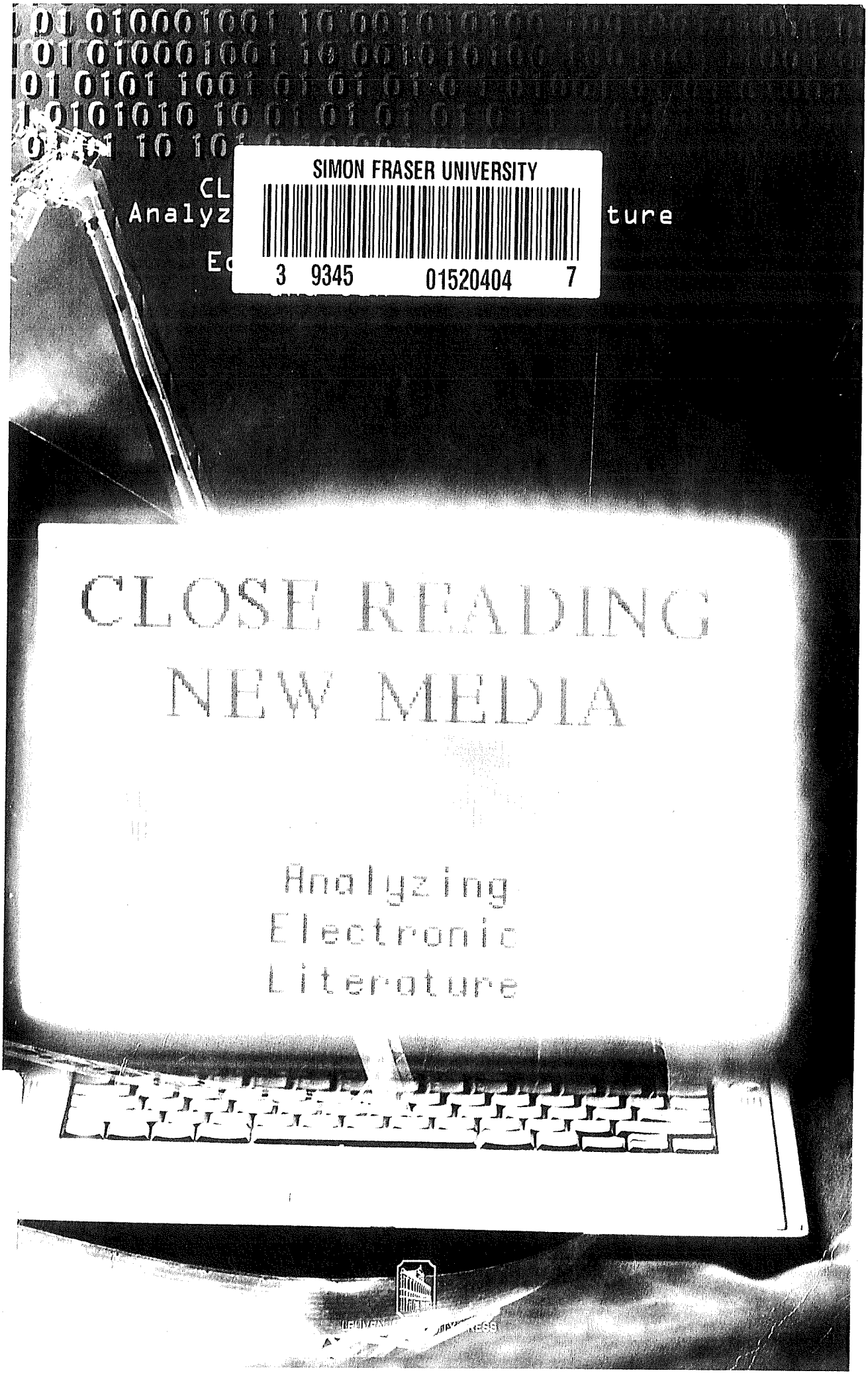

Introduction: Close Reading Electronic Literature

Jan Van Looy & Jan Baetens
(K.U.Leuven)

Since the early 1990s electronic art and literature have continually gained importance both in artistic and in academic circles. Significant critical and theoretical attention has been paid to how new media allows the text to break with traditional power relations and boundaries. The passive reader becomes an active participant choosing his own path and assembling not just his own interpretation of the text (level of the signified), but also his own text (level of the signifier). Texts no longer have a beginning or an ending being a web of interlinked nodes or rhizome (Deleuze & Guattari through Landow 1997: 38). The decentered nature of electronic text empowers and invites the reader to take part in the literary process. Poststructuralist theorists predicted a total liberation of textual restrictions imposed by the medium of print. However, while these are culturally significant claims, little attention has been paid to their realization, with the notable exception of Silvio Gaggi, who, in the last chapter of *From text to hypertext,* provides a thorough analysis of two landmarks of hyperfiction: Michael Joyce's *Afternoon* (1990) and Stuart Moulthrop's *Victory Garden* (1991). The goal of this volume is twofold. First, our aim is to shed some light on how ideas and theories have been translated into concrete works. Second, we want to comment on the process of close reading and how it can be applied to electronic literature. Although all contributions deal with particular works, their aim is always to provide insight into how electronic fiction and poetry are read.

