexly structured but also creative activity of the machine.[25]

However, I would also argue that this machine-generated poem, spawned by algorithms, still does have an author—or rather authors. The authors are Kurzweil and his programming colleagues whose initial reading experience informs the programs that they write to create new texts that will produce a similar experience for the reader. Partly the language itself, then, but undeniably also the aesthetic experience and the mathematical genius of the programmers/authors. The author has not entirely disappeared; s/he has introduced another layer of formal rules, the mathematical rules of the algorithm

on top of the rules of literary form.[26] The "author" or "authors" are several more layers removed form the final text, but they are there.

The fact that Kurzweil begins with the work of recognized poets to create the poetry generating algorithms links his work irresistibly to the older order of literature. Like the poet whose new text in T.S. Eliot's "Tradition and the Individual Talent" (1919) realigns all the literary texts that precede it, Kurzweil reorders the entire realm of literature by the introduction of his new texts and by their method of composition. He is not, I would argue, outside of literature but rather ineluctably within it. The fact that he creates the persona of the "Cybernetic Poet," does not actually remove the human beings from the process. They simply have a mechanical and a mathematical aid in creating new poems; they are making what Brian McHale refers to as "prosthetic poetry."[27]

Other poetic experiments that take a route less directly connected to the literary than Kurzweil's Cybernetic Poet often produce less obviously literary results. Consider the following poem generated by a website called "Darwinian Poetry."

know though
clouds beating beyond the head
with cold knowledge
that

revealing
one dream is and
was again[28]

Entitled simply “Poem #15286,” this computer generated offering is more of a challenge to our literary sensibility. It was created by a novel experiment in which randomly generated groups of words, are subjected to a form of natural selection in which certain groups of words are eliminated by being voted out by those who visit the website. The visitor to the website, the reader, in effect participates in a group composition that involves no direct contact or discussion among the authors. Once the site visitor chooses a group of words or “poem,” their vote is recorded and two more poems appear culled from the choices of all the website visitors. The assumption of the site is that by a kind of Darwinian natural selection, the random grouping of words will eventually emerge as meaningful poems. This procedure pushes the connection to earlier literary texts a bit farther away.

We could, however, as clever and conscientious interpreters of texts, wrest meaning from this poem. The clouds are often linked to the transcendent as well as the visionary or cerebral. The dream works nicely into this complex. And even the anti-grammatical “is and was again” could be seen as a clever displacement of temporal sense, a disruption of sequence and causality not uncommon in modernist and post-modernist writers. It is more of an effort, but we could see this poem too as a part of our literary universe.

What then is a poor literary critic to do with this new phenomenon? Do we surrender the human and see ourselves in a “post-human” world as N. Kathryn Hales has suggested?[29] Does the creation of texts by machines and

algorithms push us into the realm of artificial intelligence and out of the literary?[30] Actually, I think not. These texts call into question our usual sense of "authorship" and control. If any of us still entertain the idea of individual human genius as the foundation of the poem, we will have to revise our assumptions to accommodate electronic poetry.[31] The authorship in all of these examples is multiple. Either earlier poets contribute style and forms (as in the Kurzweil example), or many minds contribute to the composition of the poem (as in the Darwinian example). Both the author's and the reader's control is loosened by being multiplied among several participants.

This technique is not new, of course, surrealist poets and the poets of OULIPO (Ouvroir de Litterature Potentielle) (among others) have experimented with multiple authors and participants. But electronic poetry adds one more twist; one more formal level is interjected into the creation of the poem, a level that is not evident to the usual literary critical apparatus. Mathematical operations and algorithms control which combination of words may appear in the text. The machine and the programmer operate under limits that are not evident in the surface language of the text. We can recognize the haiku form, but not the mathematical formula that determines which words can appear. On the one hand, this means that the deep structure of the texts can remain obscure. On the other hand, our old assumption that structure can generate meaning in literary texts is given even more depth. In these examples, a deep structure generated by the algorithm itself adds to the juxtaposition of words in the surface of the text to create meaning. As in "normal" literary texts, the position of the words creates

significance based upon our expectations as speakers of (in this case) English. When unexpected constructions occur that are allowed by the algorithm but not generally accepted by our grammar or semantics, we are forced to reconceptualize our normal grammatical world. It is a technique that poets such as Dylan Thomas or Rainer Maria Rilke anticipated by several decades.

