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Cybertext Poetics

The Critical Landscape of New Media Literary Theory

by

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Chapter 1 Introduction

1.1 Points of departure

Cybertext Poetics has three different points of departure: theoretical, strategic, and empirical. It uses ludology and modified cybertext theory as a cross-disciplinary perspective to solve four persistent and strategically chosen problems in four separate, yet interconnected fields: literary theory, narratology, game studies, and digital media.[i] The problems in the first three fields stem from the same root: hegemonic theories are based on a subset of possible media behaviors that is far too limited, and this limitation seriously undermines their explanatory and analytical power. The cumulative effects of this lack also obscure our understanding of transmediality, media ecology, and digital media. An example may perhaps help demonstrate what I mean.

If we take an ordinary printed and bound book, what are the facts that we just might agree upon? The color of its covers, the number of its pages and words if we bother to count, but all this is deemed banal for a good reason: the rest and with it everything that really interests us is up to interpretation. By now we know very well where that road leads: irreducible differences in reception, contexts and communities and also in competence and skill. But let's try another kind of book, B.S. Johnson's *The*

Unfortunates: it comes with simple instructions allowing the reader to decide in which order to read the bundles of text. Here we can also agree, in addition to those banal facts, on a certain operational procedure of how we should make this literary work function. The whole range of existing media behavior naturally goes far beyond this simple operation of choosing paths, as is evident in such dynamically ergodic digital works as *Book Unbound* (Cayley 1995) or *The Impermanence Agent* (Wardrip-Fruin et al. 1999).

Two aspects are essential here: we have established a range of media behavior that is easily verifiable. Luckily, for the last 15 years we have had a theory that takes into account the dimension that is lacking and ignored in contemporary and hegemonic theories of literature, Aarseth's cybertext theory, which is capable of situating every text, based on how its medium functions, into its heuristic but empirically verifiable map of 576 media positions. Before going any further into this it is important to understand that similar theories of media functioning do not exist in neighboring scholarly fields (including those centered on audiovisual presentations) – in this respect cybertext theory is an unique achievement.

If currently hegemonic literary theories are viewed from the perspective of cybertext theory, it quickly becomes evident that these theories cover and are valid only in a very limited range of media positions. In practice they are based on only one position and therefore on literary works that are static, determinate, intransient, featuring random access and impersonal perspective, no links and only interpretative user function, while pretending to be general theories of literature applicable to every

literary work in every possible medium. Similar limitations also affect classical and post-classical literary (and film) narratologies and the behavioral scope of their favorite objects of choice.

The clash between the claims of hegemonic literary and narrative theories and their actual explanatory and analytical power is by no means only theoretical and cybertextual: empirically verifiable anomalies and counterexamples to the basic assumptions, premises, and presuppositions of these theories abound in digital and ergodic works of literature and film. In short, in the first half of the book we'll see what happens and can be made to happen when sophisticated theories of reading and text are supplemented by an equally advanced theory of media.

However, those are not the only benefits of adopting the cybertextual perspective on media behavior. It is also relevant in ludology and game studies, because it can be used to introduce and justify the existence of comparative game studies as a paradigmatic alternative and extension to digital game studies and to suggest the shift of focus from what a game medium is to what it does in terms of ludic media positions. Finally, because cybertext theory is ultimately based on a study of media, it is also applicable to the problems of transmediality and media ecology that become somewhat easier to crack after expanding literary and narrative theories to cover a fuller range of media positions and constructing one possible basis for comparative game studies.

With cybertext theory we are not limited to speculations on what a medium

supposedly is and what it can or cannot do, which usually only result in long-lasting, hype-ridden, and counterproductive dichotomies (such as print vs. digital for example) excluding overlaps and the actual media behavior. We also don't need to limit our observations to loosely or poorly defined genres, but are able to look beyond them from a more unified perspective constructed from the full range of media positions (a theoretical entity that is necessarily open to change). Therefore this is not a study of hypertext fiction, poetry generators, first-person shooters or MMOGs, even though examples of these and many other “genres” are used in building the argument for more comprehensive literary theory, narratology, and game studies. Following the inherent tension in cybertext theory between what is (the empirically verifiable behaviors) and what could be (their myriad combinations), this project is necessarily oriented towards poetics as well.