To our knowledge this is the first publication to explicitly apply the method of 'close reading' to electronic literature. Why this is the case is not too difficult to explain. When surveying the reasons why the minute and patient reading of concrete texts has not yet seduced contemporary scholars, we can list a number of explanations which largely reinforce each other. First of all there is the basic conviction that critical attention does not

matter, or even that it is not appropriate to works belonging to a medium which has as one of its primary principles the absence of – literally – fixed shapes and – literally – fixed meanings (cf. Manovich 2001: 36). We must add 'literally', since we should not forget that in the traditional view, close reading does not aim to produce *the* meaning of *the* text, but rather to unearth all possible types of ambiguities and irony. Second, there is the idea, which is not entirely false, that hyperfiction is born on the margins of a medium, the computer, which is still considered a number cruncher rather than a literary device. Like in the first years of cinema, when films were made to promote the marketing of projection and recording machines, the important thing is not the message but the apparatus. With Aarseth we do not agree with this standpoint. "The emerging new media technologies are not important in themselves, nor as alternatives to older media, but should be studied for what they can tell us about the principles and evolution of human communication" (Aarseth 1997: 17). Third, we often hear the argument that hyperfiction has not yet produced enough interesting works to justify a turn towards a more literal and literary tackling of the material. We would like to contend this view by pointing at the fact that even if there is not yet any 'high literature' in the electronic realm, its works can still be significant. "For the literary scholar, the importance of the electronic movement is twofold: it problematizes familiar notions, and it challenges the limits of language" (Ryan 1999: 10).

From a more theoretical standpoint, we would like to defend the cause of close reading scholarship by referring to two authors whose insights shed new light on the problem of close reading: Jacques Fontanille, currently the leading French semiotician, and Stanley Cavell. In the preface to *Littérature, Informatique, Lecture*, a publication on hypertext and electronic literature, Jacques Fontanille argues that there is a world of difference between on the one hand the text as an *object* (as a set of material elements and instructions) and on the other hand the text as a *discursive* unit (as a more or less coherent set of interpretations the reader produces in order to make sense of it). Fontanille claims that the only way to read hyperfiction thoroughly is to read it as we have learnt to read texts: slowly, with much effort, continually going forward and backward, not by clicking, navigating or experiencing randomly. The only way to act as a *free* reader is not to read more rapidly, but, on the contrary, to slow down, to look into details, to build up a framework brick after brick. We need to be able to establish a dialogue with the forms, the structures, and the meanings of both the text and the hypertext. Until that has happened, a (hyper)text cannot become a discourse, i.e. a meaningful whole grasped by a conscious reader (Fontanille 1999).

In *The World Viewed* (1979) the philosopher Stanley Cavell develops a media theory containing a superb plea for close reading of media in general and film in particular. His examples of close reading, collected in *Pursuits of Happiness* (1981), should convince even the harshest enemy that the time one takes to read an image is never lost. Given the fact that cinema is a medium of which the 'essence' is difficult to define both chronologically (today's cinema is very different from what is now being called 'the early cinema') and syntagmatically (it has never been easy to mark clear-cut frontiers between film and other visual media), Cavell has been challenged to elaborate a theoretical framework, which is able to take into account the fundamental dialectics between closure and openness of a medium. Media exist, of course, but the way we consider and use them shifts through time and space. In order to solve this problem (insoluble from an essentialist or technologist perspective), Cavell proposes a definition of media which relies on a threefold thesis. (1) A medium cannot be discussed without its concrete 'output'; no media theory can be established without the analysis of concrete works. (2) A medium does not exist before concrete works embody it, otherwise its existence is merely virtual, since nobody recognizes it as an independent medium. (3) Those concrete works, and hence the media they forge, only exist when forms become 'meaningful', i.e. are considered not simply a formal device, but also an element which models a certain signification in a certain medium. The close-up, for example, was a form of amusement in early cinema until it became motivated in narrative cinema. Finally, Cavell argues that the 'birth' of a medium always depends on the creation of an 'automatism', while the creation of an automatism also implies the transformation of a medium. Hence the definition Cavell provides for the concept of medium is very close to that of genre, which is all but illogical from his viewpoint.

There are numerous meanings to the verb 'to read' and its origins are rather obscure, as the *Oxford English Dictionary* informs us. Earliest Teutonic and Sanscrit precursors designate acts of 'deliberation', 'consideration', 'giving thought or attendance to' or refer to 'success' or 'accomplishment'. Later definitions complicate matters even further. A rather obscure meaning of 'read' is its use as a noun signifying 'stomach of an animal'. This sense is possibly the oldest of meanings and uses. Hence it is possible that all other meanings have developed from the practice to prognosticate, discern, or otherwise interpret good and bad fortune, by perusing the innards of animals. (Wolfreys 2000: ix). Reading is always an act of dismemberment, of tearing open in search of hidden meanings. 'Close' as in 'close reading' has come to mean 'in an attentive manner', but in the expression 'to pay close attention', for example, we still have a sense of nearness. When close reading, the eyes

of the reader are almost touching the words of the text. Nothing is to escape the attention of the meticulous scholar. Every small discontinuity, contradiction or aporia is identified and written down for further reference. While the meaning of 'close' can imply 'near in relationship' as in 'close relative' or 'intimate or confidential' as in 'close friends', when it comes to 'close reading' there is a sense of hostility between the reader and the text. The text is never trusted at face value, but is torn to pieces and reconstituted by a reader who is always at the same time a demolisher and a constructor.