In the face of cybernetic poets and electronic poetry, we must also rethink our ideas of overall vision and wholeness in a composition. When the computer is sifting language by the rules of algorithms, it is making small yes or no choices (like the base-two, on/off system on which the computer itself works). Unlike the human poet who may have some overall poetic or narrative construction in mind when s/he begins, the computer must constantly make small decisions. A classical example of this kind of processing was the attempt by computer programmers to create a program that allowed a robot to negotiate its way across a room. After attempting to write long complex programs, they discovered that the most efficient method was not to attempt to program the entire course, but simply to program small local decisions that would allow the machine to make small but relentless progress (for example, the command, “if you encounter an object, turn right”). This process tends to undermine the more humanly familiar desire to convey a feeling or an idea or to share an intense experience through a poem. The lack of this kind of overarching desire on the part of the machine almost makes us yearn for the old fallacious “intention of the author.” The machine is not capable of poetic desire—or at least not yet.

But the mathematical and mechanical participation inherent in electronic poems is much more than the "monkey-at-the-typewriter" idea. This was the argument that if you sat a monkey down at a typewriter sooner or later he would write a story—by virtue of the ability of language to generate meaning. In the cases we have been discussing, the monkey would have significant mathematical assistance. The poems we have examined are not simply random events; a conscious human intellect provides the rules that govern them. It may not be "poetic inspiration" or a "direct outpouring of emotion" but it is certainly a human consciousness or several human consciousnesses at work. And indeed two humanly conceived and constructed art forms—that of literature and that of mathematics—are being employed.

What I thought of as a discussion of "the future" in this paper rapidly became a shifting present. We are constantly being confronted with a new culture in which technology and literature begin to merge, in which science and what we have been used to calling "the Humanities" begin to coalesce. In order to deal with electronic texts comparatively, we must develop a new set of expectations vested in the mathematical models themselves as yet another author, the programmer, collaborates in the composition of texts like these. And to return to my students, some of my graduate students who choose to investigate electronic texts and cyber literature of all kinds (ranging from cyber poetry to hypertext novels) are learning the language of the programmer in order to pursue their investigations; they are learning the language and culture of the machine.[32]

Comparative literature has always been open to interdisciplinary work. That interdisciplinarity will now need to extend to our colleagues in computer science or design or mathematics. The sign system of language will align itself with other sign systems such as mathematics to produce new kinds of texts and new types of "comparative analyses." These will require that we explore radically different cultures that are based not on geography or even a common dialect, but rather on common technologies. I do not believe, however, that we will see the end of literature and of the human. We will still use our interpretative tools to decipher meaning. The text may be multiply authored, and it may use multiple sign systems, but it will continue to create meanings that human beings will continue to explore through literary and comparative analysis.

Endnotes

[1] "The Lit-Blog Wars" from *The Chronicle of Higher Education,* "The Chronicle Review" Vol. 53, Issue 31, p. B4. (April 6, 2007). Mendelsohn was gratified to receive his prize from "people who know what they're talking about." As the article points out, even the techno-savvy editors of the electronic journal n+1 (a semi-annual print journal that provides new material on the web once or twice a week) question blogs about literature as conspiracies by the big publishing houses to get free advertising.

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[2] See, for example, her 1998 volume *How We Became Posthuman : Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago, 1999).

[3] See, for example, Poster's recent *Information Please: Culture and Politics in the Age of Digital Machines* (Duke University Press, 2006).

[4] *Hypertext 2.0: The Convergence of Contemporary Critical Theory and Technology (Parallax: Re-visions of Culture and Society.* (Johns Hopkins University Press, 1997).

[5] The collection edited by Ryan, Cyberspace Textuality: Computer Technology and Literary Theory. (Bloomington and Indianapolis: Indiana University Press, 1999) contains several interesting essays by Aarseth and a number of other theorists.

[6] *Cybertext: Perspectives on Ergodic Literature* (Johns Hopkins University Press, 1997).

[7] *Embodying Technesis: Technology Beyond Writing.* Ann Arbor: University of Michigan Press, 2000.

[8] See *Our Cultural Commonwealth: The report of the American Council of Learned Societies Commission on Cyberinfrastructure for the Humanities and Social Sciences* (ACLS, 2006).

[9] See Evan Hughes article "Slush Life" in *The Boston Globe*, December 31, 2006, p. K2 for a discussion of these sites.

[10] See Ian Bogost's dissertation, "Unit Operations: Criticism after Literature," UCLA, 2004. Despite this title, Ian is intent on showing the interrelationship between technology and literature rather than in superseding literature.

