3. Pre-Configurations and (Re)entries

3.1.

Pre-History: The Extensions of Men and Cognitive Transitions

I would like to begin this brief pre-history with a citation. In an article entitled "What's a Critic to Do? Critical Theory in the Age of Hypertext," George P. Landow, an iconic figure in new media studies maintains that "a central fact about the digital word lies in its intrinsic separation of text from the physical object on which it is read" (LANDOW, 1994, p. 4). In other words, one must distinguish between information regimens and their media supports, which are, of necessity, transitory as they rely on historically specific technological affordances. As Katherine Hayles writes: "electronic literature is not print (…) and paying attention to the ways in which electronic literature both extends and disrupts print conventions is a neat trick (…)" (HAYLES, 2008, p. 30) – a trick which I fully intend to master. A brief foray into the history of print seems inevitable.

Before I proceed, I must acknowledge that the topic of the "birth of the digital" is not without a significant measure of indeterminacy. On the one hand, one could venture into a teleological, or dare I say genealogical, retracing of the steps in the history of writing and print as a means of introducing the full-fledged discussion on digital literature, which includes an emphasis on the invention of hypertext, to be sure. On the other hand, one could opt to focus on the end-of-books debate – the all-too-famous disentanglement of word from page initially sparked a debate that remains alive to this day. I would be remiss not to mention it, but I wish to make it clear that I have no interest in dwelling on it.[1] To play

[1] One could trace it back to Robert Coover's famous article "The End of Books," published in none other than *The New York Times Book Review*: "In the real world nowadays, you will often hear it said that the print medium is a doomed and outdated technology… Indeed, the very proliferation of books and other printed-based media, so prevalent in this forest-harvesting, paper-wasting age, is held to be a sign of its feverish moribundity, the last futile gasp of a once vital form

into Landow's scenario that dictates "you can't read an electronic book in the bathtub" (LANDOW, 1994, p. 4), I must confess to my total indifference towards the fact that one cannot read electronic books in the bathtub, the ocean or a swimming pool – be it noted that Landow was writing before Kindles and iPads and it is entirely possible (probable, even) that iPad-ready flotation devices are available in stores as I write these pages. My point is simple, but essential: although one must distinguish between digital textuality and its instantiation in changing media, one must never neglect the fact that the histories of these two elements are intermingled.

If we have, in fact, become posthuman, then so has the world around us. It is then not surprising that when Katherine Hayles sets out to define digital literature, she borrows a term from genetics, calling it a mutation, or a "hopeful monster: composed of parts taken from diverse traditions that may not always fit together" (HAYLES, 2008, p. 4). With hybridity as its mark, digital literature has become a space of negotiation ("a trading zone", as the author calls it, borrowing Peter Galison's term), wherein fundamentally inter- and intramedial recursive processes both activate and break with distinct cultural semantics, expertises and classification systems. Digital literature, or electronic literature, must transact with relatively stagnant functions and conventions cemented by centuries of print culture – not to mention the influence of imagetic and cinematic languages (HAYLES, 2008). It stands to reason that readers will approach digital literature with tacit expectations derived from the internalization of print protocols, such as alphanumeric text, pages, etc. Apple's iPad, and before it, Amazon's Kindle – and other such supports –, kept the flipping page as an interface model. One can only assume that this decision was based on the belief that readers/consumers would be comforted by the semblance of printed books, i.e., their material arrangement.

One of the earliest hypertext theorists, David J. Bolter, includes a chapter entitled "Writing as Technology," in his seminal 1991 book *Writing Space: Computers, Hypertext and the Remediation of Print*. While it is intuitive to think of the printing press, the Linotype machine and the typewriter as technologies, he argues, the same logic does not apply to writing. In other words, we tend to *not*

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before it finally passes away forever, dead as God" (COOVER, 1992 IN. FRUIN & MONTFORT, 2003, p. 706).

consider alphabetic writing as technology, when in fact the invention of the alphabet should be regarded as one of the greatest technological advances in human history.

> Writing is and has always been a sophisticated technology: skill is required to learn to read and write, and penetrating intelligence is needed to invent or improve some aspect of the technology of literacy. (BOLTER, 1991, p. 33)

The intricate correlation between medial supports and human cognition – responsive to cultural and historic specific configurations – gives rise to what Bolter calls "economies of writing" (BOLTER, 1991). According to the author, each culture and period has its own particular economy of writing: "a dynamic relationship among materials, techniques, genres, and cultural attitudes or uses" (BOLTER, 2001, p. 21). This notion proves to be critical because of the intimate relationship between the "writing space" and the kind of writing that is produced as a result of such interdependency – i.e., varying recursive methods of storing, processing and transmitting discourse/data. For example, in late antiquity the shift from the papyrus roll to the codex provided a more effective use of the bracketed, two-dimensional surface: page numbers were then included. In Western Europe, the shift from the handwritten codex to the printed book constituted another such refashioning, and similar logic applies to electronic writing. These "refashionings" exemplify moments of *remediation* (BOLTER, 2001). I shall return to the concept shortly.

The earliest economies of writing arise in Mesopotamia and Egypt. As Sumerians and Egyptians develop a symbolic system comprised of intricate word-syllable scripts, pictographic representations are progressively replaced by phonetic codes.[2] To be sure, scripts have highly complex antecedents and have proliferated around the globe quite independently of one another. Various societies have adopted a myriad of recording devices and *aides-mémoire* – ranging from notched sticks and pebble rows to the *quipu*, an Incan tallying device consisting of a stick with suspended chords (ONG, 1982). Writing, in its commonest sense, Ong writes, "was and is the most momentous of all human

[2] Cf. Bolter. The author adds that the Egyptians may have borrowed the idea of phonetic writing – wherein written symbols are associated with sounds of a language – from the Sumerians. In this case, only the Chinese and the Mayans are believed to have adopted phonetic writing independently (BOLTER, 1991, p. 37).

technological inventions" (ONG, 1982, p. 84). Far more than an "appendage to speech," – or being precisely that – literacy shifts the requisite sensory engagement from the aural to the visual realm: "Notches on sticks and other *aides-mémoire* lead up to writing, but they do not restructure the human lifeworld as true writing does (Ibid.). A detailed study on the full effects of literacy on cognitive operations, however indispensable, falls outside the scope of this thesis. Suffice it to note that around the 8th century B.C. the Greeks adopt alphabetic writing. Old epic songs from the oral tradition are then transcribed to the papyrus scroll, itself acquired from Egypt. In his *The Muse Learns How to Write: Reflections on Orality and Literacy from Antiquity to the Present,* Eric A. Havelock deems the passage from orality to literacy so momentously grand in the course of human history that he declares it the intention of his book to illustrate "the crisis that occurred in the history of human communication, when Greek orality transformed itself into Greek literacy" (HAVELOCK, 1986, p. 1). The earliest text composed throughout as written text was that of Hesiod. Because the language found in Hesiod retains much of the formulaic character of Homeric epic poetry, Hesiod's example is befitting of David Bolter's notion of *remediation*, a key term to understanding new media (BOLTER, 1991).

Bolter describes the concept of remediation as "a process of cultural competition between or among technologies" (BOLTER, 1991, p. 23). For many years, Greeks and Romans envisaged alphabetic writing on the papyrus roll in dialectical tension with the oral tradition they had not fully forsaken. Albeit entirely adequate as a descriptive strategy, it should be noted that Bolter's concept of remediation can be regarded as the output of media history as seen from a teleological stance: "writing on papyrus remediated oral communication by involving the eye as well as the ear and so giving the words a different claim to reality" (Ibid.). Be it noted, remediation is not substitution: when a new medium supplants an obsolete predecessor, it does *not* fully replace it, but rather supplements it by both retaining certain characteristics of the original medium and reconfiguring its representational parameters. As he scrutinizes various surfaces or spaces of text, Bolter draws a parallel between electronic text and Homeric poetry. Detecting certain traces of orality in hypertext structures – such as repetition and associativity –, the author considers the topical structurations of digital electronic texts as counterparts to Homer's mnemotechniques, namely

epithets and recurring descriptions: “Homer’s repetitive formulaic poetry is a forerunner of topographic writing in electronic writing space. The Homeric poet wrote by putting together formulaic blocks, and the audience ‘read’ his performance in terms of these blocks” (BOLTER, 1991, p. 59). When the papyrus roll remediates oral communication – dislodging speech from aural to visual registers –, it retains manifest residues of rhetoric on its surface of inscription (Figs. 6 and 7).

Kindly turn 90˚(↻) to see:

Fig. 6. Facsimile of 2nd century papyrus roll of Plato's *Phaedrus*. (Source: Oxford University's exhibition *Oxyrhynchus: A City and its Texts* (1998): The *Oxyrhynchus Papyri* vol. XVII 2102).

Permalink: http://www.papyrology.ox.ac.uk/POxy/VExhibition/exhib_welcome.html.

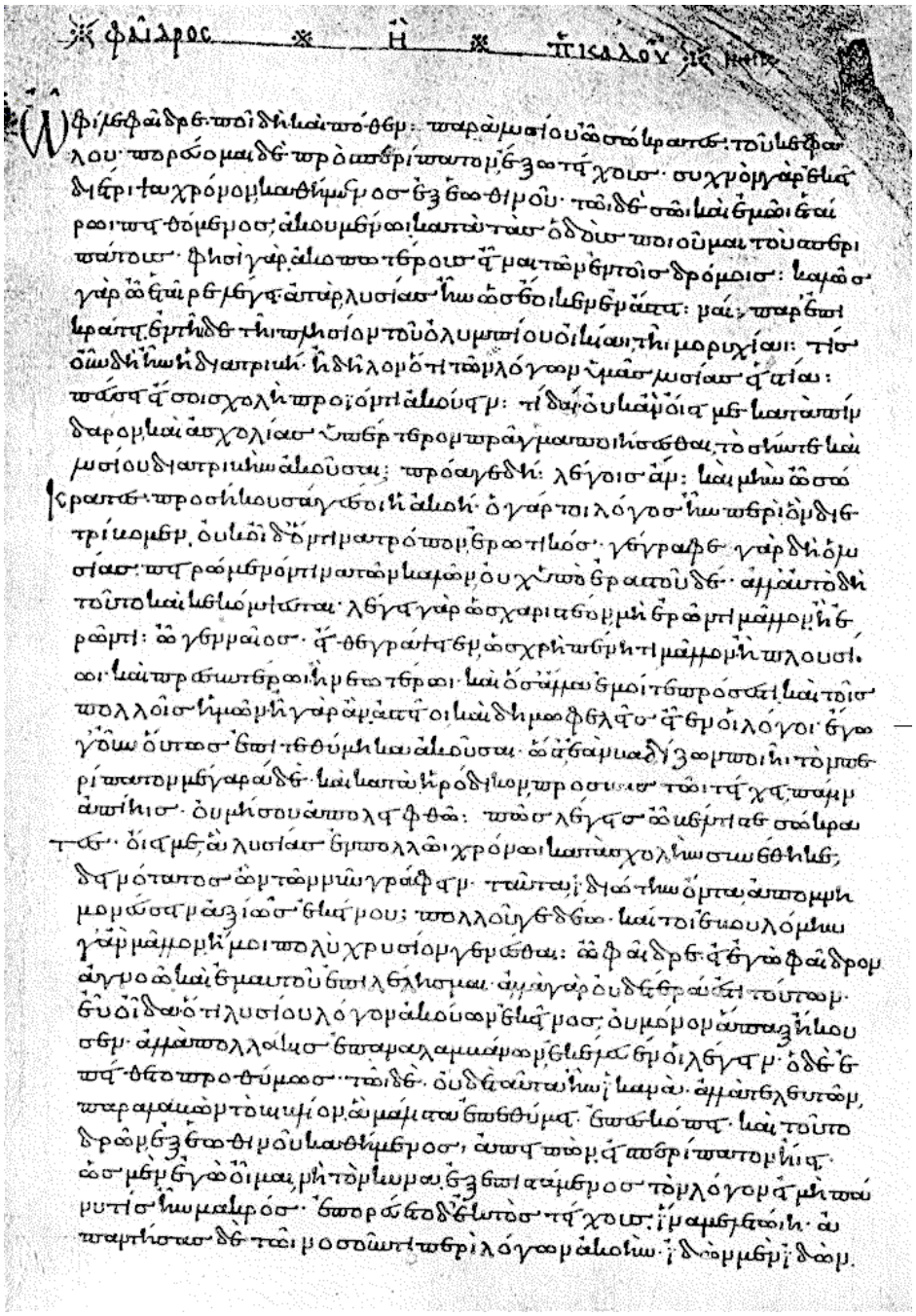

Fig. 7. Facsimile of minuscule parchment containing the first speech of Socrates in Plato's *Phaedrus* in Codex Clarkianus 49, Bodleian Library, Oxford University. (Source: HALSALL, P. Forham University). Original source: *Phaedrus*, 895 CE. Uncial, (STEFFENS 8: Bodleian, Clarke MS 39, fol.224 apud HALSALL). Permalink: http://www.fordham.edu/halsall/byzantium/paleog.asp.