1.2 Orientation: the Uses of Theory

Ultimately this treatise is a theoretically oriented enterprise that aims at constructing several heuristic models. This necessitates a conscious move away from past debates while applying perspectives and conceptualizations that have explanatory power and analytical potential beyond the schisms in question. Thus, while applying McHale’s theories of postmodernism (McHale 1987; 1992; 2004), we are not interested in being stuck with the all too familiar problems of how to discern postmodernism from modernism or how to maintain (if one so wishes) or draw a clear-cut and inviolable boundary line between them. Instead it is much more important to us to lift the useful distinction between epistemological and ontological problems from McHale’s

discourse and to graft it onto our constructions that have nothing to do with the already automated discourses on modernism and postmodernism. The ample empirical evidence of both epistemological and ontological problems that remain alien and unknown to modernist and postmodernist fiction and poetics is more than enough to justify this move.

Likewise, in theorizing and modeling the textual whole (a material-theoretical-ideological entity perhaps under erasure), the Oulipian distinction between objects and operations is lifted from its original context and applied as a heuristic model of how to best think about that totality, its behavior and reception.

Generally speaking, theories and theoretical constructions are mostly seen as heuristic tools, perspectives and frameworks that can be modified, revised, abandoned and supplemented should the need and evidence arise. This brings us close to Todorov's definition (1977, 33) of poetics as "a sum of possible forms: what literature can be rather than what it is." Thus, for example, in the context of expanding literary narratology from one to several available media positions (in section 2) we are not stifled by the lack of the literary works to exemplify some positions, as long as they can be deduced or inferred from empirical examples through sound theoretical categorizations.

Should we require authoritative justification for our efforts in poetics, we could do worse than to quote Genette twice on what is certain and what is important. "What is certain is that poetics in general, and narratology in particular, must not limit itself to

accounting for existing forms or themes. It must also explore the field of what is possible and even *impossible* without pausing too long at the frontier, the mapping out of which is not its job (…) what would theory be worth if it were not also good for *inventing practice*." (Genette 1988, 157) and "what is important about it is not this or that actual combination but the combinatorial principle itself, whose chief merit is to place the various categories in an open relationship with no a priori constraints." (Genette 1988, 129)

In short what we have here are constellations, along with the principle that is also at work in Aarseth's open model of seven dimensions combining into hundreds of media positions, and as long as the values of the variables are found in our research objects, an empty slot or ten in the combinatory system do not constitute a problem. To the contrary, such empty slots give us a valuable and very rare glance at several new frontiers of literature, narrative and games that may also help us formulate new research questions. The flexible modularity and temporality of digital media makes this combinatory principle even stronger and the resulting constellations much less permanent both in theory and in practice.

To resist hype and speculation, there usually is an empirical point of departure and a corresponding need for theoretical elaborations and revisions in every chapter. To take three examples: whatever one thinks of transtextuality and intertextuality, it is hard to deny that networked and programmable media has brought with it new relations and types of relations between and among texts (these are discussed in chapter 3); whichever definition of narrative one prefers there's a strong connection between

narratives and (re)presentation of events and time and it is hard to deny that digital media has added new means to manipulate time (theorised mostly in chapter 8); and however one wishes to see the relations between games and narratives, it is hard to deny that current narrative theories can’t explain (and were never set to explain) such key features of games as rules, goals and player effort (as discussed in chapters 12 to 17). Similarly, it is very hard to imagine a comprehensive literary theory that would not include theories of intertextuality, narrative theories ignoring narrative temporalities, or ludologies excluding the study of the dominant formal features of games.

The scope of this project is much less ambitious than it may sound. Even though one of the main thrusts is to revise, expand, and integrate theories in several scholarly fields, the aim is not to construct yet another grand theory, but to make several small steps away from the doxa of the day, mostly by following and being guided (and constrained) by an eclectically and pragmatically selected variety of empirically verifiable counter-examples. This is also reflected in the modular structure of the book, within which each chapter, section, and half comes with its own (yet mutually compatible) focus and agenda. The open arrangement should also convey the feeling that new, exciting, and unexplored possibilities are within one's grasp and there's no need or reason to limit one's theoretical appetites and practical interests to traditional zones of comfort.

1.3 Disciplinary Contacts and Contexts

1.3.1 Literary Studies

Even though the dichotomy between paper and digital based media is false and breaks down under closer scrutiny, it still seems to divide the scholarly field of literary studies. Even (and sometimes especially) the most prominent literary scholars usually avoid digital and ergodic texts and stay firmly with printed and non-ergodic works. There are exceptions, most notably Brian McHale's (2004) recent probes into postmodernist poetry, but even in these cases the digital-ergodic realm is barely touched and when it is, the results are not very convincing. As just one example, McHale's labeling John Cayley and Jim Rosenberg as postmodernist poets may well raise their cultural status from obscurity to marginality, but it also misses significant features of their oeuvre that run counter to various constructions of postmodernism, including McHale's own.