In the 1980s and 90s proponents of hypertext literature like George Landow, Michael Joyce, Stuart Moulthrop and Jay David Bolter presented hyperfiction as the fulfillment of poststructuralist literary theory. Links were considered the materialization of intertextuality. Bricolage or tinkering (Turkle 1995) was hailed as a liberation of the act of writing and hypertext was described by concepts like decentering, writerly reader (Barthes 1974 through Landow 1997) and différance (Derrida 1967). Conversely, adversaries of the hyperfiction aesthetic (e.g. Birkerts 1994) swore by the warm comforting authorial voice of the novel and associated hyperfiction with being lost in an infinite maze trying to extract meaning out of the meaningless. We will not pursue this discussion any further here. For our purposes, it suffices to note that the dispute revolves around the opposition between 'looking at' and 'looking into', between being confronted with and being submerged in the text.

In *Remediation* (1999), Bolter and Grusin analyze media history teleologically through the opposition between *hypermediacy* and *immediacy*. Both tendencies are described as manifestations of a mimetic desire, a desire to depict reality. Through hypermediacy culture attempts to attain more direct representation by multiplying media, by saturating itself with sources of information. As the name suggests, hypermediacy is associated with hypertext and it may well have been inspired by the typical news Web site at the end of the nineties where text is combined with images, animation and film. Hypermediatic design is described as privileging "fragmentation, indeterminacy, and heterogeneity and... emphasiz[ing] process or performance rather than the finished art object" (31). Hypermediacy urges the user not only to look at the interface, but also to actively participate in the communication and meaning generation process by offering multiple channels and paths which he may choose to engage in. Through the logic of transparent immediacy, on the other hand, culture strives "to erase or to render automatic the act of representation"(33). The medium attempts to efface itself so as to present the mediated world as a unified visual space, seamlessly integrated in the environment. The most prototypical example here is probably the Cinema Theater where the viewer is submerged in images, sound and darkness.

In *Narrative as Virtual Reality* (2001), Marie-Laure Ryan starts from the definition of virtual reality by Pimentel and Teixeira as an "interactive immersive experience generated by a computer" (2). From this definition she derives two dimensions – immersion and interactivity – which she develops into the "cornerstones of a phenomenology of reading, or, more broadly, of art experiencing" (2). She does this by situating the two concepts in the history of western art which "has seen the rise and fall of immersive ideals, and their displacement, in the twentieth century, by an aesthetics of play and self-reflexivity that eventually produced the ideal of an active participation of the appreciator – reader, spectator, user – in the production of the text" (2). Importantly, like Bolter and Grusin, she describes immersion and interactivity as opposed forces, which she sees as interacting and leading to an ultimate goal in the history of representation, the sublimation of the two concepts in virtual reality. Thereby, she associates the aesthetics of immersion with a "'world' that serves as environment for a virtual body," and that of interactivity as a text presented as a "game, language as a plaything, and the reader as the player" (16), descriptions that clearly derive from poststructuralist theory as it was advanced by hypertext theorists.

In the fourth chapter of *The Language of New Media* (2001) titled "The illusions" Lev Manovich invokes a similar opposition. "In the twentieth century, art has largely rejected the goal of illusionism, the goal that was so important to it before; as a consequence, it has lost much of its popular support. The production of illusionistic representations has become the domain of mass culture and of media technologies – photography, film, and video" (177). But Manovich does not directly associate the artistic side of the opposition with interactivity. Instead, in the fifth subsection called "Illusion, Narrative, and Interactivity," he confronts illusion (cf. looking through, immediacy, immersion) with interaction as two concepts from a different realm that work with and against each other. More precisely, he notes that many digital artifacts "are characterized by a peculiar temporal dynamic – a constant, repetitive oscillation between an illusion and its suspense. These new media objects keep reminding us of their artificiality, incompleteness, and constructedness. They present us with a perfect illusion only next to reveal its underlying machinery" (205).

While there seems to be a consensus amongst contemporary theorists on the fact that experiencing new media is strongly tied to the opposition between 'in' and 'at', between 'immediacy' and 'hypermediacy', between 'immersion' and 'interactivity', this temporal dynamics far from explains everything (see also Van Looy forthcoming). New media theory needs a

solid description of how interactivity influences meaning generation in order to be able to tackle socially significant issues like violence in videogames and Internet regulation. This volume by no means provides this theory, but it does attempt to give a genuine account of the workings of nine electronic texts in order to point to, rather than theorize, interesting points and problematics. In the next paragraph we have gathered some of the questions that are raised.