The transition from parchment to codex results in the effacement of the former in a few centuries. During the Renaissance, the printed book quite efficiently remediates the codex. The screen, which now remediates the printed book, represents an upheaval (to borrow from media theorists Peter Gendolla and

Jörgen Schäfer's terminology) of even larger proportions. Book historian Roger Chartier deems the "revolution of our present time" more extensive in nature and impact than Gutenberg's, for not only does it alter technologies of reproduction but also – and here I am blatantly extrapolating – de-anchors textual mediation without excluding processes of gradual materialization. According to Chartier, the current state of affairs is only preceded in the West by the remediation of *Volumen* to the codex, which occurs in the early Christian era (CHARTIER, 1995). If the predominance of the codex was conducive to a certain confection logic dictated by the specifics of the supports available – responsible, for example, for the organization of content into chapters –, digital mediation will foster reception practices no longer solely reliant on the mandates of flat typography. This is not to say that digital mediation orders the end of literacy but it does mean that programmable texts will require new modalities of reading, new literacies on par with their processual (executable) instantiations (Cf. HAYLES, 2008; CAYLEY, 2002). Bolter's prediction turned out to be true: the shift to computer did make writing more flexible (BOLTER, 1991, p. 2).

In *Remediation: Understanding New Media*, Jay Bolter and Richard Grusin explain our culture's paradoxical relationship with media by means of a reflection on the theme of remediation: "our culture wants to both multiply its media and to erase all traces of mediation: ideally, it wants to erase its media in the very act of multiplying it" (BOLTER & GRUSIN, 1999, p. 5). Bolter and Grusin write that the concept of remediation is essentially constituted by the representation of one medium in another (1999, p. 45). The double logic of remediation, thus, mandates that it articulate two divergent notions, namely *immediacy* and *hypermediacy* (Ibid.). While the former refers to a tendency in media to feign transparency – which is to say the attempt at the illusion of immediacy by means of a simulated convergence between the thing represented and the act of representation –, the latter points to the spectral-opposite predisposition toward self-reflexivity – i.e., "an intense awareness, and even revealing of the medium" (BOLTER, 2001, p. 25). To be sure, hypermediacy could be regarded as a manifestation of a deep-seated (preconscious?) fascination with representational practices and technological apparatuses. Speculatively, immediacy evinced by Bolter and Grusin as a bird-feeding webcam designed to create the illusion of proximity could be said to attend to conflicting reactions to lack of tactility –

sensory deprivation compensated by informational overload – in contemporary societies. Skype-related applications constitute a case in point, as do entire sections of scholarship devoted to such topics as ubiquitous computing and cloud computing.[3] Evidently, one must draw a distinction between materiality of supports and conceptual debates. My investigation pertains to the latter, which is to say, to the conceptual and aesthetic implications to be detected in computer-based and *digitally-born literary* communication. Having said this, remediation, hypermediacy and immediacy serve as tropes of reflection on the mechanisms and logics of digital literature, very often simultaneously operative in the works' production and reception.

In *Electronic Literature: New Horizons for the Literary*, theorist Katherine Hayles starts with the very bold, and in my view, quite pertinent claim: to see electronic literature as a remediation of print, or as she puts it, "through the lens of print, is not to see it at all" (HAYLES, 2008, p. 3). Because their operational logics are recursively linked to new processes of technological mediation, works of digital literature test the limits, or, in Hayles' terms, "test the boundaries of the literary and [challenge] us to rethink our assumptions of what literature can do or be" (HAYLES, 2008, p. 5). Her aim in the chapter opportunely entitled "Electronic Literature: What is it?" being to accommodate both readers new to electronic literature as well as those well versed in the discussions on digital art and media, she chooses to introduce the topic with a "fanciful scenario," an anecdote about the appearance of the first printed codex.

> The Scriptorium was in turmoil. Brother Paul, the precentor in charge, had detected a murmur from the back row and, furious that the rule of silence was being compromised, strode down the aisle just in time to see Brother Jacob tuck something under his robe. When he demanded to see it, Brother Jacob shamefacedly produced a codex, but not one that the antiquarii of this monastery had copied – or of any monastery, for this Psalter was *printed*. Shocked as much by the sight of the mechanical type as by Brother Jacob's transgression, Brother

[3] This movement toward proximity and immediacy is one of the reasons that lead me to discuss the topic of presence in the context of digital literature. Of course, the path is not that simple, for on the other side of the double logic of remediation is *hypermediacy*. I am particularly fond of David Sasaki's explanation of "the Cloud." In his essay "Cloud Intelligence: Explore Human Nature, Envision Human Future," included in the 2009 volume of Ars Electronica entitled *Human Nature*: "The Cloud includes Cloud Computing, Cloud Activism and Cloud Intelligence as three layers, but these layers support each other. Cloud Computing upgrades the Internet infrastructure to a new level to enable global roaming as digital nomads. Cloud Activism improves how people collaborate and take action to change the world. Then we have Cloud Intelligence from persistent connections between people and the information they generate at every second" (SASAKI, 2009, p.20).

> Paul so far forgot himself that he too broke the silence, thundering that if books could be produced by fast cheap and mechanical means, their value as precious artifacts would be compromised. Moreover, if any Thomas, Richard, or Harold could find his way into print, would not writing itself be compromised and become commonplace scribbling? And how would the spread of cheap printed materials affect the culture of the Word, bringing scribbling into every hut and hovel whose occupants had hitherto relied on priests to interpret writing for them? The questions hung in the air; none dared imagine what answers the passing of time would bring. (HAYLES, 2008, p. 1 – emphasis added)

Indeed the passing of time has issued more questions than answers – the "transgression" of print being fully reenacted with the advent of computer-aided writing technologies. As author of books such as *How We Became Posthuman* and *My Mother Was a Computer*, Hayles is surely well aware of the epistemological conflicts inherent to hybridizations of man/machine as well as their conceptual and concrete implications to the dynamics of literary and cultural communications. Thus, when she announces that the state of writing is again in turmoil, she understands that she is far from announcing a new fact. Regardless of her motives – by which I mean whether she does it precisely because it is the goal of the chapter to meet the expectations of digitally informed academic readers as well as those of scholars new to the field – the anecdote seems the perfect way to start. To the layman, it serves the function of drawing him in. To the literary scholar, the fictitious and yet highly probable[4] scene in the scriptorium will certainly conjure Marshall McLuhan's *The Gutenberg Galaxy* (1962) and Walter Ong's *Orality and Literacy: The Technologizing of the Word* (1982). While both authors speak of the interiorization of writing and their consequences to human cognitive structurations, both are clear in their understanding of the emergence of the alphabet as an external (at the level of *techné*) imposition to be later processed internally. Nevertheless, insofar as interiorization is a key point, I

[4] In fact, in the introduction to his 1991 book, *Writing Space: The Computer, Hypertext and the History of Writing*, David Bolter prefaces the chapter with a passage from Victor Hugo's classic novel *Notre-Dame de Paris*, (1482): "Opening the window of his cell, he pointed to the immense church of Notre Dame, which, with its twin towers, stone walls, and monstrous cupola forming a black silhouette against the starry sky, resembled an enormous two-headed sphinx seated in the middle of the city. The archdeacon pondered the giant edifice for a few moments in silence, then with a sigh he stretched the right hand toward the printed book that lay open on his table and his left hand toward Notre Dame and turned a sad eye from the book to the church. 'Alas!' he said, 'This will destroy that'" (HUGO, 1967, p. 197 apud BOLTER, 1991, p. 1). Bolter explains that the priest "meant not only that printing and literacy would undermine the authority of the church but also that 'human thought (…) would change its mode of expression, that the principal idea of each generation would no longer write itself with the same material and in the same way, that the book of stone, so solid and durable, would give place to the book made of paper, yet more solid and durable'" (Ibid.).

would submit that because it relates to what Hayles defines as "thinking digital," from a theoretical stance (with a systems-theory slant), it requires both critical distance (processed recursively and internally) and an insider's understanding of how digital literature both upsets and expands the conventions of print – internal processing of *external* references (Cf. LUHMANN, 1995). Put otherwise, digital literary communication demands cognitive reconfigurations based on a reentry paradigm of material and (inter)medial restructurings (Cf. HAYLES, 2005; 2008: JÄGER, 2010).[5]

The interiorization of writing technologies provokes an operative change in processes of perception and cognition: "Only the phonetic alphabet makes a break between eye and ear" (MCLUHAN, 2008, p. 27). Referring to the work of J. C. Carothers on the role of written words on perceptive mechanisms, McLuhan notes that techniques of inscription quite efficiently obfuscate the aural dimension of words: when words are written down they become inevitably coupled with the perceptual surface of the visual world, thereby losing "the dynamism which is so characteristic of the auditory world in general, and of the spoken word in particular" (CAROTHERS, 1959, p. 311 apud MCLUHAN, 2008, p. 20). In his *Orality and Literacy*, Walter Ong has a chapter entitled "Writing Restructures Consciousness" wherein he explains that an understanding of oral cultures facilitates insights on the workings of cognition:

> Without writing, the literate mind would not and could not think as it does, not only when engaged in writing but normally even when it is composing its thoughts in oral form. More than any other single invention, writing has transformed human consciousness. (ONG, 2002, p. 77)

In a chapter called "Plato, Writing and Computers," Ong draws an attractive analogy between the initial recalcitrance to the computer as a creative medium and Plato's notorious rejection of the alphabet (*Phaedrus* and *Seventh Letter*). Plato equated writing with *techné* and argued that its implementation was utterly undesirable: something inhuman, capable of destroying memory, discouraging of

[5] In his "Epistemology of Disruptions," Jäger notes that Luhmann's distinction between medium and form could be transcribed to his own binary distinction of disruption and transparency: "the disruption would be the state of communication in which we would not observe the form *through* (the invisible) medium but would observe *with the* medium the 'contingency of creating forms'" (JÄGER, 2010, p. 84. Cf. LUHMANN, *Kunst der Gesellschaft*, 168 apud. JÄGER).

the intricate intellectual dispositions of the human mind and lacking in the refinements of rhetorical arts (ONG, 1982).[6]

> Socrates: At the Egyptian city of Naucratis, there was a famous old god, whose name was Theuth; the bird which is called the Ibis is sacred to him, and he was the inventor of many arts, such as arithmetic and calculation and geometry and astronomy and draughts and dice, but his great discovery was the use of letters. Now in those days the god Thamus was the king of the whole country of Egypt; and he dwelt in that great city of Upper Egypt which the Hellenes call Egyptian Thebes, and the god himself is called by them Ammon. To him came Theuth and showed his inventions, desiring that the other Egyptians might be allowed to have the benefit of them; he enumerated them, and Thamus enquired about their several uses, and praised some of them and censured others, as he approved or disapproved of them. It would take a long time to repeat all that Thamus said to Theuth in praise or blame of the various arts. But when they came to letters, This, said Theuth, will make the Egyptians wiser and give them better memories; it is a specific both for the memory and for the wit. Thamus replied: O most ingenious Theuth, the parent or inventor of an art is not always the best judge of the utility or inutility of his own inventions to the users of them. And in this instance, you who are the father of letters, from a paternal love of your own children have been led to attribute to them a quality which they cannot have; for this discovery of yours will create forgetfulness in the learners' souls, because they will not use their memories; they will trust to the external written characters and not remember of themselves. The specific which you have discovered is an aid not to memory, but to reminiscence, and you give your disciples not truth, but only the semblance of truth; they will be hearers of many things and will have learned nothing; they will appear to be omniscient and will generally know nothing; they will be tiresome company, having the show of wisdom without the reality. (PHAEDRUS, trans B. Jowett, 274-5)

In Plato's defense, one must recall that processes of internalization and assimilation have, over the course of time, rendered the exteriority of *techné*

