

Anne Mangen

## New narrative pleasures?

A cognitive-phenomenological study of the  
experience of reading digital narrative fictions

Thesis for the degree doctor artium

Trondheim, November 2006

Norwegian University of Science and Technology

Faculty of Arts

Department of Art and Media Studies

**NTNU**

Norwegian University of Science and Technology

Thesis for the degree doctor artium

Faculty of Arts

Department of Art and Media Studies

© Anne Mangen

ISBN 82-471-8213-0 (printed version)

ISBN 82-471-8212-2 (electronic version)

ISSN 1503-8181

Doctoral theses at NTNU, 2006:217

Printed by NTNU-trykk

# **NEW NARRATIVE PLEASURES?**

**A cognitive-phenomenological study  
of the experience of reading  
digital narrative fictions**

**Doctoral dissertation by Anne Mangen**

**The Norwegian University of Science and Technology [NTNU],  
Trondheim, Norway,  
2006**

## ACKNOWLEDGMENTS

This dissertation is the product of a nomadic period characterized by long- and short-term commuting between small towns and larger cities in Norway interrupted by half a year in the fast lane in Silicon Valley, and finished in Bonny Doon, a wonderfully secluded retreat in the Santa Cruz mountains.

I am indebted to a number of people for the privilege of seeing this project come to an end. Firstly, I wish to thank my main advisor, Bjørn Sørensen, for expressing interest and enthusiasm for the project from long before I had the necessary funding, and for availability and succinct feedback particularly towards the end of the writing process. I am greatly indebted to my co-advisor, Niels Windfeld Lund, who has also been a good friend and colleague for many years. I immensely appreciate our innumerable inspiring discussions and want to warmly thank him for his enthusiasm and generosity during all these years.

During my stay as a visiting fellow at Xerox PARC, Maribeth Back and Polle Zellweger were particularly helpful in introducing me to this unique scientific community. I also want to thank them for highly interesting collaboration projects related to a couple of the reading devices of the 2000 RED project XFR – eXperiments in the Future of Reading. At PARC, I was also privileged to meet Rich Gold, who very unexpectedly passed away in 2003. In spite of turbulent times and uncertainty about the future of RED and PARC at the time of my visit, Rich was always ready to enthusiastically share some of his visions on Fluid and hypertext fiction writing as well as the cultural and artistic implications of digital technology in general. My second stay as a visiting scholar was at San Jose State University, where I enjoyed a number of interesting lunch talks with hypertext author Rob Swigart.

Returning to my home turf, I want to thank my colleagues at Volda University College, where I particularly enjoyed having Lars Nyre as an insightful and inspirational sounding board. Being the one who introduced me to Don Ihde's theories,

Lars' approach to sound media has been quite influential to this study. Moreover, I extend my heartfelt thanks to the dean at the Department of Journalism and Media Studies at Volda University College, Sverre Liestøl, for being very generous in providing me with the best of practical solutions in order to finish this dissertation. At a crucial stage in the writing process, Anniken Greve and Rolf Gaasland at the Faculty of Humanities, University of Tromsø, provided valuable feedback for which I am very grateful.

Finally, thanks to my husband Jim for stamina and patience during this last year, which turned out to be quite eventful; I wonder if there is any better deadline than that imposed by a (healthy) pregnancy. My very special thoughts go to our daughter Maja Andrea, whose steadily increasing physiologically and phenomenologically felt presence in the womb during the finishing stages of this dissertation was a major incentive to its completion.

This dissertation is dedicated to my parents Knut and Else, and to Maja Andrea, born March 22<sup>nd</sup>, 2006.

Bonny Doon, California,  
March 2006

Anne Mangen

# TABLE OF CONTENTS

**ACKNOWLEDGMENTS .....2**

**PART I: PRE - THEORIZING ..... 9**

**CHAPTER 1: INTRODUCTION..... 10**

**CHAPTER 2: PRESENTING AND POSITIONING THE STUDY... 18**

2.1. Research questions ..... 18  
2.2. Summary ..... 18  
2.3. Empirical material..... 20  
2.4. Previous and current studies that are comparable to this study ..... 26

**CHAPTER 3: DEFINITIONS .....35**

3.1. Introductory ..... 35  
3.2. Digital and analog ..... 37  
3.3. Interactivity ..... 40  
3.4. Towards a more precise definition of hypertext and hypermedia..... 48  
3.5. An apology for “reading” ..... 51  
3.6. On being politically (in)correct in new media studies ..... 60  
3.7. Narrativity and fictionality in digital media..... 63  
3.8. But – is it literature?..... 65

**PART II: META - THEORIZING ... 70**

<b>CHAPTER 4: CONCEPTUAL AND THEORETICAL SHORTCOMINGS .....</b>	<b>71</b>
4.1. Obscurantism and “hysterical neologizing” .....	71
4.2. Abstractions, analogies, and metaphors .....	76
<b>CHAPTER 5: THE SHORTCOMINGS OF “THEORIZED INTERPRETATIONS” .....</b>	<b>82</b>
<b>CHAPTER 6: ADVOCATING AND JUSTIFYING PIECEMEAL THEORIZING .....</b>	<b>87</b>
<b>CHAPTER 7: PHENOMENOLOGY &amp; COGNITIVISM.....</b>	<b>96</b>
7.1. Introductory .....	96
7.2. The end of hermeneutics? .....	98
7.3. The body in new media studies – more than a fetish? .....	102
7.4. An answer to the calls for both media materiality and reader embodiment. ....	106
7.5. Why phenomenology for new media studies? .....	108
7.6. Why Merleau-Pontean phenomenology? .....	110
7.7. The phenomenology of human-technology relations: Don Ihde’s existential technics.....	112
7.8. Refuting allegations of subjectivist impressionism .....	119
7.9. Why cognitivism for new media studies? .....	120
7.10. Refuting allegations of biological determinism and scientism .....	123
<b>CHAPTER 8: HOW AND WHY COMBINING COGNITIVISM AND PHENOMENOLOGY .....</b>	<b>129</b>
 <b>PART III: PIECEMEAL THEORIZING .....</b>	 <b>136</b>

<b>CHAPTER 9: COGNITIVE AND PHENOMENOLOGICAL</b>	
<b>THEORIZING .....</b>	<b>137</b>
9.1. Introductory .....	137
9.2. The scientific schism between media theorists and media psychologists....	138
<b>CHAPTER 10: SENSORY MODALITIES IN GUI NARRATIVE</b>	
<b>FICTIONS .....</b>	<b>143</b>
10.1. Introductory .....	143
10.2. Classifying sensory modalities.....	146
10.3. Definitions of sensory modalities .....	148
10.4. Synaesthetic perception and multisensory reading .....	154
<b>CHAPTER 11: REDUNDANCY AND ENTROPY IN GUI</b>	
<b>NARRATIVE FICTIONS .....</b>	<b>156</b>
11.1. Introductory .....	156
11.2. Reclaiming the relevance of gestalt psychology (and of Iser's phenomenology of reading) .....	158
11.3. GUI mechanisms impeding the redundancy – entropy ratio.....	161
11.4. The digital logic behind the analog leveling of dimensions .....	163
11.5. Levels of meaning in GUI narrative fictions .....	168
11.6. Coping strategies; meta- and myopic reading.....	170
<b>CHAPTER 12: ATTENTIONAL ALLOCATION.....</b>	<b>179</b>
12.1. Introductory .....	179
12.2. Hierarchy of attention; endogenous (controlled) and exogenous (uncontrolled) attention .....	180
12.3. Psychic entropy and negentropy .....	183
12.4. Attentional switching .....	186
12.5. Depth of attention.....	189
<b>CHAPTER 13: THE TROUBLESOME TEMPORALITY OF THE</b>	
<b>GUI .....</b>	<b>194</b>



13.1. Introductory .....	194
13.2. The psychic framework of the GUI unsettling the dimension of temporality .....	195
13.3. Some basics (of perception and temporality).....	197
13.4. What is time? Three kinds of temporality.....	201
13.5. The ambiguous temporality of digital configurations.....	205
13.6. Temporal salience .....	208

**CHAPTER 14: TRANSPARENCY AND OPACITY .....217**

**CHAPTER 15: THE PHENOMENOLOGY OF THE INTANGIBLE  
..... 223**

15.1. Introductory.....	223
15.2. Conceptually grasping the intangibility of the GUI.....	227
15.3. Phenomenologically grasping the intangibility of the GUI .....	229
15.4. Phenomenological intendings of tangibility and intangibility .....	230
15.5. Intending the invisible.....	234
15.6. Phenomenologically grasping the invisible .....	235
15.7. Reproducing tangibility and phenomenological depth in <i>Califia</i> .....	237

**CHAPTER 16: HAPTIC INTENDING .....243**

16.1. Introductory.....	243
16.2. The neglected but crucial haptic modality .....	243
16.3. Sensory combinatorics; multisensory reading .....	246

**CHAPTER 17: CROSSMODAL ATTENTIONAL CAPTURE .....250**

17.1. Introductory.....	250
17.2. Haptic capture of the signitive (and pictorial) intentionality .....	251

**CHAPTER 18: PHENOMENOLOGICALLY RELATING TO THE  
COMPUTER .....256**

**PART IV: SYNTHESIZING  
THEORIZING ..... 264**

**CHAPTER 19: SUMMARY AND CONCLUSIONS .....265**

19.1. Summary of intentions and corresponding findings ..... 265

19.2. The pros and cons of interdisciplinary, piecemeal theorizing ..... 268

19.3. Some concluding remarks ..... 273

**PART V: PROJECTING  
THEORIZING ..... 277**

**CHAPTER 20: SUGGESTIONS FOR FUTURE RESEARCH.....278**

**APPENDIX .....281**

**BIBLIOGRAPHY .....287**

# PART I: PRE-THEORIZING

How important to the artwork's lasting value for us is this material world that is left behind? Are the actual textures of the painting and its larger context necessary for bringing us to a full appreciation of an artwork? More generally, is the substance of virtual reality mostly borrowed from the material world, parasitic on it and never able to reproduce the experience of the world yet seductive in its attempts to do so? *These interdisciplinary questions call for philosophically informed and articulate discussions.* From the standpoint of literature and literacy, what about the impact of technology on the act of reading itself? Has the electronic age made much of a difference to the experience of reading?

Eric Higgs et al., *Technology and the Good Life?*  
(2000)

## CHAPTER 1: INTRODUCTION

More than a decade ago, Richard A. Lanham, professor of English and rhetoric at UCLA, postulated that “the most powerful influence of the computer on modern thinking is not statistical or scientific, but humanistic – rhetorical, in fact.” (Lanham 1993: 108) In the field of computer science and digital technology, a decade seems tantamount to a lifetime. During the years that have passed since Lanham made his claim, a large number of books and papers have been written and published on the topic of digital and electronic media in the humanities, numerous conferences have been arranged and more are in the planning, and more and more arts and humanities faculties establish programs of digital technology in various guises. Hence, considering the amount of research carried out (as well as the equally considerable amount of funding), one might have expected the major impact of digital technology for the theoretical endeavors in the arts and humanities to be pinned down by now. However, while technological innovations abound, fundamental human(istic) issues relating to the field of digital technology remain at best partially addressed: How does digital technology

affect our modes of reading?<sup>1</sup> In what ways, why, and to what extent, will our reading of electronic media (for instance, verbal text on screen) affect our reading of print media? How, and to what extent, do features such as digitality, interactivity and media convergence have an impact on narrative fiction experiences? In short, how do we read a narrative fiction displayed by means of the GUI (graphical user interface)? And how is this process and our experience of it comparable to, as well as qualitatively different from, how we read other interfaces? In other words, there are many crucial questions still to be posed – and not the least answered – when it comes to the impact of digital technology on human experience, ranging from all-embracing philosophical inquiries into what one philosopher of technology has termed the “techno-lifeworld of the screen,” (Mitcham 1994: 186) to more narrowly defined and localized explorations of the impact of the digital on certain dimensions of human experience, such as the process and experience of reading narrative fictions. This dissertation will address some of the up till now ignored questions pertaining to the latter dimension.

The concept of *medium* is but one of several potentially complex terms to be employed in this study. As Ryan has observed, if you ask a sociologist or a cultural critic to enumerate media, the answer will probably be something like “TV, radio, cinema, the internet. An art critic may list: painting, music, sculpture, literature, drama, the opera, photography, architecture. A philosopher of the phenomenologist school would divide media into visual, auditory, verbal, and perhaps gustatory and olfactory [...]” (Ryan 2004a: 15-16) My scope being partly phenomenological, one might have expected me to follow the latter of Ryan’s examples; however, what she terms media here is more appropriately understood as my concept of *sensory modalities* (which I will define in due course).

In line with my focus on the experiential impact of material and technological aspects on our reading, I wish to endorse a definition of medium that is closer to the technologies and material platforms/devices involved. In the following, then, ‘medium’ will be understood in accordance with Don Ihde’s rather broad definition, as a *material artifact or device* which is experientially used in a particular way to

---

<sup>1</sup> In order to forestall any argument about text-centrism or literary imperialism, I hasten to add that I explain and justify my use of the term *reading* at greater length below.

convey what may be called broadly an expressive activity. Thus the ordinary sense of media, such as newspapers, radio, cinema, television, will be preserved as in each case there is an artifact or set of artifacts (technologies) which are used to convey information, messages, entertain, stimulate, and arouse. Such media may be said, in normative use, to embody expressive activity and to embody it by means of some materialization which may include word, image, action, reproduction, representation, or whatever. (Ihde 1983: 54)

Such a definition is, I believe, largely in synch with our commonsense use of the term. And to further narrow down the relevance of the concept, I will refer to the way Lars Nyre elaborates the definition of medium to denote “a complex technological infrastructure [...] [which] can be broken down into interfaces, platforms, and machinery.”<sup>2</sup>

In this dissertation the dimension of the *interface* is what is in focus. The interface of any medium, whether a television screen, a printed book page, or the GUI displayed by the computer monitor, can be seen as both that which connects the reader and whatever is being mediated, as well as that which separates the two:

An interface with two faces, it both connects the mediate terms yet also separates them by standing in between them. This double aspect is also present in the instrumental sense of medium as a means to an end. Though it is a way to the end, it stands in the way, a distance to be traversed between purpose and its fulfillment. (Shusterman 1997: 40-41)<sup>3</sup>

The computer presents us with an interface that is radically different from that of other technologies in which our narrative fiction experiences are typically embedded and displayed. The computer interface, broadly speaking (i.e., as including the computer screen, the mouse or touch pad, and the keyboard), is both mechanical, material, technological, and phenomenological, providing both an ergonomic, a psychic, and a phenomenological framework for our reading process and experience. Entailed in its psycho-physiological affordances are motor actions as well as perceptual and cognitive

---

<sup>2</sup> See [www.kulturteknikker.hivolda.no](http://www.kulturteknikker.hivolda.no)

<sup>3</sup> See also Nyre 2003: 41ff.

operations. All of these are equally influential dimensions of our reading experience, and they all influence both the phenomenological process as well as the experiential outcome of the process.

One can specify the interface of a medium or technology (i.e., in my case, the computer) on different levels. Moreover, as Nyre underscores (Nyre 2003: 37), any understanding and experience of these interfaces is fundamentally influenced by the materiality (i.e., the tangibility and tactility) of the different parts with which we interact. In *The Metaphysics of Virtual Reality*, Michael Heim presents a further elaboration of the interface which is also very relevant for this dissertation, claiming that “the interface is more than mechanical; it is a psychic environment.” (Heim 1993: 116) His term “psychic framework” is highly indicative for my study of the interface of the digital computer.

In this study, I will refer to the parts of the computer interface which include the mouse, the keyboard, the touch pad and other relevant hardware as parts of the computer *platform*, as I will reserve the term *interface* for a more narrow specification of this platform. As indicated by the topic of this study, a very specific type, or part, of the computer interface, namely, the *graphical user interface* – GUI – is the focus. With GUI, I mean whatever is being displayed on the computer screen – typically, in GUI narrative fictions, some graphic configuration of (static and/or dynamic) textual and/or pictorial/iconic features. Throughout this dissertation I will use the terms GUI narrative fiction (or just GUI narrative or GUI fiction) as denoting my object of study. Implied herein is narrative fiction which is *digitized*, *interactive*, and *hypermedial* (that is, multimodal and –medial, in hyperstructure). Definitions of these terms will be presented in due course.

The digitization and media convergence brought about by computer-mediated information and communication technologies entail new configurations of content that in essential ways impact the nature and characteristics of whatever is being displayed on screen, regardless of semiotic content or medium-specific genre. One area in which these new configurations are being rapidly seen and experienced, is in the representation of narrative fiction. Narratives implemented in digitized, multimedial, hyper-structure are essentially different narrative representations, and hence provide essentially different narrative experiences, than narratives presented in any single medium, or even

in any multimediality which is not digitized and implemented in a computer environment. Reading digital hypermedia narratives requires maneuvering between *nodes* (i.e., the ‘chunks’ of semiotic content which can consist of any media type, digitized by the computer program and displayed in analog fashion) by following *links* (i.e., the connections – often called pointers – from one node to another, or several others; cf. more elaborate definitions of hypertext and hypermedia below), a reading process requiring considerable cognitive effort on part of the reader. In addition to handling constantly shifting contexts and, when dealing with verbal text, a breaking up of the linearity we are accustomed to in print, digital hypermedia narratives require of us a comprehensive and complex *combinatory competence* (cf. "Conflict and Integration in Hypermedia" in Liestøl 1999) in perceiving and interpreting all the different kinds of media types and modalities a digital hypermedia narrative might include. Reading such narratives becomes a complex process of mental and ergonomic multitasking, where we find ourselves constantly performing different perceptual, cognitive, and physical operations – reading verbal text at one moment, perceiving images, processing video and/or audio, scrolling down the page, moving the mouse around on the desk, or clicking on links, or any combination of these – the next. The inherent oscillation, when reading GUI fictions, between motor operations and physical interactions with the technological devices, the perceptual aesthetic experience, the cognitive understanding and the hermeneutic interpretation necessitates a combinatorial theoretical approach addressing reading as consisting of both motor, sensual, perceptual, and cognitive processes, all of which perform a vital role in our experience of these works. The media-convergence and syn-aesthetics entailed in digital hypermedia provide new cognitive and perceptual challenges for the reader, and we are still only beginning to learn the new language. Even more, there are as yet few comprehensive theoretical and conceptual frameworks capable of dealing with these new narratives. The semiotic landscape is changing at high speed, and in significant ways. Hence, there is in the field of media studies in general, as well as in that awkwardly named field of new (or digital) media studies<sup>4</sup> in particular, a need for a for new theories of reading and interpretation

---

<sup>4</sup> Computer game designer and theorist Celia Pearce points out the obvious: “Certain terms are temporal in nature. ‘New’ is one of them. I always thought it odd that people would use ‘new’ in a name, because things are only new for so long.” (Pearce 1997: 358) Despite this obvious terminological flaw, I will



of narrative.<sup>5</sup> Indeed, the whole area of hermeneutics is in need of redefining. Or, to put it even more dramatically: perhaps hermeneutics is not even the adequate theoretical-methodological framework for our scientific inquiries anymore<sup>6</sup> – but then, what is? Digital technology is, if not changing the narrative in all respects, then at least rendering new spaces for narrative fiction, spaces for which we still lack comprehensive theoretical-methodological approaches to interpret and analyze.

This dissertation aims to address – and answer – some of the questions surrounding the ways in which the interface of the digital computer (also known as the GUI) is impacting how we experience – read – GUI narrative fictions. In my view, questions such as these are of utmost importance if we are to appropriately understand how digital technology is affecting central realms of human existence, such as our experiences of the fictions that are created and displayed in an ever increasing variety of media materialities and technological platforms. The main research questions to be dealt with in the following revolve around processes typically taking place when we read, watch, listen, experience, interpret, are engaged in, and interact with, digital hypermedia narrative fictions – what I, for the sake of simplicity, call GUI fictions. In short, how do we read GUI fictions? How, and why, is this reading different from our reading of narrative fiction in print, or of reading narrative fictions on other screens, such as on TV or in a movie theater?

To address and answer these questions, I employ a combination of philosophical and theoretical perspectives which all, on different levels and in different ways, address issues related to how we experience and interact with technologies and their different interfaces, and, more precisely, how we experience narrative fictions embedded in these technologies, with an emphasis on the technology of the GUI. My approaches draw mainly upon phenomenology as it has been developed by Don Ihde and as it has been applied to film and media studies by (in particular) Vivian Sobchack; psychological

---

continue to use “new media studies” instead of “digital media studies,” as it seems to be the most commonly applied name for the field.

<sup>5</sup> Timely addressing this lack, Marie-Laure Ryan is developing what she terms a “transmedial narratology” (Ryan 2003a, Ryan 2004a, Ryan 2004c).

<sup>6</sup> Cf. for instance Gumbrecht 2004, Gumbrecht and Pfeiffer 1994, Pfeiffer 2004. I will return to this, in my view, crucial issue at more length below.

theories of perception and cognition; cognitivism as advocated by film theorists David Bordwell and Kristin Thompson; and insights from more psychologically – even psycho-biologically – oriented approaches to film as found in contributions by, among others, Torben Grodal and Per Persson.

At first sight, combining phenomenology with such obviously scientific approaches as those of Grodal in particular, might seem to be in stark opposition to the very nature and scope of phenomenology as a philosophy and method. However, my intention in the following is not to present a pure and wholesale phenomenological approach, but to explore the ways in which a phenomenological perspective and method can in fruitful ways be combined with, and complemented by, equally relevant and in many respects closely related insights from theoretical disciplines dealing with the same issues. And conversely, I want to explore the ways in which insights from these theoretical disciplines – cognitivism and psychological theories of perception and cognition – might benefit from being supplemented by phenomenology. In this way, this project also has a meta-theoretical scope, namely, to explore some fundamental questions concerning the relevance and applicability of phenomenology, cognitivism, and psychology, individually and in combination, to the field of new media. These theoretical perspectives will be outlined more in detail in due course, along with my reasoning and justification for employing them.

The attentive reader may have noticed that the approaches mentioned are, phenomenology exempted, predominantly from the field of film studies. Obviously, moving images take up a large part of the screen, literally speaking, in digital media in general, as well as in GUI fictions. Hence, theories of the moving image might indeed seem intuitively relevant when studying these fictions. However, this is not my main reason for turning to film theory for theoretical inspiration. As I will make clear in the following, much of the theorizing in the field of new media studies (and in particular in that area of this wide field commonly called hypertext and hypermedia theory) is of such a character and quality that I have found them most often to be of little use for my purposes. Most importantly, the theoretical approaches that I draw upon take a distinctly different methodological approach than the rather idiosyncratic tendency currently

dominating in new media studies,<sup>7</sup> displaying a scientific rigor and methodology that I find much more valuable and advanced, generally speaking, compared to much of hypertext and hypermedia theory.

In addition to the formerly mentioned theoretical perspectives, I find the works of philosopher and (former) film scholar Noël Carroll to be highly relevant and invigorating, not least because of his stringent methodology and terminological consistency and clarity. This dissertation is modeled after Carroll's call for "piecemeal theorizing," which I outline in more detail below.

---

<sup>7</sup> Claiming that the study of video games "has recently become the hottest and most volatile field of study within new media theory," Mark J. P. Wolf and Bernard Perron give a good overview of what a theoretical-methodological mishmash it has turned out to become: "[T]he emerging field of video game theory is itself a convergence of a wide variety of approaches including film and television theory, semiotics, performance theory, game studies, literary theory, computer science, theories of hypertext, cybertext, interactivity, identity, postmodernism, ludology, media theory, narratology, aesthetics and art theory, psychology, theories of simulacra, and others." (Wolf and Perron 2003: 1-2) Apparently, and contrarily to my view, Wolf and Perron do not see any problems with such a situation.

## CHAPTER 2: PRESENTING AND POSITIONING THE STUDY

### 2.1. Research questions

My main research questions are:

- how does the GUI display (implied herein: digitality, interactivity, hyperstructure, multimodality) impact our reading of narrative fiction?
- how and why do we experience narrative fictions displayed by the GUI differently than when displayed by means of other technologies and in other interfaces, such as for instance a movie screen or printed text on a book page?
- why, how and to what extent is phenomenology an apposite and useful approach in order to deal with these issues?
- why, how and to what extent are cognitivism and psychology apposite and useful approaches for these purposes?
- and, how can the philosophical perspective of phenomenology and the scientific, theoretical approaches of cognitivism and psychology in any useful and adequate way be combined for such a purpose? Indeed, why *should* they be combined?

### 2.2. Summary

I have structured this dissertation in five main parts, which I have called (I) pre-theorizing, (II) meta-theorizing, (III) piecemeal theorizing, (IV) synthesizing theorizing, and (V) projecting theorizing. The first part sets the stage, introducing definitions of the main concepts and terms, presentation of main research questions to be addressed and empirical material to be used for exemplifying and illustrating purposes, as well as

briefly referring to some recent and current studies which are commensurate to this dissertation, in that way further clarifying and highlighting what will be the main contributions from my study compared to already existing studies or studies currently being conducted on related topics.

Part II covers the first of my two main scopes, namely, a meta-theoretical perspective on the current theoretical-methodological state of affairs in media studies in general, but in new media studies in particular. As a proposal for a more productive theoretical-methodological approach to new media, my dissertation is written in accord with film theorist and philosopher Noël Carroll's ideal of piecemeal theorizing, which I outline in more detail in part II, and justify in relation to new media studies. In addition, the meta-theorizing part serves as preparing the ground for part III – piecemeal theorizing, in introducing my main theoretical perspectives – phenomenology and cognitivism – and how and why I intend to use them, as well as how and why such seemingly incompatible approaches can, or indeed *should*, be combined when studying new media.

The piecemeal theorizing is conducted in part III, which consists of several sections structured according to the (piecemeal) dimensions of the reading experience of GUI narrative fictions they address. The part is mainly – as is the entire dissertation – theoretical, meaning that analyses and readings/interpretations of single works of GUI narrative fictions are not very prevalent. My use of empirical material is largely limited to the sakes of illustrating and exemplifying my theoretical points – a logical implication of a piecemeal theorizing approach (see Bordwell and Carroll 1996).

The conclusions of both the meta- and the piecemeal theorizing parts are presented in part IV in the form of a tentative synthesis. Finally, it is my hope and intention that this dissertation, considering its fairly original (meta-)theoretical and cross-disciplinary approach, will contribute to triggering some ideas and opening some avenues of productive future research in the field of new media studies, as well as media studies at large. Some reflections and ideas in this respect are presented in part V, projecting theorizing.

### 2.3. Empirical material

As briefly mentioned, being a predominantly theoretical dissertation, analysis and interpretations of empirical works are not my main focus in this study. Hence, my scope is comparable with Susan L. Feagin's intention in *Reading With Feeling – The Aesthetics of Appreciation*, which she introduces as follows:

This book is an exercise in philosophy, and it develops a philosophical account of appreciation. It is therefore not an exercise in literary criticism. Although I provide examples throughout to illustrate the philosophical points that I wish to make, my objective is to focus attention on deeper issues about the nature of appreciation and affective response, rather on the particular examples chosen to illustrate the issue. [...] The topic is not interpretation, but appreciation. (Feagin 1996: 2)

Replace philosophy with phenomenology and psychology, and you will, roughly, have my intention in this dissertation. Similarly, Per Persson emphasizes in his dissertation on the psychology of moving images how his claims are psychological, not aesthetic (Persson 2003). Correspondingly, my claims in this dissertation are phenomenological and psychological, not hermeneutic, literary, or aesthetic. Hence, my mode of using the empirical works selected corresponds in many respects to that announced by Bordwell in the introduction to the anthology *Post-Theory*:

There is [...] much less film interpretation between the covers of this book than is typical in cinema studies. The primary reason for this revolves around the fact that many of the articles are theoretical and, as such, usually make reference to individual films briefly and use them to illustrate theoretical claims. [...] [M]ost pieces here refer to particular films only in order to substantiate or illuminate theoretical claims or to flesh out larger narratives. (Bordwell 1996c: xvi-xvii)

In the same manner, I only briefly and sporadically refer to particular works, and then merely as a way of substantiating and illustrating my theoretical arguments, and not intent on any interpretation of the works – whether aesthetic, hermeneutic or rhetoric; partial or “total.” My aspirations, then, are piecemeal, scientific and theoretical, rather

than totalizing, aesthetic/hermeneutic and interpretational.<sup>8</sup> For this reason, I find the tracks and objectives of both phenomenology and cognitivism to be preferred at the cost of much of the theorizing currently being conducted in new media studies.

The focus in this study is the experiential (cognitive, phenomenological) impact of different configurations of the GUI, not the particular GUI narrative fictions per se. Hence, my theoretical attention is directed at a level above the GUI narrative fictions, as it were – as if a literary theorist were to focus on the technological platform of the print paper and the bound book. What is special about the GUI, however, is that the significant features that I focus on (intangibility, hyperstructure, interactivity, etc.) are the same for the various single manifestations in GUI narrative fictions. Hence, GUI narrative fictions are interesting to me not as autonomous aesthetic (or literary) works, but as displays (illustrations, exemplifications) of an underlying technology and material platform.

The works that I will be using as examples and illustrations have as their common denominators that they are (to some extent and in some way – cf. definition of ‘narrative’ and, more cursory, ‘fiction,’ below) *narrative fictions*, as well as, of course, implemented in a digital computer and displayed on a screen. No matter how theoretical my scope, such a focus might warrant some justification. Why is it in any way significant and relevant for the present study that the objects of study are narrative fictions? Why do I explicitly define my scope as not dealing with such pervasive and arguably influential digital configurations as web newspapers and other digital versions of journalism, the interesting phenomenon of web-cams, or that digital phenomenon to be granted so much attention lately, namely blogs (weblogs)? And I have not even mentioned the vastly expanding and immensely multi-faceted areas of computer games, or any implementation of virtual reality technologies (or other technological trends, such as ubiquitous computing, augmented reality, and tactile computing). There are, in other words, numerous “genres” or “types” of digital representations, fictional and non-fictional alike, which I have deliberately chosen not to address in this study. Instead, my focus of attention will be on something I have chosen to call GUI narrative fictions.

---

<sup>8</sup> Below I also elaborate on how and why I consider hermeneutic (aesthetic) interpretations not to be particularly productive and interesting when the topic of study is new media.

Considering the list of omitted digital fictions and nonfictions, the suspicious reader might – perhaps justifiably – be tempted to ask: do GUI narrative fictions even exist?

To take the last question first: yes, they do exist, and they are even considered by many influential hypertext theorists to be the ultimate feat of hypertext technology, showing the quintessence of this new way of creating, displaying, and reading narrative fictions. According to Jay D. Bolter,

hypertext fiction has become the most convincing (and to some disturbing) expression of the idea of hypertext. Whereas the hypertext nonfiction essay hardly exists as a genre, we can already distinguish several, overlapping genres and forms of interactive fiction, including hypertext novels or short fictions, hypermedia narrative forms that refashion film or television, hypermediated digital performances, and interactive or kinetic poetry. [...] It makes sense that creative writers should lead the way in developing the possibilities of electronic hypertext. (Bolter 2001: 121)

Similarly, in his book *Technoromanticism*, Richard Coyne claims that “digital narratives place the invention and refinement of the computer at the pinnacle of scientific and technological accomplishment [...]” (Coyne 1999: 3) Influential hypertext author and theorist Mark Amerika has described the entire World Wide Web as one large “public-domain narrative environment.” (Amerika 2004) In a paper with the title “Feral Hypertext: When Hypertext Literature Escapes Control”<sup>9</sup> presented at the ACM Hypertext Conference in 2005, Jill Walker concluded her talk with the following statement: “Perhaps our greatest challenge [...] lies in recognizing literary forms that do not adhere to our conventional forms of discipline: authors, works and commodities. I suspect that these forms of literature will be the most interesting in years to come.” (Walker 2005) Writing about hypertext in *UCLA Today*, N. K. Hayles states that “[a]s the body of literary hypertexts grows, I anticipate that it will become an

---

<sup>9</sup> “Feral hypertexts are not as clearly delimited and disciplined as domesticated hypertexts are, and our language and culture aren’t designed to speak about things that lack boundaries. What feral hypertexts have in common is that they have reverted to the wild, in one respect or another. [...] The online version of the *Encyclopedia Britannica* is an example of a domesticated and carefully controlled hypertext, while the Wikipedia is an example of a feral hypertext.” (Walker 2005)



increasingly important part of literature in the new millennium.” (Hayles 2004a)<sup>10</sup> Hayles also emphasizes the increasing importance of hypertext literature for understanding the future of humanity:

As electronic literature matures, it develops rhetorics, grammars, and syntaxes unique to digital environments. Learning to speak digital, it calls forth from us new modes of attending – listening, seeing, moving, navigating – that transform what it means to experience literature (‘read’ is no longer an adequate term). If each era develops a literature that helps it understand (or create) what it is becoming, a better comprehension of our posthuman condition requires a full range of literary expression, print and electronic. The future of electronic literature is our future. (Hayles 2005a)

Without necessarily supporting such praise, I choose in this project to concentrate on studying the impact of the digital GUI on our reading *narrative fictions*, for several reasons. The first and simplest reason is pragmatic; the landscape of digital media technologies, on- and off-line, is so multifarious and variegated that some limiting and unifying scope is needed in order to be able to address the research questions in a coherent and productive way. A set of common denominators is required, and in my project this set consists of the notions of *reading*, *GUI*, and *narrative fiction*.

Another reason for my decision to concentrate on narrative fictions is the fact that precisely narrative theory and concomitant theories of immersion have been, and still are, commonly applied to the field of hypertext and hypermedia. The seemingly endless dispute about whether computer games are narrative or in any degree possess narrativity is just one example. It is not my intention in this dissertation to add verbiage to this already cluttered debate; instead, I want to focus on perceptual, cognitive, and phenomenological aspects of the experience of reading narrative fiction displayed on

---

<sup>10</sup> Another sign of the role and productivity of the hypertext fiction community is the work of the Electronic Literature Organization (ELO), whose mission is “[t]o facilitate and promote the writing, publishing, and reading of literature in electronic media.” (www.eliterature.org). ELO also has a Nordic affiliation, ELINOR (www.elinor.nu). The hypertext fiction community is also regularly represented at major digital media and technology conferences, such as the annual ACM Hypertext and the bi-annual DAC (Digital Arts and Culture).

the computer screen, and investigate in more detail how the material, technological platform and the affordances of the GUI impact our immersion in a narrative fiction.

Of particular relevance for my study of the (technological; material) ramifications for immersion in a fictional world when reading GUI narrative fictions is M.-L. Ryan's distinction between a *technological* approach to immersion, and a *phenomenological* approach. The technological approach asks "what features of digital systems produce an immersive experience [...]," (Ryan 2001a: 14) whereas a phenomenological approach relates to the degree to which the reader feels phenomenologically (that is, corporeally as well as cognitively and emotionally) connected to a fictional world: "In the phenomenology of reading, immersion is the experience through which a fictional world acquires the presence of an autonomous, language-independent reality populated with live human beings." (Ryan 2001a: 14) Phenomenological immersion in a fictional storyworld relies on a gradual and temporal building up of the fictional world consisting of setting, characters, and events that together form a plot.

In part building on Ryan's account of technological and phenomenological immersion, I focus on how different technologies, with different material platforms affording different experiential – i.e., entailing cognitive, perceptual, and phenomenological – actions and performances (phenomenologically expressed as intendings), engender and facilitate different kinds and degrees of immersion. As we have all probably experienced, immersion is a matter of degree. Equally important for this study is that we can differentiate between *kinds* of immersion. There is what you could call immersion in a technologically enhanced environment, such as we typically experience in different kinds of virtual reality (VR) installations, computer simulations, and, albeit differently, when playing computer games. This I will refer to as *technological* immersion, referring specifically to aspects and dimensions of the materiality and physicality of the technological platform which generate and enhance our immersive experience of the technological platform itself. Technological immersion facilitates a sense of being immersed in a fictional, virtual, world which is created and sustained by the technological features and material devices involved in its display rather than by our acts of imagination. *Phenomenological* immersion, by contrast, will here be understood as that sense of being immersed in a 'virtual' (in a figural sense of

the term) world which is to a large extent the product of our own mental, cognitive, abilities to create that fictive world from the symbolic representations (textual, visual, auditive) displayed by means of any technological platform. This kind of immersion is, in the words of Don Ihde, a process and a product of a *hermeneutic presence* (cf. Ihde's existential technics and hermeneutic relation, below).

My hypothesis is that the computer as a material technology, with its particular platform and interface, is poorly suited for providing a setting for phenomenological immersion. This may not sound like a very bold hypothesis, considering the number of already existing studies on the same, and similar topics, and considering that, for the most part, their conclusions point in the same direction.<sup>11</sup> However, with very few exceptions, such approaches are more commonly oriented toward narratology and narrative theory, or philosophical (and sometimes psychological) theories of fictional (or parallel/possible) worlds,<sup>12</sup> than towards focusing on the actual reading process and experience of these fictions. What is more, few of these approaches take into consideration how technological facilities and material qualities of the medium, such as the digitality, the motor interactivity required by the interface and the technological and material platform (including the mouse and the keyboard), and the phenomenological and perceptual-cognitive implications entailed in these relations, impact our reading and immersion.<sup>13</sup> Hence, I claim that my approach from the joint perspective of phenomenology and cognitivism will add further depth and nuance to our understanding of the experiential impact of digital technology on our reading of narrative fiction.

In addition, I'll claim that the role and impact of digital technology on how we create, display, and experience narrative fiction is a particularly interesting and viable venue for studying in more depth the phenomenological and cognitive impact of digital technology and the GUI. As Sarah Sloane points out, the art and nature of narrative

---

<sup>11</sup> Cf. for instance Aarseth 2004a, Aarseth 2004b, Bolter 2001, Bolter and Grusin 1999, Douglas 2000a, Douglas and Hargadon 2004, Hayles 1999b, Hayles 2001, Koskimaa 2000, Liestøl 1999, Manovich 2001, Meadows 2003, Murray 1997, Ryan 2005, Ryan 2004c, Sloane 2000, Vorderer 2000, Vorderer, Knobloch and Schramm 2001, Willerton 2000, Young 1998a.

<sup>12</sup> Cf. for instance Ryan 1991, Ryan 2001a, Ryan 2001b, Ryan 2003b, Walker 2003.

<sup>13</sup> The doctoral dissertation of Jill Walker might count as an exception here; however, Walker does not study in any depth the perceptual-cognitive and/or phenomenological implications of the mouse click (see Walker 2003).

fiction is of paramount importance for humans: “Storytelling is both a central activity of human beings and a primary means of organizing information and experience in our lives.” (Sloane 2000: 4) Generally speaking, narrative fictions have some clearly defined characteristics which in different ways and to different degrees create the foundations for our reading and experience, premises which are often the very reason and motivation for our reading narrative fictions in the first place (I am referring to the mechanisms of narrative which typically work to make us feel immersed in a fictional world, such as surprises and suspense, i.e., what we commonly call “page-turner” devices and mechanisms).

Hence, the works that I will be using as examples illustrating my theoretical points are typically found in the directories of the ELO (The Electronic Literature Organization – [www.eliterature.org](http://www.eliterature.org)) or other similarly relevant directories of hypermedia narrative fictions, or they exist as CD-ROMs, published by, for instance, Eastgate Systems. There is one narrative fiction that I will refer to more frequently than others, namely *Califia* by M.D. Coverley (Coverley 2000). This is because Coverley’s work is so extensively multimodal, creating a phenomenologically interesting display of hypermedia configurations. At the same time, such comprehensive multimodality does not annihilate a clear narrative thread (or, rather, threads) in the work, making it particularly relevant for a study intent on addressing the questions of the claimed incompatibility of interactivity and immersive reading.

#### **2.4. Previous and current studies that are comparable to this study**

To get a better idea of the scientific and disciplinary context to which the current study relates, it might be helpful to take a brief look at what work has been done in media studies previously (on digital narrative fictions or related and/or comparable topics), as well as what work is currently being done. Needless to say, this is a huge undertaking, so the following is not intended as an exhaustive summary of an entire field. However, there are a few projects that I find worth mentioning in particular, not least as a means of more clearly positioning my own project and clarifying what my contribution will

consist of. To make the task somewhat more manageable, I will here limit myself to Scandinavian projects.

As could be expected, during the past few years, the number of doctoral dissertations on digital media in the humanities has been steadily increasing, and more and more projects are being launched. However, the number of them specifically addressing issues of materiality and experience, with phenomenological and cognitive/perceptual aspects of digital technology, is still marginal. There are as yet just a handful of completed dissertations that would seem immediately relevant for this project, and a couple of them are in fact dealing with film, not with digital media *per se*. However, they will be presented here because they are, theoretically and methodologically, directly relevant for my study.

In a dissertation on hypertext and hypermedia, you can hardly avoid referring to the very first (Norwegian) doctoral work in the field, namely, the dissertation of Espen Aarseth, published in 1997 (Aarseth 1997). Titled *Cybertext: Perspectives on Ergodic Texts*, Aarseth's dissertation takes a comprehensive approach to the field of digital "texts," proposing a new typology and taxonomy for all types of texts, with reference to their mode of production and experience. Hence, his concept of cybertext is a perspective on all types of textuality, employed "to describe and explore the communicational strategies of dynamic texts." (Aarseth 1997: 5; 18) In contrast to, say, a print novel, cybertexts are *ergodic*; ergodic is "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) In other words, such texts can be conceived of as machines, as "mechanical device[s] for the production and consumption of verbal signs." (Aarseth 1997: 21) As such, cybertexts require what Aarseth calls "extranoematic"<sup>14</sup> performance on part of

---

<sup>14</sup> Apparently, Aarseth is hinting at a phenomenological understanding of intentionality here, which underscores the noetic-noematic correlation as fundamental to our consciousness. In phenomenology, the *noetic* correlate corresponds to the act of experiencing, and is the subject correlate in this relation, whereas *noema* denotes any object of intentionality, that is, that which is experienced as it is experienced. I suspect that Aarseth's somewhat distorted version of this correlating pair stems from the translation of the term *noema*, meaning "that which is thought" and, hence, that extra-noematic is perhaps intended to mean "that which is outside of thought," e.g., physical action. In a phenomenological context, however, such a distinction would not make sense, as any physical action – Aarseth's non-trivial effort – is as much

the reader, namely, some kind of physical (or, as Aarseth terms it, “nontrivial”) effort in order to access and “read” the text, in addition to the cognitive, perceptual and interpretive efforts commonly required. An important corollary of such a perspective is that the textual category of cybertext is neither new nor specifically connected to digital technology. As Aarseth claims, what was quite possibly the first and best known cybertext of antiquity, can be traced back to “the Chinese text of oracular wisdom, the *I Ching*. Also known as the *Book of Changes*, the existing text is from around the time of the Western Chou [sic] dynasty (1122-770 B.C.), and was written by several authors.” (Aarseth 1997: 9) According to such a view, hypertext is merely a more modern instantiation of a machinic textuality that has been around for millennia, and the antique *Book of Changes* and the digital hypermedia narrative are merely “superficially heterogeneous,” concealing a more profound structural kinship. (Aarseth 1997: 14)<sup>15</sup>

In this way focusing on the machinery of (cyber)texts and the concurrent “nontrivial” activity of the reader, Aarseth is among the first new media scholars to pay attention to the materiality and its impact on the experience of the texts in question. However, talking about the reader’s experience when reading hypertext literature (taking Michael Joyce’s *afternoon* as his main example), Aarseth’s contribution falls short of providing any substantial insights into the phenomenology of the experience beyond that of a somewhat allegorical description of what he terms the master tropes of hypertext, namely *aporia* and *epiphany*:

The engaged hypertext quickly turns into a dense, multicursal labyrinth, and the reader becomes not so much lost as caught, imprisoned by the repeating, circular paths and his own impotent choices. What we identify as fragments [...] makes us look for a whole even if there is no evidence that the fragments ever constituted such a whole. An *aporia* in a very literal sense. [...] Complementary to this trope stands another; the *epiphany*. This is the sudden revelation that replaces the *aporia*, a

---

a subject correlate as any mental act; they are merely two different intendings, two different noetic – experiencing subject – correlates (cf. my elaboration of phenomenology in part II).

<sup>15</sup> At this point I firmly disagree with Aarseth; as I will explain in more breadth and detail later, it is my contention that there are fundamental and profound differences between a text carved onto tablets of clay or rock – or, in later versions of the *I Ching*, handwritten on papyrus, or printed on paper – and the digital text, differences that should not be underestimated, especially when it comes to their experiential impact.

seeming detail with an unexpected, salvaging effect: the link out. [...] Together, this pair of master tropes constitutes the dynamics of hypertext discourse: the dialectic between searching and finding typical of games in general. The aporia – epiphany pair is thus not a narrative structure but constitutes a more fundamental layer of human experience, from which narratives are spun. (Aarseth 1997: 91)

Alluring as such a dichotomy may be, Aarseth's observations remain rather superficial allusions to phenomena which are obviously in need of closer – and more scientific – scrutiny. And in my view, approaches such as phenomenology and cognitivism beckon themselves for the task.

More recently, Jill Walker wrote her doctoral thesis on interactive aesthetic works, focusing on how the user's physical (what she calls non-perceptual; that is, kinetic, or haptic) actions and performances with a digital work is what makes you feel immersed in a fictional world (Walker 2003). Her approach is clearly and strictly defined, and the topic she focuses on is of relevance for my project. Drawing primarily upon the theoretical perspectives of Kendall Walton (Walton 1990) and Thomas Pavel (Pavel 1986), Walker suggests that it is the fusion of the user's actual actions (i.e., physical actions in the actual world) and his fictional actions (i.e., the actions prescribed by and inscribed in the fictional world presented by the work) that makes the user of a digital work of fiction feel truly immersed in the fictional world:

[I]n ontological interaction, the user is positioned within the fictional world. The positioning of the user inside the fictional world happens [when] [...] the user's actual actions directly correspond to fictional actions in the fictional world. When the user's actual actions correspond directly to fictional actions, the user becomes the site of an ontological fusion between actual and fictional, and it is this that makes us feel immersed. (Walker 2003: 63)

In my view, Walker's conclusion strongly solicits further elaboration: what are the experiential – phenomenological, cognitive, perceptual – relations between the user's perceptual and physical interactions with the works, as well as between the so-called actual and fictional actions? In what ways, why, and to what extent do the material features of the interface and the technological platform of the medium impact and facilitate one type of interaction rather than others? How does the user experience,

phenomenologically as well as psycho-somatically, a fictional action compared to an actual action? As was the case with Aarseth's doctoral work mentioned above, Walker's dissertation raises a number of questions that are both interesting and relevant to my study, but she never delves into phenomenological or psycho-physiological aspects of the different kinds of actions and interactions – perspectives which, in my opinion, would seem obviously relevant when attempting to say something illuminating about how the user experiences being part of a fictional world, whether these fictions are digitally implemented or not.

There is another Norwegian doctoral dissertation that I would like to mention specifically in this context, namely that of Lars Nyre. Of the works discussed so far, his doctoral thesis *Fidelity Matters: Sound Media and Realism in the 20th Century* (Nyre 2003) is the one which comes closest to mine in ambition and scope. Underscoring how theoretical approaches to sound have been unduly neglected in media studies so far, being reduced to serving either a narrative or a rhetorical function, Nyre markedly announces that he “refuse[s] to think of sound as a function of language [...]” (Nyre 2003: 14) In contrast, he insists that “the mass media rely on forms of understanding that can only be acknowledged properly if bodily skills and perceptual habits related to the technology are prioritized in the theoretical investigation [...]” (Nyre 2003: 27) and in order to address these aspects Nyre draws upon phenomenology (particularly that of Don Ihde) and medium theory. Thus echoing my own project, Nyre contends that in his theoretical approach “the ‘content’ will be held at bay. [...] [T]his means that I will focus on the perceptual surface of performances instead of their symbolic or linguistic depth.” (Nyre 2003: 17)

Nyre's doctoral work is both a comprehensive and immensely thorough study, and its combination of historical breadth and theoretical-methodological sophistication cannot be appropriately represented in such a brief summary as the one undertaken here. Suffice it to say for the present purposes that my project is inspired by Nyre's close and meticulous focus on perceptual aspects of our relating to the interfaces of technology without lapsing into narrative, symbolic, political/ideological, or aesthetic interpretations.



His work is comparable to and relevant for my own study in yet another context. When justifying his approach, he gives the following reasoning for his choice of terminology and epistemological position:

[T]o write about the reality of sound with these concepts [i.e., perceptual experience, the materialistic dimension, the concrete, non-linguistic qualities of sound, etc.] instead of using the culturalist vocabulary might be considered a philosophically naïve approach. It may seem that I do not reflect on the cultural embeddedness of my descriptions, but take them at face value. It may seem that I think my words for sounds are more transparent, and give a more direct access to the meaning of sound than the structural vocabulary. It may seem that instead of reflecting about the complexity of ‘facts’ about the world, I simply state facts. This risk I am willing to take. Throughout this thesis I will take the liberty of using the English language for discussing sounds as material facts of the world, under the assumption that there is at all times such a tangible world, and that until further notice my vocabulary is as legitimate as any other. (Nyre 2003: 15)

The addressee of Nyre’s polemical statement is obvious; commensurate with my own work, Nyre declares his project and intentions to be explicitly and deliberately at odds with the currently dominating perspectives, theories and vocabularies of different strands of (social) constructivism.

Geographically and disciplinarily expanding the scope a bit, I would also like to briefly draw attention to a couple of recent Swedish doctoral dissertations in film studies, namely, Per Persson’s *Understanding Cinema: A Psychological Theory of Moving Imagery* (published in 2003), and Malin Wahlberg’s *Figures of Time: On the Phenomenology of Cinema and Temporality* (Wahlberg 2003). I will return at length to both of these during my theoretical outline later in my project, as they are both directly relevant for my choice and combination of theoretical approaches and philosophical perspective.

Persson’s dissertation takes off from psychological theories about how we experience the phenomenal world – “the interface to the environment around us, structuring and directing behavior [...]” (Persson 2003: 1) – i.e., our lifeworld. He focuses on spectator dispositions – meaning any physiological or psychological set of characteristics which spectators employ in their understanding of films (i.e., roughly

corresponding to mental models or schemata) – and how these impact and influence our experience. As a complementary theoretical perspective, he draws upon psychological theories and models of discourse processing and understanding (such as those found in for instance Kintsch and van Dijk 1978; van Dijk 1997; Zwaan 1993), claiming that – and showing how – these models are transposable to the cinematic realm (Persson 2003: 25ff.). A central premise in Persson’s thesis is that film theorists should pay more attention to how we perceive and understand our everyday experiences in our lifeworld, and use this understanding as a framework and basis from which to understand our experiences of moving images (see pp. 21-23 et passim.). As such, Persson is clearly influenced by the cognitivist tradition in film studies, represented by, among others, David Bordwell, Noël Carroll, and Torben Grodal. These are also central sources of influence for my project, and I will deal with both Persson’s and their works at greater length in part II, meta-theorizing.

As can be inferred from the title, Malin Wahlberg’s project is a (partly) phenomenological approach to the question of temporality in cinema – both in terms of ‘ocular’ and ‘sensory’ time (i.e., the time of watching an image), and the “pragmatic time” of the created temporality of/in the image (Wahlberg 2003: 14). Wahlberg calls upon (primarily Husserlian) phenomenology but finds that, in order to deal adequately with these issues, a purely phenomenological perspective must be supplemented by narrative theory, historiography, and spectator psychology (Wahlberg 2003: 118).

As a part of her extensive philosophical and theoretical reflection, Wahlberg carefully discusses and criticizes Vivian Sobchack’s phenomenological film theory, and she concludes with partially dismissing phenomenology as an adequate and productive perspective and method for dealing with questions of filmic experience. I find Wahlberg’s reasoning for remaining skeptical of phenomenology as a method of film studies to be of particular interest, and I will be addressing her work more in detail as part of my own justification of the value of phenomenology for such questions in part II.

In concluding this section, I would like to dwell for a moment on a current media research project in Norway which seems to be especially relevant for my study. Claiming that media research (at least in Scandinavia) has until now by and large been “disembodied,” that is, without interest in and attention to the bodily, sensory/perceptual dimension of media use, Barbara Gentikow and Lars Nyre (Gentikow 2004, 2005) have

launched the project titled *Culture Techniques* (“*Kulturteknikker*”), aiming to restore this lack by

adding at least three more dimensions to the use of the media: (1) buying and consuming media as commodities; (2) sensual contact, perception, aesthetic experiences; (3) engaging with the mass materiality in terms of operating them as information and communication technologies. (Gentikow 2004)

As such, *Culture Techniques* echoes the present study in focusing on the materiality of media. One significant difference between my project and at least one of the individual projects involved in *Culture Techniques* (e.g., Nyre’s “Techniques for Better Broadcasting”) is Gentikow and Nyre’s dual focus on both the experiential dimension as well as the production aspect of new technological platforms and materialities. Hence, the aim of *Culture Techniques* is not only to gain insights into how new technologies, through their different (cultural and technological) interfaces, create and engender new audience experiences, but also, and as a consequence of these insights, to reflect upon – and *develop* – viable solutions for certain (new) means of communication, such as enabling and developing journalistic formats and technological platforms facilitating more democratic radio journalism – what Nyre calls “instructive media research”<sup>16</sup> (Gentikow and Nyre 2005).

This last-mentioned focus of *Culture Techniques* aside, it seems that my project could feasibly be considered an attempt to partially fulfill at least some of the goals of this project, namely, addressing two of the new tasks that Gentikow lists for media use research in the light of new media:

---

<sup>16</sup> “Media researchers can create editorial formats that are more deliberative and more existentially beneficial for European citizens than broadcasting formats in the analogue realm have been. [...] The researcher should not merely interpret the human experience, but change it. Working at a university the researcher is in a position from which to influence the public mind and the future workers in journalism and media-related professions. [...] The instructive attitude makes it a natural ambition for the researcher to outmaster the professionals not just in the discussion about values, but also in the ability to build original prototypes and develop good formats for them.” See Nyre: “Instructive Media Research: Shaping the Future of Mediated Communication” ([www.kulturteknikker.hivolda.no/nyre](http://www.kulturteknikker.hivolda.no/nyre), and Nyre 2004).

Some of the most relevant [new tasks] are, as I see it: (1) more attention to perceptive and aesthetic experiences; (2) explorations of how our activities, our fingerwork, translate to mediated communicative activities [...]. (1) As to perception, we have to develop a more comprehensive notion of the meaning of mediated perception and of our physical reactions to media's materiality. Some work is done [by, for instance, Vivian Sobchack, Lars Nyre, Don Ihde], but this perspective has not yet found access to media studies proper. [...] (2) As to the function of our physical interactions with media, some work has been done as well. However, it is predominantly in relation to the use of electronic games, online games and other types of cyber texts. These constitute challenging new relations between media and users in terms of body interface relations. (Gentikow 2004)

Judging from this project, then, it might seem that decade-old regrets about the hegemony of hermeneutics made by, among others, David Bordwell about film studies and its lack of sensuous focus ("The End of Interpretation?" in Bordwell 1989a: 254-263), and later repeated by Vivian Sobchack (Sobchack 1994) and Andrew Darley (Darley 2000), have finally made their way to media studies (in Norway). Whether the regrets will eventually bring about fundamental and far-reaching changes remains to be seen, but the above-mentioned projects give us reason to believe that something might be about to happen.

## CHAPTER 3: DEFINITIONS

### 3.1. Introductory

Definitions are not statements of reality, they are conceptual tools. As tools, however, they are indispensable – and in a field so disparate and multidisciplinary as new media studies, the task of arriving at a precise and consistent terminology providing adequate and useful definitions is particularly important. Doing humanistic research in the field of digital media necessitates consistent, and meticulous, maneuvering between several different scientific fields and disciplines, each with their own ontology, epistemology, and terminology. The object of study for this dissertation is what I have termed *digital, interactive, hypermedia narrative fictions* – or *GUI narrative fictions*, for short. Admittedly, such a train of words might seem like a unnecessarily cumbersome conglomerate of (partially) overlapping terms. My reasoning for doing this, however, is anything but coincidental; nor is it, as I see it, pleonastic. Judging from other studies dealing with same, or similar, objects of study, however, it seems I might as well have labeled them hypertext novels or narratives; hyper-fiction or hyper-literature; interactive (narrative) fictions; multimedia (narrative) fiction; digital (narrative) fiction; ergodic literature (Aarseth 1997); electronic (narrative) fiction; interstitial fiction (Moulthrop 1999); or, one of the most recent noteworthy creations, technotexts (Hayles 2002b).<sup>17</sup>

The terminological turmoil – which is not limited to the empirical object, but is as extensively found in the theoretical vocabulary as well – reflects both the number and the nature of the scientific disciplines involved in theorizing these objects, from meticulous and tedious polishing of what to a humanities scholar might seem like

---

<sup>17</sup> A brief look in the comprehensive *Routledge Encyclopedia of Narrative Theory* serves to underscore this impression of terminological clutter: here we find separate entries for terms and concepts which are frequently overlapping (such as for instance ‘digital narrative’, ‘ergodic literature’, ‘hypertext’, ‘interactive fiction’, and ‘multi-path narrative’), resulting in an immense system of cross-referencing. (Herman, Jahn and Ryan 2004)

largely technological terms, to broad and passionate discussions about arguably ideological implications inherent in terms such as ‘narrative’ and ‘interactivity’. The field of new media provides a common test ground for scientific disciplines ranging from information science, computer science and engineering, via experimental psychology and cognitive science, theories on education and information design (or information architecture), to humanistic research in practically all fields. There is bound to be quite a few discursive disagreements. To begin with what is perhaps the most obvious, there is the terminological divergence between the “hard” technologists on the one hand, and the humanities on the other, in which distinctions which are crucial for one part – such as for instance narrative versus fiction in, say, film studies, or that between story and discourse in literary theory (or film studies or media studies) – do not necessarily make much sense as scientifically distinct for the other. In addition, there comes the bundle of challenges pertaining to employing concepts such as ‘meaning’, ‘language,’ ‘literature’, ‘sign’, ‘representation’, ‘experience’, ‘reading’, and ‘interpretation’. Concepts such as these are all deeply embedded in our everyday parlance, so that most literate people have a fair sense of what they mean. However, the “common sense meaning” of any of these concepts would not necessarily concur with the requirements for a more precise meaning and definition in order to apply them in a scientific project like the present one. Complicating the matter even further is the extent to which these concepts are defined and applied cross- and multi-disciplinarily.

In one of the first book-length studies of interactive narratives, Jane Yellowlees Douglas observes that “remarkably little consensus exists as to the definition of interactive narratives as a genre – or even if such a thing exists – let alone the definitions of what constitutes ‘hypertext,’ ‘interactive,’ and, even, ‘narrative.’” (Douglas 2000a: 3) Some years have passed since Douglas’ publication, but the need for definitions in the field is as mandatory as ever. In this section, the following terms will be defined:

- digital
- interactive
- hypertext and hypermedia
- (multisensory) reading

- narrative & literature

These definitions will serve as a basis for the following theoretical elaboration and discussion.

### 3.2. Digital and analog

GUI narratives are, firstly, defined by being *digital*. In contemporary parlance, the term ‘digital’ is intimately connected to the computer. However, as the etymology reveals, the origin of the term is very tactile, indeed bodily; the term ‘digit’ comes from the Latin word ‘digitus’, denoting a finger or a toe. Today, digital is commonly understood as relating to the conversion of information into numeric form – more precisely, into binary digits (i.e., as strings of 0’s and 1’s). The term ‘digital’ is employed – and emphasized – here to highlight that my empirical material consists of narratives that are produced by means of digital technology, e.g., a digital computer.<sup>18</sup> As a consequence, digital hypermedia narratives, as I define them, also have to be *read* by means of digital technology – such as a digital computer.

Strictly speaking, ‘digital’ can only refer to data represented or stored in digital form; as output, in whatever form (as graphic computer images, as electronic text), the representations are analog:

To be of use, sound and image [and text] must reenter the domain of the physical world, and in doing so there is an inevitable shift back to analog form. This is similar to the idea that no one has ever seen a perfect circle, a circle is only perfect when it exists as a mathematical entity; once it is drawn up or printed out, imperfections in physical media, albeit small ones, render it imperfect. [...] It would seem, then, that ‘digital image’ is

---

<sup>18</sup> A digital computer is defined as “a computer that operates with numbers expressed directly as digits [...]”; an analog computer is defined as “a computer that operates with numbers represented by directly measurable quantities (as voltages or rotations) [...]” (Merriam-Webster Inc 2002) Digital computers use symbolic representation of variables, whereas analog computers use physically measurable quantities (length, weight, voltage, etc.) to represent numbers (Wolf 2000: preface).

oxymoronic; if stored in numeric form, the image is not an image in the conventional physical sense; we cannot see it. And once it is in visible form, as output, it is no longer strictly digital. (Wolf 2000: xi)

What we read, then, when reading and interacting with GUI narratives, is, strictly speaking, “a series of digital codes that has been translated by a computer into alphabetic signs intended for a display.” (Lévy 1998: 52) Hence, one could say that digital hypermedia is a hybrid, consisting of an analog surface and a digital infrastructure (see Hansen 2004: 8-12). It is this hybrid nature that leads Lev Manovich to say that, in a certain sense, once digitized, the image (or any other semiotic representation, for that matter) does no longer exist – meaning that it is deprived of any material substance, and existing only as a temporary, processual appearance of fluid, manipulable data. (Manovich 2001: 100)

By definition, then, digitization entails a kind of *virtualization*, the representation of signs by means of binary code. These electronic signs are bereft of the stability, permanence and tactility of print or any other analog coding and representation. The transition from handwriting, via type-writing, to digital writing, or from chirographic via typographic to digital text, involves a shift from writing as an act of inscription on a surface, leaving (more or less) permanent, visible traces in the form of written or printed letters, to writing as a form of computing and text as a result of strings of binary code, transformed into recognizable letters by a computer program. The permanence and substance of print is replaced by the volatility of electronic signals: “The digital text exists as electronic codes and not as physical marks on a physical surface; it is always virtual, always a simulacrum for which no physical instantiation exists.” (Landow 1994: 6) Fixity and stability has succumbed to a text in flux, always malleable, in a virtual and constantly shifting context. The digitized text is in a peculiar way inherently *insubstantial*. Such intrinsic lack of substance has profound implications for our reading and experiencing hypermedia narratives, as well as for our perception and cognition in general.

My understanding of hypertext as being by definition digital entails that I will not consider formally experimental print literature as part of my empirical material. In the hypertext research community there is a tradition for listing a number of texts considered to be print precursors of digital hypertext. In addition to the already



mentioned *I-Ching*, texts typically included in the canon of such print hypertexts are Laurence Sterne's *Tristram Shandy* (1759-66) which is considered the first serious (albeit humorous) attempt by print narrative to defy the physicality of its own medium and striving for a breakdown of linearity; Julio Cortazár's *Rayuela* (1966) which is an early example of a novel explicitly offering alternative reading orders; Marc Saporta's *Composition No. 1* (1962) consists of about 150 unnumbered, loose sheets of paper leaving it to the reader to compose a string of narrative by shuffling the pages prior to reading them. An interesting, and strangely unnoticed, Norwegian example of a similar experiment is Jon Bing & Tor Åge Bringsværd's *Sesam 71 [i.e. en og sytti]* (1971), subtitled "loose sheets in an envelope," consisting of three posters and 56 cards in a box. Whereas some parts of the collection consist of texts that are supposed to be read in sequence, other parts are outlined as stacks of cards where your consecutive answer to the question on each sheet determines what page should be your next. Finally, Jorge Luis Borges' *Ficciones* (1935-44) is with few exceptions listed as a print precursor to hypertext; particularly prominent is the story called "The Garden of Forking Paths," which deals with the topic of parallel temporalities and multiple points of closure, and the impossibility of presenting them as such in print, due to its linearity. Borges' short story is also 'converted' into hypertext in an experiment by Stuart Moulthrop (Moulthrop 1991a), where he performs what he terms an electronic, hypertextual treatment of Borges' story. The resulting text of this experiment was in turn used in an empirical study of hypertext readings and readers, conducted by Jane Yellowlees Douglas (Douglas 2000a).

As much as these experiments in print might be considered fascinating aesthetic resemblances of hypertext that might illuminate and expand our understanding (and possibly also our appreciation) of the emerging aesthetic in digital environments, they remain resemblances. Print texts, no matter how topographical (i.e., composed according to principles of spatiality) or ergodic (i.e., their reading requiring physical effort beyond that of turning pages), never possess and will never possess the distinct non-tactility, the physical malleability, and the impermanence, of digital, electronic, texts. There are irreducible ontological differences between the interface of print and digital, electronic text, differences entailing significant phenomenological and experiential implications.

### 3.3. Interactivity

#### 3.3.1. Introductory remarks

Secondly, GUI narratives are defined by being *interactive*. This term is probably the most widely used – and, as so many eagerly claim, abused – buzzword in the discourse of digital technology:

The concept has been taken to refer variously to more flexible modes of interaction between humans and machines, as well as to innovative and efficient uses of computers in many social arenas. Also in research, despite useful summary statements of a theoretical and empirical agenda, more often than not it seems unclear what sorts of ‘action’ are included under the heading of interactivity, and which entities are related by ‘inter.’ (Bruhn Jensen 2000: 241)

Espen Aarseth questions the usefulness of the concept in general, calling it “a marketing term with no analytical value and several negative ideological aspects [.]” (Aarseth 2003: 426) and arguing that “future attempts to clarify what ‘interactivity’ means should start by acknowledging that the term’s meaning is constantly shifting and probably without descriptive power and then try to argue why we need it, despite of this.” (Aarseth 2003: 426) Claiming that the term is marred by ideological undercurrents undermining its analytical power and applicability, Aarseth states that one of the most widespread connotations of the slippery term is “the idea that the ‘interactive’ object is simply better than its ‘noninteractive’ counterpart.” (Aarseth 2003: 425) Such an understanding is a most unfortunate result of the tendency to equate and confuse human qualities with machine capabilities, and is just part of an implied sales rhetoric intent on promoting interactive teaching, implying that

humans and machines are equal partners of communication, caused by nothing more than the machine’s simple ability to accept and respond to human input. Once a machine is interactive, the need for human-to-human interaction, sometimes even human action, is viewed as radically

diminished, or gone altogether, as in interactive pedagogy. To declare a system interactive is to endorse it with a magic power. (Aarseth 1997: 47-48)

It might well be the case, as Aarseth claims, that there is a certain amount of cultural capital connected to the term ‘interactivity’; it might also be that “‘interactivity’ has meant much as a rallying point in the funding and spreading of digital media and digital media research and that most researchers in the field of digital media have personal reasons to be grateful for this [...]” (Aarseth 2003: 426) Even so, this should not prevent us from attempting to obtain a definition of interactivity providing both descriptive accuracy and analytical power, without thereby necessarily subscribing to any political, rhetorical or ideological agenda. Even though one could argue that in a certain sense, and to different degrees, all language (except the most formal language of mathematics and logics, as well as technical terminology in some of the “hard” sciences) is ideologically charged, arguably some terms are more susceptible to ideologically charged meaning and/or use, than others. But what is even more important for the present context: ideology is not always the matter, nor is it necessarily what is most interesting about a matter. My contention is that in general, any theorist, particularly when dealing with terms that are so evidently interdisciplinary as that of interactivity, should show an awareness of the different disciplinary conceptions and implications (at least those which are relevant to his or her application of the term), but instead of shying away from pursuing a definition – however partial – for specific purposes, should use the different meanings implied as means to obtaining a fuller understanding of its ramifications. The field of digital media is to such an extreme extent brimming with terms whose origins and definitions spring from a wide variety of scientific fields, as well as from common practices of everyday communication. For a humanities scholar to claim that a term has become useless because it is loaded with ideological and/or rhetorical charges and use this as a springboard to dismissing it altogether, is to succumb to a naïve – and faulty – conception of language which will be all but fecund and valuable in generating further scientific progress in the field.

In order to arrive at an a-metaphorical understanding of interactivity that is both plausible and accurate in relation to the many different conceptions and uses of the term in different disciplines, as well as sufficiently precise and relevant for the scope of this

study, I find it useful to discern three main dimensions (or understandings) broadly implied in interactivity – namely, a *technological*, a *sociological*, and a *phenomenological* understanding, or dimension. (In light of the above-mentioned charges of ideological agendas, one might also be tempted to add a fourth, namely, a *rhetorical* [or, perhaps more appropriately, *ideological*] understanding.) A clearer understanding of these dimensions *per se*, as well as when applied to digital technology and intersecting with one another in GUI narratives, will endorse a more thorough conception and precise definition of interactivity, as well as bringing us closer to an understanding of some of the reasons for the many confusing and inaccurate applications of the term.

### **3.3.2. Technological interactivity**

As with a phenomenological understanding, as well as a social or sociological understanding, a technological understanding of interactivity can be conceived of as varying in kind, as well as in degree. The technological aspects *per se* are not the main focus of the present work; hence, I will restrict myself to a very simple outline of the technological dimension of the concept of interactivity.

The main feature inherent in any (technological) definition of interactivity is that there is some kind of feedback loop between the user and the computer – i.e., that the computer provides some response to the input from a user. Such a definition of interactivity is, according to Aarseth, “too broad to be of use. In this definition, even a light switch would be interactive, not to mention a pinball machine.” (Aarseth 2003: 425) However, consulting a doctoral dissertation in computer science shows that for computer scientists working in the field of HCI (Human-Computer Interaction), this is exactly what interactivity means: “One of the simplest interactive artifacts is the light switch. Electronic devices like switches are by nature interactive, even if their behaviors are in most cases of a very simple kind.” (Svanæs 1999: 22)

Aarseth further claims that, from a semantic point of view, such a definition of interactivity is meaningless, because

the word ‘interact’ entails a form of reciprocal relationship, which would exclude relationships between humans and things, such as computer programs. To imply that there is a functional or cognitive equality between humans and machines is ludicrous, yet that is the implied logic of the sales rhetoric that tries to promote interactive teaching. (Aarseth 2003: 425)<sup>19</sup>

While I agree with Aarseth that it is ludicrous to imply a cognitive equality between humans and computers, I do not think that employing the term ‘interactive’ about computers is the same as equating computers with humans. If this were the case, the entire field of HCI would seem to be propagating quite far-fetched, and by now mostly outdated, ideas about the possibilities of AI (artificial intelligence) as equaling that of humans. For HCI scientists, it is quite unproblematic to define the digital computer as *by definition* interactive:

An interaction involves at least two participants. In the context of human-computer interaction, the human is interacting with the computer. I define an artifact to be interactive if it allows for interaction. I further use the term interactivity to describe the interactive aspects of an artifact. [...] Modern computers are interactive [...]. (Svanæs 1999: 5)<sup>20</sup>

---

<sup>19</sup> In her doctoral dissertation, Torill Mortensen echoes Aarseth: “‘Interactivity’ is a word that has been embraced by the software industry and used so much in advertising campaigns and the description of games and interfaces that it no longer points to interaction between equal human partners, but is as easily used about the way software reacts to input.” (Mortensen 2003: 43) But who has decided that such a sociological (cf. below) understanding of interactivity is to be taken as the standard definition? Again, I believe most of us – probably even advertisers and salesmen of software programs – would agree that computers and humans are not “equal partners” in most matters, and I strongly doubt that this is what computer scientists imply when they call computers and different computer programs interactive. In my view, what this definitional warfare on the term interactivity tells us is that new media theorists would benefit from consulting established and widespread theories and terminologies in adjacent fields that are evidently relevant, such as that of HCI, instead of myopically bashing each other.