[11] One of my graduate students, Barbara Hui, has a wonderful paper comparing Danielewsky work to the hypertexts *Patchwork Girl.* See Hui, Barbara L. "Hypertextualilty and a New Aesthetic Wholeness: Monstrosity in *House of Leaves* and *Patchwork Girl*." Unpublished paper, March 12, 2003.

[12] . Shelley Jackson, *Patchwork Girl by Mary/Shelley and herself*. Watertown, MA: Eastgate Systems, 1994. Electronic: http//www.eastgate.com.

[13] I examine the use of revisionary texts by female authors in my recent book *Reclaiming Kltyemnestra: Revenge or Reconciliation*, Urbana and Chicago: University of Illinois Press, 2003.

[14] In her paper, Hui argues that this underlying software program creates a work in *Patchwork Girl* that is “surprisingly…quiescent …. It achieves its hypertextuality simply by virtue of the fact that it conforms to the structure encouraged by the software with which it was created. The format of the work is natural to the medium, and the experience of navigating the piece is unnatural to the reader only because the medium itself is an unfamiliar one” (Hui, *op* cit., p. 7). If the reader is an experienced reader/critic of electronic media, I think Hui is correct. For those of us to whom the medium is unfamiliar, the text is rather more challenging—particularly on the first reading. Subsequent readings of this kind of text became easier if not actually comfortable.

[15] See my volume *Pattern and Chaos: Multilinear Novels by Dos Passos, Faulkner, Döblin, and Koeppen*, Columbia, S.C.: Camden House Publishers, 1983.

[16] Hayden White, *Tropics of Discourse: Essays in Cultural Criticism,* Baltimore: Johns Hopkins UP, 1978, 1985, p. 50.

[17] Hayden White talks about constructing historical narrative and the interpretations that that construction implies in several of his works. He discusses emplotment specifically in "Historical Emplotment and the Problem of Truth in Historical Representation" in *Figural Realism: Studies in the Mimesis Effect*, Baltimore: The Johns Hopkins UP, 1999, pp. 27-42.

[18] See N. Katherine Hayles’s extremely enlightening and insightful article “Flickering Connectives in Shelley Jackson’s *Patchwork Girl*. The importance of Media-specific Analysis,” *Postmodern Culture* 10.2 (Jan. 2000). 25 Jan. 2003, www.iath.virginia.edu/pmc/textonly/issue100/10.2hayles.txt .

[19] Among other issues, Hayles discusses issues of gender and composition more extensively than I can here.

[20] Some of the thoughts here were triggered by a talk on “Omniscience” given by Jonathan Culler at the meeting “Narrative: An International Conference,” March 27-29, 2003 at the University of California, Berkeley.

[21] Jean-Francois Lyotard, *The Postmodern Condition: A Report on Knowledge,* Minneapolis: U of Minnesota Press, 1984, p. xxiv. Originally published as *La Condition postmoderne: rapport sur la savoir,* Paris: Les Editions de Minuit, 1979.

[22] This poem was “written by Ray Kurzweil’s Cybernetic Poet after reading poems by Kathleen Frances Wheeler. See the website: http://www.kurzweilcyberart.com/poetry/rkcp_how_it_works.php3

[23] See the website at
http://www.kurzweilcyberart.com/poetry/rkcp_historyofrkcp.php3

[24] A poem written by Ray Kurzweil's Cybernetic Poet after reading poems by Wendy Dennis and Ray Kurzweil and love poems by various authors.

[25] Brian McHale in his essay "Poetry as Prosthesis" in *Poetics Today* 21.1 (2000) 1-32 goes so far as to mischievously proposing that "all forms of machine-generated text" be termed "poetry" and that "all types of spontaneous (i.e., nonmechanical, nonprosthetic) composition" be called prose (27). The suggestion is meant to be subversive and thought-provoking. I would hate, however, to yield all the dancing to the machine and to relegate humans to the walking half of our metaphor. No machine dances without a human throwing the switch—and providing extensive programming.

[26] Espen J. Aarseth discusses the collaboration between humans and machines in the creation of a text in his volume *Cybertext: Perspectives in Ergodic Literature* (Baltimore: Johns Hopkins University Press, 1997). He attempts to tease out the ways in which human interaction with the machine can take place at several points in the process (see 135 following). Brian McHale pushes this analysis farther in his essay "Poetry as Prosthesis" (see particularly 21 following).