[6] Just as Plato looked reservedly at the advent of writing, by the mid-1980s it was not obvious to most people that the computer could become a word processor, admitting only its utility as an instrument for calculations, data storage and all kinds of bureaucratic services. Well, if remediation consists of the natural process of media transition toward technological development, we may agree with Walter Ong in that "technology is artificial, but – paradox again – artificiality is natural to human beings" (ONG, 1982, p. 82). It is natural, therefore, that a new kind of literary creation has been born from the artificiality of digital media. Arguably, the aversion to computers mentioned by Ong in his 1982 book has subsided in 2010. There is a reason, after all, why topics such as ubiquitous computing and affective media are increasingly common in new media conferences and seminars. Last semester alone, the Rhode Island School of Design had in its curriculum courses such as "Body Electric" and "Becoming Animal: Technical + Environmental". Such a selection demonstrates the way in which the body and issues of embodiment are increasingly relevant as influencing interface. Affective computing and augmented reality, to cite two examples, are all but "natural" components of a new scenario wherein interface becomes an interstice (in Nicholas Bourriaud's terms), a place of negotiation where things ultimately "happen": the moment of touch between the image of your foot as captured by your Phone camera and the augmented reality view of the street on which you are walking. This is the ground where electronic or digital literature flourishes. Processes of internalization will inevitably adapt to these changes.

essentially invisible.[7] While the debate on the extent to which language acquisition molds perception is not yet settled – this irrespectively of language being an instinct, as cognitive psychologist Steven Pinker would have it –, there is no question that language is a set of socially constructed codes and that human experience of the world is informed by it.[8] Plato's charges against writing as inhuman are somewhat justified and even to be expected. They occurred precisely because the technology of writing could still be regarded as such – i.e., as something pertaining to the external realm of discursivity (Cf. JÄGER, 2010). With regards to the exteriority of technology, one could argue, alongside McLuhan, "[that] those who experience the first onset of technology, whether it be the alphabet or radio, respond most emphatically" (McLUHAN, 2008, p. 23). Not surprisingly in light of his theoretical inquiries, McLuhan correlates the emphasis of culturally specific reactions with sensory "dilations" of our eyes and ears (Ibid.). I shall have more to say on these "novel" patterns of mediated sensory interplay when we get to immersive mixed media installations. According to McLuhan, "the true revolution" occurs in the prolonged adjusting phase when the community starts to perceptually and cognitively adapt to new models of mediation (Ibid.). It stands to reason that computer-based literary mediations should undergo protracted gestation periods of assimilation. When I speak of media revolutions (which indubitably refer to their material substrates) I do not mean to suggest the existence of what Jäger has called a "cognitive original" (JÄGER, 2010, p. 79), but rather that semantics will adapt to media operationally.

[7] Incidentally, following Havelock's footsteps, Ong notes that the great irony behind Plato's aversion to writing is that the philosopher's entire epistemology was anchored in the structurations of the written text – the visual concept of Platonic form derived from the Latin root *video*. Having nothing of the interactivity and organicity of orality, Platonic forms are static and operationally closed (ONG, 1982). "The term *idea*, form, is visually based, coming from the same root as the Latin *video*, to see, and such English derivatives of vision, visible, or videotape. Platonic form was form conceived of by analogy with visible form. The platonic ideas are voiceless, immobile, devoid of all warmth, not interactive but isolated, not part of the human lifeworld at all but utterly above and beyond it" (ONG, 1982, pp. 79-80). Plato could not have been aware of the unconscious forces latent in his arguments.

[8] I am not unaware that by this statement I imply that literacy restructures cognitive processes. I refer the reader to Steven Pinker's *The Language Instinct* (MIT Press) for further reading.

3.2.

Digital Humanities: Hypertext and Beyond

Many new media theorists, beginning with Bolter, have agreed on the importance of the passage from orality to literacy in the larger context of digital humanities – writing establishes what Ong calls context-free language or autonomous discourse: i.e., "discourse which cannot be directly questioned or contested as oral speech" (BOLTER, 1991). With hypermedia, the initial systemic configuration is reversed: as in the oral paradigm of interference-prone Homeric rhetoric, computer-based literature reorganizes the reader's role in a manner akin to the dynamic workings of oral performances.[9] Put simply, the reader is often encouraged to actively and dynamically interfere in the verbal and visual organization of the work. Hypertext structures being particularly amenable to such concrete, in Aarseth's terms, non-trivial modes of interaction, it is not surprising that the topic has gained significant currency in recent epistemological inquiries focusing on revised theorizations of reception theory and reader-response criticism (Cf. SCHÄFER, 2010).

Hypertext:

The father of hypertext is commonly held to be Vannevar Bush with his microfilm-based device for associative writing, the Memex. Theorist Raine Koskimaa explains that the Memex was intended to combine a large database with the possibility of linking different sections of that database to each other. The intention was not simply to make data retrieval and modeling easier but also: "it was Bush's idea that when a person starts reading a Memex document written by

[9] Be it noted, however, that Ong coins the terms *primary* and *secondary orality* in order to distinguish between pre-literate orality and "present-day," post-print orality: "The purely oral tradition or primary orality is not easy to conceive of accurately and meaningfully. Writing makes 'words' appear similar to things because we think of words as the visible marks signaling words to decoders: we can see and touch such inscribed words in texts and books. Written words are residue. Oral tradition has no such residue or deposit" (ONG, 1982, p. 11).

another person, she could, through the link structure, access the associative reasoning chain which was behind that particular document" (KOSKIMAA, 2000, http://users.jyu.fi/~koskimaa/thesis/chapter1.htm#mark5). Unfortunately, the Memex, not unlike like Stéphane Mallarmé's *Le Livre*, never came to be. The point here is to remember that the arrival of hypertext was not much different from the advent of script, or the printed book. The turmoil is repeated at every instance of a great change. Hypertext came as both promise of liberation and apocalypse: the thing that would eventually kill the book. Ever glorified for affording malleability to electronic writing surfaces, the term *hypertext* was originally coined by Theodor H. Nelson and first appeared in the article "A File Structure for the Complex, the Changing, and the Indeterminate" (NELSON, 2003, p. 134)[10]:

> Let me introduce the word 'hypertext' to mean a body of written or pictorial material interconnected in such a complex way that it could not conveniently be presented or represented on paper. It may contain summaries or maps of its contents and their interrelations; it may contain annotations, additions and footnotes from scholars who have examined it. (…) Such a system could grow indefinitely, gradually including more and more of the world's written knowledge. (NELSON, 2003, p. 144)

In his commentary on Nelson's article, theorist and new media artist Noah Wardrip-Fruin notes that the essay foresees a specific type of hypertext – one, in fact, whose reconfigurable interlinked informational structures allow for

[10] According to Nelson, the best description of his work is by Tim Berners-Lee, quoted here: "(…) Hypertext was 'nonsequential' text, in which a reader was not constrained to read in any particular order, but could follow links and delve into the original document from a short quotation. Ted Nelson described a futuristic project, Xanadu®, in which all the world's information could be published in hypertext. (…) In Ted's vision, every quotation would have a link back to its source, allowing original authors to be compensated by a very small amount each time the quotation was read. He had the dream of a utopian society in which all information could be shared among people who communicated as equals" (NELSON's homepage: http://hyperland.com/TBLpage). To these remarks Nelson adds corrections, a few of which I choose to transcribe here: "2. I don't believe I used the term 'literary machines' until 1981, when I made it the title of a book. However, 1965 is when I first used the word 'hypertext' in print. 3. It is vital to point out that Tim's view of hypertext (only one-way links, invisible and not allowed to overlap) *is entirely different from mine* (visible, unbreaking n-way links by any parties, all content legally reweavable by anyone into new documents with paths back to the originals, and transclusions as well as links – as in Vannevar Bush's original vision). (…) 7. Not 'all the world's information', but all the world's documents. The concept of 'information' is arguable, documents much less so. I believe Tim is finding his concept of pure information, the 'Semantic Web', much more difficult to achieve than hypertext documents. (…) 12. 'Communicated as equals' is a gracious but confusing phrase. The author and the reader are not exactly equal, they occupy different roles with frequent conflict. If he means that anyone can be an author and anyone can be a reader, that has always been true (since self-publishing has always been respectable). I would say 'shared a level playing field'. But I appreciate the spirit of this phrasing" (Ibid.).

considerably larger degrees of granular manipulation than those found in the Web's "chunk-style" hypertext model (WARDRIP-FRUIN, 2003). In light of these significant differences, Wardrip-Fruin pertinently notes that as unmistakable as the "power" of the Web may be, "its workings should not be mistaken for a definition of hypertext" (WARDRIP-FRUIN, 2003, p. 133). Rather than conceive of the Web as a hypertext system, Wardrip-Fruin suggests we think of it as an enormous, all-pervading publishing sphere – "one that [attains] critical mass by employing a subset of hypertext concepts, primarily those of the chunk style" (Ibid.). According to this view, the future of the Web can possibly benefit from the implementation of other elements derived from Nelson's hypertext visions. Wardrip-Fruin's 2003 revisiting of Nelson's 1965 definition has since been updated as talks of the Web 2.0 (the Semantic Web) have been disseminated throughout the cybersphere. In any event, a doctoral thesis on digital literature would be remiss not to acknowledge the term's first appearance – especially one so deeply embedded in contemporary semantics.

Since the laws of permutation and non-linearity are certainly structuring my thinking as I write these pages, I suggest we now turn back to 1987. The hypertext fiction *Afternoon: A Story* by Michael Joyce is published by Eastgate Systems and received with awe and some critical unease. The first screen shows the following set of instructions:

> This story is created with STORYSPACE, a hypertext program which is both an author's tool and a reader's medium. / • You move through the text by pressing the Return key to go from one section to another (i.e., "turn pages"); and you click the Back arrow (on the bar below) to go back ("page back"); /or / • You double-click on certain words to follow other lines of the story. Window titles often confirm words which yield. / The story exists at several levels and changes according to decisions you make. A text you have seen previously may be followed by something new, according to a choice you make or already have made during any given reading.
>
> ***
>
> I haven't indicated what words yield, but they are usually ones which have texture, as well as character names and pronouns. / There are more such words early on in the story, but there are almost always options in any sequence of texts. / The lack of clear signals isn't an attempt to vex you, rather an invitation to read either inquisitively or playfully and also at depth. Click on words that interest or invite you. / Respond to questions using the Yes/No buttons below or by typing. Note that you can also type some words – and occasional one-word questions – in the text entry box to the right of the buttons below. In subsequent readings, you may wish to browse links between screens by using the Browse icon below. You can also print the text of a screen by clicking the Print icon below. The icon bar may be

dragged to relocate it. To stop reading, choose the Reader menu command. (Copyright Michael Joyce, 1987. Software copyright © Eastgate Systems, 1992-2001)

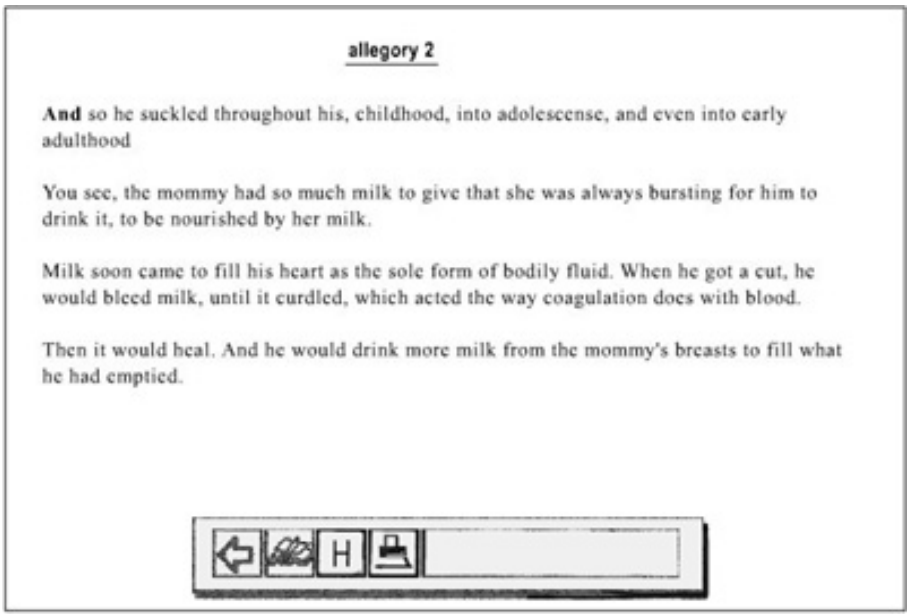

Fig. 8. Screen from Michael Joyce's *Afternoon: A Story* (1987).