What does it mean to read electronic text? How do we deal with changeability and multilinearity? Can we read multimedia content? And what is its status in the reading? Does it contribute to the meaning of the text or is it merely surface? Is it only a catalyst, some sweets to keep the attention of the reader, or does it introduce a new kind of writing where the monopoly of the alphabetic sign is definitively broken? What happens if there is no longer one central text? Citation, 'collage' and sampling pull the exterior into the interior. Linking to illustrative material, secondary literature turn the interior inside out and show that a text is never an isolated act of wording. What does it mean to structure a text not only on the level of the signified, but also on the level of the signifier? How does the author apply these newly acquired skills to create new types of narrative? How does the narrative plane influence the hypertextual structuring and vice versa? How does a story emerge from a decentered body of hyperlinked, textual, pictorial, and multimedial materials? Can we still speak of one work or one narrative when its appearance is different in every reading? How does one grasp and control the proliferating number of texts and interpretations of texts? Is there such a thing as a hypertext, one text above all, one text including all others and what does this tell us about the act of writing and the functioning of culture? What happens when the inside of a work is indistinguishable from the outside, when linking undermines all sense of boundaries and direction? Does the reader become an author or, conversely, do the new literary devices give the author more opportunity to control meaning and to manipulate the reader into a certain configuration. Has the reader become a Writer? A Wreader?

Hypertext

In 1945, the same year that Eckert and Mauchly complete the first working electronic digital computer, the ENIAC, Vannevar Bush introduces his MEMEX (memory extender) project. In his Essay "As We May Think," Bush tries to find a solution to the growing problem of the inaccessibility of our archives.

> The difficulty seems to be, not so much that we publish unduly in view of the extent and variety of present day interests, but rather that publication has been extended far beyond our present ability to make real use of the record. The summation of human experience is being expanded at a prodigious rate, and the means we use for threading through the consequent maze to the momentarily important item is the same as was used in the days of square-rigged ships (Bush 1945).

Bush's interest is primarily encyclopedic; he wants to facilitate access to the record. While at one point in his essay he states "The advanced arithmetical machines of the future will be electrical in nature, and they will perform 100 times present speeds, or more," he still sees his MEMEX as a mechanical device based on microfilm and levers. "On deflecting one of these levers to the right [the user] runs through the book before him, each page in turn being projected at a speed which just allows a recognizing glance at each. If he deflects it further to the right, he steps through the book 10 pages at a time; still further at 100 pages at a time" (Bush 1945). More important than the technological details, however, is the fact that Bush proposes associative indexing as a new means to retrieve information and is therefore considered the inventor of the concept of hypertext.

> When the user is building a trail, he names it, inserts the name in his code book, and taps it out on his keyboard. Before him are the two items to be joined, projected onto adjacent viewing positions (...). The user taps a single key, and the items are permanently joined (...). Thereafter, at any time, when one of these items is in view, the other can be instantly recalled merely by tapping a button below the corresponding code space (Bush 1945).

In 1965 Theodor Holm (Ted) Nelson wrote the paper "A File Structure for the Complex, the Changing, and the Indeterminate" for the Association for Computing Machinery in which he coined the term 'hypertext'. Hypertext is a conjunction of 'text' and the Old Greek 'ὑπερ' (hyper) meaning 'over, above, beyond, besides'. In *Literary Machines* (1987) Nelson defines hypertext as "non-sequential writing – text that branches and allows choices to the reader, best read at an interactive screen." Examples of non-electronic hypertext like Cortazar's *Hopscotch* (1966) – the so-called proto-hypertexts – were attested years later when critics started seeing the resemblance between Nelson's ideas and developments in earlier experimental novel writing. Although Nelson repeatedly refers to Vannevar Bush – he even includes "As We May Think" as a chapter in *Literary Machines* – they have different conceptions of hypertext. Whereas Bush sees his MEMEX as a way to manipulate and search large amounts of stored knowledge, Nelson dreams of the ultimate centralized literary archive, which he named *Xanadu* after the imaginary utopia in Coleridge's "Kubla Khan." Unfortunately the system was never operational.

> The Xanadu software remained as mythic as the place after which it was named. In *Dream Machines*, published in 1974, Nelson announced that it would be ready for release by 1976 (56). In the 1987 edition of *Literary Machines*, the due date was 1988 (0/5).
> The development of Xanadu was given a large boost in early 1988 when Autodesk (the company which made their fortune from AutoCAD) bought the Xanadu Operating Company. Code for a prototype of part of the system was made public later that year. In an article published in *Byte* in January 1988, Nelson expected to be fully completed by 1991 (299). Then, nothing. Autodesk has since relinquished interest in Xanadu (Keep 1995).

In 1999 the source code for *Xanadu* was released and some programmers have said that, indeed, it resembled poetry rather than programming.

However, via numerous other systems – e.g. Apple's *Hypercard*, Eastgate's *Storyspace*, Tim Berners Lee's *World Wide Web* – hypertext has become the prototypical form of interactive textuality (while by no means the most interactive). In hypertext the reader determines the unfolding of the text by clicking or selecting certain areas on the screen called hyperlinks, after which the screen reloads and presents another part of the text (node, lexia, page). Every segment can contain more than one hyperlink and if this is the case, each path taken by the reader can produce a different text (if we take text to be a sequence of signs). "Whereas the reader of a standard print text constructs personalized interpretation out of an invariant semiotic base, the reader of an interactive text thus participates in the construction of the text as a visible display of signs" (Ryan 2001: 5). The question whether each reading should be considered a different text or rather one view of the whole (somewhat like one chapter in a book) is taken up by Koskimaa further in this volume.