<sup>20</sup> This is also new media theorist Lev Manovich’s definition of the term: “New media is interactive. In contrast to old media where the order of presentation is fixed, the user can now interact with a media object. [...] In relation to computer-based media, the concept of interactivity is a tautology. Modern HCI is by definition interactive, in that it allows the user to control the computer in real-time by manipulating information displayed on the screen. Once an object is represented in a computer, it automatically becomes interactive.” (Manovich 2001: 55)

Likewise, and without implying any ideological perspective or anything like a cognitively or functionally equivalent relation between humans and computers, I will argue that it is feasible to operate with a definition of interactivity that does not necessarily imply reciprocity beyond that of a visible change in the presentation (i.e., the GUI narrative fiction), due to user input. The possibility (or requirement) in GUI narratives for the reader to manipulate information displayed on the screen will be what in the present context justifies terming them interactive. What is crucial for the present study is that the reader's manipulations or actions (i.e., input) in some way and to some degree bring about visible or audio-visual changes in the representation, whether these changes are comprehensive (as in the total shift of the screen when following a link takes the reader to a new site), or more subtle (as when clicking on a link opens additional material while the screen otherwise remains the same, or causes other small-scale changes). As such, my use of the concept of interactivity comes close to Torben Grodal's definition: "[I]nteractivity means that the user/player is able to change the visual appearance of a computer screen (and/or sounds from speakers) by some motor action via an interface." (Grodal 2003: 141-142) Such changes, then, leave perceptible traces in the graphical user interface; as such, they are intimately related to the phenomenology of perception and reading, and they are therefore of vital interest and importance for the understanding of perceptual, phenomenological and cognitive implications of reading and experiencing GUI narratives.

### **3.3.3. Sociological interactivity**

The second understanding of interactivity pertains to what I consider to be the sociological dimension of the term. This dimension implies an understanding of interactivity as involving (and/or requiring) some interaction between several users (readers, players) in a digital environment, as in multiple-user online computer games

such as MUDs (Multiple-User Domains)<sup>21</sup> and MOOs (Multiple-user domains, Object-Oriented).<sup>22</sup> A definition of interactivity requiring the social (or sociological) dimension would most likely not consider any of the GUI narratives referred to in this dissertation, as truly interactive. According to this understanding of interactivity, merely having the option of choosing among paths through a network of nodes connected by links is not interactivity proper – clicking through Michael Joyce’s *afternoon* is as non-interactive as paging through a book. In contrast, MUDs and MOOs combine technological human-computer interaction (in which the player interacts with the system in order to create and control her character) and human-human interaction (between the ‘real-world’ human beings – the players behind the avatars – as well as between their fictive characters, the avatars), and are thus considered more (or truly) interactive. A definition of interactivity based on, and/or requiring, a social or sociological dimension, would render the term inadequate and inapplicable for the present project; hence, the sociological aspect of interactivity will not be endorsed.<sup>23</sup>

### 3.3.4. Phenomenological interactivity

The third understanding of interactivity pertains to what I will call the phenomenological dimension of the term. More than is the case with the sociological dimension, the phenomenological aspect is, naturally, quite literally related to the present focus on phenomenological and cognitive implications of GUI narratives. In

---

<sup>21</sup> Briefly described, MUDs are on-line versions of live role-play games, where players live out one or several characters – avatars – in a fictive universe, continuously creating and re-creating their own character(s) and her role and function in the play.

<sup>22</sup> MOOs are “electronic environments within, and by, which participants can interact in real time by means of logging on the a computer network and typing the address of the specific MOO. [...] MOOs are textual environments [...] the term ‘object oriented’ defines the programming code.” (Hammer 2001: 38-39)

<sup>23</sup> It is, as an ironic apropos, interesting to note that communication technologies whose main function and purpose is, precisely, to mediate social interaction between its users and hence allow and provide interpersonal interaction – i.e., social interactivity – such as the telephone and e-mail, are not usually considered “interactive” by these same theorists. (See Wolf 2000: 162)

addition, such an understanding of the concept of interactivity is perhaps the primary cause of confusion surrounding the term among theorists of new media. Implied in a phenomenological understanding of interactivity is the notion that any work of art – indeed, any artifact – is, and has always been, interactive, and what we now call interactivity is just another version of a mode of relating to aesthetic works, updated to fit today’s technological media matrix:

There are no such things as passive media, cultural studies scholars assert. The process of making meaning is an active one. Texts are not containers full of predetermined messages; instead they require us to complete the cues provided by the film/television programs, so that we make meanings for ourselves. (Smith 1999: 3)

Such a claim, however, rests on an understanding of interactivity that would be better conceived of as *interpretation*, or *aesthetic reception*: “Interaction [i.e., interactivity] is not as new a concept as many would have us believe; it occurs in all aesthetic reception – be it perceptual, cognitive, physical, interpretative.” (Darley 2000: 194)

By operating with the four categories of interaction – perceptual, cognitive, physical, and interpretative, Darley takes us a step closer to a possible clarification of the term interactivity. One of the main causes for confusion and blurry definitions is precisely the conflation of the physical act of reading and the cognitive act of interpretation and imagination, both of which form the totality of experience of any work of narrative. The first conception prompts claims such as “reading a print novel is far more interactive than playing a computer game,” implying that the interpretational activity entailed in reading is a more active process of imagination, compared to that of playing a computer game (and particularly a heavily action-loaded game). Such claims imply that the (mental; cognitive) interactivity entailed in reading a print book, (re)constructing the meaning of the text, far surpasses the physical and ergonomic interactivity of clicking on hot spots on the computer screen, or handling the joystick in a console game. This is, however, a highly figurative interpretation of interactivity, as Marie-Laure Ryan observes:

In a figural sense, interactivity describes the collaboration between the reader and the text in the production of meaning. Even with traditional



types of narrative and expository writing – texts that strive toward global coherence and a smooth sequential development – reading is never a passive experience. As the phenomenologists Roman Ingarden and his disciple Wolfgang Iser have shown, the construction of a textual world or message is an active process through which the reader provides as much material as he derives from the text. (Ryan 2001a: 16-17)

Employing a figural interpretation of interactivity to completely define the concept implies ignoring distinctive technological and physical differences between media and interfaces. To claim that reading a book (printed as well as digital) is an active process is hardly groundbreaking – nor is it very enlightening. Any work of narrative requires a perceptual process of acquisition of its signs, which in turn requires a cognitive process of making meaning from those signs. What is interesting, for the present purpose as well as for understanding the profound impact of digital technology on human faculties of perception, cognition, reading and experience, is how these dimensions relate to one another – how the physicality of the interface affects both the process of perception, the phenomenological reading process, and the cognitive process of interpretation. To paraphrase phenomenologist Don Ihde, “what happens in the interface is what is important.” (Ihde 1991; cf. also Ihde 2001a: 86)<sup>24</sup> Semioticians Kress and van Leeuwen also recognize the importance of the interface, the surface, of different (inscription) technologies, but avoid pursuing the issue any further:

Different inscription technologies also favor different modes of reception, and here the surface plays a particularly important role. Some surfaces (walls, cinema screens) favor public reception, for instance, and others (pages, and paper generally, the computer screen) favor private reception. Also, more difficult to describe, there is the effect of the *physicality*, the *tangibility of the surface* – the difference between the forms carved in the hard rock and the fleeting flickers of light on the glass screen. (Kress and Leeuwen 1996: 235; italics mine)

---

<sup>24</sup> Ihde’s use of the term ‘interface’ has implications exceeding those of the GUI, and should be understood as referring to the instrumentation of technology in all its manifestations – i.e., the realm that interconnects embodied, perceiving human beings, and the environing lifeworld in which we interact with technologies.

As much as the issue of the physicality (tangibility, tactility) of the medium or technology (representations on the screen) might be an aspect which, in digital technology, almost by definition eludes analytical scrutiny (due to its being, strictly speaking, virtual – in a sense without substance), as I will show, phenomenology and cognitivism are capable of grasping these aspects in a way that semiotics has not been, at least until now. Hence, in order to adequately address the crucial dimension of the impact of the digital interface on our reading digital narratives, we need theories and approaches which capture the volatile quality of the screen, and the peculiar (im)materiality of the GUI.

Based on the above, and correspondent with the scope and aim of this project, I will understand interactivity as comprising both the phenomenological, as well as the technological, dimension. Thus, GUI narratives are to be understood as in some way or other dependent on the reader's physical, motor interaction with the technology in order to experience the narrative. The crucial point is that this interaction results in (audio-)visual changes in the interface, thus necessarily affecting the perceptual and cognitive processes of the reader, and hence having an impact for the reading experience. What is most interesting from my point of view, is precisely the relation between the two different modes of interactivity – how the technological interactivity affects the cognitive, experiential, phenomenological and hermeneutic interactivity, and vice-versa, and in sum how they together have impact on our reading process and experience. The close interrelation – indeed, co-dependency – between these two dimensions of interactivity also points to the necessity of drawing on theories of cognition, perception, and the phenomenology of reading.

### **3.4. Towards a more precise definition of hypertext and hypermedia**

GUI narrative fictions are *hyper-medial*. In the hypertext community, the terms 'hypertext' and 'hypermedia' are often used interchangeably (Landow 1997; McKnight, Dillon, and Richardson 1991; Nielsen 1995), or the theorist chooses the term 'hypertext' to cover any media type in hyper-structure. In my view, this is inaccurate and serves to

blur the medium-specific characteristics entailed in hypermedia. Hence, I will endorse a more precise definition of both hypertext and hypermedia.

Theodore Nelson provided the first explicit definition of hypertext: “By ‘hypertext’ I mean non-sequential writing – text that branches and allows choices to the reader, best read at an interactive screen. As popularly conceived, this is a series of text chunks connected by links which offer the reader different pathways.” (Nelson 1992: 0/2) Of crucial importance are the terms non-sequential, interactive, chunks and links. Later definitions echo and derive from Nelson’s: “Hypertext consists of *nodes* (or ‘chunks’) of information and *links* between them.” (McKnight, Dillon, and Richardson 1991: 2) Further, a node “can be a fragment of music, a piece of text, a map, a complete film – anything which the author thinks can sensibly be presented as a unit.” (Ibid.) (This, however, I will define as hypermedia – cf. below.) The pointers from one unit (node) to another (or several others), are links: “A hypertext link connects two nodes and is normally directed in the sense that it points from one node (called the *anchor* node) to another (called the *destination* node).” (Nielsen 1995: 2) Occasionally (and mainly by those influenced by post-structuralist theory), the nodes are termed *lexias*, after Roland Barthes’ *S/Z* (Barthes 1993), considered to be a theoretical anticipation of the new textuality to be explicitly realized in hypertext (Landow 1997: 5).<sup>25</sup>

As the aspect of multi-mediality – the convergence of many different media types in the digital environment of the computer – is crucial to my thesis, it is necessary to clarify the concept of hyper-media in relation to hyper-text. One simple shortcut to a distinction is suggested by Jakob Nielsen, namely, that hypermedia is “multimedia hypertext,” implying that it is a hypertext consisting of other media than verbal text. The term hypermedia is an expansion of the term hypertext, so to speak, to include other sign systems than verbal text. Both hypertext and hypermedia refer to systems of electronically linked material – that is, nodes connected by electronic links in a network structure. This means that both hypertext and hypermedia refer to digitized systems.

---

<sup>25</sup> “We shall therefore star the text, separating in the manner of a minor earthquake, the blocks of signification of which reading grasps only the smooth surface, imperceptibly soldered by the movement of sentences, the flowing discourse of narration, the ‘naturalness’ of ordinary language. The tutor signifier will be cut up into a series of brief, contiguous fragments, which we shall call *lexias*, since they are units of reading.” (Barthes 1993: 13)

Jens F. Jensen's (Jensen 1998) definitions of the terms 'multimedia', 'hypertext', 'hypermedia', and 'interactive media', and the relations between them, might serve as clarification and precision of a working definition of hypermedia. Firstly, multimedia is understood as

media which at the same time make use of several different sign systems, like text, still and moving images, animation, graphics, and sound (speech, music, sound effects), and where these sign systems are integrated and implemented in, and run by, a digital computer or a digital environment. (Jensen 1998: 22; transl. mine)

This definition is more precise, and thus more useful, than merely saying that multimedia means 'many media' (although this is of course the basic meaning of the term). However, there is nothing in this definition to clarify the relation between multimedia and hypermedia, let alone any clarification of the meaning and significance of the concept of interactivity per se, and in defining hypermedia. Thus, some further clarifications are in order – particularly of hypertext and hypermedia, and the relations between these two concepts.

Similar to Nelson's definition above, Jensen defines hypertext as "a text which is organized as a structure of nodes and links, conceived as information units and internal (non-linear) linkages [sammenkædninger] between them; and where links are supported by and nodes integrated in a digital computer or a digital environment." (Jensen 1998: 32; transl. mine) He further clarifies the relation between this definition of hypertext and how to define hypermedia, as follows:

For linkages [sammenkædninger] of nodes that are exclusively made of verbal (written) textual material [verbal-skriftligt materiale], it may be useful to reserve the term hypertext [...]. For linkages of nodes containing of two or more sign systems, such as text, images, sound, animations, video, etc., where the nodes are not exclusively consisting of written text, but of several different media types, it is useful to reserve the term hypermedium. (Jensen 1998: 32; transl. mine)

Following this terminology and based on the precisions above, we can formulate the definition of hypermedia as such: "Hypertext + multimedia = hypermedia" (Jensen

1998: 33; Liestøl 1999: 264). What is essential for my conceptualization of the term hyper-media is the possibility of structuring signs, be it written text, moving images, sound, or graphics, in hyper-structure, combined with the dimensions of multi-modality and interactivity. This way, digital hypermedia provides potential for meaning production – and hence production of narratives – far surpassing that of print text, as well as all the other media types separately.

### 3.5. An apology for “reading”

In his paper at the ACM Digital Libraries Conference in 1997, David M. Levy presciently observes that

[l]anguage [...] gives us clues to the range of reading practices. Words like ‘scan’, ‘skim’, ‘browse’, ‘review’, and ‘reread’ suggest different attentional strategies. [...] We also read faces, tea leaves, situations; these cases suggesting that reading, at least metaphorically, is not always of documents. [...] It is perhaps too early in the development to know what we do with multimedia documents. (Levy 1997: 205)

Close to a decade later, and judging from the terminology in the vast corpus of research documents written on digital hypermedia, it seems we still haven’t come any closer to finding an adequate label to apply to the process and activity entailed in reading digital hypermedia documents.

My current use of the term *reading* might have caught the attention of the wary reader, and quite probably also provided more than one theorist in the field with argumentative armaments for battle. In the field of media studies in general, and the discipline of new media in the humanities in particular, employing the term ‘reading,’ along with the concomitant term ‘text,’ when dealing with media other than verbal text, is asking for trouble.<sup>26</sup> According to Ihde, I would seem to be committing a kind of

---

<sup>26</sup> The same applies in large part to the term *literacy*, causing both educationalists and media theorists to operate with more or less clarifying “hyphenated literacies,” such as ‘digital media literacy,’ ‘visual

“metaphorical totalization in which the phenomenon of (a) reading, (b) writing, and (c) texts are spread out over the entire social and cultural ‘worlds’ to be analyzed. Everything becomes a ‘text’ or ‘text-like’ [...]” (Ihde 2000: 65) However, by employing the term ‘reading’ in the present context, I do not intend it to mean that engaging with GUI narrative fictions is by and large the same as engaging with any narrative fiction presented in verbal text by means of any other technology, such as for instance print. To the contrary, I agree entirely with Ihde in that to deal with what he terms “the thingly,” i.e., the materiality of technology, “we need something more than ‘textuality’” (Ihde 1999: 159) – and, correspondingly, ‘reading.’ But until we have found this required supplement, I propose a make-shift solution with ‘reading.’ The following is a justification for such a proposal.

The focus and main research questions in this dissertation revolve around processes typically taking place when we read, watch, listen, experience, engage in, and interact with, digital hypermedia narrative fictions. These processes are numerous, complex, and diverse, requiring precise handling of terms and consistent explication of a variety of levels as well as modes of sensory and cognitive processing. In order to better handle and describe this complexity, there is a need for a generic term which can appropriately subsume all sub-categories of processing. For this purpose, I shall use the term ‘reading.’ This will, I suspect, cause a stir. Hence, a justification – in this context, something of an apology – seems to be in order.

As with so many of the concepts commonly employed in any study of human communication and expression (language; information; text; medium; narrative), the concept of reading is deeply entangled in interdisciplinary disputes – disputes which may be particularly loud in media studies because of its connotations of being closely tied to (verbal; literary) text and thus favoring one discipline, literary studies, above studies of and in other media. For instance, film theorist Kristin Thompson deems it necessary to underscore that ‘reading’ is not a part of her theoretical vocabulary in neoformalist film theory: “Neoformalism does not do ‘readings’ of films. For one thing, films are not written texts and do not need to be read. For another, ‘reading’ has come to equal ‘interpretation’ and [...] for the neoformalist, interpretation is only one part of

---

literacy,’ ‘computer literacy,’ etc. (Cf. for instance Bolter 1998, Cope and Kalantzis 2000, Daley 2003, Lemke 1994, Lemke 1998, Messaris 1998, Meyrowitz 1998)

analysis.” (Thompson 1988: 34) In the same vein, David Bordwell emphasizes that he talks about *viewing* a film, not reading it:

The theory I advance attends to the perceptual and cognitive aspects of film viewing. [...] I do not treat the spectator’s operations as necessarily modeled upon linguistic activities. It is by no means clearly established that human perception and cognition are fundamentally determined by the processes of natural language [...]. For such reasons, I do not call the spectator’s comprehension “reading” a film. It is, moreover, needlessly equivocal to speak of the spectator’s activity as a “reading” when the same word is applied to the abstract propositional arguments characteristic of critical analysis and interpretation. Viewing is synoptic, tied to the time of the text’s presentation, and literal; it does not require translation into verbal terms. Interpreting (reading) is dissective, free of the text’s temporality, and symbolic; it relies upon propositional language. [...] Any theory of the spectator’s activity must rest upon a general theory of perception and cognition. (Bordwell 1985a: 30)

While I couldn’t agree more with Bordwell’s final sentence, I do however contend that we can plausibly employ the term ‘reading’ as an overarching, collective label – as long as this is done with the necessary preconditions and qualifications, some of which are outlined in the following. Moreover, Bordwell’s conception of reading seems to be more closely connected with higher-level processes and abstractions such as interpretation.<sup>27</sup> However, what psychological theories of reading show, is that reading is a process ranging from the most granular bottom-up processing of visual input (often called automatic processes), to advanced cognitive operations generated when we are making inferences and building mental models (aka. cognitive maps) of what we read (also called top-down processes).

Judging from the prevalent theoretical discourse on digital media in the humanities, employing reading as an operative term is both inaccurate and inadequate, intellectually imperialistic (i.e., colonizing the entire field of [new] media studies in the

---

<sup>27</sup> This is even more evident in his later book, *Making Meaning*. Here, Bordwell talks about the need to develop alternatives to the “interpretation-driven” criticism so predominant in film theory at the time, because “[o]ne can do other things with films besides ‘reading’ them.” (Bordwell 1989a: preface) As a counter-approach to interpretation-driven criticism, Bordwell opts for what he calls a sensuous criticism, built on rich models of both perception and cognition.

name and agenda of literary theory), theoretically skewed and outdated, and politically incorrect. Whatever is taking place in our embodied mind (or, to employ another frequently employed term, the mindbody) when we interact with, and experience, digital media, involves mental and physiological processes which go beyond the notion of reading – if one by reading is referring to the process of making sense of verbal text, at various stages of perception and cognition. Analyzing the hypertext project *Glide*, N. Katherine Hayles underscores precisely this extended dimension of reading when applied to digital technology and what she calls “technotexts”:

In a larger sense, the entire *Glide* is a metaphor for the reading and writing practices hypertext initiates. By imagining a mode of reading that is also a performance, Slattery [the artist] implies the hypertext reader draws on a full range of sensory modalities that includes rational analysis but also proprioception, kinesthesia, emotions, tactility, and intuition. Reading is more than a cognitive activity – or rather, it is an activity that takes place in the embodied cognitions of the extended mind as it enrolls the material object of the medium into its cognitive system. (Hayles 2001: 37)

Save the fact that Hayles hardly refers to or draws upon any theory which would seem obvious when attempting to say something substantial about the nature of reading digital narratives (such as theories of perception and cognition, proprioception, kinesthetics, and other sensory modalities, in for example phenomenology, psychology, and cognitive science), Hayles’ observation is crucial, if theoretically uncorroborated. However, her observation is anything but new. Theorists in psycho-linguistics and perceptual and cognitive psychology have for a long time acknowledged that reading is more than a cognitive activity, even when we read black, printed letters on the white page. As psycho-linguist Frank Smith points out: “Reading cannot be understood without consideration of perceptual, cognitive, linguistic, and social factors, not just in reading but in thinking and learning in general.” (Smith 1994: preface) What might be new in this picture is that now, digital hypermedia configurations provide a unique test-bed for explicating more elaborately the complexities entailed in this activity. Whether



or not we, at this stage, call this activity reading, is in my view a fact of peripheral importance,<sup>28</sup> for reasons that are explained below.

In this dissertation, I intend ‘reading’ to be understood in a broad sense, as the sum of cognitive, perceptual and motor efforts implied whenever we are engaged in experiencing and interpreting any sign representation in any medium and technological display, be it a photograph, a movie, a song played on the radio, a verbal text, or a digital, interactive, hypermedia narrative fiction. As such, implied in my use of the term ‘reading’ is the extended meaning of *multisensory reading* – in other words reading beyond text, as outlined by, among others, sound designer Maribeth Back:

The ways we read continually adapt to whatever technological or social changes come along. Now, the reading experience extends beyond the book, beyond the computer screen, and into the world around us. Text is accompanied by – or perhaps more accurately, includes – image, sound, and physical form, any or all of which might be dynamic or interactive. In such a world multisensory reading can allow greater bandwidth into the human mind, providing meaning on multiple levels and through several sensory pathways at once. Rather than competing with or replacing written text, carefully authored multisensory texts enrich reading by complementing written text with effective semantic support in multiple modalities. Innovations in the way we now read include the use of reading devices designed for new behaviors and interactions as well as multiple sensory modalities. (Back 2003: 158)

As inappropriate and as lingo-/text-centric<sup>29</sup> – or, if you will, imperialistic and/or ideological – as such a choice of term may seem, my intention at present is merely to name a complex activity which is not (yet) easily covered by any one verb. As such, reading verbal text is but one sub-category of a more general psycho-physiological

---

<sup>28</sup> Above mentioned David M. Levy supports this view, employing the term reading to denote an attentional strategy: “One of the advantages of taking an attentional perspective on reading is that it doesn’t restrict attention to certain genres (e.g., books) or even to text or text-like documents. Indeed, watching television, viewing films and strolling through multimedia documents are all attentional acts and are amenable to treatment within this framework. Whether or not these practices are literally called reading is a secondary matter; they will all involve the application of attention as a means of interpreting representational artifacts.” (Levy 1997: 207)

<sup>29</sup> Cf. for instance Sonesson 1989.

process involving attention, selection, filtering, perception, bottom-up and top-down processing, listening, (possibly) kinesthetic and haptic feedback, recognition, cognition, inference-making, memory and recall, mental model building, hypothesizing, sensation, engagement, expectation, comprehension, and interpretation – in short, all experiential processes which are in action when we read GUI narrative fiction.

Several terms have been considered as better candidates for labeling the activity, than reading. I list them here in order to indicate the complex of terms implied in my use of the term ‘reading’:

- *perception* and/or *cognition* – both of which are somehow too specifically neuro-physiological and psychological for this purpose, denoting precise meanings in these scientific fields (here my reasons for not using these terms echoes those of Sobchack in film studies, preferring instead the notion of ‘engagement’<sup>30</sup>); while not covering the activity of (my definition of) reading as a whole, however, they are both essential parts of it (and will be used as such);

- *experience* – quite possibly the best alternative; however, according to Hans Ulrich Gumbrecht, “most philosophical traditions associate the concept of ‘experience’ with interpretation, that is, with acts of meaning attribution [...]” (Gumbrecht 2004: 100); in my use of the term ‘experience’ in the following, it does not necessarily imply an act of meaning attribution, and it comes closer to what Gumbrecht calls “lived experience,” which “presupposes that purely physical perception [...] has already taken place, on the one hand, and that it will be followed by experience as the result of acts of world interpretation, on the other [...]” (Gumbrecht 2004: 100);

- *interpretation* – which, like perception and cognition, belongs as part of the activity as a whole, but on a higher, cognitive level – it does not necessarily apply at all stages of the activity, but is closer to an end product or final outcome of the process (cf. Gumbrecht’s “acts of meaning attribution” above);

---

<sup>30</sup> “I will be using the notion of ‘engagement’ here to stress the active relationship of film spectator and film that involves not only perception and cognition, but also affect and value. Given common usage in the field of media studies, insofar as words such as perception and apprehension tend to be reduced to and naturalized as scientific and cognitive operations, they don’t convey the overarching activity of spectator-film relations quite so well as engagement.” (Sobchack 1999: note, p. 253) Cf. also Nyre 2003 and below.

- *reception* – which was never really an alternative, given the strong connotations of passivity (indicating that the [dare I say] reader is a [passive] receptor of, say, a work of fiction in any form and medium, is to reveal hopelessly outdated perspectives and positions in media studies);

- *information processing* would be a scientifically accurate term (both reading and perception – indeed, all human sensory experiences of our surroundings – are information-processing activities, and mental processing takes place at all levels of experience) – the reasoning for not using it, is more stylistic than scientific (in addition, the term ‘information’ does not apply smoothly to narrative fiction); in addition, it does not fit the phenomenological perspective very well; and, lastly,

- *engagement* – another plausible candidate, because of its emphasis on the more immediate contact with the (narrative) representation at a stage before any critical reflection and/or interpretation is generated. In his doctoral dissertation on sound media, Lars Nyre opts for the term ‘engagement’ precisely because it covers the pre-reflexive dimension of the receiver’s experience (cf. also Sobchack 1999). Because his justification for this use of terms is highly relevant for my own, I quote Nyre at length:

It is my contention that there is not automatically any interpretational act just because there is a separation of sender and receiver. On the contrary, auditory technologies are often used in a pre-reflexive way, and it would be a conceptual fallacy to insist that it should be called ‘interpretation’. [...] When it comes to self-understanding through sound media, it is fruitful to distinguish between ‘interpretation’ as the concept for advanced skills of understanding, and ‘engagement’ as the concept of relatively routinized and undemanding processes of cultural perception. [...] It seems that all acts of interpretation are perceptual without all perceptual acts being interpretational. [...] [I]nterpretation is in general based on knowledge of schemes of argumentation and persuasion, while engagement is in general based on a broad perceptual involvement where the content of words may only have secondary importance. [...] The reason for introducing the term ‘engagement’ is that I want to investigate an alternative notion of understanding that relies on perceptual skills above all else. (Nyre 2003: 67-68)

My objective in this dissertation comes close to that of Nyre’s, my intention being to investigate alternative notions of understanding and experiencing digital hypermedia narrative fictions without lapsing into hermeneutical readings of content, aesthetic

interpretations of artistic strategies, or narratological analyses of plot; hence, my motivation for using the term ‘reading’ parallels his reasoning for using the term ‘engagement.’

Somewhat associated with engagement are terms such as ‘use’ and ‘play’ (and the concomitant ‘user’ and ‘player’). However, they are not considered adequate for my purpose. Terms such as ‘understanding’ and ‘comprehension’ were dismissed due to their addressing more educational/pedagogical aspects of technology (which are, of course, important, but which are not the primary focus of this dissertation). Another strategy, still widely in use, would be to operate with “conglomerate terms,” such as ‘the reader/listener/viewer,’ or ‘the user/player/reader’ etc., instead of ‘reader.’ For reasons of simplicity, I have not applied this strategy.<sup>31</sup>

In general, and in particular when it comes to the terminological discussions triggered by the use of the terms ‘reading’ and ‘reader’ (and equally with the term ‘text’), I consider it more productive to focus on what is actually entailed in the use of any one concept, rather than blindly focusing on what term is employed (unless, of course, the term in question is blatantly inappropriate or scientifically controversial). It is my contention that the terms ‘reading’ and ‘reader’ are (most?) often used without implying the conflation of experiencing sound, images and any other forms of representation, to verbal text. Nor are such terms necessarily used in a deliberately ideological sense, implying the (intellectual, aesthetic, pedagogical or any other) superiority of verbal text, and hence of reading verbal text, over other forms of representation. The fact that these might be un-intended consequences of such use, is a different matter, and may be due as much to imprecise handling of the terms, by both writer (producer? creator? source? composer? designer?) and ... reader.

---

<sup>31</sup> Yet another more or less illuminating strategy is exemplified by new media artist and theorist Bill Seaman in the essay “Interactive Text and Recombinant Poetics,” where he introduces the term *viewer* (“viewer/user: pronounced view-ser”) as denoting the viewer/user in networked virtual space (Seaman 2004: 233); in the same vein, the editors of *Close Reading New Media* somewhat playfully suggest the concept of *wreader*, alluding to the (still) ongoing discussion in the field about whether the reader becomes an author, writer, when reading hypertext/hypermedia documents (Baetens and Van Looy 2003a: 11).

The above qualifications notwithstanding, it might still be necessary to emphasize that by employing the term ‘reading’ I do not have any imperialistic agenda, intent on colonizing the field of digital technology by means of theories of literature – any more than I want to colonize it by means of theories from psychology, philosophy, or cognitive science. My reasoning for terming the activity ‘reading’ is purely pragmatic; all the time we do not yet have a general term which covers all the dimensions of the activity of relating to, making sense of, experiencing, and interpreting these conglomerates of representations,<sup>32</sup> reading can be an acceptable ad-hoc concept which can serve the purpose, with the necessary modifications and qualifications, as outlined above. The purpose of this thorough precision of the term ‘reading’ is simply to make it possible to continue using the word without the risk of the reader spending any or all efforts on rebutting the term on ideological (or other) grounds, hence pushing the focus away from more essential and interesting questions such as what is actually entailed in the processes by which we experience GUI narrative fictions, and how are these different from our experiences with, interaction with, *reading* of, narrative fictions in other media. Hence, in the present context, there is nothing ideological or imperialistic in applying the term ‘reading’ to digital, interactive, hypermedia narrative.

Given the fact that this dissertation is focusing on the phenomenology of reading digital, interactive, hypermedia fictions, the above qualifications should have made it clear that I do not use the term ‘reading’ to imply that reading these media is just like reading verbal text. Hence, I do not intend to propagate a semiotic model of the GUI, in that I do not claim that all the different symbol systems (audio, video, graphics, animation, text, images etc.) are matters of convention and codes and hence like language, requiring the same mastery of codes and ability of deciphering them.<sup>33</sup> I am of course fully aware that the activity of perceiving and making sense of verbal text is a different process and experience than the activity of perceiving and making sense of still images, which is yet again qualitatively different from that of perceiving and making sense of moving images, which is yet again something else than perceiving and making

---

<sup>32</sup> Gunnar Liestøl’s concept “combinatory competence” is one attempt at grasping the whole complexity in one label, albeit abstract, imprecise, and, as a consequence, not very illuminating in terms of the distinct activities involved. (Liestøl 1999)

<sup>33</sup> See for instance Carroll’s critique of such a model of film (Carroll 2003c).

sense of sound, and so on. Even reading “the same” *verbal* text in different media, for example that of print compared to that of the digital computer, or viewing “the same” photograph hanging in a frame on the wall, and its digital version in a photo-album on the web, are experientially and phenomenologically different activities generating different reading processes and yielding different experiences. Precisely how, why, and to what extent these are different activities, and how they all relate to one another and are parts of the complex and comprehensive activity of reading digital, interactive, hypermedia, is the main focus of the present work.

### **3.6. On being politically (in)correct in new media studies**

Proponents of social semiotics, cultural studies, and social constructivism, among several other currently popular strands of theory, will surely point to the lack of social, cultural, ethnic, gender-related, historical, political, and ideological aspects of reading in the present study. While such critique may be justified (or rather, as some will say, politically correct<sup>34</sup>), I will argue that given the topic of study – the impact of digitality, interactivity, convergence and hyper-structure on our reading and experiencing narrative fictions – not only do we still lack fundamental understanding of basic mechanisms and processes underlying our interaction with digital technology; further, I consider it in general more productive, as well as scientifically feasible, to narrow down the scope to studying one or a few aspects of the phenomenon thoroughly and consistently, without having to relate to and refer to the whole range of imaginable and more or less relevant contexts. Hence, I strongly oppose claims typically stemming from social constructivist and cultural studies camps, voicing that any serious study of relations between humans and technology must account for aspects such as how technologies are gendered, how technologies create and solidify social, political, and economic forces, and how technologies reflect structures of ideological power. Therefore, statements such as those

---

<sup>34</sup> Cf. for instance Noël Carroll, in particular his essay “Prospects for Film Theory: A Personal Assessment” (Carroll 2003g). In *Literature Lost: Social Agenda and the Corruption of the Humanities*, one of deconstruction’s fervent critics, John M. Ellis, presents similar views on primarily comparative literature (Ellis 1997).

found in for example Sandy Stone's techno-cultural criticism, are not commensurate with my project. For Stone, as for a number of other techno-science and cyberculture theorists, technology is being reduced to its ideological impact and sociological context: "Technologies are visible and frequently material evidence of struggles over meaning. They don't exist outside of complex belief systems in whose social and political frames they are embedded. Their apparent obduracy is an artifact, a technology of its own." (Stone 1996: 176) In my view, technologies obviously exist outside of ideological and political systems; they are much more than struggles over meaning; they have an irreducible material existence which is worthy of exploration for its phenomenological and experiential impact on us. Hence, I will claim that a phenomenological and cognitivist study of technology and its impact on our reading is as legitimate as the range of politically correct perspectives listed by for example Robb Eason, in criticizing phenomenologist Don Ihde's approach to human-technology relations:

Technology, more than in a mere *referential* relationship with the body, is in each and every case *intended* for a body. Technology never simply has the body, a non-gendered, non-specific body as that to which it refers. [...] Technology is also the intersection at which not only a non-human and a particular body come into contact, but is also the site at which cultural values and norms are expressed, political ends are met, and economic interests are secured. In short, technology is the material and practical matrix in which all these things are bound up together. A strong account of the relation between humans and technology must account for the way in which this matrix is embodied in and yet refers to particular bodies. (Eason 2003a: 172)

While I agree that *per se* these may all very well be vital aspects of the relation between technology and humans, I firmly disagree that every account of the relation between technology and human bodies must address them all. I do not deny that these are valid aspects of study in humanistic approaches to digital technology, nor do I object that there are ways in which technologies can be said to embody and reflect gender issues, and/or structures of power. What I want to stress is that issues such as these are not necessarily relevant for every and all studies of technology. In order to come to grips with issues such as the perceptual and experiential impact of digitality, interactivity, and hyper-structure, the theoretical frameworks from paradigms such as social

constructivism and cultural studies might not be the most relevant perspectives. Indeed, they might turn out not to be relevant at all.

My reasoning about the inadequacy of much of the current politicized and ideology-driven research in new media studies finds resonance in media theorist Paddy Scannell's phenomenological study of the impact of radio and television in our everyday live. Setting aside the vocabulary currently in use in media studies, with its ideological and political undercurrents, he explains that it gets in the way of the things he wants to focus on:

Media studies is – in its own vocabulary – a “discursive formation” that has captured a particular field of study and institutionalized it in the light of its own concerns. Fair enough. But the effect is to occlude the possibilities of other ways of seeing and other orders of reality. The only reality that media studies knows is a political reality, set in a field of discourse that – as it would say – mobilizes concepts of power, struggle, conflict, ideology. It has great difficulty with any idea of ordinary unpolitical daily life, and its everyday concerns and enjoyments. Since for the politically minded all things are political – and what is not is either marginal or incorrectly understood – it follows that the only interesting questions about the media are political. I of course do not think so. Politics is not denied in or by this book. But it is not a mobilizing concept for it. (Scannell 1996: 4)

Likewise, political and ideological issues “get in the way” of what I intend to focus on in this study.<sup>35</sup> Or, put another way, they are neither the motivating, nor in any way the determining, factor of my research.<sup>36</sup> And most importantly, I will claim that they are not even relevant for this purpose.

---

<sup>35</sup> The same applies to hermeneutic and aesthetic issues.

<sup>36</sup> In a sense, of course, one can claim that at bottom, all research is – irrespective of discipline and of the ambitions of the researcher – inherently political/ideological, because every researcher has some core values and beliefs that will, however subtly, influence his or her work. Lars Nyre argues that (media) researchers should openly acknowledge this fact, and explicitly state their values and ideological standpoints rather than pretend, or wrongly believe, that their research is politically and ideologically independent and neutral. (Nyre 2004)



### 3.7. Narrativity and fictionality in digital media

The scope in this dissertation is limited to studying the impact of (some aspects of) digital technology on (some aspects of) our reading of narrative fiction. The combinatory concept ‘narrative fiction’ is as complex as it is basic – as Currie points out, “fiction is one of those concepts that we have little difficulty in applying but great difficulty in explaining.” (Currie 1990: 5) Discussions of the status and ontology of fictionality in different media occupy a large number of philosophers, aestheticians and media theorists,<sup>37</sup> and although the question of fictionality in digital media is highly relevant and certainly interesting, pursuing it will not take center stage in this study. I do find it useful, however, to emphasize a few crucial features pertaining to the two notions ‘narrative’ and ‘fiction’, and especially how they relate to one another.

As a first reminder of what would seem self-evident, but which nevertheless seems to be frequently forgotten – “narrative and fiction are quite different things, even if they often appear together in public.” (Branigan 1992: 192) What is more, the ways in which they co-appear, are numerous, and the different combinations produce quite different results. According to film theorist Edward Branigan, there are four possible combinations of narrative and fiction (and even though the examples listed are textual, the categories are applicable – *mutatis mutandis* – to other media types than verbal text): we have *narrative fiction* (which is an easy category; novels are one obvious example); *narrative nonfiction* (which is also a fairly well-known category; historical accounts are examples); *nonnarrative fiction* (many kinds of poetry belong here); and *nonnarrative nonfiction* (of which the essay is an example). (Branigan 1992: 1)

As a means to distinguishing between the two concepts ‘narrative’ and ‘fiction’, Espen Aarseth suggests to conceive of narrative as a formal category, and fiction as a category of content (Aarseth 1997: 84-85). His suggestion is apt, and might suffice at a preliminary stage. One important implication of such a conceptualization is that neither narrative nor fiction are confined by or limited to any one medium – quite to the contrary, any medium that enables us to represent something, enables us to make fiction

---

<sup>37</sup> For important contributions in this field, cf. Doleézel 1998, Lamarque and Olsen 1994, Ronen 1994, Ronen 2002, Ryan 1991, Walton 1990, Cohn 1999.

(narrative or not).<sup>38</sup> Still, Aarseth is merely scratching the surface of an extensive area of research. Clearly, issues of narrativity and fictionality are considerably more complex, involving comprehensive theories from different areas of philosophy and psychology, concerning the logics and semantics of possible worlds, the phenomenology of reading and imagining, cognitive psychology, etc.<sup>39</sup> Marie-Laure Ryan offers the following mode of distinguishing between fiction and non-fiction:

The difference between fiction and non-fiction is not a matter of displaying the image of a world versus displaying this world itself, since both project a world image, but a matter of the function of the image: in one case, contemplating the textual world is an end in itself, while in the other, the textual world must be evaluated in terms of its accuracy with respect to an external reference world known to the reader through other channels of information. (Ryan 2001a: 92)<sup>40</sup>

For the purpose of this study, I will employ a definition of *narrative* in large corresponding with that of M. L. Ryan (as outlined in Ryan 2004a; see also Ryan 2004b; Ryan 2005). This entails that narrative is understood as a type of meaning – a cognitive construct. Such an approach is more in tune with my focus on cognitive, experiential, phenomenological aspects of the reading of narratives; moreover, it allows for a medium-free and semiotically independent definition. Hence, in the following, narrative will be understood as “a cognitive construct with an invariant nucleus of

---

<sup>38</sup> Cf. Currie 1990.

<sup>39</sup> For more extensive coverage of the subject, see for instance Cohn 1999, Currie 1990, Doleézel 1998, Gerrig 1993, Pavel 1986, Ronen 1994, Ryan 1991, Walton 1990.

<sup>40</sup> However, employing a phenomenological approach would imply that whether an image (or any other representational modality) is experienced as fiction or non-fiction depends, on the whole, not on the image per se, but on the reader’s consciousness and identification with the image. Drawing upon the little-known work of Jean-Pierre Meunier, Sobchack shows how we may at any time experience – intend – a fiction film as a documentary (and vice-versa), as when we “suddenly find ourselves watching not Cleopatra but Elizabeth Taylor kiss not Antony but Richard Burton.” (Sobchack 1999: 252) In such instances, we are in a mode of documentary identification, a different phenomenological intending than when watching a fiction film. Hence, in line with this argument, the terms “fiction” and “non-fiction” denote a subjective relationship to a representation (a text, a film, an image); its status as either fiction or non-fiction is determined by the viewer’s consciousness, that is, her intending.

meaning. [...] [A] narrative is the use of signs, or of a medium, that evokes in the mind of the recipient the image of a concrete world that evolves in time [...].” (Ryan 2005) In order to evoke a narrative script, the representation must, to different degrees, display the following features:

(1) for a representation to be called narrative, it must create a world and populate it with characters and objects; (2) this world, moreover, must undergo changes of state that are caused by either accidental happenings, or deliberate human actions; and (3) the text must allow the reader to reconstruct an interpretive network of goals, plans, causal relations, and psychological motivations around the narrated events. (Ryan 2004a: 8-9)

Implied in such a definition is that both the mental constitute of the narrative as well as its concrete manifestations in different media (or sensory modalities – cf. chapter 10, part III) can take a variety of shapes, making it more appropriate to distinguish between degrees of narrativity rather than absolute categories of narratives or non-narratives. Hence, the empirical material referred to in the following can be said to possess different degrees – and kinds – of narrativity; M. D. Coverley’s *Califia* (Coverley 2000) being perhaps the most explicitly and extensively narrative, whereas GUI fictions such as Rob Swigart’s *Down Time* (Swigart 2000) and Michael Joyce’s *Twelve Blue* (Joyce 1997) can more appropriately be said to possess narrativity on a smaller scale. However, what they all share is an attempt to create a fictional world into which the reader to some degree is supposed to be able to immerse herself during reading.

### **3.8. But – is it literature?**

Another concept that often appears in conjunction with the terms narrative and fiction, adding to the confusion of discourses and resulting in terminological topsy-turvy, is ‘literature’. The emergence of digital, interactive fiction in various guises has triggered, and will most likely continue to trigger, heated debates about the future and fate of both the conduit and the content of our most long-standing and perhaps also most treasured mode of storytelling, namely the novel. Prominent authors, literary theorists, and media

scholars alike have repeatedly professed the end of either the book, or the novel, or both – perhaps even the death of literature as we know it. Such more or less dystopian – and more or less plausible – views of the future of literature can be found in, for instance, “The End of Books” (Coover 1992); *Technopoly: the surrender of culture to technology* (Postman 1992); *The Death of Literature* (Kernan 1990); *The Gutenberg Elegies: the fate of reading in an electronic age* (Birkerts 1994); and, as Alvin Kernan titles one of the sections in his memoir *In Plato’s Cave*: “The New Technology Calls All in Doubt: Television, Books, Libraries, Computers” (Kernan 1999). That we are witnessing new modes of narrative fiction emerging with digital modes of representation is an observation which is hardly disputable. But the jury is still out on the question of whether what we read on the computer, can justly be called *literature*. Chances are we won’t get their verdict any time soon, which in my view reveals more about the nature of the term ‘literature’ than it does about the phenomenon of digital interactive narrative fiction.

An initial prerequisite, when engaging in the roaming debates on the status and future of (narrative) fiction, is to remember the crucial distinctions between the three concepts of *narrative*, *fiction*, and *literature*. Though closely related to one another, and often used conjunctively, the three concepts are distinct, and none presupposes the other. ‘Fiction’ is related to the ontological dimension of a sign representation: to be fictional denotes a mode of being, it describes an ontological status. As such it adheres to referential theory, concerned with the relations between signs and their referents (Ryan 1991). Moreover, whether something is fictional or not, is not a matter confined to any one medium, but applies equally extensively to still and moving images, as to verbal text.<sup>41</sup> ‘Literature’, by comparison, is predominantly an evaluative concept applied to one particular medium, namely that of verbal text (cf. Cohn 1999; Currie 1990; Fludernik 1996). And as is the case with fiction, there is literature which is narrative, and literature which is not – or, the degree of narrativity in different kinds of literature varies extensively.

---

<sup>41</sup> Whether ‘fiction’ also applies to media such as for instance music and sculpture, opens up yet other complex and comprehensive scientific challenges, the pursuit of which exceeds the confines of the present project. (Cf. for instance Currie 1990, Roberts 1972, and Walton 1990)

In this context, it is interesting to note that Jane Y. Douglas employs the dichotomy ‘digital narrative’ versus ‘hypertext fiction’ as a step towards distinguishing between what she considers the two main kinds of digital fiction (Douglas 2000a). The category named ‘digital narrative’ refers to “image-based texts like *The Last Express* and Shannon Gilligan’s Multimedia Murder series,” whereas ‘hypertext fiction’ in Douglas’ parlance refers to text-based narratives, hypertext novels like those of Michael Joyce, Stuart Moulthrop, and her own “I Have Said Nothing”. Hypertext fiction, according to this dichotomy, follows the path of the novel, particularly that of the avant-garde novel, which is characterized by “multiple perspectives and voices, episodes linked with associative logic and memory, and rejection of the conventional, often pat, final awarding of marriages, happiness, money, and recognition that wrap up narratives in mainstream and genre fiction alike.” (Douglas 2000a: 8) Digital narratives rely on precisely those popular genres; adventures, fantasy, mystery, and science fiction, and project the ingredients from the medium of print to the medium of the computer, mainly in forms of computer games. If we look at the so-called first-generation hypertext novels, they were largely published by Eastgate, and the authors were often literary (or media) theorists, who were more or less influenced by the theoretical trends at the time – post-structuralism (cf. Bolter 2001). The first-generation hypertext authors typically include Michael Joyce, whose *afternoon* (Joyce 1996 [1987]) is considered the first hypertext novel, Cathy Marshall & Judy Malloy (*Forward Anywhere* (Marshall and Malloy 1996)), Shelley Jackson’s *Patchwork Girl* (Jackson 1995), Stuart Moulthrop’s *Victory Garden* (Moulthrop 1991b), and Bill Bly’s *We Descend* (Bly 1997). With few exceptions, these hypertext novels were largely textual, occasionally featuring simple graphical presentations, such as Moulthrop’s famous maps of “Paths to Explore” and “Paths to Deplore” in *Victory Garden*, and the drawing of the body of Frankenstein in Shelley Jackson’s *Patchwork Girl*. With increasing multimediality and enhanced technological possibilities, the graphical features soon became more sophisticated, and hypertext authors began to include video and audio, such as Rob Swigart’s voice-over, and video clips of – among other things – chopping cucumbers in *Down Time* (Swigart 2000). The works of M.D. Coverley (such as for instance *Califia* (Coverley 2000);

*Fibonacci's Daughter* (Coverley), and *The Book of Going Forth by Day*<sup>42</sup>) include graphics, audio, animation, as well as a variety of typographical features, making her works both multi-medial and multi-modal.

Whether or not works such as the above-mentioned ones can or cannot aptly be called literature is in my view a matter of lesser concern. However, in light of the prevailing climate of resentment toward text-/print-centrism in the field of digital technology in the humanities, it might be a tactical move to label them otherwise. 'Literature' is not a theoretically required concept for distinguishing the impact of digitality, interactivity, and hyper-structure on perception and cognition. Hence, for the purposes of this dissertation, it can easily be dismissed. Unfortunately perhaps, the same cannot be said about the term 'narrative'.

Narrative is, among a range of other things, one of the fundamental cognitive models by means of which we understand the world and ourselves, organize and interpret events and experiences, and establish the necessary coherence and context in order to make meaning. How is such a conceptual and cognitive framework affected by the breaking up of linearity and coherence brought about in digital hypermedia? What will this entail in terms of changing our very means of making meaning and of interpreting the stories in our lives, indeed, the very understanding of ourselves as humans? If indeed "the point [of science] is to ask meaningful questions [,]" (Bal 1997: 223) then the field of digital technology is providing enough conundrums to keep science-prone minds busy for quite a while. Accordingly, the purpose of this project is to ask some meaningful questions pertaining to *the phenomenology of reading GUI narrative fiction*. Furthermore, in correspondence with common scientific practice, the purpose is to suggest some answers to the questions posed, based on carefully chosen theoretical fundamentals and methodological scrutiny. Finally, it is my hope, and also my contention, that these answers will not bring an end to discussions in the field currently being studied, but will in turn – as does all valuable research – yield new questions instigating further activity among media researchers in the humanities, as well as in neighboring disciplines. Given that the point of science is to ask meaningful questions,

---

<sup>42</sup> (<http://califia.us/frame1.htm>)

it should also be the pledge of any researcher to contribute to the continuing formulations of questions as well as the pursuit of answering them.

## PART II: META-THEORIZING



Again and again, it all comes down to signification. Language determines its own meaning independently of the individual human beings using language. [...] The theorists admit only two possibilities. Either humans control language or language controls and determines itself, and they opt for language. The conclusions that result are tricked out in a language of neologisms, parentheses, Greekisms, trope names, and inhorn terms as though something drastically complicated and new were happening. All this entitles us to give up the idea of determinate meanings, coherent selves, or language that refers to anything outside itself.

Norman Holland, *The Critical I* (1992)

## CHAPTER 4: CONCEPTUAL AND THEORETICAL SHORTCOMINGS

### 4.1. Obscurantism and “hysterical neologizing”

As mentioned, this dissertation is modeled after philosopher Noël Carroll’s call for piecemeal theorizing. At present, however, I would like to dwell for a moment on another of Carroll’s requests, namely the call for clarity and consistency in mode and style of theorizing, especially when it comes to terminology, as it is my contention that a main cause for the current shortcomings and inadequacies in the field of digital (or new) media studies is to be found precisely in the terminological turmoil characterizing the theorizing in the field.

In *Theorizing the Moving Image* (1996), Carroll explains how he originally considered himself a film scholar, but eventually got tired of the current mode of theorizing and style of writing in film studies, and switched field to analytical philosophy:

Another tension between many contemporary film theorists and me has to do with style. One of the reasons I left film study for philosophy was my frustration with what I experienced as the predominance of obscurantism in contemporary film theory. Theories were written in a style that was so impossible to understand that it made it difficult to evaluate the claims theorists were advancing. (Carroll 1996: xviii)

Some new media scholars might be tempted to defy the relevance of Carroll's laments today, for their field, in view of the fact that Carroll wrote this at a time when theories such as psychoanalysis, Marxism, and poststructuralism were very much in vogue in film studies, yielding a discourse which would easily appear cryptic to most film scholars, as well as to students with even above-average skills in film theory and potentially obscure terminology. However, I contend that even if some – but far from all – of these discourses are now for a large part abandoned and considered outmoded in film studies (as well as in literary theory, another field hugely influential to the study of new media), the field(s) in question are still to a large extent marred by obscurantism and shoddy theorizing. Scientific rigor, analytic depth and terminological consistency are overshadowed by quick and feeble analogies, faddish metaphors, and cryptic neologisms. Such a situation needn't have anything to do with what is going on in new media studies, if it weren't for the fact that from the very beginning, humanities research in digital media (at least in Scandinavia) has been, and still is, heavily influenced by the disciplines of film studies and comparative literature, in addition to the field of media studies. Repetitively, mentors in hypertext and hypermedia theory, most notably Espen Aarseth, have boisterously complained about the colonizing hordes of film and literature theorists who, allegedly, "have a tendency to find the object of their theory in whatever empirical field it is employed." (Aarseth 2003: 433)<sup>43</sup> Colonizers or not, film scholars and literary theorists prone to what Carroll calls "Grand Theorizing" (Carroll 2003g) continue to serve as muses charting the course of much of

---

<sup>43</sup> Cf. Aarseth once again, in his doctoral thesis, which were to become (and still is) very influential for the further development of new media studies: "The field of literary study is in permanent civil war with regard to what constitutes its valid objects. [...] Theories of literature have a powerful ability to co-opt new fields and fill theoretical vacuums, and in such a process of colonization, where the 'virgin territory' lacks theoretical defense, important perspectives and insights might be lost or at least overlooked." (Aarseth 1997: 15; 18)

the research in new media studies. One of the consequences of this is easily seen in the vocabulary, as well as in the mode of theorizing, of new media theorists.

When reading books, conference proceedings, and articles by humanities scholars on digital media, for instance research by literary theorists on hypertext and hypermedia narratives, I am often baffled by the nature and style of the discourse in which this research is being carried out. The level of abstractions, the degree and kinds of metaphorizing and analogizing, and in particular the stack of neologisms all contribute to an impression of an emerging field populated by researchers in frantic search of scientific justification and acclaim. More or less catchy neologisms and more but often less understandable metaphors and analogies abound, to such an extent that one is often left wondering about the intention and the goal of the study being carried out.

According to Peter Lunenfeld, such “hysterical neologizing” is one of the strategies that has developed among new media scholars in order to try to cope with what he calls “the future/present of the computer”:

Three representative strategies for confronting the future/present have developed, each with its own temporal orientation. The first invokes the past to battle the present, reinvigorating the machine-breaking ideology of the Luddites [what Lunenfeld calls “neo-Luddites”]. The second races frantically to keep pace with the present, manifesting itself in almost hysterical neologizing [“hysterical neologizers”]. The third looks forward, deploying a discourse that mimics the structures and concerns of science fiction [“the science-fictionalizers”]. (Lunenfeld 2000: 29)

Hysterical or not, I agree with Lunenfeld that the field is conspicuously colored by an urge for neologisms, an urge that does not seem to grow fainter even as the field advances and the scholars establish their domains and strengthen their positions. To the contrary, judging from some recent statements by arguably influential new media theorists, the neologism fad seems to be considered a virtue rather than a vice. In an interview in the online journal *Beehive*, media theorist Gregory Ulmer – coiner of the term “electracy” as “a name for the apparatus of the emerging digital epoch” (Memmott 2001), as well as a host of other fashionable neologisms – claims, tongue-in-cheek, that “we need a term for people who are excessively neologistic, people who overdo it and

don't know when to stop or who otherwise abuse the neologism. Such a person is a 'nomopest'." (Memmott 2001)

A cursory glance at some noticeable contributions to the field from more or less established and influential scholars paints a picture of the current situation in new media studies, and supports the impression that the trend of neologisms, grand analogies and fanciful metaphors can not be easily dismissed as eccentric and single-standing occurrences with little or no impact beyond themselves or the idiosyncrasies of their inventor. For instance, highly influential hypertext/hypermedia scholar N. Katherine Hayles opts for the term "technotexts" when she is to describe "the literary work [that] interrogates the inscription technology that produces it, [and] mobilizes reflexive loops between its imaginative world and the material apparatus embodying that creation as a physical presence." (Hayles 2002b: 25) Even more interesting for the present study is the fact that Hayles, in the same book, pretends to say something substantial about the impact of the materiality of the medium on our reading these "technotexts," rendering her scope and aim seemingly comparable to mine. However, as her analyses of the selected works (one digital hypertext, one artist's book, and one print novel) make clear, Hayles is more interested in interpretational, aesthetic aspects of materiality (i.e., media materiality as an artistic and aesthetic strategy), and does not really say anything about how media materiality is affecting our experiencing these works on a pre-hermeneutic/-aesthetic level, irrespective of their aesthetic/literary/symbolic features and meaning. (See Hayles 2002b: pp. 48-63; pp. 65-75; pp. 78-99, 2004b)

The above mentioned Ulmer is a resource well of neologisms; here is how he explains another catchword of his, "emerAgency":

The main thing [the term 'emerAgency'] has to offer so far is its name. This name packs a lot of context. For example, it condenses not only emergency and agency, but also emergence, emerge, merge, urge, urgency. The "A" alludes to the methods of Derrida (différance), Lacan (Autre), Brecht (Alienation Effect), Hawthorne (the scarlet letter), Cixous (the ladder of writing). Just packing all that method into one little portmanteau exhausted by inventive powers for quite some time. (Memmott 2001)

There are several things to notice here, and they all relate to a highly unproductive mode of “doing (or applying) theory” which has become fashionable in new media studies, among other humanities disciplines. One thing is the neologism itself, *emerge*; quite astonishing also is the function and purpose it is claimed to serve (“the main thing it has to offer so far is its name [...]”). I also find Ulmer’s “packing all that method into one little portmanteau” to be a flamboyant example of the widespread tendency in much new media theorizing to fetishize certain theorists and their catchphrases, and then indiscriminately importing them to the field of digital media following a strategy that amounts to little more than mere name-dropping. Such a strategy equals what Bordwell calls an *enthymeme* (i.e., a syllogism with a hidden premiss) of appeal to authority:

The rhetor [i.e., the critic/theorist/interpreter] can count on his audience to trust knowledgeable individuals, and the appeal to respected names and writings is basic to an institution’s coherence and continuity. Thus the critic can drop names [...] or metonymically invoke the massive authority of vast realms of knowledge (“according to Marxism” or “semiotics”). (Bordwell 1989a: 209)

Ultimately, rhetorical strategies such as Ulmer’s add little if anything of theoretical substance to the discourse, leaving it at the level of metaphor, vague analogies, and idiosyncratic interpretations of otherwise substantial and important issues and questions – which then remain inadequately addressed.<sup>44</sup>

Some readers might be tempted to dismiss my criticism of such neologizing as unwarranted and exaggerated picking on what is merely a few eccentric scholars’ innocent play with words in a scholarly field which has nevertheless not yet attained neither terminological nor theoretical commonality. In my view, however, such word-

---

<sup>44</sup> Regrettably, Bordwell’s description, albeit admittedly crude, of the currently fashionable discourse within film studies seems in many respects applicable to new media studies: “In a search for freshness, some critics have resorted to the academic equivalent of Las Vegas comedy: a grimacing playfulness depending on slashes, dashes, word-fracturing parentheses, obscure citations, and labored puns. But earnest glitz can not disguise the blandness of the business.” (Bordwell 1989a: 262) In addition to this depository of rhetorical glitz, digital technology itself adds more typographically striking symbols to the innovative theorists’ repertoire – for instance Donna Haraway: *Modest\_Witness@Second\_Millennium. FemaleMan©\_Meets\_OncoMouse*<sup>TM</sup> (1996).

play is a symptom of larger and more serious problems within the field of new media studies; in a field whose terminology and modes of theorizing is to a large extent characterized – and seemingly also directed – by individual rhetoric and discursive originality, the task of arriving at a widespread communal terminological foundation on which to base theoretical discussions and analytical applications seems all but futile. For a field of research which has only recently begun to settle down and find its place and affiliations in academia, a starting point characterized by such extreme terminological, as well as theoretical *and* methodological, disparity is, as I see it, highly unfortunate. In order for any scientific community, and for any individual researcher affiliated with it, to thrive and make (*scientific*) progress, a shared terminological basis and a certain preliminary consensus of the understanding of key concepts and of what passes for useful and appropriate scientific contribution and progress, is required. Or so, at least, one would think. The current tendency however, glaringly apparent in such booming disciplines as for instance “techno-culture” and “cyber-feminist” studies, seems to be heading in other directions. In opposition to such rhetoric, then, it is my ambition in this dissertation to write about the topic of digital technology and its experiential impact on our reading GUI narratives without embellishing my text with unnecessary neologisms. In fact, one of my ambitions is, during this dissertation, *not* to provide any new terms or concepts. It is my firm belief that the standard inventory of the English language is fully capable of providing me with the adequate terms for my arguments.

#### **4.2. Abstractions, analogies, and metaphors**

In addition to neologisms, many new media theorists seem to be conspicuously enticed by abstractions, analogies, and metaphors. As was the case with neologizing, also here we can see obvious historical parallels to the fields of cinema studies and literary theory. Writing about what to him is a deplorable tendency in film studies, Gregory Currie claims that

film theorists have used intellectual strategies that were almost bound to disaster. One of them is the casual employment of vague analogies.

Profound connections have been claimed between the cinema and Plato's cave, between the screen and the breast, between the experience of movie watching and dreaming, and also between cinema and shopping. (Currie 1995: xviii)

In the same vein and at the same time, Bordwell described the prevalent theorists in film studies as tending to “shy away from inductive, deductive, and abductive reasoning” and relying upon “remarkably unconstrained association.” (Bordwell 1996a: 23)

Theories such as (Lacanian) psychoanalysis have been – and still are<sup>45</sup> – highly influential also in hypertext and hypermedia theorizing, yielding some similarly noteworthy analogies. In the first major anthology on hypertext theory and literary criticism, literary theorist Terry Harpold has written an article entitled “Threnody: Psychoanalytic Digressions on the Subject of Hypertexts” (Harpold 1991), wherein he proposes a framework of a psychoanalytic theory of narrative digression in hypertexts. Heavily and enthusiastically inspired by Jacques Lacan, Harpold here argues for the evident analogies between the gaps in hypertext and the discourse of a patient suffering from obsessional neurosis, claiming that “the subject rehearsing the ritual circuit of obsessional discourse and the subject navigating the gap-ridden fabric of a hypertext do so at a cost, that of an erasure of subjectivity.” (Harpold 1991: 171) Analogous to the textual fragmentation and dismemberment of hypertext by “the divisive effect of shifting threads [...],” the subject(ivity) of the reader is seen as fading – fragmented and dismembered<sup>46</sup> (or, in another psychoanalytic fad, castrated) when reading hypertext:

---

<sup>45</sup> As seen in, for instance, Jill Walker's paper at the 2005 Digital Arts and Culture conference, titled *Mirrors and Shadows: The Digital Aesthetization of Oneself* (Walker 2005).

<sup>46</sup> Such dispersal of the subject is one hallmark of post-structuralist theory and of all theoretical strands springing out of it. Literary theorist Norman Holland wittily pointed out the absurdity of many of the claims from the burgeoning era of deconstruction in the 1980s: “Not so long ago, I attended a conference with a typical 1980s title: *Self and Other*. There I heard about the disappearing self, the vanishing self, the deconstructed self, the self on the edge, the self within the self (presumably some kind of indigestion), the marginal self, and so on. I got worried, having just published a book called *The I*, having therefore a certain vested interest in the self above and beyond one's usual concern for oneself. My worries, alas, proved correct. The I is in big trouble. The best literary theorists of today seem to have declared war on the I or the self, and *you's* and *I's* are vanishing wherever you (if you still allow me that pronoun) look.” (Holland 1992: 107)

Like the turns of the obsessional's thoughts, the detour of the link [in hypertext] encircles a gap in the narrative that marks a falling away which corresponds [...] to the fading of the subject on the level of the turn as signifier of detour. [...] The hypertext looks like an obsessional's discourse because it is grounded in mortality on the level of narrative structure, by a slipping away of thread from thread at points of division and erasure that look like points of intersection. (Harpold 1991: 176)

Perhaps it was this sinister, psycho-pathological nature of hypertext that made Harpold imply a decade later that “the specific contributions of digital narrative to practices of narrative remain unclear.” (Harpold, 'digital narrative' entry in Herman, Jahn, and Ryan 2004: 108) In the same vein, the title of another book on new media tells it all: *From Text to Hypertext: Decentering the Subject in Fiction, Film, the Visual Arts, and Electronic Media*. (Gaggi 1997) And according to hypertext theorist Johndan Johnson-Eilola, two of the most frequently discussed attributes of hypertext are “the blurring between the roles of writer and reader and the decentering of the subject. [...] The shifts in writer and reader roles authorized (and necessitated) by this postmodern space [e.g., the hypertext] are closely related to a more fundamental shift, the decentering of the subject.” (Johnson-Eilola 1997: 143; 146) One is indeed left wondering how and why any coherent and sensible human being would want to deal with hypertexts at all.

Another trendy metaphor in the field of new media studies is that of the *prosthetic* relation between human and technology. Again, N. Katherine Hayles presents herself as an exemplary model. The metaphor of prosthesis is frequently employed, particularly in her widely acclaimed book *How We Became Posthuman* (Hayles 1999a). The posthuman – a term coined by Ihab Hassan<sup>47</sup> – is a cultural construction characterized by, among other things, “informational pathways connecting the organic body to its prosthetic extensions.” (Hayles 1999a: 2) What is more, the posthuman view actually conceives of the organic, human body itself as

---

<sup>47</sup> “We need first to understand that the human form – including human desire and all its external representations – may be changing radically, and thus must be re-visioned. We need to understand that five hundred years of humanism may be coming to an end as humanism transforms itself into something that we must helplessly call post-humanism.” (Ihab Hassan, “Prometheus as Performer: Towards a Posthumanist Culture?” [1977], quoted in Hayles 1999a: 247)



the original prosthesis we all learn to manipulate, so that extending or replacing the body with other prostheses becomes a continuation of a process that began before we were born. [...] In the posthuman there are no essential differences or absolute demarcations between bodily existence and computer simulation, cybernetic mechanism and biological organism, robot technology and human goals. (Hayles 1999a: 3)

Although Hayles herself actually intends to counteract this tendency,<sup>48</sup> much of the discourse on the posthuman centers around the so-called disappearance of the human body (and/or human embodiment), echoing earlier fads about the fading and fragmentation of the subject following from much poststructuralist theory.

Taken together, such theorizing lifts the discourse to such levels of abstraction that there is little else taking place than allegorical and more or less original interpretations following from the rigid but at the same time superficial application of some theoretical perspective onto the subject of study (whether this is hypertext/hypermedia fictions, digital technology in general, or human-technology relations). The results of such a methodological praxis are obvious: when the relations between the theoretical domain from which the concepts are drawn, and the empirical field to which they are applied, are so vague and predominantly of a metaphorical or analogical nature, it is easy to spin equally metaphorical or allegorical discourses by means of which to make interpretations. Arriving at some substantial, scientifically productive and analytically profound insights, however, is all but impossible (and perhaps it is not even intended).

In her book *Carnal Thoughts* (Sobchack 2004a), film theorist Vivian Sobchack provides some long-awaited reality-check for the reigning prosthesis metaphors and analogies favored by several new media researchers. Sobchack contends that the prosthesis metaphor has in many respects taken over for the cyborg metaphor:

---

<sup>48</sup> “I see the deconstruction of the liberal subject as an opportunity to put back into the picture the flesh that continues to be erased in contemporary discussions about cybernetic subjects. [...] [M]y dream is a version of the posthuman that embraces the possibilities of information technologies without being seduced by fantasies of unlimited power and disembodied immortality, that recognizes and celebrates finitude as a condition of human being, and that understands human life is embedded in a material world of great complexity, one on which we depend for our continued survival.” (Ibid.: 5)

Some time, fairly recently, after the “cyborg” became somewhat tired and tiresome from academic overuse, we started to hear and read about “the prosthetic” – less, in its ordinary usage, as a specific material replacement of a missing limb or body part than as a *sexy, new metaphor* that, whether a noun or (more frequently) adjective, has become tropological currency for describing a vague and shifting constellation of relationships between bodies, technologies, and subjectivities. (Sobchack 2004d: 207; italics mine)

Again, N. K. Hayles can serve as an example of such a trajectory of metaphorizing. In an earlier essay on electronic hypertexts (written when the cyborg metaphor was apparently still *au courant*), she explains how the reader of these texts in some mysterious way *becomes a cyborg*:

Text on screen is produced through complex internal processes that make every word also a dynamic image, every discrete letter a continuous process. [...] Electronic hypertexts initiate and demand cyborg reading practices. To be positioned as a cyborg is inevitably in some sense to become one, so electronic hypertexts, regardless of their content, tend toward cyborg subjectivity. (Hayles 2000)<sup>49</sup>

What exactly does cyborg reading practices entail? How – and why – does a text position the reader as a cyborg? And, what does it mean to *become* a cyborg subjectivity? Not only are we left with unanswered questions as to what Hayles’ text means in the first place, we are also told that in reading hypertexts we will change personality in ways that seem considerably more radical than any reading experience of, say, a print novel commonly brings about – however mind-boggling, mind-altering, or mood-transforming it may be. Reading “technotexts” does indeed seem a daunting, transformative pleasure, during which we, according to Hayles, “are the medium, and the medium is us.” (Hayles 2001: 37)

---

<sup>49</sup> Referring to cultural theorist Andy Clark in a later article, Hayles obviously agrees to his claim that “we are cyborgs, [...] not in the merely superficial sense of combining flesh and wires, but in the more profound sense of being human-technology symbiots: thinking and reasoning systems whose minds and selves are spread across biological brain and non-biological circuitry [...]” (Hayles 2002a: 302)

Literally speaking from personal experience, Sobchack calls the prevalent use of the prosthesis metaphor in new media studies and other disciplines of (digital) technology scandalous in that it “has become a fetishized and unfleshed-out catchword that functions vaguely as the ungrounded and ‘floating signifier’ for a broad and variegated critical discourse on technoculture that includes little of these prosthetic qualities.” (Sobchack 2004d: 209) And, I would add (if somewhat redundantly) – it adds little if anything to the scientific quality and theoretical refinement of the field in question. Of course, the fact that Sobchack herself has a – *real* – prosthetic leg adds further weight to her criticism, and casts the discourse of the new media prosthesis aficionados (most notably Donna Haraway, Anne Balsamo, and N.K. Hayles) in an even sharper ironic light:

Somewhere, in all this far-reaching and interdisciplinary work [...], the literal and material ground of the metaphor has been largely forgotten, if not disavowed. That is, the primary context in which ‘the prosthetic’ functions literally rather than figuratively has been left behind – as has the experience and agency of those who, like myself, actually uses prostheses without feeling ‘posthuman’ and who, moreover, are often startled to read all the hidden powers their prostheses apparently exercise both in the world and in the imaginations of cultural theorists. (Sobchack 2004d: 205-206)

Such extensive metaphorizing, often accompanied by neologisms and analogies, then, adds up to little more than what can be called “associational reasoning,” a mode of reasoning which “tends to shy away from inductive, deductive, and abductive reasoning [...] rely[ing] upon remarkably unconstrained association.” (Bordwell 1996a: 22-23) As such, the mode of reasoning – and writing – currently prevalent in new media studies cannot reasonably be called scientific theorizing, but is instead instances of “(quasi-)theorized interpretations”.

## CHAPTER 5: THE SHORTCOMINGS OF “THEORIZED INTERPRETATIONS”

All in all, the mode of theorizing by way of analogies, metaphors and abstractions such as the above mentioned, serves as an illustrating example of what Bordwell has called “Interpretation, Inc.” (or also “Interpretation Unlimited”; see Bordwell 1989a: 21-29 et passim.), the dominating practice in film studies. That is, the discipline at large is more dominated by scholars doing interpretations than by theorists doing theory. Both Bordwell and Carroll point to the plausible cause being that film scholars (and, by extension, media – and new media – scholars) generally have little background in actual theory building themselves (and not just applying theory), since most of the studies are heavily steeped in hermeneutics (Bordwell 1989a, 1989b; Carroll 2003g; see also Gumbrecht 2004). In contrast to those scholars trained in scientific disciplines such as the natural or social sciences, or philosophy, a scholar with exclusively hermeneutical background has long and solid training in readings and interpretations, which – however profound and persuasive they may be – are not the same as theory-building. Bordwell neatly summarizes the differences between interpretation and theorizing as follows: “[I]nterpretive writing differs from theoretical writing, which proposes, analyzes, and criticizes theoretical claims. [...] [A] theory consists of a systematic propositional explanation of the nature and functions [of cinema].” (Bordwell 1989a: 250) What Bordwell calls the “hermeneutic bent of film studies” hence leads to “the practice of describing texts in a metalanguage derived from a theoretical doctrine. But a description, even a moving or pyrotechnic one, is not an explanation.” (Bordwell 1989b) Carroll actually goes so far as to claiming that most film scholars, for this reason, do not really understand the difference between theory and interpretation and hence commonly conflate doing interpretations of films with film theorizing, something which he considers “an obvious liability if film theory is to prosper.” (Carroll 2003g: 362) I shall refrain from asserting that most new media researchers actually do not know

the difference between theory and interpretation; however, judging from the current body of research in digital hypermedia, the situation in new media studies is in many respects comparable to that characterized and criticized by Bordwell and Carroll.