[27] We might even think of this poetry as aided by an artificial device, as a human being aided by a mechanical device--or as what Brian McHale quotes David Wills (in *Prosthesis* [Stanford: Stanford University Press, 1995) as characterizing as a "prosthesis." What we are looking at, then, in McHale's vocabulary is "prosthetic poetry." See Brian McHale's "Poetry as Prosthesis, particularly 24 following.

[28] Although I will provide the website here for historical accuracy, when I revisited it on May 6, 2007, it was already gone. Darwinian poetry seems to have given way to some other innovation. The ephemeral quality of the materials I am dealing with here is another challenge to our usual sense of how literature works. The website is:
http://208.28.114.21:8080/poetry/ReportingServlet?action=showPoem&id=15286

[29] See N. Katherine Hayles's book *How We Became Posthuman : Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago, 1999).

[30] N. Katherine Hayles has another fascinating article entitled "Is it Literature—or Art?" that deals with texts projected into space and then deformed by those who enter the space using special electronic equipment. I would love to explore such an electronic art/literary environment! See this article in the catalog *Second Natures*, written in connection with the Faculty Exhibition of the UCLA Design I

Media Arts Department , Sept 13- Oct. 26, 2006, for the opening of the Eli and Edyth Broad Art Center at UCLA.

[31]Brian McHale discusses this sharing of the composition of poetry with a machine as undermining or diluting the author's authority. See 24 following.

[32] See N. Katherine Hayles's new volume *My Mother Was a Computer : Digital Subjects and Literary Texts* (Chicago: University of Chicago, 2005) on this topic.

Appendix

Let me give you a few additional examples of computer-generated texts, which I did not have the space to include in my discussion.

The Girl with Skin of Haints and Seriphs

her tale began when she was infected with smugnessloveitis.
she began her days looking in the mirror at her own
  itchy entitled face.
her failure was ignoring her tormented angel nature.
life was an astounding miracle.
nordic-beauty death-figure vapor steamed from her pores
  when she rode her bicycle.
that was nothing lovely.
when 21 she was a homely woman.
she decided to persevere;
in the rain, she fears only epidermis imperialists.
she believes that evil pride devours and alternates with
  pride of hope.
it was no laughing matter.
she snuggles in angel skin sheets and sleeps.
inside she was resolved to never find
a smug or paranoid love.

by Fox Harrell, using Griot
La Jolla

This poem and others can be found at http://www.cs.ucsd.edu/users/goguen/projs/griot.html The poem was generated by the Griot system. The following is a quotation from the website:

Griot is a computer program designed and written by Fox Harrell in joint work with Joseph Goguen. Its purpose is to generate interactive multimedia events, and its main component is a novel algorithm called Alloy, which generates new structures by blending, based on recent research in cognitive linguistics, computer science, narratology, and semiotics; in particular, Alloy uses the *algebraic semiotics* formalization of the cognitive linguistics theory of how metaphors are constructed, and more generally, how conceptual spaces are combined (see *Style as Choice of Blending Principles* for details), based on the semiotic spaces of algebraic semiotics rather than the mental spaces of Fauconnier, because the greater generality given by n-ary relations, structure constructing functions, types, and axioms, allows blending structures at the syntactic and discourse levels, as well as generating novel metaphors; we also need the greater rigor in order to build computer algorithms. Our initial experiments use Griot to produce "polypoems," which are very large families of poems having a common theme but varying content and structure, as well as novel metaphors. A sample polypoem is given below, using Labov's structural theory of narrative (see *Notes on Narrative*) at the discourse level; however, there are many other possibilities, e.g., haibun, which was used in our *The Griot Sings Haibun* performance. More background, including references, may be found on the Computational Narratology homepage. The theory was put in action at a CalIT2 Performance, 8pm on 28 October, celebrating the opening of the California Institute for Telecommunications and Information Technology building, in cooperation with the UCSD Center for Research in Computing and the Arts.

See also Loss Pequeño Glazier's *Anatman, Pumpkin Seed, Algorithm*, which Glazier's website describes as "playfully experiments at the edges where languages meet, probing technologies of language – indigenous languages in Spanish colonialism, natural language in programming, and Web vocabulary in everyday speech. Set in the U.S., Mexico, Costa Rica, and Cuba, these poems explore the Americas through the play of its aggregate languages." http://www.saltpublishing.com/books/smp/1844710017.htm And Glazier's *Digital Poetics : The Making of E-Poetries* (University of Alabama Press, 2002).