The analogy between postmodern aesthetics or poststructuralist thinking and the idea of interactivity and hypertext have been systematically developed by the early theorists of hypertext, such as George Landow, Jay David Bolter, Michael Joyce, and Stuart Moulthrop. As Marie-Laure Ryan notes in *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media* (2001), the list of features of hypertext that supports the postmodernist approach is impressive. "It is headed by Roland Barthes and Julia Kristeva's notion of 'intertextuality', the practice of integrating a variety of foreign discourses within a text through such mechanisms as quotation, commentary, parody, allusion, imitation, ironic transformation, rewrites, and decontextualizing / recontextualizing operations" (6). (This was also one of the principles Nelson had in mind when he invented hypertext, i.e. the materialization of literary connections, cf. *Literary Machines* [1987].) Moreover, hypertext supports what has been described by Lévi-Strauss as 'bricolage' or 'tinkering' as Sherry Turkle calls it in *Life on the Screen* (1995). Finally, while linking can create connections between heterogeneous materials, it can also break apart elements thought to belong together. "The dismantling effect of hypertext is one more way to pursue the typically postmodern challenge of the epistemologically suspect coherence, rationality, and closure of narrative structures, one more way to deny the reader the satisfaction of a totalizing interpretation" (Ryan 2001: 7).

In the first essay of the hypertext-section, *Joseph Tabbi* analyzes the migration from print to electronic text of Stephanie Strickland's poem *True North* in an attempt to identify the forces that are transforming literary culture and its study in our time. In a prudent and thorough manner he describes how hypertext as method of annotation can bring about subtle shifts of meaning. Examples of references used to create a context of reading and interpretation are Emily Dickinson's poetry and Muriel Rukeyser's 1942 biography of Josiah Gibbs. As Tabbi shows, the introduction of the new in poetry requires a re-adjustment of all the mental categories by which we have come to know and recognize poetry. Strickland's poetics of indirect citation, annotation, and recombination creates affinities with a distinctive tradition that reaches back to Jonathan Edwards. Her willingness to court abstraction and a minimalist language opens what should be a fruitful conversation with the Language Poets, while the recognition awarded *True North* by the judges for the Sandeen Prize ensures that her work will be seen as contemporary social realism. Tabbi welcomes Strickland's engagement with the new medium which is endlessly more refreshing than those anthology CD-ROMs, published by Norton and others only because they could not make the paper any thinner. "Strickland's achievement is to locate the poetic possibilities inherent in the new medium, such that imagination might find expression in tags and numbers and nested programs no less than in words."

In "Sutured Fragments" *Elizabeth Joyce* describes how Shelley Jackson's *Patchwork Girl* uses the map as a metaphor for the body and as an analogy of the impress of cultural structures on geographical space as well as on the subjectivity of the individual. The identity of a girl is depicted through the grid of the map on three levels: hypertextual, narratological and corporeal which is closely related to the theme of hypertext reading as movement. The incorporation of texts from Mary Shelley's *Frankenstein*, but also from Frank Oz's *The Patchwork Girl of Oz*, Barbara Maria Stafford's *Body Criticism: Imaging the Unseen in Enlightenment Art and Medicine*, and others serves to snap the threads of the linear progression of a plot, rupturing repeatedly the reader's efforts to piece together the story. Just as Dr. Frankenstein sews together the monster's body from body parts gleaned from corpses, the girl's body is an appropriation of human remains,

each fragment still imbued with the character of its original owner. Like hypertext, identity is never fixed or isolated, it is a cultural construction built up from discourses we appropriate at different occasions. This is what *Patchwork Girl* endeavors to do, to create the girl's body and by extension her identity by piecing together textual components that at the same time create the physical but also the conceptual entity of the text itself. The text enables, as in Deleuze and Guattari's model of subjectivity, the representation of the focus of manifold threads of meaning that bind together to form individual identity. According to Joyce, it is not merely a poststructuralist statement, however, but also an attempt to grasp human existence as heterogeneous in nature, as reflective of individual experiences and components that assemble within one body, all the parts of which continue to yell about their other contexts, their other states of being in the same way that the patchwork girl's physical parts retain allegiances to their first owner.

In the third and last essay of the hypertext section *Raine Koskimaa* analyzes M. D. Coverley (Marjorie Luesebrink)'s *Califia* primarily in terms of time and space. He wonders why temporal issues have received so little critical attention in hypertext theory. He employs Luesebrink's own concepts of 'interface time' and 'cognitive time' to describe the oscillation between the virtual time in the narrative universe and the time spent manipulating the text. These temporal issues have thematic repercussions since in *Califia* real and historical time are clearly separated, whereas mythical time is constantly present. Real time is open, in a constant process of becoming, historical time is linear, and mythic time is cyclical. In *Califia* this is closely related to cyclical phenomena in nature, especially to celestial movements. Geographical maps are often juxtaposed with star charts and treasure maps. In this way, the fictional world is represented as a kind of proto-virtual reality, which depicts the hypertextual structure and sub-structures in a natural way. The juxtaposing of different or even incompatible spaces produces a *heterotopic space*. Space and time thematize the reading process itself to become an eternal circle of interpretation. Each new piece of information is first, provisionally, interpreted from the viewpoint of the whole, but also carries with it the potential to change the larger picture and previous interpretations.