Similar to what has been the dominating trend in film studies (as well as in literary theory) during the past few decades, I find it reasonable to say that much of the research currently going on in the field(s) of new media studies are interpretations of the “top-down”, theory-driven style, often accompanied by more or less explicitly ideological or even political agendas. The heritage from the “Grand Theories” of the 1970s and 1980s, such as Lacanian psychoanalysis, Marxism, feminism, or any version of poststructuralism, is easily found. A quick look at the table of content of one of the recent anthologies of new media theories, Mark J. P. Wolf’s and Bernard Perron’s *Video Game Theory Reader* (Wolf and Perron 2003),<sup>50</sup> provides several examples: “Hyperidentities: Postmodern Identity Patterns in Massively Multiplayer Online Role-Playing Games” (Filiciak 2003); “Playing at Being: Psychoanalysis and the Avatar” (Rehak 2003); and “As We Become Machines: Corporealized Pleasures in Video Games” (Lahti 2003). One of the Grand Old Men of hypertext theory, George Landow, continues to insist on the particular relevance of poststructuralist theory for understanding hypertext:

The value of poststructuralist theorists, who are essentially more negative in their approach than hypertext theorists, is that they forcefully call attention to the book as a thought-form, though admittedly often in an obscure, even obscurantist, style. Part of this stylistic obscurity derives from the difficulty of writing about the book as a thought form from within the physical form of the book itself. Nonetheless, despite the stylistic difficulty of Barthes, Bakhtin, Deleuze & Guattari, and Derrida,

---

<sup>50</sup> In order to see the relevance for new media studies, it might be necessary here to clarify what is meant by “video game” in this context. In their introduction, the editors explain the relationship between ‘video games’ and ‘computer games’ as follows: “Although the terms are often used interchangeably, a distinction between them could be made; ‘computer games’ would not require any visuals, while ‘video games’ would not require a microprocessor (or whatever one wanted to define as essential for being referred to as a ‘computer’). The board game *Stop Thief* (1979), for example, has a handheld computer that makes sounds that relate to game play on the board. Therefore, the game could be considered a computer game, but not a video game. More of these kinds of games exist than games that involve video but not a computer, making ‘video games’ the more exclusive term.” (Wolf and Perron 2003: 21, n. 5)

their work proves more valuable than that of most writers on the new media because they foreground what is most needed to comprehend innovation at this point of transition and of competitions among media forms: they offer a self-conscious awareness of the nature and limits of the book and of the literary and other cultural forms that it generates. (Landow 2003: 43)<sup>51</sup>

Contrary to Landow's view, I will claim that as long as hypertext theory remains fascinated by doing interpretations of different aspects of digital media in the light of theoretical discourses, such as concentrating on flickering (or floating) signifiers (and applying Lacanian psychoanalysis), the dissemination of the subject (and applying any poststructuralist theory of the subject), and the rhizomatic nature of hypertext (and applying the philosophy-cum-political theories of Deleuze and Guattari),<sup>52</sup> we will fail to come any closer to an understanding of the experiential impact of the technology on our reading these "texts." In such theoretical approaches, the chosen theory most often works as an abstract framework hovering outside and above the issue or empirical object to be studied, resulting in "theorized interpretations" intended to "prove" the grandeur of the chosen theory, rather than saying anything interesting and substantial about the study object in question (see Bordwell 1996c).<sup>53</sup> Furthermore, the state of such extreme theoretical and methodological (and terminological) pluralism and discrepancy, where theories are imported wholesale and applied top-down with little or

---

<sup>51</sup> Cf. also another hypertext theory grand-father, Jay D. Bolter: "It is poststructuralist theory that has seemed most relevant to hypertext. [...] Just as hyperfictions were necessarily read as an avant-garde response to literature in print, poststructuralist theories were read as a revolt against earlier critical theories." (Bolter 1991: 170)

<sup>52</sup> Not surprisingly, perhaps, most of the mentioned theoretical candidates here are French. Without making too much of this, I do find Bordwell's comments on the fleeting nature of French intellectuals (on their home turf, that is) to be a pertinent advice: "Is it necessary to point out that French intellectual life inclines its celebrities to bold, even caricatural positions and quick turnarounds? French humanistic thought is celebrity- and fashion-driven to a degree uncommon in Anglophone countries. [...] [B]y the time film scholars spot a trend, it has passed out of fashion on its home ground." (Bordwell 1996a: 20)

<sup>53</sup> Compare also with John M. Ellis' description of what he terms the politically correct "race-gender-class critics" so prevalent in the humanities nowadays: "Because they have decided in advance what any particular text will have to say to them, race-gender-class critics cannot receive anything from literature: what they go away with is no more than what they brought to it." (Ellis 1997: 46)

no reference to or dialogue with existing theoretical perspectives in the field (or related fields), bounds for a development in the field which will be – indeed, already is – more characterized by being a merely cumulative and further dispersing discipline in which whatever new theory is simply added to the existing ones, rather than a substantially progressive scientific discipline where old theories are challenged and occasionally discarded when new – and more productive – ones are developed. Criteria of scientific validity and logical argumentation are dismissed in favor of a search for novel and original interpretations, where wholesale applications of the (currently trendy) theories form the activity of the field:

Neither inductivist nor deductivist, the critic is better described as pragmatic – arguing to the particular case when wishing to attack a theoretical position, arguing to the theoretical correctness when wishing to assail an alternative interpretation. In neither case need an exact relation of theory to practice be spelled out. Theoretical assumptions can simply function as a cluster of enthymematic premises, and the rhetor can appeal to any one as the occasion demands. Probably the operative assumption goes like this: “A good interpretation invokes a theory as warrant, or evidence, or authority, as well as drawing data from the film.” This is, of course, a purely institutional criterion of value. Any writer, theoretically informed or not, can during apprenticeship acquire the knack of “applying” theory. (Bordwell 1989a: 252-253)

Such a situation raises – or at least *should* raise – an important question: how do you make and measure progress in such a field?

Instead of in this way treating and applying theory as a recipe for producing dazzling and abstracting interpretations of texts (see Smith 1998), whether literary, filmic, or hypermedia GUI narrative fictions, the goal in this study is to obtain new insights about some aspects of the experiential impact of the GUI on our reading narrative fiction. To this end, I consider a combination of some perspectives from a phenomenological approach with some aspects of cognitive (film) theory to be the most relevant theoretical and analytical tools. My purpose is not to produce original interpretations of some particular GUI narrative fiction works, nor is it to produce a totalizing theory about every and all aspects of such works; my purpose is to say something substantial about some aspects of our experience of reading them.

Another reason why I find interpretational approaches to be of less relevance for the field of new media studies is obvious and has to do with the extremely shifting nature of the empirical material. Even though some hypertext and hypermedia narrative fictions have by now acquired something like a status of classics (such as Michael Joyce's *afternoon*, as well as several others, mainly published by Eastgate Systems<sup>54</sup>), the fact remains that these fictions have a severely limited – and unpredictable – expectancy of life due to their dependence on particular and highly time-bound technological platforms and programs. Hence, for this project, they are interesting not so much for their content as for their being manifestations of a particular configuration of the GUI. Another aspect rendering interpretational approaches quite irrelevant and uninteresting, in my view, is the equally obvious fact that reading these fictions yields highly individual and idiosyncratic versions, so that readers, critics, and theorists are left with a number of often incompatible readings on which to found their interpretations. The theoretical insights as well as the analytical outcomes of such fundamentally incongruent interpretations are in my view highly questionable.

---

<sup>54</sup> Such as for instance Shelley Jackson's *Patchwork Girl* (Jackson 1995), Stuart Moulthrop's *Victory Garden* (Moulthrop 1991b), and M. D. Coverley's *Califia* (Coverley 2000).



## CHAPTER 6: ADVOCATING AND JUSTIFYING PIECEMEAL THEORIZING

My preferred methodological strategy in this dissertation corresponds with that recommended by film theorist and philosopher Noël Carroll. As a response to what he observes as a widespread strive for a “Grand Theory of Everything” in film theory, Carroll claims that film theorists should instead be conducting piecemeal theorizing:

For me, film theorizing involves posing general questions – such as how does point of view editing work? – and then attempting to answer them. I have called this piecemeal theorizing [...]. Both classic film theory and contemporary film theory strike me as grand theory, the attempt to ground a comprehensive perspective of film on certain foundational principles, whether those concern the ontology of the cinematic image or subject positioning. [...] My own suspicion has been that film cannot be reduced to a single essence or function, and, correspondingly, I do not presume that our theories will result in a tidy package. Rather than an essence or a function of film, what we have are a lot of questions about film. Answering them will not yield a single theory, but a collection of piecemeal theories. (Carroll 1996: xiv)<sup>55</sup>

To what extent is Carroll’s piecemeal program applicable to digital, interactive, hypermedia narrative fictions? Obviously, his urge for a shift in film studies is prompted by decades of film theorizing; by comparison, the theorizing of digital interactive hypermedia is still at an incunabular stage. However, a brief survey of recent and current theoretical texts about hypertext and/or hypermedia narrative fiction reveals an impression of Grand Theory ambitions and holistic agendas rather than more fine-

---

<sup>55</sup> In the same vein as Carroll, David Bordwell opts for what he terms “middle-range inquiry,” as a way of countering the tendency towards Grand Theorizing that he – and Carroll – saw as dead-ends in contemporary film studies. See Bordwell and Carroll 1996: introduction.

grained interdisciplinary approaches on lower levels of generality, focusing on selected bits and pieces of the field of digital hypermedia.<sup>56</sup>

The feisty introduction to hypertext theory by, most prominently, George P. Landow, Michael Joyce, Brenda Laurel, and – perhaps somewhat more somberly – Jay D. Bolter and Richard A. Lanham, in the early to mid-1990s, resembled entirely new programs of study of electronic texts, complete with assessments of ontological, epistemological, rhetorical, and cultural aspects of the emerging field. Claims such as how hypertext turns the reader into an author, how electronic text replaces print text, and how the computer as writing space creates new cultural modes of expression bear witness of a theorizing at high levels of generality and abstraction, aiming at unifying the odds and ends of hypertext fiction under a comprehensive theoretical framework (and this framework was often that of poststructuralism; see for instance Bolter 2001: 19). For some, it seemed to be a matter of concern to show that this framework was in all significant respects fundamentally different from existing theoretical frameworks. The intention was clearly to signal that digital technology engenders ontologically different kinds of narrative fiction (some of these theorists also called it hypertext literature), and as a corollary, in order to understand these new fictions, entirely new kinds of theorizing are required. Others, however, would claim that although the technology is different, as are the processes of creation and production, the products resulting from it – hypertext/hypermedia fictions – could still be addressed by means of existing theories, particularly from the neighboring field of literary studies, of which narratology is by far the most frequently employed. In fact, one of the first hypertext and hypermedia theory anthologies – Paul Delany’s and George P. Landow’s *Hypermedia and Literary Studies* (Delany and Landow 1991) – was dedicated to the interrelations between the newly emerging digital fictions and print literature, and how hypermedia would impact the discipline of literary studies, and vice-versa, how literary studies can provide theoretical and methodological equipment for assessing hypermedia

---

<sup>56</sup> Cf. for instance Bolter 2001, Bolter and Grusin 1999, Coyne 1999, Druckrey 1996, Everett and Caldwell 2003, Fidler 1997, Gaggi 1997, Hayles 2002b, Hocks and Kendrick 2003b, Joyce 1995, Landow 1994, Landow 1997, Lanham 1993, Laurel 1993, Le Grice 2001, Lunenfeld 1999, Lunenfeld 2000, Manovich 2001, McGann 2001, Meadows 2003, Montfort 2003, Murray 1997, Rieser and Zapp 2002c, Wise and Steemers 2000.

fictions. Comparable to Carroll's criticism of film theorists as blinded by visions of a Grand Theory of the essence of Film, it seems reasonable to say that hypertext and hypermedia theorists were – and to a considerable extent still are – if not blinded, so at least conspicuously entranced, by holistic ambitions of coming up with The New Theory (in the sense one unifying theory, as opposed to conglomerates of several theories) of Hypertext and Hypermedia fictions. In my opinion, this is rarely if ever an astute point of departure for theory production, whatever the object of study. As I hope to make clear in the following, such ambitions are usually prone to disaster – or at the very least to disillusionment – when applied to digital hypermedia.

Another motivation for Carroll's theoretical alternative is that film, according to his assessment of film from the perspective of analytical philosophy, is not a medium. By this, he means that there is no such thing as a *mediumistic essence* of film – contrary to what is usually assumed in film theory (Carroll 2003a, 2003b). It seems plausible to say, at present, that most if not all of Carroll's points can also be applied to the current situation in the field of humanistic research on digital technology.

Considering himself a theorist of film, but even more a philosopher, Carroll insists on labeling his object of study the *moving image*, instead of film.<sup>57</sup> For him, the idea that film is a distinct medium with some kind of essence which makes it different from other media, is erroneous. The moving image, claims Carroll, is an artform rather than a medium, and as such it is a trans-media phenomenon: “Just as painting is not reducible to the medium of oil, so the moving image is not reducible to film.” (Carroll 2003a: xxii) The idea of film as a distinct medium occurred, according to Carroll, as a part of an academic agenda for establishing film studies as a discipline in its own right, requiring its own distinct theorizing – there was an urge to demonstrate that film was not merely “theater in a can,” that is, a sub-species of stage drama. (Carroll 2003b: 3)

In the field of new media studies we can observe strikingly similar forces at work. As an example, let us consider the study of computer games. Many theorists

---

<sup>57</sup> Carroll also refrains from employing the terms *moving pictures* or *motion pictures*, on philosophical grounds, because such expressions “are restricted to pictures, i.e., symbols whose referents are recognizable by looking, whereas our domain of inquiry also includes abstract, non-figurative, and non-objective imagery. Thus, ‘moving image’ strikes me as more appropriate insofar as it is more comprehensive.” (Carroll 2003b: 8)

dealing with this vast, complex, many-faceted and extremely fast-expanding and equally fast-changing field strongly urge that computer games by nature and in their essence, mediumistic or otherwise, differ from other media (digital or not) to such an extent that they require their own theorizing independently of, and untainted by, existing media and existing media studies disciplines. In particular, they require theorizing apart from anything associated with literary theory – and, more precisely, with narratology and narrative theory in general. Both the style as well as the means of justification commonly used are exemplarily illustrated by ardent computer game theorist Markku Eskelinen:

[I]f there already is or soon will be a legitimate field for computer game studies, this field is also very open to intrusions and colonizations from the already organized scholarly tribes. Resisting and beating them is the goal of our first survival in this paper, as what these emerging studies need is independence, or at least relative independence. It should be evident that we can't apply print narratology, hypertext theory, film or theater and drama studies directly to computer games, but it isn't. [...] Obviously, I need a strategy, and fortunately I have one: to use the theories of those would-be-colonizers against themselves. (Eskelinen 2004: 36)

As a means for establishing the scientific foundations and justifications for their *independent* research paradigm, these theorists call their field *ludology*.<sup>58</sup> As illustrated above, the ludologists' call for a new paradigm often takes the shape of passionate – some have even called them militant<sup>59</sup> – manifestos, where powerful rhetoric emphasizing the need for a new theoretical field completely untainted by existing paradigms is complemented by equally powerful rhetoric dismissing literary theory and, in particular, narratology, as in any way relevant to the study of games in general, and computer games in particular. The vernacular of one of the strongest proponents, Espen Aarseth, is an illustrating case in point:

---

<sup>58</sup> The most prominent of which are Gonzalo Frasca (the coiner of the term), Jesper Juul, Espen Aarseth, and Markku Eskelinen.

<sup>59</sup> Cf. Moulthrop 2004, and also his online response to Aarseth's article in the same book (Aarseth 2004a), <[www.electronicbookreview.com/thread/firstperson/moulthrop1](http://www.electronicbookreview.com/thread/firstperson/moulthrop1)>

The prevalent view among academic commentators of computer games seems to be that the games are (“interactive”) stories, a new kind of storytelling that can nonetheless be analyzed and even constructed using traditional narratology. This article will argue against that view, based on the following observations: there are essential discursive differences between stories and computer games, much more crucial than those between novels and film; narrative theory (of the most basic and archaic kind, for example, Aristotle’s poetics) seems to be used because there is nothing better to use, not because it fits particularly well (and, yes, games do have beginnings, middles, and ends); [...] computer games studies needs to be liberated from narrativism, and *an alternative theory that is native to the field must be constructed*. (Aarseth 2004b: 362; italics mine)

It is difficult not to get a whiff of the scornful allusions to scholars claiming that computer games are to some extent and in some way comparable to narratives.<sup>60</sup> This rhetorical trend of disciplinary war between the emerging fields of digital media, and the well-established field of literary studies was introduced by Aarseth in his doctoral thesis, and has set the standard for much of the theorizing around hypertext and hypermedia in general, and computer games in particular.<sup>61</sup>

As a logical consequence of computer games’ autonomy and distinct, medium-specific quality setting them apart from all other media hitherto dealt with in the departments of arts and humanities, computer games also require their own academic programs and departments, separated from – but possibly collaborating with – the neighbor departments of for instance comparative literature, or film or media studies. So far, this strategy seems to have been very successful, considering how it has yielded results in very much the same way as the urge for defining film as a distinct medium and, in turn, establishing programs and departments of film studies: in recent years,

---

<sup>60</sup> The polemical bashing of narratologists by the ludologists seems almost programmatic: “If you actually know your narrative theory [...] you won’t argue that games are (interactive or procedural) narratives or anything even remotely similar. Luckily, outside theory, people are usually excellent at distinguishing between a narrative and gaming situations: if I throw a ball at you, I don’t expect you to drop it and wait until it starts telling stories [...]” (Eskelinen 2004: 36); cf. also Aarseth’s online response to Janet Murray’s essay in *First Person*: “Games are always stories, Janet Murray claims. If this really were true, perhaps professional baseball and football teams would do well to hire narratologists as coaches.” (Aarseth 2005)

<sup>61</sup> Not least for Aarseth himself: cf. Aarseth 2003, Aarseth 2004a, Aarseth 2004b.

several universities have established departments and academic programs wholly devoted to the study of computer games and its kin.

Suggesting that this might not have been a clever move (to be more specific; it was certainly clever in terms of getting funding in an intellectual climate which was, and still is, ideologically benign for so-called popular culture studies; but it was not *scientifically* prudent), then, is certainly to put one's head on the guillotine. Again, I must emphasize that I am not claiming that studies of computer games are irrelevant or less worthwhile than any other study in the field of digital media – or the field of media studies in general. Nor am I saying that there is nothing new, different, or unique about these forms of digital media. What I am questioning, is the immediate need for entirely new paradigms, taxonomies and theories for conducting such studies and research. Or, more precisely, I am questioning the way in which these requirements are being put forth – and, more crucially, how they are attempted resolved. It might be the case that computer games will eventually reveal themselves as scientific *enfants terribles*, for which there may not be any adequate existing terminology or methodology which will lead to a Grand Ludological Theory comprising the essence of computer games. To me, however, it seems a tad premature – and also unnecessarily ambitious – to be raising such claims at this stage of research in digital media, computer games included. Carroll warns against such ambitions on behalf of film theorizing:

I maintain that at this point in our researches concerning the moving image we are not yet (if we will ever be) in a position to develop a foundational theory either of film or of the moving image based either on the notion of an essence and/or basic function of the moving image such that every aspect of our object of inquiry could be understood by reference to whatever we identified the nature of that foundation to be.  
(Carroll 2003a: xxiii)

It would be odd, to say the least, if the field of new media would be any closer to a stable position from where to develop a foundational theory. Film theorizing has been going on since the Lumière brothers' train arrived on screen more than a hundred years ago; by contrast, new media theorizing is still in its infancy. As mentioned, there are still numerous questions in need of answering, many topics to be addressed, many aspects yet to be understood, at levels of considerably less generality than postulating a

grand, unifying and foundational theory would yield. Moreover, posing these questions and addressing these topics does not require that a new theoretical framework, complete with innovative (or neologizing) terminology and original (or idiosyncratic) methodology, be at our disposal.

Furthermore, and possibly even more pertinent; the technologies involved in both moving imagery and new media in general are constantly and rapidly developing, bringing to light even more clearly why such mediumistic essentialism is not the way to go, never was, and most likely will never be:

It has always been a philosophical error to attempt to base the case for both film as art and for film studies on the notion that film is a unique medium. The evolution of video, TV, and computer processing has only served to make this error more evident. [...] Today, we include – either overtly or covertly – video, TV, and computer imagery in our inquiries. Tomorrow, more innovations are in the offing. What is and what will be the principle that makes our enterprise coherent will not be that it concerns a distinctive medium, but that the various media under examination are all examples of the moving image. That would have been a better label for our area of inquiry from the beginning. But by now the history of technological developments forces this alternative upon us. What hitherto we called the film, I conjecture, was actually at best a moment in the history of the moving image, a development in which film history, so called, is of a piece with the evolution of video, TV, the CD-ROM and we know not what. (Carroll 2003b: 2, 9)

It is not difficult to see that this is even more the case when the object of study is new media and digital technologies.

Again, I want to emphasize that I am not discrediting the quality of the research on computer games as such, whether inside or outside of ludology departments. Nor do I suggest that computer games are in any conceivable way of less importance or interest to scientific endeavors than any other topic or object in the field of digital media and technology in the humanities. My intention is to point to some disadvantages in the current mode and level of theorizing in new media studies, and to suggest strategies for research that to me seem far more appropriate and viable, the objects of study taken into consideration.

I contend that (new) media research should be piecemeal. Furthermore, I also agree with Carroll in the virtue – indeed, the necessity – of multidisciplinary when

addressing complex phenomena such as moving images, hypermedia narratives, or computer games – at whatever level of granularity and generality:

Insofar as theorists approach film from many different angles, from different levels of abstraction and generality, they will have to avail themselves of multidisciplinary frameworks. Some questions about film may send the researcher toward economics, while others require a look into perceptual psychology. In other instances, sociology, political science, anthropology, communications theory, linguistics, artificial intelligence, biology, or narrative theory may provide the initial research tools which the film theorist requires in order to begin to evolve theories of this or that aspect of film. [...] Film theorizing should be interdisciplinary. It should be pursued without the expectations of discovering a unified theory, cinematic or otherwise. (Carroll 2003g: 360-361)

The ever-increasing technological complexification (a process wherein convergence and divergence are two components) in the field of new media signals difficult times ahead for mediumistic essentialism. The field is already littered with corpses from poststructuralism and narrative theory, and even though the dispute about whether or not computer games are narratives might possibly be settled in our lifetime, problems abound for the theorist pursuing a mediumistic ambition in the field of digital technology: what is the distinctive medium of a computer game? Surely, the computer seems to be the obvious option. But if so, then computer games are not *mediumistically* different from web pages, a movie on DVD, an on-line lecture screened in real-time, or a hypermedia digital narrative. Remaining within the same domain, another suggestion would be that computer games are a distinct medium in their own right by nature of being a game, *and* implemented in a digital computer. Studies of games have surely existed long before the digital computer, and many ludologists draw upon classical texts in this field.<sup>62</sup> However, maintaining that the mediumistic essence of computer games is to be found in its being a game played on a computer, would equate a digitized game of monopoly or “Ludo” or any card game, on-line casinos, and Tetris, with *Grand Theft Auto* and *Sim City*, as well as MUDs and MOOs. It seems that, in order to become

---

<sup>62</sup> Huizinga’s *Homo Ludens* (Huizinga 1955), and Caillois’ *Man, Play, and Games* (Caillois 1961) are among the most frequent sources of reference.



operational, any mediumistic definition in the field of digital media is in need of so many additional precisions and modifications that it ends up completely diluted and hence quite useless.

A mediumistic approach also quickly runs into other obvious problems, particularly when confronted with digital technology – such as for example computer games:

Maybe an even greater shortcoming in the view that each artform possesses a uniquely distinctive medium is the fact that, if the artforms that do possess specifiable media, the media that correlate with the relevant artforms are not singular, but multiple. That is, the view that each and every artform must correlate to a single medium that is distinctively and uniquely its own must be erroneous, since artforms generally involve a number of media, including frequently overlapping ones. (Carroll 2003b: 5)

Approaches to new media inspired by holistic ambitions of establishing entirely new theoretical and methodological frameworks defined by mediumistic essence of so-called “new media” are in for considerable challenges. What is the mediumistic essence of “new media”? As much as such labeling of a field is doomed to prove a tactical failure, as little does the label provide in terms of distinguishing the essence of the media in question.

Instead of a future scenario where continuously emerging new modes of digital technology are threatening to render any totalizing Theory of the Digital (or New) Medium (or Digital/New Media) marginal and even obsolete, I am envisioning a much brighter and acquiescent future by focusing on a few detailed aspects of the entire field, such as *the impact of the digital, of the GUI, of interactivity, and of hyperstructure on the phenomenology of reading*. Moreover, these aspects are trans-media and not liable to appear irrelevant or outdated no matter how fast the field is changing. Actually, precisely the fact that the field of digital technology is changing so fast renders aspects such as these even more pertinent. The first decade of hypertext and hypermedia theorizing has not yielded significant results in terms of explaining the phenomenology of reading digital fiction, and it is my hope and my intention to at least partially fill that void.

# CHAPTER 7: PHENOMENOLOGY & COGNITIVISM

## 7.1. Introductory

Different media and different technologies require, favor, and generate, different modes of reception – or, in the present parlance, reading. In various ways and to varying degrees, the physical (material; tactile; tangible) dimension of the medium has a crucial impact on our perception, cognition, and reading. It makes a profound experiential difference whether a verbal text is read on a printed sheet of paper, or on a computer screen, as much as it makes a profound experiential difference whether the photograph we are looking at, is framed in mahogany and standing on a mantelpiece, or glued onto a cardboard page in a photo-album, or comes as an e-mail attachment. Simply stated (with a cliché) – materiality matters. Obviously, such a seemingly simple statement requires further elaboration; in what ways, why, and to what extent does materiality matter? Admittedly, the approaches to issues of media materiality are numerous. In this dissertation I restrict myself to concentrating on one dimension in particular, namely, how media materiality – and more precisely, the digitally defined features of the GUI – matters for our reading and experiencing narrative fictions.

With the development of digital technology the materiality mantra has grown to be perhaps the most noticeable trend in media studies. Several theorists in the diffuse field of new media studies have grasped the catchphrase, and loudly call for more material(istic) approaches. Contributing to the formation of an approach named “materialities of communication” (see Hansen 2000), Hans Ulrich Gumbrecht and K. Ludwig Pfeiffer edited a collection of essays under the very title of *Materialities of Communication*, wherein they note a state of transition in Western thought, away from the identification of meaning (i.e., from interpretation of content) and toward problems concerning the conditions and forms of meaning-making, focusing on “any phenomena that contribute to the emergence of meaning without themselves belonging to this

sphere [,] [such as] the human body, various media technologies, and other situations and patterns of thinking that resist or obstruct meaning-construction.” (Gumbrecht and Pfeiffer 1994: 10) In the preface to film artist and media theorist Malcolm Le Grice’s *Experimental Cinema in the Digital Age* (2001), Sean Cubitt observes that “[w]e hear in contemporary art discourses the constant cry that the medium doesn’t matter: Le Grice is here to remind us that the matter is the medium, and that art is material work in a material world. The physical dimensions of the artwork, art’s matter, matters profoundly.” (Le Grice 2001: preface by Sean Cubitt) Repeatedly, N. Katherine Hayles proclaims the need to embody materiality into media studies, pointing to the importance of materiality in meaning-making as well as for the experiential act:

[I]t is impossible not to create meaning through a work’s materiality. Even when the interface is rendered as transparent as possible, this very immediacy is itself an act of meaning-making that positions the reader in a specific material relationship with the imaginative world evoked by the text. The interplay between semiotic and physical attributes that gives rise to materiality simultaneously and with the same gesture gives rise to subjects who both perceive and are acted upon by this materiality. [...] A critical practice that ignores materiality, or that reduces it to a narrow range of engagements, cuts itself off from the exuberant possibilities of all the unpredictable things that happen when we as embodied creatures interact with the rich physicality of the world. (Hayles 2002b: 107)

These are all pertinent observations, pointing to issues that are becoming more and more important in our time of increasing technological complexification and divergence. Questions of media materiality emerge as a most fundamental basis from which any discussion of our relation to mediated communication originates. Still, questions of materiality are rarely pursued beyond that of exclaiming – like Hayles does in the above quotation – the need for addressing these issues, in combination with criticism targeted at, for instance, literary theory for its lack of adequate conceptions of the materiality of the (literary) text. Attempts to grasp this materiality often result in ad-hoc and add-on conceptualizations and neologisms, such as “cyber-text” (Aarseth 1997) and “techno-text” (Hayles 2002b).

Materiality still matters as much as it should always have; hence, theories intent on grasping the essential features of digital technology and its impact on human

perception and cognition, should at the very least attempt to grasp the characteristics of the surface – or, in digital parlance, interface. Semioticians Günther Kress and Theo van Leeuwen provide a promising starting point in observing that while some surfaces – or, as I would say, interfaces – favor public reception (such as cinema screens, or walls), other surfaces favor private readings (computer screens, paper) (Kress and Van Leeuwen 1996: 235). Even more pertinent to my study is their following observation: “Also, more difficult to describe, there is the effect of the physicality, the tangibility of the surface – the difference between the forms carved in the hard rock and the fleeting flickers of light on the glass screen.” (Ibid.) It may be that such a task may seem insurmountable or even irrelevant for semioticians; in my view, however, it is precisely aspects such as these – the effects of the physicality and tangibility of the surface – that must be our primary focus if we are to come to terms with the perceptual and experiential impacts of digital technology in general, as well as the impact of the GUI on our readings of narrative fictions. The peculiar intangibility, volatility, and malleable, ethereal, quality of the digital interface have major perceptual and experiential implications, hence theoretical approaches focusing exclusively on either the structure, or the meaning-dimension, fail to grasp perhaps the most distinct feature of these media. GUI narrative fictions call for theoretical approaches that can appropriately address the dimension of physicality (or materiality; tactility) and its impacting our experience. Entailed in such a call is a reorientation in humanistic media research – away from primarily hermeneutic (text/content-interpreting) and/or semiotic (sign-interpreting) approaches, and towards approaches focusing on aspects of the reading experience, and aspects of the relationship between media and readers, taking place at a pre-reflexive, pre-hermeneutic, pre-interpretational level. There is quite a lot more to understanding the phenomenon of digital hypermedia than is realized, and covered, by a hermeneutic approach.

## **7.2. The end of hermeneutics?**

At the opening conference of the recently launched research program KIM (Communication – ICT [Information and Communication Technology] – Media) at the

University of Bergen in May 2004, K. Ludwig Pfeiffer was one of the keynote speakers. He suggested that with today's noticeable "anti-hermeneutic media offensive," the

hermeneutic intensity, indeed the fury of historical and literary interpretations, which characterized and perhaps dominated the later 19th and many periods of the 20th century [...], might appear just as a series of highly transitory, partly humanist, partly ideological, and in any case historicist compromises and interludes. (Pfeiffer 2004)

Such a prospect might seem daunting to media theorists of whatever discipline, steeped as many – indeed, most? – of us are in hermeneutic traditions and "the privileging of the semantic dimension" (Pfeiffer 2004) above and at the expense of any material dimension.

However dramatic as such views may seem, these are not new and revolutionary thoughts in media studies. In a sense, they are merely recent echoes of what David Bordwell, among others, has been promoting for a while in film studies: "[I]n many, perhaps most, respects film studies is a hermeneutic discipline. By and large it is in the business of interpreting texts (mainly, films). For this reason, theories tend to be mined for their semantic ore." (Bordwell 1989b) More recently, Andrew Darley has pointed to the importance of acknowledging that a shift has occurred, from aesthetic expressions heavily centered around questions of meaning, toward

an aesthetic that foregrounds the dimension of appearance, form, and sensation. And we must take this shift seriously at the aesthetic level. This also means accepting that in the first instance rather than problems of 'implicit or repressed meanings' it is more likely to be questions of a sensuous and perceptual character that will produce most by way of aesthetic understanding. (Darley 2000: 6-7)

In my view, we must take this shift seriously not only – and not even primarily – at the aesthetic level, but also at a meta-theoretical/epistemological and philosophical level, as

such a shift pertains to so much more than aesthetic appreciation and hermeneutic interpretation.<sup>63</sup>

The recent, current and no doubt future development in digital technology has brought – and will continue to bring – to the fore a need for increased attention to material, sensuous, perceptual, aspects. The impact of the interface (broadly speaking – beyond that of the digital GUI) is by now impossible to ignore. What the emergence, convergence and divergence of digital media make evident, is that academic fields of media studies – both medium-specific, as well as trans-media – do not have, perhaps have never had, theoretical concepts to adequately deal with the material dimension of their medium of study. Partly, this might have something to do with the elusiveness and troublesome nature of the concept of medium, rendering it difficult to constitute a common ground and agree on the level on which to base any mediumistic definition (see section on "piecemeal theorizing" above, and Carroll 2003b; Carroll 2003e) – is the medium of literature language, letters, paper, or print? Is the medium of cinema the camera, the movie screen, or the strip of celluloid film? If, as I suspect many would claim, “film” is the medium of cinema, what then about “spectacles developed by means of computer cameras and delivered by satellite feeds – with no celluloid intermediaries [...]” (Carroll 2003a: xxii)? Carroll points out more challenges relating to defining the medium of cinema: “How fine-grained we should be in individuating media may be problematic. Are nitrate and acetate both the same medium? Is the fish-eye lens a different medium than the so-called normal lens?” (Carroll 2003a: 7)

The same logic – and hence the same problem complexes – can easily be applied to digital hypermedia. Consider GUI narrative fictions: is their medium the digital computer, the software programs or Internet site required to access them, or perhaps the string of digital bits making up the code from which the narratives are displayed? There are, as one would quickly recognize, plenty of pitfalls or at least challenges to be

---

<sup>63</sup> In his book *Production of Presence: What Meaning Cannot Convey* (Gumbrecht 2004), Hans Ulrich Gumbrecht calls for a similar re-orientation in the humanities, from the uncontested centrality in the humanities of meaning effects and hence interpretation, towards an emphasis on what he calls “presence effects”, which appeal exclusively to the senses and is that about media representations and cultural artifacts which make them *physically tangible* for our bodies.

overcome if a firm and stable definition of any medium materiality is to be obtained, no matter what the – medium.

In addition, there is ample reason to believe that such conceptual and theoretical neglect of materiality in media studies at large, as well as in the separate media disciplines, mirrors a lack of scientific interest or also aesthetic appreciation of the materiality of the medium in question. Again, literary theory provides an illustrating example, where even the most form-conscious of theoretical approaches never really considered the impact of the materiality of the letters and words – and even less that of the paper or binding – beyond that of typographical experimentation. Furthermore, the extent to which such material dimensions mattered was mainly related to how it affected our interpretation of the meaning of the content – that is, the literary or aesthetic work. Even now, when N. K. Hayles persistently advocates a media-specific analysis intent on addressing issues of materiality, the intention is still to see how material aspects are contributing to the work's *meaning* – and, most often, a work's *aesthetic meaning*. After a promising clarification of what she means by materiality (“the physical attributes constituting any artifact [...]; in a digital computer, for example, they include the polymers used to fabricate the case, the rare earth elements used to make phosphors in the CRT screen, the palladium used for the power cord prongs, and so forth [...]”), it turns out that focusing on these material aspects is still a part of an aesthetic – and even literary – interpretation: “From this infinite array [of physical attributes] a technotext will select a few to foreground and work into its thematic concerns. Materiality thus emerges from interactions between physical properties and a work's artistic strategies.” (Hayles 2002b: 32-33)

In her most recent book, *My Mother Was a Computer*, Hayles continues to be firmly entrenched in literary and aesthetic readings, focusing as she does on theory, technology, and thematics, and the intimate and dynamic interactions between these dimensions as seen in, for instance, the *thematics* of a number of literary works (see “Prologue” in Hayles 2005b). Hence, Hayles' consistent preoccupation with hermeneutic interpretation and aesthetics makes her works valuable more as a cultural commentary and as literary interpretations of works thematizing human-technology relations rather than as actually focusing on the (phenomenological; embodied) relation and experience itself. In part III I show in some more detail how such an orientation

elucidates the difference between Hayles' works, and a phenomenological and/or cognitive approach such as mine, and why the latter is more relevant and significant when the explicit aim is to say something about the actual experience of human-technology relations and the closely related importance of materiality and embodiment.

In other words, and despite explicitly stated ambitions to the contrary, in the writings of one of the most prominent and prolific theorists in new media studies, disciplinary and aesthetic boundaries remain quite intact, as does the hegemony of aesthetic and literary interpretation.<sup>64</sup> As much as Hayles accuses literary theory of being shot through with assumptions specific to print, the scope of her media-specific analysis remains shot through with assumptions specific to literary theory in particular, and to aesthetic theory in general.

I will claim that as long as we maintain issues of aesthetics and hermeneutics as distinguishing features laying the premises for any approaches to digital media, we will fail to grasp fundamental experiential – material – features of these media. Crucial aspects of the material impact of the technology on our experience will then be lost in more or less metaphorical readings of the content and (artistic, symbolic, literary) thematics displayed by the technologies in question.

### **7.3. The body in new media studies – more than a fetish?**

There is yet another reason why we should re-consider the relevance of predominantly hermeneutical theories and aesthetics for dealing with these mediations. In media studies at large, and in film theories and new media studies in particular, as well as in different strands of post-modern theories and criticism (such as for instance cultural studies, science studies, and [post-] feminist studies), not to mention the theoretical hodgepodge springing out of all hyphenated disciplines with labels beginning with “cyber-” and “techno-”, theorists and visionaries ostentatiously insist on the importance

---

<sup>64</sup> “Materiality of the artifact can no longer be positioned as a sub-specialty within literary studies; it must be central, for without it we have little hope of forging a robust and nuanced account of how literature is changing under the impact of information technologies.” (Hayles 2002b: 19; cf. also Hayles' reading of Talan Memmott's *Lexia to Perplexia*, in Hayles 2002b: 50ff.)



of the body – with or without some technological prosthetic device. In a sense, in our age of digital technology, such increased focus on the body may seem a like paradox:

As telecommunications render bodily presence unnecessary, while new technologies of mediatic body construction and plastic cyborg-surgery challenge the very presence of a real body, our culture seems increasingly fixated on the soma, serving it with the adoring devotion once bestowed on other worshipped mysteries. [...] Despite mediatic dematerialization, bodies seem to matter more. (Shusterman 1997: 33)

However, such a heightened interest in the materiality of the perceiving subject is by now so noticeable that film theorist Vivian Sobchack has labeled it “a fetishization of the body.” (Sobchack 2000b: 5) In the aptly titled book *Bodies in Technology*, philosopher and phenomenologist Don Ihde also comments on this tendency: “Bodies, bodies everywhere, philosophy, feminist thought, cultural studies, science studies, all seem to have rediscovered bodies.” (Ihde 2001a: xi) The perceiver, whether s/he be a reader, a player, a listener, a spectator, a writer, engaged in and with any medium in a communicational and expressive act, is no longer to be conceived of exclusively as a hermeneut, as a dis-embodied mind whose cognitive and perceptual faculties alone determine the interpretive process and the experience of the mediation.

Several current theoretical trends – and cultural studies in particular – highlight the importance of the body as a legitimate and indeed required focus for media studies. However, in spite of loudly insisting on the importance of the body, these theories often end up treating the body as another cultural object, imbued with symbolic and political meanings rather than being a uniquely human experiential agent whose physiological and psychological attributes in complex ways impact our interactions in and with our lifeworld. In order to account for this latter dimension, Sobchack suggests we turn our attention from “the body” to “embodiment”:

Embodiment is a radically material condition of human being that necessarily entails both the body and consciousness, objectivity and subjectivity, in an irreducible ensemble. Thus we matter and mean through processes and logics of sense-making that owe as much to our carnal existence as they do to our conscious thought. (Sobchack 2004c: 3)

Sobchack's move implies a central tenet of phenomenology, namely, the awareness that we both *are* a body and *have* a body. That is, we are both embodied subjects which in a way fundamentally determines our experience and relation to our lifeworld, and at the same time we are material objects and hence the focus of the attention of others. Following Maurice Merleau-Ponty, we can call the first, embodied subject-body "the phenomenal body" (*le corps phénoménal*), and the second body "the object body" (*le corps objectif*). Phenomenologically speaking, it is always our phenomenal body that we move and by – and in – which we relate to and experience the lifeworld. We rarely focus on our own body as external object when acting in the world; as Merleau-Ponty claims, when faced with some technology or thing-in-the-world, such as a pair of scissors and a needle, the physical attributes of our objective body are "potentialities already mobilized by the perception of scissors or needle, the central end of those 'intentional threads' which link him to the object given. [...] [O]ur body, as the potentiality of this or that part of the world, surges toward objects to be grasped and perceives them." (Merleau-Ponty 1962 [1945]: 106)

Somewhat associated with the dichotomy of subject-body and object-body, Don Ihde operates with what he calls "body one" and "body two," where

[b]ody one is the existential body of living, here-located bodily experience, the sense of body elicited by Husserl as *Leib*, but much better described by Merleau-Ponty as the *corps vécu*. Body one is the perceiving, active, oriented being-a-body that is a constant of all our experiencings. [...] Body two is what could be called, out of context, the cultural or socially constructed body. It is the body [...] upon which is written or signified the various possible meanings of politics, culture, the *socius*. And it is the body that can have markers. It is the body that can be female, of a certain age, from a certain culture, of a certain class, and thus have a cultural perspective as the embodied and the encultured particular being that we are. (Ihde 2002: 69-70)

Ihde's clarification of the dual configuration of the body seems to have as much to do with countering repetitive criticism stemming particularly from the race-class-gender

theorists in feminist, social constructivist, and cultural studies camps,<sup>65</sup> as with advancing his own phenomenological perspective. Even though it is correct that we are always, and at the same time, both subject and object, both existentially experiencing and culturally, socially, historically, and objectively constructed and experienced by others, for a phenomenological as well as a cognitivist approach, it is as (inter)subjective, existential and embodied lived- and living-bodies – as experiencing subjects – that we are the point of departure as well as focus of attention and interest. Again, I must emphasize that I agree with Andrew Feenberg, Iris Young<sup>66</sup> and others that, naturally, neither one of us are abstract and generalized bodies existing in a vacuum, and that it might make a difference whether we are an African-American working class male or a European upper-middle class female – wearing eyeglasses – as to how we read Michael Joyce’s *Twelve Blue*, but I want to maintain that it is not the ambition or focus of this study to pursue such topics. And, as a response to their criticism of Merleau-Ponty’s and Ihde’s assessment of the phenomenal body as primary, at the expense of any race-gender-class marker: one could also say, as did Norman Holland, that “it is impossible to make any cogent statement about the human as a literary, aesthetic, political or social being without making some assumptions about the human as a psychological animal.” (Holland 1988: 13) To this I would add, without making some assumptions about the human as a *phenomenological* being.

---

<sup>65</sup> Referring to what he calls the “[postmodern] contesters of modernism,” Ihde observes that what is being contested is, among other things, “perception” and “bodies”: “[P]erception’ is seen to be a Modern invention – along with Man – in Foucault’s sense that perception is socially constructed, and as such can be both invented and disinvented in some present or future episteme. In short, the perception that remains is solely the cultural perception that is socially constructed. [...] Bodies, in my sense of ‘Body One’ as a being-there, located, sensory being with specific styles of movement, are also contested, either in a conservative sense as being malleable down to a highly reduced biological dimension, or replaced as a social body, whether in the form of the body of the condemned (as in Foucault), or as a breasted being whose breasts are clearly socially constructed (as in Young’s “Throwing Like a Girl”).” (Ihde 2000: 66) For criticism of the phenomenological notion of body, see for instance Eason 2003a, Feenberg 2003, Hayles 1999a.

<sup>66</sup> Iris Young’s “Throwing Like A Girl” (Young 1998b) is an illustrative example of a thorough, critical commentary to Merleau-Ponty’s (and, by implication, Ihde’s) alleged abstracted – and hence masculine – body. See also Ihde’s response to his body-critics in the essay “The Tall and the Short of It – Male Sports Bodies” in *Bodies in Technology* (Ihde 2002: 16-34).

In an attempt to deconstruct what he calls *technesis*, or “the putting-into-discourse of technology,” Mark Hansen claims that “if we are to rethink technology’s experiential impact from the ground up, we must reconceptualize the role of human embodiment and lend a renewed attention to the fundamental role that non-cognitive and non-discursive affective bodily life plays in contemporary technoculture.” (Hansen 2000: 30) Hansen calls for theoretical approaches to technology that can steer clear of reducing technology to a product of social construction, or as existing as a mere representational materiality – as a metaphor, or a textual construction. He argues that “technologies structure our lifeworlds and influence our embodied lives at a level, as it were, below the ‘threshold’ of reorientation itself [...]” (Hansen 2000: 4); hence, the relevance of phenomenology seems obvious.

However, as long as Hansen’s intentions are being carried out in a rhetorical analysis of technesis as the dominant strategy of major post-structuralist and contemporary analyses of technology, he can achieve little more than to “prepare the ground for a markedly different, non-textual technocriticism.” (Hansen 2000: 90) As important as this preparation may be, it does not bring us any closer to grasping the experiential impact of digital technology on human faculties such as perception, cognition, and experience.

#### **7.4. An answer to the calls for both media materiality and reader embodiment**

To adequately deal with the physical and material dimensions of both technological artifacts and embodied, perceiving subjects, my suggestion is that we turn to phenomenology – and, more precisely, to existential phenomenology in the tradition of Martin Heidegger and Maurice Merleau-Ponty, and more recently advocated by Don Ihde. Even in our intellectual climate of body fetishism, there are strangely few (new) media theorists who have discovered the relevance and usefulness of particularly Don Ihde’s phenomenology of human-technology relations (also called existential technics). The few studies in the field that are more or less inspired by phenomenology have been more likely to turn to the philosophy of Maurice Merleau-Ponty (or that of Husserl) for

their support (cf. for instance Carroll and Tafoya 2000b; Elkington 2001; Scannell 1996; Sobchack 1992; Svanæs 1999; Wahlberg 2003; Waite 2003).

For an appropriate consideration of the physicality and the materiality of digital technology, and how we as embodied subjects experience these phenomena, the phenomenology of Merleau-Ponty and Ihde provides an obvious tool. Phenomenology provides a rigorous attempt to understand the embodied relationships among perceivers, mediating technologies, and our lived experiences (i.e., our lifeworld) without the pitfalls of post-structuralism and a number of other (post)-modern critical theories – in other words, “without reducing them to the play of language, to textual status or to a construction of the subject.” (Bennington 2000: unpag.) As such, phenomenology would seem an obvious – and curiously ignored – approach for grasping, precisely, the “‘phenomenal qualities’ [and] surface appearance” of digital media (Darley 2000: 168). As phenomenology mentor Don Ihde simply notes, “to examine both mediation and its difference is to enter phenomenology.” (Ihde 1991: 46)

After having been pronounced obsolete and “dead” in the wakes of structuralism, poststructuralism, deconstruction, and different revivals of old forms of semiotics (Ihde 2003b: 135), there have been some signs lately indicating that phenomenology is about to have its “renaissance”, both in general as a philosophical perspective (Feenberg 2003; Hangaard Rasmussen 1996; Hass and Olkowski 2000; Ihde 2003b; Zahavi 2003), as well as gaining some attention and approval as a philosophical, theoretical and methodological tool for studying (new, as well as “traditional”) media and technologies (Carroll and Tafoya 2000b; Elkington 2001; Gentikow 2004, 2005; Nyre 2003; Ryan 2001a; Scannell 1996; Wahlberg 2003; Waite 2003).<sup>67</sup> Still, to my knowledge, there are as yet very few studies directly drawing on phenomenology for studying our experience of and existential-phenomenological relation to digital technology.

---

<sup>67</sup> Worth mentioning is also recent influence from phenomenology in fields such as architecture (see for instance Dahlin 2002) and Human-Computer Interaction (Arnold 2003, Introna and Ilharco 2004, Svanæs 1999).

### 7.5. Why phenomenology for new media studies?

In the autobiography of Simone de Beauvoir, she tells about how Jean-Paul Sartre's (and, presumably, her own) interest in phenomenology initially came about through a mutual acquaintance of theirs, Raymond Aaron. Aaron was spending a year in Berlin studying Husserl, and during a visit to Paris he introduced them both to his philosophical discovery. De Beauvoir recounts from what turned out to be quite an evocative (after-)dinner experience:

We ordered the specialty of the house, apricot cocktails; Aaron said, pointing to his glass: 'you see, my dear fellow, if you are a phenomenologist, you can talk about this cocktail and make philosophy out of it!' Sartre turned pale with emotion at this. Here was just the thing he had been longing to achieve for years – to describe objects just as he saw and touched them, and extract philosophy from the process. (Hammond, Howarth, and Keat 1991: 1)

Amusing as it may be, Sartre's cocktail epiphany points to an axiom in phenomenology – namely, that a phenomenological approach aims for a *description* of experiences in our lifeworld just as we experience them, not an explanation or analysis of them. Maurice Merleau-Ponty, whose *Phenomenology of Perception* (1962 [1945]) is arguably the single most influential text in existential phenomenology, points to the hallmark of a genuinely phenomenological inquiry being, precisely, that it regards its task as a matter of describing, not explaining or analyzing: "Phenomenology is the study of essences, [...] [and it] tries to give a direct description of our experience as it is, without taking account of its psychological origin and the causal explanations which the scientist, the historian or the sociologist may be able to provide." (Merleau-Ponty 1962 [1945]: preface) The existentialist and somatic, almost carnal, orientation of phenomenology found in Merleau-Ponty's writings, and later elaborated by Don Ihde, is most immediately relevant for the present purposes. Moreover, such a bodily phenomenological approach can advantageously be combined with, and complemented by, cognitivism and psychological theories of perception and cognition in order to present a fuller picture of our reading of GUI narratives.

Phenomenology always begins in and with the lifeworld, formulated as Husserl's *Lebenswelt*,<sup>68</sup> and as Merleau-Ponty's 'being-in-the-lived-world' (*corps vécu*). Fundamental for all directions of phenomenology is the emphasis on perception and on the concrete experience of the human subject. However, as Ihde observes, "Merleau-Ponty emphasizes even more dramatically [than Husserl] the position of the incarnate body in its motility and kinesthetic interaction with the environment. [...] [T]he primary focus [of Merleau-Ponty] is on the microperceptual, i.e., sensory and bodily perception." (Ihde 1993: 81) In addition to this microperception (that is, what is immediate and focused bodily in our actual seeing, hearing, etc.), there is also what Ihde calls "a cultural, or hermeneutic, perception [...]" which he calls macroperception. And both of these perceptual dimensions are co-present and closely intertwined in every experiential act:

There is no microperception (sensory-bodily) without its location within a field of a macroperception and no macroperception without its microperceptual foci. Every version of microperception is already situated and never separate from the human and already cultural macroperception which contains it. (Ihde 1990: 29)

As Sobchack accurately observes, most (literature, film, media, culture) theorists have been preoccupied with "macroperceptual descriptions and interpretations of the hermeneutic-cultural contexts that inform and shape both the materiality and social contexts of these technologies and their textual representation." (Sobchack 1992: 138) As such, much – indeed, most – media studies has been conducted at a remove from the physical, technological materiality of the medium in question, as well as from our physical, sensory, perceptual, cognitive, affective, experience of the technological and material platform and interface of the medium. In contrast, the Merleau-Pontean microperception is always kinesthetic, and hence sensory-bodily, perception. This privileging of sensory and bodily aspects makes Ihde draw upon Merleau-Ponty's phenomenology in his writings, and this is – in turn – what makes Ihde's phenomenology most useful for my study.

---

<sup>68</sup> The pivotal formulation of "lifeworld" in phenomenology originates from Edmund Husserl (Husserl 1970 [1954]).

## 7.6. Why Merleau-Pontean phenomenology?

The phenomenology of Merleau-Ponty is, simply stated, a radical philosophy of embodiment. According to David Moran, Merleau-Ponty has made “the most original and enduring contribution to a post-Husserlian phenomenology in France, through his attempts to offer a radical description of the primary experiences of embodied human existence.” (Moran 2000: 391) Merleau-Ponty aims at rejecting any Cartesian dichotomy, or mind-body dualism. For Merleau-Ponty, everything begins with perception; and a phenomenological axiom tells us that there is no perception without embodiment, and no embodiment without perception. Hence, everything begins with the human body, with the ‘subject-in-the-world.’ For Merleau-Ponty, and for existentialist phenomenology on the whole, the body is what is primordially existent. The world exists for me only in and through my body, and I exist in the world in and through my embodied relations with the lifeworld. Our existence, all our experiences, are always by their nature both bodily and perceptual. As a corollary, any theory of the body is already a theory of perception, and, inversely, any theory of perception is already a theory of the body. (Ihde 1976: 43) Far from being a tautology, this statement emphasizes one of the most salient aspect of phenomenology, namely the immanent and embodied intentionality of consciousness, or of experience.

For phenomenologists, experience (also termed consciousness, and perception) is always intentional. In this context, intentionality implies that “experience and world co-constitute one another for the same person. [...] Intentionality is meant to emphasize that human experience is continuously directed toward a world that it never possesses in its entirety but toward which it is always directed.” (Pollio, Henley, and Thompson 1997: 7) The phenomenological intentionality is not to be confused with our everyday, more pragmatic understanding of intentionality as something pertaining to planning (future) actions or goals (as in “next week, I intend to finish the introduction of my dissertation”). Phenomenological intentionality embodies the essential aspect of what Husserl called the noetic-noematic correlation, pertaining to the relation between the subject’s act of experience and the experienced object:



Phenomenology begins with the essential correlation between objectivity and subjectivity, between the thing that appears and the conscious subject to which it appears, what Husserl calls in *Ideas I* the noetic-noematic correlation uncovered by reflection on the nature of intentional acts and their objects. (Moran and Mooney 2002: 5)

“Noetic” pertains to the act of experiencing; “noema” to that which is experienced; noetic thus refers to the subject (or experiential) correlate, and noema to the object correlate. This correlation, or intentionality, is invariant to our experiences.

Phenomenologically speaking, all experience is experience of something; experience is, as it were, referential. There are no experiences “in themselves”; likewise, there are no objects in themselves. This interdependency and correlation between subject and world is the defining basis of perception, emphasizing that phenomenological perception is more than the sum of discrete sensations impinged upon us:

Perception is a primordial structure of encounter and engagement of the lived-body with and in the world. It is the mode of access, the opening upon the world, that allows consciousness its objects through the agency of the body. [...] Perception is always already the expression of intentionality in the world [...]. (Sobchack 1992: 70)

Hence, phenomenology insists that to every experiential act there correlates an experiential object. Moreover, any change in either of the two correlates causes a change in the other. For a phenomenologist, then, there is no experiencing subject without a corresponding experienced object, nor is there a knowable and experienceable object except for and related to a subject: “The relationality of human-world relationships is claimed by phenomenologists to be an ontological feature of all knowledge, of all experience. [...] Phenomenology [...] is a kind of philosophical ecology [...]: the ‘organism’ which is to be studied is not and cannot be studied ‘from outside’ or from above because [...] we are it.” (Ihde 1990: 25) Implicit in such a perspective is that any theory of experience – perception; reading – is already a theory of the body, and vice-versa, as “it is the body-as-experiencing, the embodied being, who is the noetic correlate of the world of things and others.” (Ihde 1976: 43) All our

perceptions and experiences originate from, indeed are at all made possible by, our bodies. Merleau-Ponty is the founder of the body-philosophy par excellence: “We need to reawaken our experience of the world as it appears to us in so far as we are in the world through our body, and in so far as we perceive the world with our body.” (Merleau-Ponty 1962 [1945]: 206) Considering the fervent call for increased attention to body and embodiment from several influential theorists in the fields of digital media and technology, it does strike me as odd that hardly any of these theorists have found reason to turn to phenomenology in order to find potential answers to their calls. As phenomenologists repeatedly insist, all our intentional activities (perceptions, experiences, cognitions) occur “within the space marked out by the top of the head and the soles of the feet, our front and back, and our right and left sides and arms [...]” (Sokolowski 2000: 125) – it hardly gets more bodily than that.

### **7.7. The phenomenology of human-technology relations: Don Ihde’s existential technics**

In our lifeworld, we are surrounded by, interacting with, and immersed in, technologies with vastly different interfaces, inviting very different actions, and yielding vastly different experiential impacts. Different as these technological interfaces may be, they all share the fundamental feature of being non-neutral when in use. That is, as the phenomenological dictum of noetic-noematic correlation proclaims, any use of – any interaction with – any technology *transforms experience* in some way or other. The kind and degree of experiential transformation varies according to the bias – technological telos (or telic inclinations) – inherent in the technological artifact. Hence, it makes little sense to speak of either technologies in themselves or experiences in themselves; technologies, or artifacts – whether we are speaking of a hammer, a handwritten manuscript, a computer keyboard, or a web page – must be understood phenomenologically, because “[o]nce taken into praxis, one can speak not of technologies ‘in themselves’, but as the active relational pair, human-technology.” (Ihde 1993b: 34) This relational pair can take on many different gestalts, due to the fact that we experience and interact with all sorts of technologies along a continuum of

existential relations. Carefully parsing this range, Don Ihde singles out the following three main human-technology relations: embodiment relations, hermeneutic relations, and alterity relations. Applied to digital technology, they are all crucial and will each have significant – and different – impact on the phenomenology of reading.

So far, there are as yet remarkably few ([new] media) theorists studying our use and experience of (new) technologies who have discovered the relevance and usefulness of Ihde's phenomenology.<sup>69</sup> However, the way Ihde elaborates on and employs Merleau-Ponty's existential phenomenology to adequately and evocatively read human-technology relations is remarkably succinct and almost simple, and yet profound. A closer look at Ihde's phenomenology will reveal that there is a lot more to the frequently

---

<sup>69</sup> I have already mentioned dissertation of Lars Nyre (Nyre 2003), wherein he combines Ihde's phenomenological perspective with medium theory to present a broad historical outline of the technological, perceptual, and social changes in audio fidelity during the 20<sup>th</sup> century. Sobchack makes use of Ihde on a few occasions, albeit not in direct relation to her work on new/digital media (Sobchack 1992, Sobchack 2004a). And in the article "Flesh and Metal: Reconfiguring the Mindbody in Virtual Environments" (Hayles 2002a), N. K. Hayles reads three virtual reality artworks in the light of Ihde's three human-technology relations (viz., embodiment, hermeneutic, and alterity relations). However, here as elsewhere, Hayles seems more interested in showing how technologies *thematize* or *illustrate* these different relations, than in describing the actual embodied (sensory, perceptual, cognitive) and phenomenal experience itself. Hence, she ends up paradoxically illustrating what Mark Hansen criticizes as "technesis" – paradoxically, because Hayles herself wrote the preface to that very same book, explaining how Hansen "finds [...] that contemporary critical theory has consistently treated technology as a trope or representation rather than as a physical reality in the world, a move he calls 'technesis', or 'the putting-into-discourse of technology.'" (Hansen 2000: foreword by N. K. Hayles) Hansen's main scope in this book is to restore technology's *material autonomy*: "If technology affects our experience first and foremost through its infrastructural role, its impact occurs prior to and independently of our production of representations; effectively, *technologies structure our lifeworlds and influence our embodied lives at a level, as it were, below the "threshold" of representation itself*. As long as cultural analysis restricts its focus to the technical modification of representation, it cannot but compromise the richness and multidimensionality of technology's impact on our experience – what, in the following, I shall repeatedly refer to as the most robust materiality of technology." (Hansen 2000: 4; italics mine) Quite contrarily to such a focus on the embodied experience of technology's materiality, Hayles' application of Ihde's human-technology relations are illustrations of how human-technology relations are thematized and presented in VR artworks, rather than investigations of the phenomenal and embodied (perceptual, cognitive, kinesthetic, haptic, proprioceptive, etc.) experience itself.

invoked metaphor of the oscillation between “looking at and looking through” (or, between the GUI as window and mirror; between immediacy/transparency and hypermediacy/opacity – cf. chapter 14, part III) when reading GUI narrative fictions, than is commonly observed among new media theorists.

Ihde’s phenomenology is a phenomenology of the human-(life)world relation as mediated by an instrument or technology in a mediating position. We relate to this mediating instrument or technology in a range of different embodied, perceptual, and experiential ways. One of these ways is what Ihde calls *embodiment* relations. Using a classic example from Heidegger,<sup>70</sup> Ihde points to how, when we are nailing, the hammer we use “withdraws,” so to speak, from our perceptual focus, as we focus on the nailing process and whatever is being nailed. Technologies in embodiment relations must be “technically capable of being seen through” (Ihde 1990: 73); in other words, they must be transparent, as the perceptual and experiential terminus in embodiment relations is not the technology or instrument per se, but that which we experience by means of the technology. Embodiment relations are, therefore, instances of experiencing something else through a technology – the technology gives us mediated access to our surrounding lifeworld, so that that which is experienced becomes a part of our perceptual, bodily experience: “Embodiment relations [...] specifically extend and transform human bodily and perceptual intentionalities.” (Ihde 1991: 74) The instrument or technology is experienced as an extension of my body, it is incorporated into my embodied actions, as is typically our experience of seeing through eyeglasses or contact lenses, talking on the phone (whether a cell phone or house phone – although there are indeed interesting and far-reaching experiential differences pertaining to these two devices, differences which undoubtedly warrant phenomenological investigations<sup>71</sup>), or a blind man’s navigating with a cane.

---

<sup>70</sup> It exceeds the boundaries of this dissertation to give a comprehensive account of the relation between Heidegger’s philosophy of technology (and existential phenomenology) and Don Ihde’s phenomenology. To get an idea of Ihde’s inspiration from (but also criticism of) Heidegger, cf. for instance Ihde 1991, Ihde 1993a, Ihde 2001b, Ihde 2003 [1979].

<sup>71</sup> M. Arnold’s article “On the phenomenology of technology: the ‘Janus-faces’ of mobile phones” (Arnold 2003) is one of the few explicit and thoroughly phenomenological approaches to the phenomenon of mobile phones I have found, so far. However, it seems to me that the relevance of phenomenological aspects is so obvious for studying the impact of mobile phones (or mobile

Employing the transparency-opacity dichotomy more precisely than what is commonly done by hypertext and hypermedia theorists (cf. part III), embodiment relations display what Ihde calls “directly or instrumentally mediated partial [perceptual] transparency.” (Ihde 1991: 74) There is a *perceptual isomorphism* between what is shown and how it is shown through the technology, which has significant phenomenological implications. Ihde applies the following formula for embodiment relations: (I – technology) → world. The parenthesis indicates that the technology has withdrawn and is taken into my embodied experience of the lifeworld. In embodiment relations, then, the technology is not experienced in itself, but is – when it is working properly – a means through which we experience something else. When it is in some way or another malfunctioning, or it is missing and we have to look around for it, its phenomenological transparency is replaced by an opacity; the technology or instrument suddenly and for a brief period of time becomes an object for our attention, typically experienced as an intrusion or obstruction to what is our perceptual focus and terminus.

Different from embodiment relations are the relations which Ihde calls *hermeneutic*. As was the case with embodiment relations, the technology in hermeneutic relations – when it is “working” properly – is also primarily experienced as a means through which we experience something else. However, this “something else” that is now our perceptual and experiential terminus or focus is not our immediately surrounding lifeworld, but some kind of “text” (in the broad sense of the term – some representational artifact) or text-like entity. Hence, in hermeneutic relations, the perceptual isomorphism between what we “see” or experience, and how this is shown or “represented” via the instrument or technology that we have in embodiment relations is gone, and replaced by a fundamentally different kind of “transparency,” requiring a different kind of sensory engagement and yielding very different experiences from embodiment relations.

As illustrations of the hermeneutic relations, Ihde uses the examples of reading – for instance a map, a thermometer, or a (literary) text. Such representational technologies, or displays, require and shape our sensory engagement in a very different way than seeing through eyeglasses or talking on the telephone. The perceptual act

---

communication devices in general, whatever they may be called in the near and far future) that I would expect some (new) media theorist to soon rush to the task.

directed toward the technology in a hermeneutic relation is a specialized interpretive act, requiring some form of reading. And what we read with hermeneutic technologies is some representation of a world which might be some particular aspect of our lifeworld (as in the map and the thermometer), or that might be an entirely fictional world (as in a fictional text). Hermeneutic relations also allow for a kind of transparency, claims Ihde, but that transparency is more appropriately called *linguistic-interpretive* (or textual) rather than perceptual. (Ihde 1991: 75) Whereas embodiment relations make our immediate lifeworld present for us, hermeneutic relations make present a represented and referred-to world, and this presence is therefore “a hermeneutic presence”:

Not only does it occur through reading, but it takes its shape in the interpretative context of my language abilities. [...] [The represented] world is linguistically mediated, and while the words may elicit all sorts of imaginative and perceptual phenomena, it is through language that such phenomena occur. And while such phenomena may be strikingly real, they do not appear as world-like. (Ihde 1990: 84)

Whereas embodiment relations mimic and extend our sensory-perceptual capacities, hermeneutic relations, then, can be said to mimic and extend our linguistic and interpretive capacities. Compared to embodiment relations, the technology in hermeneutic relations is more noticeably present as a mediator (also when it is functioning properly), because it entails a more *perceptually transformational* rather than perceptually isomorphic relation to that which is experienced/read. There is a great difference between the whole-body experience of sub-zero temperatures and of seeing the numbers on a thermometer from inside the kitchen and inferring from this display that it is cold outside. (Ihde 1990: 84ff.) As Ihde says, in hermeneutic relations “the world is first transformed into a text, which in turn is read.” (Ihde 1990: 92) But in a similar way as with embodiment relations, when the technology or instrument in a hermeneutic relation breaks down or somehow fails to mediate our access to its world, the technology will be experienced as obstructing or intruding.

Ihde’s “formula” for hermeneutic relations is as such: I → (technology – world), the parenthesis now indicating a closer tie between the technology and that which the technology shows, as well as an experiential or interpretive “barrier” for the experiencer

to overcome in order to be able to access the world mediated by the technology. Ihde's examples of different scientific instruments for visualization may be clarifying in this respect: whereas an "ordinary" microscope (or, to take a more mundane example, a magnifying glass) allows us access to a (relatively, albeit magnified) isomorphic display of what is shown, hence requiring little more than perceiving and noticing the visual features, newer and more complex visualizing technologies, such as MRI scans, PET scans, or infra-red or thermal imaging technologies, require a level of cognitive skill and interpretation in order to be used and understood. From the perceptual isomorphism of the magnifying glass, we have moved on to a more "text-like" or hermeneutic isomorphism in these new imaging technologies. One must know how to read the "hyper-real" (because digitally or electronically amplified and isolated) color and light patterns in order to see the tumor or the target. And, conversely, in order to make the tumor or the target stand out, "manipulation *away from the passively real* is needed [...]" (Ihde 1996) Hence, modern scientific instruments are technologies in a hermeneutic rather than an embodiment relation, but this hermeneutic is not primarily linguistic or proportional like in a verbal text, but rather perceptually, and primarily visually, oriented. At the same time, the visualizations have to be "read through" in ways analogous to texts.

The third of Ihde's human-technology relations is the *alterity* relation. Whereas the focal and perceptual terminus of both embodiment and hermeneutic relations are, in different ways, beyond or "through" the technology, in alterity relations the technology itself appears as the focus and terminus of our perception and experience. Alterity relations are relations to the technology as an opaque object in our lifeworld. In such relations, both the perceptual and the hermeneutic transparency are gone, and replaced by a relation with technology as "other". As outlined above, in both embodiment and hermeneutic relations, in instances where the technology takes on full objectiveness or opacity, it is perceived as somehow and to a certain extent obtrusive and intruding upon our experiential focus. In alterity relations, however, this objectiveness of the technology is the determining part of the relation. As such, the alterity relation can be said to be instrument- or technology-like, whereas embodiment relations are more body-like, and hermeneutic relations are more text- or language-like. The technology in alterity relations takes on a quasi-otherness, showing how

humans may relate positively or presentially to technologies. In that respect and to that degree, technologies emerge as focal entities that may receive the multiple attentions humans give the different forms of the other. For this reason, a third formalization may be employed to distinguish this set of relations: I → technology (- world). (Ihde 1990: 107)

In other words, rather than being perceived negatively as an obtruding object, we experience the relation to and with the technology as object as positive and existential. Ihde's prime example of an alterity relation is our relation to the computer when playing a computer game. Observing how both embodiment (hand and finger control of mouse and keyboard, or joystick) and hermeneutic relations (relating to the "storyworld" of the game, whether it is a racetrack, a space-war, or a medieval fantasy world) are present, Ihde points out how there is another dimension to the experience which manifests itself during play:

There is the sense of interacting with something other than me, the technological competitor. In competition there is a kind of dialogue or exchange. It is the quasi-animation, the quasi-otherness of the technology that fascinates and challenges. I must beat the machine or it will beat me. In each of these cases, features of technological alterity have shown themselves. (Ihde 1990: 100)

The technology in alterity relations takes on a "quasi-other" appearance, and our relation to the technology finds its focal fulfillment in the interaction with an artifact, not through an artifact by embodiment or by the hermeneutics of interpretive activity, as in hermeneutic relations.

The technological infrastructure and the material platform of the computer, including the mouse or touch pad, the GUI, the keyboard, and possibly other hardware devices, potentially configure and embody all these three human-technology relations. Furthermore, the modes in which they internally intersect and combine, as well as how they are related to the reader, have significant implications for our reading process and experience of GUI narrative fictions, as I will show in more detail in part III, piecemeal theorizing.



## 7.8. Refuting allegations of subjectivist impressionism

In her doctoral dissertation on film, Malin Wahlberg lists several reasons why she is somewhat skeptical of the relevance and adequacy of phenomenology for elaborating a theory and method for understanding our experience of film. First of all, she considers it a “fallacy in phenomenological approaches to film [...] [that the] film experience is reduced to an abstract notion beyond the socio-cultural realm of historical audiences [...],” reducing the film and film experience to “an exclusively personal *hic et nunc* sensation of cinema.” (Wahlberg 2003: 52-53; 250) Arguing for the importance of the social, cultural, and historical dimensions for a proper understanding of the filmic experience, she justifiably asks how a phenomenological perspective would account for the socio-historical dimensions of film culture? To an extent, Wahlberg’s criticism is reasonable, but I will claim that it does not at all invalidate phenomenology as a productive approach. It is reasonable to claim that phenomenology does not commonly emphasize social, cultural, and historical dimensions. But the same claim can be made in large part for cognitivism, as for many psychological theories of film spectatorship, without rendering these approaches invalid as substantial and important perspectives. As I’ve mentioned above, I hold that there are undoubtedly several aspects of media and technologies that obviously call for either, or both, historical and socio-cultural contextualizing. Likewise, there are several questions and dimensions of our experiences of and interaction with media and technologies that do *not* warrant a focus on these contexts. This is not to say that we do not interact with media in social and cultural settings, nor that the history of either media or human-technology relations is completely irrelevant. However, there ought to be questions pertaining to these problem complexes in which these dimensions do not necessarily require special attention. In my view, studies focusing on our psychological, motor and phenomenological relations to technological interfaces intent on studying aspects of immersion, are obvious candidates here.

Another of Wahlberg’s reasons for questioning the validity of a phenomenological approach to film stems from its being descriptive and subjective, and hence limited to the personal experience of the film scholar: “The phenomenological

description tends to be either exclusively personal, or just too descriptive: you describe the filmic event and your emotional reactions as thoroughly as possible, and that is the end of it.” (Wahlberg 2003: 117) Dismissing the theoretical contribution and epistemological validity of phenomenology on the claims of its being impressionist, subjectivist, and solipsist, is nothing new in the history of phenomenology. As Evan Selinger claims in an interview with Don Ihde, most people seem to think that “what phenomenology does is provide descriptive, first-person, experiential accounts [...],” and that’s it (Eason et al. 2003b: 127). According to Ihde, however, phenomenology is “neither subjectivist or objectivist, but relational. Its core ontology is an analysis of interrelations between humans and environments (intentionality). Its form of analysis is closer to an ‘organism/environment’ model than is often appreciated.” (Ihde 2003b: 133) Ihde further claims that the phenomenological method is fundamentally reflexive, and hence not derived from nor focused on introspection but on the “what” and “how” of the external context, the lifeworld, in relation to embodied experience. In this sense, says Ihde, phenomenology can even be said to be “relativistic,” that is, “in an approximation to an Einsteinian relativity where all observations must take into account the situatedness and positionality of the observer plus the observed.” (Ibid.)