In Bolter's close reading of *Afternoon*, he notes that there is a great deal of difference between the hypertextual experience and the act of reading a printed text. In hypertext there is no single, unequivocal plot and "each reading is a version, because each reading determines the story as it goes" (BOLTER, 1991, p. 144). In fact, the author goes as far as to affirm the inexistence of story: "there are only readings" (Ibid.). And Joyce confirms this with the frame (also quoted by Bolter):

> Closure is, as in any fiction, a suspect quality, although here it is made manifest. When the story no longer progresses, or when it cycles, or when you tire of the paths, the experience of reading it ends. Even so, there are likely to be more opportunities than you think there are at first. A word which doesn't yield the first time you read a section may take you elsewhere if you choose it when you encounter the section again; and sometimes what seems a loop, like memory, heads off again in another direction. / There is no simple way to say this. (JOYCE, 1987. Software copyright © Eastgate Systems, 1992-2001)

Bolter was not unaware of similar precedents of non-linearity and *ars combinatoria* in literature. It can be also argued, with a considerable degree of certainty, that it is particularly improbable that Bolter was unaware of reception

aesthetics and reader-response theories as he wrote his 1991 book *Writing Spaces*. Evidently, my typology of computer-based literary communication requires that (a) I assume interactivity as a premise, and (b) that I speak of it in terms of gradations. Bolter appropriately notes that the fact that literature is an intertextual system (one of interconnected writings) is no new discovery (BOLTER, 1991). As J. Yellowlees Douglas writes in her 2001 book, *The End of Books – or Books without End?,* one may trace the history of interactive writing back to Laurence Sterne's 1759 *The Life and Opinions of Tristam Shandy* (DOUGLAS, 2001). The very fact that Bolter devotes a section of his book to Marc Saporta's *Composition No. 1* (1962) corroborates the hypothesis that interactivity is not a new trope in literary studies, but rather an epistemic precondition. Saporta's work is in itself an experiment that requires the reader to follow a set of instructions (i.e., to organize the unnumbered pages as a deck of cards). *Composition No. 1* received remarkable notoriety when it first appeared and is still mentioned by virtually every critic of digital/electronic literature (Fig. 9).

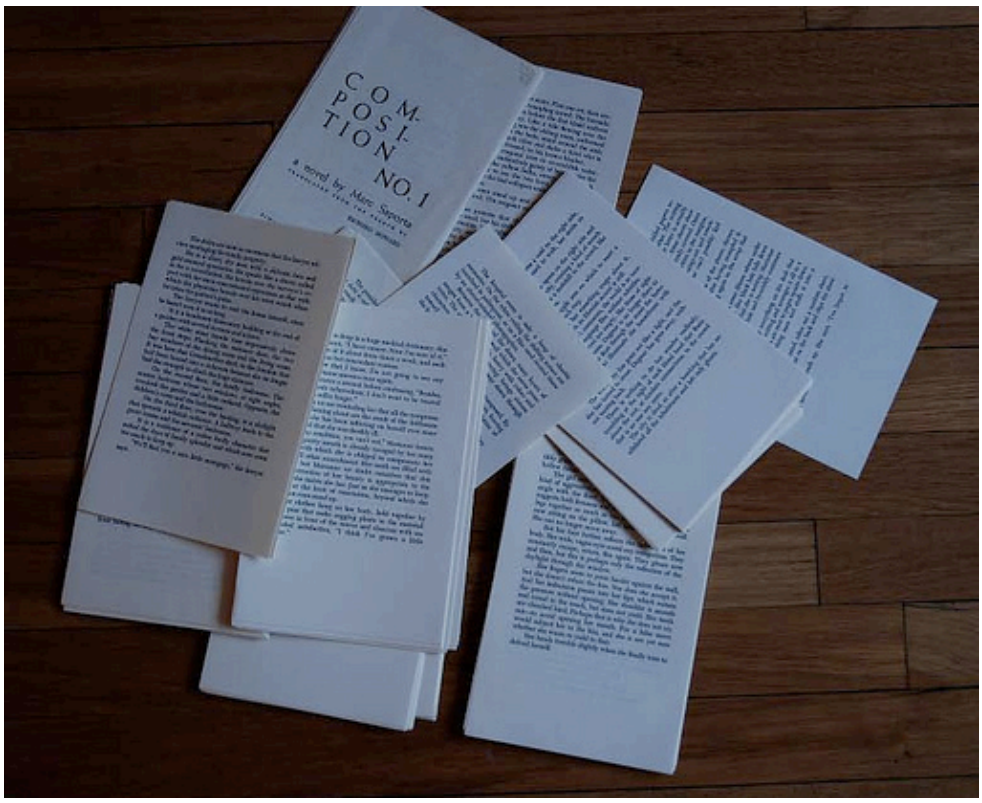

Fig. 9. Image of Marc Saporta's *Composition No. 1*.

Nevertheless, even if he did overestimate the importance of the hyperlink, Bolter's insight on the comparison between topographical writers in print and those of hypertext is entirely valid.[11] The authors he mentions – Sterne, James Joyce, Borges, Cortázar, Saporta – are indeed considered "difficult" writers, and why?

> [Because] they call to the reader's attention the painful contrast between the temporal flow of narrated events and the interruptions and reversals that the act of writing imposes upon these events. All their experimental works are self-consciously concerned with the act of writing. The concern is shown by the difficult relationship between the narrator and the text, between the text and its reader, or both. (…) In each case, the printed fiction must work against its medium in order to be topographic. There is a conflict between the printed volume as a frame and the text that is enframed. (BOLTER, 1991, p. 143)

When he refers to Joyce's *Afternoon*, Bolter offers theoretical room for contradicting possibilities: "*Afternoon* does openly and with ease what experimental writers in print could only do with great difficulty" (BOLTER, 1991, p. 193). The great revolution of hypertextual writing is thus simple to describe: it turned experimentalism into norm, consequently eradicating the "stubbornness of the printed book" (Ibid.). If works such as *Composition No. 1* by Marc Saporta or Raymond Queneau's *Cent mille milliards de poèmes* represented a sort of literature of exhaustion[12] – i.e., the stretching of the boundaries of print media towards extreme non-linearity and spatiotemporal contradiction –, these extreme discursive configurations become but default settings in hypertextual works such as *Afternoon: A Story* and Shelly Jackson's *Patchwork Girl*. This "second-order writing" is arguably the fundamental contribution of digital writing to the history of literature (BOLTER, 1991). Of course, the corollary should be equally considered: that hypertext structures merely automate the discursive tropes which print literature has deployed for centuries: footnotes, cross-references, intertextuality, etc. It is difficult to dispute that computer-based technologies provide concrete means of "reify[ing] writing as a network" (BOLTER, 1991, p. 23).

[11] In her precise synthesis of electronic literature's brief history, Katherine Hayles calls attention to an erroneous association between the hyperlink and an alleged empowerment of the reader. However, as Hayles and Espen Aarseth note, the reader is tied by the rules pre-established by the author who scripted them.

[12] I borrow from John Barth's terminology.

Despite initial expectations, hypertext fictions failed to produce "the great digital novel." That which would become "the word's revenge on TV" (JOYCE, 1988) – in the words of Michael Joyce in 1988 – remains only a promise. While early works of digital literature consisted mostly of chunk-style hypertext (interconnected *lexia*), later works tend to exploit multimedial and immersive communicative possibilities thereby prompting highly intricate modalities of semiotic and sensory mediation (Cf. HAYLES, 2008, p. 6). After the emergence of what Hayles terms the "first" and "second generations" of digital literature, more complex protocols eventually become normalized in such works as instrumental texts, kinetic poetry, locative narratives and interactive installations (Ibid.). As sub-genres of digital literature multiply, a variety of hybrid forms invade the digital scriptorium. Enormous as they were, the contributions of early hypertext theorists have, in fact, been constantly revised by new media scholars themselves – prone to both recursivity and self-description, academic discourse tends to respond to environmental changes (here understood as medial) internally. A case in point is Hayles' attribution of a "sweeping of the board clean" to Espen Aarseth's seminal 1997 *Cybertext: Explorations of Ergodic Literature.* Due to its innovative "analytical cut through textual groupings" that included computer games and electronic hypertexts as well as works from print literature, Hayles deems Aarseth's work groundbreaking (HAYLES, 2008, p. 33).

Cybertext and Ergodic Literature:

However self-evident it may appear to more advanced readers, I quote Aarseth's definition in full as it provides grounds for many of the theoretical exercises included in this thesis.

> The concept of cybertext focuses on the mechanical organization of the text, by positing the intricacies of the medium as an integral part of the literary exchange. However, it also centers attention on the consumer, or user, of the text, as a more integrated figure than even reader-response theorists would claim. *The performance of their reader takes place all in his head,* while the user of cybertext also performs in an extranoematic sense. During the cybertextual process, the user will have effectuated a semiotic sequence, and this selective movement is a work of physical construction that the various processes of 'reading' do not account for. This phenomenon I call ergodic*,* using a term appropriated from physics that

> derives from the Greek words *ergon* and *hodos*, meaning 'work' and 'path.' In ergodic literature, nontrivial effort is required to allow the reader to traverse the text. (AARSETH, 1997, p. 1 – emphasis added)

One cannot help but notice that the choice of the verb *to traverse* – vis-à-vis the more tenuous option, *to cross* – underscores the high measure of reader interference anticipated in the interface engineering of the work. At stake are not normative discussions on the trope of interactivity – which is here taken to be an a priori condition of literary discourse. Rather, Aarseth' cybertextual models speak to the measure of interactivity allotted to the reader: the interaction gradient contained in each text or textual device. According to Aarseth, a reader of print literature is "safe," whereas "the cybertext reader is not safe [for] the cybertext puts its would-be reader at risk: the risk of rejection" (1997, p. 4). The same could be argued of print literature, but in Aarseth's terms, "*the effort and energy demanded by the cybertext of its reader raise the stakes of interpretation to those of intervention*" (AARSETH, 1997, p. 4 – emphasis added)

The latter claim is tremendously daring for it directly addresses one of the most fundamental points in Aarseth's cybertextual framework – one might refer to it as the aporia of medial supports, wherein the configuration and design of the work mandate a theoretical and critical shift from "what [is] read," to "what [is] read *from*" (AARSETH, 1997, p. 3). Since the category of cybertext is not limited to works produced in digital media, it is no surprise that Aarseth should cite *The I-Ching or Book of Changes*, dating from the Chou dynasty (1122-770 BC), as "possibly the best example of cybertext in antiquity" (AARSETH, 1997, p. 9). The Chinese text of oracular wisdom consists of sixty-four symbols, or hexagrams, which are binary combinations of six continuous or discontinuous lines (64 = 26). The *I-Ching* utilizes rules of permutation and combination as mechanisms of oracular inquiry – such are the *I-Ching*'s affinities with the logics of information technology that it has served as inspiration for the binary mathematics of G. W. von Leibniz, applied today in our very computers. For instance, the manipulation of the hexagram 49, ䷰ Ko/Revolution, containing a brief inscription and six sub-texts, is able to generate 4096 diverse texts (Ibid.).[13]

[13] In poetry, Aarseth mentions Queneau's *Cent mille milliard de poèmes*, characterized by a mechanism that produces 1014 sonnets, and the *Calligrammes* by Guillaume Apollinaire as examples of non-digital ergodic works. In the novel genre, in addition to *Composition No. 1* by

To be sure, these structural alterations pose significant obstacles to the task of interpretation. Aarseth himself wonders why "variable expression of nonlinear text [is] so easily mistaken for the semantic ambiguity of the linear text" (Ibid.). The author resolves this impasse by reverting to various metaphors for the labyrinth, specifically the descriptive model of thinking of narrative text as labyrinthic: "The problem with these powerful metaphors (…) is that they enable a systematic misrepresentation of the relationship between narrative text and reader" (AARSETH, 1997, p. 3). Aarseth's spacio-dynamic fallacy requires that narratives be perceived not as presentations of the world – did he mean representations? – but rather holistically, as "that world itself." Not only does this inference allow him to detect short-circuits in the Saussurean binarism, but also to suggest a suspension of Derrida's *différance* "that projects an objective level beyond the text, a primary metaphysical structure that generates both textual sign and our understanding of it, rather than the other way around" (1997, p. 4).

If Hans Ulrich Gumbrecht's post-hermeneutical debate has taught us anything, it is that notions of (re)presentations and further re-presentifications are not as simple as Aarseth would have us believe, even if one evokes Derrida's notion of *différance* and its alleged suspension. As a matter of fact, one of the fundamental debates on ergodic literature problematizes the limitation of narrative constructs in predominantly intermedial and non-linear contexts. In the course of his theorization, Aarseth contrasts narrative and ergodic modes of textual communication.[14]

> The study of cybertexts reveals the misprision of the spacio-dynamic metaphors of narrative theory, because ergodic literature incarnates these models in a way linear text narratives do not. This may be hard to understand for the traditional literary

Marc Saporta, the author also refers to *Hopscotch* [Rayuela] by Julio Cortázar, where the reader is invited to read chapters in a non-linear way, according to preset rules (Aarseth, 1997).