Internet Text

Today, the Internet has become a synonym of World Wide Web. However, when we look at the history of the Internet, the WWW is a relatively recent

development. In 1969 Arpanet, an ancestor of the Internet, was commissioned to serve for research into networking between different universities. *File transfer* was the most important if not the only utilization of the network in those days. In the 1970s *email* was introduced, and by 1973 it accounted for 75% of byte traffic on Arpanet. In 1974 *telnet*, a protocol allowing to operate a system remotely was implemented, and around 1979 the first *Usenet* newsgroups appeared. Also in 1979, two students from Essex University, Richard Bartle and Roy Trubshaw, built the first *multi-user dungeon* (MUD), an online interactive text-based combat game. Finally, in 1988 Jarkko Oikarinen developed *Internet Relay Chat*, which for the first time allowed for large-scale real-time communication over the Net.

At that moment the need for a device for accessing structured information via the Internet was growing. In 1991, *Wide Area Information Servers* (WAIS) was invented by Brewster Kahle. WAIS is a system that allows indexing and accessing information from distributed databases. The user enters a search argument and the client program accesses all necessary servers. The results provide a description of each text that meets the search requirements. The user can then retrieve the full text. Also in 1991 Paul Lindner and Mark P. McCahill released *Gopher*, an Internet application protocol which permits hierarchically organized file systems to be maintained on servers which are part of an overall information structure. Importantly, Gopher provides a way to bring text files from all over the world to a viewer on your computer, just like a browser does for the World Wide Web today. However, neither Gopher nor WAIS is hypertextual in any way. Links between related nodes cannot be established freely; they are restricted by the organization of the overall database structure, which may be powerful, yet too rigid for some purposes.

In May 1991, the *World Wide Web* was officially released by CERN in Switzerland. Whereas Gopher and WAIS were conceived from an engineering aesthetic, the World Wide Web was a literary invention. Tim Berners-Lee – who developed http (HyperText Transfer Protocol), html (HyperText Markup Language) and who is the driving force behind the World Wide Web and the W3C consortium – points to Doug Engelbart's *oNLine System* (NLS), Vannevar Bush's "As We May Think" (1945) and Ted Nelson's *Literary Machines* (1987) as his major influences. Like Gopher, the World Wide Web allows the user to access information from anywhere in the world and display it directly in a client viewer (browser). However, thanks to its hypertextual organization, WWW is not restricted to a strictly hierarchical database structure. Instead, nodes can be freely interlinked, and decentered networks can be built based on associative structuring. "The whole point about hypertext was that

(unlike most project management and documentation systems) [database systems, eds.] it could model a changing morass of relationships which characterized most real environments I knew (and certainly CERN)" (Berners-Lee 2000).

When WWW appeared, ftp (file transfer protocol) and Telnet were the most popular Internet services and Gopher was becoming increasingly popular. However, the user-friendliness and openness of its hypertext system caused WWW to quickly gain terrain. By March 1994 WWW byte-traffic passes Gopher byte-traffic on NSFnet. Moreover, later that year WWW edges out Telnet to become the second most popular service on the Net (behind ftp). The true boom with the consequent democratization of the Internet appears when James Clark and Marc Andreessen release *NCSA Mosaic*, the browser that will later become *Netscape Navigator*. With Mosaic the first graphics appear on the Web.

In the first essay of the Internet text section, *Richard Saint-Gelais & René Audet* tackle two fictional hypertexts: Geoff Ryman's *253* and Rick Pryll's *Lies*. More precisely, they want to critically examine whether fiction should always be approached from the perspective of the narrative. They reject the idea that fiction can be reduced to narrative and that hyperfiction's contribution to textuality is simply the multiplication of possible narratives from a single work. By analyzing *253* and *Lies*, Saint-Gelais and Audet want to get a firmer grip on the narrative expectations of the reader and their necessary reorientation in the face of certain hyperfictions. They show how fictional hypertexts influence the general conception of narrativity precisely because they cannot be reduced to textual jigsaw puzzles or narratives that the reader simply reconstructs in his own way. Without discarding traditional expectations, hyperfiction proposes a reading environment different enough from that of the book so that readers may envisage a renegotiation of the relationship between the support, the discursive organization and the fictional framework – a renegotiation where the computer environment is not reduced to the puzzle-maker's saw but where it contributes on an equal footing, using its own means, to the renewal of both fiction and reading.

In "Stealing or giving" *Jan Baetens* explores the digital materialization of the metaphor of consuming books as eating and reading as cannibalism in Raymond Federman's *Eating Books*, an example of Holocaust fiction profoundly influenced by authors like Beckett and Céline. Baetens rejects the idea that the digital version of a print text cannot be as challenging as one that was initially conceived and elaborated with the new medium in mind. The former is supposed to suffer from its heritage from the print medium – i.e. linearity, passivity and poor use of graphics – as opposed to

non-sequentiality, interactivity, and a blurred frontier between the verbal and the visual. *Eating Books*, however, makes use of new media without following the familiar paths. It is deeply rooted in textual culture and does not experiment with spatiality, simultaneity or non-sequentiality. The phonocentric tradition is present through reference to the eating of words and the graphical outline of the work, while the hypertext tradition is strangely absent. Why the work has been transposed from print to new media, however, becomes clear when we think of how new media are supposed to swallow the older media, and steal knowledge like in the anecdote from a London library where Voltaire noticed the presence of a book in the pocket of Newton. Observing that the book seemed to be half-hidden, Voltaire is supposed to have said: "to steal a book is not a crime as long as the book is read."