### **7.9. Why cognitivism for new media studies?**

GUI narrative fictions challenge the reader into new physical, ergonomic, perceptual and cognitive positions and actions, requiring and generating complex reading processes and calling for a reassessment of theoretical approaches and methodological procedures hitherto applied to narrative fictions – whether in print, on a TV screen, or as audio book played on the cd-player. Two features of these digital platforms present themselves as particularly distinct, namely the aspect of the *materiality* (or physicality) of the technological platform, and the aspect of the experience of *multisensory reading*. Any media theorist trying to come to terms with the impact of digital media on our experience, then, would arguably merit from drawing upon theories thoroughly focusing on media materiality and on perceptual, cognitive and experiential faculties of the reader without lapsing into ideologically driven theorizing intent on laying bare latent

power structures, repressed sexual desires, or de-/re-constructions of (political; ideological; ethnic; or gender-related) borders. The process and experience of reading digital hypermedia fictions is, primarily and predominantly, a bodily-perceptual dimension, not necessarily carrying traces of political ideology or ethnic/gender-/class-related power structures.

Reading (the process of reading) GUI narrative fictions in the light of phenomenology and cognitivism entails focusing on precisely that complex and conglomerate experiential process which N.K. Hayles, for one, underscores as particularly significant in these media.<sup>72</sup> Curiously enough, Hayles and other theorists in new media studies rarely, if ever, refer to theoretical approaches which are evidently appropriate for dealing with such aspects – approaches such as for instance cognitivism and/or phenomenology. Notable exceptions to this inexplicable neglect are found in film studies. Cognitivism has only fairly recently begun to establish itself as a viable film theory, and Vivian Sobchack is an avid advocate for phenomenological theories of film viewing (Sobchack 1992, 1994, 1999, 2004b, 2004g). Sobchack's reasoning for applying a phenomenological account to the film viewing experience makes the relevance and importance of phenomenology for digital hypermedia even more obvious: "The film experience is a system of communication based on bodily perception as a vehicle of conscious expression. It entails the visible, audible, kinetic aspects of sensible experience to make sense visibly, audibly, and haptically." (Sobchack 1992: 9) In order to fully grasp this complexity, I will claim, we will benefit greatly from supplementing a purely phenomenological approach with theories devoted to studying the faculties of cognition and perception when reading fictions in different media.

Within media studies, cognitive theories have been proposed in particularly film studies and literary studies. In the latter, cognitivist and psychological approaches (such as found in the theories of literary reception by, for instance, Norman Holland<sup>73</sup> and David Bleich<sup>74</sup>) have largely been marginalized (and often also stigmatized) by currently more popular perspectives related to, and stemming from, cultural studies and postmodern critical theory. Moreover, the few attempts at explicitly combining

---

<sup>72</sup> Cf. for instance Hayles 2001, Hayles 2002a, Hayles 2002b, Hayles 2003, Hayles 2005b.

<sup>73</sup> See for instance Holland 1995, Holland 1988, Holland 1989.

<sup>74</sup> See for instance Bleich 1986.

cognitive and psychological approaches and literature have often met with criticism from psychologists; for instance, psychologist Richard Gerrig claims that the theories of above-mentioned Norman Holland (along with those of Wolfgang Iser and Stanley Fish), suffer main shortcomings by “hav[ing] adduced types of evidence that remain largely unknown in cognitive psychology.” (Gerrig 1993: 20)<sup>75</sup> This criticism has not completely intimidated literary theorists from looking to psychology for theoretical support and inspiration, but serious efforts at cognitive literary theory still remain few and far between. An attempt can be found in a 1995 issue of the *Stanford Humanities Review*, devoted to bridging the gap between cognitive science and literary studies, and edited by Herbert Simon, himself a notable example of interdisciplinarity. Simon argues for obvious (and not so obvious) commonalities between cognitive science and literary studies:

Literary criticism concerns (among other things) the meanings of, in, and evoked by literary texts. Cognitive science concerns thinking, by people and computers, and extracting or evoking meaning while reading and writing requires thinking. Hence, there is a wide expanse of ground common to literary criticism and cognitive science. [...] In fact, to a cognitive scientist it is not at all clear why there are schools of literary criticism. (Simon 1995)

Simon’s weighty argumentation notwithstanding, the issue did not prompt an increase in cognitive approaches within literary studies.

In film studies, cognitivism appeared first as a response to particularly the influence from psychoanalytical and Marxist theory on film theorists. In *Moving Images, Culture, and the Mind* (Bondebjerg 2000), Ib Bondebjerg talks about Bordwell’s and Thompson’s formalist-cognitive approach as the first wave of cognitivism, whereas, among others, Grodal’s combination of cognitive and emotive aspects in *Moving Pictures* forms a second wave. Main proponents of cognitivism, David Bordwell and Noël Carroll, argued for a bottom-up, question-driven and more scientific way of theorizing as an alternative to the overly interpretational and

---

<sup>75</sup> However, Gerrig does also acknowledge that “[w]e can nonetheless use the insights of literary theory to explore the full potential of even ordinary visits to narrative worlds.” (Gerrig 1993: 24)

conventionalist tendencies dominating film studies from the 1980s onward. According to Joseph Anderson, Bordwell and Carroll “freed film theory from the chokehold of the psychoanalytic/Marxist paradigm in the eighties and replaced it with the perspective of cognitive science, which though not yet universally accepted by film scholars is now firmly in place.” (Anderson 1996: 9)

Lately, there have been attempts at forging new paths between cognitivism and media studies, more precisely, between cognitive science and narratology and theories of narrative in different media (see for instance Bortolussi and Dixon 2003; Herman 2000, 2003c; Jahn 1997, 2003; Ryan 2003b; Zwaan 1993). One of the earliest proponents of a cognitivist narratology, David Herman, argues for the place of narratology within the more general theoretical framework of cognitive science, “under whose auspices any number of disciplines are now converging on the question of how humans build, revise, and communicate a broad range of mental representations, including storyworlds.” (Herman 2002: 298) Such grand ambitions notwithstanding, the resistance toward cognitivism – and, albeit perhaps to a lesser extent (and, probably, due to very different reasons), toward phenomenology – in the separate arts and media disciplines, as well as in media studies at large, is still noticeable. Much of this resistance to cognitivism and overtly psychological approaches to media studies seems to have to do with many media theorists’ troublesome relationship with (physical and natural) science.

#### **7.10. Refuting allegations of biological determinism and scientism**

Perhaps there is at least a hint of truth to what Norman Holland has claimed, that scholars in the arts and humanities fear science. At the very least, judging from previous and current theorizing about media use and reading in media studies at large, one is hard to find references to for instance experimental psychology and other scientific approaches to perception and cognition (cognitivism is the obvious exception here, as well as the emerging field of cognitive narratology). The well-established field of media psychology seems strangely alienated from the field of (new) media studies, particularly when it comes to studies in reading and spectatorship. Observing how literary theorists

are reluctant to accepting theoretical views backed by psychological research into perception, remembering, cognition, and reading, Holland suggests that the reason for this is to be found in the fact that “[m]ost humanists were good in school at English and bad at math. They fear science. For support from another discipline, they prefer philosophy to experimental psychology.” (Holland 1995: unpag.)

It seems we can plausibly extend Holland’s characterization to include humanistic media researchers as well. Propagating cognitive and psychological approaches to film spectatorship, for example, is likely to generate noticeable oppositions and reluctance among many film and media theorists. In a philosophical and scientific climate like the currently prevailing one, where the ideas and theories of social constructivism is, if not dominant, so at least very influential, any claims of technology autonomously exerting any influence on any aspects of culture, society, and humans, diachronically or synchronically, is likely to be refuted as either positivist, essentialist, determinist, or Luddite (Hausken 2005; Ihde 1990; Mitcham 1994; Nyre 2003; Winner 2003 [1991]), and therefore subject to derision.<sup>76</sup> Likewise, equally “material and realist” approaches to the reading dimension of the equation, involving cognitivist and perceptual-psychological approaches to psychosomatic, cognitive and affective processes entailed in reading these technologies, often do not fall upon friendly ears in media studies communities, and are instead more likely to be faced with charges of biologism.<sup>77</sup> As an example, Barbara Gentikow soundly illustrates such an incumbent opposition to an overtly biological orientation among many media theorists: “Are the senses biologically or culturally constituted? My answer is that they are both. I want to refrain from biological concepts which are about to become popular [...]” (Gentikow 2005: transl. mine) Referring to Torben Grodal’s cognitivist approaches to film as praiseworthy for emphasizing the experiential dimension of film reception, Gentikow

---

<sup>76</sup> For instance, Jay D. Bolter had to take issue with charges of technological determinism in the preface to the second edition of his *Writing Space*: “In this edition, I have made an effort to respond to the criticism of the first edition – in particular on the question of technological determinism. I acknowledge that writing technologies do not alter culture from the outside, because they are themselves part of our cultural dynamic. They shape and are shaped by social and cultural forces.” (Bolter 2001: preface)

<sup>77</sup> “Biologism claims that the truth about human beings is restricted to an experimental scientific approach that views the physical, chemical, and biological features of the organism as basic, and all larger psychological as well as sociological phenomena as derived from them.” (Welton 1998a: 1)

goes on to claim that Grodal's approach is "based on a biologicistic foundation, claiming that senses and feelings are innate and biological and therefore equal for everyone." (Gentikow 2005: transl. mine) Reminiscent of technological determinism, one could characterize this as a resistance to what is implied as biological determinism.

Claims about innate psychological and biological predispositions seem indeed to be a hard sell in today's theoretical climate in the humanities, entrenched as it is in social constructivist theories and perspectives from cultural studies, fronting the social, cultural and ideological dimensions as dominating and all but erasing biological ones. As previously mentioned, I will claim that such perspectives are equally as determinist. More importantly, such socially and culturally relativist perspectives ignore crucial common faculties of our experience, reducing any dimension to a consequence of external, social or cultural factors. They can even, as Bordwell has shown, be said to be dogmatic: "[O]nly dogmatists would deny that representation, especially visual representation, relies at least in part on the perceiver's psychophysical capacities. It seems very unlikely that our abilities to recognize humans and objects in images owes *nothing* to our biological heritage." (Bordwell 1996b: 91)

I contend that it is perfectly reasonable to assert, as Grodal does, that "our eyes, ears, and brain have innate predispositions." (Grodal 1997: 10) I agree with Carroll in that different technological devices, or media, "engage various innate cognitive and perceptual capacities [...]," (Carroll 2003c: 55) that we have hardwired innate perceptual and cognitive tendencies that filmmakers (and other media producers/authors) deliberately take advantage of, and that this is one of the reasons – indeed, most likely the main reason – why mainstream Hollywood movies have reached such universal and cross-cultural success (cf. also Anderson 1996: 51ff. et passim.; Anderson and Anderson 1996; Carroll 1996: 365; Grodal 1997: 8). I claim that Carroll's naturalist perspective is in all respects relevant for studying digital GUI narrative fictions, and that it will – contrarily to any doctrinal, top-down, theorized interpretation – give us substantial insights into the process and experience of reading these fictions:

Film images, the pictorial ones at least, are understood because of the way in which they engage the natural cognitive and perceptual capacities of virtually every human who does not suffer relevant cognitive and/or perceptual disabilities, like blindness. Filmic communication can be

international, in part, because its basic strata of symbolism – the single shot – engages basic features of the human cognitive and perceptual constitution. Film shots, we might say, address human nature. (Carroll 2003c: 23-24)

In the same way, I hold that, most of all, digital technology and the GUI addresses human nature – and when or if it doesn't, this is precisely how and why the configurative dynamics of the interface fails to trigger and to hold our attention, and, hence, the GUI narrative fiction fails to provide an immersive experience. Such a perspective on our interaction and reading of media and technologies is certainly at odds with prevalent theories of media reception, as Per Persson notes in his doctoral dissertation on the psychology of understanding cinema:

In cinema studies, one thing seems to be clear. In describing the reception of visual media, differences in dispositions along lines of gender, ethnicity, and class have been prioritized at the expense of investigating the degree to which spectator groups share dispositions and understanding of a film. (Persson 2003: 17)

Departing instead from psychological theories of perception and cognition, as well as psycholinguistic theories of discourse processing, Persson wants to present an alternative to the currently dominating (and more politically correct) “race-gender-class” paradigm<sup>78</sup> in cinema studies (and, we could add, in the humanities at large). Along the lines of Grodal's, Carroll's and Bordwell's works, Persson argues for “(semi)universal dispositions and [intends to] describe the ways in which these contribute to a shared understanding of certain layers of cinematic meaning.” (Persson 2003: 17) As a parallel to Persson's scope, my focus is on certain human psychological dispositions and phenomenological dimensions and how these contribute to a shared experience of GUI narrative fictions.

Along with, and closely related to, charges of biologism, is the recurrent criticism of cognitivist approaches that they are positivist, that they misconstrue film theory as a form of physical or natural science (Bordwell 1989b, 1996c; Carroll 2003g:

---

<sup>78</sup> See Ellis 1997.



393). However, as both Bordwell, Carroll, and others<sup>79</sup> have demonstrated at length, such claims often rest on untenable and distorted conceptions of science in the first place. The criticism implied in the resistance from media studies to the alleged scientism or positivism of cognitivism, rests predominantly on an absolutist conception of truth, and that scientific inquiry claims to be the only feasible avenue to this one Truth. This claim is as untenable as a criticism against cognitivism, as it is untenable as a claim about the notion of truth in science and elsewhere. Arguing that “[i]t is open season on truth throughout the humanities [...],” Carroll goes on to demonstrate how such absolute truth arguments, when faced with any serious rational and logical scrutiny, crumble before one’s eyes:

Consider the interpretation of a text, filmic or otherwise. Most texts (indeed, it is frequently said, all texts) have more than one legitimate interpretation. Therefore, it is surmised, there is no true interpretation of a text. Now clearly this argument is stupendously unconvincing. For a text must have more than one, true, interpretation. It is true that *Animal Farm* is about totalitarianism, and it is true that it is about Stalinism. Thus, it does not follow that if a text has more than one interpretation, there are no true interpretations of a text. [...] Just as film scholars suppose that there is no absolutely true film interpretation, they suppose that there is no absolutely true film theory [...]. (Carroll 2003g: 375-376)

Following this fallacious line of argument, then, a media theorist might dismiss cognitivism on the basis of it allegedly claiming to be a scientific, and hence (the only) true, method of theorizing about media. However, such claims are obviously inconsistent. As Bordwell reminds us, “natural and physical sciences do not purport to arrive at absolute truth, only successive approximations to real processes.” (Bordwell 1989b) Scientific progress is not about one theory once and for all obtaining any absolute truth and hence exhausting entire fields of investigation, but about numerous processes of theory building built on past and existing theories with the purpose of (most often) incremental improvements advancing the field toward partial and minor answers to truths that are always just part of a larger picture (see Carroll 2003g: 380-

---

<sup>79</sup> For a book-length demonstration of how particularly recent and current literary theory draws upon – and in turn oppose – highly distorted notions of science, see Livingston 1988.

381). Another way to refute the criticism of cognitivism is to point to the obvious inconsistency in denying cognitivism a spot in the game on the basis of its being scientific, while at the same time wholeheartedly embracing other scientific theories such as Saussurean linguistics and Lacanian psychoanalysis (see Bordwell 1989b). Hence, I will claim that an approach to questions of the experiential impact of the GUI on our reading narrative fiction based primarily on phenomenology and cognitivism is in every respect equally as valid – and in many respects considerably more adequate – than any theoretical jumble of approaches drawn from a menu of currently more fashionable theorists in the field of (new) media studies.

## CHAPTER 8: HOW AND WHY COMBINING COGNITIVISM AND PHENOMENOLOGY

Assessing the merits of the few comprehensive phenomenological approaches in film theory, namely those of Vivian Sobchack (Sobchack 1992) and Allan Casebier (Casebier 1991), Kevin Sweeney concludes his article acknowledging that “there needs to be more of a conceptual bridge between Casebier’s [and Sobchack’s] phenomenological model and the cognitive models of spectatorship presented by Bordwell and others such as Carroll, Branigan, and Richard Allan.” (Sweeney 1994: 33) To the best of my knowledge, there haven’t as yet been any serious attempts at such a bridge, neither in film studies, nor in media studies at large. In this dissertation I embark upon the challenge, trying to build it – not only conceptually, but also methodologically and philosophically. In this section I will outline in some detail how I see this bridging as possible, as well as why I see it as necessary, in particular when studying digital media and technologies.

“As a phenomenologist,” says Ihde, “I do not believe in ‘five senses’. Rather, I believe in ‘whole-body experience’ while includes sensory dimensions.” (Ihde 2004) Ihde’s starting point and guiding dictum is the primacy of the human body in any experiential context, and, concomitantly, the primacy of “whole-body perception” or experience. This fundamental phenomenological view entails that

our perceptions occur as a plenary gestalt in relation to an experienced environment. [...] Our whole-body perceptions are sensorially synthesized in our interactions with a “world.” Unlike the older traditions of discrete and separable senses, phenomenology holds that I never have a simple or isolated visual experience. My experience of some object that is seen is simultaneously and constantly also an experience that is structured by all the senses. (Ihde 2002: 38)

To a phenomenologist, the phenomenal body is an undivided and indivisible unity, making it meaningless to talk about any sensory or perceptual process without reference to our embodied sensorium as a whole, as well as to the totality of the physical environment in which the body is situated, and to the embodied intentionality we always have toward our lifeworld. In correspondence with the existential philosophy of Merleau-Ponty, phenomenology maintains that full human perception is

always multidimensional and synthetic. In short, we never just see something, but always experience it within the complex of sensory fields. [...] The 'monosensory' is an abstraction – although useful and possible to forefront – and simply does not occur in the experience of the 'lived body' (*corps vécu*). (Ihde 1999: 160; 171)

In comparison, cognitivist and psychological approaches to the reading of media and technologies might seem obvious candidates for precisely such monosensory foci.

However irreconcilable the holistic and syn-aesthetic perspective of phenomenology seems to be with the piecemeal and scientific approach to specific affective and emotive responses to moving images presented by most cognitivists, I will claim that the phenomenological whole-body perspective affords a relevant, useful, and in fact needed context to the more finely-grained studies of cognitivism. Our sensory experiences never take place in a vacuum consisting of isolated sensory modalities performing their functions independently of the totality of our embodied experiencing beings. In a similar mode, cognitive film theorist Torben Grodal points to the importance of a holistic approach to the ways in which we experience moving images:

The film experience is made up of many activities: our eyes and ears pick up and analyze image and sound, our minds apprehend the story, which resonates in our memory; furthermore, our stomach, heart, and skin are activated in empathy with the story situations and the protagonists' ability to cope. Different fictions activate and foreground different aspects of the psychosomatic processes in our embodied minds. (Grodal 1997: 1)

Admittedly, Grodal's focus on a "holistic experience" as consisting of a sum of carefully described and scientifically analyzed psychosomatic processes refers to quite a different configuration than Ihde's focus on our "full-body perception" as an inseparable, phenomenologically unified synthesis of our relation to and experience of our lifeworld. Nevertheless, cognitivists often take a comparably holistic approach in their theorizing our experience of, for instance, the moving image. As we have seen, Grodal emphasizes the holistic dimension of the film viewer's experience, claiming that it is not possible to "isolate perception from cognition, memory, emotion, and action, and our perception of 'space' is not independent of our concepts of active emotion; our perception of object is not independent of memories and emotional relations." (Grodal 1997: 10) Grodal claims that many different methods are required to understand the full complexity of the phenomenon of the experience of visual fiction, and his purpose is "to expand the constructive-cognitivist point of view by integrating the perceptual and cognitive with the psychosomatic processes connected with emotions and motivations." (Grodal 1997: 39) Although explicitly rejecting phenomenology's rigid separation of description and analysis (Grodal 1997: 6), when concluding his study Grodal claims to have shown that "it is imperative to describe the relations between body, mind, and world as an interacting whole in order to understand the ways in which visual fictions cue a simulation of body-mind states." (Grodal 1997: 278) In my view, such an imperative is as much an invitation to a phenomenological approach, as it is an expanded cognitivist approach. More precisely, as a conclusion in a cognitivist study, it readily indicates the possibility and usefulness of a combined phenomenological-cognitivist perspective.

My aim in this study is to contribute to a conceptual, theoretical and epistemological (philosophical) framework for a more substantial understanding of the experiential impact of digital technology on our reading, and not to come up with a wholesale phenomenological philosophy of new media. For this purpose, I find phenomenology a very valuable supplement to the more scientific approaches of cognitivism and psychology. This is not the same as saying that I doubt, or even dismiss, the relevance and adequacy of phenomenology as a comprehensive and autonomous framework for studying digital media (such as Wahlberg claims in her dissertation). But such an approach would have been a different project, with different

intentions and yielding different outcomes. Instead, I combine a general, overarching, philosophical scope (phenomenology – human-technology relations) with more narrowly defined and scientifically oriented approaches in order to strike a balance between the piecemeal and scientific and the existential-philosophical and phenomenological, and in that way also put the psychological, cognitivist, findings in a larger, phenomenological context.

In his work on “ludic reading,” or reading for pleasure, psychologist Victor Nell points out that

an exhaustive study of attention and comprehension can be avoided because our objective is phenomenological rather than cognitive. In other words, it is the reader’s subjective experience, rather than the thought mechanism that allow the experience to take place, that is of interest. (Nell 1988: 73)

In comparison, the objective of my study is *both* phenomenological and cognitive – in other words, my aim is to shed light on both the reader’s subjective experience, as well as the thought mechanisms behind it. However, I will claim that such an objective does not require an exhaustive study of attention and comprehension, but that a combination of a piecemeal and problem-/question-driven approach focusing on cognitive and perceptual aspects, integrated within a phenomenological framework providing an existential grounding and context, fully serves the purpose.

If we look at other projects which have to different degrees drawn upon phenomenology in their studying of different media, we see that they also typically combine the phenomenological perspective with other theoretical approaches (cf. for instance Elkington 2001; Nyre 2003; Svanæs 1999; Wahlberg 2003). What is more, upon closer scrutiny, phenomenologists and cognitivists alike sometimes venture into each other’s camps, explicitly or implicitly. In *Carnal Thoughts*, Vivian Sobchack intends to focus on how we as embodied and material beings make sense of experiences in and of our lifeworld from and by way of our carnal senses. Arguing that “carnal responses to the cinema have been regarded as too crude to invite extensive elaboration [...],” Sobchack maintains that “contemporary film theory has not taken bodily being at the movies very seriously [...], [that] it has generally not known how to respond to and

describe how it is that movies ‘move’ and ‘touch’ us bodily.” (Sobchack 2004g: 57; 59) Obviously, Sobchack is not aware of studies such as those of Persson and Grodal, among others;<sup>80</sup> their works in film theory can hardly be said not to take our psychosomatic responses to movies seriously. There seem to be, in other words, gaps in a purely phenomenological approach that cognitivism might be able to fill.

Likewise, Noël Carroll – often claimed to be one of the main proponents of cognitivist film theory – supplements his discussion of photographic realism in photography and cinematography with an overtly phenomenological approach. Comparing our perception through telescopes, microscopes, binoculars and parking mirrors with that of looking at a photograph or watching a movie, Carroll points to how our perception in the first examples is “counterfactually dependent on the visible properties of the objects of our perception – i.e., had the visible properties of those objects been different, then our perceptions would have been different.” (Carroll 1996: 57) Thus, when looking through tele-, micro- and periscopes, binoculars, and mirrors, we “see directly” in a way that we do not with photographs and moving images. And the principled reason for this essential difference in perception can, according to Carroll (and reminiscent of Ihde) be related to the relation between my body and the object perceived at the time of perception. When I use binoculars, or microscopes, I can orient myself spatially to whatever I am looking at, so that my bodily orientation to the things that I perceive is preserved. This is a perception and a phenomenological relation which is qualitatively different from when we experience and relate to a film or a photograph. Carroll takes as his example watching *Casablanca* and seeing Rick’s bar on the screen:

I cannot, on the basis of the image, orient my body to the bar – to the spatial coordinates of that structure as it existed some time in the early forties in California. [...] The image itself would not tell me how to get to the set, presuming that it still exists, nor how to get to the place in the world where, if it no longer exists, it once did. For the space, so to speak, between Rick’s bar and my body is discontinuous; it is disconnected, phenomenologically speaking, from the space that I live in. [...] [I]f we call what we see on the silver screen a “view,” then it is a disembodied

---

<sup>80</sup> Or, she does not deem them relevant – which would, however, seem odd, considering the content of her criticism.

view. I see a visual array, like Rick's bar, but I have no sense of where the portrayed space really is in relation to my body. (Carroll 1996: 61)

Carroll's theorizing here comes very close to Don Ihde's phenomenological account of human-technology relations. According to Ihde, relating to and using telescopes and binoculars are examples of technologies of embodiment, enhancing bodily-perceptual abilities, whereas photography and moving imagery are examples of both hermeneutic and alterity technologies, that is, relations with technologies as "text-analogues" (movies; photographs). As such, they are referring to something different than what we would have seen without the technologies in the mediating position, and relations with technologies as "other", where the technological device itself takes on an autonomy which is itself the perceptual and experiential focus and terminus.

Another reason for supplementing the cognitivist approach with a phenomenological perspective is to more fully incorporate the bodily dimension in the approach. This is the main motivation behind Dag Svanæs' incorporation of phenomenology with other approaches to HCI in his dissertation on the GUI and interactivity (Svanæs 1999). Underscoring the importance of a phenomenological perspective, Svanæs argues that

the body is [...] the seat of this meaning-creation [i.e., in interactive interfaces]. It is therefore misleading to describe the process of meaning-creation as an "interpretation" of the interaction. The interactive experience never exists to the subject as anything else than an experience already filled with meaning. "Interpretation" would require some other representation of the interactive experience that was interpreted. This is where much theory on human-computer interaction fail [sic]. Assuming a level more primary than the already meaningful, only makes sense in a Cartesian epistemology where meaning exists only for "Mind". With the Cartesian reduction of "Body" to a mere matter, we get this split between "interactive experience" and "interpretation". (Svanæs 1999: 223)

Even though, in film studies, Torben Grodal's expansion of the cognitivist perspective to a certain extent takes into consideration motor and physical interactions with technology, his "flow model" of continuous interaction between perceptions, emotions, cognitions, and motor actions (see Grodal 2003) problematizes the relations between these psychosomatic processes at a very fine-grained level, leaving more comprehensive



questions pertaining to the holistic and existential nature of the experience unanswered. For this purpose, I see phenomenology as potentially serving an important integrationist and contextualizing perspective, where the bits and pieces of cognitivism are seen as integrated into and contextualized by a whole, namely, that of the phenomenal experience of the embodied reader. Hence, it is my aim and intention to try to show how phenomenology and cognitivism can be fruitfully reconciled to strike a balance between the piecemeal, scientific cognitivist approach and the more holistic, overarching phenomenological framework, in such a way that both cognitivism and phenomenology might benefit from it. More to the point, I contend that finding such a balance and acknowledging the reciprocal fecundity of cognitivism and phenomenology will yield substantial advantages when it comes to assessing and understanding our reading of GUI fictions.

Concluding this section, then, I will maintain that both cognitivism and phenomenology are obviously relevant, and curiously overlooked, approaches for dealing with the issue of the experiential impact of the GUI on our reading narrative fiction. Furthermore, I hope to have shown how they can both merit from each other in addressing the present problem complex at both a piecemeal, granular and psychosomatic level, as well as relating these to an existential, philosophical context providing a platform from which to reflect critically and philosophically around the impact, consequences, and values of technologies in our lives.

PART III: PIECEMEAL  
THEORIZING

While Plato could dismiss the body as too ephemeral to be real and valuable, today the body seems more stable, durable and real than the rest of the world we experience. It certainly seems much more familiar, as well as being easier to grasp, survey, and control. The media's unmanageable overload of unintegrated information is a strongly decentering force, turning consciousness into a flux of swirling, disconnected ephemeral parts. [...] The body can now present itself in contrast as an organizing center, where things are brought together and organically conserved.

Richard Shusterman, "Somaesthetics and the Body/Media Issue" (1997)

## **CHAPTER 9: COGNITIVE AND PHENOMENOLOGICAL THEORIZING**

### **9.1. Introductory**

In the following sections I will conduct some piecemeal theorizing pertaining to the process and experience of reading GUI narrative fictions. The theorizing will take as its starting points theories of attention, perception and cognition, as well as draw upon phenomenological and philosophical approaches. In so doing, I hope to fill a gap in currently existing research on similar and related topics.

Within the discipline of media studies today there are many theorists dealing with media reception and reading. However, as we have seen, few of them see the value or relevance of looking to psychology or phenomenology for their theoretical, and methodological, support. Conversely, and apparently without any influence from media studies, within the discipline of psychology, there is quite a lot of research being done specifically on media psychology, focusing on, for example, our use of the internet, or – typically – of computer games. However, psychological research into our experience with and of digital media is most commonly experimental, often focusing on children,

and almost always preoccupied with the (somehow measurable) *effects* of the medium – whether a video or computer game, a television program, or a movie – on children in terms of physiological, cognitive, attentional or emotional responses (see for instance Shrum 2004; Valkenburg 2004; Zillmann and Vorderer 2000). Moreover, topics of special interest often include the content of, in particular, video and computer games with a focus on the aspect of violence (addressing questions such as “do children become more aggressive from playing violent computer games?” – types of questions that are not in very high regard among media theorists [cf. below]), gender-related issues (focusing on, say, the male versus female role models – or, more often, the lack of the latter – in action games), and/or concerns about how different patterns of media use may have social and emotional effects on children (studying, for instance, whether it is likely that children become more lonely if they spend very much time on the internet).<sup>81</sup> And, as Patti Valkenburg observes, even within the scientific field of psychology, research into the effects of digital, interactive media is very much in its infancy (Valkenburg 2004: 124). Moreover, it seems that most of the existing research falls prey to a simplistic and scientifically unproductive situation of proponents and opponents of digital media.

## **9.2. The scientific schism between media theorists and media psychologists**

The choices of topics of study, as well as the critical perspective focusing on the negative effects of media and technologies on children and adolescents, have the unfortunate consequence of creating a scientific schism between (new) media studies and media psychology, so that media theorists, and perhaps new media theorists in particular, and psychologists rarely if ever seem to share enough common ground to even begin fruitful discussions about our reading process and experience of different

---

<sup>81</sup> A glance at the titles of the articles in a recent issue of the journal *Media Psychology* is illustrating: “Brain Imaging – An Introduction to a New Approach to Studying Media Processes and Effects”; “Children’s Brain Activations While Viewing Televised Violence Revealed by fMRI”; “Does Playing Violent Video Games Induce Aggression? Empirical Evidence of a Functional Magnetic Resonance Imaging Study” (in *Media Psychology* Vol. 8 No. 1, 2006).

media. For media theorists, psychological studies of the potential for children becoming aggressive and more violent from playing *Grand Theft Auto* is but another example of scientists from other disciplines applying methods and theories that are not suited for the object of study – say, computer games – and that, moreover, are marred by what they consider protectionist views and experimental methods that ignore fundamental dimensions of the object of study. A typical example of this schism was clearly demonstrated in Norwegian media during late summer 2004, when the Norwegian translation of Gerard Jones' book *Killing Monsters – Why Children Need Fantasy, Superheroes, and Make-Believe Violence* (Jones 2002) was published. This triggered another vigorous debate between media theorists (and particularly new media and popular culture theorists) and psychologists about the potentially harmful impact of violent media on children's attitude and behavior. Recent experiments in psychology had indicated that playing violent video games can increase a person's aggressive thoughts, feelings and behavior, and that violent video games may in fact be more harmful than violent television and movies because they are interactive and hence require the player to identify with the aggressor (Anderson and Dill 2000). Quite contrarily to the conclusions from the psychological experiments, Jones' main claim in his book is that children need the kinds of "fantasy violence" we find in so many popular culture products, such as video and computer games, movies, and cartoons.<sup>82</sup> Through being confronted with, and experiencing, such violence and "superheroes", the children learn to handle real-life situations better, according to Jones. Largely supporting (and applauding) Jones' contribution, other media researchers also claim that playing video and computer games add to children's self esteem and ability to cope with difficult situations in real life, preparing them for harsh reality.<sup>83</sup> Neatly fitting the trivializing and polarizing genre of tabloid journalism, the media researchers' univocal

---

<sup>82</sup> Though one should always be cautious about reading too much out of biographical facts, it does merit mentioning that Gerard Jones is, in addition to being a media theorist at MIT specializing in popular culture, also a cartoonist.

<sup>83</sup> See for instance "Barn må ha superhelter", *Dagbladet* August 1, 2004 ([www.dagbladet.no/dinside/2004/08/01/404334.html](http://www.dagbladet.no/dinside/2004/08/01/404334.html)); "Medievold nødvendig for barn", *Aftenposten* August 7, 2004 ([www.aftenposten.no/kul\\_und/article843393.html](http://www.aftenposten.no/kul_und/article843393.html)); "Medieforsker: - Klokt og viktig", *Aftenposten* August 7, 2004 ([www.aftenposten.no/kul\\_und/article843394.html](http://www.aftenposten.no/kul_und/article843394.html)).

appraisal of Jones' book was countered by a psychologist who strongly opposed the conclusions stemming from the media theorists, claiming that there is a great deal of empirical evidence from psychological experiments indicating that there is a positive correlation between violence in media, and the dispositions among children and teenagers to resort to violence and aggression in real-life (cf. for instance Anderson and Bushman 2001; Anderson and Dill 2000; Funk et al. 2004; Wilson et al. 2002).<sup>84</sup>

For media psychologists, I venture, theorists in cultural studies, popular culture, and (new) media studies might appear as scientifically naïve and/or ignorant, and more in the business of protecting their empirical turf than of prompting serious and scientifically founded discussions across disciplinary boundaries.<sup>85</sup> This is, in my view, an unfortunate situation, because I am convinced that the two camps would have benefited greatly from being able to exchange perspectives, theories, and methods – benefits that I hope my extensive drawing upon psychological theories of attention, perception, and cognition, will at least partly reveal.

Another respect in which my study differs from most existing studies on the psychology of media reception is in object of study. Within media psychology, there are far more studies on the effects and impact of interactivity, digitality, and hypermediality on cognition and learning from either simple informational texts, or from reading (usually very short) test texts that are written specifically for laboratory experiments, than there are studies on the experience of reading narrative fiction. In other words, the impact of digital technology on pedagogical and educational aspects far outweighs the impact of digital technology on so-called pleasure reading. One notable exception here is Victor Nell's psychological study of what he terms "ludic reading," in *Lost in a Book: The Psychology of Reading for Pleasure* (1988). Observing how reading for pleasure is "an enormously complex cognitive act that draws on an array of skills and processes in many different domains – attention, comprehension, absorption, and entrancement;

---

<sup>84</sup> "Kritisk psykolog", *Aftenposten* August 7, 2004 <[www.aftenposten.no/kul\\_und/article843398.html](http://www.aftenposten.no/kul_und/article843398.html)>

<sup>85</sup> The Norwegian psychologist who was interviewed in connection with the debate about Jones' book explicitly claimed that media theorists are not interested in research and scientific methods, and that they just keep saying that scientists (i.e., psychologists) exaggerate and are hopelessly caught up in "moral panics". ("Kritisk psykolog", *Aftenposten* August 7, 2004 <[www.aftenposten.no/kul\\_und/article843398.html](http://www.aftenposten.no/kul_und/article843398.html)>)

reading skill and reading-rate variability; readability and reader preferences; and reading psychology [...],” (Nell 1988: 14) Nell reports results from different laboratory experiments studying cortical and neuropsychological responses in readers during pleasure reading. A claim he makes that is particularly relevant for the following is when he compares the reading of print fiction with other modes of engaging in fiction, such as by means of television or a movie:

Reading absorption, which results from a fuller commitment of the attentional apparatus than movie- or television-absorption, is likely to do a better job than the other media of blocking out environmental distractions and changing the focus of the reader’s attention from the self to the book. We know that it is not the page that locks the reader’s eyes in place but the cognitive demands made by reading and comprehension. (Nell 1988: 227)

Another example is Kim Gee’s empirical study of the process and experience of reading a hypertext narrative fiction. Gee’s study is titled “The Ergonomics of Hypertext Narrative: Usability Testing as a Tool for Evaluation and Redesign” (Gee 2001), and is one of the very few empirical studies on ludic reading in a digital environment, while at the same time focusing on interface usability and the ergonomics of HCI. Gee studies a handful of readers while they are reading Bill Bly’s hypertext fiction, *We Descend* (Bly 1997). From this study, Gee concludes that

the navigation systems required for such texts can significantly interfere with readers’ ability to derive value of pleasure from the fiction. The results emphasize the importance of hypertext authors providing more linear paths through texts and of simplifying the navigational apparatus required to read them. (Gee 2001)

Much of the reason for the absence, or at least scarcity, of empirical studies on pleasure reading undoubtedly has to do with the fact that (narrative) fiction (whether displayed as texts, films, or games), unlike much of the verbal materials used in psychological laboratory experiments, characteristically evokes *affective* as well as cognitive responses – “a troublesome, messy factor in empirical research [...],” as Ellen Esrock puts it (1994: 202).

In addition, I will claim that my project potentially adds a new dimension to the field of both media studies and media psychology by combining psychological piecemeal theorizing with philosophical, phenomenological perspectives, and hence implementing the psychological approaches within a broader and more existential, philosophical context. Few, if any, of the researchers commonly conducting studies on, for example, the effects of digital technology on our habits of reading, seem to care to put their findings in a larger philosophical context, addressing issues such as the overall impact of digital technology for our quality of life, or our lifeworld on a day-to-day basis. This is, in my view, a deficiency that I will attempt to fill.

The piecemeal theorizing of GUI narrative fictions in this part III will be conducted according to the following main topics:

- sensory modalities
- redundancy and entropy
- attentional allocation
- the dimension of temporality
- transparency and opacity
- intangibility and invisibility
- the haptic intending
- crossmodal attentional capture

All these topics are closely related and they all relate to the main questions guiding this study, namely, how different technologies, with different material platforms affording different experiential (that is, cognitive, perceptual, and phenomenological) actions and performances, engender and facilitate different kinds and degrees of immersion (particularly technological as compared to phenomenological immersion). Ending this piecemeal part III, I will relate all these dimensions to Don Ihde's existential technics (chapter 18, "Phenomenologically relating to the computer"), in that way providing a cohering and preliminary conclusion of my piecemeal findings and relating them to a broader, philosophical context. Such a context facilitates addressing larger issues concerning the role and impact of digital technology in our lifeworld.



# CHAPTER 10: SENSORY MODALITIES IN GUI NARRATIVE FICTIONS

## 10.1. Introductory

Meanings – and narratives – are made in ways that are increasingly multimodal and multimedial. The term ‘modality’ is a potentially complex one, at least if one insists on its meaning as one having to do with the degree of truth value, hence meaning the degree or likelihood of propositions being true. However, in semiotics, modality is also taken to refer to semiotic modes, that is, resources for communication and representation:

[M]ultimodality and multimediality are not quite the same thing. Radio is multimodal in its affordances, because it involves speech, music and other sounds; but it is monomedial, since it can only be heard, and not seen, smelled, touched, or tasted. Everyday face to face interaction, on the other hand, is both multimodal (it uses speech, non-verbal communication, and so on) and multimedial (it addresses the eye and the ear and potentially also touch, smell, and taste). (Kress 2001: 67)

Largely corresponding with such an understanding, and discarding the term’s occasional reference to verisimilitude or truth value, I will here use the term ‘modality’ to mean “mode of sign representation.” Following this, ‘sensory modality’ will thus designate the mode of sign representation according to which one(s) of the human senses it primarily addresses and engages.

Each medium and technological display have their quite specific possibilities and limitations in terms of what they can represent, and how they can represent it. It is – or at least should be – evident that not everything can be expressed in every medium and on every display, a fact to be even more conscious of in a time seemingly bent on

multi-mediality/-modality and technological convergence – or divergence.<sup>86</sup> Hence, there is a need for a metalanguage covering “modes of meaning other than linguistic modes, including visual meanings (images, page layouts, screen formats); spatial meanings (the meanings of environmental spaces, architectural spaces); and multimodal meanings.” (Cope, Kalantzis, and New London Group. 2000: 28) In this section I will suggest such a metalanguage, departing from psychological theories and phenomenological philosophy.

When attempting to name, describe and categorize this multimedial content displayed by means of different media and technological platforms, one quickly runs into terminological problems and conceptual dilemmas. A number of different approaches and different typologies have been suggested to handle the variety and complexity in our media-saturated lifeworld, typologies that at the same time ideally will be able to capture, highlight and concretize aspects and features that are somehow and to different degrees specific to particular media and technologies. In his doctoral dissertation on digital hypermedia, Gunnar Liestøl operates with the terms “media types” and “information types” interchangeably, and then divides them further into static and dynamic ones (Liestøl 1999); many scholars opt for terms such as sign systems, representations, or – especially the semiotically oriented ones – codes. Often we find that the concept of ‘text’ is being applied, in both a narrow, linguistic sense, but equally as often it is used in the broad, semiotic sense as covering both verbal, visual and auditory modalities, and static and dynamic modalities as well.

In his article “Doceo + mentum = Document – A Medium Concept, Theory and Discipline” (Lund 2005),<sup>87</sup> Niels Windfeld Lund discusses precisely this conceptually confusing tendency in the humanities. Pointing to how theorists in media and cultural studies struggle to find an adequate concept to deal with both the coherence and the

---

<sup>86</sup> Even though *convergence* is undoubtedly one of the most frequently employed terms for describing whatever technological innovations come along nowadays, not everyone agrees that convergence is indeed what characterizes the technological development. William Buxton (chief scientist at *Alias | Wavefront*, and graphic design authority) claims that “while common discourse about digital media is dominated by the concept of convergence, [...] from the perspective of the usage model, just the opposite concept, divergence, should be the dominant model.” (Buxton 2002) (<http://www.billbuxton.com/LessIsMore.html>)

<sup>87</sup> I am indebted to N. W. Lund for allowing me access to this manuscript prior to its publication.

diversity of different media representations, Lund suggests the notion of *document* as a qualified candidate (and one that could plausibly replace the notion of text). Lund claims that, as a general concept, “document” would

improve the degree of consistency in research on communication and production of meaning using several media [...], [and it] might contribute to a better understanding of the relationship between the processes, the practices, and the results of these processes, the objects, the documents. (Lund 2005)

Addressing some of the same issues in the book *Interaction of Media, Cognition, and Learning*, media researcher Gavriel Salomon talks about different “symbol systems” and insists that “[n]either contents nor situational correlates of media should be used as critical criteria.” (Salomon 1994: 24) Pointing to how different symbol systems comply or correlate with different fields of reference (the symbol system of photography, for example, correlates with objects, and the symbol system of graphs with mathematical relations), Salomon further claims that the difference between media in what content they typically convey (for instance the fact that television can depict visible aspects of events, whereas books can describe non-visible ones) is “the result of the symbol systems each medium makes use of, not anything inherent in the medium. Types of content are correlates of media but not defining attributes of media.” (Salomon 1994: 24) According to such a typology, film, for example, is “a medium that uses many symbol systems simultaneously – photography, gesture, dance, speech, music, and other, more film-specific systems as well.” (Salomon 1994: 52)

A typology such as Lund’s or Salomon’s could perhaps seem feasible when dealing with GUI narrative fictions, but I have nevertheless chosen a different strategy – a strategy that is in my view more appropriate when considering the present focus on perceptual, cognitive, and phenomenological aspects of the reading experience.

## 10.2. Classifying sensory modalities

Another way of differentiating between signs or symbol systems is to focus on what parts of the human sensorium the different media types primarily and predominantly address and engage. Bearing in mind the holistic perspective of phenomenology, as well as the psychological dictum that all perception is multisensory, such a differentiation may sound blatantly contradictory. As Sobchack puts it, the phenomenological understanding of perception as always synaesthetic and synoptic and “not constituted as a sum of discrete senses (sight, touch, etc.), nor [...] experienced as fragmented and decentered [...] [makes it] literally nonsensical to talk of the senses as if they were isolated from their entailment in an intentional structure from each other [...].” (Sobchack 1992: 77) However, as I hope to make clear in the following, claiming that verbal text is primarily a visual sensory modality, or that sound is primarily an auditive modality, is not the same as claiming that when reading a verbal text we are merely engaging and using our eyes, excluding the rest of our sensorium. The human body, according to phenomenology, can be said not to have senses, but to be a *holistically sensible body* in and by which each sense modality is in different ways intertwined with and intimately connected to all the others, forming “the co-operative and commutative system of the bodily senses that structure existential perception [...].” (Sobchack 1992: 77) Likewise, in more psychologically oriented theories of perception and cognition, one speaks about the co-operation of the senses in every act of attention and perception, in terms such as transsensorial perception, multisensory perception, crossmodal sensation, etc. (cf. for instance Anderson 1995; Chion 1994; Grodal 1997, 2003; Massumi 2002). However, no matter how phenomenological or synaesthetic your perspective is, it is still reasonable to say that, say, a written text is *primarily* a visual modality, whereas when eating strawberries we are primarily engaging our olfactory and gustatory sense modalities (in addition to the visual ones). Some sense modalities are, simply speaking, more prominently present and activated when we are experiencing some phenomena as compared to others.

Increasingly multimedial and multimodal representations challenge our perceptual and cognitive apparatus, as well as our theoretical and methodological toolkit, as semiotician Günther Kress points out:

The interaction of different modes and of different possibilities of expression in multimodal texts and multimedia production poses questions not only at the level of text, but also at the level of cognitive processing: new demands are made cognitively (and no doubt affectively) by the new technologies and by their textual forms. A new theory of semiotics will have to acknowledge and to account for the process of synaesthesia, the transduction of meaning from one semiotic mode in meaning into another semiotic mode, an activity constantly performed by the brain. (Kress 1998: 76)<sup>88</sup>

What is more; digital technology extends the act of reading beyond not only the audio-visual field of perception, but beyond the field of perception and cognition altogether, to require physical and ergonomic interaction with the device. In other words, GUI narrative fictions call for what sound designer and audio researcher Maribeth Back terms “multisensory reading” (Back 2003) – that is, multisensory in a sense that far exceeds the dimensions of the human sensorium that we commonly associate with reading (even in a broad sense of the term). Theoretically and methodologically, this entails that any approach to a comprehensive theoretical account of the impact of digital media on our reading narrative fiction will have to acknowledge and account for not only all the different perceptual and cognitive processes involved in apprehending hypermedia, but also our physical, bodily – that is, our tactile, haptic, kinesthetic, and proprioceptive<sup>89</sup> – interaction with the devices. The human body is indeed being called upon, by the digital narrative fictions themselves, as well as by the theoretical accounts for understanding our experience of them.

In part following Maribeth Back (Back 2003), I prefer to employ the term ‘sensory modality’ to name the different types of content displayed in and by means of

---

<sup>88</sup> Kress here seems to be exemplifying the above-mentioned conflation of the term ‘text’ in a narrow, linguistic sense, with the broader, semiotic sense. As Lund has shown (Lund 2005), Kress and van Leeuwen (and N. K. Hayles, who is also quoted in Lund’s article) use the concept of ‘text’ as a *synthesizing* as well as a *distinguishing* concept. The synthesizing function of the term, according to Lund, has to do with meaning and content (that is, what is being documented – corresponding, *mutatis mutandis*, to the signified), whereas the distinguishing function pertains to the dimension of materiality or means of documentation (viz., the signifier).

<sup>89</sup> Definitions of these modalities will be presented in due course.

different media and technologies. Focusing in this way on the sensory is, as Wahlberg also points out in her dissertation, a highly relevant outset for a meta-theoretical discussion of relations between the material qualities of technological displays and our phenomenological and perceptual-cognitive experiences. Etymologically, ‘the sensory’ belongs to “the indeterminate designation of material qualities and of experience.” (Wahlberg 2003: 246) Therefore, says Wahlberg, “it cannot be reduced to qualities within the aesthetic object, nor to the cognition of [it]. [...] The sensory [...] designates *the experience of a created expression* [...]” (Wahlberg 2003: 246; italics mine) In this way, the sensory transgresses both the noetic correlate of the experiencing subject, and the noematic correlate of the experienced object, denoting precisely the experiential – phenomenological, cognitive, perceptual – *relation* between them.

Hence, complying with the overall focus in this study on cognitive, perceptual and phenomenological aspects of our embodied experience of GUI narratives, the determining and distinguishing criteria will hence be related to the human sensorium, and to the human sense modalities involved in the reading of the GUI. Such a typology thus allows for a closer study of precisely the relations between all the different configurations of content that we find in a GUI narrative fiction, and their impact on our embodied, multisensory reading and phenomenological experience.

### **10.3. Definitions of sensory modalities**

Our embodied sensorium is our means of access to the lifeworld – it is through our physiological repertoire of senses that we are able to gain information about the environment in which we live. Both phenomenologists and cognitive scientists agree about this fact: “The senses are different openings to the world that cooperate as a unified system of access.” (Sobchack 1992: 77) Each one of our sensory systems is, as cognitive film theorist Joseph Anderson puts it, “tuned to a different spectrum of physical reality.” (Anderson 1996: 26) Furthermore, as indicated in the previous section, the different sensory systems facilitate different forms of mediation, and hence different modes of reading.

As a means of more precisely and substantially coming to grips with the impact of the GUI on our multisensory reading experience, we can classify the human sensorium as consisting of the following sensory systems:

The visual system

The auditory system

The tactile system

The proprioceptive system

The haptic system

The kinesthetic system

The taste/smell system (also called the gustatory/olfactory system)

The specifications and functions of some of these systems are easily understood and defined, such as the visual, the auditory, and the taste/smell system. However, the remaining four systems (the tactile, the proprioceptive, the haptic, and the kinesthetic) seem, for some reason, not to be as clearly discriminated and are often confused in the literature on media perception and cognition (see for instance Hansen 2004; Hayles 2002b, 2005b; Joyce 1995; Marks 2002; Spence 2001; Waite 2003). Such a lack of consistency and clarification is unfortunate, in my view – especially when dealing with perceptual, cognitive, and phenomenological aspects of digital technology. There are crucial differences between the tactile, the proprioceptive, the haptic, and the kinesthetic sensory systems – differences which must be duly appreciated if we are to fully understand the sensory and phenomenological impact of digital technology, and our experience of reading GUI narrative fictions.

A first important observation is the following: perception and sensation – that is, the perceptual and sensational pickup of external stimuli (i.e., exogenous stimuli – cf. below), whether by our eyes, ears, or skin – have to do with the environment, our surrounding lifeworld. By contrast, the *proprioceptive* system has to do with our own body – in other words, the signals picked up by the proprioceptive system are *endogenous*; they stem from within our bodies, more precisely, from the vestibular sense located in the inner ear (also called the sense of balance). In other words, proprioception tells us about our body's relative position and movement even when

external sense stimuli are absent; we will know, even if we close our eyes, that the train accelerates or makes a sharp turn, or that – imagining ourselves in a space ship where the laws of gravity do not apply – we are, eyes still closed, turning upside-down and floating around in the air.<sup>90</sup> *Kinesthesia*, however closely related to the proprioceptive modality, is something else. Back describes kinesthesia as “the sense of one’s own motion, gained from internal cues.” (Back 2003: 174) A vivid example of kinesthesia would be when we watch a wild roller-coaster movie in the IMAX Theater standing up, and we lose our balance – due to the (visual) muddling of our kinesthetic sense. From this we can infer that neither proprioception nor kinesthesia are likely to be of paramount importance when attempting to grasp the phenomenological experience of reading the kinds of GUI narrative fictions that I am interested in here (they are, however, very important in other digitally produced and displayed experiences such as VR and other “corporeally enveloping” digital experiences). Hence, I will claim C. K. Waite to be somewhat erroneous when she describes the digital screen as “mixing different sensory forms to create a *kinesthetic* mediation.” (Waite 2003: 79; italics mine) Waite is otherwise correct in arguing that the digital screen differs fundamentally from interfaces such as print, photography, and the telegraph, in that it “mixes different sensory channels to link space, sound, and motion.” (Waite 2003: 79) However, the dynamic dimension of the screenic configuration of the GUI and its corollary impact on our experience has less to do with kinesthesia, that is, with our perception and sensation of our body’s motion, than with *a radically different configuration of the inherent spatiality and temporality* in the sensory modalities (typically visual, auditory, and haptic) involved. This is a significant difference, to which I will return in due course.

The *tactile* sense modality refers to skin sensations, whether they stem from pressure, temperature, or other tactilely perceptible sources, such as wind.<sup>91</sup> Finally, the *haptic* sensory system, in HCI often called “haptic feedback,” typically refers to the sense modality operating when we feel objects with our body’s extremities. It is thus a

---

<sup>90</sup> The example is somewhat quirky, due to the fact that in most situations where we might find ourselves upside-down, we would also be able to tell from some external source, such as some machinery in the amusement park, or the tactile sensing of the ground when standing on our hands or heads.

<sup>91</sup> Cf. Back 2003: “[T]actile [involves] sensations such as graininess, slickness, wetness, wind. It is an analysis of surface texture through slight pressure and/or vibration.” (Back 2003: 174)



combinatory sense, consisting of both the expansive network of sensors in our tissue, as well as the receptors in the joints (cf. Gibson 1966: 52). In her alluringly titled book *Touch: Sensuous Theory and Multisensory Media*, Laura Marks claims that “haptic perception is usually defined as the combination of tactile, kinesthetic, and proprioceptive functions, the way we experience touch both on the surface of and inside our bodies.” (Marks 2002: 2) According to psychological theories, however, it is more accurate to classify the kinesthetic as a proprioceptive sense, because the activation of both the proprioceptive and the kinesthetic modalities originate (completely in the case of proprioception, partly in the case of kinesthetics) from our own bodies (proprioceptive stems from Latin, ‘proprium’ = one’s own, self), whereas the haptic and the tactile modalities are to a higher degree related to exogenous, body-external stimuli. Moreover, I consider Marks’ definition of the haptic sense modality simply to be too inclusive to be explanatorily productive, and will in the following define the haptic modality as “exploratory perception of the environment with haptic touch,” typically – and especially when reading GUI fictions – by the use of our fingers and hands (that is, our dexterity functions). As I will show below, the role and impact of the haptic modality on our experience of GUI narrative fictions is significant, and it is also a curiously overlooked dimension in the works of new media theorists.

Each sensory modality can have – and often has – one or even several sub-modalities; the visual modality, for example, can be differentiated into the visual submodalities of verbal text, still and moving images, graphics, and simulations, to mention but a few. The sonic or auditory sensory modality can be further divided into the auditory submodalities of music, sound, and voice (see Back 2003: 160ff.).<sup>92</sup> Furthermore, we often have combinations on different levels of modalities and submodalities – the most common of which is the audiovisual modality as experienced

---

<sup>92</sup> Gibson has also subdivided the kinesthetic modality and the haptic modality: the kinesthetic modality can be classified into articular kinesthesia for the body framework, vestibular kinesthesia for the movements of the skull, cutaneous kinesthesia for the movement of the skin relative to what it touches, and visual kinesthesia for perspective transformations of the field of vision (Gibson 1966: 111). The haptic modality can be said to consist of the subsystems of cutaneous touch, haptic touch, dynamic touching, touch-temperature, touch-pain, and – when combined with input of vestibular information – oriented touch (Gibson 1966: 134).

in, for example, moving images. Contrary to what is most often the case with conceptualizations and terminologies typically being employed in media studies, a terminology tuned to our sensory modalities is both rich and comprehensive, and at the same time finely grained, and it allows us to describe, classify, and study the complexity of embodied perception and phenomenological engagement with the whole range of media systems and technological platforms existing today. Moreover, and equally important, it is also well prepared for being applied to media configurations and technological displays which have not yet been developed, for the simple reason that our bodies and sensorium are not apt to radical and abrupt change no matter what sensory configurations the technological development provides us with. This, however, is not the same as saying that technologies do not in any way impact our modes of cognition and perception. Contrarily to what some prominent new media theorists seem to believe,<sup>93</sup> I hold that every new technology will, however subtly and gradually, impact our modes of perception, cognition, and communication. But such impact does not alter our psycho-physiological sensorium and perceptual-cognitive faculties *per se*, however much it changes our modes of experience and communication.

When it comes to sensory modalities most commonly addressed in today's media and technologies, the visual and auditory modalities are certainly still the dominant ones. In the case of digital technology and the GUI, however, the range of the human sensorium being addressed and activated by the technology is being augmented to include other modalities as well, modalities that we might not usually consider as parts of our perceptual and cognitive faculties. As many media scholars have observed,

---

<sup>93</sup> According to Espen Aarseth, among others, claims about how new technologies are altering our way of thinking should always be viewed with suspicion; in his view, "a new mode of communication will strengthen our habits and methods, not change them." (Aarseth 2003: 432) One obvious problem with Aarseth's claim, however, is its lack of precision; where do you draw the line between "strengthen" and "change," and how do you "measure" whether something amounts to a change or not? Moreover, I find his argument rather unconvincing, as a brief look at the history of communication and technologies will reveal that the introduction and cultivation of new communication technologies typically have an enormous impact on our perceptual, cognitive and communicational modes and habits (cf. for instance Heim 1999, Ihde 1993a, Ong 1982, Waite 2003, Wolf 2000). There is, in my view, no reason to assume that the impacts of digital technologies are any different than, say, the introduction and distribution of the printing press or the TV in this regard.

the sensory modalities of taste and smell seem, so far, to be the most challenging ones to fully implement in a technological environment. The well-known examples from earlier technologies to address these senses directly, such as “AromaRama” and “Smell-O-Vision,” were not overly successful (see for instance Ihde 1999: 190). Plausible reasons for the failure of these earlier endeavors probably had something to do with cumbersome (and possibly noisy) mechanical solutions, and the cost of production relative to the economic, as well as experiential, outcome: “AromaRama” used the theaters’ ventilation system to distribute scents during film screenings, and “Smell-O-Vision’s” far more expensive approach was to place smell-producing and distributing units under each cinema seat (see Perry 2004). One might expect today’s technological possibilities to greatly reduce expenses, as well as to replace bulky makeshift mechanics with smooth and seamless digital solutions. Even so, the few more recent attempts with digital technology, of which the best known is perhaps *DigiScent*,<sup>94</sup> have not, so far, been very successful.<sup>95</sup>

The bisensory audiovisual modality, then, is still the paradigm, but digital technology is now in a powerful position to seriously uproot this long-lasting dominance. Moreover, even though in many respects reading GUI narrative fictions seems to be an audio-visual experience not very different from other audio-visual experiences, the motor components – and particularly the above-mentioned haptic sense modality – of the reading act has an impact on the phenomenological reading process and the immersive experience that should not be underestimated.

---

<sup>94</sup> *DigiScent* was, according to Simon Perry, “a serious, scientific approach to the subject [of developing a digital device specifically addressing the olfactory sense modality].” (Perry 2004) Started in 1999, however, it suffered the fate of so many other start-ups from this period, and did not get beyond the sketch board and prototype stage before the burst of the dot-com bubble.

<sup>95</sup> In the same article, however, Perry informs that the idea – perhaps better, the dream – of developing digital devices catering to our sense of smell is not dead yet: a UK cable company, Telewest, has suggested that they may release a computer add-on – “hardware for a surf & sniff set up”, as they call it – that generates aromas and that can be controlled by software. (Ibid.) As of this writing, however, there are few signs indicating that this add-on is coming close to being released.

#### 10.4. Synaesthetic perception and multisensory reading

Because we, even in today's increasingly multimedial landscape, commonly consider the visual sensory modality as the dominant one, we tend to forget that many – indeed, most of the time, all – sense modalities are present and active, to different extents, in even the most apparently monosensual experiences and activities. This holds true not only in the phenomenological sense that “all our senses are modalities of perception and, as such, are co-operative and commutable [...] because our senses all figure on the finite and situated field that is our body [...],” (Sobchack 1992: 76); it can also be scientifically explained by reference to our neuropsychological nature:

Although the information arriving at the various sensory epithelia [i.e., tissues composed of layers of cells, lining both the inside and the outside of organisms] are initially processed independently, converging neural pathways rapidly lead to extensive multisensory integration in a variety of neural structures. [...] Given this extensive multisensory convergence it would make sense for our attentional mechanisms to be coordinated across the modalities as well. (Spence 2001: 231)

Admittedly, some activities are more extensively multisensory than others; driving a car – especially when talking on the cell phone at the same time – can probably be said to be multisensory to a larger extent than, say, relaxing in the wing chair with your eyes closed, listening to opera on a CD through a set of headphones. Even so, we do not leave our other sense faculties out even during (active and concentrated) listening, viewing, or reading, even though it would seem as if modalities such as the olfactory and the gustatory, as well as the proprioceptive, are stimulated to a lesser extent during some activities than during others. But, as phenomenologist Sobchack so appropriately claims, even the watching of a movie (either at home, or in a movie theater<sup>96</sup>) is an intrinsically multisensory experience (also beyond the obvious combination of the

---

<sup>96</sup> The physical (and social) setting for the experience is, of course, not without import. As Carroll, among others, has pointed out (Carroll 2003c: 27ff.), the fact that the lights are dimmed in movie theaters when the movie begins, and the size of the screen is “larger-than-life” compared to that of television (and computers), are both the results of intentional ways of capturing and keeping our attention during the entire showing, based on knowledge about the innate and hardwired workings of human attentional resources.

auditory and visual modalities), to different extents addressing and activating the totality of our embodied sensorium:

We do not experience any movie only with our eyes. We see and comprehend and feel films with our entire bodily beings, informed by the full history and knowledge of our sensorium. Vision is not isolated from our other senses. Whatever its particular capacities and discriminations, vision is only one modality of my lived body's access to the world and only one means of making the world of objects and others sensible – that is, meaningful – to me. Vision may be the sense most privileged in cinema, with hearing a close second; nonetheless, I do not leave my capacity to touch or to smell or to taste at the door, nor, once in the theater, do I devote these senses only to my popcorn. (Sobchack 2004g: 64-65)

Cognitive film theorist Joseph Anderson says about our experience of film that “when viewing a film, we are seeing, hearing remembering, anticipating, forming concepts, and having emotional reactions – doing all those things that the human mind is capable of doing.” (Anderson 1996: 28) His description is in most respects applicable to what we do when reading GUI narrative fictions – with some significant additions, however. When we read GUI narrative fictions, we are – in addition to doing all those things that the human mind is capable of doing – also doing some of the things that the human body, more specifically, our fingers and hands, are capable of doing. We perform specific and significant motor actions in addition to perceptual and cognitive actions, and such sensory-motor combinations have phenomenological implications for our reading experience of GUI narrative fictions, for instance for our experience of immersion in a fictional universe.

# CHAPTER 11: REDUNDANCY AND ENTROPY IN GUI NARRATIVE FICTIONS

## 11.1. Introductory

The GUI display projects a number of experiential features that in important ways impact the ramifications for GUI narrative fiction in terms of providing a sustaining setting for an immersive reading experience. Some of the most significant features in this regard have to do with the way the digital display configures fundamental determinants of perceptual (gestalt) psychology, such as figure and ground (or foreground and background).

Due to innate dispositions in our psycho-biological nature, whatever we attend to or perceive must present some kind of *hierarchy of salience* – some configuration of a foreground and a background, in which some elements will be perceived as establishing the foreground, whereas others make up the background. In order for us to effortlessly process sensory stimuli and further convert them into meaningful information (on whatever level), some kind of order – hierarchy of attention – has to be found, or imposed, on the impressions. When reading GUI narrative fictions, however, our reading experience appears to be curiously non-hierarchical and one-dimensional, especially when compared to that of reading print narratives, and even deliberately non-hierarchical and hence “noisy” literary texts, such as James Joyce’s *Finnegan’s Wake* (1939), or Thomas Pynchon’s *Gravity’s Rainbow* (1973).<sup>97</sup> As Sobchack observes,

---

<sup>97</sup> Such texts also exemplify what is known as anti-narrative, encyclopedic, spatial, or topographic literature (see Bolter 2001, Frank 1991), and can be characterized by their being composed according to stylistic devices and aesthetic/literary strategies adhering to spatial principles (such as cross-references, allusions, inter- and intra-textuality, rhythm, and pattern – i.e., some kind of spatial distribution of elements) rather than linear or temporal principles (such as storyline or plot). I have elsewhere classified

Ungrounded and nonhierarchical as it is, electronic presence has neither a point of view nor a visual situation, such as we experience, respectively, with the photograph and the cinema. Rather, electronic presence disperses its being across a network, its kinetic gestures describing and lighting on the surface of the screen rather than inscribing it with bodily dimension [...]. Images on television screens and computer terminals seem neither projected nor deep – phenomenologically they seem, rather, somehow “just there” as we (inter)face them. (Sobchack 2004e: 158-159)

Such dispersed and nonhierarchical features are not merely appearances, they are, to the contrary, logical outcomes of the storage medium and the technology “behind” the display, namely, the digital processor. The defining lack of physicality of the digital implies, at the same time, a *leveling of dimensionality*. Because everything that is displayed on the GUI is stored as a series of binary digits, the displayed gestalt – whether it is a GUI narrative fiction, a digital photo, or a RealTime video – is essentially, at base, a one-dimensional entity, whose digits must be read and processed before they can be converted and eventually displayed: “When these ‘objects’ are stored digitally, they are all reduced to one-dimensional strings of digits; thus digital form levels dimensionality by reducing everything to the same one-dimensional form.” (Wolf 2000: 80) It is my contention that such a leveling of dimensions on the digital storage level crucially impacts also the perceptual, cognitive, and phenomenological experience of the analog display as it is configured on the GUI.

Such leveling of dimensions blurs a fundamental mechanism governing any perceptual and cognitive activity, between what stands out as salient – what is foregrounded – and what recedes to the background. Or, to use a corresponding dichotomy from information theory – the entropy/redundancy ratio is disturbed. As I will show in the following, such a disturbance crucially impacts our reading of GUI narrative fiction. In order to approach this problem complex, I begin by drawing upon Wolfgang Iser’s phenomenological approaches to the reading of literature. In a

---

such texts as manifestations of an “aesthetics of entropy” (see Mangan 1997). The relevance of such texts in this context is how they in different ways require, and generate, modes of reading in which the dynamic process of foregrounding and backgrounding, or the ratio of entropy and redundancy, is thwarted.

dissertation on hypertext and hypermedia narrative fiction, such a choice might seem controversial, considering the massive and almost univocal rebuttal of Iser's concepts of gaps in the text as adequately describing the reading of hypertext. However, as will become clear below, there are parts of Iser's phenomenological theory of reading that are as relevant for GUI narrative fictions as they are for print narrative fictions, parts that have remained largely ignored by hypertext and hypermedia theorists when turning to Iser and other phenomenologies of literary reading for support – or, more often, for “proof” of their inadequacy.

### **11.2. Reclaiming the relevance of gestalt psychology (and of Iser's phenomenology of reading)**

In the early days of hypertext and hypermedia theorizing, reader response theories were among the most frequently evoked approaches. Hypertext and hypermedia theorists, especially those with a background in literary studies (who were – and still are? – a majority), were eager to point out the similarities between particularly Wolfgang Iser's phenomenological approach to the reading process, and hypertext reading. Iser's description of the literary text as a “potential reality [...] [which] requires a subject (i.e., a reader) for the potential to be actualized [...]“ (Iser 1978: 92) seemed, for many hypertext theorists, to be an almost uncannily appropriate description of our reading of hypertext narratives, more than a decade before their appearance on the literary stage.<sup>98</sup> That Iser's understanding of “potentiality” (and, elsewhere, virtuality) differs significantly from the way the characterization applies to hypertext, was a fact that remained unrecognized during the first decade of hypertext theorizing – much by

---

<sup>98</sup> The origin for this flawed projection of reader-response theories to hypertext reading is to be found in the seminal article on interactive fiction by Anthony Niesz and Norman Holland from 1984, where they argue that “interactive fiction looks as though it acts out one particular model of reader response. Iser has suggested that the text of a novel lays down certain limits, but within those limits are gaps which a reader feels impelled to fill. An interactive fiction seems to make this arrangement explicit.” (Niesz and Holland 1984: 126)



courtesy of the poststructuralists, who were to a large extent dominating the field of literary theorizing at the time.

A hypertext can certainly be characterized as a potential, or even virtual, text, but in a digital context such concepts entail fundamentally different ontological and hence phenomenological implications than when applied to print. Espen Aarseth was among the first to make us aware of such a conflation of ontological levels stemming from applying, particularly, Iser's notion of gaps – indeterminacies – to the reading of hypertext:

There is a crucial difference between Iser's aesthetic gaps and the narrative gaps of determinate cybertext, a difference that goes beyond the mere physical difference in the reader's response. [...] The openings, or keyholes, of the adventure game are of two functional kinds: those that advance the strategic position of the player and those that don't. Only the first are gaps in the quest for the solution of the game [...]. (Aarseth 1997: 110)

Later, other new media theorists have followed suit in dismissing Iser's theory as relevant and applicable to digital works of (narrative) fiction (cf. for instance Koskimaa 2000; Mortensen 2003: 25ff.; 67ff.; Sloane 2000: 77ff.), to such an extent that suggesting Iser as in any way possibly relevant for understanding hypertext would now seem a hazardous enterprise. There is, however, another aspect of Iser's phenomenological account which can fruitfully be applied to our reading of hypertext and hypermedia narrative fictions, and this is his explication of the gestalt principles of *foregrounding* (or figure) and *backgrounding* (or ground), and how these operate in literary works.

The gestalt principles of foreground and background operate across sensory modalities. Whether we read a novel, look at a painting, listen to music, or watch a movie, there must be some hierarchy of detail if the processing is going to succeed. This even applies to the tactile modality, as Merleau-Ponty shows: “[I]f I touch a piece of linen material or a brush, between the bristles of the brush and the threads of the linen, there does not lie a tactile nothingness, but a *tactile space devoid of matter, a tactile background.*” (Merleau-Ponty 1962 [1945]: 316; italics mine) If there isn't any discernible hierarchy of detail, an apparent order, then we have to struggle to construct,

and impose, one ourselves out of the welter of information we perceive – which is exactly what we do, almost unavoidably. The human being is, as Ernest Cassirer has pointed out (Cassirer 1944, 1953), an *animal symbolicum* – a symbolic (or symbol-using) animal. What distinguishes us as humans, according to Cassirer, is our capacity to use what he calls symbolic forms as means for understanding and expression. As humans, we cope with our surroundings and gain understanding and knowledge by creating symbolic structures – be they myths, religions, sciences, laws, or arts – out of the chaotic cosmos that surrounds us. Simply because we are in the world, because we exist, we are somehow *condemned to meaning* (Merleau-Ponty 1962 [1945]: xix). As psychological research in cognition and perception has shown (Abelson and Schank 1995; Anderson 1995; Mandler 1984; Passer and Smith 2001; Schank 1995; Schank and Abelson 1995), it is the innate nature of the human mind to seek patterns and meaning in the complexity of signs surrounding us. Our very understanding depends on patterns and structure – we have to perceive some kind of order in the sheer mass of impressions by which we are surrounded:

Order is a necessary condition for anything the human mind is to understand. [...] Order makes it possible to focus on what is alike and what is different, what belongs together and what is segregated. When nothing superfluous is included and nothing indispensable left out, one can understand the interrelation of the whole and its parts, as well as the hierarchic scale of importance and power by which some structural features are dominant, others subordinate. (Arnheim 1971: 1)

Relying on psychological experiments on perception, Rudolf Arnheim declares that “the mind organizes visual patterns spontaneously in such a way that the simplest available structure results [...], [and that] all perception involves a desire to understand and that the simplest, most orderly structure facilitates understanding.” (Arnheim 1971: 3) Moreover – if we seem *not* to find any pattern or meaningful structure in the mass of impressions that external surroundings impinge on us, we impose one ourselves. Total disorder with no apparent structure, goal or direction, is perceptually and cognitively intolerable for human beings – to such an extent that we have even imposed this innate tendency to order our surroundings on the aleatory arrangement of the stars in the sky (Chion 1994: 211).