[14] According to theorist Markku Eskelinen, who devoted his 2007 Ph.D. dissertation *Travels in Cybertextuality. The Challenge of Ergodic Literature and Ludology to Literary Theory* to the study of Espen Aarseth's categories of cybertext and ergodic literature, Aarseth contrasts ergodic and narrative modes for very good reasons: "from the outset Aarseth's concept of ergodic literature seems to concern differences only within one of the seven dimensions, the main dividing line separating the interpretative user function from the three other user functions. Therefore we could begin our investigation by focusing on the other six parameters of his typology of textual communication, as in principle they could all be combined to the interpretative user function within the realm of non-ergodic narrative literature. We'll have eight major shifts to deal with: from static to intratextual and textual dynamics, from determinate to indeterminate texts, from intransient to transient time, from random to controlled access, from impersonal to personal perspective, and from no links to links and conditional links" (Ibid.).

> critic who cannot perceive the difference between metaphorical structure and logical structure, but it is essential. The cybertext reader *is* a player, a gambler; the cybertext *is* a game world or world-game; it *is* possible to explore, get lost, and discover secret paths in these texts, not metaphorically, but through the topological structures of the textual machinery. This is not a difference between games and literature but rather between games and narratives. (AARSETH, 1997, p. 4)

From a systemic perspective, a logical narrative course (a *mythos* in the Aristotelian sense) can always be generated through the operative isolation of distinct routes. Thus regarded, combinatory works (hypertextual or not) then would be nothing but multicursal narratives. More concretely, twentieth-century literature, with textual configurations not based on the linear structure of the simple *mythos,* displays its proclivity for semantic ambiguity and richness in precisely these innovative forms of articulation that do not subscribe to the one-dimensional, beginning-middle-end models.[15] Aarseth does recognize that the cybertextual perspective (AARSETH, 1997, p. 5) – used as a descriptive strategy for "a broad media category" – presupposes an overlap between game and narrative models. In order to clarify this point, I propose we revisit Markku Eskelinen's essay, "Six Problems in Search of a Solution: The Challenge of Cybertext Theory and Ludology to Literary Theory," where he proposes a revision of Gérard Genette's traditional theory of narratological poetics as a method for analyzing ergodic literature.

Though it is not my goal to fully dissect Genette's rigorous taxonomy, I find value in Eskelinen's point that while in literature one needs to configure in order to be able to interpret, in games interpretation must precede configuration (ESKELINEN, 2007). I thereby reproduce Eskelinen's six basic questions and urge the reader to focus primarily on the first, second and third amongst them.

> *First*, as narratives are supposed to be transmedial how should we extend literary narratology beyond its print heritage? *Second* and *thirdly*, in addition to various narrative and would-be-narrative constellations and devices also the relations between texts and the text's relation to itself have changed. *Fourthly*, all these changes have their bearing on the role of the reader in the situation where the lack of conventions is well matched with the outdated expectations concerning

[15] Cf. Aarseth, 1997, p. 3: "This distinction is inconspicuous in a linear expression text, since when you read from *War and Peace*, you believe you are reading *War and Peace*. In drama, the relationship between a play and its (varying) performance is a hierarchical and explicit one; it makes trivial sense to distinguish between the two. In cybertext, however, the distinction is crucial – and rather different; when you read from a cybertext, you are constantly reminded of inaccessible strategies and paths not taken, voices not heard" (3). Is Aarseth implying that these unheard voices and paths not taken are absent from the so-called linear text?

> narratives, texts and transtextuality. *Fifthly*, enter playability and the fear of variety when readers and scholars should perhaps be willing to give up the idea of literary wholes and try to pursue happiness in the form of parts, phases and playthings. *Sixthly*, we'll try to shed some ludological light into the recent trend of building textual instruments and instrumental texts. (ESKELINEN, 2007, p. 179 – emphasis added)

Taking Genette's formal narratology (*Narrative Discourse; Narrative Discourse Revisited*: 1980; 1988) as a point of departure, Eskelinen is able to draw a distinction between ergodic deviations and classical narrative conventions (2007, p. 181). For our purposes, it is important to note that Genette subdivides his basic categories into three groups, namely, *tense, mood* and *voice*.[16] *Tense* concerns temporal relations and distortions between *story time* and *narrative time*, which in turn are studied under three registers: order (*ordre*), frequency (*fréquence*) and duration (*durée*) (GENETTE, 1972). We shall focus on selected aspects from the latter triad. According to Genette perfect temporal congruity between story time and narrative time would be unfeasible, for the essential function of narrative structure is to establish consonance between *diegetic* and narrative time – wherein story/diegesis stands for the signified or narrative content and narrative is equated with the signifier, or the text itself (GENETTE, 1980; METZ, 1974). For the sake of clarity, I approach the concept of *diegesis* through Christian Metz's film semiotic stance.[17] In fact, in *Figures III*, Genette opens a chapter on order with the following quotation from Metz:

> Le récit est une séquence deux fois temporelle…: il y a le temps de la chose racontée et le temps du récit (temps du signifié et temps du signifiant). Cette dualité n'est pas seulement ce qui rend possibles toutes les distorsions temporelles qu'il est banal de relever dans les récits (trois ans de la vie du héros résumés en deux phases d'un roman, ou en quelques plans d'une montage "fréquentatif" de cinéma, etc.); plus fondamentalement, elle nous invite à constater que l'une des

[16] On this issue, it is pertinent to quote directly from Genette as he explains that "les trois classes proposes ici, qui désignent des champs d'étude et déterminent la disposition des chapitres suivant, ne recouvrent pas mais recoupent de façon complexe les trois catégories (…) qui désignent des niveaux de définition du récit : le *temps* et le *mode* jouent tous les deux aux niveau de rapports entre *narration* et *récit*, et entre *narration* et *histoire*" (GENETTE, 1972, p. 76).

[17] In his *Film Language: Some Points in the Semiotics of the Cinema* (1974), Metz writes that "the word [diegesis] is derived from the Greek διήγησις, 'narration' and was used particularly to designate one of the obligatory part of judiciary discourse, the recital of facts" (METZ In MAST, COOHEN & BRAUDY eds., 1992, p. 172). Interestingly, in his *Story and Discourse: Narrative Structure in Fiction and Film*, Seymour Chatman verifies a difference between reading time and plot time, "or as [he prefers] to distinguish them, *discourse time* – the time it takes to peruse the discourse – and *story time*, the duration of the purported events of the narrative" (CHATMAN, 1980, p. 62).

> fonctions du récit est de monnayer un temps dans l'autre temps. (METZ, 1958, p. 27 apud GENETTE, 1972, p. 77)

The temporal schematics applied to classic narrative structures proves insufficient in computer-based literature, as temporal categories can be algorithmically manipulated – i.e., digital texts are, of necessity, transient and thus set severe procedural constrictions to reception. Eskelinen has a clever way of illustrating the digital reader's predicament:

> Imagine your favorite classic that could be read only once or only for two hours, or in the night time or outside office hours only, or of which you are allowed to read only two chapters in a decade or in a lifetime, tempting you to collaborate with other readers or leave it and your vague memories of it as an inheritance to the next generation of readers. (ESKELINEN, 2007, p. 181)

In light of these altered temporal configurations, Eskelinen proposes that two additional categories be added to Genette's equation. In addition to *story time* and *narrative time*, Eskelinen includes *system time* (measuring the permanence of the text, its appearances and disappearances) and *reading time* (measuring the availability of the text to the reader/user) (ESKELINEN, 2007). This schematic approach can be quite beneficial when reading literary hypertext works, such as the aforementioned *Afternoon: A Story* by Michael Joyce. A case in point is Noah Wardrip-Fruin's partly interactive Web browser *The Impermanence Agent*, cited by Eskelinen.[18] In *Hypermedia, Eternal Life, and the Impermanence Agent*, Wardrip-Fruin defines *The Impermanence Agent* as "storyteller, as well as a participant in the stories of the agent and hypermedia" (FRUIN, http://www.impermanenceagent.org/agent/essay.html).

The Impermanence Agent was first displayed as a key piece in the "Brave New World" exhibition organized by the Guggenheim Museum in New York in 2001. Interacting with users as a Web browser window, *The Impermanence Agent* consists of a server and a client-side application projected as a small window on the corner of the user's screen. As such, *The Impermanence Agent* does not demand prolonged attention nor does it evoke contemplative gestures. On the contrary, it induces a series of peripheral glimpses – fast, fluid and superficial readings held in accordance with rigid temporal constrictions. When

[18] Of course multi-linearity and time are not conceptually interchangeable. Eskelinen focuses on (reading) time and thus moves away from the original focus on writing space (the different paths through a story).

the program is activated, the user's own navigation drives the narrative, which in turn is only marginally experimented: "*The Impermanence Agent* is art meant (…) to be left open on the desktop for a week. It only tells its story, shows its images, offers its advice while we keep the browser window it watches active" (Ibid.). The output, albeit unpredictable, proves amenable to a variety of theoretical conjectures: the unrestricted access to presumably private user preferences incites discussions on privacy and surveillance, for instance. Once installed, *The Impermanence Agent* cannot be accessed directly, and users/readers are thus held hostage to algorithmic order.

> The Web disappoints us with its too-perfect reflection of our ambivalent relationships with impermanence and openness: dynamic and unstable, diverse and overwhelming. In response, some Web businesses are marketing fantasies of agents that will find for us only the information we desire, sheltering us from chance encounters with unpleasant content and broken links. The Impermanence Agent is a different response. (FRUIN, http://www.impermanenceagent.org/agent/essay.html)

The Impermanence Agent explores a peculiar sub-genre of digital literature short of the hypertext model proper. In his essay on the piece – which, ironically, is no longer available on the Web for installation – Wardrip-Fruin explains that *The Agent* tells the story of Ikkyu, the Zen master, who questioned death. "Whatever we may say about digital culture, it is always time for something to die" (Ibid.). If, on the one hand, *The Agent* allows for a certain measure of interactivity – the program does track each user's Web browsing habits and processes this information internally so as to customize a story – on the other it is autonomous and self-enclosed (not allowing itself to be accessed directly). *The Impermanence Agent* operatively processes user search routines – in accordance with browsing and random algorithmic calculations. Once user search habits are quantitatively translated into input, the program is able to recursively generate diverse results (outputs). Like a mutant sculpture, adaptable to contingent environments, *The Impermanence Agent* is a Web installation that, by complying with Gilles Deleuze and Felix Guattari's laws of *connection* and *heterogeneity*, provokes recursively dynamic manipulations generally unachievable in print. Eskelinen notes that *The Agent* is able to reduce the number of original *textons* – pre-reception strings of text (as they "appear" to readers before semiosis) – and

scriptons – the ontological configuration of textual strings (as they "exist" in the text) – to zero. This is an extraordinary feat, for it opens many a fitting door to radical customization conjectures (ESKELINEN, 2007). According to Aarseth, any object whose primary function is to relay semantic information would fall under the heading of text. Two inferences follow from this hypothesis: first, semantic selections and their implications are inextricably linked to the materiality of supports (media). Secondly, the materiality of language can be deemed a constitutive "irreducible" only insofar as a distinction can be drawn between text and information (AARSETH, 1997). By information Aarseth means "strings of signs" emerging at the level of production – "which may (but [do] not have to) make sense to a given observer" (1997, p. 62). On a final note, Aarseth's concept of a *traversal function* is explained as follows: the traversal function is the mechanism through which *textons* generate *scriptons*:

> Their names are not important, but the difference between them is. In a book such as Raymond Queneau's sonnet machine *Cent mille milliards de poèmes* (Queneau 1961), where the user folds lines in the book to "compose" sonnets, there are only 140 *textons*, but they combine into 100,000,000,000,000 possible *scriptons*. (AARSETH, 1997, p. 62 – emphasis added)

This is not to suggest that within the cybertextual framework, interpretation occurs at a scriptonic level: "scriptons [are] not necessarily identical to what readers read, which is yet another entity (a lexie in the Barthenian sense?)" (Ibid.). Strictly speaking, scriptons are generative outputs of ergodic transactions, which precede semiosis.