In "One must be calm and laugh" *Jan Van Looy* investigates how Geoff Ryman's *253* uses hypertext to reflect upon modernity through the thoughts of two hundred and fifty three people in the London Subway. Ryman calls his hyperfiction an Internet Novel, which triggers the question of whether the World Wide Web ought to be considered a medium or a deliverer. The hypertext framework of *253* is highly structured unlike most contemporary hyperfictions, which propagate associative linking from an aesthetic standpoint. Nevertheless, the iconicity of the representation of the train and its passengers plays an important role in the semantics and the narrative development. By molding the narrative space into a rigid hypertextual structure, *253* succeeds in creating a navigational network that reduces cognitive overhead so often experienced in hypertext narrative. The textual space from which meaning is to be deduced is three- instead of two-dimensional. Both hypertextual and narrative syntax are grafted upon the frame story, i.e. an London underground train about to crash. There are several innovative narratological devices at work that together with the way the story is laid out produce a new type of narrative, if it is narrative (see contribution by Saint-Gelais & René Audet). The thematic construction of the novel is based upon both hypertext and narrative structuring and is therefore excellently placed to question its own modernity and that of the narrative world it creates. Decentering, fragmentation and focalization steer the reader through an ingenious type of hyperstory, providing a unique view on modern society through new media.

Cybertext

In *Cybertext: Perspectives on Ergodic Literature* (1997), Espen J. Aarseth introduces the notion of cybertext. Cybertext is a neologism derived from

Norbert Wiener's book (and discipline) called *Cybernetics* and subtitled *Control and Communication in the Animal and the Machine* (1948) (1) and refers to a textual machine or a machine for the production of variety of expression rather than a sequence of signifiers. This machine does not only deliver language or text, but generates signifiers through the manipulation of data arrays, functions, logical operators and programmatic objects. By declaring cybertext a worthwhile object for research, Aarseth expands the realm of literary criticism to a whole range of textual phenomena from short poems to complex computer programs and databases. A cybertext is a device operating on signs; it requires a medium (an interface, the way in which the material is presented to the user, e.g. a workstation, a book) and depends upon the action of a human operator. Thus, it is not only the text produced that is of importance, but also the generation process, or as Ryan describes it: "Computer-modulated texts (poetry machines, cybertexts) are a form of poetry that lives and breathes the fluidity of the electronic environment. They highlight the dynamic production of text, turning this production into a spectacle. Experiencing the text means watching words and meaning emerge and evolve on the screen, animated by the invisible code of a computer program" (Ryan 1999: 9).

The strong mechanical focus of cybertext theory does not mean that the human factor is excluded, that the cyberreader has become a mere slave of the machine. On the contrary, Aarseth claims that the traditional reader is powerless. However strongly engaged, he cannot intervene in the unfolding of the narrative. "Like a spectator at a soccer game, he may speculate, conjecture, extrapolate, even shout abuse, but he is not a player. Like a passenger on a train, he can study and interpret the shifting landscape, he may rest his eyes wherever he pleases, even release the emergency brake and step off, but he is not free to move the tracks in a different direction" (Aarseth 1997: 4). The reader can never experience the pleasure of influence. Rather, it is the pleasure of the voyeur: safe, but impotent. The cybertext reader is not powerless. She can, to a certain extent, change the tracks and score a goal. However, she is not a safe reader; she suffers the risk of rejection. "The effort and energy demanded by the cybertext of its reader raise the stakes of interpretation to those of intervention" (4). Thus computer-generated literature becomes a process of collaboration between man and machine automatically resulting in three possible positions: the computer as pre-processor, co-processor and post-processor.

The configuration in which the computer is pre-processor can best be illustrated by traditional artificial intelligence in which the computer generates an outline or blueprint for the human partner, who can then translate it into literary language. Typical examples for this category are story-generating

programs developed in the seventies and eighties as contributions to artificial intelligence research. (The best known is *Tale-spin* by James Meehan.) "What matters in these projects is not their output *per se* – usually mediocre imitations of standard types of narrative such as fables or fairy tales – but the reasoning power of the generative algorithm and its credibility as a simulation of human creative processes" (Ryan 1999: 2). A typical example of the computer as co-processor is *ELIZA*, a computer program that simulates a Rogerian therapist written by Joseph Weizenbaum in 1966. Again, the primary focus is not to produce literature, but rather to test the conversational capabilities of computer programs (3). Finally, the computer as post-processor manipulates a text produced by a human author. The texts belonging to this category are not related to artificial intelligence research. Textual fragments are handled as opaque objects, not as meaning bearing units to form a sort of experimental, dynamic, literature. "A computer program fabricates text out of ready-made texts by searching a database for elements fitting certain patterns (rhymes, palindromes, and anagrams) or by subjecting the input text(s) to various aleatory procedures, such as collage and permutations." (4).