### **11.3. GUI mechanisms impeding the redundancy – entropy ratio**

Our system of perceptual and cognitive faculties, then, is dependent on gestalts of figure and ground in order to render our perception and cognition meaningful. To make such gestalts emerge is actually the primary task of our attentional resources, as they control the processes of selection and hence determine – either with or without our awareness and intention – what is salient, and hence to be foregrounded, and what is more negligible and should be backgrounded, in any perceptual situation. These processes are crucially important for our orientation in our lifeworld – as Kaha Waite states, “disorientation results when one cannot distinguish between background and foreground.” (Waite 2003: 66) Similarly, cognitive and experiential disorientation occurs during our reading of narrative fiction, if the selection processes governing the phenomenological oscillation between figure and ground are somehow disturbed or impeded. Due to different features of the digital technology, this is precisely what happens when we are reading GUI narrative fiction.

In order for our perceptual and cognitive faculties of attention to be able to discern some gestalts of the GUI as figure and relegate others to the background, the configurations of the GUI must provide some means of selection, some guidance governing our attentional resources. Carroll has shown how a filmmaker has at his disposal a range of editorial tools, all of which enhance and facilitate the process of attentional selection in the viewer (Carroll 2003c: 37ff.). By such cinematic means as close-ups, editing, indexing and bracketing, for instance, our attention is scrupulously guided to the appropriate part of the interface in order for the mechanisms of foregrounding and backgrounding to emerge and work smoothly. Such techniques are, as Carroll shows, tailored to compel viewers to attend to just what the director intends. In this way, “[t]he filmmaker preselects the relevant features of the story for emphasis, and then the bracketing, scaling and indexing reinforce that by making it perceptually difficult and sometimes impossible for the spectator to select any other alternatives.”(Carroll 2003c: 41)

Carroll's main field of comparison to moving images is stage theater, where the director of a performance has considerably fewer devices at his disposal in order to capture, shape, and guide the viewer's attention throughout the play. To a considerably larger degree, we must actively and deliberately seek out the salience of a theater play ourselves, and decide where to focus our attention at any one point in time, and the depository of potential distractions is larger (we have all probably experienced how we, in the theater, can easily let our eyes wander all across the stage, choose to follow the finer facial gestures of one particular character even if he is not necessarily central to what's going on in the play at that particular point in time, etc.). "Larger-than-life" images – and sounds – in the moving image in the movie theater help maintaining the viewer's attention to those parts of the display that are salient to the story, and hence facilitate the viewer's configuration of figure and ground.

Another way to conceptualize the figure-ground gestalt is to turn to information theory and the aforementioned ratio of redundancy and entropy. In order for any display of (perceptual and cognitive<sup>99</sup>) information – or "message" – in any sensory modality to come across and to be read efficiently and unambiguously, it must display some degree of redundancy to balance the degree of entropy.<sup>100</sup> If a "message," say, a GUI narrative fiction, does not seem to be in some way and to some degree redundant, we will employ our perceptual and cognitive faculties to somehow order it according to some hierarchy, system, or schemata, in that way rendering it readable. But this is an easier task in some

---

<sup>99</sup> Theories of cognitive psychology distinguish between perceptual (or sensory) information, and cognitive (or meaning-related) information. The first kind consists of pre-cognitive (sensory) information such as sense impressions (light, colors, sounds, texture, temperature, etc.) and is oriented towards details, whereas the second kind of information is related to (cognitively) meaningful gestalts. We initially perceive much of the sensory information, but it tends to be quickly forgotten; and once the perceptual information is forgotten, we retain information only about the meaning or interpretation. (Anderson 1995: 142ff.)

<sup>100</sup> If pursued in detail, the concept of entropy quickly becomes confusing and complex. For heuristic reasons, I shall here limit my definition of the term to imply noise, disorder, or lack of redundancy – i.e., any feature of a representational or perceptual display which runs counter to efficient reading and understanding and smooth establishment of the perceptual and cognitive dynamics of foregrounding and backgrounding. For a more detailed and comprehensive account of entropy applied to the phenomenology of reading literature, see Mangen 1997.

media and configurations of sensory modalities than in others. When reading GUI narrative fictions, attempting to draw on our perceptual and cognitive faculties in order to establish the dynamics of foregrounding and backgrounding so fundamental for our understanding, we often run into problems that are intrinsically related to the material qualities (or lack thereof) of the digital GUI. These problems stem from the logical nature of the database, and can be distinguished according to the different topics that I cover in this part:

- the *digital base* of the GUI display;
- the *allocation of attention* when reading GUI;
- the *ambiguous temporality* of the configurations displayed on the GUI;
- the aspects of *transparency and opacity* in the GUI;
- the *intangibility* of the GUI;
- the phenomenological impact of the *lack of absence-within-presence* (or phenomenological dimensions of invisibility);
- the *haptic "capture"* of the visual (and the concomitant dominance of the haptic and tactile intentionality over the signitive and pictorial intentionality)

#### **11.4. The digital logic behind the analog leveling of dimensions**

As mentioned, anything that is displayed on a GUI is by definition reduced to the same dimension. Hence, there is a highly logical explanation to the sense of the un-hierarchical, ungrounded, and flat characteristics of the GUI that Sobchack, Birkerts and others have pointed to. This logic of the digital has inevitable consequences for both the ramifications of narrative fiction in the digital computer, as well as for the phenomenology of our experience of reading GUI narrative fictions. Several theorists have attempted to grasp especially the first of these aspects, but without really coming to terms with what I consider to be the main implications of such one-dimensionality for the phenomenology of the reading experience.

In *The Language of New Media*, Lev Manovich points to the incompatibility of the logics of the database and the “logics” of narrative by referring to the well-known relation between paradigm and syntagm:<sup>101</sup>

[T]he databases of choices from which narrative is constructed (the paradigm) is implicit; while the actual narrative (the syntagm) is explicit. New media reverse this relationship. Database (the paradigm) is given material existence, while narrative (the syntagm) is dematerialized. Paradigm is privileged, syntagm is downplayed. Paradigm is real; syntagm, virtual. (Manovich 2001: 231)

The database hence presents its material as a list of items, and it refuses to order this list, in contrast to a narrative which creates a cause-and-effect trajectory of seemingly ordered items or events (i.e., a syntagmatic structure made up of the selection from the paradigm). Therefore, says Manovich, database and narrative are “natural enemies.” (Manovich 2001: 225) Similarly, Malcolm Le Grice emphasizes the *random access* feature of the digital as fundamentally incompatible with narrative:

The flexibility of the relations between data in programmable sequence offered by computers is a consequence of technology offering random access to whatever is defined as data. At its most radical, this random access is wholly non-linear. Though both the storage and retrieval processes are sequential as is the user’s inevitable access, the structure of access is not governed by the priority established in initial storage but is only subject to the chosen hierarchy of combination. At this radical level, the concept of random access, when applied to the audio/visual arena, substantially undermines the linearity of narrative sequence. (Le Grice 2001: 247)

Judging from Manovich’s and Le Grice’s statements, it may seem as if such an incompatibility is inherently tied to the emergence of the digital computer. However, at closer scrutiny, the database versus narrative (or the paradigmatic versus the syntagmatic) dichotomy is merely a reformulation of a much more general dichotomy: it can be seen as a version of psychologist Jerome Bruner’s theories of our two main modes of cognition. According to Bruner, we have two main modalities of cognitive

---

<sup>101</sup> Cf. Jakobson 1971, Saussure 1966.

functioning, each of which allows us different ways of constructing reality: the *paradigmatic* (or logico-scientific) mode, and the *narrative* mode. Bruner introduced his dichotomy of cognitive modes in *Actual Minds, Possible Worlds* (Bruner 1986), and elaborated his theory in *Acts of Meaning* a few years later (Bruner 1990). The paradigmatic mode employs categorization or conceptualization, whereas the narrative mode consists in telling stories to oneself and to others. Bruner further claims that the narrative mode long preceded the paradigmatic mode.

Even more pertinent to my study, however, is the way in which all these dichotomies are little more than reconceptualizations of earlier – indeed, in the rushed pace characterizing today’s temporal climate, *much* earlier – theories of the phenomenology of reading other sensory modalities than the GUI, such as print literature and moving images. And what it all comes down to is the fundamental dynamics of figure and ground, or redundancy and entropy.

Explaining the process of selection underlying the gestalts of figure and ground in literature, Wolfgang Iser displays yet another version of the paradigm versus syntagm dichotomy. Comparing the phenomenological gestalts of figure and ground with corresponding concepts from information theory, “innovation” (corresponding to entropy) and “redundancy,” Iser explains how “information will be innovative to the degree in which it stands out from the redundancy in which it is embedded [...]” (Iser 1978: 94) – in other words, to the degree in which it gestalts a figure out of, and against, a ground. Applied to (literary, and print) texts, Iser defines the mechanisms behind the process of foregrounding and backgrounding as follows:

The strategies [i.e., text strategies whose main task is to organize the internal network of references that prestructure the shape of the aesthetic object to be produced by the reader] carry the invariable primary code [inherent in the text] to the reader, who will then decipher it in his own way, thus producing the variable secondary code [i.e., the text as aesthetic object experienced by the reader]. The basic structure of these strategies arises out of the selective composition of the repertoire. [...] The very process of selection inevitably creates a background-foreground relationship, with the chosen elements in the foreground and its original context in the background. (Iser 1978: 93)

When this process of selection is somehow impeded, the reading process will be experienced as entropic, as in different ways and to different degrees perceptually and cognitively impeded (see Mangen 1997: 128ff.). Such impeding of the reading process by thwarting the foreground-background (or redundancy-entropy) relationship is highly characteristic of the phenomenology of reading GUI narrative fictions, and it can be related to a number of features of the GUI all having to do with the digital foundation of the sensory modalities displayed.

The inevitably non-hierarchical, “flat” display of sensory modalities and configurations on the GUI, combined with a lack of stable contexts, triggers a mode of reading which is in many respects comparable to how Iser describes the reading process of Joyce’s *Ulysses*:

[I]n the text [...] [Joyce’s documentary details] frequently form *a montage that is stripped of its context*. Sometimes these details [...] seem to lead the reader into a veritable labyrinth when he attempts to collate them. In searching for and visualizing connections, he often loses the organizing principle of those connections he thought he had discovered. And frequently it seems as though the many details are simply there for their own sake and, through sheer weight of numbers, more or less deliberately blur the outline of events in the narrative. (Iser 1974: 197-198; italics mine)

Similarly, a GUI narrative fiction will, because of its digital base and hyper-structured composition, necessarily come across as a montage that is stripped of its context. Or, perhaps more accurately, it is a montage that will be experienced as appearing within constantly changing contexts.<sup>102</sup> Hence, if we enter the reading of Michael Joyce’s

---

<sup>102</sup> This hypertext feature, with the familiar consequence of being “lost in cyberspace,” was attempted improved by the hypertext annotation program Fluid (which is in many respects a newer version of Ted Nelson’s Stretch-Text (see Nelson 1987 [1974]) developed at Xerox PARC (Zellweger, Bouvin, Mackinlay and Jehøy 2001). In 2000, Fluid was implemented for pleasure reading by Rich Gold and RED in XFR – eXperiments in the Future of Reading, a museum exhibit continuing 11 interactive reading devices ([www.onomy.com/redweb](http://www.onomy.com/redweb); cf. also Zellweger, Mangen and Newman 2002).



*Twelve Blue* (Joyce 1998) by any accidental node,<sup>103</sup> we might arrive at, for instance, the node titled “Shipwreck and lost love,” wherein we hear about someone who “had begun dating Lee, his colleague, a virologist. He tried to look at things from her viewpoint. He was a drowning man, speechless and in love too late in life.” First of all, we do not know who “he” (nor Lee) is in this node. Furthermore, the motif of drowning (and water in general) is a central one in *Twelve Blue*, but so far we have not yet encountered enough of the nodes to establish that plot thread as a potential organizing principle. After having read a few more nodes – depending on the succession of our navigation – we might be able to gradually construct a mental image revolving around water and including a drowning of a boy, and an imagined murder (by drowning) of someone called Ed Stanko. But there is a lot of stacking of information in lack of context, and details without salience, until we get that far.

Such a narrative fiction generates a *modus legendi* characterized by a perceptual and cognitive struggle to find an organizing principle, a hierarchy of importance, according to which we can order the narrative. Again, it is feasible to compare with Iser’s description of the phenomenology of reading Joyce’s *Ulysses*:

There is no discernible trace of hierarchies, for the narrative presentation is segmented, with perspectives changing from one sentence to another, so that one’s first task is often simply to find out which perspective is represented by any one particular section. [...] The reader is forced to try and identify the perspective and the referential context of each individual sentence or section, which means that he must constantly abandon the connections he had established or had hoped to establish. (Iser 1978: 102)

Corresponding to the leveling of dimensions in GUI narrative fictions, then, is a noticeable lack of redundancy on several – if not all – levels of configuration, due to the digitality on and by means of which all the modalities in a GUI are configured. Such a lack of redundancy easily leads to a sense of overload – perceptual, informational, cognitive, experiential – in which the reader strives to process and order all the

---

<sup>103</sup> Of course, the multicolored threads that are provided in the one sidebar of *Twelve Blue* are meant to provide a more serially arranged order of access to the narrative, as well as graphically indicating where the single storylines intervene and cross.

(perceptual and cognitive) information into coherent patterns and meaningful gestalts. And if such patterns and meanings cannot be established at the level of narrative and story, we are forced – or, perhaps more accurately, we inevitably force ourselves – to find and/or establish them at another level, which often turns out to be either very detailed, or very abstract.

### **11.5. Levels of meaning in GUI narrative fictions**

Talking about levels of meaning in this context makes it highly relevant to refer in more detail to the above-mentioned doctoral dissertation of Per Persson, wherein he outlines a psychological theory of film based on cognitive theory and psychological theories of discourse processing. As Persson so aptly claims, “if we want to define the notion of meaning and how meanings are constructed, we must *specify the different levels at which reception may take place.*” (Persson 2003: 24-25; italics mine) Drawing on the discourse processing models of, in particular, Walter Kintsch and Teun van Dijk, Persson establishes a “hierarchy” of cinematic meanings ranging from level 0, or what he calls pre-meaning, to level 5 meanings, which are abstract, interpretational and often include aesthetic, moral, thematic and other judgments and evaluations.

As Persson also underscores, the term “hierarchy” here does not imply any evaluative ranking of values or importance of meaning; it is meant to merely indicate a classification of qualitatively different meanings that occur at different levels in the perceptual and cognitive process. Persson’s study “aspires to describe how meaning levels arise in different spectators and to explain the complex reception mechanisms involved, but it does not try to make the case for the most ‘important’ or ‘cinematic’ level of meaning.” (Persson 2003: 41) Largely corresponding with my own intentions, then, the claims in Persson’s dissertation are psychological, not aesthetic. For my study, I can add that my claims are phenomenological and cognitive-perceptual, not hermeneutic.

In Persson’s hierarchy, level 0 meanings can be said to correspond to what I have called sensory or perceptual information, which is non-referential and devoid of semantic content. Examples of such pre-meaning information could be the identification

of effects of patterns, symmetry, colors, and shapes. Hence, they are, says Persson, not meanings in the normal sense of the word, in that they do not represent or refer beyond themselves, but they should nevertheless be considered since they inevitably produce experiential effects in the spectator (reader) (Persson 2003: 27).

Moving on to level 1 meanings, we enter the domain of representation, wherein spectators “start to extract meanings by processes of perception, which refers to the means by which experiences of objects, events, sounds, tastes, and so on, are constructed by the perceptual system.” (Persson 2003: 28) On this level we find the fundamental perceptual category of object perception and recognition. Level 1 is a meaning level which requires, and involves, more elaborate perceptual inferring and processing than on level 0, but we are still at a level below cognitive comprehension.

The next level, level 2, involves the cinematic equivalent of what in verbal discourse processing is referred to as anaphoric reference.<sup>104</sup> Here we start recognizing characters and objects across cuts and changes of scene, hence there are more sophisticated and abstract perceptual-cognitive processes underlying our understanding than on the previous levels.

Level 3 meanings are even more cognitively sophisticated, such as for instance our capacity to infer meanings from characters’ behaviors and personality, etc. These meaning levels require that we draw on complex knowledge structures in the ordinary world, and can trigger the relevant inference mechanisms pertaining to situations, characters, events, etc.

Then on level 4 we find the ability to establish and understand temporal, causal, and spatial relations between situations, events, actions, and scenes. Here, according to Persson, “we enter the twilight zone between comprehension and interpretation.” The meanings on this level can also be of more symbolical, associational, and metaphorical kinds, and are, according to Persson, often expressed in reviews and promotional material of films and books (Persson 2003: 32).

On level 5, we are unquestionably on interpretational ground, as level 5 consists of meanings such as aesthetic judgments, interpretations of the film’s (or filmmaker’s) moral, theme, messages, and the like. These meanings are often also contextual,

---

<sup>104</sup> That is, inferring from “Jack was tired” in sentence one that the pronoun “he” in sentence two, “he went early to bed,” refers back to Jack in the preceding sentence.

adhering as much to, say, the spectator's motivations, as to the actual display on the screen. Hence, as a consequence, there will be much more consensus about lower-level meanings than about higher-level meanings.

Also relevant for our reading of GUI narrative fictions is the fact that the spectator, the reader, establishes meaning and coherence "to the best of his or her knowledge," that is, focusing on those levels of meaning construction at which he or she is most competent or with which he or she feels most familiar (Persson 2003: 36). This implies that if we as readers cannot find or construct meaning and coherence on one level, we are likely to try to "reorient" our attempts to another level at which we may feel more competent. Moreover, it implies that readers can shift between levels deliberately, according to, for instance, their mood ("I don't feel like watching an intellectual movie tonight") or their motivation at the moment (as when proofreading a manuscript for a novel, instead of reading the same text for pleasure). As Persson explains, spectators use different purposes or "reading stances" vis-à-vis the text (i.e., the film) that heavily affect what level of coherence the spectator "settles for":

Special effects experts may be primarily interested in levels 1 and 2, the Friday night spectator in level 3 and 4, script writers in levels 3 and 4, reviewers in levels 4 and 5, and film history students in level 5. Spectators seem to be able to deliberately shift such "roles" during the course of a film and between film and reception situations. (Persson 2003: 36)

Finally, it also seems reasonable to say that we can cultivate our levels of understanding as it were, in that way expanding our repertoire of reading competences by challenging our cognitive faculties with attending movies (as well as texts, music, and digital configurations) that in different ways exceed our competences at any one time.

### **11.6. Coping strategies; meta- and myopic reading**

Transferring Persson's hierarchy of meanings to our reading of GUI narrative fictions yields some interesting results. When bereft of a stable context and of the redundancy

providing the necessary background for the construction of gestalts – salience – to emerge, we are left with a one-dimensional, non-hierarchical mass of modalities out of which we must ourselves attempt to establish some pattern and meaning. This often leads to one of two different “coping strategies”: we are led to either search for, or construct, an order or pattern at a very detailed level (say, level 1 or 2 in Persson’s model), or we try to do the same on a very abstract level (such as level 5).

Establishing such patterns or meanings on a very *abstract* level can easily lead to meta-reading, that is, reading different aspects of the narrative as comments and statements about the narrative itself (or about the art of hypertext [fiction] in general). For example, in *Califia* (Coverley 2000), we are invited to join the three co-narrators Augusta Summerland, Calvin Lugo and Kaye Beveridge in their search for a lost stash of gold that might be buried somewhere in the deserts around Tehachapi mountains in Southern California. In this quest, we are offered many different kinds of assistance, from Augusta’s meticulously organized archives, via Calvin Lugo’s “docudramas” and photo albums, to Kaye’s resource well of family legends, star maps, and mythologies. Placed in such a questing position, as readers we are inclined to read “instrumentally” and accumulatively, guided by the attitude of the jigsaw puzzler (to use a frequent metaphor for the hypertext reader), constantly asking whether and how any piece of information serves the overall purpose of the quest for the gold stash.

Adding to our inclinations to meta-read and interpret aspects of the work as metafiction is the fact that much of the central thematic in *Califia* is about the reading of clues and interpretation of different kinds of symbols, such as interpreting constellations of stars and correlating them to geographical and topological features. Hence, when we encounter the central motif of the blue blanket, containing crucial spatial indicators to the location of the stash of gold in the form of correspondences to star constellations or string games, it can easily be read as echoing the task of correlating the spatially distributed pieces of information in the story of *Califia* itself (see Appendix, Graphics I). Adding to a potentially metafictional reading is the occurrence of moth holes in the blanket – as if red herrings in our quest; we might read them as pointers to something as equally significant as the other holes and pointers in the blanket, but are here reminded of their mundane significance. Analogously, the reading of hypertext narrative fictions

can be experienced as puzzle-solving where the main task is to sort out the right pattern and hence be able to discern significant from insignificant nodes and clues.

Inclinations to meta-read might also stem from the verbal text itself. It is easy to read statements such as “when Grandma Flossie had related stories of the generations, they’d seemed fragments of fanciful legends, distant and imaginary, like playing make-believe on the hill [...]” (Coverley 2000: Journey South; node "Augusta 3") and “the buried treasures might be priceless or worthless, depending on your faith in the long run [...]” (ibid.) as metafictional comments on the very reading of the hypertext narrative fiction. In Calvin’s photo album, he has sorted the people depicted on the photos into three categories (Coverley 2000: node "Calvin's album") the first category is the players, who “are folks who decided to go along for the ride, dance the dance. They like low risk [...]” Category number two consists of the seekers, who are characterized as “the ones for whom there was no jumping. The long shot gamblers, the slim oddsters, the boomers, and the big dreamers.” Then finally, the last category is the keepers, “the silent bidders in the shadows – holding the secrets. Sometimes they are finders – sometimes they never lost hope.” (Ibid.) Such nodes easily read as comments on different reading strategies and types of readers of *Califia*, as well.

In Michael Joyce’s *Twelve Blue* (Joyce 1997) the inclination to meta-read stems from the combination of the typographical display of the hypertext narrative (with multicolored “threads” on the left side of the display) and the consistent and leading motifs of both patchwork, quilt etc.,<sup>105</sup> as well as the numerous nodes written as if they were comments on the story itself, such as the node entitled “Riddle”:

What links the dead man and the murderer, the drowned man and the shore, a once wife and her current lover, dream to memory, November to the new year? What links daughter to daughter, girl to boy, sky to moon, blue river to blue air? Why do we think the story so a mystery at heart? Why do we think the heart a mystery? Who shares one voice? (Joyce 1997: node "Riddle")

---

<sup>105</sup> The motives of quilt, patchwork and multiple threads are frequent in hypertext fiction. Shelley Jackson’s *Patchwork Girl* (Jackson 1995) was perhaps the first hypertext author to make this a primary motif in her hypertext. See also Deena Larsen’s *Samplers*, which is explicitly patterned after quilting (Larsen 1998).

In *Twelve Blue* we might experience other features acting as potentially distracting – or also as contributing to meta-reading: in one node we are urged to “follow me before the choices disappear [...] [,]” (Joyce 1997: node "How she knew") and in other nodes the actual link is actually invisible until you click on it (Joyce 1997: for instance the node "the antithesis of science"). This points to a feature of the GUI narrative fiction which might be positively assessed a creative trademark, or negatively experienced as a source of potential frustration and intrusion, namely the uncertainty surrounding whether something happens in the GUI narrative fiction (such as these links “disappearing” in *Twelve Blue*, or the fact that nothing happens when the cursor changes from the arrow to a pointing finger, or from the pointing finger to a candle in *Califia*, or that we do not see any impacts of our entering names in some of the maps in *Califia*) is artistically intentional, or a result of technological error. Positively assessing these instances, long-time hypertext author and theorist Stuart Moulthrop calls these examples of “the credo of hypertext: ‘that’s not a bug, that’s a feature!’” (Moulthrop 1997b) To a less positively inclined reader, however, such experiences might as well be assessed negatively, as disturbing intrusions in the reading process, or also as further invitations to meta-read.

In addition, of course, the very motif of quilting and patchwork, abundantly present in *Twelve Blue*,<sup>106</sup> is easily readable as a metaphor for the hypertext narrative fiction itself, and the reading as a patching together, a nesting together of threads (such as the twelve ones making up *Twelve Blue*) which together make the texture of the narrative.

And during a reading so dominated by our search for a pattern, connections, and some stable structure according to which we can order our accumulation of information, nodes such as these ones appear as almost irresistibly metafictional: “Sometimes it was so confusing figuring out the relationships among people anymore that she thought it might do just as well to think you were related to everyone [...],” (Joyce 1998: node "sisters") and: “Everything can be read, every surface and silence, every breath and every vacancy, every eddy and current, every body and its absence, every darkness

---

<sup>106</sup> In for instance the following nodes: “fates”, “the antithesis of water”, “riven wishes”, “blue white mouths”.

every light, each cloud and knife [...].” (Joyce 1997: node "Each Ever After") The invitations to meta-read, then, are readily apparent in GUI narrative fictions, whether they are intentional or they are the result of our reading strategy.

The other “coping strategy” when confronted with nonhierarchical and “unordered” material such as hypertext, is to establish patterns or meanings on a very *detailed* level – such as those referred to by Persson as levels 0, 1 and 2. When reading GUI narrative fictions this strategy could imply paying attention to recurring motifs, words, objects, or patterns, as if such occurrences and connections would display the mass as in some way meaningful and ordered. Such a perceptual strategy provides us with a sense of micro-compositional structure, a structure of a very different kind than what we usually find in narratives with a more evident macro-compositional structure (where the plot or storyline is typically the main structuring principle).

Writing about parametric narration (or form), David Bordwell and Kristin Thompson (Bordwell 1985b; Thompson 1988) describe parallel perceptual and cognitive phenomena in film (Thompson also describes the same cinematic strategy as “artistic motivation” of devices as opposed to compositional, realistic, and transtextual motivation (Thompson 1988)). Similarly to what is said here about leveling of dimensions, lack of hierarchy and redundancy, and a thwarting of figure and ground, parametric narration is characterized by foregrounding certain devices, such as colors, camera movements, sonic motifs, etc., at the expense of presenting a clearly outlined narrative. In other words, spatial distribution of elements from the paradigm is foregrounded at the expense of the hierarchical (temporal/linear) ordering of these elements to a syntagmatic structure, such as a narrative or storyline. Such films, says Bordwell, have the chief effect of

fragment[ing] the process of viewing into a *series of moments*. When we cannot confidently project a schema to explain all that syuzhet and style display, we are forced to *choose strategies on a very atomic level*. We can decide to follow one strand, perhaps that of the characters’ intentions, discarding all else as secondary; but then the narration chops that strand up into many short lengths, so separated by stretches of tangential material that our attention alternates between briefly focused bits and annoyingly empty passages. Moreover, the simultaneous presentation of different pieces of fabula information creates an overload that forces us



to simply let certain material pass without scrutiny. (Bordwell 1985b: 320-321; italics mine)

The preferred – perhaps even unavoidable – perceptual and cognitive strategy we are left with when reading parametric narratives in whatever sensory modality and on whatever technological platform, then, would correspond to settling for levels 1 and 2 in Persson’s hierarchy, spending much if not all our attentional resources on identifying and sorting out minutiae from a welter of information. As such, parametric narration represents an extreme tendency toward spatialization:

The temporal thrust of the process of fabula construction is checked to some extent by the accumulation of ‘paradigmatic’ materials. Throughout the narration will be scattered images and sounds which, by their similarity and their relative independence of immediate context, belong to the same paradigmatic set. (Bordwell 1985b: 316-317)

Hence, parametric form displays the same logic and strategies of composition that Manovich and others have associated with the database (the foregrounding of the paradigm), as opposed to narrative (or syntagmatic) composition strategies.<sup>107</sup> Displayed as moving images, our reading experience of such a spatialized mode of narration, claims Bordwell, often turns out to be tiring (and/or boring) and characterized by both perceptual and cognitive overload. Overwhelmed with sensory and informational details seemingly in lack of clearly discernible structures of ordering (i.e., redundancy; background), we are immediately led astray, left in the maze and vigilantly scanning the screen for some point of salience from which to build some kind of pattern, order, system of meaning and coherence.

---

<sup>107</sup> Manovich mentions the films of Peter Greenaway and Diego Vertov as illustrating examples of what he calls “database cinema.” Characterizing Greenaway’s films as “minimal narratives around a database”, Manovich describes how they “progress by recounting a list of items, a catalog without any inherent order. Working to undermine a linear narrative, Greenaway uses different systems to order his films [such as numbers, geometrical figures, the letters in the alphabet, etc.]” (Manovich 2001: 237ff.) (Greenaway’s personal “crusade” against narrative filmmaking, of course, is legendary – cf. for instance Pascoe 1997, Woods 1997.)

Although rarely if ever mentioned among literary theorists,<sup>108</sup> such compositional strategies were described already in 1927 by E. M. Forster, in his classic *Aspects of the Novel* (Forster 1927). Forster is undoubtedly much more known for his definition of story versus plot in the same book, but here I wish to draw attention to what he says about “Pattern and Rhythm,” which can be related to both Persson’s classifications of meanings, and to Bordwell’s and Thompson’s theories of parametric form. This, in turn, makes Forster’s theories relevant for our reading of GUI narrative fictions as well – a quite remarkable fact, considering that they were written eighty years ago.

In order to characterize the strategies of literary composition based on spatial or periodical principles rather than on the linearity and causality of the narrative, Forster uses Proust’s *À la Recherche du Temps Perdu* as an example, and describes it as “chaotic, ill constructed, it has and will have no external shape; and yet it hangs together because it is *stitched internally*, because it contains rhythms.” (Forster 1927: 151; italics mine) Such internal stitchings can be recurring objects, items, words, etc. – repeated throughout the text, hence making the reading experience akin to “variations of a theme.” In Rob Swigart’s GUI narrative fiction *Down Time* (Swigart 2000), there are several candidates for such internal stitchings: the object of a *knife* is repeated within different contexts throughout the narrative, sometimes with only small changes (such as cutting cucumbers in one context, and cutting eggplant in another); a *morocco-bound notebook* is another; and unusual words such as *albumin*. During the reading of this GUI narrative fiction, it is almost unavoidable to pay attention to the numerous occurrences of knives, especially when they are accompanied by entropic (that is, semantically salient) properties such as having a walnut blade, or to the screen occurrences of statistically improbable (and hence entropic) words such as morocco-bound, and albumin (a protein often mentioned in association with a character studying to be a medical technician).

---

<sup>108</sup> The doctoral dissertation of Rolf Gaasland is an exception here. Writing extensively about principles of coherence in narrative fiction, Gaasland employs the theories of Forster on rhythm and pattern and relates them to a larger history of spatial versus temporal compositional strategies in literature (see Gaasland 1994).

In contrast to what is usually the case with less entropic narratives, in GUI narrative fictions we often lack what Peter Rabinowitz has identified as different kinds of “rules” in the narrative, signaling to us where to focus attention:

Despite repeated claims by critics that everything counts in literature, we know from experience that there are always more details in a text – particularly a novel – than we can ever hope to keep track of, much less account for. We have learned to tame this multiplicity with a number of implicit rules, shared by readers and writers alike, that give priority to certain kinds of details, and that thus help us sort out figure from ground by making a hierarchy of importance. (Rabinowitz 1987: 43-44)

One of these rules, the rule of notice, tells us that “some details are more skimmable than others [...]” (Rabinowitz 1987: 44) In GUI narrative fictions, however, due to the aforementioned blurring of figure and ground, we have no such “rules of notice” to fall back on in our efforts to establish a hierarchy of information. Therefore, recurring occurrences of semantically salient features such as the unfamiliar words in *Down Time*, when occurring in an otherwise unstructured and non-hierarchical text, they seem to provide some kind and degree of coherence and order. The problem for the reader is that such coherence is established on a micro-level. Thus, Forster’s strategy of internal stitching is strongly reminiscent of Bordwell’s and Thompson’s parametric narration, as exemplified by the films of Jean-Luc Godard:

Godard’s films exhibit a *continual foregrounding*, constant deviations from any intrinsic narrational norm [...]. Throughout the narration will be scattered images and sounds which, by their similarity and their relative independence of immediate context, belong to the same paradigmatic set. Members of each set are distributed across the film [...]. (Bordwell 1985b: 316-317)

When faced with such blurring of the figure-ground dynamics by continual foregrounding, we are, as Bordwell points out, forced to choose reading strategies at a very atomic level, such as those identified by Persson as levels 1 and 2 (perhaps even the pre-meaning level), where our focus of attention is oriented towards recognition of details, objects, recurring words, and other perceptual and cognitive minutiae repeatedly

occurring and hence offering themselves as highly needed beacons according to which we can structure the mass of sensory and cognitive information.

The implications of such continuous foregrounding and lack of redundancy is a phenomenology of reading which can be described as myopic – we “don’t see the forest for the trees,” we are left myopically fumbling about looking for potential connections and patterns instead of being guided through a fictional landscape carefully balanced by a reader-friendly entropy – redundancy ratio. Unlike the filmmaker’s zooming and scaling, and the stable and rigid framework and the permanence of print text according to which the author of print narrative fiction can lay out his carefully structured plot, the author of GUI narrative fictions is at the mercy of the (contextual and material) instability, one-dimensionality and the logics of the paradigm characterizing the GUI. And, concomitantly, the reader of a GUI narrative fiction is committed to spending her attentional resources myopically selecting and sorting out potential figures among the continuously foregrounding of spatially distributed elements which are one-dimensionally and de-contextually displayed. Moreover, the fact that we have to find – or construct – the means and systems of selection ourselves is an additional tax on our attentional resources. Psychologist Warren Thorngate has outlined an “economy of attentional investment,” in which the principle of Exploratory Attentional Expenses states that “whenever we search for and choose attentional investments, the acts of searching and choosing themselves require attentional investments.” (Thorngate 1988: 251) In other words, the mere search for salient features – figures – in the GUI and the following selection of navigational strategies are both perceptual and cognitive activities that are heavily taxing our pool of attentional resources, hence leaving less cognitive and perceptual assets for the reading experience itself.

As Thompson argues, such searching and scanning is often exactly the kind of perception that parametric form seeks to foster (Thompson 1988: 252). It is difficult to say whether such scanning is what authors of GUI narrative fiction seek to generate.<sup>109</sup> Nevertheless, such scanning mode is often an unavoidable *modus legendi* and

---

<sup>109</sup> Although I know that it is not the reading mode that Marjorie Luesebrink, a.k.a. M. D. Coverley, sought to provide her readers when creating *Califa* and *The Book of Going Forth By Day* (personal communication, November 2001); nor has it been Rob Swigart’s aim in his GUI narrative fictions *Down Time* and *About Time* (personal communication, January 2003).

attentional strategy when reading GUI narrative fictions. What is more, such attentional strategy is highly vulnerable to distractions and to being pulled out of whatever degree of immersive state of reading the reader has obtained.

## CHAPTER 12: ATTENTIONAL ALLOCATION

### 12.1. Introductory

Bearing in mind the diversity of existing and potential approaches to the object of study – here is what I hope is an uncontroversial premise: that digital GUI fictions are, at the very least, concerned with *attention*.<sup>110</sup> In order for us to be able to access and experience these fictions at all, we have to at least pay attention to them. And the way we pay attention to – or, in my parlance, *read* – these fictions is in a number of ways fundamentally different from the way we pay attention to fictions displayed on other material platforms by means of other technologies than the digital.

Perhaps it is true, as William James claims in his classic, *Principles of Psychology* (1890), that “[e]veryone knows what attention is.” (James 1890: 403) Nonetheless, for the purposes of the following theorizing, the notion of attention would merit from some further clarification, for which James himself provides an excellent starting point:

[Attention] is the taking possession of the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought. Focalization, concentration, of consciousness are of its essence. It implies withdrawal from some things in order to deal effectively with others, and is a condition which has a real opposite in the

---

<sup>110</sup> I am here paraphrasing Carroll’s corresponding hope for film theorizing (Carroll 2003c: 27).

confused, dazed, scatter-brained state which in French is called *distraction*, or *Zerstreuung* in German. (James 1890: 403-404)

As the metaphorical expression “to pay attention” so clearly demonstrates, attention is a matter of allocating – that is, spending or distributing – resources; more precisely, it can be seen as an indicator of our use and distribution of perceptual-cognitive resources. There is, on a moment-to-moment basis, always something (whether from external sources in our surrounding lifeworld, or from internal sources – our consciousness) capturing and holding our attention. And as attention is a matter of resource spending, it is also important to underscore the fact that the pool of resources – our “channel capacity” or attentional reservoir – is, and will always remain, a non-renewable and limited asset (despite the number of promising and less promising attempts at expanding it).<sup>111</sup>

## **12.2. Hierarchy of attention; endogenous (controlled) and exogenous (uncontrolled) attention**

Another feature of perception in general is essential in the context of GUI narrative fiction reading, namely, that all kinds of perception involve some kind of *system of simplification*. This implies that there is some *hierarchy of attention* pertaining to our

---

<sup>111</sup> Psychologist William Thorngate vividly demonstrates this fundamental fact of human life: “Alas, there is no evidence that the rate at which a member of our species can spend attentional resources has increased to any significant degree in the past 10,000 years. As a result, competition for our limited attention has grown in direct proportion to the amount of information available. [...] Someone who lives 75 years will be blessed (or cursed) with about 657,000 hours of temporal assets.” (Thorngate 1988: 248-249) Moreover, taking into consideration the fact that we spend, on average, about 10,000 days of our lifetime sleeping, about 1,200 eating, and about 240 eliminating bodily fluids (Thorngate 1997: 296), it becomes painfully self-evident how the remaining pool of temporal assets is as limited and non-renewable as it has ever been, even though today’s plethora of technological devices and gadgets of all kinds try to give us another impression, by excelling in providing plenty of occasions for perceptual and cognitive multitasking and hence seemingly – but in fact contrarily to what is actually the case – helping us increase our attentional capacity (see for instance Manhart 2004).

perception, whether such a hierarchy is a result of innate and hard-wired psychobiological faculties, or it is consciously controlled and deliberately performed. Psychologists commonly discriminate between, on the one hand, modes of attention which are somehow related to and dependent on our conscious and deliberate intentions and plans, and, on the other hand, attentional processes which are entirely independent of our willed intentions. The latter type is called automatic (or exogenous) attentional processes; they are stimulus-driven, involuntary, and operate in a so-called “bottom-up” manner, implying that they cannot be deliberately controlled by consciousness. The attentional mechanism called “attentional capture” (or orienting response - see Singer 1980) is a typical example of such an automatic attentional process: “Situations are typically labeled as capture when a stimulus automatically demands attention or provokes an inevitable perceptual response. As such, capture phenomena reveal basic structural properties of attention and perception.” (Gerrig 1993: 174) Such processes are, in other words, “cognitively impenetrable,” that is to say, they operate independently of – and, sometimes, in spite of – our conscious and controlled cognitive mechanisms; such as the fact that we (normally) can’t help but turn our heads in the direction of the loud noise, even though we are in the middle of reading something interesting, or the fact that abrupt movement in our field of vision tends to automatically capture our attention:

Movement perception is so essential to our being that, like color, it is registered immediately and automatically by the perceptual system [...]. In order to survive we have learned to pay attention to change and to potentially fear it as we make sense of the situation. We attend to everything that disturbs the non-change in the environment and to those characteristics that present themselves favorably for our use or unfavorably for our survival. (Barry 1997: 85-86)

The phenomenon of attentional capture, then, is hence a telling example of a psychobiological disposition that is built into our neurological hardware for purposes of survival.<sup>112</sup> As such automatic processes bypass higher-order cognitive processing,

---

<sup>112</sup> “Loud bangs and bright flashes are hard to ignore, especially when unexpected. For good reason, we immediately adjust our posture toward new stimuli. This orientation, or ‘what-is-it?’ reaction, first described by Pavlov (1927), prepares people to deal with novelty by making them more sensitive to

Carroll claims that they are “evidence” that there can be no question of codes or conventions explaining how we intuitively “understand” and can follow a moving image on the most elementary perceptual and cognitive levels. (Cf. Carroll 2003c: 31ff.)

On the other hand, there are the processes that we can and do actively and consciously control. These are the endogenous (controlled; deliberate) processes of attention, working in a top-down manner (implying that we employ cognitive and perceptual schemas and scripts – that is, different mental models – in order to process and interpret sensory and perceptual input). In his *Principles of Psychology* (1890), William James calls the automatic attentional processes “passive attention”, whereas the controlled processes are what he calls “active attention” – a choice of terms that seemed and still seems quite unproblematic for psychologists, but not quite so unproblematic for media theorists. This is being demonstrated by the frequently recurring debates over what kinds of media “reception” (reading, experience, engagement) are more or less active than others, debates which have been reinvigorated by the emergence of computer games and other products of entertainment provided by digital technology. Suffice it to say that these debates are, as are so many other debates in the field of new media, rendered rather unproductive due to flawed and inconsistent handling of critical concepts and terms, such as precisely “activity” and “passivity”. As Csikszentmihalyi and Kubey so aptly point to, in such debates, “[a]ctivity-passivity conceptualizations range from viewers being deemed active because they choose what they view and interpret what they view, to how much attention people pay to the screen when viewing or the audience’s state of consciousness vis-à-vis economics and politics.” (Kubey and Csikszentmihalyi 1990: 36)

As is the case with a concept such as ‘meaning,’ in order to be able to fruitfully discuss whether the experience of watching TV – or playing a computer game – is more active or passive than the experience of reading, one must first establish a precise and consensual understanding of what *kind and level of activity* one is talking about. Claiming that playing a computer game is a more active process than reading a book frankly does not tell us much, unless the concept of “active” is accompanied by further

---

incoming stimuli and helping to mobilize the body for action, if necessary. In the most basic sense, these orientations serve as a guide to attention, alertness, and vigilance.” (Reeves, Thorson and Schleuder 1986: 264)



elaboration. It should be obvious, but judging from continuing media debates, it is not: “[D]ifferent media require *different forms and levels of interaction* from the readers [...]” (Kubey and Csikszentmihalyi 1990: 99; italics mine) If media theorists, and perhaps new media theorists in particular (since much of the temperature in the active versus passive debates stems from whether playing a computer game is more or less active – and, by implication, more or less “valuable” – than reading a book) committed themselves to a considerably higher level of terminological and conceptual precision, we could be spared wasting energy on unproductive discussions merely serving to maintain the above-mentioned unfortunate schism between media theorists oriented towards psychological and pedagogical perspectives, and theorists in popular culture and cultural studies.<sup>113</sup>

Instead of employing the terms active or passive, then, I prefer to talk about automatic, or exogenous (that is, “controlled from the outside,” by external stimuli), and controlled, or endogenous (“controlled from the inside” – by our consciousness), attentional modes. Both exogenous and endogenous attentional modes are in action when we are reading GUI narrative fictions, and they impact and shape the reading process and experience in different ways.

### **12.3. Psychic entropy and negentropy**

In our everyday lifeworld experiences, it appears quite obvious to us that we can, in certain situations and to different extents, control our attention, whereas in other situations our attention is more or less completely at the mercy of whatever stimuli come our way. This is a psycho-biological condition that makes us quite vulnerable to *disorder in consciousness* – what Csikszentmihalyi has termed “psychic entropy”:

---

<sup>113</sup> It seems both camps could benefit from taking note of the following reminder about television, a note which is undoubtedly applicable to digital media: “The single most important contribution of the psychological literature may be to remind us that television viewing can never be one or the other [i.e., active or passive]. Television as a psychological stimulus is too complex, it is the viewer in too many different situations, for too many different reasons, in combination with too many other activities to ever represent a stimulus located precisely in one category and never in the other.” (Ibid.: 273)

“[w]henver information disrupts consciousness by threatening its goals we have a condition of inner disorder, of psychic entropy, a disorganization of the self that impairs its effectiveness.” (Csikszentmihalyi 1990: 37) The opposite of such psychic entropy is Csikszentmihalyi’s more familiar concept of *flow*, or optimal experience, occurring when “the information that keeps coming into awareness is congruent with one’s goals [...],” (Csikszentmihalyi 1990: 39) hence producing order – negentropy – in consciousness.

Csikszentmihalyi’s psychological theory of flow is sometimes referred to in studies of computer games, where it is applied to show how several – if not all – of the eight major components of “the phenomenology of enjoyment,”<sup>114</sup> i.e., flow, can be found in the experience of game-play (cf. for instance Juul 2004; Mortensen 2003). For my purposes, however, there is another aspect of Csikszentmihalyi’s work – and his and Kubey’s collaborative study *Television and the Quality of Life* (1990) – that is particularly interesting and relevant, and this is his (their) illustration of the difference between controlling – or maintaining order in – consciousness from without compared to from within, in that way keeping psychic entropy at bay. The fact that our attention in this way can be both exogenously or endogenously controlled entails in turn that some degree of order in consciousness – psychic negentropy – can be obtained and maintained either by means of outside stimuli, or by means of inside, conscious efforts (or some combination of the two). Furthermore, as several studies in both cognitive film theory and psychology have shown (Barry 1997; Csikszentmihalyi 1990; Kubey and Csikszentmihalyi 1990; Singer 1980; Thorngate 1988, 1997), it is much easier to obtain and maintain at least some minimal order in consciousness by means of outside stimuli. Controlling attention from the inside occurs when we invest psychic energy to perform some challenging task, such as reading a complex message. Conversely, attention is typically controlled from outside by such activities as watching television or some other

---

<sup>114</sup> These include that we confront tasks we have a fair chance of completing; that we are able to concentrate on the task; that concentration is possible and usually effortless because the task has clear goals and provides immediate feedback; that we perform the task with deep but effortless involvement that removes from awareness the worries and frustrations of everyday life; that we are able to exercise a sense of control over our actions; that concern for the self disappears; and that the sense of duration is altered. (Csikszentmihalyi 1990: 49ff.)

moving stimuli which can keep the mind somewhat busy for a period of time. We often resort to such outside stimuli because, as Csikszentmihalyi claims, the normal state of our consciousness is some degree of psychic entropy – i.e., chaos or disorder. This regrettable tendency of the human mind becomes evident for most of us when we are left to ourselves for even a short period of time: “[W]hen we are left alone, with no demands on attention, the basic disorder of the mind reveals itself. With nothing to do, it begins to follow random patterns, usually stopping to consider something painful or disturbing.” (Csikszentmihalyi 1990: 119) This explains why many people have serious problems coping with idle time, and the fact that so many of us are prone to turning on the radio, television, or computer, when “we have nothing else to do.” Perhaps more seriously, it explains the common results of psychological experiments with sensory deprivation, whose clear indication is “that all of us require some kind of input from the outside world to keep ourselves alert, reasonably content, and free from either the hyper-restlessness occasioned by boredom or from extreme apathy.” (Singer 1980: 32)<sup>115</sup>

What does all of this have to do with the experience of reading GUI narrative fictions? The main connection is, literally speaking, the hyper-link.

---

<sup>115</sup> Although in our current cultural climate such a statement undoubtedly runs the risk of being dismissed on grounds of academic (anti-)elitism, I do concur with Kubey and Csikszentmihalyi who claim that it seems quite certain that many people turn to television in order to avoid negative experiences during idle, uncommitted time, because “television offers a readily opportunity to occupy the mind when nothing else is available [...]” (Kubey and Csikszentmihalyi 1990: 164) I would even venture to claim that this hypothesis can be applied to the computer, and that there have been several studies lately indicating such a correlation. There have been several studies in the recent past indicating a certain dependence on internet, e-mail and the sense of connectedness that the computer so readily provides (cf. for instance Chou 2001, Chou, Condon and Belland 2005, Griffiths 2000, Larose, Lin and Eastin 2003, Song, Larose, Eastin and Lin 2004). Although it may be an unpleasant thought for many people (and media theorists!), I agree with Kubey and Csikszentmihalyi that “heavy viewing, and the rapid montage of much contemporary television, may also help reinforce an intolerance in the heavy viewer for daily moments that are not similarly choked full of sight and sound. In other words, we cannot rule out that spending tens of thousands of hours watching television might not reduce a person’s ability to give shape to free time. [...] Some television viewers grow dependent on the ordered stimuli of television or similar entertainments and become increasingly incapable of *filling leisure time without external aids.*” (Kubey and Csikszentmihalyi 1990: 164; italics mine)

#### 12.4. Attentional switching

For some reason, then, keeping order in the mind from within seems to be very difficult for most of us.<sup>116</sup> In contrast, it is relatively easy to pay/allocate attention when attention is structured by outside stimuli, such as anything moving in our surroundings, a loud sound, or any of the other examples of cognitively impenetrable events mentioned above.<sup>117</sup> The television screen is also an efficient and convenient source of attentional structure, which is one explanation of its massive popularity as a leisure activity. It demands little attentional effort, but provides instant structuring of the attention. To avoid the unpleasant condition of psychic entropy, then, we are naturally eager to fill our minds – kindle our attention – with whatever information readily available, such as the constantly shifting display of the television screen, or the latently shifting display of the GUI.

I do not claim that the main reason why we are so eager to click on the links in a GUI narrative fiction, or to thrash around in the landscape of *Riven* feverishly clicking on anything that might look like a hot spot, is merely – or even mainly – a result of our urge to keep psychic entropy at bay. However, I maintain that there is an obvious link between Csikszentmihalyi's and Kubey's psychological theories of the appeal of television, and the fact that we tend to be inclined to scan the screen for spots that yield to the click, or click on any invitation to do so even when we are trying to concentrate on reading. This connecting link – between our urge to avoid the state of psychic entropy, and our inclination to scan the GUI and the concurrent urge to click – can be established by reference to what William Thorngate, in his economy of attention, has termed “the principle of Diminishing Attentional Returns,” (Thorngate 1988) which states that

---

<sup>116</sup> Albeit some people are more capable of internally maintaining order in consciousness than others – different forms of meditation are perhaps the most obvious examples of such “cultivation” of one's mental capacity to maintain psychic negentropy.

<sup>117</sup> “We need external goals, external stimulation, external feedback to keep attention distracted.” (Csikszentmihalyi 1990: 168)

even though we may invest attention singularly, we will not invest attention exclusively. Instead, we will develop the attentional equivalent of a mixed portfolio. The diminution of attentional returns is usually experienced as habituation or boredom, and appears to regulate our susceptibility to new information and to interruptions. (Thorngate 1988: 250)

In other words, and applied to the reading of GUI narrative fictions, when the stimuli on the current screen do not contribute sufficiently to holding our attention, we tend to seek some sources to “renew” it. If no such sources are available, we will, after a while, lose interest and concentration, and our attention will switch to new stimuli (as Thorngate claims, we become susceptible to new information and to interruptions).<sup>118</sup> This phenomenon has been known in psychology for a long time; already William James and Hermann von Helmholtz expressed it in their early psychological theories of attention. Helmholtz states that

an equilibrium of the attention, persistent for any length of time, is under no circumstances attainable. The natural tendency of attention when left to itself is to wander to ever new things; and so soon as the interest of its object is over, so soon as nothing new is to be noticed there, it passes, in spite of our will, to something else. If we wish to keep it upon one and the same object, we must seek constantly to find something new about the latter, especially if powerful impressions are attracting us away. (Quoted from Carroll 2003c: 29)

James echoes Helmholtz in stating that “no one can possibly attend continuously to an object that does not change [...]; the *conditio sine qua non* of sustained attention to a given topic of thought is that we should roll it over and over incessantly and consider

---

<sup>118</sup> In fact, such attentional switching can, like so many other phenomena of our attentional behavior, be explained psycho-biologically. In earlier times we were – like any animal – committed to two basic activities in order to survive: find meals, and avoid becoming meals ourselves. Exclusively concentrating on only one of those activities could easily result in our death either by predation or starvation. Cf. also Carroll 2003c: “[W]e are naturally disposed to shift our attention to other sectors of the environment, unless some change, such as movement, keeps us focused on the object of our present situation.” (Carroll 2003c: 29)

different aspects and relations of it in turn.” (Quoted from Carroll 2003c: 29) As Carroll convincingly demonstrates, both television and moving images have several means at their disposal for rejuvenating our attention to the screen by simply introducing visual change of different kinds and on different levels (Carroll 2003c: 30ff.). And if the images and sounds on the TV screen do not themselves provide these means of rekindling our attention, we have another device handy to keep our minds structured by outside stimuli: the remote control. As we all have experienced, we can easily become bored and lose concentration even in the presence of the constant and massive visual stimulation that the television screen offers. One option we often resort to when such attentional entropy occurs is the well-known activity of channel-surfing. According to Carroll, what we do when we (often quite apathetically) switch from channel to channel, is *auto-stimulate our own attentional response*:

[we do] what filmmakers and video makers do to us by punctuating their spectacles with a plethora of cinematic events. Channel surfing is a form of home-made editing that reveals how entrancing the editing on the screen can be from momentarily suppressing boredom by revivifying attention. (Carroll 2003c: 32)

The parallel device when reading GUI narrative fictions is, of course, the mouse and clicking on links. A click with the mouse immediately changes the visual input so that our attentional focus is maintained for a few more seconds or minutes. Thus, our “urge to click” and the consequent “impatient” mode of reading can be at least partly explained by reference to psycho-biologically hardwired dispositions of ours. These hardwired dispositions also help explain why the computer, as a technological platform, is ill suited for the contemplative and deeply focused reading we associate with the book. When reading a book, the text in the book as a static and fixed perceptual phenomenon does not provide us with options for attentional switching and for auto-stimulating our attentional response. What we resort to when getting bored by reading a book is usually abandoning the activity altogether, precisely because the activity (reading fixed text) and the technologies involved do not themselves provide any alternative (external) stimulation. As a psycho-biological “rule,” then, when we do have options to “rekindle” our attention easily by outside stimuli, we are – psycho-

biologically as well as phenomenologically – inclined to resort to them, rather than to consciously invest efforts in attempting to resist such distractions by attempting to structure consciousness from within (which is more effortful).

### **12.5. Depth of attention**

When comparing the reading of GUI narratives with the reading of print narratives of the “page-turner” kind, one might easily be tempted to agree with Kaha Waite in her observation:

Reading [print books] allows for a kind of sensory retreat. The eye scans the smooth page in silence, the inner voice translating phonemes into meaningful units. Books encourage a type of reflection that may, in fact, be peculiar to that activity. [...] The screen challenges the agenda of the book. The eye is no longer privileged. [...] Awash with image, sound, and motion, the viewer is absorbed in a kinesthetic process that links sight and sound. (Waite 2003: 154-155)

Evocative as it is, Kaha Waite’s observation does not tell us anything about the reasons *why* the GUI should not be able to provide the same sensory retreat as the print book, and hence the ideal setting for the deep and sustained allocation of attention we commonly associate with immersive reading. Being a purely phenomenological approach, Waite’s study points out and evokes several interesting and relevant issues, but she rarely explains neither the mechanisms causing the peculiar phenomenological experience of the screen, nor what is actually entailed in the processes of reading electronic text compared to print text. Such questions have as much to do with cognitive and perceptual aspects of our faculties of attentional resources as they have to do with phenomenology of perception.

Attention may vary not only according to whether it is controlled internally by means of our conscious efforts (endogenous) or automatic and controlled by outside stimuli (exogenous). Our everyday experiences of fluctuating between instants of momentary and shallow attention even within apparently stable perceptual and cognitive situations (such as when, during a boring lecture, we occasionally find ourselves

scribbling or drawing in our notebooks, or letting our eyes wander across the auditorium, while momentarily picking up words and sentences from the lecture in the background), and moments of deep and almost trance-like focus of attention even in the midst of a welter of perceptual stimuli impinging upon us with visual and auditive force (such as when sitting on a bench in a crowded city park surrounded by heavy traffic, we are nevertheless able to be fully immersed in our book), show us that attention may also oscillate between shallow, unfocused and momentary bursts of attention, and deep, focused, and sustained modes. Hence, we can talk about attention as varying according to depth, or intensity, as well as to duration and continuity (see for instance Gorayska and Marsh 1996; Levy 1997, 2001).

As Victor Nell, among others, has shown, the depth of attention required and generated by (some genres of) written material, for instance different literary genres, has to do with the cognitive demands made upon us by the written material in question. Experiments in cognitive psychology<sup>119</sup> have shown that typically redundant texts (and, I will claim, redundant narrative fictions in general, in whatever sensory modality and medium), where the dynamic of foregrounding and backgrounding is smooth and even to a large extent predictable, fill cognitive capacity more – that is, places a heavier demand on our attentional resources – than more perceptually and cognitively demanding narratives, where redundancy is lower and entropy is correspondingly higher (such as the above-mentioned GUI narratives). Contrarily to what we might be inclined to believe, then, the more cognitively effortful the task (such as reading a complex GUI narrative fiction), the less we are able to resist distractions and the more capacity we have available for other tasks (see Nell 1988: 74ff.). Nell exemplifies with comparing a typically redundant narrative with a typically entropic one:

The simpler passages [of a Wilbur Smith novel] fill cognitive capacity more completely than the difficult ones. Indeed, the richness of the

---

<sup>119</sup> Cf. for instance Reeves, Thorson and Schleuder 1986: “People read difficult passages more slowly than easy ones and remember less about them. Nevertheless, responses to a periodic click (the secondary task) were more rapid in the difficult text section. [...] [Hence,] easy reading ‘fills cognitive capacity’ to a greater extent than does difficult reading and slows RT [e.g., response time] to the click.” (Reeves, Thorson and Schleuder 1986: 159-160)



structure the ludic reader creates in his head may be inversely proportional to the literary power and originality of the reading matter [...], and vice versa. The processing demands made by James Joyce may require frequent pauses and regressions, whereas the even pace of Wilbur Smith, and the well-practiced ease with which the reader can imagine his stereotyped characters and settings, may impose a heavier continuous load on attention. (Nell 1988: 77)

As we have seen, the same applies to moving images; the “simple,” formulaic, redundant Hollywood-type narratives leave less room for attention to wander and be distracted by outside stimuli, whereas parametric films run the risk of either boring or perceptually and/or cognitively overloading the spectator, who in both cases will be prone to losing focus and concentration. Sharing many of the attributes of parametric films, GUI narrative fictions often thrust the reader into similar experiential modes. Hence, the relation between features of the GUI – such as interactivity, digitality, and hyperstructure – and phenomenologically immersive reading seem to be a problematic one; despite numerous attempts to create GUI narrative fictions providing the setting for the focused, deep and sustained allocation of attention that characterizes immersive – ludic – reading, results so far have been meager. The overwhelming popularity of computer games, of course, is evidence to the contrary. However, as I will return to in greater length below, this can be partly ascribed to the differences in *kinds of immersion* provided by computer games, and also intended and deliberately sought by players, as opposed to the kind of immersion intended and sought by readers of narrative fiction. These differences in kinds of immersion can further be related to the different phenomenological relations we have to the technology in question in computer games and GUI narrative fictions, respectively.

Precisely the relation between phenomenological immersion and interactivity in hypertext and hypermedia fictions has been extensively commented upon in the hypertext community, often resulting in a conclusion about their incompatibility:

[T]oo much participation, too many gadgets to collect and assignments to keep and bad guys to sock, detracts from the immersiveness of digital environments [...]. Constant demands for input or inputs that are frustrated – for example, thrashing around *Myst's* landscape, clicking wildly and randomly in the fervent hope the shape of their cursors will change and permit them to move forward in the narrative – can remind

readers that they are grappling with a narrative designed by others, disrupting their suspension of disbelief in the same way that difficult texts do: requiring frequent pauses, reflection, even regressing over pages already read. (Douglas 2000a: 48)

Similarly reflecting on the seeming incompatibility of immersive reading and interactivity, Marie-Laure Ryan throws light on another aspect of the GUI which might be an obstacle for immersive reading in a digital environment such as the GUI narrative fiction (Ryan 2001a: 283ff.). Calling the frequently stated claim about hypertext turning the reader into a writer “a vast hyperbole [...],” (Ryan 2001a: 284) Ryan shows how it nevertheless may serve as a clue as to why interactivity conflicts with phenomenological immersion. The fact that the reader of GUI narrative fictions through the interactive options exercises some kind of authority over the course of events implies that the fictionality of the fictional universe – the textuality of the text – makes itself readily apparent for, indeed imposes itself upon, the reader. Hence, immersion in a fictional universe is replaced by metafictional reading, and the metafictional stance is by definition incompatible with phenomenological immersion:

The cost of the metafictional stance is an ontological alienation of the reader from the fictional world. [...] By overtly recognizing the constructed, imaginary nature of the textual world, metafiction blocks recentring and reclaims our native reality as ontological center. Literary texts can thus be either self-reflexive or immersive, or they can alter between these two stances through a game of in and out [...], but they cannot offer both experiences at the same time because language behaves like holographic pictures: you cannot see the signs and the world at the same time. Readers and spectators must focus beyond the signs to witness the emergence of a three-dimensional lifelike reality. (Ryan 2001a: 284)

Douglas’ and Ryan’s observations are both accurate and relevant; however, in my view they fail to pin down the main reasons *why* we so often fall prey to either myopic reading, or to the temptation of thrashing around on the screen in search for spots that yield, or why we resort to a metafictional stance when reading interactive fiction – reasons which are related to, but go beyond, the obvious parallels between GUI narrative fictions and parametric, or topographic, narratives in either film or print

literature. These reasons, I claim, have to do with the combination of the *latent dynamics* of the GUI, its *intangibility*, and its *interactivity*, a complex multisensory combination which in turn has phenomenological implications for our intentional relations – our intendings – to whatever is displayed. The next section will focus on the first of these aspects, namely the peculiar temporality of the GUI – what can be called its *latent dynamics*.

## CHAPTER 13: THE TROUBLESOME TEMPORALITY OF THE GUI

### 13.1. Introductory

Writing on the aspects of spatiality and temporality characterizing the audiovisual modality of moving images, Currie states:

There is a sense in which film is both a spatial and a temporal medium. Film represents space by means of space and time by means of time. It is spatial (temporal) properties of the cinematic representation that we observe and rely on in order to figure out what spatial (temporal) properties of the fictional characters and events are portrayed. (Currie 1996: 330)

For heuristic purposes, let us disregard the fact that Currie's statements are in different ways rendered problematic and partly inadequate with the emergence of computer imaging technologies; his philosophy of temporality in film nonetheless highlights some aspects of temporality and spatiality in different sensory modalities which are re-actualized and indeed problematized with the GUI. The problems with the formerly clear-cut definition of spatiality and temporality stem from the peculiar phenomenology of both the dimension of spatiality, but perhaps even more importantly, the dimension of temporality, of the configurations once they are displayed on the computer screen. Kaha Waite attempts to describe this peculiar phenomenological gestalt that is created by the electronic screen: "The screen contributes to the creation of a syntax based on movement in space: a space that is visual, kinesthetic, and acoustic [...]." (Waite 2003: 66) From this she concludes that "[w]hat is needed is a level of analysis that captures the logic of movement and duration." (Waite 2003: 66) I here ignore Waite's use of the term kinesthesia, which she understands differently than I do. More relevant to the present context, however, is her call for an analysis that captures *the logic of movement*

*and duration*. Precisely this logic is rendered quite illogical with the GUI – or, perhaps more to the point, the configuration of the GUI confounds our experience of both spatiality and possibly even more so, temporality, to such an extent that our phenomenological, perceptual and cognitive experience of temporality as such is confused. Fundamental cognitive and phenomenological aspects of the dimension of temporality are being challenged and confused with the GUI; hence, an understanding of our reading experience of such configurations will benefit greatly from new and deeper investigations into the dimension of temporality, from both a cognitive and a phenomenological perspective.

### **13.2. The psychic framework of the GUI unsettling the dimension of temporality**

Formerly quite settled and clearly defined sensory modalities – such as verbal text, still images (photographs, paintings, drawings), moving images (film, video), and sound (speech, audio) – were to a much higher degree bound by and defined according to their implementation in their respective media institutions and belonging technological platforms (viz., verbal text in books; still images in books, photographs, paintings, and drawings; moving images in film/cinema [and television]; sound in radio [as well as in cinema and television]). Furthermore, verbal text, photography and painting were unequivocally static modalities, whereas moving images and sound could safely be defined as dynamic.

Traditionally, therefore, the dimension of *temporality* has been a common parameter among media scholars for distinguishing between different sensory modalities. Temporality provides a distinction that has seemed – at least until now – plainly intuitive: static sensory modalities do not change over time, whereas dynamic modalities do. The latter – audio, moving images – are intrinsically time-based and do not exist in a static form. Once you push the pause button on the VCR or DVD-player and freeze the film, what you see is no longer a moving image; the resulting modality is static – a still image. Similarly, you cannot “freeze” a sound – once you do, the sound disappears and you are left with silence (Leeuwen 1999; Ong 1982). Sound is more

accurately defined as a *vibratory event*, and hence provides inherently different experiential qualities than other modalities:

When sound is approached from its experiential qualities it refers to events that only exist in the present, that change incessantly in time, and that can therefore be said to disappear immediately. Vibrations move through the air at 340 meters per second, and in human terms sounds therefore only exist as long as the actual movements in the event. There can be no residual sound and no physical traces of sounds. (Nyre 2003: 16)

Hence, the intrinsic temporality of sound – as well as of moving images – is not in any way a dimension pertaining to our perception, but it “belongs” directly and completely to the way the phenomenon of sound presents itself to us. In a very distinct way, then, “[s]ound reveals time [...]” (Ihde 1976: 103)

The basic distinction between static and dynamic sensory modalities carries important implications for both our perception of the different representations and configurations, as well as for the representational – and hence narrative – capabilities of these modalities per se, and for the ways in which they are, or can be, combined in digital hypermedia. However, recent and not so recent technological innovations, providing gadgets for different kinds of recording and re-playing, controlling and manipulating whatever is displayed either in real time or replay, on the television as well as on the computer, threaten to seriously disturb our hitherto reasonably stable and reliable categories of temporality and spatiality.

For example, when you freeze a frame in the movie you are watching on DVD, the change from watching the moving image to looking at the frozen frame of that moving image is not only a matter of practical or technical difference. Such a shift carries fundamental cognitive and phenomenological implications – as Grodal claims, there is an essential difference in *affective tone* between these two modalities, because freezing the moving image “change[s] the status of a frame *from that of an element in a spatio-temporal sequence to that of a spatial entity to be perceived*. Time has stopped ‘out there’ and continues only in the spectator.” (Grodal 1997: 45-46; italics mine) Contrary to what one may intuitively be tempted to believe, the experience of moving images as they are typically being displayed on a screen in a movie theater, is an

experience that is perceptually, cognitively, and phenomenologically very different from experiencing the same film on a DVD at home, with (or without) the remote control handy. Employing the highly pertinent term “psychic framework,” Michael Heim accurately claims that “[t]he videocassette provides a different psychic framework for the film [than the silver screen in the movie theater] [...],” in that “viewing [through personal videocassette – or DVD – technology] is no longer an occasion to which you must adjust your attention. With it, cinema culture comes to be on tap, manipulable at will.” (Heim 1999: 118)

Our collection of technological gadgets has expanded considerably since Heim’s statement, and the computer (and any other digital device, mobile or immobile) and the internet have increasingly assimilated the areas of both news, culture, education, and entertainment, so that now it is no longer merely cinema culture that is on tap, but any broadcast event (on radio and television), newspapers and news in general, all kinds of educational resources and cultural events are readily available to access and download at any time. Although it may seem a difference of minor impact, it is my contention that the experience of watching the BBC Nine O’clock News on television on Monday night is, ontologically and phenomenologically, a markedly different experience than watching the same news program on the computer downloaded a few hours later from the BBC Online news archive. The difference has to do with both the dimension of temporality, and the material aspects of the technologies involved (as well as with social, practical and certainly a number of other aspects, but these are not my focus in this dissertation). In this section I will concentrate on the first dimension.

### **13.3. Some basics (of perception and temporality)**

Any study of the impact of different sensory modalities on our perception and reading requires careful distinguishing between, on the one hand, qualities that are inherent in the different modalities and that are, as such, determining our perception of them, and, on the other hand, qualities that pertain to our perception per se, independent of modality and medium. As much as this might seem a banality; the frequent and still ongoing discussions among hypertext theorists about the multi-linearity or non-

linearity, spatiality or sequentiality, of hypertext, illustrate more than anything else the level of confusion surrounding even basic aspects of perception.

In the first edition of *Writing Space*, Jay D. Bolter defined interactive fiction as “nonlinear fiction, which invites the reader to conduct a dialogue with the text.” (Bolter 1991: 121) This prompted intense discussions about whether hypertext is linear or non-linear, sequential or multi-sequential, spatial or temporal. In an early writing on hypertext narratives, Gunnar Liestøl pointed out that hypertext reading – like all reading – is *linear in time* but that the act of reading hypertext turns the “nonlinearity of space” to the “linearity of time.” (Liestøl 1994) To this Aarseth commented, in his dissertation: “Linearity of time is a pleonasm and useless as a category description, since there can be no nonlinearities of time.” (Aarseth 1997: 43) Shortly thereafter, Liestøl redefined the terms and topics in his dissertation:

Non-linearity in time is imaginary; it is a fundamental contradiction of terms and necessarily impossible. Time is linear – at least the time that is required to produce and consume hypermedia texts. Reading, writing, and the consumption of text in general are linear phenomena. They are sequential and chronological and conditioned by the ordering of time. But their positions as stored in space are organized as a non-linear pattern. Once a word is read it is chosen and taken out of its non-linear, paradigmatic context and positioned as a sequence in the linear syntagm, which is conditioned by time. However discontinued or fragmented the consumption of a hypermedia message might be, it always, at one level, turns out to be linear. (Liestøl 1999: 91)

On this basis, Liestøl now operates with *subjective* linearity (the successive acquisition of image information); *intersubjective* linearity (the acquisition of written verbal text); objective linearity (moving images) and *temporal* linearity (sound). (Liestøl 1999: 16) In retrospect, the outcomes of the discussion seem not to have added much to the theoretical groundwork of hypertext and hypermedia except excessive terminological embellishment. The main result can be summed up as arriving at the conclusion that hypertext is multilinear, and not non-linear, as Bolter acknowledges in his second edition of *Writing Space*: “As many have pointed out, hypertext is not nonlinear, but multilinear. Each reading of hypertext must be a linear experience, because the reader must move from episode to episode, activating links and reading the text that is



presented.” (Bolter 2001: 128) For the present purpose, what is most interesting about this terminological debate is what it reveals about the fundamental categories of time and space, and – even more explicitly – the confusion of the two, when applied to different sensory modalities and to our experiencing them.

No matter how drastically digital technology is rendering our media landscape increasingly complex and confusing, one fact remains certain: there is no escaping *the inherent and existential temporality of our perception*. Whether the representation, for example a narrative, is composed of static or dynamic modalities, our perception of it is necessarily and inevitably a temporal activity. But the perceptual activity is in different ways and to different degrees controlled or constrained by the modalities employed. Attempting to grasp this dimension, Liestøl invokes Kant’s distinction between “objective sequence” and “subjective sequence” in order to distinguish the different modes of perception inherent in dynamic versus static modalities (or, as he calls them, media – or information – types):

In objective sequence, the order in the sequence of perceptions is determined and regulated by an event that is in itself successive. In the subjective sequence, there is no predetermined order which makes it necessary for the subject to begin (or end) at a certain point, or to generate a certain perceptual sequence. [...] With the consumption of dynamic information (audio/video), the dominant activity is located in the textual object itself, as object-action; with the consumption of static information, however, the dominant activity is located within the user-subject, as subject-action. (Liestøl 1999: 44)

Thus, according to Liestøl, there are two kinds of subject-behavior; one passive – the “object-action,” as when perceiving dynamic media types (sensory modalities); and one active – what is called “subject-action,” as when perceiving static media types (sensory modalities). (Liestøl 1999: 45) When dynamic and static sensory modalities – in Liestøl’s parlance, media types – are implemented in the same environment, as is often the case with digital hypermedia, the dynamic modalities will dominate in terms of attracting – and keeping – our attention. Thus, dynamic modalities have the advantages of triggering our curiosity and fascination without demanding too much cognitive effort, whereas static modalities require a more perceptually and cognitively active and persistent reader. However, as Martin Engebretsen points out in his dissertation on

hypertext journalism, the advantage of dynamic modalities of easily catching our attention might come at the cost of being incapable of building any substantial, sustainable impression beyond the fleeting fascination of the moment (Engebretsen 2001: 231). In *Electric Language: A Philosophical Study of Word Processing*, Michael Heim comments upon the same issue, relating our “fleeting fascination of the moment” to hardwired, psychobiological dispositions:

The speedy, interactive kind of thought formulation [found in electronic textuality] [...] has about it something of the electricity of thought, the instantaneous drive of intuitive ideation. This electric element for symbols is found in the sense of stimulating the human’s innate physiological fascination with light and fire, with the joy of zapping, with the sense of holding absolute control over the symbolization of thought. (Heim 1999: 205)

Heim claims further that such fascination might in fact be detrimental to concentration. (Heim 1999) Such a claim is also supported by studies in cognitive and experimental psychology (cf. for instance Faraday and Sutcliffe 1996; Garner, Gillingham, and White 1989; Schnotz, Böckheler, and Grzondziel 1999; Wiley 2003). Very different from the psychic framework that the electronic screen provides, the interface of the print pages in a book produces a totally different kind of trancelike state which heightens and trains concentration:

With the book, deep recesses of mind are reached through contemplative concentration and the sustained suggestion of stable symbols. The slight hypnosis induced by the phosphorescent symbols effect a greater optical break with much of the everyday sensory environment, but this does not mean that the concentration through radiant symbols is any deeper on the psychic level. Superficial glitter may in fact prohibit deeper assimilation. (Heim 1999: 205)

This apparent difference between dynamic and static sensory modalities in terms of their capacity to provide, and sustain, an environment for immersion and that cherished “suspension of disbelief” so often sought after when we are reading narrative fiction, is highly relevant to understanding of the ramifications for narrative fiction in digital media.