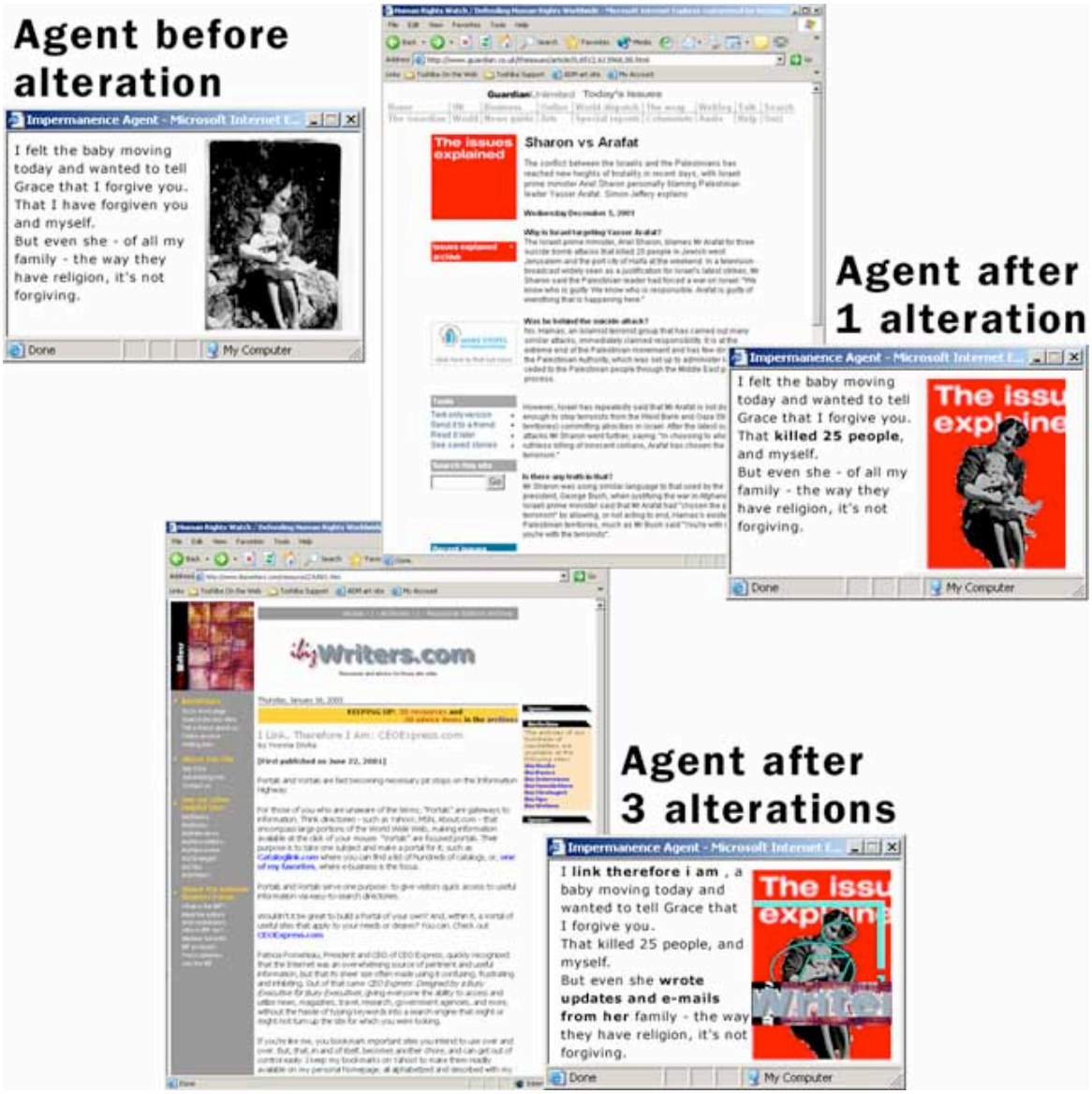

Fig. 10. Image of *The Impermanence Agent* – Noah Wardrip-Fruin (2003).

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In light of the hypertextual variations covered thus far, I should like to revert the reader's attention to Genette's category of mood (*mode*) as it relates to Eskelinen's revised typology. As the author succinctly formulates with regards to the Genettean model, "[Mood] deals with various techniques of regulating quantity and quality of narrative information" (ESKELINEN, 2007, p. 182). To be sure, structuralist narratology anticipates mobile narrative instances – i.e., narrators capable of exchanging places, collaborating, expanding their territories

and moving across *homodiegetic* and *heterodiegetic* narrative levels.[19] Mood (*mode*), with its two subcategories, namely *distance* and *focalization*, accounts for these variations:

> On peut en effet raconter plus ou moins ce que l'on raconte, et le raconter selon tel ou tel point de vue ; (…) la « représentation », ou plus exactement l'information narrative a ses degrés ; le récit peut fournir au lecteur plus ou moins de détails, et de façon plus ou moins directe, et sembler ainsi (…) se tenir à plus ou moins grande *distance* de ce qu'il raconte; il peut aussi choisir de régler l'information qu'il livre, non plus par cette sorte de fltrage uniforme, mais selon les capacités de connaissance de telle ou telle partie prenante de l'histoire. (GENETTE 1972, p. 183)

It is important to understand that focalization transcends the question of whose voice tells the story, as the focalizer may or may not coincide with the narrator (CULLER, 2009, p. 120). Eskelinen argues that because in computer-based literature traditional narrative devices consist of strings of signs, one should make a further distinction between textonic and scriptonic entities (ESKELINEN, 2007). This means accounting for a "pool" or "archive" of possible narrators subject to cybertextual reconfiguration protocols – i.e., narrators potentially becoming more overt or covert. Eskelinen's augmented narratology can be used to our advantage when we approach both classic hypertextual models and the more daring "instrumental texts", such as *Screen* by Noah Wardrip-Fruin. In these altered contexts – and especially in these – the textual string itself becomes a mobile changing entity, intermedially alternating between semantic and typographic instantiations, thus generating both hermeneutical and kinesthetic impacts. The same applies to conceptual reformulations of Genette's five subtypes of transtextuality (as they relate to cybertextuality).

I would like to focus on two said subtypes, namely, intertextuality and hypertextuality. The first addresses relations of co-presence between two or several texts. This includes quotations, allusions and plagiarism – all assuredly recurring themes in digital literature. However, as Eskelinen cleverly points out, "in these days just because you read it doesn't mean it is there and vice versa"

[19] Cf. Chatman: "Genette distinguishes between the 'distance' (*portée*) of an anachrony and its 'amplitude' (*amplitude*). 'Distance' is the span of time from NOW backward or forward to the inception of the anachrony; amplitude is the duration of the anachronous event itself. There are different means for joining the anachrony to the ongoing story: external, internal, or mixed. (…) Internal anachronies in turn can be subdivided into those that do not interfere with the interrupted story ('heterodiegetic') and those that do ('homodiegetic')" (CHATMAN, 1980, p. 65).

(ESKELINEN, 2007, p. 190). In other words, the invisible, occult and inaccessible portions of texts will withhold comfort from the reader accustomed to omniscience or at least to the foreseeable calculation of expectations. The second subtype, hypertextuality, is by all accounts a vital term in the discussion of digital literature, if for no other reason than its relationship with the term *hypertext*.

Earlier I alluded to the first use of the term in the discussion of Ted Nelson's famous 1965 essay. In *Palimpsestes: La littérature au second degré*, Genette defines as hypertextual the text that results in a premeditated transformation of a pre-existing text, as in the case of parody (GENETTE, 1982). If one recalls Nelson's definition of hypertext – i.e., a reweaveable string of "visible, unbreaking n-way [signs], (…) including transclusions as well as links" (NELSON, 1965, p. 136) – one notices a clear affinity with the Genettean designation. Eskelinen explains hypertextuality as essentially a "systematic grafting of a text (a hypertext) upon an earlier text (a hypotext) in a way that is not commentary" (ESKELINEN, 2007, p. 191). These transformations may occur in accordance with two procedural principles: one formal and another thematic (GENETTE, 1982). Eskelinen proposes that cybertext include a third criterion to this typology, namely, that of functionality. A case in point would be a hypertextual fiction of the detective genre whose algorithmically-scripted ability to self-regulate – i.e., through the insertion of conditional links functioning as destructive scriptonic devices – would ultimately generate significant constrictions on reception mechanisms (ESKELINEN, 2007).

> (…) reader-users armed with configurative and textonic user functions can have fundamental impact on the text, a possibility not even on the horizon of Genette's work in the early 1980's. To take one concrete example, how should we conceptualize the personalized differences in ergodic works like *Book Unbound* or *The Impermanence Agent*, as the different ways their readers use them will make the versions of them very different from each other? (ESKELINEN, 2007, p. 192)

Indeed, how should we conceptualize these changes? The ways to understand Eskelinen's take on this matter are twofold: either the author thinks interpretation and interaction are dissociated from one another, or he feels that, in the case of ergodic models, interaction precludes interpretative functions. That manipulation of scriptons can alter the material basis of computer-based literature is apparent. The true novelty which digital literature brings to the table is its

capacity to concretize interactivity, or remediate the process of interaction by transferring it from the realm of cognition into surface play.

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Having considered these recent conceptual and medial reconfigurations, it seems inevitable to briefly revisit a few key notions derived from literary theory in order to assess the relationship between interactivity and interpretation. What I have in mind is a quick glimpse at the not so recent past: in 1962, Umberto Eco publishes the first edition of his *Opera Averta* (*The Open Work*), which in fact is also addressed by Aarseth, who describes it as "perhaps the only major aesthetic theory that directly engages the same types of text as the ergodic perspective" (AARSETH, 1997, p. 51). Due to its capacity to adapt to probabilistic – contingent – medial and representational frameworks, Eco's open work model is entirely adequate in ergodic contexts. In fact, even more apropos is a particular subtype of open work, the drastic work-in-movement (*opere in movimento*), which provides the reader with the possibility of reorganizing and, in effect, manipulating compositional outputs by means of physical interventions. In this perspective, literary semiosis – which presupposes semantic operations – would occur a posteriori.

Eco begins his explanation of the open work model with a few examples taken from music, namely *Klavierstück XI* by Karlheinz Stockhausen, wherein the performer is given a single large sheet of music paper with a series of note groupings from which he must freely choose. The second is Luciano Berio's *Sequence for Solo Flute*, in which despite there being a text predetermining the sequence and intensity of the sounds to be played, the performer is again given the

freedom to determine the duration of a note inside the fixed framework. The third example is Pousseur's *Scambi,* where the listener takes an active role in the structuring of the musical discourse: "*Scambi* is not so much a musical composition as a field of possibilities, an explicit invitation to exercise choice" (POUSSEUR apud. ECO, 1989, pp. 1-2).[20] To an extent, the reception of a work of art or literature always assumes interpretative choices – largely dictated by historically-specific cultural configurations. The difference between an "open" and "closed" work is then one of scale, which is to say that it lies in the degree of "openness" pre-scripted in the work. Recall, the work of art as an autonomous, balanced whole is *not* put to question by the introduction of the open work, but the manner in which each act of reception inevitably activates both interpretative functions and performative potentialities.

In the introduction to the English version of Eco's work, critic David Robey notes that it is crucial to read Eco's *The Poetics of the Open Work* within the discursive context in which it was produced. Otherwise put, Eco must be read in light of the prevailing Crocean hermeneutical aesthetics that dominated Italian literary studies at the time, placing high value on such concepts as artistic intuition, and thereby limiting critical exercise to the normative act of extracting hidden and *stable* "messages" from texts (ROBEY, 1989, p. ix).

> The order of a work of art in this period is a mirror of imperial and theocratic society. The laws governing textual interpretation are the laws of an authoritarian regime which guide the individual in his every action, prescribing the ends for him and offering him the means to attain them.

Evidently, some works are more open – in a more tangible fashion – than others. Underpinning Eco's poetics is a desire to offer alternative theoretical and conceptual tools to analyze antiestablishment cultural trends. Such an inference, I

[20] The full description reads as follows "[*Scambi*] is made up of sixteen sections. Each of these can be linked to any two others, without weakening the logical continuity of the musical process. Two of its sections, for example, are introduced by similar motifs (after which they evolve in divergent patterns); another pair of sections, on the contrary, tends to develop towards the same climax. Since the performer can start or finish with any one section, a considerable number of sequential permutations are made available to him. Furthermore, the two sections which begin on the same motif can be played simultaneously, so as to present a more complex structural polyphony. It is not out of the question that we conceive these formal notations as a marketable product: if they were tape-recorded and the purchaser had a sufficiently sophisticated reception apparatus, then the general public would be in a position to develop a private musical construct of its own and a new collective sensibility in matters of musical presentation and duration could emerge" (POUSSEUR apud ECO, 1989, p. 2).

would submit, could well be advanced with regards to the situational context in which digital literature inscribes itself. Eco alludes to James Joyce's *Ulysses* and more radically to his *Finnegans Wake* as quintessential examples of open works in literature. Both the former, wherein "the last residue of Aristotelian categories has disappeared," and the latter, a work that "bends back on itself" in a manner reminiscent of the relativistic paradigm of Einsteinian universe (ECO, 1989, p. 10), depict literary universes that thrive because of their precise reenactment of the semantic inexhaustibility of language. To that effect, Eco mentions Joyce's technique of the *calembour*, or pun, which operates through the combination of several different etymological roots into single words: "The reader of *Finnegans Wake* is in a position similar to that of the person listening to postdodecaphonic serial composition" (ECO, 1989, p. 10).