While the traditional reader only performs in his head, the user of cybertext performs in the literal sense. During cybertextual dialogue, she effectuates a semiotic sequence involving an activity of physical construction which can impossibly be accounted for just by the concept of 'reading'. This phenomenon Aarseth calls ergodic, using a term appropriated from physics that derives from the Greek words ergon and hodos, meaning 'work' and 'path'. "In ergodic literature, nontrivial effort is required to allow the reader to traverse the text" (Aarseth 1997: 1). Ergodic textuality has existed for as long as linear writing. To exemplify this, Aarseth refers to the wall inscriptions of temples in ancient Egypt, which were often connected two-dimensionally (on one wall) or three-dimensionally (from wall to wall and from room to room). This layout allowed a nonlinear arrangement of the religious text in accordance with the symbolic architectural layout of the temple (9). Probably the best-known example of cybertext in antiquity is the *I Ching* or the *Book of Changes* (1122-770 b.c.), which inspired Leibniz while developing binary mathematics. Another prototypical example is Raymond Queneau's *Cent Mille Milliards de Poèmes* (a hundred thousand billion poems; see Queneau 1961), which is a sonnet machine book of 10 x 14 lines, capable of producing 10^{14} sonnets (10). However, cybertextuality is not an isolated phenomenon; it is a perspective on all forms of textuality which permits to expand literary studies to phenomena that have been hitherto marginalized. Using seven variables (dynamics, determinability, transiency, perspective, access, linking and user functions)

Aarseth describes texts, ranging from Herman Melville's *Moby Dick* (1851) to John Cayley's *Book Unbound* (1995) according to their mode of traversal.

In the first essay of the cybertext section *Jack Post* analyzes the Web site Darren Aronofsky created for his film *Requiem for a dream.* Post uses the perspective of Johanna Drucker's theory on the aesthetics of typography to demonstrate with great limpidity how we can profit from a critical return to Hjelmslev, whose theory provides the necessary theoretical basis for approaching the materiality in language and multimedia practices. Since the success of *The Blair Witch Project*, in which its Web site played a decisive role, it has become clear that new media can be an important extension for films. While most of these Web sites simply provide a gallery of images, a synopsis of the story and sometimes background information on the actors, Aronofsky chose a radically different approach. Like the film, the Web site is meant to be an experience onto itself, an independent complement to the film. Instead of creating a billboard, Aronofsky and Florian Schmitt, the designer of the site, strove to design something that reflects the tone of the film in the new medium. The theme of addiction is laid out and commented upon in visual cybertext. Greimas and Courtès' semiotic theory serves to underpin the analysis of the *Requiem for a dream* Web site as a poetic text. The 'reader' of this type of cybertext can be described as a bundle of various 'readings' corresponding with the different semiotic systems or forms actualized in a syncretic text.

Paul A. Harris's essay starts as a discussion of the ways a database structure modifies the nature of narrative in hyperfiction, but soon the scope of the article shifts to the narrative of an interface. Harris deals with the discussion on the redesign and conceptual transformation of the *electronic book review* (ebr) interface. He plays with the fact that he is writing a print essay about electronic text. This duality is both the theme of the essay and the object under investigation. By describing how ideas for the new interface occur, transform and finally materialize, he comments on how the electronic medium is subject to both material and conceptual design. His account of how a virtual community shares knowledge and experience in order to jointly produce a new way of looking at, and presenting the content of an electronic journal, is highly refreshing. The initial concept of the ebr Web site needed serious rethinking in the light of new ideas on the cultural contradictions between old an new media, and the emergence of "multicourse" (a term coined by Hayles which alludes both to multiple discourse and to the multiple reading paths made possible by hypertext). The result of the process is not static form delivering the required content, but a recursive dynamic whole in which Web sites and hypermedia works embed narrative

elements within a linked structure, the design principles of which then come to shape and become an integral part of the narrative content – which in turn may effect reconceptions in the design as the work unfolds.

In the final contribution of this volume, *Mark Amerika* revisits the *Grammatron* doxa in an attempt to come to terms with what he calls 'hypertextual consciousness', "the advent of a new stage, perhaps the final one, in the political, spiritual, and artistic growth of mankind" (Ryan 2001: 8). Starting with 'another memex moment' he alphabetically wanders through the conceptual space of contemporary new media theory. In some fifty entries he describes and illustrates his views on what Internet, virtual reality, art and reading could and should be. With one foot in the present and two eyes on the future, he explores 'play' both in its poststructuralist and commonsense meaning. He is constantly searching for an adequate set of tools for structuring, analyzing and conceptualizing electronic literature of today and tomorrow. He sings the praises of the eventual liberation of the mind from the body, of text from the book and of youth from their television set. In a highly evocative style Amerika creates images of what could and perhaps will be. His words and sentences thump like techno beats while thoughts and ideas jump into new constellations. By using the dictionary format, he attempts to linearize and order hypertextual consciousness into a story on the verge of chaos. He intermingles powerful theoretical images with fictional examples tributary to William Gibson. In this way, hypertextual consciousness becomes a dream-narrative application, an always already applied grammatology, the science of writing teleported into cyberspace, the world's revenge on television.

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