#### 13.4. What is time? Three kinds of temporality

When trying to grasp the dimension of temporality in the peculiar phenomenology of reading GUI narrative fictions, we are necessarily being reminded of the complexity of time as a phenomenon. Posing a question such as “what is time?” inevitably opens a plethora of philosophical reflections and discussions, the full pursuit of which falls outside the parameters of this study. Therefore, I shall limit myself to addressing just a few of these issues, concentrating on those that I consider to be most immediately relevant to my research topic of how we experience the reading of GUI narrative fiction.

St. Augustine’s famous remark about time – “What, then, is time? If nobody asks me, I know. If I wish to explain it to someone who asks, I know it not [...]” (Confessions - quoted from Levine 1997) – indicates the profound and paradoxical problem complexes surrounding our conceptual understanding of time and temporality. At the same time, temporality, as Martin Heidegger so thoroughly has shown (Heidegger 1996 [1927]), is one of, if not *the*, most fundamental dimensions of our existence as human beings. We are, as it were, radically temporal beings, and as such we are unable to step out of or “get rid of” the temporal dimension in which we are so thoroughly and permanently steeped (Polkinghorne 1988: 128ff.). At the same time, the dimension of time is essentially ungraspable as an object or thing. The means by which we have come to objectify and concretize time, by different kinds of time measurements such as calendars, clocks, etc., do not represent temporality as it unfolds in and with our lifeworld experiences. The atomization and schematization of the temporal by means of days, hours, minutes, and seconds, gives the impression of time as a measurable sequence of discrete events, which can be meticulously and precisely assessed and retrieved at our will:

Time has ceased to be a continuous flow, and becomes fragmented and segmented. We think of time as having arbitrary units of equal length, subdividing them and grouping them into larger units as well. Conceptually, our temporal life has become discontinuous and

departmentalized; the irony is that the more subdivisions we make in our day, the less time we seem to have. (Wolf 2000: 8)

Our experience of temporality, as all of us frequently notice, is nowhere near the clockwise regularity. We simply do not experience time as a steady succession of discrete instants of equal and comparable length. Sometimes we experience time to pass by at an unbearably slow speed, as when we are eagerly waiting for something or someone, and at other times, time may seem to fly by in an instant, as when we are intensely wrapped up in some activity – such as, for instance, playing an action-packed computer game, or reading an intensely exciting detective story. Hence, as Grodal points out, when we say, for instance, that we “feel” time to be short or long, we are not only using a metaphor, but

also a concrete description of an aspect of time in which we construct and evaluate perceptual phenomena. The aesthetic experience of time in visual fiction is not directly linked to the clock-time speed of projection, but to *time as constructed during perception and cognition*. (Grodal 1997: 139; italics mine)

Precisely this phenomenon that we lose sense of the passing of time is one of the main experiential features of above-mentioned Csikszentmihalyi’s concept of “flow,” or optimal experience. The state of flow occurs when there is maximal order in consciousness, typically when all our available psychic energy – or attention – is invested in realistic goals, and when the skills required for achieving these goals match the opportunities we have available for taking action. (Csikszentmihalyi 1990: 6ff.)

Therefore, the first categorization of temporality which must be done is that of distinguishing between what we can call clock time (also called objective time), and experiential time (or phenomenological/subjective time). The latter refers to what Paddy Scannell describes as “time-as-experienced by me-or-someone, my own here-and-now, my situated being-in-the-world, me as a real someone someplace sometime now.” (Scannell 1996: 152) Phenomenologically speaking, the clock (or world) time is dependent on our subjective time; the events we measure by clocks and calendars can only be phenomenologically experienced because we possess subjective, “inner,” time.

Hence, the noematic structure of world time depends on the noetic structures of subjective, phenomenological time.

When discussing temporality as an aspect pertaining to our reading and experience of narrative fictions, yet another dimension of time must be considered. In her dissertation, Malin Wahlberg characterizes this as the “pragmatic” dimension of a created temporality – that is, the (artfully) created space-time of the moving image unfolding on the screen. This is a constructed – and, hence, “artificial” – temporality, which is ontologically different than time as it is experienced during our watching the moving image, or, during reading – that is, during perception and cognition – what Wahlberg terms sensory or “ocular” time (Wahlberg 2003: 15ff.).

In GUI narrative fiction, the spatiotemporal configurations of the different sensory modalities, in hyperstructure, and combined with different options for interactivity, provide an immensely complex field of experience which differs in fundamental ways from both traditional broadcasting and moving imagery. In order to come closer to the dimension of temporality in this complex, I suggest we elaborate on Scannell’s, Grodal’s, and Wahlberg’s handlings of time with the distinction made by Gregory Currie, of three kinds of temporality.

In a most basic sense, says Currie, every art is a time art, simply because “everything that happens, happens in time, and everything is temporally related to everything else. It takes time to watch a film, but so also does it to watch a play, read a novel, listen to a symphony and look at a painting.” (Currie 1995: 92) However, film and music are very distinctively time arts, in ways that literature is not. Currie suggests distinguishing between the following three basic ways to treat temporality in art (and, I will add, his distinction holds for any representation, not only works of art): “We can focus on temporal properties of the work, on temporal properties of the observer’s experience of the work, or on temporal properties of what the work represents.” (Currie 1995: 92) The temporality of the first kind is the temporality of the work (which Currie labels “temporality<sub>w</sub>”); temporality of the second kind is called “experiential temporality” (“temporality<sub>e</sub>”); and the third kind of temporality is called “temporality of things represented” (“temporality<sub>r</sub>”). Such a distinction allows us to claim that film (or, more precisely, moving images) is more intrinsically and distinctively a temporal art form than literature (more precisely, print literature), and might help to clarify the

implications for narrative in different modalities. Film depends upon a temporal unfolding of its constitutive elements for its representation, which in turn determines our perception of it:

[W]hen you watch the film it matters, from the point of view of understanding and appreciating it, in what order you see its images. [...] With the painting that ages (rather than unfolds) over time, there are temporal relations between constitutive features – the pattern of colors we somehow identify as canonical – and other features – the later altered, and possibly degraded, pattern. But there are no temporal relations, except trivially, the relation of co-occurrence, between constitutive elements themselves. Nor are there significant temporal relations between textual elements of the novel; the words and sentences of the novel are ordered, but not temporally ordered. In this sense cinema, theater, and music are temporal arts, while literature, painting, and static sculpture are not. (Currie 1995: 93)

Aware that some may object to his claim that the constitutive elements of a novel are not temporally ordered, Currie explains:

What people have in mind when they say that the text is temporally ordered is that the ordering of elements – nontemporal as it happens – induces a temporal ordering in the reader's experience of the novel. [...] In this experiential sense, works of any kind can be temporal, though not all are; some paintings and some static sculptures are not: for them there is no preferred ordering of experience. (Currie 1995: 94-95)

Currie's typology of temporality is very useful for grasping the inherent temporalities at work in GUI narrative fictions, as well as being capable of addressing fundamental questions about the status of and ramifications for narrative and immersive reading in a digital environment. However, it does need some modification in order to be directly applicable to a complex spatiotemporal configuration such as a GUI narrative fiction. The reason for this has to do with the ambiguous ontological and temporal status of the digital.

### 13.5. The ambiguous temporality of digital configurations

The digital base of the GUI, combined with some of the characteristic features of the electronic display, unsettles our traditional categories of space, time, and motion – both as these are typically engendered and represented in print text, or (still or moving) images, or sound, and as they are phenomenologically experienced, for example when reading narrative fictions.

We are used to considering text (in the narrow, linguistic definition of the term) as a basically static, and hence spatial, modality. In contrast, the sensory modality of sound is, as we have seen, inherently dynamic, and “purely” and totally temporal. The moving image is, by comparison, a spatio-temporal modality. With the digital GUI, not only are these – as well as other modalities – juxtaposed and mixed to form new and phenomenologically unfamiliar sensory gestalts, but the ontological status of each one modality is fundamentally changed. In short, and as N. K. Hayles correctly points out, every visual modality displayed on the GUI becomes *dynamic images*:

Electronic hypertexts are dynamic images. In the computer the signifier exists not as a durably inscribed flat mark but as a screenic image produced by layers of code precisely correlated through correspondence rules. Electronic hypertexts include both analogue resemblance and digital coding. (Hayles 2000: unpag.)

Accurate as it is, it is an observation which warrants further elaborations and precisions. Everything that is displayed on the GUI takes on a peculiarly ambiguous modality which is neither plainly dynamic as we are used to in (analog) moving images, nor obviously dynamic and temporal as in sound. Moreover, the configurations on the GUI can correctly be described as images, but again, they are images in a quite different way than analog moving images or analog photographs. Trying to capture such an ambiguity, C. Kaha Waite describes the peculiar ontology of screen text and images quite evocatively:

The images on the screen create an existential context in which temporal sequencing is altered and space is experienced as dynamic. [...] The duration, the felt sense of space, time, and motion, is unlike anything experienced in ordinary life and yet feels real. [...] Though both printed

words and pictures may be referred to as images, though both forms may draw the eye, print operates quite differently from the screen. Printed words are fixed, do not float, cannot be enlarged, reduced, or hyperlinked. As a consequence, one's reading practices differ significantly for hard copy and electronic text. (Waite 2003: 64)

However, Waite's phenomenological perspective does not provide any explanation of exactly *how* the reading practices of print and electronic text differ, nor does she pursue to any extent the reasons *why* they differ, beyond repeatedly referring to how the electronic screen creates a new sensory mix that alters our sense of space, time, and motion. In comparison, N. K. Hayles does point to some crucial differences between print and electronic text which are very relevant in this context:

The print of a given document is stable for (more or less) long periods of time, in dramatic contrast to the constant refreshing of a computer-screen many times each second. Moreover, print does not normally move around once impressed onto the paper fiber, again in contrast to the animations, rollover, etc. that increasingly characterize electronic literature. [...] Electronic text exists as a distributed phenomenon. [...] Although print readers perform sophisticated cognitive operations when they read a book, the printed lines exist as such before the book is opened, read, or understood. An electronic text does not have this kind of prior existence. It does not exist anywhere in the computer, or in the networked system, in the same form it acquires when displayed on the screen. (Hayles 2003: unpag.)

Even after the replacement of the cathode ray tube with LCD screens got rid of some of this manifest flickering of the signs due to the constant re-loading, Hayles' observations are all pertinent and correct, and they are all highly influential for our reading experience of electronic text compared to print text. It is quite a paradox, then, that Hayles in the very same paragraph seems to contend that such, in my view, fundamental ontological differences apparently *do not* in any significant sense impact the reading process and experience – for, as Hayles claims, “[a]fter it is displayed, of course [sic], the same kind of readerly processing may occur as with print.” (Hayles 2003: unpag.) To the contrary, I will argue that the readerly processes and experiences of print, as for instance when we read print narrative fiction, are perceptually, cognitively, physiologically, and phenomenologically fundamentally different from those of reading



GUI narrative fictions. And a major reason behind such differences is the ontological status of the electronic as *latently dynamic*. The analog display on the GUI of digital bits is, by definition, prone to total disappearance, or to some kind of visible change – usually brought about by our input, but also possibly by technical or other circumstances beyond our control. This fundamentally ambiguous status of the GUI engenders a very different mode of reading and a very different phenomenological experience than, say, a book. The fact that the display of the GUI can always change is an ontologically and phenomenologically distinctive feature greatly impacting our experiential relation to the interface. This impact can be illustrated with our experience of nodes such as the star map of the Chumash Indian Dipper from *Califia* (see Appendix, Graphics II). When encountering this node we might begin to click on the stars (or, even if we do not actually click, we might consider the possibility and wonder whether it will bring about any change in the display). In such instances, the mere possibility of the click bringing about visible change in the display impacts our phenomenological immersion in the narrative fiction in a way that is simply not possible when reading print narratives. Carroll illustrates a similar case when comparing seeing a slide from a moving image and watching the same moving image:

There is a deep difference between a film image of a character, say, from our imagined version of *La Jetée*, and a slide taken of that character from *La Jetée*. For as long as you know that what you are watching is a film, even a film of what appears to be a photograph, it is always justifiable to entertain the possibility that the image might move. On the other hand, if you know that you are looking at a slide, then it is categorically impossible that the image might move. Thus, if you know what you are looking at is a slide and you understand what a slide is, then it is unreasonable – indeed, it is conceptually absurd – to suppose that the image can move. Movement in a slide would require a miracle; movement in a film image is an artistic choice which is always available. (Carroll 1996: 64)

Analogously, when we read GUI narrative fictions, it is always possible that the visible display might change completely by the click of the mouse. This powerful phenomenological uncertainty is stylistically exploited in GUI narrative fictions where the links are not explicitly marked, so that we cannot tell, when moving the cursor over the screen, when our click will yield and when it will not.

A related but very different experience occurs when, as in certain nodes in *Califia*, the cursor changes from arrow to pointing finger (or any other icon/symbol), hence indicating that something will happen with the click, but then nothing actually does happen when you click, such as in one of the nodes displaying the Summerland family tree (see Appendix, Graphics III). Clicking on any of the boxes in the family tree turns the cursor to a pointing finger, but the click does not yield any change in the display. Whether we experience this as a major disturbance or a minor annoyance (and irrespective of the reason being technical error or artistic intention), such experiences nevertheless hamper the focus and depth of phenomenological immersion. In the GUI narrative fiction, movement and change are latently present dispositions, present as always potentially impacting the visible output on the screen. In a noticeable way such a feature phenomenologically influences our reading of even what seems to be static text.

At the same time, manifestly and explicitly *dynamic* modalities on the GUI, such as moving images, sound, and visibly moving verbal text, are characterized by an ontologically different dynamics than their counterparts in, say, moving images on the movie theater screen, in that they can – at any time – be stopped or interfered (intentionally or non-intentionally) and hence turn into latently dynamic modalities. What, then, does such a blurring of temporary categories have to say for our reading experience of narrative fiction? Quite a lot, I will argue. And the reasons why can be found in temporal salience, or rather – in GUI narrative fictions – lack thereof.

### **13.6. Temporal salience**

Besides being favored points of departure for media theorists when attempting to categorize and classify modalities of media, the dimensions of time and temporality are also frequent topics of discussion among (media) philosophers and, among them, phenomenologists. Even more important to this study, temporality is also particularly relevant when studying our experience of narrative fiction – in whatever medium. Paul

Ricoeur is not the only philosopher to have described the intimate relationship between narrative configurations and the existential dimension of temporality.<sup>120</sup>

The dimension of temporality, then, is a central interest for phenomenologists, as well as for psychologists. And even though the approaches to and conceptualizations of time and temporality in the two disciplines might at first glance seem to differ significantly, they share several points of convergence which can be constructively applied to an understanding of the experiential impact of the GUI on our reading. One such point of convergence is what cognitivist Grodal calls *temporal salience*, and what in a phenomenological framework can be understood in light of the temporal structure of *retention and protention*.

Because visual fictions (i.e., moving images) are experienced in time, says Grodal, his intention at describing “the interaction between cognition and emotion in our watching moving images will necessarily be concerned with temporal flow.” (Grodal 1997: 1) Albeit in a different sense, GUI narrative fictions can also be called visual fictions, and they are, as is everything in our lifeworld, experienced in time. However, there are some crucial differences in the kind of temporal experience – experience of time and temporal flow – that occurs in our reading of moving images compared to GUI narrative fictions. These differences can be related to Grodal’s theory of the impact of *temporal salience* in moving images, and to the phenomenological dimensions of time as a threefold notion that includes *protention* – “a present about the future [expectation]”; *retention* – “a present about the past [memory]”; and *primal impression* – “a present about the present [attention].” (Polkinghorne 1988: 129) In this threefold present constituting the phenomenological experience of temporality, we experience the past as “the just-present” and the future as “the expected present-to-be,” with the actual present of the experience actually eluding us:

Temporality in fact cannot be experienced per se because the past is constituted by our remembrance of earlier experience, and the future of course becomes experienceable only in so far as it has in turn become present and past. Current experience cannot be experienced objectively while one is experiencing it, and the present qua present therefore eludes the conceptual grasp of the experiencer. As a result, none of the three

---

<sup>120</sup> I am, of course, referring to his influential and monumental work, *Time and Narrative* (Ricoeur 1984).

temporal states (past, present, future) can be comprehended separately but only in a dynamic or dialectic process of ongoing experience and temporal (uni-directional) flux. (Fludernik 1993: 53)

In light of such a conception of temporality, claiming that “the primary value of electronic temporality is the discrete temporal bit of instant present [...]” (Sobchack 2004e: 155) obviously warrants some explanation. Such an explanation in turn warrants that we delve into more elaborate phenomenological accounts of temporality. This will, in turn, render the connections between a phenomenological account of time and Grodal’s and other cognitivists’ understanding of temporality and temporal salience more obvious. Moreover, and even more significant for this context, it will cast some much needed light on some of the reasons why we are so inclined to scan the screen when reading GUI narrative fictions, why we tend to read “restlessly” or impatiently (and why we are so tempted to click), compared to when reading print narratives (and watching films).

To once again invoke William James (whose work is, evidently, relevant both psychologists and phenomenologists), our experience of the present – of temporality – is best characterized not a knife edge, but as a saddleback (ref. from Sokolowski 2000: 136). This somewhat obscure analogy entails that we experience anything “now” as transitory temporal successions – as ‘goings-on,’ continuously temporally passing as they exist:

Only because they trail off now can we remember them later and recognize them as past, and only because they come into view now can we anticipate them at a greater [temporal] distance. When we reflect on our experience, we find it to be an exposure into the immediate past and future. The initial absences of pastness and futurity are present in all our experience. (Sokolowski 2000: 136)

Such a phenomenological configuration of temporality further implies that we can conceptualize our living present as composed of three moments: primal impression, retention, and protention. These three moments of time, or phenomenological gestalts of temporality, are inseparably joined in the temporal whole which is our living present. Moreover, they are inherently and reciprocally co-dependent in such a way that we

never have “merely” retention, nor “merely” protention, nor “merely” primal impression. Primal impression is that eluding part of any experience – the present of the present which immediately becomes past. Retention points to the past: “[I]t ‘retains’ [...] the living present that has just elapsed [...],” whereas protention “gives us the first and original sense of ‘something coming’ directly upon what we have now.” (Sokolowski 2000: 137) As such, retention and protention are not simply equivalents of, respectively, memory or remembrance, and anticipation, but they operate on a more experientially fundamental level in our embodied perception of temporality. Retention is what makes remembering and memory possible, whereas protention provides the experiential grounds for anticipation.<sup>121</sup> Hence, “[i]f we are dealing with time, we cannot define the momentary point as simply atomic, simply present without any involvement of the special kind of absence that is the rudimentary past and the rudimentary future.” (Sokolowski 2000: 138) Yet, phenomenologist Sobchack describes the electronic temporality precisely as atomized, as “the discrete temporal bit of instant present [...]” (Sobchack 2004e: 155) How can we reconcile such an apparent contradiction? One solution, I suggest, is to supply the phenomenological accounts of temporality with those of cognitivists, and in this case Grodal’s, account of temporal salience.

The moving image, says Grodal, exists as a visual presence which is “a point in a temporal sequence of past and future perception of the phenomena of fiction.” (Grodal 1997: 45) Its place in such a temporal sequence entails completely different cognitive and phenomenological implications than were it an element in a spatial distribution, as we have seen with the comparison of the psychic frameworks of a moving image experienced in the movie theater, and the same moving image when we watch it on a DVD where we can freeze the flow of images at any time.

---

<sup>121</sup> “Retention functions within the initial establishment of temporal duration. It precedes remembering. What it retains has not yet fallen into the absence of oblivion, and so memory in the familiar sense cannot yet come into play. Likewise, protention, the future-directed counterpart of retention, is not the same as full-scale anticipation or projection, in which we imagine ourselves into a new situation. Protention is much more basic and more immediate; it gives us the first and original sense of ‘something coming’ directly upon what we have now. Protention opens the very dimension of the future and thus makes full-fledged anticipation possible.” (Sokolowski 2000: 137)

There is, however, another major experiential difference that has to do with temporality in the moving image, which is also highly relevant for our experience of the GUI. Since the moving image is a spatio-temporal medium, the temporality of the representation – what would correspond to temporality of the work (temporality<sub>w</sub>) in Currie’s classifications above – does in different degrees have what Grodal calls temporal salience. Comparing two versions of a story of reasonable length, in which the first one has scene-ellipsis-scene, whereas the second has scene-episodic sequence-scene, Grodal claims that the second version will be felt as more “elliptic” than the first, although the opposite is actually the case: “The temporal ‘stretch’ will be felt more in the second case, because the passing of time possesses temporal salience.” (Grodal 1997: 142) In other words, we feel the time passing as being more substantial, as having more of an actual temporal stretch, in the scene-episodic sequence-scene case than in the first version, which is why the second version will be experienced as lasting longer in terms of felt duration. Furthermore, says Grodal, the felt temporal salience of a sequence of the moving image is important for determining

whether the viewer feels that he is on a dull tour, and begins to notice the spatial and temporal schemata determining the tour, or whether he is following that tour as a free act of will [sic]. Whether the viewer will follow the focus of camera or protagonist in the temporal sequence, or whether he will focus on the frames and perform meta-activities, partly depends on the salience of the temporal sequence. (Grodal 1997: 212)

That is, if a film displays sequences which to different extents lack temporal salience, the viewer is more likely to start meta-reading during those sequences than during sequences which have temporal salience.

Now, where does this leave the reader of GUI narrative fiction? As we have seen, everything displayed on a GUI can be said to be moving images, albeit it will become increasingly clear in the following that their dynamic, temporal, qualities are inherently different than those of (analog) moving images. And even though it still applies to our experience of GUI narrative fictions that our reading is a temporal activity, as is all perception and experience, it is also the case that our experience of the dimension of temporality when reading GUI narrative fictions is radically different from our experience of temporality when watching a film or reading a book. Hence, the

configuration of temporal salience in the different materialities or technologies is fundamentally different – in fact, in GUI narrative fictions it can be said to be completely lacking. Since any display of any sensory modality on the GUI is, as it were, detached from temporality and sequentiality and exists as potentially realizable and displayable nodes in a network structure, it follows that they are not being experienced as being parts of our common, phenomenological, threefold experience of temporality as the reciprocal and co-dependent structure of retention, impression, and protention. And since they do not form part of a temporal sequence in any sense of the word (neither narrative, nor causal, nor cognitive), it can be said – as Sobchack does – that the bits displayed on screen are “instants of the present” with neither a past nor a future, that is, impressions without retention and protention.

Such a lack of temporal salience applies as much to the sensory modality of (explicitly) moving images and sound in the GUI narrative fiction, as it does to (seemingly static, but in fact latently dynamic) images and verbal text – which is another way of saying that on the GUI, all sensory modalities appear as if on the same experiential level. Hence, it is not only sequences of explicitly moving images in GUI narrative fictions that are experienced as lacking temporal salience, but also the modalities of sound, verbal text, graphics, and any other conceivable modality.

In *Down Time* (Swigart 2000), Rob Swigart uses a handful of moving image clips in a GUI narrative fiction otherwise consisting of verbal text and static images, as well as voice-over and an ambient soundtrack. One of these movie clips shows a person slicing cucumbers, whereas another shows a person slicing eggplant. My experience when watching these movie clips was at first dominated by a meta-stance, asking myself what was the intention and function of this movie in the narrative overall (an instrumental attitude so typical when reading GUI narrative fictions); then, another experiential aspect came into play – namely, a markedly felt impatience as the movie was unfolding, as if I were impatiently waiting for it to end so that I could go on with my reading. In this sense, perhaps one could say that the introduction of moving images in GUI narrative fictions does bring about an experience of temporal salience – in a negative way, in the sense that it forces the reader to follow the pace of the representation (Currie’s category of temporality<sub>w</sub>, or Wahlberg’s “pragmatic dimension of created temporality”), in stark contrast to reading GUI narrative fictions in general,

where we are free to click and move on at our own pace. Moreover, this pace is shown to be considerably faster than when reading other interfaces, such as printed pages. As Sarah Sloane puts it:

Hypertext fiction seems to insist on a faster rate of reading. All texts have embedded within them textual features that speed or slow the rate of reading. Hypertext fiction are interactive stories that invite readers to do the tango, not the waltz; they are stories that require readers to respond on-the-fly to their fluid, paratactic, narrative structures. (Sloane 2000: 119)<sup>122</sup>

The temporal “salience” that we might experience in such situations, then, is of a completely different sort than the one Grodal refers to, and with very different phenomenological impact on our reading. Unlike in Grodal’s examples, negatively felt temporal salience does not enhance phenomenological immersion in a narrative fiction – rather the contrary. The felt salience of a moving image with temporal salience is experienced as a felt presence which “is a point in a temporal sequence of past and future perception of the phenomena of fiction.” (Grodal 1997: 45) In other words, this temporal salience stems from the element’s belonging in and contributing to a narrative, syntagmatic structure displaying and adhering to the threefold phenomenological structure of temporality consisting of retention, protention, and primal impression. Sobchack describes this crucial difference as follows:

The postmodern and electronic instant, in its break from the modernist and cinematic temporal structures of retention and protention, constitutes a form of absolute presence (one abstracted from the objective and subjective discontinuity that gives meaning to the temporal system of past/present/future). (Sobchack 2004e: 158)

In contrast to the temporal salience displayed by narrative, syntagmatic structures, the negatively felt temporal salience we encounter when we are watching Swigart’s slicing of cucumbers or eggplants has more to do with the impatient and anticipatory state of

---

<sup>122</sup> Cf. also Dyson 2005.



reading that the GUI engenders. Faced with the GUI, we become, as some have described it, “prisoners of the moment,” (Stivers 2004: 39) because we lack a syntagmatic – narrative – structure constructing and impacting the temporal dimension of our experience; instead, what constructs and guides the temporality of our reading experience when reading, say, *Down Time*, is an anticipatory, impatient, “in-between-nodes” mode of reading.

As can be deduced from this line of argument, the peculiar experience of (non-) temporality in GUI narrative fictions is fundamentally related to its predominant logic of parametric form. Instead of presenting a syntagmatically organized structure in terms of for instance a plot, predominantly sequentially organized and hence experienced as in different degrees possessing temporal salience, GUI narrative fictions are, as we have seen, logical outcomes of the digital basis of the GUI and as such necessarily paradigmatically structured. The random access feature, realized (and experienced) in the combination of hyperstructure and interactivity, by definition undermines any experience of temporality created by phenomenological retention and protention. Therefore, as is the case with parametric form, we also have a tendency to scan, and meta-read, in sequences of narrative fictions which lack temporal salience, as Grodal also states.<sup>123</sup>

In *Narrative as Virtual Reality*, M.-L. Ryan describes the peculiarly transitory *modus legendi* of hypertext readers and what she calls “cyberonauts” as illustrating the typically postmodern condition of a state of transition, in which “the system of links of the interactive text is a constant temptation to *move beyond the present screen*.” (Ryan 2001a: 261; italics mine) As readers of hypertext we never dwell long on a textual segment, “because each of these is less a destination than a point of departure for other, equally elusive destinations.” (Ryan 2001a: 261) Somewhat more obscurely, Brian Massumi relates this constantly transitory reading state to how the hyperlinks relate to each other and how the reader in turn experiences this relation. The link just departed from, says Massumi, overlaps with the next so that “they doppler together”:

---

<sup>123</sup> Cf. above (“[w]hether the viewer will follow the focus of camera or protagonist in the temporal sequence, or whether he will focus on the frames and perform meta-activities, partly depends on the salience of the temporal sequence.” [Grodal 1997: 212]).

The dopplering [of the links] is responsible for the overall quality of the surfing process. There is an allure to that process, a *pull to surf* [...]. Surfing, [...] like its televisual experience zapping, is oddly compelling. Given the meagerness of the constituent links on the level of formal inventiveness or uniqueness of content, what makes surfing the web compelling can only be attributed to an *accumulation of effect*, or transductive momentum, continuing across the linkages. [...] The mode in which the successive linkage events are co-present to each other on the receiving end of the digital processing is potential: a felt moreness to ongoing experience. (Massumi 2002: 138; 140; italics mine)

This “felt moreness to ongoing experience” creates an impatient, anticipatory mindset in the reader – a reading mode in which the experience of what is presently being read is always “contaminated” and influenced by a vaguely undefined anticipation and expectation “that something ‘more’ is just one click away [...]” (See Kitzmann 2004: 158ff.) I claim that this “felt moreness of ongoing experience” can be more easily explained by being related to the different *affordances* of a movie screen, a print book, and the GUI, respectively, when it comes to providing and facilitating phenomenological immersion in narrative fictions. These different affordances are again closely related to different intendings, and hence to what configurations of sensory modalities the different technological platforms engender. These topics will be the focus of the next sections.

## CHAPTER 14: TRANSPARENCY AND OPACITY

The aspects of transparency and opacity are central when trying to come to terms with the phenomenological and cognitive impact of any technological display on our reading experience. In the case of the display of the digital computer and GUI narrative fictions, moreover, the transparency-opacity dichotomy harbors some particularly interesting aspects. Several hypertext theorists have focused on these, but I will claim that, due to the main research strategy often being faulty and imprecise metaphorizing, the results of their efforts, so far, have been meager. In order to come closer to a more precise understanding of what is entailed in the dimensions of transparency and opacity when applied to our reading of GUI narrative fictions, we need something more substantial than metaphors. In this section I will attempt to understand the dimensions of transparency and opacity in GUI narrative fictions by means of less metaphorical, and more cognitive and phenomenological approaches. A brief look at the dominating metaphors currently in use will reveal some of the weaknesses in such approaches.

According to Richard Lanham, the most powerful aesthetic attribute of digital hypermedia is the distinct and characteristic *oscillatory reading* that the GUI brings about, namely, the oscillation between “looking at and looking through” – between “gazing at the surface of the expression as self-conscious design, and looking through the signifiers on the surface, to the unselfconscious expression beneath.” (Lanham 1993: 43) Such a reading differs profoundly from that of, say, print text, because print insists on, as Lanham puts it, us continuously and constantly looking through, in what he calls “an act of perceptual self-denial.” (Lanham 1993: 74) In contrast to the way the letters, words, and sentences of a print novel (usually) appear as “transparent” vehicles for us to gain access to the fictional world “behind” or “beneath” the surface, i.e., the content of the story, the (potential) mixture of sensory modalities in the GUI narrative fiction together form a configuration in which some are meant to be functioning as transparent

vehicles for content (such as non-yielding verbal text – that is, verbal text that is not interactive/clickable), whereas others – such as any word or other icon that yields to our mouseclick, navigational menus, or the sign of the cursor on the screen – are meant to be “opaque” and the focus and terminus of perception in themselves.

Echoing Lanham, Jay D. Bolter and Richard Grusin operate with the dichotomy *transparency* (or transparent immediacy) and *hypermediacy* when attempting to describe what they claim are two opposite strategies of remediation in any medium. Whereas transparency implies the seemingly everlasting (and utopian) "desire for the natural sign" completely fulfilled only by the disappearance of any symbolic code, hypermediacy indicates the opposite tendency, namely that of making explicit the many different sign systems involved in a hypermedia presentation, by the juxtaposition of text, images, video, audio, in layers or windows on the screen (Bolter and Grusin 1999):

In its remediation of print, hypertext adopts both of these strategies. Through a decade of experience with hypertext and hypermedia, we have come implicitly to regard this oscillation between looking at and looking through, between transparency and hypermediacy, as a defining characteristic of this new writing space. The "legibility" of texts in this new space depends on the character and the rate of this oscillation. (Bolter 2001: 186)

In a similar manner, Lev Manovich excels in dichotomies in order to describe the GUI, and calls the computer screen a "battlefield for a number of incompatible definitions – depth and surface, opaqueness and transparency, image as illusory space and image as instrument for action." (Manovich 2001: 90) Paraphrasing earlier theorists on the topic, Manovich points to how the computer screen "functions both as a *window* into an illusionary space and as a flat *surface* carrying text labels and graphical icons." (Manovich 2001: 90; italics mine)

In a later publication (Bolter and Gromala 2003a), Jay D. Bolter and Diane Gromala continue this dichotomizing, with a slight difference. As we can tell from the title of their book (*Windows and Mirrors*), GUI as window is now the common metaphor to replace transparency, and GUI as mirror is the same for hypermediacy (or opacity). Claiming that the goal of all interface design is (or, more precisely, that it

*should* be) to establish an appropriate rhythm between being transparent and reflective, Bolter and Gromala continue:

Think of the computer screen as a window, opening up into a visual world that seems to be behind or beyond it. This is the world of information that the computer offers: text, graphics, digitized images, and sound. Concentrating on the text or images, the user forgets about the interface (menus, icons, cursor), and *the interface becomes transparent*. There are times, however, when the user should be looking at the interface, not through it, in order to make it function: to activate icons or to choose menu items, for example. At such moments, the interface is no longer a window, but a mirror, reflecting the user and her relationship to the computer. (Bolter and Gromala 2003a: 25; italics mine)

Seemingly simple and intuitive, their description is – if read literally – actually flawed. That is, if one goes beneath the obviously metaphorical use of windows and mirrors in this as well as the other dichotomy-based characterizations of the GUI, Bolter and Gromala's description is quite simply wrong.<sup>124</sup> A window is, correctly, something one looks through to something that is on the other side. However, the *transparency* of a window is usually such that what one looks at through a window is something that has material and phenomenological existence in our lifeworld. In such cases, we “see directly,” as Carroll claims, as we do when we look through a pair of glasses, or a tele- or microscope. Such technologies “boost the powers of direct perception [...], enabl[ing] us to see the things themselves, not merely representations of these things.” (Carroll 1996: 57) And, strictly speaking, even a real window (and glasses, or contact lenses) can be said to *mediate* perception, however minimally, if we define direct – i.e., un-mediated, im-mediate – perception and experience as referring to “everything immediately tangible, audible, visible, and available directly to the senses.” (Wolf 2000: 280)<sup>125</sup> According to such an understanding, any perception or sensation which is in any

---

<sup>124</sup> For heuristic reasons, for now I also disregard the fact that the entire GUI software is based on, precisely, *Windows* OS – another obviously metaphorical application of this notion.

<sup>125</sup> In a way, one could argue that all our access to everything in the lifeworld is always to some extent indirect, and mediated, in the sense that the different sense organs of our body receive sensory stimuli from our immediate surroundings (light, sounds, smells, skin sensations, etc.) which are then transmitted to the brain by converging neural pathways and there “translated” into signals (see for instance Ruz and

way and to any degree modified by means of any device, artifact, or technology – such as windows, or glasses – would be considered “mediated” and hence an instance of “indirect” perception or sensation. Worth noticing in this context is also that the different sense modalities seem to vary in their capacity to facilitate direct experience:

Taste, touch, and smell are perhaps the most direct, as they require physical contact with the object being sensed (smell is the detection of trace amounts of substance, so it too requires some physical contact). Sight and sound cover a wider area, and are signal based, but the signal is always direct from some physical source which causes it. (Wolf 2000: 280)

It follows from such an understanding that the “immediacy” or “transparency” that is commonly associated with the GUI as window metaphor is indeed experientially very far from what is actually entailed in those terms. The logical outcome of this phenomenologically crucial difference is that – quite contrarily to what Lanhan, Bolter, Grusin, Manovich et al. claim – we never see “through” the GUI, that however much we wish that it did, the GUI never provides immediacy or transparency except in a very metaphorical manner. The GUI display is as opaque as a TV screen or a page in a book. It is more accurate to say that on the GUI, everything is surface and opacity in a way that we have never experienced with any other technological display. Moreover, how we experience this opacity and the mediated relation to these different displays is in different ways modified and shaped by the materiality of the technological platform on which they depend and by means of which they are displayed and accessed.

In other words, what we see when we scan the GUI screen, are all – irrespective of their modality – representations. As representations, they are created and mediated by human intentions, as well as by the technology of representation – in the case of the GUI, the computer hardware, software, and display. Insisting on understanding the GUI in the a metaphorical manner of windows vs mirrors etc. conceals more important and

---

Lupiáñez 2002, Spence 2001). According to this line of reasoning, even what we would normally think of as direct perception (totally unmediated) could, strictly speaking, be considered indirect – that is, “mediated”.

fundamental differences between perpetual, cognitive, and phenomenological aspects of the reading of narrative fiction displayed by means of different technological displays.

To continue with the metaphors; a *mirror*, by comparison, is something substantially – and phenomenologically – different than a window. While it is correct to say, as Bolter and Gromala do, that a mirror is reflective, it is reflective of *exactly what appears in front of it, as it appears, at the time of reflection*. It is an essential feature of a mirror that it merely reflects back exactly (or, to be precise, with minor – or occasionally major – distortions) what hits its surface. In their phenomenological approach to screens, Lucas Introna and Fernando Ilharco point to precisely this feature as fundamentally and phenomenologically distinguishing screens from mirrors:

If we have a mirror, with the size and shape of a screen, it displays information – the images it reflects, but we do not consider it to be a screen but a mirror. [...] So, what is the criterion that is implicit in this imagined experience? Mirrors reflect, screens present. This means the kind of information displayed by these different objects have diverse origins. In the case of mirrors, it is merely a reflecting back what it receives. In presentation, there operates a fundamental process of ordering. [...] Screens are not mirrors in that they do not reflect what they face. (Introna and Ilharco 2004: 228-229)

Of course, Bolter and Gromala's use of the concept of window, as well as mirror, is intended to be read somewhat metaphorically, pointing to their difference in referential direction, so to speak. However, precisely such loose and imprecise use and application of terms to the topic of the digital interface is in my view one of the main reasons why we haven't really come any closer to a substantial understanding of the impact of the digital GUI on our reading. Recycling vague and misleading metaphors in this manner merely serves to conceal important experiential – perceptual, cognitive, and phenomenological alike – aspects of the reading experience.

Some of the significant experiential implications of the GUI are revealed if we pursue in more detail Carroll's overtly phenomenological approach (Carroll 1996: 61ff.). When we, in his terms, "see directly" through or by means of a technology, such as binoculars or glasses – or windows – we can *orient ourselves spatially* to whatever we see; our bodily orientation to the things that we perceive is preserved. Conversely, such a bodily – and embodied – connection is lost whenever we see indirectly, such as

when watching a movie. Hence, a movie is a *detached and disembodied display*, according to Carroll, because we cannot perspicuously relate our bodies spatially to the images on a movie screen; instead, what we see are “representations in the standard sense of [...] displays whose virtual spaces are detached from the space of my experience.” (Carroll 1996: 61-62) Photographic and cinematic images present the viewer with a space that is disembodied and detached from her perspective and embodied experience in her lifeworld. Compared with this view, whatever we see on the GUI appears as even more detached and disembodied, due, in different ways and to different degrees, to all of the aspects of the GUI that I have addressed so far;

- the continual foregrounding and blurring of figure and ground resulting from the digital base of the GUI engender a perceptually and cognitively leveled reading mode (exemplified by either myopic or meta-reading) wherein the configurations of the GUI appear as spatially and temporally detached from our lifeworld;
- the GUI facilitates attentional switching by means of the easily accessible rekindling of our attention with the click; the combination of the hardwired inevitability of attentional switching (our urge to avoid psychic entropy) with the ease of rekindling our attention found in GUI narrative fictions facilitates a reading mode characterized by lack of focus, depth and sustained attention, and hence detached from the nucleus of our spatiotemporal existence;
- the fundamental temporal ambiguity and lack of temporal and spatial salience are additional features of the GUI disposed to distort phenomenological immersion and to engender meta-reading and distraction from a cognitively and phenomenologically sustained, and sustaining, reading experience.

In what follows, I will try to clarify and substantiate the currently existing body of hypertext theory by focusing on the aspects of *intangibility and invisibility*, the *affordances* of the GUI compared to other technological displays, and the resulting *intentionalities* formed by it, and the impact of the *haptic* modality when reading GUI narrative fictions. These aspects will be studied in the light of both theories of cognition and perception, as well as the phenomenology of Don Ihde.



## CHAPTER 15: THE PHENOMENOLOGY OF THE INTANGIBLE

### 15.1. Introductory

Although the above-mentioned applications of misleading metaphors to our reading of hypertext and hypermedia are quite widespread in the current theorizing in new media studies, there are other kinds of approaches to these issues in hypertext and hypermedia theory. If we allow ourselves, for a moment, to dismiss the criterion of “narrative fiction,” we find an abundance of research on how we read from the computer screen compared to how we read print documents. There are several empirical and experimental studies on perceptual and cognitive aspects of HCI, as well as pedagogical studies on how to facilitate texts for slow and perceptually or cognitively impaired readers by way of different on-line adaptations. In this jumble of approaches, we also find hypertext theorists studying the ramifications for immersive reading in different hypertext environments (cf. for instance Douglas 2000a; Douglas and Hargadon 2000b, 2004; Meadows 2003; Murray 1997; Ryan 2001a, 2004b, 2005). However, what many of these studies focus on, particularly when dealing with the phenomenon of hypertext, are aspects like the issue of linearity versus non- or, rather, multi-linearity (Charney 1994; Clark 1999; Fischer 2000; Gillingham 1996; Goldman 1996; Gorayska and Mey 1996; Joyce 1995; Leu and Reinking 1996; McHoul and Roe 1996; McKnight 1996; McKnight, Dillon, and Richardson 1993; Mishra, Spiro, and Feltovich 1996; Oostendorp and Mul 1996b; Rouet 1996; Thüring, Hannemann, and Haake 1995; Tuman 1992), or the implications of typographic and layout features such as sentence length, font type, and the feature of scrolling, for screen reading (Dyson 2005; Oostendorp, Breure, and Dillon 2005).

As of this writing, few hypertext and hypermedia theorists have pursued to any great depth the numerous and important questions pertaining to the role of the digital *intangibility* and *volatility* of the GUI surface on our process and experience of

hypermedia in general, as well as on our reading and experience of hypermedia narrative fictions. In fact, some theorists in the field even seem to be arguing that the aspect of tangibility (or physicality or materiality) is *not* in any way a discriminating factor in distinguishing digital documents from, say, print documents. David Levy, for example, claims that the common way of classifying paper documents as *real*, that is, physical, material, weighty, and tangible, and digital documents, by comparison, as *virtual* – immaterial, weightless, and intangible – is plainly wrong, and he takes it as a sign of the fact that “we are trying to get at something important about new technology, but we haven’t yet gotten it right [...]” for, claims Levy:

Digital documents are *not* immaterial. The marks produced on screen and paper, and the sounds generated in the airwaves, are as material as anything else in our world. And the ones and zeroes of our digital representations are equally material; they are embedded in a material substrate no less than are calligraphic letterforms on a piece of velum. (Levy 2001: 155-156)

Obviously, whether we agree with Levy or with the ones who argue for the immateriality of the digital, will depend on our definition of *materiality*. Perhaps, if we follow N. K. Hayles’ distinction between materiality and physicality, Levy’s statements could be considered accurate; in *My Mother Was A Computer*, Hayles argues that

[m]ateriality [...] is an emergent property created through dynamic interactions between physical characteristics and signifying structures. Materiality thus marks a junction between physical reality and human intention. [...] I like to think of materiality as the constructions of matter that matter for human meaning. (Hayles 2005b: 3)

Such a claim goes hand in hand with what Hayles calls “The Computational Universe,” entailing that “the universe is generated through computational processes running on a vast computational mechanism underlying all of physical reality.” (Hayles 2005b: 3) This, however, is a different understanding of materiality than the one I endorse here. In contrast to Hayles, I understand materiality as having to do with physical substance, irrespective of human intention – therefore, I would say that rocks and trees are material

in that they have physical substance (matter).<sup>126</sup> Materiality, then, can in my definition be equated with *physicality*, and, consequently, with *tangibility* – something that is material possesses physicality and tangibility. For this reason, I will claim that it is Levy who hasn't gotten it right – that digital representations are not at all equally material to print-outs, and that although he is right in claiming that digital documents are *embedded in a substrate which is as material as the piece of velum used for calligraphy*, this is not the same as saying that the digital is material. Precisely this ontological difference between the material, physical, substrate of the computer and the immateriality or intangibility of the electronic and digital text embedded therein is what creates the peculiar ontological ambiguity of the GUI, an ambiguity entailing that the phenomenology of reading GUI narrative fictions is very different from reading, say, print narrative fiction. Hence, I agree with Mark J. P. Wolf, who states that, at base, whatever configurations are displayed on the GUI are in a unique way “detached from physicality,” in that they “exist conceptually instead of materially,” (Wolf 2000: 68-69) and this impacts their display in analog form as well. Even more importantly, this detachment from physicality impacts how we perceptually, cognitively, and phenomenologically relate to what we see on screen, which again, naturally, impacts how we experience and read a GUI narrative fiction.

As I will show in the present section, digital configurations – and, hence, GUI narrative fictions – are not only immaterial, but also fundamentally *ontologically intangible* and *detached from physicality*. These properties of the GUI warrant a new look at and a more precise understanding of the dichotomy of transparency and opacity, and how these aspects in turn affect our reading, perceptually, cognitively, and phenomenologically. Furthermore, I intend to show how and why the ontological intangibility and corresponding detachment from physicality have crucial – and unsupportive – impact for phenomenological immersion in GUI narrative fictions. Whatever we read on a computer screen – whether it be (still or moving) text, still or moving images, or computer-generated simulations – everything that is displayed on the GUI is characterized by the same peculiarly *ambiguous* ontological status. There are

---

<sup>126</sup> Without trailing off into complex philosophical discussions, I understand an object as having “physical substance” when it possesses any of the following physical properties: “[S]patio-temporal position, mass size, shape, motion, hardness, electrical charge, magnetism, and gravity.” (Honderich 2005: 716)

some essential differences between analog and digital sensory modalities – indelible, ontological differences that are necessary to come to terms with if we want to understand the phenomenology of our reading experience of the digital interface.

There is largely consensus among both media scholars, psychologists, HCI scientists, and the everyday internet surfer, that we seem to read in a different way when we read on screen, compared to, say, when we read print texts. Moreover, some theorists argue that it is not only our screen reading that is different, but that our reading modes and habits in general have changed; above-mentioned David Levy, for instance, claims that we live in an age characterized by “a general societal trend toward shallower, more fragmented, and less concentrated reading [...],” (Levy 1997: 202) and that our reading mode nowadays – no matter what the content, medium, or interface – is more likely to consist of short bursts of shallow attention which is maintained for short periods of easily interrupted time, rather than sustained and absorbed attention and focused reading. (Levy 1997: 206) The reason for such a fragmenting and shallowness of our reading practices Levy finds, not surprisingly, in the computer and in the ubiquitous influence of digital technology.

When trying to come closer to an understanding of why this is the case, however, Levy falters. He lists a few plausible reasons – such as the limited resolution of the computer screen, the flicker and back illumination which is tiring to the eyes, the fact that computers tend to “hum, buzz, and beep,” and that “screen layouts are typically quite cluttered and busy [...],” compared to a print page (Levy 1997: 209). From this he concludes that “[p]aper, it seems, is still better suited for deeper, more sustained, and uninterrupted reading.” (Levy 1997: 209)<sup>127</sup> Although I comply wholly with Levy’s conclusion, I believe that he hasn’t quite succeeded in pinning down the most fundamental reasons for it. First of all, many of the reasons Levy suggests are likely to be rendered irrelevant or at least less influential with fast and steadily improving technology.<sup>128</sup> More importantly, however, is an aspect of digital technology that Levy does not mention at all, and which is not susceptible to change with technological development. One of the main reasons why print paper is still, and most likely will

---

<sup>127</sup> Even though published in 1997, Levy’s conclusion, that paper seems to be better suited for deeper, more sustained reading, is as applicable today as it was almost a decade ago. (See also Levy 2001)

<sup>128</sup> The flicker and the back illumination, for instance, are considerably reduced with LCD displays.

always be, a better suited material for facilitating immersive reading of narrative fiction than the digital GUI, I'll claim, has to do with, precisely, *materiality* – more precisely, with the dimension of tangibility, or rather, when talking about the GUI, its *intangibility*.

## 15.2. Conceptually grasping the intangibility of the GUI

Curiously enough, although several new media theorists seem to be somewhat aware of the potential impact of the unique malleability and peculiarly ephemeral quality of the digital screen, few seem to pursue the issue beyond a purely descriptive and anecdotal level. Sven Birkerts describes the difference between the printed book page and the digital screen as follows:

The page is flat, opaque. The screen is of indeterminate depth – the word floats on the surface like a leaf on a river. Phenomenologically, that word is less absolute. The words that appear and disappear on the screen are naturally perceived less as isolated counters and more as the constituent elements of some larger, more fluid process. (Birkerts 1994: 156)

Birkerts' description is apt, but he is merely hinting at some in my view crucial ontological differences, and their corollary phenomenological implications. Besides, he seems to not really know how to conceptually deal with these aspects; how do we recognize a word as “less phenomenologically absolute” than another? And what is the “larger, more fluid process” to which Birkerts alludes? Although touching upon some core material and phenomenological differences pertaining to print and digital technologies, Birkerts' account does little more than scratch the surface of a much deeper problem complex.

Almost echoing Birkerts, Vivian Sobchack argues that, unlike the photographic and cinematic image, “the electronic is phenomenologically experienced not as discrete, centered, intentional projection but rather as a simultaneous, dispersive, and neural/'neutral' transmission.” (Sobchack 1992: 301) However astute Sobchack's phenomenological account may be, when expanding on the electronic in the article “The

Scene of the Screen” she seems to be struggling with somewhat similar conceptual challenges as Birkerts:

[E]lectronic presence disperses its being across a network, its kinetic gestures describing and lighting on the surface of the screen rather than inscribing it with bodily dimension [...]. Images on television screens and computer terminals seem neither projected nor deep – phenomenologically they seem, rather, somehow “just there” as we (inter)face them. (Sobchack 2004e: 158-159)

What, exactly, are the “kinetic gestures” of the computer screen? What does it mean that they are not “inscribed with bodily dimension”? How – and, even more interestingly, *why* – do electronic images seem “just there”, without any depth? As a way of better understanding, and describing, these issues at which both Levy, Birkerts and Sobchack are merely hinting, I suggest we pursue the aspect of *(in)tangibility* in more detail and with more conceptual rigor and concretization than purely phenomenological perspectives might yield. To this end, psychological theories of attention, perception, and cognition present themselves as particularly constructive.

What we mean when we say that something is tangible or intangible might not be so easy to grasp (pardon the pun) – but (physically) grasping is precisely what tangibility is about; it means that something is physically, tactilely, graspable to and for the different members of our bodies. Psychologist James J. Gibson has defined the properties we commonly call tangible according to the three following variables:

(1) *geometrical* variables like shape, dimensions, and proportions, slopes and edges, or curves and protuberances; (2) *surface* variables like texture, or roughness – smoothness; and (3) *material* variables like heaviness or mass and rigidity – plasticity. (Gibson 1966: 123)

Such a classification implies that a variable like the color, also called pigmentation, of a surface is not tangible, but only visible – we cannot get a sense of the color by sensorially feeling or touching the surface, only by looking. Contradictorily, a variable like temperature is tangible but not visible – we feel it, but we can’t see it.

From Gibson’s classification, and *pace* David Levy’s claim, I find it easy to agree with Mark J. P. Wolf in that GUI narrative fictions are intangible: “[U]nlike

media in which an image is inscribed in tangible form upon a surface, the digital image exists as an ethereal display derived from a set of numbers.” (Wolf 2000: 248) Brian Massumi goes even further in characterizing the intangibility of the digital: “[O]utside its appearances, the digital is electronic nothingness, pure systemic possibility. [...] The digital, a form of inactuality, must be actualized.” (Massumi 2002: 133) Because they are digitized, the constituents of GUI narrative fictions, whatever they may look like, are displays of binary code which is, by definition, inaccessible to our sensorium.

### **15.3. Phenomenologically grasping the intangibility of the GUI**

Different technologies and objects provide, in Ihde’s words, “different *frameworks for action*, [they] form intentionalities and inclinations within which use-patterns take dominant shape.” (Ihde 1990: 141; italics mine) The intentionalities and inclinations formed by tangible objects, such as a book, are significantly different than those formed by intangible “objects” – or, perhaps better, phenomena or appearances – such as the GUI. As intangible, the configurations on the GUI display a number of features which have a negative impact on phenomenological immersion in a narrative fiction.

The differences between a tangible and an intangible object are, in other words, phenomenologically distinct. The distinction is explained in Merleau-Ponty’s description of the impact of tactile perception on our phenomenology of experience. According to Merleau-Ponty, tangible objects display a special relation to movement and time, in this way supporting our experience of phenomenological temporality as well as of existential substance: “Movement and time are [...] a phenomenal component of tactile data. They bring about the patterning of tactile phenomena, just as light shows up the configuration of a visible surface.” (Merleau-Ponty 1962 [1945]: 315) As such, tactile – that is, *tangible* – phenomena or objects possess and display a *temporal and spatial constancy*, a relation to and dependence on both temporality and of our spatiotemporal dimension which make us phenomenologically intend – that is, experientially and phenomenologically relate to and perceive – them as having substance and phenomenological depth (cf. below), material existence, and spatiotemporal continuity and constancy:

That is how the constancy of a tactile object may come about through its various manifestations. It is a constancy-for-my-body, an invariant of its total behavior. The body is borne towards tactile experience by all its surfaces and all its organs simultaneously, and carries with it a certain typical structure of the tactile ‘world.’ (Merleau-Ponty 1962 [1945]: 317)

Such a phenomenological structure of experience is very different from the one generated and facilitated by the GUI. The digital, by definition, erases all traces of tangibility.<sup>129</sup> The analog display of text, images, and sounds on the GUI is characterized by a peculiar combination of latent dynamics, superficial and one-dimensional opacity, and intangibility. Together, these dimensions create and display an ontological and phenomenological ambiguity that can be better understood if compared with other, more ontologically and phenomenologically stable and materially unambiguous modalities, such as for instance the print text in a book. When reading print narrative fictions compared to GUI narrative fictions, our *phenomenological intendings* differ profoundly.

#### **15.4. Phenomenological intendings of tangibility and intangibility**

Our experiential relations with different technologies imply different phenomenological *intendings* (in phenomenology also called *correlational intentionalities*). Different objects, phenomena, occurrences, and their *affordances*, in our lifeworld – that is, different noematic correlates – correlate with different perceptual and experiential acts, or noetic correlates.

The psychological concept of affordances clearly illustrates the close relations between cognitivism and phenomenology. According to cognitivists Joseph and Barbara Anderson, the concept of affordances “connects the perception of objects with their meaning.” (Anderson and Anderson 1996: 361) The term implies the complementarity

---

<sup>129</sup> The obvious tangibility of the computer’s material platform and its hardware is not here considered part of the digital per se, but are understood as features belonging on a different phenomenological “level” – the mechanical/technological/material platform storing and displaying the digital, the GUI.



of “the animal and the environment [...],” or of the embodied subject and the lifeworld, to express it more phenomenologically. For the embodied subject (the phenomenal body, as Merleau-Ponty would call it), “the ground affords walking upon, an overhanging ledge affords shelter, an apple affords eating [...]. It is in the very act of seeing an object that one perceives its affordances. [...] An affordance thus defines the relationship embedded in perception.” (Anderson and Anderson 1996: 361) In a strikingly similar manner, Merleau-Ponty describes this relationship as fundamentally defining our phenomenological relation to our lifeworld:

Our body, as the potentiality of this or that world, surges towards objects to be grasped and perceives them. [...] [I]t is the piece of leather ‘to be cut up’; it is the lining ‘to be sewn.’ The bench, scissors, pieces of leather offer themselves to the subject as *poles of action*; through their combined values they delimit a certain situation, an open situation moreover, which calls for a certain mode of resolution, a certain kind of work. (Merleau-Ponty 1962 [1945]: 106; italics mine)

It seems reasonable to say that the cognitivists’ concept of affordances perform the same conceptual and defining function as Merleau-Ponty’s “poles of action,” denoting how different objects and phenomena in our lifeworld are imbued with certain features and characteristics according to which we correlate our perceptual, cognitive, and motor actions. The (perceptual, cognitive, motor, phenomenological) tasks to be performed in order to relate to, and engage with, different objects elicit, in Merleau-Ponty’s words, “a sort of remote attraction” from us as phenomenal bodies; our phenomenal bodies, in turn, are “already mobilized by the perception of scissors or needle, the central end of those ‘intentional threads’ which link him to the objects given.” (Merleau-Ponty 1962 [1945]: 106) The GUI mobilizes our phenomenal bodies in very different ways than a print book. The affordances of an object (i.e., its poles of action), then, can be said to pertain to the very intentionality inherent in and founding our relationship with our lifeworld, in that they define something equally pertaining to both the noetic and the noematic correlate of our embodied perception.

Tangible and intangible objects – or, perhaps better; tangible objects and intangible phenomena or appearances – display different affordances, entailing and engendering different intendings. Comparing the experiential difference between

(physical) installation art and a digital reproduction in computer-generated VR, Mark J. P. Wolf accurately observes that “the knowledge that something we are looking at exists before us in physical form influences how we feel about it [...]” (Wolf 2000: 224) The awareness that each physical object is created separately in the installation generates a very different phenomenological intending – embodied experience – than the knowledge that with computer-generated graphics the images of the objects can be duplicated, seamlessly and effortlessly, thousands of times.

When we perceive a tangible, physical object – say, a book – we carry out perceptual intendings; however, when we move from perceiving the book as an object, to perceiving the words and the text written on its pages, we change phenomenological intentionality from perceptual to signitive, from perceiving the perceptual physical object of the book and its pages, to reading the signifying appearances, the text (Sokolowski 2000: 12ff.). However, our perceptual intending is still part of the experience, it provides the base, so to speak, of our signitive intending of the text. This corresponds with how psychological theories describes our perception as consistently and fundamentally multisensory; just as we never merely see an object with our sense of vision, we never carry out one and only one intending isolated from all others. Each and every sense modality, and each and every intending, is always and at the same time cooperating with all the others in our sum of embodied intentionalities. However, in the various experiences of different objects and phenomena in our lifeworld, some sensory modalities, and – correspondingly – some intentionalities are more predominant than others. For instance, when reading a book the signitive intending is usually dominating the perceptual one so that we are more focused on reading and interpreting the text – for example a narrative fiction – than in perceiving the material substrate wherein it is embedded, the print paper. But, still, we co-intend the tangibility and physicality of the book and paper so that it forms part of our total experience. Similarly, when we take something to be a picture, say, a painting on a wall, our pictorial intending of the content of the painting is “layered upon the perceptual [intending], just as the picture we see is layered upon a fabric or a piece of paper that could also be looked at simply as a colored thing.” (Sokolowski 2000: 13) And we can, at will, shift our intentionality to paying more attention to the material basis, hence intend perceptually, or concentrate on the content of the painting, hence privileging the pictorial – or even symbolic/abstract –

intending. Nevertheless, we always co-intend the painting as a perceptual object, forming a background from which the figure of the painting as a picture stands out. This ability to voluntarily and deliberately shift intending corresponds to what Persson in his cognitive approach to moving images pointed to as our ability to settle for different levels of meaning depending on our mood or motivation at the moment – the fact that we can sometimes pay more attention to grammatical errors or typographical flaws than to the meaning of the words on the page, etc. (See Persson 2003: 36ff.; and "Levels of meaning" above)

If we compare the intangibility of GUI narrative fictions with that of moving images instead of with printed book pages and paintings, the two displays might not at first sight seem to be very different. The fleeting images of the movie screen appear to be as intangible and “flat” as the configurations of the GUI. As Currie points out, there is a peculiar disparity between the qualities of different material dimensions – or, what we might call the modes of intending:

There seems to be a difference between the substantial pictures we make contact with when we look at a painting or a photographic print, and the insubstantial pictures of film – the images on a screen. With painting, the picture we see is an enduring physical object. With film, there is a disparity between qualities of the physical material – the strip of celluloid that passes through the projector – and the qualities we perceive when watching the movie. In cinema we watch images. But these images are not the strips of celluloid themselves. (Currie 1995: 30)

Obviously, Currie’s statements are problematized by digital imaging technologies. Nevertheless, his observations of disparity between the qualities of the physical material are nevertheless crucial, and they point to a phenomenological disparity between different kinds of intendings, or intentionalities, we perform in relation to different kinds of objects and phenomena in our lifeworld. The substantiality that Currie ascribes to the painting as an enduring physical object has to do with, precisely, its *tangibility*, and the corresponding display of absence-within-presence, or phenomenological profiles. The moving images as displayed, of course, lack such absence-within-presence, and as such they are experienced as in a way lacking *spatial* depth or salience. However, what the moving images of the theater screen display, and the GUI narrative

fictions lack, is *temporal salience*, as well as a balanced entropy-redundancy ratio which supports and enhances the reader's perceptual and cognitive oscillation of foregrounding and backgrounding.

With this overview of affordances and their relation to phenomenological intentionalities in mind, we are in a better position to see how and why the tangibility/materiality of a technology platform, or more precisely, how the physical/material as well as the phenomenological relations between the technological platform and the narrative fiction affect the potential of the display to provide the experiential setting for phenomenological immersion in a fictional world.

### **15.5. Intending the invisible**

Closely related to the dimension of intangibility is yet another phenomenologically distinct feature of the GUI which impacts digital technology's affordances of phenomenological immersion in an unfavorable way. This feature has to do with what is *not* displayed on the screen – that is, it has to do with the phenomenon of *invisibility*, or what is in phenomenology commonly called “absence-within-presence.”

At first sight, to highlight invisibility or absence as something worthy of attention might seem strange. However, as I will show in this section, not only is invisibility (or absence[-within-presence]) an important aspect of our experience of reading GUI narrative fictions. Moreover, invisibility is closely related to the aspect of tangibility, in that only tangible objects display the features of invisibility so significant for our experiencing something as real and physically existing, with depth and substance – carrying phenomenological profiles, as Ihde calls them (Ihde 1993b: cf. below). Invisibility and intangibility hence reciprocally determine and depend on each other – and, in turn, our experience of an object.

Finally, invisibility is also an essential feature in any phenomenological approach to our experience of our lifeworld although, most of the time, we are probably not aware of it. But, as Sokolowski claims, “all experience is a blend of presence and absence, and sometimes drawing attention to this mixture can be philosophically illuminating.” (Sokolowski 2000: 36) And, I will claim, drawing attention to the

phenomenology of the absent, or invisible, is particularly interesting and relevant when studying the experience of reading GUI narrative fictions.

### **15.6. Phenomenologically grasping the invisible**

When we pick up a book, look at it closely, and take some time to reflect on the perceptual features of the experience, it becomes evident that the book, as an object being perceived by us, consists of more than immediately meets the eye. Even when left front-page up on the table, it still has a back cover, and numerous pages between the front and back covers, even though these are not perceptually available for us from our – and the book’s – position at the time. It is in fact essential to our experience of anything in our lifeworld that the perception be partial, a fact that is fundamental to any phenomenologist:

[No] object cannot be perceived in its totality because no one perspective can make all of its facets available at any particular time and from any particular standpoint. What is available is the object selected as a foreground from a background and the particular facets of that foreground facing the perceiver at a particular moment. [...] No object is totally available to our senses from any one standpoint. (Chamberlain 1990: 37)

But the temporarily unavailable facets of an object, such as the back cover of the book on the table, are nevertheless part of our experience of the book as an object, so that we would not be surprised, if we were to pick up the book and turn it around to look on the back cover of it, that it actually *has* a back side which is as physically existent as the front. It may not be visible, or accessible, to our perception at a particular time, but it is nevertheless an irreducible part of the overall phenomenological experience. We phenomenologically *co-intend* the temporarily invisible, inaccessible, parts of the book in our overall perception of it.

As Merleau-Ponty describes this tenet of phenomenology, “objects are really there for me, and their invisible aspects have reality precisely because I can move around so as to *bring them into view and touch them.*” (Quoted from Moran and

Mooney 2002: 425; italics mine) Here Merleau-Ponty also points to the close relation between invisibility and tangibility and how these two dimensions are both intimately connected to our experiencing something as physically existent. The back cover of the book is not absent as such (i.e., as having no physical presence), it is merely invisible for my presently situated perception. As Merleau-Ponty expresses it, “the hidden side is present in its own way. It is present in my vicinity.” (Quoted from Sobchack 1992: 292) Hence, the hidden side is not absent as such, but it is (temporarily) invisible. Phenomenologically speaking, the back side of the book is an “absence-within-a-presence.”<sup>130</sup> With some adjustment of either the book or my body, the back of the book can become visible.

From a phenomenological perspective, we grasp the unseen, the invisible, as real and present, in its own way. Moreover, the invisible is real and present in a way that significantly impacts our experience of the thing perceived. The invisible, says Sobchack, is that which “grounds vision and gives the visible within it a *substantial thickness and dimension*.” (Sobchack 1992: 290; italics mine) Precisely such a substantial thickness and dimension, or “depth,” as Ihde terms it, is a feature of “all perceptions with both manifest and immanent characteristics – objects present profiles, but profiles carry with them the significance, ‘having a backside,’ etc.” (Ihde 1993b: 75) Such phenomenological profiles are – truly – absent in whatever we read on the GUI, due to its intangibility and corollary lack of “absence-within-presence” which adds thickness and dimension to the object.

---

<sup>130</sup> Cf. Pollio, Henley and Thompson 1997: “Experiences such as these were described by Husserl as the object's inner horizon so as to stress the (experiential) fact that objects usually are not perceived as façades (as they may be in trompe l'oeil paintings) but as having *thickness and dimension*. Objects that appear always do so as a play of presence and absence-within-presence that yields the more general experience that things exist as objects independent of me in the field ‘out there.’” (Pollio, Henley and Thompson 1997: 14; italics mine)

### 15.7. Reproducing tangibility and phenomenological depth in *Califia*

In *Califia* there are several examples of how the lack of tangibility and absence-within-presence in the GUI narrative fiction is attempted reproduced, as if to give the displayed verbal and visual representations some phenomenological depth and profile. In the “Archives” section, for example, there are several nodes displaying photos of receipts, letters, and tickets, shown with traces of tangibility such as folds, shades, the glare from the typed letters on the other page, texture, and handwriting (see Appendix, Graphics IV and V). In nodes such as these we see how the tactility and tangibility of documents is being attempted reproduced in a digital display by displaying photos of objects displaying phenomenological profiles (folds and texture, having a backside), as well as the very signature of tangibility – handwriting.

The phenomenological impact of the physical inscriptions on some material entailed in handwriting was underscored by Heidegger and contrasted to the impersonality and mechanization of writing introduced by the typewriter. When writing with a typewriter, Heidegger says,

the word no longer passes through the hand as it writes and acts authentically but through the mechanized pressure of the hand. The typewriter snatches script from the essential realm of the hand – and this means the hand is removed from the essential realm of the word. The word becomes something ‘typed.’ [...] Mechanized writing deprives the hand of dignity in the realm of the written word and degrades the word into a mere means for the traffic of communication. Besides, mechanized writing offers the advantage of covering up one’s handwriting and therewith one’s character. (Heidegger 1982 [1942]: 118-119)

As Sobchack, among others, has shown (Sobchack 2004f), replacing the typewriter with the computer and its word processing software merely introduces new features of equally impersonalized and “bodily detached” writing – a writing modality, moreover, that is much more monosensory (and certainly more phenomenologically monotonous) than handwriting.<sup>131</sup> Although digital word processing does provide some features intended to facilitate a more “personalized” and idiosyncratic mode of writing (bold and

---

<sup>131</sup> Barbara Gentikow notes how the handwriting entails and (potentially) displays traces of several sensory traits of the writer, such as temper, stress, or nervousness (see Gentikow 2005).

italic font types, for instance – not to mention font types that are supposed to appear as “handwriting-like”<sup>132</sup>) and thereby attempting to reintroduce the “felt origination” that authentic handwriting entails (Heim 1999: 186), the paradoxical experiential outcome of the digital attempts at recreating the trace of the tangible is to even further detach the embodied relation to the inscribing efforts – the writing – from the displayed outcome, thereby adding yet another layer of phenomenological detachment to the noetic-noematic correlation. When handwriting with pen on paper, we experience a direct and phenomenologically unambiguous relation between the noetic act of inscription (as well as the noetic act of reading) and the noematic correlate of the pen moving across the paper (and, correlatively, the written text that we read). Both as writers and as readers, we co-intend the materiality of the technology (both the instrument and the surface of inscription) as we intend the conceptual (signitive, symbolic), that is, the content of what we write/read. This close and embodied relationship between the means or technologies of writing/reading and our experience of both the act of writing/reading as well as the result – the text – is dramatically changed, first with the typewriter and, perhaps even more dramatically, with the digital word processor. In these two technologies, the embodied dimension of the text/inscription is replaced by first mechanized and then digitized features by means of which the text/inscription is phenomenologically detached and disembodied; the phenomenological trace of the tangible is completely eradicated with the digital GUI.

The tentative reproduction of the tangible in *Califia* does not bring about the experiential effect of phenomenological immersion, transporting us to the place and time of the story, and providing the narrative with the required spatiotemporal setting, and phenomenological depth and profiles. Despite its graphic attempt at reproducing texture and the display of Walter Benjamin’s well-known “aura” (Benjamin 1969) of spatiotemporal origin and felt distance from the reader, nodes displaying the handwritten letters and typewritten receipts appear as equally detached and “flat” as any other node in the GUI narrative fiction.

The importance of such felt distance between a work of art (or, I would claim, any object or representation) and the reader is evocatively described by Mark Wolf;

---

<sup>132</sup> For instance fonts such as **Jenkins**; *croobie*; and *Poornut*.



invoking Benjamin, Wolf observes how, in artworks that do possess “aura,” this “unique phenomenon of distance, however close [the artwork may be] [...] is always felt by the observer.” (Wolf 2000: 66-67) Implied in the concept of aura, then, is the appearance of the object as existing as a given, unalterable object, spatiotemporally disconnected from the viewer. This imbues the object with substance and constancy, with a sense of origin and of phenomenal presence – historically as well as contemporaneously. With the digital “object,” such as a GUI narrative fiction, the appearances are fundamentally different: “Since the digital work of art as a conceptual construct is not a physical object, there can be no way of measuring a physical distance from it, we can not approach ‘nearer’ to what is ephemeral.” (Wolf 2000: 67) In the case of the GUI narrative fiction, then, “even the sense of perceptual distance differs from that of the physical realm.” (Wolf 2000: 67) Comparing the physical painting hanging on a wall in a museum with a virtual gallery on the GUI yields similar experiential differences:

[T]he material world is uniquely left behind in the virtual gallery where the presentation of paintings is offered as practically substitutable for the real experience. This [i.e., the Microsoft Art Gallery] is not just one poster, but an entire collection. The aura of an actual painting grabs our attention when we stand before it, but the full texture of the painting is lost on the screen. One cannot move towards the virtual painting, back up, tilt one’s head, view it from this angle now, all in accordance with what seems to be elicited by the actual painting when we are in its presence. (Higgs, Light, and Strong 2000: 10)

Part of the reason why even graphical reproductions of handwritten material such as the ones above do not facilitate phenomenological immersion and the sense of “felt originality” that Heim talks about, has to do with the overall display of the GUI: the layering of graphic reproductions and digital photos, digitally produced text and links, interactive icons etc. Such layering brings about the aforementioned leveling of dimensions which in turn makes the reading mode and phenomenological experience one of scanning, because all configurations are experienced as appearing at the same surface level. However, equally important is the aforementioned lack of absence-within-presence in the GUI, entailing a lack of phenomenological profiles and tangibility. No matter how flawless and sharp the digital reproduction in the form of a digital photo of a

handwritten page is, it will never acquire, nor be able to reproduce, the texture and the substantial thickness of its original. The attempts at reproducing depth and dimensions (such as adding shades to icons and documents, or reproducing the folds and the glare from the back pages as we've seen in *Califia*) fall short of bringing about the perceptual intentionality originating from our felt presence of an actually existing physical object. When reading *Califia*, irrespective of the configurations of the node, what we intend perceptually – that is, experience as a tactile, tangible object – is the computer and its tangible hardware. And this perceptual object displays a very different experiential and phenomenological relation to the narrative fiction – in *Califia*, the text (i.e., the narrative fiction) is ontologically and phenomenologically detached from its material substrate in such a way that our perceptual intending of the material platform (the computer) does not in any way support our signitive intending of the narrative. Instead, we switch between two ontologically and phenomenologically distinct and detached levels or layers, and the intangibility and corresponding lack of spatiotemporal salience and constancy of the GUI make our experience of the narrative – i.e., the potential for phenomenological immersion – highly vulnerable to phenomenological intrusions from the materiality of its technological platform, namely the computer.