Displacing the argument to new media as well as cybertextual perspectives, a few observations seem in order. That semiotic processes are always inextricably linked to media-specific procedures is a premise which rehabilitates prognostic activities about the futures of digital literary communications. Aarseth argues that his is a significantly broader perspective than Eco's: "[despite the fact that] some cybertexts use randomness, and many contain structures that need to be 'filled in,' or arranged by the user, the ergodic work is not limited to these means of variation" (AARSETH, 1997, p. 51). This is a discussion by no means resolved. Suffice it to mention that strikingly akin to Aarseth's ergodically-dynamic model is the work-in-movement *Livre* envisioned by poet Stéphane Mallarmé: "Le monde existe pour aboutir à un livre," wrote the poet. Mallarmé envisioned a universe in constant state of emergence, structured around laws of permutability. Though Eco admits to an element of naïveté in the enterprise ("it is not surprising that it was never brought to completion" (ECO, 1989, p. 13), he finds it intriguing that such an example would occur "at the very threshold of the modern period" (Ibid.). I find it highly indicative of structural changes reciprocally reflected in new repertoires of societal self-descriptions. In many ways, *Le livre* is a conjectural precursor of the algorithmic protocols readily available in digital processes of literary communication, where syntax and semantics are subject to the transcriptive logics of intermediation (JÄGER, 2010). Mallarmé's utopian endeavor constitutes a step that far surpasses the strictly recursive operational logics one finds in *Finnegans Wake* or even Samuel Beckett's *Waiting for Godot*.

It is, thus, no accident that we slide into terrains ruled by laws of permutation and grouping when we discuss digital textual instruments, such as Noah Wardrip-Fruin's *Regime Change* and *News Reader* (Cf. Chapter 2) or John Cayley's *Book Unbound* (extract below).[21]

> BOOK UNBOUND (Selection)
>
> Indra's Net VI
>
> When you open the book unbound, you will change it. New collocations of phases generated from its hidden given text - a short piece of prose by the work's initiator - will be displayed. After the screen fills, you will be invited to select a phrase from the generated text by clicking on the first and the last words of a string of language which appeals to you. Your selections will be collected on the page of this book named Leaf, where you will be able to copy or edit them as you wish.
>
> They will also become a part of the hidden store of potential collocations from which the book will go on to generate new text. That is, your selections will feed back into the process and change it irreversibly.
>
> If you continue reading and selecting over many sessions, your preferred collocations may eventually come to dominate the process. The work may then reach a state of chaotic stability, strangely attracted to one particular modulated reading of its original seed text. (CAYLEY, http://homepage.mac.com/shadoof/net/in/incat.html#BUNB)

It is precisely in this spirit of "chaotic stability" that we move on to the next section on production of presence.

[21] For a thorough study of combinatory theory and its connection to hypertext fiction see Schäfer, J. "Gutenberg Galaxy Revis(it)ed: A Brief History of Combinatory, Hypertextual and Collaborative Literature from the Baroque Period to the Present" IN GENDOLLA & SCHÄFER, 2007, p. 121.

3.3.

Everyday Cartesianism and Its Discontents

Though I am inclined to believe that a distinction between hermeneutic or interpretative readings and ergodic relations should be drawn, I also contend that ergodic and hermeneutic relations are not mutually exclusive. While hermeneutic relations are founded on processes of meaning attribution as well as signifying strategies, ergodic readings presume concrete and programmable actions/interventions at the material, pre-semiotic level – that is to say, physical and non-trivial methods of interactivity. Literature need not be computer-based for ergodic relations to emerge: examples such as those of Saporta and Cortázar, quoted by Aarseth, demonstrate that print literature may well require an ergodic approach. On the other hand, textual installations such as Camille Utterback and Romy Achituv's *Text Rain* and generative digital poems such as Noah Wardrip-Fruin's *Regime Change* demonstrate the need for a heuristic approach to digital works, which is to say one wherein the interactor's sensory-motor engagements are coupled with literary semiosis. Such hypotheses will help bring to the fore an underlying priority of this thesis: that is, a reflection on digital literature as producer of presence effects, as per Hans Ulrich Gumbrecht's theorizations. A few words of caution seem in order. I do not mean to suggest that digital literature should exclude interpretation. Not at all. I simply wish to propose that digital literature, as a space of negotiation, offers particularly fertile grounds for the emergence of presence effects and that these presence effects – because they can only exist in oscillation with their counterparts, namely "meaning effects" – rehabilitate materiality and embodiment as topics of theoretical reflection. In the end, I agree with Gumbrecht when he affirms that the Cartesian dimension does not "cover (and should never) cover the full complexity of existence" (GUMBRECHT, 2004, p. 142). The question then remains as to the extent to which ergodicity, an a priori setting of digital literature, facilitates non-hermeneutic appropriations of digital works.

Hans Ulrich Gumbrecht's "A Farewell to Interpretation" is one of the essays that sparked the debate on a reinstatement of body (*res extensa*) in the humanities.

Though the text is significantly more insurgent in spirit and rhetoric than Gumbrecht's later writings on the subject of production of presence, it contains a number of relevant theoretical suggestions. Reacting against what he dubs "everyday Cartesianism," the author emphasizes that the intellectual program, which begins in 1989 with the publication of the *Materialities of Communication* collection and attains full crystallization in his short *Production of Presence*: *What Meaning Cannot Convey* in 2004, has every intention of being theoretical. Despite the ordinary connotation of the word *theory* (infused with a high dose of abstraction), such a counterintuitive combination – materialities of communication – proves to be adequate. Should the focus on materialities result in viable alternates to metaphysical thought as a chief practice in Western intellectual tradition, then it should be undertaken (GUMBRECHT, 1994, p. 390). Underpinning the criticism against the equation of theory with abstraction is the assumption that the function of theory is to frame alternate modes of societal self-descriptions. Gumbrecht structures his argument around the notion that theory is not – nor should be – a recursive reflection of a pre-existing cultural configuration, but rather an instrument of structural and semantic change, a sphere wherein several forms of human self-reference can be operatively renegotiated. In this context, theories that might appear "counterintuitive" at first glance have a greater chance of actually imparting change than those that simply subscribe to more commonsensical principles (GUMBRECHT, 1994).

For our purposes, it is useful to read "A Farewell to Interpretation" within the greater context of the theorization of production of presence. Evidently, one should trace back this recent emphasis on materiality and sensation in literary theory and aesthetics to Susan Sontag's 1961 essay *Against Interpretation*, and the concept of presence itself to Jean Luc Nancy's *A Birth to Presence*, both acknowledged by Gumbrecht. For now, it is important to establish the difference between Sontag and Gumbrecht, namely, their distinctive views on the hermeneutic paradigm and the place it should occupy within the greater tradition of the humanities. In her *Against Interpretation,* Sontag advocates the abandonment of hermeneutics in favor of what she terms "an erotics" of art:

> The aim of commentary [would] be to make works of art – and, by analogy, our own experience – more, rather than less, real to us. The function of criticism should

> be to show how it is what it is, even that it is what it is, rather than to show what it means. (SONTAG, 1964, p. 14 – emphasis added)

Sontag's urge for a retrieval of the senses was fostered by a desire to deal with the afflictions of modern life in her time: the policy of excess, the overcrowding of spaces, imagetic and sensorial overloads, etc.: "What is important now is to recover our senses. We must learn to see more, to hear more, to feel more" (Ibid.).[22] Despite the fact that since Sontag there have been no significant changes in the perception of excess – except to evince drastic deterioration (increased disorder) –, the rhetoric-of-choice of those advocating pure affect has, nevertheless, been significantly watered down with more cautious discursive strategies. A case in point is the perceivable tonal discrepancy in Gumbrecht's writings between 1989 and 2004. Whereas in "A Farewell to Interpretation" the author warns his audience about the perils of the ever-increasing degree of abstraction inscribed in the semantics of Western intellectual tradition – particularly as embodied by academe (GUMBRECHT, 1994, p. 390) –, in 2004 the author offers the consensual adage: "challenging the exclusive status of interpretation within the humanities, however, does not mean that this book is "against interpretation" (GUMBRECHT, 2004, p. 2).

Contrary to Sontag's hypothesis, which literally preaches the abandonment of interpretative models, Gumbrecht's reflection on presence does not purport to be definitive or exclusive. It does not aim to replace the hermeneutic claim per se, but does seek to challenge its claim to universality (*Geisteswissenschaften*). In light of our present discussion, the implication is that aesthetic experience cannot be reduced to a simple antinomy between presence and meaning. Rather, it invariably occurs in *simultaneous* oscillatory tension – between semiosis ("meaning effects") and sensory activation ("presence effects"). With respect to the latter, one further distinction ought to be taken into account: namely, that of temporality versus spatiality, which sets the tone for the semantic richness embedded in the expression "production of presence":

[22] Cf. Sontag: "Think of the sheer multiplication of works of art available to every one of us, superadded to the conflicting tastes and odors and sights of the urban environment that bombard our senses. Ours is a culture based on excess, on overproduction; the result is a loss of sharpness in sensory experience. All the conditions of modern life – its material plenitude, its sheer crowdedness – conjoin to dull our sensory faculties. And it is in the light of the condition of our senses, our capacities (rather than those of another age), that the task of the critic must be assessed" (SONTAG, 1964, p. 14).

> The word presence does not refer (at least does not mainly refer) to a temporal but to a spatial relationship with the world and its objects. Something that is "present" is supposed to be tangible for human hands, which implies that, conversely, it can have an immediate impact on human bodies. (GUMBRECHT, 2004, p. xiii)

Presence from the Latin *prae-esse* refers to a pre-reflexive and non-metaphysical engagement with the world – i.e., tangibility to the body. Likewise, production, used in accordance with its etymological Latin root *producere* denotes the effect of tangibility, "the act of bringing forth an object in space" (GUMBRECHT, 2004, p. 1). Built into the expression "production of presence" – wherein producing means the act of bringing forth, presenting, generating, inducing, revealing, elongating, etc. – is an emphasis on spatiality: not unwavering spatiality, but one that is contingent and, in effect, in a constant state of transience. That which is tangible can be so in varying degrees, that is, with greater or lesser proximity and intensity. This accounts for Gumbrecht's admitted affinities with the work of Martin Seel, to which I shall return, as well as the former's claim that "poetry is perhaps the most powerful example of the simultaneity of presence and meaning effects" (2004, p. 18). One of the consequences Gumbrecht ascribes to the "enthronement of interpretation" as the chief practice in the humanities is the lack of a suitable repertoire of "noninterpretive concepts" (GUMBRECHT, 2004, p. 52). From a purely academic stance, this presents a difficulty. Descriptive or not, close readings – i.e., *The Agent*, *The Child* and others to come – cannot occur outside discourse. Insofar as the "semantic ratification of meaning [has] its place only within the horizon of meditated and semiological systems of representation" (JÄGER, 2010, p. 76) and insofar as perception is affected by these medial articulations, interpretation – as a cognitive function, and albeit at varying granularities – is rendered somewhat unavoidable.