Janet Murray's definition of *agency* is apposite here. Calling it “the second characteristic delight of electronic environments [...],” she defines agency as occurring when “the things we do bring *tangible* results [...]:”

Agency is the satisfying power to take meaningful action and see the results of our decisions and choices. We expect to feel agency on the computer when we doubleclick on a file and see it open before us. However, we do not usually expect to experience agency within a narrative environment. (Murray 1997: 126)

However, I will claim that seeing a file open before us when clicking on an icon on the screen is as far from a tangible result as it is possible to get, and precisely the fact that this is *not* a tangible result (such as the turning of a page in a book *is* a tangible result, bodily and causally connected to our actions) makes the computer a poor device for

creating phenomenological immersion.<sup>133</sup> We are never, and will never get, in tangible contact with the letters on the screen in the way we are with the letters on the page, but find ourselves always at an undefined but strongly felt remove from the display, detached and disembodied as it appears, and in lack of spatiotemporal salience and constancy. In the case of reading narrative fictions in books, the materiality of the platform, consisting of the book pages and the binding, is not in the same way detached from the narrative, so that we easily co-intend perceptually and signitively. In such experiences, these intentionalities mutually enhance each other, together creating a supportive physical and tangible – as well as phenomenological – environment for phenomenological immersion.

The importance of the experiential impact of the trace of the tangible in handwriting occurred to me in perhaps the unlikeliest of places – Xerox PARC. During the weekly meetings of the RED (Research in Experimental Documents) group at PARC, manager Rich Gold<sup>134</sup> always insisted on using pens and a white board, on which he would vigorously jot down the ideas from the group’s brainstorming and then meticulously record (on video) the visible results of the session afterwards. In fact, the seemingly mundane writing technology of white boards equipped with pens, for handwriting, is ubiquitous at PARC – perhaps somewhat surprising, viewed in light of the fact that the think-tank at least used to be, if not still is, considered one of the most advanced technology labs in the United States. Hence, the trace of the tangible and tactile undoubtedly plays a crucial part in our relating to and using technologies. This further implies the importance of the correlational intentionalities of tangibility and tactility, namely, the perceptual, tactile and haptic intendings. It is my claim that the GUI’s lack of these affordances combined with the computer’s affordance of particularly haptic intentionality is a major reason for the difficulty of reconciling the

---

<sup>133</sup> In contrast, agency is what we can say we experience when walking through a VR installation with data gloves and other bodily-attached equipment *providing haptic and tactile feedback*. Such experiences, however, are very far from merely seeing the visible changes on the GUI screen when clicking, and they afford quite different intendings with very different consequences for our feeling of immersion.

<sup>134</sup> Rich Gold (who died in 2003) founded the PAIR-project (PARC’s Artist-In-Residence project), and was a well-known and respected speaker on the relations between art, technology, and society. The RED group was dissolved by the end of the year 2001; some of its members went on to create Onomy Labs ([www.onomy.com](http://www.onomy.com)) wherein they continue the research philosophy of RED.

technological platform of the computer and its GUI display with favorable experiential settings for phenomenological immersion in a narrative fiction.

## CHAPTER 16: HAPTIC INTENDING

### 16.1. Introductory

Different materialities and technologies, then, afford different intendings – or, in the words of Don Ihde, different *frameworks for action*. (Ihde 1990: 141) Expressed in more cognitivist terms, different materialities and technologies require and engender the engagement of different sensory modalities. This is particularly noticeable when we study the GUI, and compare it with, say, moving images or print books.

Both the dimension of tangibility and the phenomenon of absence-in-presence are closely related to the *tactile* and *haptic* sense modalities. As such, our experiential, cognitive and phenomenological relations to a tangible object imply and activate our phenomenal bodies in a significant way, and in very different ways than our intentionalities of intangible phenomena or appearances do.

### 16.2. The neglected but crucial haptic modality

Despite the focus on the body and on embodiment in today's cultural and media studies discourse, the importance of the haptic sense modality and of haptic intending for our experience of and interaction with the lifeworld is not commonly acknowledged or understood. This widespread and largely internalized neglect becomes obvious when we are reminded of how fundamental haptics and the rest of our tactile sensorium were in our lives from its very beginning:

As infants, we tend to learn as much, if not more, about our environment by touching as well as looking, smelling, or listening. Only gradually, and after many warnings by our parents not to touch this or that, we do finally manage to drive the tactile sense underground. But the many do-not-touch signs in stores and especially in museums suggest that

apparently we still would like to touch objects in order to get to know them better and to enrich our experience. (Zettl 1973: 25)

Similarly, computer scientist Dag Svanæs talks about "the lost 'feel' dimension," lost both in adults, and in current research on the GUI. Arguing that we live in a culture where the eye is by far considered the dominant sense, Svanæs points to how large efforts and investments have been made in making the GUI *visibly* appealing, and comparatively less focus has been given to the "touch and feel-dimension," or what he calls "the interactive sense of the interfaces [...], [or] our sense-for-the-interactive-quality-of-things." (Svanæs 1999: 217)<sup>135</sup> When we are children, our touch-and-feel dimension is highly active, but as we grow up, we tend to lose some of the strength and clarity of the sense of touch (and smell, it is argued), so that we somehow have to re-learn how to make use of it.

Both Zettl's and Svanæs' use of the notion of "touch" above complies with what J. J. Gibson points to as our use of the term "touch" in everyday parlance, which differs from how a psychologist would use the term: "When a person puts on his shoes in the dark or fits a nut into a hidden bolt, he says that he does it by 'touch' or by 'feel.' The psychologist says that he does it with two separate senses, kinesthesia and skin pressure." (Gibson 1966: 97) In order to avoid further unnecessary conceptual confusion, and building upon my previous definitions of the different sense modalities, I will refer to this touch/feel modality as the *haptic modality*, and I define it in accordance with Gibson's understanding as "[t]he sensibility of the individual to the world adjacent to his body by the use of his body [...]." (Gibson 1966: 97) In other words, the haptic

---

<sup>135</sup> During the past few years, it seems Svanæs' plea for increased focus on the "feel dimension" of interactive technology is being heard in parts of the HCI community. As could be expected with a field which is developing as fast as computer science and HCI, there are now research groups in media and technology labs working specifically on the haptic, touch-and-feel, dimension of digital interfaces. For example, The Tangible Media Group at MIT (<http://tangible.media.mit.edu/>) describe themselves as trying to "bridge the gap between digitality and physicality," and their aim is precisely to design "tangible user interfaces" which employ physical objects, surfaces, and spaces as tangible embodiments of digital information." Their goal is to change what they call the "painted bits" of GUIs to "tangible bits," taking advantage of "the richness of multimodal human senses and skills developed through our lifetime of interaction with the physical world." Nevertheless, by and large, the new media research community has still to catch up with this crucial dimension of digital technology.

sensory system is what is operating when we feel things with our body or its extremities – such as our hands and fingers. In and by the haptic sense modality, we feel a tangible object relative to the body (and particularly our dexterities) and the body relative to a tangible object. The haptic system is the perceptual system by which we are literally in touch with the environment – for example in the form of GUI narrative fictions.

Vernacular features, such as metaphoric expressions, are other indicators of the importance of the haptic sensory modalities for our cognitive development and functioning. Numerous metaphors and expressions for understanding and comprehending something consist of terms and notions referring to *dexterity*: expressions such as "to get a hold of," "to handle a situation," "to grasp a concept" all point to (yet another dexterity function) the paramount influence of our hands and fingers for dealing with the external world. This intimate connection between the body – for example, its extremities, like hands – and cognition is also underscored in phenomenology, in particular that of Maurice Merleau-Ponty:

It is the body that 'catches' [...] 'and 'comprehends' movement. The acquisition of a habit is indeed the grasping of a significance, but it is the motor grasping a motor significance. [...] If habit is neither a form of knowledge nor any involuntary action, then what is it? It is a knowledge in the hands [Merleau-Ponty's example is knowing how to use a typewriter], which is forthcoming only when bodily effort is made, and cannot be formulated in detachment from that effort. (Merleau-Ponty 1962 [1945]: 143; 144)

The hands and other body members, then, are highly active and important means of perception, representing an access to our lifeworld which in some cases could not have been established by any other sense modality. In our everyday whereabouts, however, we are just not used to thinking of the hands and other extremities as sensory organs of crucial importance to our perception, because, says Gibson, most of our day-to-day manipulation is *performatory*, not *exploratory*: “[T]hat is, we grasp, push, pull, lift, carry, insert, or assemble for practical purposes, and the manipulation is usually guided by visual as well as by haptic feedback.” (Gibson 1966: 123) Because of this, the perceptual capacity of the dexterities is often ignored – both because we pay more attention to their motor capacities, and because the visual modality dominates the haptic

in our awareness. However, when reading GUI narrative fictions, the relationship between the haptic and the other modalities is altered to such an extent that the – negative – impact of the haptic on phenomenological immersion in a narrative fiction is revealed.

### **16.3. Sensory combinatorics; multisensory reading**

The ways in which sensory modalities combine and interact is a rich and largely neglected area of study in media studies – to such an extent that Brenda Laurel’s statement, by and large, still holds true (also for other new media representations and technological displays than VR):

While much is known about the human visual or auditory or tactile senses, relatively little is known "scientifically" about how these senses combine. Still less is known about how they combine in the context of representations, as opposed to the context of the actual world. The study of sensory combinatorics, that is, how vision affects audition or how the two in concert affect emotion, was almost exclusively the province of the arts until VR came on the scene. (Laurel 1993: 207)

One of the main reasons for such a continued neglect of “sensory combinatorics” is, I’ll claim, the aforementioned scientific (and professional) schism between media theorists and psychologists, and the resulting ignorance and even discrediting of psychological theories by the former. However much some theorists claim that they will,<sup>136</sup> predominantly hermeneutic and aesthetic and/or literary approaches to (new) media will never yield significant knowledge about experiential – and essential – relations between different technological displays and ourselves as embodied human beings. Interpretations simply do not produce scientific results.<sup>137</sup>

---

<sup>136</sup> Cf. for instance Baetens and Van Looy 2003b, Hayles 2000, Hayles 2002b, Hayles 2003, Hayles 2004b, Hayles 2005b.

<sup>137</sup> Cf. Bordwell: “If science aims to explain processes underlying external phenomena, interpretation does not on the whole produce scientific knowledge.” (Bordwell 1989a: 257)



When media theorists have ventured into the area of sensory combinatorics, they have tended to focus quite exclusively on the combination of the sensory modalities of image and text, or image and sound. In this context, I will draw attention to Michel Chion's study of what he calls "audio-vision" in moving images. Pointing to how "we never see the same thing when we also hear [...], [and] we don't hear the same thing when we see as well [...]," (Chion 1994: 3) Chion argues that combinatory audiovisual presentation – such as moving images, or many GUI narrative fictions – enriches the visual expression and creates in the spectator (and listener) the total sensory impression of the audiovisual presentation that sound is somehow already contained in the image itself. This feature Chion calls "added value": "[A]dded value gives the (eminently incorrect) impression that sound is unnecessary, that sound merely duplicates a meaning, which in reality it brings about, either all on its own or by discrepancies between it and the image." (Chion 1994: 5)

Chion's study of audio-vision and trans-sensory perception<sup>138</sup> finds theoretical corroboration in psychology – for instance in dual-coding theory, which assumes that there are two cognitive-perceptual subsystems, one dealing with the representation and processing of nonverbal phenomena (images, sounds, etc.), the other one specialized for dealing with verbal language (cf. for instance Sadoski and Paivio 2001). The fact that auditive and visual sensory modalities can be mutually enhancing and facilitating for both momentary attention and for deeper cognitive and experiential purposes is well known for psychologists. As Nitzan Ben-Shaul claims, dual-coding theory explains (and narrative films show) how the combination of moving images and sounds can be more powerful in building and sustaining attention than each of these modalities in isolation, because

when images and sounds are presented the viewer/listener builds verbal and visual representations and connects between them. This leads to a

---

<sup>138</sup> In line with psychological theory, Chion explains how most if not all of our perceptions are, at base, trans-sensory: "[T]he eye carries information and sensations only some of which can be considered specifically and irreducibly visual (for example color); most others are transsensory. Likewise, the ear serves as a vehicle for information and sensations only some of which are specifically auditive (for example pitch and intervallic relations), the others being not specific to this sense." (Chion 1994: 137)

deeper and more sustained attention than when only sounds or images are presented, since with the latter she is less likely to build a correspondingly visual or verbal mental representation and interconnect them. (Ben-Shaul 2003)

However, it is also the case that not all audio-visual combinations work to enhance and enrich our attention and experience. Referring to cognitive constructivist film theory, Ben-Shaul states that “sound films deeply engage and sustain the attention of viewers/listeners if they allow them to construct coherent narratives and audio-visual formations out of the flow of shifting sounds and images.” (Ben-Shaul 2003) In other words, an entropy-redundancy ratio, or a gestalt balance between foregrounding and backgrounding, must be generated and maintained.<sup>139</sup> And as we have seen, in GUI narrative fictions, this gestalt balance is often destroyed because of the leveling of dimensions and lack of temporal and spatial salience that the digital base of the GUI entails.

While the sensory combination of audio and vision, then, is fairly well taken care of by both media theorists and psychologists, fewer – at least within media studies – have attempted to cover more complex and unfamiliar territory of sensory combinatorics, for example combinations of tactile, haptic and proprioceptive modalities with auditive and visual ones (not to mention the perhaps even more unfamiliar – and for media theorists at least hitherto seemingly irrelevant – modalities of smell and taste). However, with the emergence of multimedial and –modal, interactive, GUI narrative fictions, the haptic modality in my view warrants particular attention. Moreover, studying the impact of the haptic modality on our reading of GUI narrative fiction from the combined perspective of phenomenology and psychological theories of perception and reading holds out promise of considerable explanatory gain in an area of study which has hitherto been unduly neglected in (new) media studies.

---

<sup>139</sup> Ben-Shaul calls this “the viewer/listener Gestalt-cohering thrust,” which is dependent on a “constantly re-established cohering audio-visual spatial, temporal, and narrative formation.” Contrarily to this experience, “non-cohering, de-centered, and closure-less narrative and audio-visual formations frustrate or distract the viewer/listener Gestalt-cohering thrust by demanding he simultaneously be equally attentive to a flow of several audio-visual occurrences unrelated in space or non-consecutive in time.” (Ben-Shaul 2003)

Using an expression from psychology, we can say that during the reading of GUI narrative fictions, we are often likely to experience the attentional capture of haptics – or haptic capture. Such a crossmodal capture is difficult to reconcile with phenomenological immersion in a narrative fiction.

# CHAPTER 17: CROSSMODAL ATTENTIONAL CAPTURE

## 17.1. Introductory

Discussing a controversy within psychological research, namely crossmodal attentional capture, Charles Spence asserts: “The notion that certain mental or physical events can capture attention has strong intuitive appeal. Such intuitions are typically based on experiences in which an irrelevant event summons or attracts attention away from the demands of a current task.” (Spence 2001: 231) The controversy among psychologists concerns the potential occurrences of crossmodal attentional capture – that is, whether one sense modality, for instance the auditive, can capture the attention of another, for instance the visual modality.

Traditionally, psychological research on attentional capture has typically focused on the crossmodal relations between the auditive and the visual senses at the expense of the other sensory modalities. As Spence claims, empirical research now largely supports the view that crossmodal capture effects can occur between all combinations of auditory, visual, and tactile stimuli; this hypothesis is also corroborated by everyday experiences, for example “when we suddenly turn our heads to inspect the source of a loud bang (the auditory capture of visual attention), or else to look at a fly that has unexpectedly landed on our arm (the tactile capture of visual attention).” (Spence 2001: 232)

Spence merely refers to crossmodal capture between auditory, visual, and tactile stimuli. Applying this theory to our reading of GUI narrative fictions, I venture to suggest that we can talk about *haptic capture of the visual and auditory* – or, in phenomenological terms, the experiential “capture” (or dominance) of haptic and/or tactile intendings over signitive and pictorial intendings, and – correspondingly – the phenomenological dominance of the embodiment and alterity relations over the hermeneutic relation. In other words, when reading GUI narrative fictions, the

affordances of bodily motor actions often take precedence over the affordances of cognitive operations. Such experiential correlations are, as I will show below, if not entirely incompatible with, then at least highly unsupportive of the phenomenological immersion that we (usually) relish when reading narrative fiction.

## 17.2. Haptic capture of the signitive (and pictorial) intentionality

GUI narrative fictions afford crossmodal attentional capture in ways and to extents hitherto unknown from our reading of narrative fictions displayed by other media and technologies. One dimension facilitating crossmodal attentional capture is the intangibility and “lack of invisibility” of the GUI, resulting in the noticeable lack of depth mentioned above.

Although its label certainly suggests otherwise, the phenomenon of invisibility is not limited to visual modalities, but pertains as much to all the other sense modalities that are at work simultaneously in any act of perception. As such, it becomes an illuminating demonstration of the fundamentally *trans-sensorial* nature of our experiences:

For example, what is invisible or “absent” in vision might be audible or “present” in perception to inform the act and significance of seeing. Thus, what is concretely “sensed” as significant by the embodied subject may be invisible in vision, or, as well, to vision but still available to perception – of which vision is only a single modality [...]. (Sobchack 1992: 291)<sup>140</sup>

---

<sup>140</sup> Apparently, Sobchack here endorses the cardinal thought in phenomenology of synaesthetics and a holistic perspective on perception and experience. It is worth mentioning, however, that she – at least in *The Address of the Eye* – herself seems to give a disproportionate amount of attention to precisely vision at the expense of other sense modalities (even the title can be read as an indication of this), to such an extent that Wahlberg accuses Sobchack of “a paradoxical bias towards the visual in reference to ‘film viewing’ [...],” hence not really being consistent with the embodied perception that she explicitly intends to theorize (Wahlberg 2003: 117). In later works, however, Sobchack’s phenomenological perspective can, at least to a certain extent, more appropriately be called trans-sensory and syn-aesthetic (as in some of the essays in *Carnal Thoughts* , such as “What My Fingers Knew” [Sobchack 2004g] and “Susie

Analogously with aforementioned Michel Chion's claims about the trans-sensorial quality of combinations of images and sound, I want to emphasize the equally – but at the same time very different – trans-sensorial quality of the many possible sensory combinations of the GUI embedded in GUI narrative fictions. Not only are text, images and sounds combined in any conceivable configuration, and in different ways and to different degrees made interactive; in addition, the clickable configurations of the GUI (any text, or other icon or symbol that yields to the mouse click) and their specific correlational intendings – affordances – imbue the GUI with intentionalities and affordances making the reading of GUI narrative fictions a very different phenomenological and perceptual-cognitive experience than what we are used to with other media and technologies. To paraphrase Chion: We don't read the same text, or the same audiovisual representation, when there are links and hot spots to click on, as when there are no such possibilities for interactivity. As Chion was describing audiovision, there is in the multisensory modalities of the GUI what you can call perceptual, cognitive and phenomenological “contamination” of one sensory modality to the other(s), which can be related to the psychological theories of attentional capture, as well as to the phenomenological aspect of absence-within-presence and multisensory experience. Furthermore, the attentional impact of the haptic intending in our reading of GUI narrative fictions is in conflict with phenomenological immersion, while supporting technological immersion.

The GUI, as mentioned, does not display the phenomenological dimension of invisibility or temporary and situational inaccessibility due to its lack of tangibility. It might still be reasonable to say that it does somehow display a kind of *temporary inaccessibility* encountered as an experiential potential, a latently accessible actualization of something currently unavailable, which becomes readily accessible with the click of a mouse. This allure of the link and of what is beyond it might at first sight appear as instances of what Grodal describes as the “boundedness” of film and television: “The typical boundedness of film and television is not spatial, however, but temporal; the boundary is not ‘what is outside the spatial frame but ‘what is beyond the

---

Scribbles’: On Technology, Techne, and Writing Incarnate” [Sobchack 2004f]) – although auditory modalities are not particularly prevalent.

temporal now?” (Grodal 1997: 63-64) However, because of the lack of both spatial and temporal salience of the GUI, our phenomenological experience of this “beyond” of the link is less a part of a temporal sequence (and narrative structure) and hence an instance in a felt temporality of retention and protention, than a dismembered, detached, instance of instant access to some accidentally occurring node in a network where none of the elements are any more salient than others. In such a psychic framework we click – perhaps because we are getting bored with the currently available screen image and need to rekindle our attention, not necessarily because the (lack of) narrative and syntagmatic structure and temporal salience in the GUI narrative fiction we are currently reading, motivate us to click.

The spots that yield in the GUI display afford easy access to something beyond our present experience – the “felt moreness” to ongoing experience which Massumi describes. As such, the links and activated icons, texts etc. on the screen afford haptic intentionalities. In the way we experience the affordances of the ground as the ground to walk upon, and the pair of scissors to be used for cutting, we experience the icons and text as links to be clicked on; they present themselves as poles or frameworks of action according to which our phenomenal body intends the appropriate perceptual, cognitive, and motor actions – i.e., clicks with the computer mouse. Thus, buttons or areas with inscriptions such as “Follow me” (see Appendix, Graphics VI) in many of the nodes in *Califia* present themselves not primarily as forms to be seen or read (i.e., affording primarily perceptual, pictorial or signitive intending), as much as a potential for action (i.e., affording primarily haptic intending): In such nodes, with the alluring “Follow me” and the cursor turning to a pointing finger, I will claim that the haptic intending afforded by this link captures the attention of the otherwise potentially signitive and hermeneutic intending of the screen. The experiential implication of such a crossmodal attentional capture by the haptic is that our perceptual and phenomenological focus and terminus is not the hermeneutic relation to the part of the narrative fiction presented in this node, but rather the alterity relation to the affordances of the link “Follow me”. The primary affordance of the node above, then, can be said to be the haptic intending of the link, rather than the signitive intending of the narrative fiction section reading “On the day after my father was buried, I began digging on the hill behind the house in Whitley Heights. The air was hot and the wind was rising.” The well-known phenomenological

experience of such attentional capture is the impatience we often experience when reading hypertexts or surfing the Internet. We are, as Ben-Shaul describes it, neither here nor there – in an experiential situation bereft of both physical and phenomenological presence:

[C]ombining passive [e.g., reading “static” and non-yielding text] and behaviorally active cognitive constructiveness [e.g. clicking on links] demands multitasking that may generate split attention overload [...]. More problematic, however, is the split attention of the viewer/user between what he/she cognitively constructs from what’s going on in front of him/her, and his/her constant awareness to what may potentially lie at stake in options made available by behaviorally changing the course of events. [...] In all of these experiences the behavioral option is restlessly often activated, resulting in the user/viewer being neither here nor there. (Ben-Shaul 2003)

Such an experiential position of split attention is by definition irreconcilable with the deep, immersive state of reading that we experience with, for instance, riveting thrillers and suspenseful detective stories. In order for phenomenological immersion to be obtained, our cognitive capacity needs to be more or less fully occupied in a cohering and consistent way so that we do not experience any perceptual or cognitive surplus of attention available to other tasks (cf. Douglas 2000a; Douglas and Hargadon 2000b; Nell 1988). When afforded the possibility to click on “Follow me,” however, while reading the text in the node, our attentional allocation is already partly directed towards the haptic intending of clicking, rather than fully directed toward the signitive and hermeneutic, and hence potentially immersive, intending of the narrative fiction. This is, then, one example of how vulnerable our signitive intending of the narrative fiction in a GUI is to the intrusion by the haptic, due to the ontologically and phenomenologically detached and disconnected relation between these two dimensions of the GUI narrative fiction.

Ben-Shaul refers to the usefulness of cognitivism and dual-coding theory in order to understand this experiential mechanism. What such a purely psychological approach fails to recognize is the crucial impact of the *motor actions* (i.e., in this case, the haptic dexterity involved in and activated by the clicking with the mouse) entailed in our intentionality and in the affordances of the screen – Merleau-Ponty’s above-



mentioned “poles of action” (Merleau-Ponty 1962 [1945]: 317). Hence, in order to fully understand both our reading experience of such nodes as the ones from *Califia* shown above, as well as the underlying causes for our experience, the psychological approach benefits greatly from being supplemented by a phenomenological one. For this purpose, Ihde’s phenomenology of human-technology relations seems to me an obvious choice.

## CHAPTER 18: PHENOMENOLOGICALLY RELATING TO THE COMPUTER

The phenomenology of Don Ihde provides a considerably more substantial account of our relation to and experience of the GUI than the aforementioned metaphorical approaches. Moreover, it can be easily and rewardingly combined with the psychological and cognitivist theories I have made use of, in that way connecting the somewhat detailed and piecemeal insights from psychological research to a broader and more existential, if you will, context. If successful, such a theoretical and conceptual bridging will shed light on the philosophical significance of, say, our inclinations to attentional switching when reading GUI narrative fictions, and suggest some wider experiential implications of the dominance of the haptic modality over the signitive in a digital environment.

As with the metaphorical approaches to GUI as window and mirror, Ihde's phenomenology of human-technology relations revolves around the experiential dimensions of transparency and opacity, albeit in a much more accurate and at the same time more fundamental way. As such, Ihde's triadic model of embodiment, hermeneutic, and alterity relations can also be related to Carroll's differentiation between direct and indirect seeing (cf. chapter 14, "Transparency and Opacity," above). In that regard, Ihde's embodiment and hermeneutic relations are particularly relevant. As in Ihde's embodiment relations, when we in Carroll's sense "see directly," there is a (partial) *perceptual isomorphism*, due to the spatially and temporally direct relation between our bodies and whatever is our perceptual focus and experiential terminus. We remember from Ihde's triadic model of human-technology relations that embodiment relations were characterized by specifically extending and transforming our bodily and perceptual intentionalities. (Ihde 1991: 74) In other (phenomenological) terms, in embodiment relations we primarily *intend perceptually* – that is, we carry out perceptual intendings correlating with experiencing a physically existing perceptual object (such as

whatever we see through the window, or through our contact lenses – or, as in Ihde’s examples, experience of whatever we are nailing by means of a hammer or the blind man’s experience of his physical surroundings through a walking cane). However, when we read *Califia* – whether we look at some of the numerous maps provided, read parts of Augusta’s narrative, glance at Calvin’s photo-album, or check out the journals and letters in the archives – any trace of such perceptual isomorphism is gone. Even more interesting, however, is the fact that – unlike what Ihde claims about our relation to a literary text in a book – when reading these different GUI configurations, the perceptual (partial) transparency is not primarily replaced by the hermeneutic, or linguistic-interpretive transparency that narrative fiction in a book would yield. Instead, the perceptual (partial) transparency in embodiment relations is replaced by an ambiguous and *intangible opacity* and by intentionalities that are more tactile/tangible and haptic than signitive and pictorial. That is, even when our explicitly intended focal terminus is the GUI narrative fiction – that is, even if our intention is to phenomenologically immerse ourselves in the story of the search for the lost stash of gold in *Califia* – we are nevertheless prone to relating more to the computer as an object to be engaged with in bodily, motor actions (primarily tactile/tangible and haptic, in the case of the GUI), than to the GUI narrative fiction as a hermeneutic phenomenon to be engaged with in interpretive, cognitive actions. This entails, in turn, that our primary relation to GUI narrative fictions is not the hermeneutic and interpretive one we experience when we are reading books and when we are watching movies, but the *alterity relation*, characterized by relating to the technology – the computer, as well as the GUI – as other, as autonomous object. And such a noetic-noematic correlation is difficult to smoothly and successfully reconcile with phenomenological immersion in a narrative fiction. It is, however, highly compatible with another mode of engagement with the computer – namely, playing computer games.

Our relating to the mouse when clicking or scrolling can, as Ihde also claims (Ihde 1990), be considered an embodiment relation, in that we experience something existing in our lifeworld, namely, the computer and the GUI display, through and by means of a technological device – the mouse (or touch pad). As such, the mouse or touch pad “withdraws” in a partial perceptual transparency. However, it is my claim that this transparency does not, so to speak, apply to the narrative fictions displayed on the

GUI, nor does it support phenomenological immersion and a hermeneutic relation to the technology. The GUI narrative fictions are, as I have shown above, characterized by a peculiar opacity and by characteristics of surface and shallowness, in that they are both representations that we cannot orient ourselves spatially in relation to, and at the same time they are fundamentally detached from our lifeworld both spatially, temporally, and experientially. There are fundamental phenomenological differences between the way in which the blind man experiences his physical surroundings through his walking stick, and the way we experience the GUI narrative fictions through the click with a mouse. In the first case, what is experienced through the technology is tactile and tangible, continuous with, and spatially and temporally intimately related to the embodied existence and experience of the blind man's lifeworld. In the second case, what we experience is something else altogether. What is experientially intended in the case of the blind man is the physical properties of his surroundings. What is experientially intended in the case of GUI narrative fictions is phenomenological immersion in a fictional world displayed on the GUI. In the first case the experiential and physical (material, tangible) relation between the perceptual terminus – the physical surroundings – and the interaction through and by means of a technological device – the walking stick – is direct and closely connected. In the case of the GUI narrative fictions, this relation is in several ways and on several levels fundamentally detached. Hence, even though our relation to the computer mouse might be one of embodiment and we may relate to the technological platform of the computer as an at least partial embodiment relation, our relation to the computer when reading GUI narrative fictions as a whole is more dominated by an alterity relation.

As perceptual, physical and tangible objects, the print pages of a book present quite different affordances for our reading experience than the intangible and “non-physical” GUI (cf. my definitions of “materiality” and “physicality” above). As a corollary, the relations between the narrative fictions embedded in these different technological substrates (viz., the pages of a book compared to the GUI display of the computer) and their material platform differ profoundly, and these differences entail significant phenomenological implications for our reading experience. Our experiential relations to these two kinds of interfaces are characterized by very different perceptual, cognitive, and phenomenological intendings. Our perceptual intending of the print pages

of the book affords and facilitates the signitive intending of the narrative text which again facilitates the hermeneutic relation to the book as a technology to be partly seen through. As such, the book as a technological and material platform, as a perceptual artifact, supports the hermeneutic relation inherent in, and required for, an immersive reading experience. And this support goes beyond typographical aspects such as the “frozen” linearity and sequentiality of the text, and the always-stable context. As crucial for the print book’s capacity to facilitate phenomenological immersion is how the book and the book pages form our intentionalities, compared to the computer and the GUI.

Because of the direct, physical, indeed *tangible* relation between the narrative fiction text in the book, and its display (e.g., the print page in the bound book), we relate to the technology of the book in a way that is supportive of phenomenological immersion, namely by a primarily hermeneutic relation. In this relation, as we remember, the technological artifact – the book, the pages – partly withdraws, so that our intentionality is primarily directed towards the narrative fiction itself, and not to the technological object as such. Hence, because in the hermeneutic relation the signitive and pictorial intendings are the predominant ones in our consciousness (as opposed to, say, intentionalities oriented towards smell or touch), the hermeneutic relation dominates the embodiment relation in our experiential (phenomenological, *and* perceptual-cognitive) relation to the book.

If we change the scene and consider our relation to the screen in a movie theater, we find ourselves in a different experiential relation to the display. However, as with the book, the predominant intentionalities of our consciousness are still, albeit in a different way and due to other reasons than with a book, facilitating the hermeneutic relation to the narrative – the movie – rather than our relation to the materiality, the object-ness, of the technological display. We intend pictorially, auditively and signitively to the pictures, sound and words making up the narrative on the screen, and enjoy a primarily hermeneutic relation to the movie – a hermeneutic relation, however, which is somewhat different than the one we have seen in the case of the book. As Ihde claims (Ihde 1990: 104ff.), similar to the verbal text, moving images *refer*; they make present a represented and created world – in other words, they create a hermeneutic presence to which we orient our signitive and pictorial intentionalities. However, unlike books and written texts, moving images are also audiovisual presentations in themselves; because

of the more “life-like” qualities of moving images compared to the arbitrary character of verbal texts, moving images are themselves the focal terminus of a perceptual situation in a way that verbal texts are not:

The “dynamic” world of the cinema-text, while retaining many of the functional features of writing, also now captures the semblance of real-time, action, etc. It remains to be “read” (viewed and heard), but the object-correlate necessarily appears more “life-like” than its analogue – written text. (Ihde 1990: 105)

This feature of moving images makes them “transitional between hermeneutic and alterity phenomena [...]”; while retaining their hermeneutic reference, such technologies also display a “quasi-alterity” due to their experiential status as autonomous focal and experiential termini. (Ihde 1990: 105) However, in moving images, because we (usually) do not have the “possibility to click” or in any way interact with the material platform, the alterity relation remains restrained or controlled, so to speak, by the hermeneutic relation, so that the autonomy of the technological object – i.e., the movie screen and the camera, or in the case of digitally produced and enhanced moving images, the computer platform – does not in any significant way impede hermeneutic immersion in whatever is displayed by the technology. Hence, as was the case with the print book, the material dimensions of the technological display, the physical device of the movie screen, affords intentionalities that are supportive of phenomenological immersion in a narrative fiction. In addition, the temporal salience of moving images (present to a greater or lesser extent, depending on the type/genre of film – from entropic/parametric to redundant/narrative) favors the hermeneutic relation and hence phenomenological immersion based on signitive and pictorial intentionalities rather than the alterity relation and hence technological immersion carried by tactile and haptic intentionalities.

When we compare print books and moving images with the computer and the GUI, however, the experiential situation is very different. Because of the (spatio-temporal, physical, and phenomenological) detachment of the GUI narrative fiction from its displaying and affording physical artifact, the computer, what we intend perceptually – the computer – is in several ways disconnected from what we (perhaps

try or want/"intend") to intend signitively and pictorially, namely the narrative fictions displayed on the GUI. As a perceptual object, the computer and its interface (in the broad sense, including the mouse or touch pad, keyboard, display, and entire physical platform) exists as it were at a different level, displaying a different phenomenological "dimension" and existence, than the GUI (because of the intangibility and detachment from physicality, lack of temporal and spatial salience, and resulting lack of depth/profiles of the latter).

In the article "Haptics and Habitats of Reading," Gary Frost describes the haptic features of the printed book as "acts of manipulated navigation," and these involve "the vertical page, moving in position with a previous and a next page and in recto/verso relationship and these pages handled in a mobile, bound structure which provides the mechanism for delivering and timing concepts." (Frost 2005) Referring to the fact that we are physical bodies and that we negotiate our consciousness in those terms, Frost goes on to argue that the reason most people still prefer the print book to the e-book has to do with what he claims are "impaired haptic features" in the latter. The e-book (and, by extension, the GUI) is equipped with "the 'previous/next' click, the cursor slider and scroll tabs [which] utilize grip and finger motion directed to the mouse and keyboard, but *not to the substance of the text.*" (Frost 2005: italics mine) Precisely this physical and hence phenomenological disparity or detachment makes the hermeneutic potential of the GUI very susceptible to the haptic, motor actions and hence the dominance of the alterity relation. Thus, I will claim that the GUI is not characterized by *impaired* haptic features, but rather by intruding and "persuasive" haptic affordances, with the phenomenological result that we experience the reading of GUI narrative fictions as more like the predominantly alterity relation we have with the computer when playing a computer game, than the predominantly hermeneutic relation we have with a book when reading a novel.

The computer exists as a perceptual, tangible object in our lifeworld, something we intend perceptually, whereas the GUI, as we have seen, lacks such spatiotemporal salience, tangibility, and depth. Hence, our perceptual intending of the computer does not in any way build or support a hermeneutic relation to whatever is displayed on the GUI. Instead, when we perceptually intend the computer, we experience a combined embodiment and alterity relation to the computer as an autonomous object, which

dominates any potential hermeneutic relation we might have had to the GUI narrative fiction embedded therein. M.-L. Ryan describes how such an alterity relation took hold during her reading of Michael Joyce's *Twelve Blue*:

I was determined to “beat the text” by figuring out what the system of links and the multiple ambiguities were designed to hide from me. The understanding of “what the text is all about” was the hidden treasure at the center of the labyrinth, or, to return to the jigsaw metaphor, the global picture to be reconstituted from the bits and pieces of narrative information provided by each segment. (Ryan 2001a: 238-239)

Such a weakening of the hermeneutic relation due to the domination of the alterity relation is not as detrimental to our experience of the computer game, because when playing computer games, of course, the alterity relation is precisely what *is* the experiential terminus and intention/“goal” with the experience – to compete with the computer (i.e., with the computer game, or with other players by means of the computer). But, in contrast to such an intended alterity relation, when reading narrative fictions in whatever medium/technological display, the experiential terminus and goal – intention – is the hermeneutic relation and its entailed phenomenological immersion, not the alterity relation and its technological immersion.

According to Ihde, “the computer is one of the stronger examples of a technology which may be positioned within alterity relations.” (Ihde 1990: 106) However, when playing computer games, both the embodiment and hermeneutic relations are present, in addition to the alterity relation: “[T]he joystick that embodies hand and eye coordination extends the player into the displayed field [...], [whereas] the field itself displays some hermeneutic context (usually either some ‘invader’ mini-world or some sports analogue).” (Ihde 1990: 100) Nevertheless, the overall phenomenological relation with the computer when playing computer games, the dominating experiential focal point and outcome, so to speak, is still the alterity relation, revealing itself in our sense of “interacting with something other than me” – namely, the computer, or the computer game. And because our experiential intending, so to speak, is this relating to the computer as object, the computer's way of affording haptic and tactile intentionalities rather than signitive, pictorial and symbolic/abstract (such as the



book), is consistent with the kind of technological (rather than hermeneutic and phenomenological) immersion we both seek, and get, when playing a computer game.

PART IV: SYNTHESIZING  
THEORIZING

In practice the phenomenologist often notes two things. First, the experience is almost always far richer, more complex and subtle, than one ordinarily takes it to be. Second, he finds that the language – and often the theory – about the phenomenon is cliché-ridden and bound by traditions and concepts which actually may hide important features of the experience.

Don Ihde, *Existential Technics* (1983)

## CHAPTER 19: SUMMARY AND CONCLUSIONS

### 19.1. Summary of intentions and corresponding findings

On several occasions, Marie-Laure Ryan has investigated the ramifications of the GUI (and other digitally enabled modes of display) for immersive – pleasure – reading (see for instance Ryan 2001a, 2003b, 2004a, 2004b, 2005). In *Narrative as Virtual Reality* she concludes that “[t]he hypertext format could provide the type of immersivity of the detective novel, as do some computer games, *if it were based on a determinate and fully motivated plot.*” (Ryan 2001a: 240; italics mine) To this I will comment that when it comes to the compatibility of GUI and immersion, plot is not the whole story. As my study has shown, there is more to the incompatibility of the computer and phenomenological immersion in a fictional world than is found in a clever plot, however fully motivated and artfully crafted. And the main reasons why the computer is better able to provide the settings for technological rather than phenomenological immersion have more to do with the materiality of both the technological platform, as well as the “materiality” of our bodies and minds – that is, the biology of our physio-psychological dispositions, than with the structure and aesthetic/narrative quality of the narrative fiction displayed on and by means of it.

In this dissertation I have focused on our reading of GUI narrative fictions, attempting to theorize how and why this reading process and experience is fundamentally different from our reading of narrative fictions presented and displayed in other technologies. For this purpose I have employed theoretical perspectives from both phenomenological and cognitivism, and conducted a question- and problem-driven mode of theorizing that I, inspired by Noël Carroll, have called piecemeal theorizing. As a natural consequence of such an approach, the results of my investigations do not add up to a “tidy package” in the form of a “grand theory of everything” (cf. Carroll 1996: xiv). Rather, my findings appear as piecemeal and partial answers to the necessarily equally partial questions that have guided my study.

The main research questions guiding this dissertation have been:

- how does the GUI display, defined by its digitality, interactivity, multimodality and hyperstructure, impact our reading of narrative fiction?
- how and why do we experience narrative fictions displayed by the GUI differently than when displayed by means of other technologies and in other interfaces, such as for instance a movie screen or a printed page?
- how, why, and to what extent is phenomenology an apposite and useful approach in order to deal with these issues?
- how, why, and to what extent are cognitivism and psychology apposite and useful approaches for these purposes?
- and; how can the philosophical perspective of phenomenology and the scientific, theoretical approaches of psychology and cognitivism in any useful and adequate way be combined for such a purpose? Indeed, why *should* they be combined?

During the course of this study I have found that the GUI impacts our reading of narrative fiction in several ways. These can be grouped according to what features of the digital technology they pertain to:

- The *digitality* of the technological platform; this feature contributes to the leveling of dimensions on the GUI, so that everything is experienced as presented at the same level – a level which, moreover, is all surface and opacity. The digitality further defines the GUI according to the logics of random access and paradigmatic structure, both of which

contribute to undermine the potentials for providing a narrative setting for phenomenological immersion in a fictional world.

- The *nature of human attention*; as human beings, we have several psycho-biologically defined dispositions that in different ways and to different degrees determine our allocation of attention. Our attention can be “captured” either exogenously by, for instance, movement and change in our frame of vision, or endogenously by our impatience and the natural tendency of our attention to move on, our inclination to switch to something new when the current display is, so to speak, attentionally exhausted – that is, when there is nothing capable of holding our attention anymore – and when there are options for renewing it by some external device, such as for instance clicking with the mouse.

- The *lack of temporal and spatial salience*; different from both print and film narratives, both of which display temporal and/or spatial salience, thus providing a setting for phenomenological immersion, GUI narrative fictions by definition lack both temporal and spatial salience due to their digital base and logic. When reading GUI narrative fictions, our phenomenological experience of temporality is confused in that the threefold structure of retention, protention and primal impression is replaced by a network structure consisting of spatially distributed elements all existing on the same surface level, whereas our phenomenological experience of spatiality is confused by the GUI’s lack of constancy and substance – in short, of *phenomenological presence*.

- The *intangibility* and consequent *lack of phenomenological profiles* (absence-within-presence; invisibility) of the GUI; closely related to the previous point, the GUI’s lack of tangibility and therefore of phenomenological profiles is another feature which is contributing to the problems of providing a platform for phenomenological immersion in a fictional world. As I have shown, the tangibility of the printed pages of a book supports and enhances signitive or symbolic intending and hence the hermeneutic relation to the technology that phenomenological immersion rests on. With the computer, the intangibility of the GUI screen – and hence the display of the GUI narrative fiction – makes us perceptually intend the computer platform instead of the display of letters, symbols, etc. on the screen. This perceptual intending is fundamentally detached from the narrative fiction displayed on screen, hence the tangibility of the computer hardware and material platform does not in any way support

signitive or symbolic intending and a hermeneutic relation to the GUI narrative fiction. Instead, this phenomenological detachment of the material platform from the narrative fiction displayed therein makes the reading of GUI narrative fictions highly vulnerable to what I have called *haptic capture* – entailing the dominance of haptic intending over signitive (symbolic) and pictorial intending, and the corresponding dominance of the alterity relation over the hermeneutic relation.

All these dimensions are closely interrelated and co-dependent, and they all contribute to making the reading of GUI narrative fictions unfocused, shallow, scanning-like, easily distracted and prone to attentional captures – whether exogenous or endogenous. The digitality of the platform by means of which the GUI narrative fictions are displayed contributes to (potentially) facilitating a technological rather than phenomenological immersion, hence making the reading process and experience more similar to that of playing a computer game than to that of reading. The capture of the signitive and pictorial intendings by the technologically and phenomenologically dominant haptic intending makes our relation to the computer as a display or vehicle for narrative experiences – immersion – an alterity rather than a hermeneutic relation. As such, the reading is more characterized by a relation to the computer as a physical, tangible, object and something with which one “competes” or relates to as autonomous other, than an experience of and relating to the computer as providing smooth and “[linguistically/’textually’] transparent” access to the GUI narrative fiction as a phenomenological, hermeneutic presence.

## **19.2. The pros and cons of interdisciplinary, piecemeal theorizing**

The justification for choosing the method of piecemeal theorizing is closely related to my second main intention in this study, namely, the meta-theoretical scope of the theoretical-methodological situation in new media studies. I have claimed that one of, if not *the*, main reasons why we still lack fundamental insight into how and why we experience narrative fictions in digital technologies so differently from those displayed on a movie or television screen, or those which we read in print books, is due to the

style of theorizing currently dominating new media studies. The currently dominating mode of theorizing in new media studies is better described as “(quasi-)theorized interpretations” which are more reminiscent of cultural or aesthetic comments (and often highly idiosyncratic and metaphorical) rather than as scientific approaches capable of theoretically and methodologically advancing the discipline of new media studies in any significant way. What I hope to have shown in this study is that, echoing what Bordwell and others have claimed about the state of affairs in film theorizing (cf. for instance Bordwell 1989a; Grodal 1997; Persson 2003), there are some major drawbacks with making hermeneutics and hence interpretations (whether they be rhetoric; aesthetic; ideological; or political) the main ingredient and intention in media theorizing – and in new media theorizing in particular. In my view, a scientific-philosophical, problem- and question-driven approach like the one I have been conducting is better able to capture the essential experiential dimensions of the GUI and to explain how and why the materiality of the platform of the computer is incompatible with phenomenological immersion.

The strategy of piecemeal theorizing necessarily entails *interdisciplinarity* (see Carroll 2003g), and this study is, I believe, quite representational in that regard. Pursuing interdisciplinarity in this way often amounts to walking a fine line. Considering my somewhat original attempt at combining such seemingly incompatible disciplines as phenomenology and cognitive psychology, the interdisciplinary approach undertaken here obviously runs the risk of being discredited by both psychologists, phenomenologists, and (new) media theorists alike (not to mention computer scientists, cultural [and visual culture] studies advocates, and ludologists). This risk, however, I have deemed it worth taking, because I estimate that the potential positive outcomes of my endeavor will by far outweigh the potentially negative implications.

Merleau-Ponty once said that “psychology and philosophy are not two kinds of knowledge, but two different kinds of clarification of the same knowledge, with questions becoming more formalized at the philosophical level.” (Referred in Moran and Mooney 2002: 452) As I have tried to show and exemplify in this dissertation, the combination of such seemingly incompatible philosophical-theoretical approaches as phenomenology and cognitivism can yield significantly productive and interesting results in a study of media and technologies, particularly when the focus is our relation

to, experience and use of, engagement with – in short, *reading* of – them. All our relations to and use of media and technologies have one thing in common, in that the media and technologies are always somehow *transformational* of our direct perceptions; phenomenology provides a sophisticated and highly relevant, and curiously ignored, account of precisely this transformational mediation.

At the same time, supplementing phenomenology with psychological theories of perception and cognition has allowed me to come to a fuller understanding of the relations between the different sensory modalities that are involved in our reading of GUI narrative fictions (as in any reading of narrative fiction, and any relating to all kinds of media and technologies), and their role and impact on our reading experience as a whole – such as, for example, the crossmodal capture of the visual, auditory, signitive (or symbolic) intentionalities by the haptic intentionality; or, in Ihde's terminology, the dominance of the alterity relation over the hermeneutic relation – and, correspondingly, the dominance of technological immersion over phenomenological immersion. As I have shown during my piecemeal theorizing, there are several aspects pertaining to the materiality of the GUI – in combination with our psycho-biological dispositions – which readily explain the reasons why the alterity relation dominates the hermeneutic relation when reading GUI narrative fictions but not when reading print fiction, or watching a movie.

Conversely, the phenomenological perspective is more apt at providing more substantial answers to (sometimes annoying, but nevertheless important) questions like “so what?” – hence placing my findings in an existential context of human-technology relations, and how they impact our everyday experiences in our lifeworld. This study has convinced me that, *pace* its explicit and almost demonstrative non-scientificity, phenomenology has quite a lot of explanatory power – especially when combined with psychological theories of cognition and perception.

Moreover, the very body-oriented phenomenology of Maurice Merleau-Ponty and Don Ihde has proven itself as particularly relevant for addressing the significant issue of the role of our embodied sensorium in dealing with questions of our relation to (digital) technology. In her book *Computers as Theatre*, Brenda Laurel states:



I find it cause for celebration when science in the arts can do something more robust than measure the galvanic skin responses of audiences during the last scene of *Hamlet*. The premise that we may interact with technology through our senses as well as our intellect has given us occasion to reexamine *what our bodies have to do with our minds*. (Laurel 1993: 207; italics mine)

Written in 1993, one would perhaps have expected that this celebratory premise would have been thoroughly explored by new media theorists by now. However, despite loud and repeated calls for “the revival of the body” in the wakes of poststructural disembodiment, it seems to me that many new media theorists continue to resort to inadequate sources for theoretical approaches that would adequately serve their intentions and goals. In my view, Nitzan Ben-Shaul makes a crucial point when arguing that the main reasons for the shortcomings in theoretical – and practical – achievements in new media studies in terms of understanding the ramifications for phenomenological immersion in digital media can be related to “misguided [postmodern] assumptions concerning cognitive affective and sensual human faculties”:

[W]hereas de-centering, non-closure and incoherence were used by “modernist” marginal avant-garde films as deconstructing and often obscure challenges to established perceptions (e.g., Godard’s films), to be countered by attempts at reassessment and re-construction, post-modernists view de-centering, non-closure and incoherence as the technologically and culturally determined actual state of reception. My claim is that these post-modern assumption run against deeply ingrained and necessarily cognitive, affective and sensual cinematic (and extra-cinematic) types of reception. Jameson’s apt use of the metaphor of “schizophrenia” to describe this type of reception, points to *the incompatibility and inherent gap between actual, ingrained types of reception, and the arbitrary type of reception posited by post-modern cultural theory*. (Ben-Shaul 2003: italics mine)

As I have shown extensively in my study, approaching digital media intent on attempting to grasp fundamental cognitive, perceptual, and phenomenological dimensions of our experience of reading GUI narrative fictions equipped with any version of poststructuralist or postmodern theory has yet to yield substantial theoretical insights.

Moreover, it seems that much of the causes for new media theorists' – in my view – misplaced applications and theorizations stem from a shared and tacit assumption, namely, a fear – or at least skepticism – of science, explicated below by Janet Murray's response to Herbert Simon's arguments for the relevance of cognitive science for literary theory:

Simon recognizes that what the social scientist belittles as inconsistency the humanist cherishes as ambiguity. Simon proposes bringing together the two disciplines of cognitive science and literary criticism in order to jointly explore how meaning is created in the human mind. [...] Humanists may well be put off, however, by a fellow who wants to bring "precision" to the evocative, who speaks of "extracting" meaning and of the creation of ambiguity as "a major target" of the writer. This mechanistic model, blurring the differences between symbol systems in silicon chips and in flesh and blood is inherently repellent to the humanist who is interested not in quantifiable, nameable affects but in messy, mysterious passions. (Murray 1995)

Such a fear of science and an uncompromising – sometimes even dogmatic – defense of and belief in hermeneutics and aesthetics (as well as the politicized and culture/ideology-focusing perspectives currently dominating the field of media studies at large) are in my view major obstacles for making – and measuring – (scientific) progress in the field. As long as the main – or only – goal is to produce original interpretations built from neologisms, metaphors, and analogies paralleling the "messy, mysterious passions" that Murray cherishes, the outcomes of new media research will remain meager and idiosyncratic. Faced with such standards as the ones Murray advocates, progress in the field of (new) media studies is reduced to, as Paul T. Durbin calls it, "greater and greater originality, especially in terms of persuading whatever are perceived to be the relevant audiences. Some critics object to this standard as retrogressive chasing after increasingly trivial minutiae [...]." (Durbin 1998: unpag.) In order to counter such a tendency, I suggest a more scientifically stringent and productive approach. I hope to have shown that the relationship between (new) media theorists and media psychologists, as well as between phenomenologists and psychologists (cognitivists), would benefit greatly from displaying more openness, curiosity and willingness to venture into each others' scientific domains in the search

for theoretical perspectives which might throw some new light on their shared object of study – explanatory and scientifically illustrating light that hermeneutic and aesthetic approaches are not, and will never be, able to yield.

### **19.3. Some concluding remarks**

Though it is always risky to propose grand-scale reflections on the overall experiential impact of technological development on our quality of life, in our lifeworld, I nevertheless want to conclude this conclusion with a few reflections which in my view merit contemplation rather than contempt, even though they are certainly a hard-sell among new media theorists today.

Kaha Waite writes about the impact of digital technology, more precisely, the impact of the computer screen, on our experience of such fundamental dimensions as space, temporality, and movement. Her perspective is thoroughly phenomenological, and in pursuing a conclusion to her observations, she writes:

Though it might be difficult for a viewer to explain, there is the intuition, or perhaps the trepidation, that we are simply not as grounded as we might have been at an earlier time. The horizon has shifted. There is the inarticulate sense that we experience the world differently. It is not the images and voices of a particular program, the content of a video game, or the digital display that sets one adrift. It is *the way in which the screen creates a new phenomenology* [...]. (Waite 2003: 150; italics mine)

As we have seen, supplementing phenomenology with the often more precise vocabulary of cognitivism and psychological theories adds clarification and substance to the philosophical reflections of a phenomenologist. However, this does not make phenomenological reflections less relevant or significant. In my view, if we want to really understand long-term and fundamental impacts of the digital on and in our lifeworld we must take note of precisely statements such as Kaha Waite's above. The impact of the GUI on our reading of narrative fiction – on our sense of being phenomenologically immersed in a fictional world – is part of a much larger issue dealing with the impact of digital technology on our phenomenological experience of

our lifeworld as a whole. As such, the results of my study are signs and symptoms of larger phenomena and tendencies in our surrounding lifeworld. Assessing the real impact and value of such a time and such phenomena warrants, in my view, a philosophical perspective capable of maintaining a critical and at the same time unbiased stance, focusing on core issues of the phenomena at hand. For this purpose, I contend, phenomenology has proven highly relevant and valuable.

In today's cultural and theoretical climate, however, such philosophical perspectives are often dismissed as at best nostalgic or outmoded; or worse, they are discredited as Luddite, or determinist. Claiming that "we are simply not as grounded as we might have been at an earlier time [...]," (Waite 2003) or that "technology destroys quality time" (Stivers 2004) and reduces us to "disengaged consumers of the commodities" (Strong and Higgs 2000: 28) simply does not sound very progressive and 'hip' (particularly to popular culture theorists). As Sven Birkerts – among hypertext theorist and authors considered perhaps the most prominent Luddite – has observed: "The so-called 'Luddite' stance is not especially popular these days, at least among intellectually 'progressive' people. These progressives tend to equate technological primitivism, or recidivism, with conservatism of the N.R.A. [i.e., the National Rifle Association] stripe." (Birkerts 1994: 4) Among most new media theorists, Birkerts – and other "Gutenberg elegists" with him – is (more or less) dismissed as retrograde dystopians stuck in a nostalgia for print, and wrongly denying the computer any cultural, aesthetic or literary potential (cf. for instance Aarseth 1997; Douglas 2000a; Lanham 1993; Moulthrop 1997b, 1999). However, in a time where digital technology becomes more and more pervasive and its deeper, phenomenological impact in our lifeworld is only beginning to be felt, I consider it wise – and crucial – to pay attention to perspectives stemming from more philosophically oriented traditions. Such disciplinary traditions provide more long-term perspectives on often more fundamental levels than those preferred by either computer scientists or new media theorists. Moreover, the multifarious relations between technology and narrative fiction point to aspects of our lifeworld having more profound implications than those most often focused on in new media theory and in applications of technological solutions.

"Today," says Stivers, "the computer introduces its time – the nanosecond – on people. Obviously the tempo of life is accelerating." (Stivers 2004: 25) This

acceleration is felt as much when we are reading GUI narrative fictions as in other ways in which we experience and phenomenologically relate to our surrounding lifeworld. As I have shown, there are some very concrete – tangible – reasons for this felt acceleration of time when interacting with digital technology. In addition to acceleration, digital technology also engenders a dissociation, a sense of bodily and physical detachment. In this respect, I find philosopher Albert Borgmann’s “device paradigm” to be of particular relevance. In *Technology and the Character of Contemporary Life* (Borgmann 1984), Borgmann distinguishes between “focal things” and “devices”. Focal things “demand presence, endurance, skill, and the resoluteness of regular practice – in other words, a focal practice.” (Strong and Higgs 2000: 22) It thus seems to me that we can count reading (books) as a focal practice, and hence, that books could be considered focal things. The “commanding presence” makes focal things, according to Borgmann, engaging for the human mind and body, because it serves to unify them in an embodied experience. In contrast, devices – such as a computer – are disposable, and they are designed to be under our control and “free us from burdens” by making all sorts of different tasks easier and more efficient. Though it might be a daring analogy, I suggest that perhaps we can glean from this some of the reasons why we tend to collect our books on shelves, why we would consider books as actually increasing in affective – and phenomenological – value as they grow older, whereas few would feel the same affections for and phenomenological relation to computer software and hardware (except perhaps for the sakes of curiosity). Although we also read on the computer, the screen reading is – as shown in this dissertation – far from a focal practice. According to Borgmann, the computer as a device requires little in terms of skill, patience, effort, or attention: “When engaged with devices, mind, body, and world are all dissociated from one another.” (Strong and Higgs 2000: 22) As we have seen in this study, such dissociation is one of the foremost features contributing to making the GUI poorly suited for phenomenological immersion. The distinction between focal things and devices, then, might point to some of the reasons why reading even the same narrative fiction in a bound book and on screen are two distinctively different phenomenological experiences, one commanding focal presence and the other dissociated and detached:

In Borgmann's account, the destruction of things and the reconstitution of them into devices continues today, perhaps even more rapidly, with newer forms of sophisticated technology, such as information technology. In this rising tide of technological devices, disposability supersedes commanding presence, discontinuity wins over continuity, and glamorous thrills trump centering experiences. (Strong and Higgs 2000: 24)

It is the ironic logic of the device, as opposed to the focal things, that it is supposed to enrich our lives, but most often ends up leaving us disengaged and in a state of passive diversion. The television is Borgmann's prime example of this logic, and his line of reasoning reminds us of that of Kubey and Csikszentmihalyi (Csikszentmihalyi 1990; Kubey and Csikszentmihalyi 1990) above:

In the force of its [i.e., television's] attraction, it exemplifies the perfect fulfillment of the promise of technology: a quick, safe, ubiquitously available window on the world. So seen it is exactly what people have hoped for from technological enrichment and exactly the kind of enrichment – amusement – that devices can capture. It is ironic, then, that people do not take much pride in television [...] and are often left dissatisfied spending so much time in front of it. (Strong and Higgs 2000: 30)

Analogously, if comparing book-reading with GUI narrative fiction reading, it seems plausible to say that the computer falls under the logic of the device; spending hours online or in other ways engaged with the computer is by many, if not most, people considered a not particularly precious allocation of time.

I conclude this part IV by acknowledging that, with its somewhat peculiar theoretical-philosophical framework, it is my sincere hope that this study will in different ways challenge and trigger larger assumptions about the very nature of the digital screen (and, by extension, about the very nature of digital technology in general), a task to which this dissertation has only begun to make the most rudimentary gestures. Albeit rudimentary, I will claim that my study can be said to have made some headway into a complex field of study, a field which will no doubt continue to challenge new media theorists, cognitivists, phenomenologists, and readers alike. The final part of this dissertation presents some reflections on potential ways in which to address such future challenges in the efforts of advancing the field of new media studies.

PART V: PROJECTING  
THEORIZING

Phenomenology is a critical reflection, a constant (self-) problematization. It cannot take anything for a given, neither phenomenology itself. Phenomenology is a continuous meditation, if you like.

Dan Zahavi, *Fænomenologi* (2003; transl. mine)

## CHAPTER 20: SUGGESTIONS FOR FUTURE RESEARCH

Its claimed contributions notwithstanding, this study far from exhausts the issues concerning our reading of GUI narrative fictions. Moreover, since phenomenology can be considered a constant self-problematization – or a “continuous meditation” (Zahavi 2003: 184) – a (partly) phenomenological study can hardly end without some reflections extending above and beyond what is presented so far.

I envision several ways in which the outcomes of this study might be productively expanded upon in the field of (new) media studies, as well as in neighboring fields such as media psychology and philosophy of technology. The first idea is in relation to *empirical studies*; as I have mentioned above, there are as yet very few empirical studies of our reading of GUI narrative fictions – indeed, there are few empirical studies of our reading of narrative fictions in general. Digital technology opens up a number of new and interesting challenges and questions pertaining to the empirical dimension of readers reading; for instance, it would be interesting to do a similar experiment as that carried out by Rolf A. Zwaan on how readers are activating different *cognitive control systems* when reading news articles as compared to when reading literature. (Zwaan 1993) Considering the total mix of modalities, genres and styles in the GUI (narrative and non-narrative, fictional and documentary, in all modalities), such a study would no doubt be immensely demanding, but also – potentially – immensely rewarding. If the above-mentioned schism between media



theorists and psychologists is overcome, one could even envision collaborative research with experimental psychology for such a purpose.

Hopefully, my study might also trigger further insights and research into the multisensory experiences of other digitally implemented displays than the GUI, such as different VR installations, as well as the range of various interactions with technology that we no doubt will be experiencing in the future. The fact that these interactions are facilitated by a digital technology, combined with the phenomenological insight that all technologies transform experience, provides adequate common ground for investigations into phenomenological (as well as cognitive and perceptual) impact of digital technology in other guises than GUI narrative fictions. Some research in these areas has of course already been done, but none has to my knowledge departed from a joint cognitivist and phenomenological perspective.

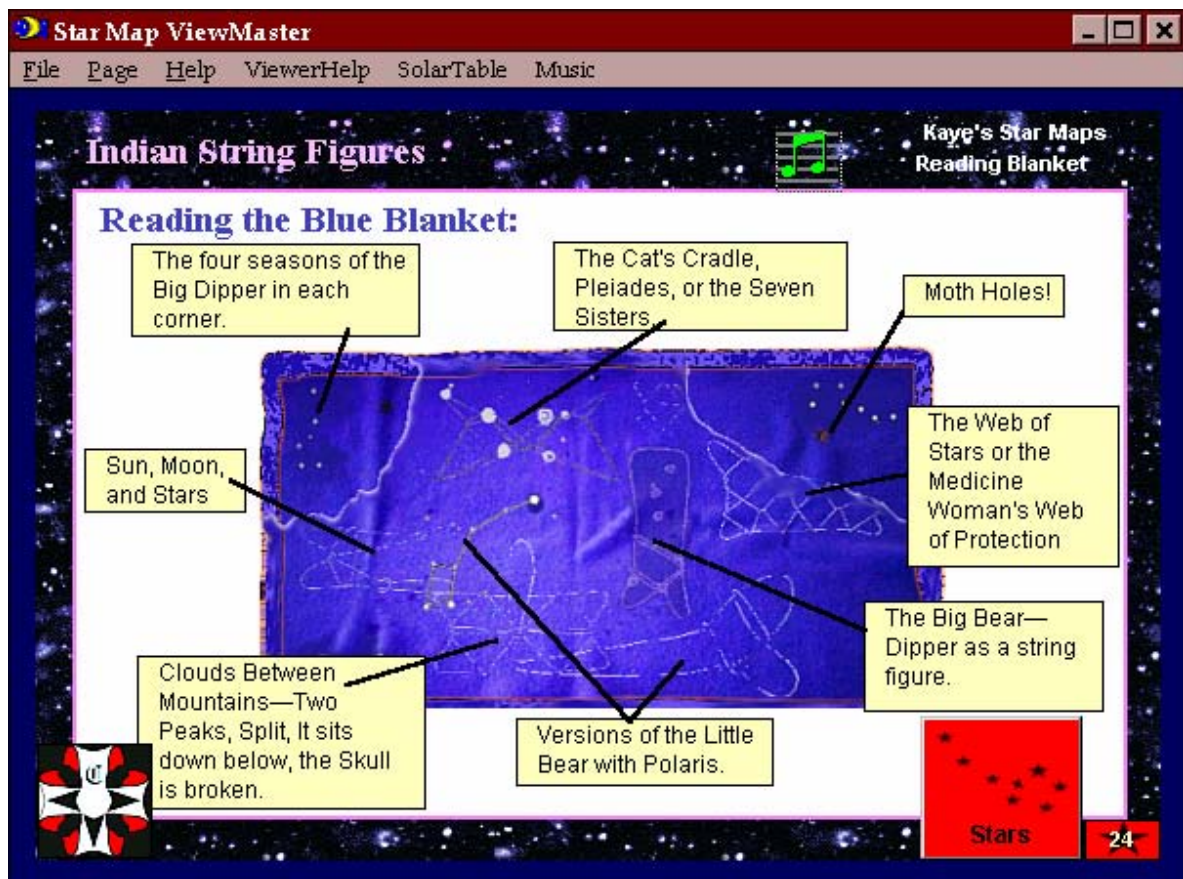
I have focused on what I have termed “multisensory reading,” thus indicating that my ambition has been to address several if not all of the sense modalities involved in our reading of GUI narrative fictions. During the course of this study, however, it has become clear that I have been paying more attention to some sensory modalities than to others. The modality of *sound*, for instance, has not been adequately dealt with in the above. In this respect, I admit to the same bias as Sobchack and Merleau-Ponty have been accused of, namely to privilege certain senses above others – despite the obvious and repeated insistence of the sensorially holistic nature of all our experiences. With respect to the phenomenology of sound and digital technology, some very valuable research has been done – namely, in the doctoral (and post-doctoral) work of Lars Nyre (Nyre 2003); however, as he also claims, much remains to be done in this area.

There are also numerous ways in which to expand on this study by means of perspectives from phenomenology, as well as from philosophy of technology at large. The relevance of Martin Heidegger’s philosophy for computer science and HCI has already been pointed out (Gorayska and Mey 1996; Svanæs 1999; Winograd and Flores 1986), but there are many aspects of digital technology not yet studied which, I believe, could benefit greatly from a Heideggerian approach – his focus on the temporality of being, for instance, is one obvious path. In general, I am certain that there is much more to a phenomenological study of temporality and the digital than I have been covering in this dissertation. I end here, convinced that at least some of these suggestions for further

research will to some extent and in some way be investigated, whether by computer scientists, psychologists, phenomenologists, or media theorists; or – even more promising – by all of them in a collaborative, interdisciplinary approach.