Gumbrecht underscores the fact that all present objects, or all "things of the world", will include a "desire for such immediacy," despite the impossibility of unmediated contact with the world (GUMBRECHT, 2004, pp. xiii-xiv). A possible way of reading these claims is to restate them in terms of the semantic duality embedded in the term *experience*. In his arguably ergodic 1997 book *In*

1926: Living on the Edge of Time[23], Gumbrecht has a subchapter – or one of the 51 arrays, as he classifies them – devoted to "Reporters" that begins as follows:

> In its June 26 issue, the magazine *Die literarische Welt* presents a debate on "news reporting and literature." Together with a number of nationally prominent authors, such as Max Brod, Alfred Döblin, Leonhard Frank, and Heinrich Mann, the journalist Leo Lania analyzes the impact of news reporting on contemporary literary studies and genres. Lania focuses on the relation between what he calls "the penetrating voice of the present" and a particular style of thought: "The penetrating voice of the present cannot be ignored. It pushes the most romantic dreamers from their remote corners into the merciless light of day. There, all things acquire new shapes and colors, and their meaning and existence disclose themselves only to those who have the courage to measure its contours without presumption. To look at them, to listen to them, to experience them anew turns them further into lived experience." (LANIA, p. 322 apud GUMBRECHT, 1997, p. 185)

Key in this passage is the concept of "lived experience" (*Erleben*). The reporter, according to Gumbrecht, "returns from the highly unusual substantive form *der Erleber* ('the experiencer')" (GUMBRECHT, 1997, p. 185). What would account for such enthusiasm or discursive persistence? The answer lies in the semantic richness of term *Erleben* ("lived experience") – in direct contraposition to both *Erfahrung* ("experience") and *Wahrnehmung* ("perception"), which denote two different albeit relevant approaches. While the latter denotes apprehension of the world by the senses, the former refers to

[23] Although his model is hypertextual, *In 1926: Living at the Edge of Time* is a printed book. Gumbrecht could not have been clearer when he said that the non-inclusion of images or other media aids – which were used in the work's composition – is intentionally veered towards denying the reader any sensorial help besides the printed word: "Obviously I know that a book will never be so close to the illusion of touching, smelling or tasting past worlds as a movie or museum. This explains the two questions that most dominate me when I write this book: how far can a historiographic discourse go to satisfy the desire to consider past worlds present? Are there specific functions in this approach that a text can cover more efficiently than any other medium?" (GUMBRECHT, 1997, p. 18). Nevertheless, the feeling of reality that the author intends to create and convey does come to be a concrete sensorial reality. In 2008, I directly asked the author about the "historic environment of 1926", in other words, what type of reality does the book in fact rebuild and he told me to pay attention to the choice of the preposition "in" contained in the book's title – specifically, to its metonymic proximity to the Heideggerian concept of being-in-the-world (*Dasein*). In the book he does explain that each of the entries comprising the constellation of the 1926 worlds is written with the maximum degree of "superficiality and concreteness" (GUMBRECHT, 1997, p. 1). It is up to the reader to jump from one entry to another, feeling the fragrances of perfumes and car fumes, listening to noises in cafes, dodging the sweat in boxing matches or blood in bullfights, or merely touching the very strange gelatinous thickness of gomina. The reader is invited to participate in this experience according to his wishes and interest, led by a skilled theorist, who abdicates fully from narrative and teleological models of historiographic representation and ventures into the risky, maze-like structure of the hypertextual rhizome, where each of the 51 entries is openly correlated to the others. Gumbrecht's intention is to compose each entry so that it creates in the reader a certain mood (*stimmung*) corresponding to its theme – i.e., elevators will give a concrete impression, a "mood" of elevators, etc.

experience as the cognitive result of interpreting the perceived world – i.e., according to culturally received categories generated by social processes of communication. Because *Erleben* is placed between perception and experience, it bears close conceptual associations with production of presence.

Gumbrecht's reporter presupposes tangibility, which presents itself as a problematic notion, for it can potentially supplant theories of correspondence with theories of construct (Cf. LUHMANN, 1998) while at the same time presuming ontological articulations – i.e., substance. That which is present is veritably tangible to our bodies albeit in varying degrees. The concept of production of presence, be it also noted, is discursively anchored in the premise of differentiation. Otherwise put, any philosophical or theoretical stance against the Cartesian position – purely dependent on the dissociation of human mind (*cogito*) from the body (*res extensa*) – can become a prospective source of theorization on presence (GUMBRECHT, 2004, p. 17-18).[24] In the second chapter of his synthetic *Production of Presence: What Meaning Cannot Convey*, Gumbrecht briefly tackles the pre-history of Western metaphysical tradition. That interpretation came to be seen as the single legitimate mode of world-appropriation is partly attributable to the semiotic a priori of language (GUMBRECHT, 2004).

It should be said that Gumbrecht's take on the history of the Western intellectual tradition is rendered in the form of a tale of systemic shifts. The iconographic tradition of the Middle Ages and Early Renaissance comes to reflect structural changes recursively played out in semantic and normative modifications within societal apparatuses of self-description. While medieval man saw himself as indissoluble from the world around him, early modern man (subject or the Cartesian *cogito*) envisions the self as extramundane, his body (*res extensa*) being relegated to the observable entirety of the world of things. It is important to

[24] Cf. GUMBRECHT, 2004: "That any form of communication implies such a production of presence, that any form of communication through its material elements, will 'touch' the bodies of the persons communicating in specific and varying ways may be a relatively trivial observation – but it is true nevertheless that this fact had been bracketed (if not – progressively – forgotten) by Western theory building ever since the Cartesian *cogito* made the ontology of human existence depend exclusively on the movements of the human mind. Conversely and from an epistemological point of view, this also meant that any philosophical and theoretical positions that are critical of the Cartesian dismissal of the human body as *res extensa* and, with it, critical of the elimination of space, can become potential sources for the development of a reflection on presence" (GUMBRECHT, 2004, pp. 17-18).

underscore the fact that as Gumbrecht and Luhmann theorize about the second-order subject, they refer to a long development at the level of *mentalités*, which eventually leads to the notions of the individual subject and modernity.[25]

> (…) the intense discussion about the relationship between the cultural present of the seventeenth century and the classical Greco-Roman age that took place in the Académie Française around 1700, which we today call the *Querelle des anciens et des modernes*, was a further step in the direction toward unfolding the multiple implications of the hermeneutic field. (GUMBRECHT, 2004, p. 33)[26]

Undercutting these "implications" is the notion that time itself is a historical construct – i.e., the historization of historical chronotope (GUMBRECT, 1998). The *Querelle* marks a schism which reifies the dominance assigned to the dimension of time over that of space. It is only through time that subjectivity becomes fully possible, for it is through time that subjects connect themselves with the dimension of action in existence (*praxis*). In early modernity we see the "subject" at the moment of its birth – i.e., at the threshold between medieval worldviews and what we have come to subsume under the term modernity, which unravels in several phases. As opposed to chronology as one may be, one needs to assume that – and again, at the level of *mentalités* only – preceding the self-reflexive, second-order observer is the first-order observer. Luhmann explains this transition in terms of the separation or, more precisely, the emergence of the category of the *Umwelt,* or environment, in opposition to the concept of subject.

> Much depends on making an effort to reconstruct the concept 'subject' with the precision that once gave it its meaning. One can find many forerunners – in the concept of the soul and its cognitive parts, in the form of thought as reflexivity (*noesis noeseos*), or in the Cartesian concept of the 'I think,' which designates a

[25] Cf. LUHMANN, N. In the English edition of his seminal *Social Systems*, Luhmann addresses the question of the subject as early as in the preface, dubbed "Instead of a Preface." Adopting a playfully ironic tone, Luhmann writes: "one knows how 'the subject' is endangered these days by French aerosols and the ozone hole of deconstruction. But what would there be to save? Is the nostalgia for the concept of 'subject' and 'action' more than the expression of an emotional attachment to the corresponding traditions? Have these concepts ever been precisely formulated? And what is their empirical reference anyway? Does the subject (in the singular) have teeth and tongues (in the plural)? Are the consequences part of an action or not?" (LUHMANN, 1995, p. xxxviii). In response to these questions Luhmann is clear about affirming the hypothesis to which Gumbrecht subscribes that there ought to be an effort to reconstruct the concept of the "subject," inaugurated by Descartes' *cogito* and fully established in the 1800s, when it begins to display the first signs of crisis.

[26] In an essay entitled "A History of the Concept of the Modern," IN Gumbrecht, H.U. *Making Sense of Life and Literature* (1992), Gumbrecht provides the reader with a detailed conceptual history of the concept of the "modern" and its connection with the event that came to be called the *Querelle* (p. 84-85).

> self-certainty given independently of whether one is in error or not. But not until the end of the eighteenth century was man understood to be a subject in the strict sense, and thereby unlinked from nature. (LUHMANN, 1995, p. xxxix)

Once mind and body become parallel ontologies, the former loses its claim to material instantiation, thereby becoming disembodied entity. Nowhere is the transition from medieval cosmology to the hermeneutic (subject/object) paradigm more evident than in the Catholic and Protestant versions of the sacrament of the Eucharist. In the medieval (Catholic) version the expression *hoc est enim corpus meum* ("for this is my body"), through which transubstantiation occurs, denotes pure materiality and not a representation of something inherently absent. Thus, the emphasis on spatiality is manifest: each time the ritual of the mass takes place, "Christ's body and Christ's blood become tangible in the 'forms' of bread and wine" (GUMBRECHT, 2004, p. 28). Gumbrecht's usage of "form" is largely drawn from Aristotelian schematics, in which the material versus immaterial dichotomy ceases to apply: "the Aristotelian sign, in contrast, brings together a substance (i.e., that which is present because it demands space) and a form (i.e., that through which a substance becomes perceptible)"[27] (Ibid., p. 29). Contrary to the concept of representation or *mimesis*, sovereign in the hermeneutic paradigm, the hyphenated concept of re-presentation or, more radically, that of re-presentification, is non-symbolic.

The year 1800 figures prominently in both Luhmann's and Gumbrecht's account of the rise of the metaphysical worldview. In the latter's case, and specifically in *Production of Presence*, the story is told in evolutionary steps that lead to the Enlightenment and the first cracks in the edifice of modernity. The precariousness of the subject-object paradigm begins to show at the very moment the paradigm attains its full potential. Gumbrecht points to the work of Immanuel Kant as symptomatic of this crisis. Though the specifics of Gumbrecht's critique of Kant need not concern us here, it is relevant to point out that the Enlightenment, despite its bias towards rationality, is also the time of emergence

[27] Gumbrecht grounds his notion of presence partly in the connection between the Aristotelian distinction between "form" and "content" and his interpretation of structuralist Louis Hjelmslev's quadrangle, which is subdivided into four categories: "substance of content," "form of content," "substance of expression," and "form of expression." According to Gumbrecht, Hjelmslev's structuring of the non-hermeneutical field "suggested a very schematic sequence of three questions" that would add complexity to his one original question (from *Materialities of Communication*) regarding the emergence of meaning (Cf. GUMBRECHT, 2004, pp. 14-15).

of what Michel Foucault has termed "the crisis of representation" in his *Les Mots at Les Choses: Une Archéologie des Sciences Humaines* (English translation: *The Order of Things: An Archeology of Human Sciences*). In his pre-history of metaphysics, Gumbrecht pays close attention to this epistemic turn and successfully links it to the emergence of Luhmann's second-order observer. According to both Luhmann and Gumbrecht, this new self-referential observer, doomed to observe himself in the act of observation, marks the beginning of the end of the subject/object paradigm, for observations of the second order necessarily include contingency as a defining factor: "Only observations of the second order provide grounds for including contingency in meaning and perhaps reflecting it conceptually" (LUHMANN, 1998, p. 47).[28] The temporary solution adopted in the 19th century to the problem of recursivity and self-referentiality was resolved (internally, to be sure) by the de-paradoxifying articulation of events into narratives. For the genesis of digital media, this is a model no longer sufficient, as per our discussion of the expansion of the Genettean model in ergodic contexts. One of the epistemic consequences of the autopoietic turn[29] – which is irreversible – is its applicability to digital aesthetics: the second-order observer brings up a "compatibility" question between world-appropriation by *Erfahrung* ("experience") concepts and *Wahrnehmung* ("perception") world-appropriation via senses, which can only be resolved contingently through *Erleben*.

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[28] Because observations of the second order are autopoietic and recursive, two inferences become viable (a) that the second-order observer is necessarily aware of his body: "ao observar um ato de observação um observador de segunda ordem torna-se consciente da sua constituição corpórea" (in the act of observing himself the second-order observer becomes aware of his bodily constitution) (GUMBRECHT, 1998, p. 12); (b) that this inevitable self-reflexive loop generates the possibility of an infinity of renditions of that same (?) observation.

[29] Luhmann conceives of society, or social systems, in terms of operatively blind autopoetic systems consisting of communication. In Luhmann, the term "autopoiesis" is borrowed from the cognitive biology of Humberto Maturana. Autopoiesis serves to characterize the recursive operations of self-referential systems. According to Maturana such systems are constituted of "networks of productions of components that recursively, through their interactions, generate and realize the network that produces them and constitute, in the space in which they exist, the boundaries of the network as components that participate in the realization of the network" (MATURANA, H. 1981 apud KNODT in LUHMANN, 1995, p. xx).