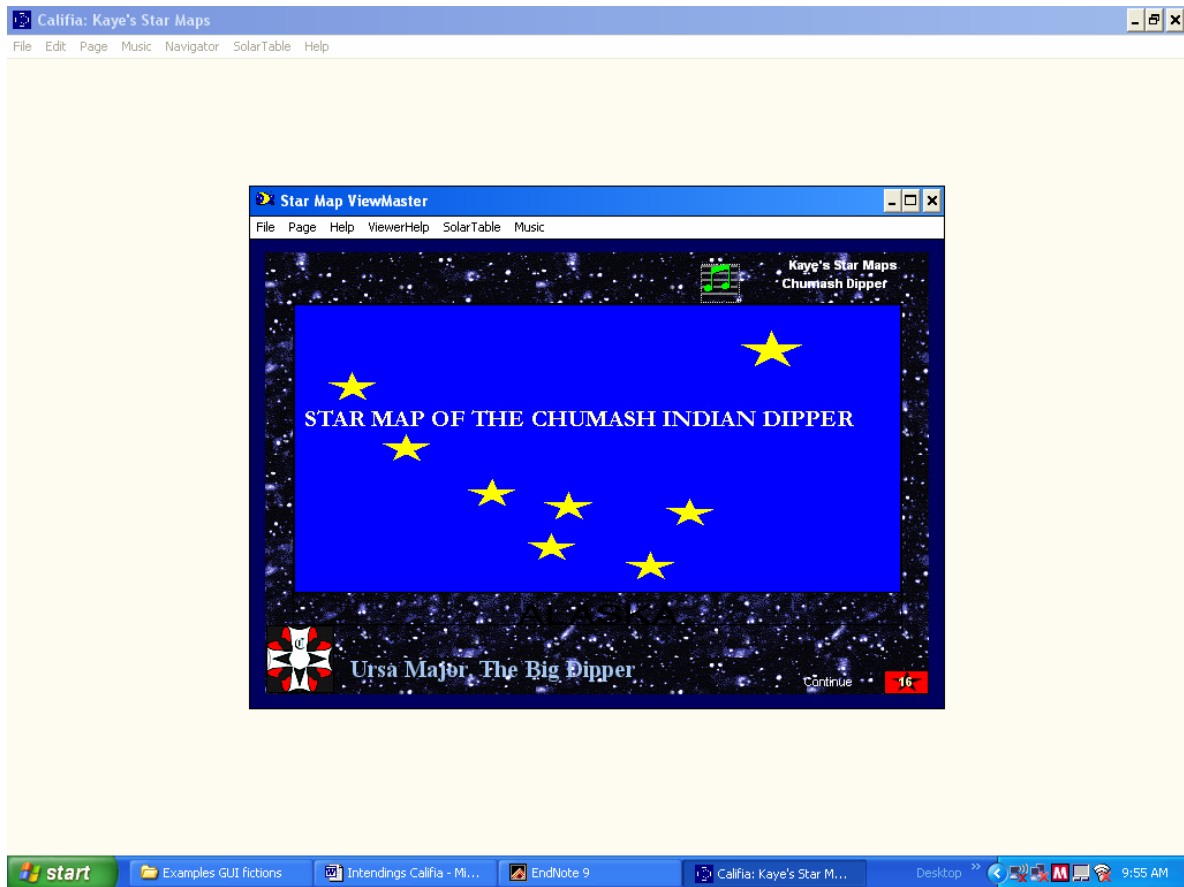
# APPENDIX

Graphics I:



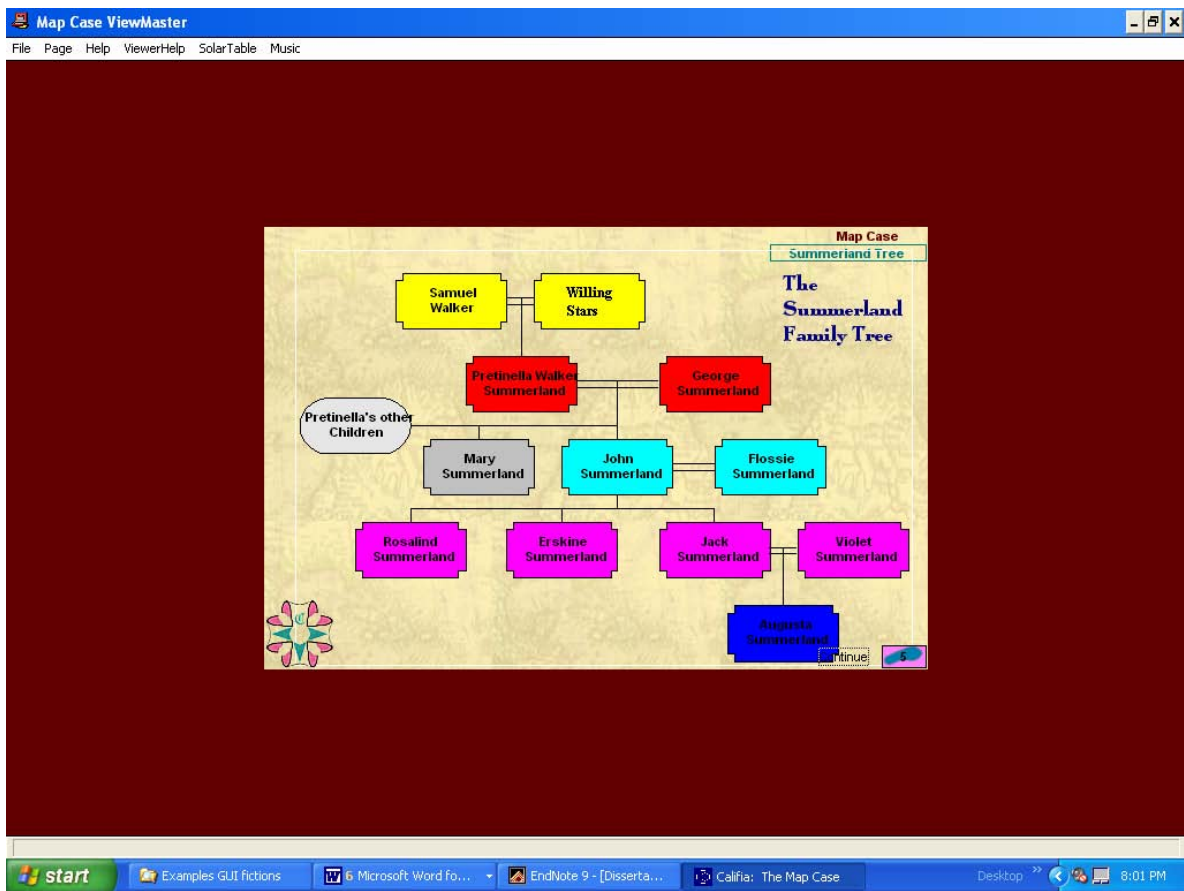
(Coverley 2000: node "Reading Blanket," in Kaye's Star Maps)

## Graphics II:



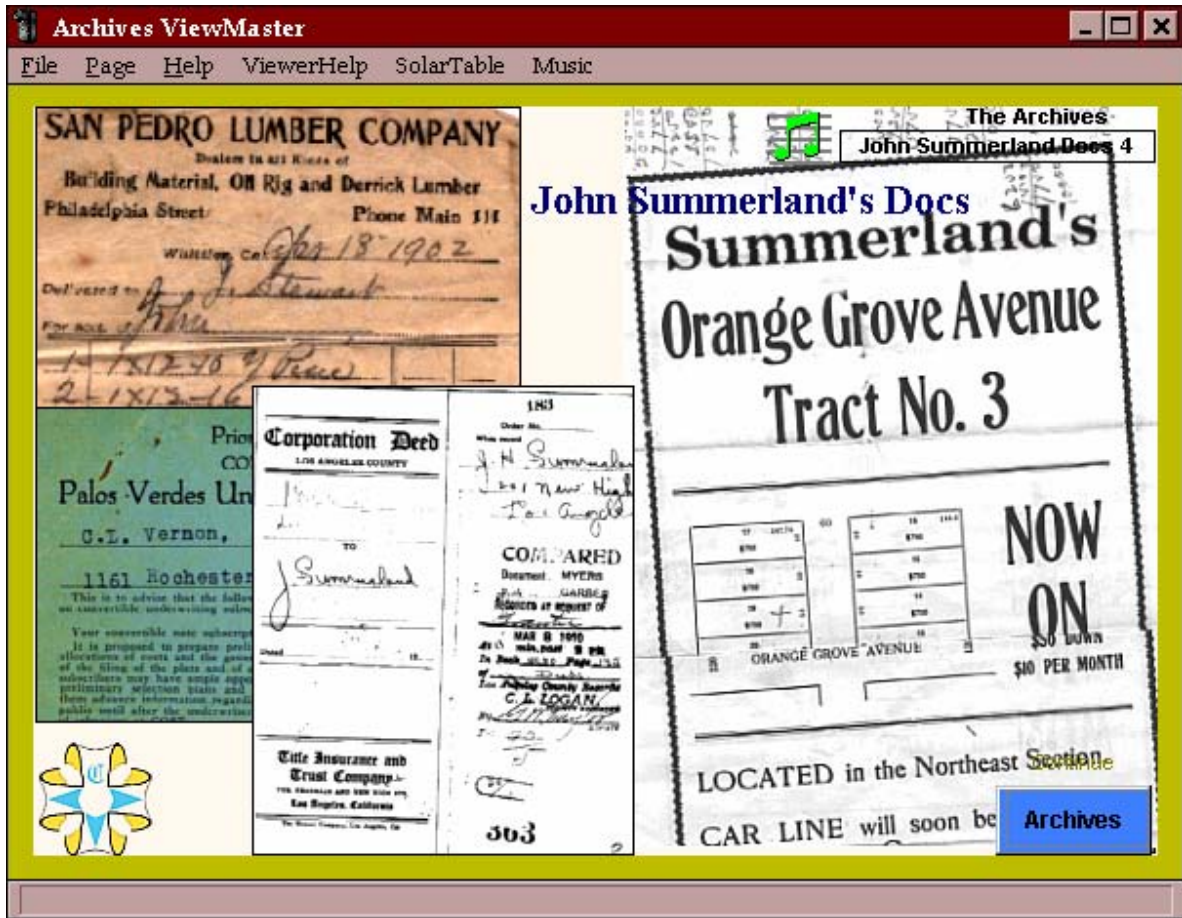
(Coverley 2000: node "Chumash Dipper", in Kaye's Star Maps)

### Graphics III:



(Coverley 2000: node "Summerland Tree", Map Case)

Graphics IV:



(Coverley 2000: node "John Summerland Docs 4", The Archives)

Graphics V:

The screenshot shows the Archives ViewMaster interface. The main window displays a handwritten document titled "John Summerland's Docs" with a table of contents and a list of documents. The table of contents is as follows:

Category	Page Range
Contents -	
Poetry -	
Infancy & Childhood	1-20
Manhood and Old Age	20-35
Friendship & Home	35-50
Love and Matrimony	50-70
Sentiment & Reflection	70-115
Parting & Sorrow	115-145
Religious & Nature	145-177
Bleat & Descriptive	177-180
Professional & Familiar	180-185
Humorous	185-190
Prose -	177-231 and 160-177

Below the table of contents, there are two highlighted sections: "Stanzas - 231-250" and "Prose - 177-231 and 160-177". A "Continue" button is visible at the bottom right of the document viewer.

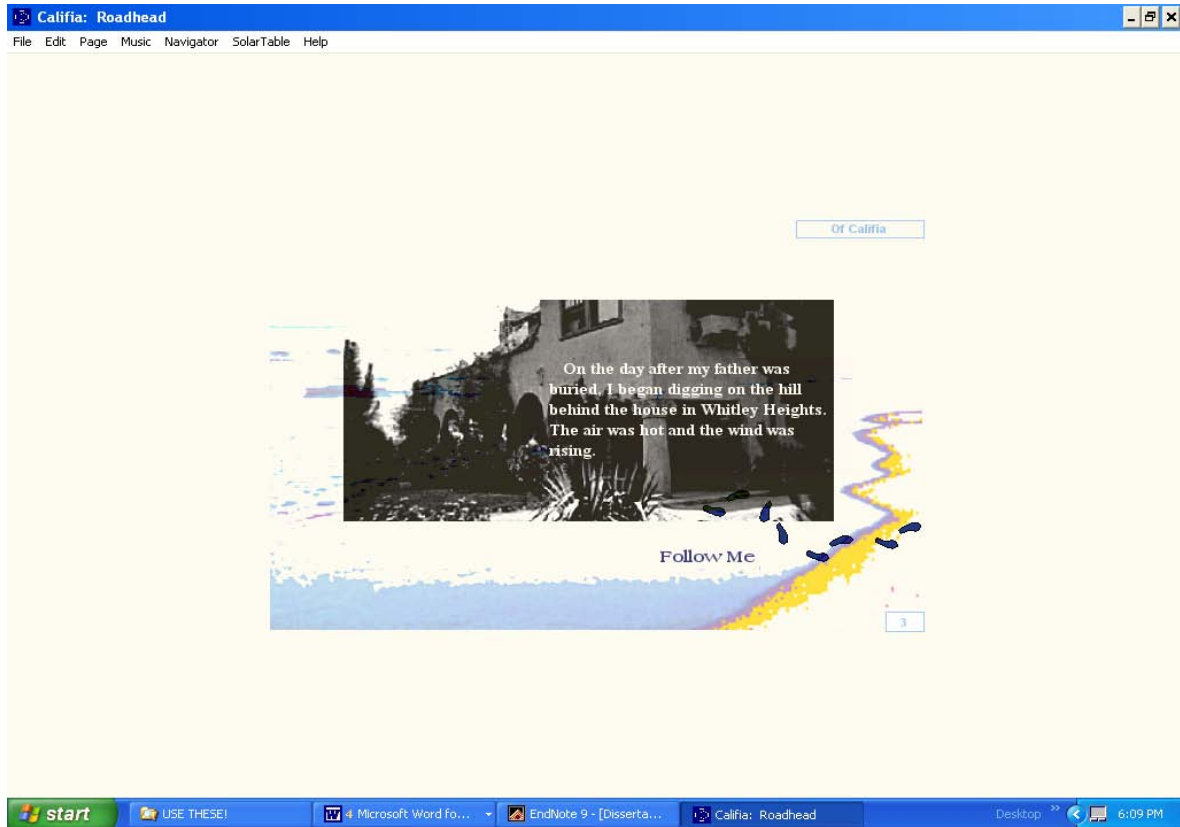
On the left side of the interface, there is a list of documents with their respective page counts and prices:

Document Title	Page Count	Price
Central	1500	2055.00
"	400	1.31
Alpha	500	.31
"	500	.32
Rimmel	500	.32
"	1000	.25
Erie	1000	.15
Pencil	400	.10
Del Cor.	2000	.21
Home	250	.20
"	557	.20
Middleman	500	.62
"	500	.62
"	500	.63
Central	1000	.82
"	500	.82
Middle	500	.76
"	500	.77
		760.00
		770.00

The interface also includes a menu bar with "File", "Page", "Help", "ViewerHelp", "SolarTable", and "Music". The title bar reads "Archives ViewMaster". A small "The Archives John Summerland Docs 3" window is open in the top right corner.

(Coverley 2000: node "John Sumerland [sic] Docs 3," The Archives)

## Graphics VI:



(Coverley 2000: node "Of Califia")



## BIBLIOGRAPHY

- Aarseth, Espen. 1997. *Cybertext : Perspectives on Ergodic Literature*. Baltimore, Md.: Johns Hopkins University Press.
- . 2003. "We All Want to Change the World". In *Digital Media Revisited : Theoretical and Conceptual Innovation in Digital Domains*, edited by G. Liestøl, A. Morrison and T. Rasmussen. Cambridge, Mass.: MIT Press.
- . 2004a. "Genre Trouble: Narrativism and the Art of Simulation". In *First Person : New Media as Story, Performance, and Game*, edited by P. Harrigan and N. Wardrip-Fruin. Cambridge, Mass.: The MIT Press.
- . 2004b. "Quest Games as Post-Narrative Discourse". In *Narrative across Media*, edited by M.-L. Ryan. Lincoln, Neb.: University of Nebraska Press.
- . 2005. "Reply to Murray." Review of Reviewed Item. *ebr - electronic book review*, [www.electronicbookreview.com/thread/firstperson/cornucopia](http://www.electronicbookreview.com/thread/firstperson/cornucopia).
- Abelson, Robert P., and Roger C. Schank. 1995. "So All Knowledge Isn't Stories?" In *Knowledge and Memory : The Real Story*, edited by R. S. Wyer. Hillsdale, New Jersey ; Hove UK: L. Erlbaum Associates.
- Amerika, Mark. 2004. "Expanding the Concept of Writing: Notes on Net Art, Digital Narrative and Viral Ethics." *Leonardo* 37 (1).
- Anderson, Craig A., and B.J. Bushman. 2001. "Effects of Violent Video Games on Aggressive Behavior, Aggressive Cognition, Aggressive Affect, Physiological Arousal, and Prosocial Behavior: A Meta-Analytic Review of the Scientific Literature." *Psychological Science* 12:353-359.
- Anderson, Craig A., and Karen E. Dill. 2000. "Video Games and Aggressive Thoughts, Feelings and Behavior in the Laboratory and in Life." *Journal of Personality and Social Psychology* 78 (4):772-790.
- Anderson, John R. 1995. *Cognitive Psychology and Its Implications*. New York: W.H. Freeman & Co.
- Anderson, Joseph. 1996. *The Reality of Illusion : An Ecological Approach to Cognitive Film Theory*. Carbondale: Southern Illinois University Press.

- Anderson, Joseph, and Barbara Anderson. 1996. "The Case for an Ecological Metatheory". In *Post-Theory : Reconstructing Film Studies*, edited by D. Bordwell and N. Carroll. Madison: University of Wisconsin Press.
- Arnheim, Rudolf. 1971. *Entropy and Art; an Essay on Disorder and Order*. Berkeley,: University of California Press.
- Arnold, M. 2003. "On the Phenomenology of Technology: The "Janus-Faces" Of Mobile Phones." *Information and Organization* 13:231-256.
- Back, Maribeth. 2003. "The Reading Senses". In *Digital Media Revisited : Theoretical and Conceptual Innovation in Digital Domains*, edited by G. Liestøl, A. Morrison and T. Rasmussen. Cambridge, Mass.: MIT Press.
- Baetens, Jan, and Jan Van Looy. 2003a. "Introduction: Close Reading Electronic Literature". In *Close Reading New Media : Analyzing Electronic Literature*, edited by J. Baetens and J. Van Looy. Leuven: Leuven University Press.
- , eds. 2003b. *Close Reading New Media : Analyzing Electronic Literature, Symbolae Series D Litteraria ; Vol. 16*. Leuven: Leuven University Press.
- Bal, Mieke. 1997. *Narratology : Introduction to the Theory of Narrative*. 2nd ed. Toronto: University of Toronto Press.
- Barry, Ann Marie. 1997. *Visual Intelligence : Perception, Image, and Manipulation in Visual Communication*. Albany: State University of New York Press.
- Barthes, Roland. 1993. *S/Z*. Oxford: Basil Blackwell.
- Ben-Shaul, Nitzan. 2003. "Split Attention Problems in Interactive Moving Audiovisual Texts". Paper presented at *DAC (Digital Arts and Culture)*, May 19-23, in Melbourne, Australia.
- Benjamin, Walter. 1969. "The Work of Art in the Age of Mechanical Reproduction". In *Illuminations*. New York: Schocken.
- Bennington, Tammy L. & Gay, Geri. 2000. "Mediated Perceptions: Contributions of Phenomenological Film Theory to Understanding the Interactive Video Experience." *JCMC (Journal of Computer-Mediated Communication)* 5 (4).
- Birkerts, Sven. 1994. *The Gutenberg Elegies : The Fate of Reading in an Electronic Age*. Boston: Faber and Faber.
- Bleich, David. 1986. "Intersubjective Reading." *New Literary History* 17 (3):401-421.
- Bly, Bill. *We Descend*. Watertown, Mass.: Eastgate Systems 1997 [cited].

- Bolter, J. David. 1991. *Writing Space : The Computer, Hypertext, and the History of Writing*. Hillsdale, N. J.: Lawrence Erlbaum.
- . 1998. "Hypertext and the Question of Visual Literacy". In *Handbook of Literacy and Technology : Transformations in a Post-Typographic World*, edited by D. Reinking. Mahwah, N.J.: L. Erlbaum Associates.
- . 2001. *Writing Space : Computers, Hypertext, and the Remediation of Print*. 2nd ed. Mahwah, N.J.: Lawrence Erlbaum.
- Bolter, J. David, and Diane Gromala. 2003a. *Windows and Mirrors: Interaction Design, Digital Art, and the Myth of Transparency*. Edited by R. F. Malina, Leonardo. Cambridge, Mass.: The MIT Press.
- Bolter, J. David, and Richard Grusin. 1999. *Remediation : Understanding New Media*. Cambridge, Mass.: MIT Press.
- Bondebjerg, Ib. 2000. *Moving Images, Culture and the Mind*. Luton: University of Luton Press.
- Bordwell, David. 1985a. *Narration in the Fiction Film*. Madison, Wis.: University of Wisconsin Press.
- . 1985b. *Narration in the Fiction Film*. Madison, Wis.: University of Wisconsin Press.
- . 1989a. *Making Meaning*. Cambridge, Mass.: Harvard University Press.
- . 1989b. "A Case for Cognitivism." *iris* 9 11-40.
- . 1996a. "Contemporary Film Studies and the Vicissitudes of Grand Theory". In *Post-Theory : Reconstructing Film Studies*, edited by D. Bordwell and N. Carroll. Madison: University of Wisconsin Press.
- . 1996b. "Convention, Construction, and Cinematic Vision". In *Post-Theory : Reconstructing Film Studies*, edited by D. Bordwell and N. Carroll. Madison: University of Wisconsin Press.
- . 1996c. "Introduction". In *Post-Theory : Reconstructing Film Studies*, edited by D. Bordwell and N. Carroll. Madison: University of Wisconsin Press.
- Bordwell, David, and Noël Carroll, eds. 1996. *Post-Theory : Reconstructing Film Studies, Wisconsin Studies in Film*. Madison: University of Wisconsin Press.
- Borgmann, Albert. 1984. *Technology and the Character of Contemporary Life*. Chicago: University of Chicago Press.

- Bortolussi, Marisa, and Peter Dixon. 2003. *Psychonarratology : Foundations for the Empirical Study of Literary Response*. Cambridge ; New York: Cambridge University Press.
- Branigan, Edward. 1992. *Narrative Comprehension and Film*. London: Routledge.
- Bruhn Jensen, Klaus. 2000. "Interactivities. Constituents of a Model of Computer Media and Communication". In *Moving Images, Culture and the Mind*, edited by I. Bondebjerg. Luton: University of Luton Press.
- Bruner, Jerome S. 1986. *Actual Minds, Possible Worlds*. Cambridge, Mass.: Harvard University Press.
- . 1990. *Acts of Meaning*. Cambridge, Mass.: Harvard University Press.
- Buxton, Bill. 2002. "Less Is More (More or Less): Uncommon Sense and the Design of Computers". In *The Invisible Future : The Seamless Integration of Technology into Everyday Life*, edited by P. J. Denning. New York: McGraw-Hill.
- Caillois, Roger. 1961. *Man, Play, and Games*. Translated by t. f. t. F. b. M. Barash. New York: Free Press of Glencoe.
- Carroll, Michael Thomas, and Eddie Tafoya. 2000b. *Phenomenological Approaches to Popular Culture*. Bowling Green, Ohio: Bowling Green State University Popular Press.
- Carroll, Noël. 1996. *Theorizing the Moving Image, Cambridge Studies in Film*. Cambridge ; New York: Cambridge University Press.
- Carroll, Noël. 2003a. "Introduction". In *Engaging the Moving Image*, edited by N. Carroll. New Haven, CT: Yale University Press.
- . 2003b. "Forget the Medium!" In *Engaging the Moving Image*, edited by N. Carroll. New Haven, CT: Yale University Press.
- . 2003c. "Film, Attention, and Communication: A Naturalistic Account". In *Engaging the Moving Image*, edited by N. Carroll. New Haven, CT: Yale University Press.
- . 2003e. "The Essence of Cinema?" In *Engaging the Moving Image*, edited by N. Carroll. New Haven, CT: Yale University Press.
- . 2003g. "Prospects for Film Theory: A Personal Assessment". In *Engaging the Moving Image*, edited by N. Carroll. New Haven, CT: Yale University Press.
- Casebier, Allan. 1991. *Film and Phenomenology : Toward a Realist Theory of Cinematic Representation, Cambridge Studies in Film*. Cambridge ; New York: Cambridge University Press.

- Cassirer, Ernst. 1944. *An Essay on Man : An Introduction to a Philosophy of Human Culture*. New Haven: Yale University Press.
- . 1953. *The Philosophy of Symbolic Forms*. New Haven,: Yale University Press.
- Chamberlain, Daniel Frank. 1990. *Narrative Perspective in Fiction : A Phenomenological Mediation of Reader, Text, and World*, *University of Toronto Romance Series*, 59. Toronto: University of Toronto Press.
- Charney, Davida. 1994. "The Impact of Hypertext on Processes of Reading and Writing". In *Literacy and Computers*, edited by S. J. C. L. S. Hilligoss. New York: Modern Language Association.
- Chion, Michel. 1994. *Audio-Vision : Sound on Screen*. New York: Columbia University Press.
- Chou, Chien. 2001. "Internet Heavy Use and Addiction among Taiwanese College Students: An Online Interview Study." *CyberPsychology & Behavior* 4 (5):573-585.
- Chou, Chien, Linda Condron, and John C. Belland. 2005. "A Review of the Research on Internet Addiction." *Educational Psychology Review* 17 (4):368-388.
- Clark, Lawrence James. 1999. "Hyper-What? Some Views on Reader Discomfiture with Hypertext Fiction." *Kairos* 4 (1 (Fall 1999)).
- Cohn, Dorrit. 1999. *The Distinction of Fiction*. Baltimore, Md.: Johns Hopkins University Press.
- Coover, Robert. 1992. "The End of Books." *The New York Times Book Review*, June 21.
- Cope, Bill, and Mary Kalantzis. 2000. *Multiliteracies : Literacy Learning and the Design of Social Futures, Literacies*. London ; New York: Routledge.
- Cope, Bill, Mary Kalantzis, and New London Group. 2000. *Multiliteracies : Literacy Learning and the Design of Social Futures, Literacies*. London ; New York: Routledge.
- Coverley, M.D. 2003. *Fibonacci's Daughter* [cited 2003]. Available from <http://www.cddc.vt.edu/journals/newriver/coverley/Fibonacci/choice.htm>.
- . 2000. Califia: Watertown, Mass.: Eastgate Systems, Inc.
- Coyne, Richard. 1999. *Technoromanticism: Digital Narrative, Holism, and the Romance of the Real*. Cambridge, Mass.: The MIT Press.

- Csikszentmihalyi, Mihaly. 1990. *Flow: The Psychology of Optimal Experience*. New York: Harper & Row.
- Currie, Gregory. 1990. *The Nature of Fiction*. Cambridge: Cambridge University Press.
- . 1995. *Image and Mind*. Cambridge: Cambridge University Press.
- . 1996. "Film, Reality, and Illusion". In *Post-Theory : Reconstructing Film Studies*, edited by D. Bordwell and N. Carroll. Madison: University of Wisconsin Press.
- Dahlin, Åsa. 2002. *On Architecture, Aesthetic Experience and the Embodied Mind : Seven Essays, Trita-Ark. Akademisk Avhandling 2002:1*. Stockholm: School of Architecture Royal Institute of Technology.
- Daley, Elizabeth. 2003. "Expanding the Concept of Literacy." *EDUCAUSEreview* (Mars/April):33-40.
- Darley, Andrew. 2000. *Visual Digital Culture : Surface Play and Spectacle in New Media Genres, Sussex Studies in Culture and Communication*. London ; New York: Routledge.
- Delany, Paul, and George P. Landow. 1991. *Hypermedia and Literary Studies, Technical Communications*. Cambridge, Mass.: MIT Press.
- Doležel, Lubomír. 1998. *Heterocosmica : Fiction and Possible Worlds*. Baltimore: Johns Hopkins University Press.
- Douglas, J. Yellowlees. 2000a. *The End of Books--or Books without End? : Reading Interactive Narratives*. Ann Arbor: University of Michigan Press.
- Douglas, J. Yellowlees, and Andrew Hargadon. 2000b. "The Pleasure Principle: Immersion, Engagement, Flow". Paper presented at *ACM Hypertext*, in San Antonio, TX.
- . 2004. "The Pleasures of Immersion and Interaction: Schemas, Scripts, and the Fifth Business". In *First Person : New Media as Story, Performance, and Game*, edited by P. Harrigan and N. Wardrip-Fruin. Cambridge, Mass.: The MIT Press.
- Druckrey, Timothy. 1996. *Electronic Culture : Technology and Visual Representation*. New York: Aperture.
- Durbin, Paul T. 1998. "Advances in Philosophy of Technology? Comparative Perspectives." *Society for Philosophy and Technology* 4 (1).
- Dyson, Mary C. 2005. "How Do We Read Text on Screen?" In *Creation, Use, and Deployment of Digital Information*, edited by H. v. Oostendorp, L. Breure and A. Dillon. Mahwah, N.J.: Lawrence Erlbaum Associates, Inc.

- Eason, Rob, Jeremy Hubbell, Jari Friis Jørgensen, Srikanth Mallavarapu, Nikos Plevis, and Evan Selinger. 2003b. "Interview with Don Ihde". In *Chasing Technoscience*, edited by D. Ihde and E. Selinger. Bloomington & Indianapolis: Indiana University Press.
- Eason, Robb. 2003a. "Hypertext: Rortean Links between Ihde and Haraway". In *Chasing Technoscience*, edited by D. Ihde and E. Selinger. Bloomington & Indianapolis: Indiana University Press.
- Elkington, Trevor G. 2001. *Moments in Space, Spaces in Time: Phenomenology and the Embodied Depth of Cinematic Image, Comparative Literature Ph. D. Dissertations*: University of Washington.
- Ellis, John M. 1997. *Literature Lost - Social Agendas and the Corruption of the Humanities*. New Haven & London: Yale University Press.
- Engebretsen, Martin. 2001. *Nyheten Som Hypertekst : Tekstuelle Aspekter Ved Møtet Mellom En Gammel Sjanger Og Ny Teknologi (the News as Hypertext: Textual Aspects at the Intersection between an Old Genre and New Technology)*. Kristiansand: IJ-forl.
- Eskelinen, Markku. 2004. "Towards Computer Game Studies". In *First Person : New Media as Story, Performance, and Game*, edited by P. Harrigan and N. Wardrip-Fruin. Cambridge, Mass.: The MIT Press.
- Esrock, Ellen J. 1994. *The Reader's Eye: Visual Imagining as Reader Response*. Baltimore: Johns Hopkins University Press.
- Everett, Anna, and John Thornton Caldwell. 2003. *New Media : Theories and Practices of Digitextuality, Afi Film Readers*. New York: Routledge.
- Faraday, Pete, and Alistair Sutcliffe. 1996. "An Empirical Study of Attending and Comprehending Multimedia Presentations". Paper presented at *ACM Multimedia*, in Boston, Mass.
- Feagin, Susan L. 1996. *Reading with Feeling : The Aesthetics of Appreciation*. Ithaca, N.Y.: Cornell University Press.
- Feenberg, Andrew. 2004. *Active and Passive Bodies: Comments on Don Ihde's Bodies in Technology* 2003 [cited 2004]. Available from [www-rohan.sdsu.edu/faculty/feenberg/Ihde1.htm](http://www-rohan.sdsu.edu/faculty/feenberg/Ihde1.htm).
- Fidler, Roger. 1997. *Mediamorphosis - Understanding New Media*. Thousand Oaks, Calif.: Pine Forge Press (Sage Publications).

- Filiciak, Mirosław. 2003. "Hyperidentities: Postmodern Identity Patterns in Massively Multiplayer Online Role-Playing Games". In *The Video Game Theory Reader*, edited by M. J. P. Wolf and B. Perron. New York & London: Routledge.
- Fischer, Martin. 2000. "Perceiving Spatial Attributes of Print". In *Reading as a Perceptual Process*, edited by A. Kennedy, D. H. Radach and J. Pynte. Amsterdam: Elsevier Science Ltd.
- Fludernik, Monika. 1993. *The Fictions of Language and the Languages of Fiction*. London & New York: Routledge.
- . 1996. *Towards A "Natural" Narratology*. London: Routledge.
- Forster, E. M. 1927. *Aspects of the Novel*. Reprint Ed., 1985 ed. London: Pelican.
- Frank, Joseph. 1991. *The Idea of Spatial Form*. London: Rutgers University Press.
- Frost, Gary. 2005. *Haptics and Habitats of Reading* 2005 [cited November 24 2005]. Available from [www.futureofthebook.com/storiestoc/haptic](http://www.futureofthebook.com/storiestoc/haptic).
- Funk, Jeanne B., Heidi Bechtoldt Baldacci, Tracie Pasold, and Jennifer Baumgardner. 2004. "Violence Exposure in Real-Life, Video Games, Television, Movies, and the Internet: Is There Desensitization." *Journal of Adolescence* 27:23-39.
- Gaasland, Rolf. 1994. *Stoppesteder : En Undersøkelse Av Komposisjonsprinsipper Og Lukningsmekanismer I Fortellende Tekster. (Stops: A Study of Principles of Composition and Closure in Narratives.)*. [Tromsø]: Avhandling for Dr. art.-graden, Institutt for språk og litteratur Universitet i Tromsø.
- Gaggi, Silvio. 1997. *From Text to Hypertext : Decentering the Subject in Fiction, Film, the Visual Arts, and Electronic Media, Penn Studies in Contemporary American Fiction*. Philadelphia: University of Pennsylvania Press.
- Garner, Ruth, Mark G. Gillingham, and C. Stephen White. 1989. "Effects Of "Seductive Details" On Macroprocessing and Microprocessing in Adults and Children." *Cognition and Instruction* 6 (1):41-57.
- Gee, Kim. 2001. "The Ergonomics of Hypertext Narrative: Usability Testing as a Tool for Evaluation and Redesign." *ACM Journal of Computer Documentation* 25 (1 (February 2001)).
- Gentikow, Barbara. 2004. Experiencing the Materiality of Media. A Challenge to Disembodied Media Studies. In *Culture Techniques*. Bergen.
- . 2005. "Mediert Persepsjon: Om Sansbevegelser Og Erfaringsdesign". In *Estetiske Teknologier 1700-2000*, edited by G. Iversen and S. Brinch. Oslo: Scandinavian Academic Press.



- Gentikow, Barbara, and Lars Nyre. 2005. *Medier Som Kulturteknikker - Kommunikasjonsverdier - Prototyper Som Forskningsmetode*. In *Culture Techniques*. Bergen.
- Gerrig, Richard J. 1993. *Experiencing Narrative Worlds : On the Psychological Activities of Reading*. New Haven: Yale University Press.
- Gibson, James J. 1966. *The Senses Considered as Perceptual Systems*. Boston: Houghton Mifflin Co.
- Gillingham, Mark G. 1996. "Comprehending Electronic Text". In *Cognitive Aspects of Electronic Text Processing*, edited by H. v. Oostendorp and S. d. Mul. Norwood, N.J.: Ablex Pub. Corp.
- Goldman, Susan R. 1996. "Reading, Writing, and Learning in Hypermedia Environments". In *Cognitive Aspects of Electronic Text Processing*, edited by H. v. Oostendorp and S. d. Mul. Norwood, N.J.: Ablex Pub. Corp.
- Gorayska, Barbara, and Jonathon Marsh. 1996. "Epistemic Technology and Relevance Analysis: Rethinking Cognitive Technology". In *Cognitive Technology : In Search of a Humane Interface*, edited by B. Gorayska and J. Mey. Amsterdam ; New York: Elsevier.
- Gorayska, Barbara, and Jacob Mey. 1996. *Cognitive Technology : In Search of a Humane Interface*. Amsterdam ; New York: Elsevier.
- Griffiths, Mark. 2000. "Does Internet and Computer 'Addiction' Exist? Some Case Study Evidence." *CyberPsychology & Behavior* 3 (2):211-218.
- Grodal, Torben Kragh. 1997. *Moving Pictures : A New Theory of Film Genres, Feelings and Cognition*. Oxford: Clarendon.
- . 2003. "Stories for Eye, Ear, and Muscles: Video Games, Media, and Embodied Experience". In *The Video Game Theory Reader*, edited by M. J. P. Wolf and B. Perron. New York & London: Routledge.
- Gumbrecht, Hans Ulrich. 2004. *Production of Presence: What Meaning Cannot Convey*. Stanford: Stanford University Press.
- Gumbrecht, Hans Ulrich, and Karl Ludwig Pfeiffer. 1994. *Materialities of Communication, Writing Science*. Stanford, Calif.: Stanford University Press.
- Hammer, Anita. 2001. *Weaving Plots : Frames of Theatre and Ritual in Simultaneous Interactive Digital Communication*. Trondheim: Department of Art and Media Studies Norwegian University of Science and Technology.
- Hammond, Michael, Jane Howarth, and Russell Keat. 1991. *Understanding Phenomenology*. Oxford, UK ; Cambridge, Mass., USA: B. Blackwell.

- Hangaard Rasmussen, Torben. 1996. *Kroppens Filosof : Maurice Merleau-Ponty*. Brøndby: Semi-forlaget.
- Hansen, Mark. 2000. *Embodying Technesis : Technology Beyond Writing, Studies in Literature and Science*. Ann Arbor: University of Michigan Press.
- Hansen, Mark B. N. 2004. *New Philosophy for New Media*. Cambridge, Mass.: MIT Press.
- Harpold, Terence. 1991. "Threnody: Psychoanalytic Digressions on the Subject of Hypertexts". In *Hypermedia and Literary Studies*, edited by P. Delany and G. P. Landow. Cambridge, Mass.: MIT Press.
- Hass, Lawrence, and Dorothea Olkowski. 2000. *Rereading Merleau-Ponty : Essays Beyond the Continental-Analytic Divide*. Amherst, N.Y.: Humanity Books.
- Hausken, Liv. 2005. Ikt-Doxa, Eller Kulturens Vindmøller [the Doxa of Ict [Information and Communication Technology], or the Windmills of Culture]. In *KIM*. Oslo.
- Hayles, N. Katherine. 1999a. *How We Became Posthuman : Virtual Bodies in Cybernetics, Literature, and Informatics*. Chicago: University of Chicago Press.
- . 1999b. "Simulating Narratives: What Virtual Creatures Can Teach Us." *Critical Inquiry* 26 (Autumn).
- . 2000. "Flickering Connectivities in Shelley Jackson's *Patchwork Girl*: The Importance of Media-Specific Analysis." *Postmodern Culture* 10 (2).
- . 2001. "The Transformation of Narrative and the Materiality of Hypertext." *Narrative* 9 (1 (January)):21-39.
- . 2002a. "Flesh and Metal: Reconfiguring the Mindbody in Virtual Environments." *Configurations* 10 (2):297-320.
- . 2002b. *Writing Machines*. Edited by P. Lunenfeld, *Mediawork*. Cambridge & London: The MIT Press.
- . 2003. "Translating Media: Why We Should Rethink Textuality." *The Yale Journal of Criticism* 16 (2):263-290.
- . 2004a. "Hypertext Narratives, Literature Come Alive." Review of Reviewed Item. *UCLA Today*, [www.today.ucla.edu/1997/970411HypertextNarratives.html](http://www.today.ucla.edu/1997/970411HypertextNarratives.html).

- . 2004b. "Metaphoric Networks in Lexia to Perplexia". In *First Person : New Media as Story, Performance, and Game*, edited by P. Harrigan and N. Wardrip-Fruin. Cambridge, Mass.: The MIT Press.
- . 2005a. "Deeper into the Machine: The Future of Electronic Literature." Review of Reviewed Item. *Culture Machine*, <http://culturemachine.tees.ac.uk/Cmach/Backissues/j005/Articles/Hayles/NHayles.htm>.
- . 2005b. *My Mother Was a Computer: Digital Subjects and Literary Texts*. Chicago: The University of Chicago Press.
- Heidegger, Martin. 1982 [1942]. *Parmenides*. Frankfurt: Klostermann. Original edition, Orig. published as lectures 1942-1943.
- . 1996 [1927]. *Being and Time*. New York: State University of New York Press.
- Heim, Michael. 1993. *The Metaphysics of Virtual Reality*. New York: Oxford University Press.
- . 1999. *Electric Language : A Philosophical Study of Word Processing*. 2nd ed. New Haven: Yale University Press.
- Herman, David. 2000. "Narratology as a Cognitive Science." *Image & Narrative* 1 (September 2000).
- . 2002. *Story Logic : Problems and Possibilities of Narrative, Frontiers of Narrative*. Lincoln, Neb: University of Nebraska Press.
- . 2003c. *Narrative Theory and the Cognitive Sciences, Csl Lecture Notes ; No. 158*. Stanford, Calif.: Center for the Study of Language and Information.
- Herman, David, Manfred Jahn, and Marie-Laure Ryan, eds. 2004. *Routledge Encyclopedia of Narrative Theory*. London & New York: Routledge.
- Higgs, Eric, Andrew Light, and David Strong, eds. 2000. *Technology and the Good Life?* Chicago: University of Chicago Press.
- Hocks, Mary E., and Michelle R. Kendrick. 2003b. *Eloquent Images : Word and Image in the Age of New Media*. Cambridge, Mass.: MIT Press.
- Holland, Norman N. 1995. "Reader-Response Already Is Cognitive Criticism." *Stanford Humanities Review* 4 (1).
- Holland, Norman Norwood. 1988. *The Brain of Robert Frost : A Cognitive Approach to Literature*. New York: Routledge.

- . 1989. *The Dynamics of Literary Response*. Columbia University Press Morningside ed. New York: Columbia University Press.
- . 1992. *The Critical I*. New York: Columbia University Press.
- Honderich, Ted, ed. 2005. *The Oxford Companion to Philosophy*. Oxford: Oxford University Press.
- Huizinga, J. 1955. *Homo Ludens : A Study of the Play-Element in Culture*. Boston: Beacon Press.
- Husserl, Edmund. 1970 [1954]. *The Crisis of European Sciences and Transcendental Phenomenology*. Evanston: Northwestern University Press.
- Ihde, Don. 1976. *Listening and Voice : A Phenomenology of Sound*. Athens: Ohio University Press.
- . 1983. *Existential Technics, Suny Series in Philosophy*. Albany: State University of New York Press.
- . 1990. *Technology and the Lifeworld : From Garden to Earth*. Bloomington: Indiana University Press.
- . 1991. *Instrumental Realism : The Interface between Philosophy of Science and Philosophy of Technology, The Indiana Series in the Philosophy of Technology*. Bloomington: Indiana University Press.
- . 1993. *Philosophy of Technology : An Introduction*. 1st ed, *Paragon Issues in Philosophy*. New York: Paragon House.
- . 1993a. *Philosophy of Technology : An Introduction*. 1st ed, *Paragon Issues in Philosophy*. New York: Paragon House.
- . 1993b. *Postphenomenology: Essays in the Postmodern Context, Northwestern University Studies in Phenomenology and Existential Philosophy*. Evanston, Ill.: Northwestern University Press.
- . 1996. "Whole Earth Measurements." *Society for Philosophy and Technology* 2 (2).
- . 1999. *Expanding Hermeneutics : Visualism in Science*. Evanston, Ill.: Northwestern University Press.
- . 2000. "This Is Not a Text, or, Do We Read Images?" In *Phenomenological Approaches to Popular Culture*, edited by M. T. Carroll and E. Tafuya. Bowling Green, Ohio: Bowling Green State University Popular Press.

- . 2001a. *Bodies in Technology, Electronic Mediations ; V. 5*. Minneapolis: University of Minnesota Press.
- . 2001b. "Was Heidegger Prescient Concerning Technoscience?" *Existentialia* XI:373-386.
- . 2002. *Bodies in Technology, Electronic Mediations ; V. 5*. Minneapolis: University of Minnesota Press.
- . 2003 [1979]. "Heidegger's Philosophy of Technology". In *Philosophy of Technology: The Technological Condition*, edited by R. C. Scharff and V. Dusek. Oxford: Blackwell Publishing. Original edition, *Technics and Praxis* (1979).
- . 2003b. "If Phenomenology Is an Albatross, Is Post-Phenomenology Possible?" In *Chasing Technoscience*, edited by D. Ihde and E. Selinger. Bloomington & Indianapolis: Indiana University Press.
- . 2004. Ears and Eyes/Sights and Sounds. In *Culture Techniques*. Bergen.
- Introna, Lucas D., and Fernando M. Ilharco. 2004. "The Ontological Screening of Contemporary Life: A Phenomenological Analysis of Screens." *European Journal of Information Systems* 13:221-234.
- Iser, Wolfgang. 1974. *The Implied Reader : Patterns of Communication in Prose Fiction from Bunyan to Beckett*. Baltimore: Hopkins.
- . 1978. *The Act of Reading : A Theory of Aesthetic Response*. Baltimore: Johns Hopkins University Press.
- Jackson, Shelley. *Patchwork Girl*. Eastgate Systems 1995 [cited].
- Jahn, Manfred. 1997. "Frames, Preferences, and the Reading of Third-Person Narratives: Towards a Cognitive Narratology." *Poetics Today* 18 (4):441-468.
- . 2003. "'Awake! Open Your Eyes!' the Cognitive Logic of External and Internal Stories". In *Narrative Theory and the Cognitive Sciences*, edited by D. Herman. Stanford, Calif.: Center for the Study of Language and Information.
- Jakobson, Roman. 1971. *Fundamentals of Language*. The Hague: Mouton.
- James, William. 1890. *Principles of Psychology*. 2 vols. Vol. I. New York: Dover Publications.
- Jensen, Jens F. 1998. *Multimedier, Hypermedier, Interaktive Medier [Multimedia, Hypermedia, Interactive Media]*. Aalborg: Aalborg Universitetsforlag.

- Johnson-Eilola, Johndan. 1997. *Nostalgic Angels : Rearticulating Hypertext Writing, New Directions in Computers and Composition Studies*. Norwood, N.J.: Ablex.
- Jones, Gerard. 2002. *Killing Monsters - Why Children Need Fantasy, Superheroes, and Make-Believe Violence*. New York: Basic Books.
- Joyce, Michael. 1995. *Of Two Minds : Hypertext Pedagogy and Poetics, Studies in Literature and Science*. Ann Arbor, Mich.: University of Michigan Press.
- . *Afternoon : A Story*. Eastgate Systems 1996 [1987] [cited].
- . 2006. *Twelve Blue* 1997 [cited February 15 2006]. Available from [www.eastgate.com/TwelveBlue/welcome.html](http://www.eastgate.com/TwelveBlue/welcome.html).
- . 2006. *Twelve Blue* 1998 [cited February 15 2006]. Available from [www.eastgate.com/TwelveBlue/welcome.html](http://www.eastgate.com/TwelveBlue/welcome.html).
- Juul, Jesper. 2004. "Introduction to Game Time". In *First Person : New Media as Story, Performance, and Game*, edited by P. Harrigan and N. Wardrip-Fruin. Cambridge, Mass.: The MIT Press.
- Kernan, Alvin B. 1990. *The Death of Literature*. New Haven: Yale University Press.
- . 1999. *In Plato's Cave*. New Haven: Yale University Press.
- Kintsch, Walter, and Teun A. van Dijk. 1978. "Toward a Model of Text Comprehension and Production." *Psychological Review* 85 (5):363-395.
- Kitzmann, Andreas. 2004. *Saved from Oblivion : Documenting the Daily from Diaries to Web Cams, Digital Formations, V. 11*. New York: P. Lang.
- Koskimaa, Raine. 2000. *Digital Literature : From Text to Hypertext and Beyond*. Jyväskylä: Jyväskylän yliopisto.
- Kress, Gunther. 1998. "Visual and Verbal Modes of Representation in Electronically Mediated Communication: The Potentials of New Forms of Texts". In *Page to Screen : Taking Literacy into the Electronic Era*, edited by I. Snyder. London: Routledge.
- Kress, Gunther & van Leeuwen, Theo. 2001. *Multimodal Discourse: The Modes and Media of Contemporary Communication*. London: Arnold Publishers.
- Kress, Gunther, and Theo van Leeuwen. 1996. *Reading Images : The Grammar of Visual Design*. London: Routledge.
- Kress, Gunther R., and Theo Van Leeuwen. 1996. *Reading Images : The Grammar of Visual Design*. London ; New York: Routledge.

- Kubey, Robert, and Mihaly Csikszentmihalyi. 1990. *Television and the Quality of Life: How Viewing Shapes Everyday Experience*. Hillsdale, NJ: Lawrence Erlbaum Ass.
- Lahti, Martti. 2003. "As We Become Machines: Corporealized Pleasures in Video Games". In *The Video Game Theory Reader*, edited by M. J. P. Wolf and B. Perron. New York & London: Routledge.
- Lamarque, Peter, and Stein Haugom Olsen. 1994. *Truth, Fiction, and Literature : A Philosophical Perspective, Clarendon Library of Logic and Philosophy*. Oxford: Clarendon Press.
- Landow, George P. 1994. *Hyper/Text/Theory*. Baltimore, Md.: The Johns Hopkins University Press.
- . 1997. *Hypertext 2.0*. Rev., amplified ed, *Parallax*. Baltimore, Md.: Johns Hopkins University Press.
- . 2003. "The Paradigm Is More Important Than the Purchase". In *Digital Media Revisited : Theoretical and Conceptual Innovation in Digital Domains*, edited by G. Liestøl, A. Morrison and T. Rasmussen. Cambridge, Mass.: MIT Press.
- Lanham, Richard A. 1993. *The Electronic Word : Democracy, Technology, and the Arts*. Chicago: University of Chicago Press.
- Larose, Robert, Carolyn A. Lin, and Matthew S. Eastin. 2003. "Unregulated Internet Usage: Addiction, Habit, or Deficient Self-Regulation?" *Media Psychology* 5 (3):225-253.
- Larsen, Deena. *Samplers - Nine Vicious Little Hypertexts*. Eastgate Systems 1998 [cited.
- Laurel, Brenda. 1993. *Computers as Theatre*. [2nd ] ed. Reading, Mass.: Addison-Wesley.
- Le Grice, Malcolm. 2001. *Experimental Cinema in the Digital Age*. London: BFI Pub.
- Leeuwen, Theo van. 1999. *Speech, Music, Sound*. Houndmills: Macmillan.
- Lemke, J. L. 1994. "Living Literacy in the Information Age". Paper presented at *The Australian Association Twentieth National Conference*, in Perth, Australia.
- . 1998. "Metamedia Literacy: Transforming Meanings and Media". In *Handbook of Literacy and Technology : Transformations in a Post-Typographic World*, edited by D. Reinking. Mahwah, N.J.: L. Erlbaum Associates.
- Leu, Donald J., and David Reinking. 1996. "Bridging Insights from Reading Research to Research on Electronic Learning Environments". In *Cognitive Aspects of*

*Electronic Text Processing*, edited by H. v. Oostendorp and S. d. Mul. Norwood, N.J.: Ablex Pub. Corp.

- Levine, Robert. 1997. *A Geography of Time*. New York: Basic Books.
- Levy, David M. 1997. "I Read the News Today, Oh Boy: Reading and Attention in Digital Libraries". Paper presented at *ACM Digital Libraries*, in Philadelphia, PA.
- . 2001. *Scrolling Forward : Making Sense of Documents in the Digital Age*. 1st ed. New York: Arcade : Distributed by Time Warner Trade.
- Lévy, Pierre. 1998. *Becoming Virtual : Reality in the Digital Age*. New York: Plenum Trade.
- Liestøl, Gunnar. 1994. "Wittgenstein, Genette and the Reader's Narrative in Hypertext". In *Hyper/Text/Theory*, edited by G. P. Landow. Baltimore, Md.: The Johns Hopkins University Press.
- . 1999. *Essays in Rhetorics of Hypermedia Design*. [Oslo]: Department of Media & Communication University of Oslo.
- Livingston, Paisley. 1988. *Literary Knowledge: Humanistic Inquiry and the Philosophy of Science*. Ithaca & London: Cornell University Press.
- Lund, Niels Windfeld. 2005. "Doceo + Mentum = Document – a Medium Concept, Theory and Discipline." Unpublished manuscript
- Lunenfeld, Peter. 1999. *The Digital Dialectic : New Essays on New Media, Leonardo*. Cambridge, Mass.: MIT Press.
- . 2000. *Snap to Grid : A User's Guide to Digital Arts, Media, and Cultures*. Cambridge, Mass.: MIT Press.
- Mandler, Jean Matter. 1984. *Stories, Scripts, and Scenes : Aspects of Schema Theory, John M. Maceachran Memorial Lecture Series ; 1983*. Hillsdale, N.J.: L. Erlbaum Associates.
- Mangen, Anne. 1997. "Follow the Tracks, Head for All the Noise" - *Entropi Som Tekstbilde I Thomas Pynchons Gravity's Rainbow*, Allmenn litteraturvitenskap [Comparative Literature], Univ. of Tromsø, Norway, Tromsø.
- Manhart, Klaus. 2004. The Limits of Multitasking. *Scientific American Mind*, 62-67.
- Manovich, Lev. 2001. *The Language of New Media, Leonardo*. Cambridge, Mass.: MIT Press.



- Marks, Laura U. 2002. *Touch : Sensuous Theory and Multisensory Media*. Minneapolis: University of Minnesota Press.
- Marshall, Catherine C., and Judy Malloy. *Forward Anywhere*. Watertown, Mass.: Eastgate Systems 1996 [cited].
- Massumi, Brian. 2002. *Parables for the Virtual : Movement, Affect, Sensation, Post-Contemporary Interventions*. Durham, NC: Duke University Press.
- McGann, Jerome J. 2001. *Radiant Textuality : Literature after the World Wide Web*. New York: Palgrave.
- McHoul, Alec, and Phil Roe. 1996. "Hypertext and Reading Cognition". In *Cognitive Technology : In Search of a Humane Interface*, edited by B. Gorayska and J. Mey. Amsterdam ; New York: Elsevier.
- McKnight, Cliff. 1996. "What Makes a Good Hypertext?" In *Cognitive Aspects of Electronic Text Processing*, edited by H. v. Oostendorp and S. d. Mul. Norwood, N.J.: Ablex Pub. Corp.
- McKnight, Cliff, Andrew Dillon, and John Richardson. 1991. *Hypertext in Context, The Cambridge Series on Electronic Publishing*. Cambridge: Cambridge University Press.
- . 1993. *Hypertext : A Psychological Perspective, Ellis Horwood Series in Interactive Information Systems*. New York: E. Horwood.
- Meadows, Mark Stephen. 2003. *Pause & Effect: The Art of Interactive Narrative*. Indianapolis: New Riders Publishing.
- Memmott, Talan. 2001. "Toward Electracy: A Conversation with Gregory Ulmer." *Beehive* 4 (2 (June)).
- Merleau-Ponty, Maurice. 1962 [1945]. *Phenomenology of Perception*. London: Routledge. Original edition, *Phenomenologie de la perception* (1945).
- Merriam-Webster Inc. 2002. *Merriam-Webster's Collegiate Dictionary*. 10th ed. Springfield, Mass.: Merriam-Webster.
- Messariss, Paul. 1998. "Visual Aspects of Media Literacy." *Journal of Communication* (Winter):70-80.
- Meyrowitz, Joshua. 1998. "Multiple Media Literacies." *Journal of Communication* (Winter 1998):96-108.
- Mishra, Punyashloke, Rand J. Spiro, and Paul J. Feltovich. 1996. "Technology, Representation, and Cognition: The Prefiguring of Knowledge in Cognitive

- Flexibility Hypertexts". In *Cognitive Aspects of Electronic Text Processing*, edited by H. v. Oostendorp and S. d. Mul. Norwood, N.J.: Ablex Pub. Corp.
- Mitcham, Carl. 1994. *Thinking through Technology: The Path between Engineering and Philosophy*. Chicago: The University of Chicago Press.
- Montfort, Nick. 2003. *Twisty Little Passages - an Approach to Interactive Fiction*. Cambridge, Mass.: The MIT Press.
- Moran, Dermot. 2000. *Introduction to Phenomenology*. London & New York: Routledge.
- Moran, Dermot, and Timothy Mooney. 2002. *The Phenomenology Reader*. London ; New York: Routledge.
- Mortensen, Torill Elvira. 2003. *Pleasures of the Player : Flow and Control in Online Games*. Bergen  
Volda: University of Bergen Department of Humanistic Informatics  
Volda University College Faculty of Media and Journalism : Møre Research Volda.
- Moulthrop, Stuart. 1991a. "Reading from the Map: Metonymy and Metaphor in the Fiction of Forking Paths". In *Hypermedia and Literary Studies*, edited by P. Delany and G. P. Landow. Cambridge, Mass.: MIT Press.
- . *Victory Garden*. Watertown, Mass.: Eastgate Systems 1991b [cited].
- . 1997b. "Pushing Back: Living and Writing in Broken Space." *Modern Fiction Studies* 43 (3).
- . 1999. "Misadventure: Future Fiction and the New Networks." *Style* 33 (2):184-203.
- . 2004. "From Work to Play: Molecular Culture in the Time of Deadly Games". In *First Person : New Media as Story, Performance, and Game*, edited by P. Harrigan and N. Wardrip-Fruin. Cambridge, Mass.: The MIT Press.
- Murray, Janet H. 1995. "Some Steps Towards the Middle." *Stanford Humanities Review* 4 (1).
- . 1997. *Hamlet on the Holodeck : The Future of Narrative in Cyberspace*. New York: Free Press.
- Nell, Victor. 1988. *Lost in a Book : The Psychology of Reading for Pleasure*. New Haven: Yale University Press.
- Nelson, Ted. 1987 [1974]. *Computer Lib/Dream Machines*. 2nd Ed. ed. Redmond, WA: Tempus Books.

- Nelson, Theodor H. 1992. *Literary Machines : The Report on, and of, Project Xanadu, Concerning Word Processing, Electronic Publishing, Hypertext, Thinkertoys, Tomorrow's Intellectual Revolution, and Certain Other Topics Including Knowledge, Education and Freedom*. [Rev. ] ed. Sausalito, Cal.: Mindful Press.
- Nielsen, Jakob. 1995. *Multimedia and Hypertext : The Internet and Beyond*. Boston: AP Professional.
- Niesz, Anthony J., and Norman N. Holland. 1984. "Interactive Fiction." *Critical Inquiry* 11 (1):110-29.
- Nyre, Lars. 2003. *Fidelity Matters: Sound Media and Realism in the 20th Century*. Bergen/Volda: Department of Media Studies/Faculty of Media and Journalism.
- . 2004. "Apologetisk Medieforskning ["Apologetic Media Research"]." *Norsk Medietidsskrift [Norwegian Journal of Media Research]* (4).
- Ong, Walter J. 1982. *Orality and Literacy: The Technologizing of the Word*. London & New York: Methuen.
- Oostendorp, Herre van, Leen Breure, and Andrew Dillon, eds. 2005. *Creation, Use, and Deployment of Digital Information*. Mahwah, N.J.: Lawrence Erlbaum Associates, Inc.
- Oostendorp, Herre van, and Sjaak de Mul. 1996b. *Cognitive Aspects of Electronic Text Processing, Advances in Discourse Processes ; V. 58*. Norwood, N.J.: Ablex Pub. Corp.
- Pascoe, David. 1997. *Museums and Moving Images*. London: Reaktion Books.
- Passer, Michael W., and Ronald E. Smith. 2001. *Psychology: Frontiers and Applications*. New York: McGraw-Hill.
- Pavel, Thomas G. 1986. *Fictional Worlds*. Cambridge, Mass.: Harvard University Press.
- Pearce, Celia. 1997. *The Interactive Book : A Guide to the Interactive Revolution*. Indianapolis: Macmillan Technical Publishing.
- Perry, Simon. 2004. "Telewest Float Surf & Sniff Smell Generator." Review of Reviewed Item. *digital-lifestyles.info*, [http://digital-lifestyles.info/display\\_page.asp?section=cm&id=999](http://digital-lifestyles.info/display_page.asp?section=cm&id=999).
- Persson, Per. 2003. *Understanding Cinema: A Psychological Theory of Moving Imagery*. Cambridge, UK: Cambridge University Press.
- Pfeiffer, K. Ludwig. 2004. From the Materiality of Communication to an Anthropology of Media. In *Culture Techniques*. Bergen.

- Polkinghorne, Donald. 1988. *Narrative Knowing and the Human Sciences, Suny Series in Philosophy of the Social Sciences*. Albany: State University of New York Press.
- Pollio, Howard R., Tracy B. Henley, and Craig J. Thompson. 1997. *The Phenomenology of Everyday Life*. Cambridge, U.K. ; New York, NY, USA: Cambridge University Press.
- Postman, Neil. 1992. *Technopoly : The Surrender of Culture to Technology*. 1st ed. New York: Knopf.
- Rabinowitz, Peter J. 1987. *Before Reading : Narrative Conventions and the Politics of Interpretation*. Ithaca: Cornell University Press.
- Reeves, Byron, Esther Thorson, and Joan Schleuder. 1986. "Attention to Television: Psychological Theories and Chronometric Measures". In *Perspectives on Media Effects*, edited by J. Bryant and D. Zillmann. Hillsdale, N.J.: Lawrence Erlbaum Ass.
- Rehak, Bob. 2003. "Playing at Being: Psychoanalysis and the Avatar". In *The Video Game Theory Reader*, edited by M. J. P. Wolf and B. Perron. New York & London: Routledge.
- Ricoeur, Paul. 1984. *Time and Narrative*. Vol. 1-3. Chicago: University of Chicago Press.
- Rieser, Martin, and Andrea Zapp. 2002c. *New Screen Media : Cinema/Art/Narrative*. London: British Film Institute, Zentrum für Kunst und Medientechnologie Karlsruhe, BFI Pub.
- Roberts, Thomas John. 1972. *When Is Something Fiction?* Carbondale: Southern Illinois University Press.
- Ronen, Ruth. 1994. *Possible Worlds in Literary Theory, Literature, Culture, Theory ; 7*. Cambridge ; New York: Cambridge University Press.
- . 2002. *Representing the Real*. Amsterdam: Rodopi.
- Rouet, Jean-François. 1996. *Hypertext and Cognition*. Mahwah, N.J.: Erlbaum.
- Ruz, María, and Juan Lupiáñez. 2002. "A Review of Attentional Capture: On Its Automaticity and Sensitivity to Endogenous Control." *Psicológica* 23:283-309.
- Ryan, Marie-Laure. 1991. *Possible Worlds, Artificial Intelligence, and Narrative Theory*. Bloomington: Indiana University Press.

- . 2001a. *Narrative as Virtual Reality : Immersion and Interactivity in Literature and Electronic Media, Parallax: Re-Visions of Culture and Society*. Baltimore: Johns Hopkins University Press.
- . 2001b. "Beyond Myth and Metaphor - the Case of Narrative in Digital Media." *Games Studies - The International Journal of Computer Game Research* 1 (1).
- . 2003a. "On Defining Narrative Media." *Image & Narrative* 6 (February 2003).
- . 2003b. "Cognitive Maps and the Construction of Narrative Space". In *Narrative Theory and the Cognitive Sciences*, edited by D. Herman. Stanford, Calif.: Center for the Study of Language and Information.
- . 2004a. "Introduction". In *Narrative across Media*, edited by M.-L. Ryan. Lincoln, Neb.: University of Nebraska Press.
- . 2004b. "Multivariant Narratives". In *A Companion to Digital Humanities*, edited by S. Schreibman, R. Siemens and J. Unsworth. Oxford: Blackwell Publishing.
- . 2005. "Narrative and the Split Condition of Digital Textuality." *Dichtung Digital* (1).
- , ed. 2004c. *Narrative across Media, Frontiers of Narrative*. Lincoln, Neb.: University of Nebraska Press.
- Sadoski, Mark, and Allan Paivio. 2001. *A Dual Coding Theory of Reading and Writing*. Mahwah, NJ: Lawrence Erlbaum.
- Salomon, Gavriel. 1994. *Interaction of Media, Cognition, and Learning : An Exploration of How Symbolic Forms Cultivate Mental Skills and Affect Knowledge Acquisition*. Hillsdale, N.J.: L. Erlbaum Associates.
- Saussure, Ferdinand de. 1966. *Course in General Linguistics*. Translated by W. Baskin. New York: McGraw-Hill.
- Scannell, Paddy. 1996. *Radio, Television, and Modern Life : A Phenomenological Approach*. Oxford, UK ; Cambridge, Mass., USA: Blackwell.
- Schank, Roger C. 1995. *Tell Me a Story : Narrative and Intelligence, Rethinking Theory*. Evanston, Ill.: Northwestern University Press.
- Schank, Roger C., and Robert P. Abelson. 1995. "Knowledge and Memory : The Real Story". In *Knowledge and Memory : The Real Story*, edited by R. S. Wyer. Hillsdale, New Jersey ; Hove UK: L. Erlbaum Associates.

- Schnotz, Wolfgang, Justus Böckheler, and Harriet Grzondziel. 1999. "Individual and Co-Operative Learning with Interactive Pictures." *European Journal of Psychology of Education* 14 (2):245-265.
- Seaman, Bill. 2004. "Interactive Text and Recombinant Poetics". In *First Person: New Media as Story, Performance, and Game*, edited by N. Wardrip-Fruin and P. Harrigan. Cambridge, Mass.: MIT Press.
- Shrum, L. J., ed. 2004. *The Psychology of Entertainment Media, Advertising and Consumer Psychology*. Mahwah, New Jersey: Lawrence Erlbaum Ass.
- Shusterman, Richard. 1997. "Somaesthetics and the Body/Media Issue." *Body & Society* 3 (September):33-49.
- Simon, Herbert. 1995. "Literary Criticism: A Cognitive Approach." *Stanford Humanities Review* 4 (1).
- Singer, Jerome L. 1980. "The Power and Limitations of Television: A Cognitive-Affective Analysis". In *The Entertainment Functions of Television*, edited by P. Tannenbaum. Hillsdale, N.J.: Lawrence Erlbaum Ass.
- Sloane, Sarah. 2000. *Digital Fictions : Storytelling in a Material World, New Directions in Computers & Composition Studies*. Stamford, Conn.: Ablex Pub.
- Smith, Frank. 1994. *Understanding Reading : A Psycholinguistic Analysis of Reading and Learning to Read*. 5th ed. Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Smith, Greg M. 1999. *On a Silver Platter : Cd-Roms and the Promises of a New Technology*. New York: New York University Press.
- Smith, Jo. 1998. "Film Criticism after Grand Theories." *DeepSouth* 4 (1).
- Sobchack, Vivian Carol. 1992. *The Address of the Eye : A Phenomenology of Film Experience*. Princeton, N. J.: Princeton University Press.
- . 1994. "The Scene of the Screen: Envisioning Cinematic and Electronic Presence". In *Materialities of Communication*, edited by H. U. Gumbrecht and K. L. Pfeiffer. Palo Alto: Stanford University Press.
- . 1999. "Toward a Phenomenology of Nonfictional Film Experience". In *Collecting Visible Evidence*, edited by J. M. Gaines and M. Renov. Minneapolis: Univ. of Minnesota Press.
- . 2000b. "What My Fingers Knew: The Cinesthetic Subject, or Vision in the Flesh." *Senses of Cinema* 5.
- . 2004a. *Carnal Thoughts : Embodiment and Moving Image Culture*. Berkeley: University of California Press.

- . 2004b. "The Charge of the Real: Embodied Knowledge and Cinematic Consciousness". In *Carnal Thoughts : Embodiment and Moving Image Culture*, edited by V. C. Sobchack. Berkeley: University of California Press.
- . 2004c. "Introduction". In *Carnal Thoughts : Embodiment and Moving Image Culture*, edited by V. C. Sobchack. Berkeley: University of California Press.
- . 2004d. "A Leg to Stand On: Prosthetics, Metaphor, and Materiality". In *Carnal Thoughts : Embodiment and Moving Image Culture*, edited by V. C. Sobchack. Berkeley: University of California Press.
- . 2004e. "The Scene of the Screen: Envisioning Photographic, Cinematic, and Electronic "Presence"". In *Carnal Thoughts : Embodiment and Moving Image Culture*, edited by V. C. Sobchack. Berkeley: University of California Press. Original edition, Pfeiffer, K. Ludwig & Gumbrecht, Hans Ulrich (eds) (1994): *Materialities of communication* (Stanford: Stanford University Press).
- . 2004f. ""Susie Scribbles": On Technology, Techne, and Writing Incarnate". In *Carnal Thoughts : Embodiment and Moving Image Culture*, edited by V. C. Sobchack. Berkeley: University of California Press.
- . 2004g. "What My Fingers Knew: The Cinesthetic Subject, or Vision in the Flesh". In *Carnal Thoughts : Embodiment and Moving Image Culture*, edited by V. C. Sobchack. Berkeley: University of California Press.
- Sokolowski, Robert. 2000. *Introduction to Phenomenology*. Cambridge, UK ; New York: Cambridge University Press.
- Sonesson, Göran. 1989. *Pictorial Concepts : Inquiries into the Semiotic Heritage and Its Relevance to the Interpretation of the Visual World, Aris. Nova Series ; 4*. Lund: Lund University Press.
- Song, Indeok, Robert Larose, Matthew S. Eastin, and Carolyn A. Lin. 2004. "Internet Gratifications and Internet Addiction: On the Uses and Abuses of New Media." *CyberPsychology & Behavior* 7 (4):384-394.
- Spence, Charles. 2001. "Crossmodal Attentional Capture: A Controversy Resolved?" In *Attraction, Distraction, and Action: Multiple Perspectives on Attentional Capture*, edited by C. Folk and B. Gibson: Elsevier Science B. V.
- Stivers, Richard. 2004. *Shades of Loneliness: Pathologies of a Technological Society*. Lanham, MD: Rowman & Littlefield.
- Stone, Allucquere Rosanne. 1996. *The War of Desire and Technology at the Close of the Mechanical Age*. Cambridge, Mass.: MIT Press.

- Strong, David, and Eric Higgs. 2000. "Borgmann's Philosophy of Technology". In *Technology and the Good Life?*, edited by E. Higgs, A. Light and D. Strong. Chicago: University of Chicago Press.
- Svanæs, Dag. 1999. *Understanding Interactivity - Steps to a Phenomenology of Human-Computer Interaction, Computer Science Ph. D. Dissertations*. Trondheim: The Norwegian University of Science and Technology.
- Sweeney, Kevin W. 1994. "The Persistence of Vision: The Re-Emergence of Phenomenological Theories of Film." *Film and Philosophy* 1:29-37.
- Swigart, Rob. *Down Time*. Watertown, Mass.: Eastgate Systems 2000 [cited].
- Thompson, Kristin. 1988. *Breaking the Glass Armor : Neoformalist Film Analysis*. Princeton, N.J.: Princeton University Press.
- Thorngate, Warren. 1988. "On Paying Attention". In *Recent Trends in Theoretical Psychology*, edited by W. Baker, L. Mos, H. Van Rappard and H. Stam. New York: Springer-Verlag.
- . 1997. "More That We Can Know: The Attentional Economics of Internet Use". In *Culture of the Internet*, edited by S. Kiesler. Mahwah, New Jersey: Lawrence Erlbaum Ass.
- Thüring, Manfred, Jörg Hannemann, and Jörg M. Haake. 1995. "Hypermedia and Cognition: Designing for Comprehension." *Communications of the ACM* 38 (8 (August 1995)):57-66.
- Tuman, Myron C. 1992. *Literacy Online : The Promise (and Peril) of Reading and Writing with Computers*. Pittsburgh, Pa.: University of Pittsburgh Press.
- Valkenburg, Patti M. 2004. *Children's Responses to the Screen : A Media Psychological Approach, Lea's Communication Series*. Mahwah, N.J.: Lawrence Erlbaum.
- van Dijk, Teun A. 1997. *Discourse as Structure and Process : Discourse Studies : A Multidisciplinary Introduction*. Thousand Oaks, CA: Sage Publications.
- Vorderer, Peter. 2000. "Interactive Entertainment and Beyond". In *Media Entertainment : The Psychology of Its Appeal*, edited by D. Zillmann and P. Vorderer. Mahwah, N.J.: Lawrence Erlbaum Ass.
- Vorderer, Peter, S. Knobloch, and H Schramm. 2001. "Does Entertainment Suffer from Interactivity? The Impact of Watching an Interactive Tv Movie on Viewers' Experience of Entertainment." *Media Psychology* 3 (4):343-363.
- Wahlberg, Malin. 2003. *Figures of Time : On the Phenomenology of Cinema and Temporality*. Stockholm: Dept. of Cinema Studies [Filmvetenskapliga institutionen], Stockholm University.



- Waite, C. Kaha. 2003. *Mediation and the Communication Matrix, Digital Formations, V. 10*. New York: P. Lang.
- Walker, Jill. 2003. *Fiction and Interaction: How Clicking a Mouse Can Make You Part of a Fictional World*, Department of Humanistic Informatics, University of Bergen, Bergen.
- . 2005. "Feral Hypertext: When Hypertext Literature Escapes Control". Paper presented at *ACM Hypertext '05*, in Salzburg, Austria.
- Walton, Kendall L. 1990. *Mimesis as Make-Believe : On the Foundations of the Representational Arts*. Cambridge, Mass.: Harvard University Press.
- Welton, Donn. 1998a. "Introduction: Situating the Body". In *Body and Flesh : A Philosophical Reader*, edited by D. Welton. Malden, Mass.: Blackwell Publishers.
- Wiley, Jennifer. 2003. "Cognitive and Educational Implications of Visually Rich Media: Images and Imagination". In *Eloquent Images : Word and Image in the Age of New Media*, edited by M. E. Hocks and M. Kendrick. Cambridge, Mass.: MIT Press.
- Willerton, Chris. 2000. "Structure Problems in Hypertext Mysteries". Paper presented at *ACM Hypertext*, in San Antonio, TX.
- Wilson, B.J., S.L. Smith, W.J. Potter, D. Kunkel, D. Linz, C.M. Colvin, and E. Donnerstein. 2002. "Violence in Children's Television Programming: Assessing the Risks." *Journal of Communication* 52:5-35.
- Winner, Langdon. 2003 [1991]. "Social Constructivism: Opening the Black Box and Finding It Empty". In *Philosophy of Technology: The Technological Condition*, edited by R. C. Scharff and V. Dusek. Oxford: Blackwell Publishing. Original edition, *Science as Culture* (1993); originally "Upon Opening the Black Box and Finding it Empty: Social Constructivism and the Philosophy of Technology", presidential address delivered to the Biennial Conference of the Study of Philosophy and Technology, 1991.
- Winograd, Terry, and Fernando Flores. 1986. *Understanding Computers and Cognition : A New Foundation for Design, Language and Being*. Norwood, N.J.: Ablex Pub. Corp.
- Wise, Richard, and Jeanette Steemers. 2000. *Multimedia : A Critical Introduction*. London: Routledge.
- Wolf, Mark J. P. 2000. *Abstracting Reality : Art, Communication, and Cognition in the Digital Age*. Lanham, Md.: University Press of America.

- Wolf, Mark J. P., and Bernard Perron, eds. 2003. *The Video Game Theory Reader*. New York & London: Routledge.
- Woods, Alan. 1997. *Being Naked, Playing Dead – the Art of Peter Greenaway*. Manchester: Manchester University Press.
- Young, Beth Rapp. 1998a. "What Happens Next? How Reading Genre Fiction Is Like Reading Hypertext Fiction." *Reader* 38-39:83-100.
- Young, Iris. 1998b. "Throwing Like a Girl". In *Body and Flesh: A Philosophical Reader*, edited by D. Welton. Malden, Mass.: Blackwell Publishers.
- Zahavi, Dan. 2003. *Fænomenologi*. Fredriksberg: Roskilde Universitetsforlag.
- Zellweger, Polle, Niels Olof Bouvin, Jock Mackinlay, and Henning Jehøy. 2001. "Fluid Annotations in an Open World". Paper presented at *ACM Hypertext*, in Copenhagen, Denmark.
- Zellweger, Polle, Anne Mangel, and Paula Newman. 2002. "Reading and Writing Fluid Hypertext Narratives". Paper presented at *ACM Hypertext*, in Baltimore, MD.
- Zettl, Herbert. 1973. *Sight - Sound - Motion. Applied Media Aesthetics*. Belmont, CA: Wadsworth Publishing Company, Inc.
- Zillmann, Dolf, and Peter Vorderer. 2000. *Media Entertainment : The Psychology of Its Appeal, Lea's Communication Series*. Mahwah, N.J.: Lawrence Erlbaum Associates Publishers.
- Zwaan, Rolf A. 1993. *Aspects of Literary Comprehension : A Cognitive Approach, Utrecht Publications in General and Comparative Literature, V. 29*. Amsterdam ; Philadelphia: J. Benjamins Pub. Co.