On the other side of that divide, scholars of digital literature tend to focus only on digital specimens, even though a limited selection of print literature is usually mentioned and included in discussions, most likely as "predecessors" (for example as proto-hypertexts) to the main objects of study providing a tradition and all the other benefits that come with that territory. Similar reliance and discourse on predecessors often occurs during theoretical construction when theories of print literature or Aristotelian drama are extended and mildly modified to better explain the theorists' digital objects of choice. At its most extreme these "new" objects are seen as embodiments of the ideas of recent literary-philosophical theories (as in Bolter's and Landow's influential but ill-informed attempts to conflate post-structuralism and

hypertext literature in the early 1990s).

In many ways this is just business as usual in the academy, as scholars have to specialise and prefer to stay within their primary areas of expertise. Still, there's no reason for boundaries or barriers of specialisation to exist between the studies of print literature and digital literature. Our problem with that boundary is that the print side, which for historical reasons has the upper hand (culturally, economically, institutionally, educationally, theoretically etc.), still sees print literature as the one and only literature with any value. This is not only an aesthetic problem, but a theoretical one. Digital and ergodic literature contain specimens that run counter to a wide variety of basic assumptions and presuppositions that ground an equally wide variety of sophisticated theories of print literature that pretend or are taken to be general theories of literature (in whatever medium). In other words, several implicit and explicit generalisations these theories make about literature either are or may be valid only in the context of print literature. Print scholars seem to be blind to this, and if digitally and ergodically oriented scholars don't challenge them with insights and perspectives derived from digital and other anomalies, the implicitly print-biased paradigms of literature will remain in power.

My aim is not to hint at revolutionizing literary studies (not even at palace revolution inside departments of comparative literature if and where such ineffective islets are still allowed to exist), but to set selected paradigms of hegemonic literary theory in dialogue with digital and ergodic anomalies, much to their own benefit, and most of all to the benefit of the enterprise of literary theory that has for quite some time now

(after various post-movements and cultural studies) existed without fresh challenges, new openings or remarkable advances. The nature of these challenges is grounded in empirically observable textual behavior, which makes these challenges easily verifiable even though we may (and are very likely to) disagree on how to best theorize them.

More generally then, we will cross the unnecessary divide between traditional literary studies of mainly non-ergodic texts and digital literary studies of mainly ergodic texts. This divide still has its institutional basis, but it is getting harder and harder to see the actual benefits (if willful ignorance doesn't count) of maintaining the split in any theoretically oriented scholarly work. The usual interpretative orientation could go on as unaffected as before, as from the vantage point of the humanistic-interpretative industry digital and ergodic literary texts are neither appealing nor canonized enough to become career-making cases.

1.3.2 Media Studies and Literary Studies

Schematically we can draft at least four partly overlapping stages in theoretical discussions and developments around literary media and more generally around digital media. First, various poetics of individual practitioner-theorists working in text generation (Bense 1962), intermedia (Higgins 1966), hypertext fiction (Joyce 1995), holopoetry (Kac 1995), video poetry (Melo e Castro 1996), digital poetry (Glazier 2002) and "interactive fiction" (Montfort 2003), to name but a few, who were usually content to explore the potentials of one particular medium, genre or material

technology without generalising their findings to other areas and without any attempt at constructing a theoretically valid comparative and comprehensive perspective. Second, the rise of hype contrasting the digital and new with the print or the analog and old (cf. the main bulk of hypertext theory) resulting in various lists of the supposedly novel or key properties of the new media or medium (cf. Murray 1997 and Manovich 2001) that break down under closer scrutiny. Third, introduction of a comparative theory of media functioning and textual communication within which any literary text could be situated, shifting emphasis away from media essentialism (what a medium is or is supposed to be) to what a medium does (Aarseth 1991; 1994; 1997). Fourth, approaches trying to go beyond the textual surface and communicative models in general into operations, operational logics, and processes of various digital media (Bootz 2003; Wardrip-Fruin 2009[ii]; Bogost 2006). So far these approaches are not fully developed and their explanatory power and heuristic value is still unclear. Moreover, to fully assess their value and usability, at least at this point in time, one needs to be considerably more familiar with research in artificial intelligence and computer science than I am. Still, in what follows we abandon only the second type, and apply mainly the third, while trying to be informed by the first and fourth.

1.3.3 Ludology and Game Studies

The importance of the section (chapters 12-17) on first-generation ludology is at least fourfold. First, without ludology addressing and studying the defining and core features of games, the whole field of game studies would be left to what could be called overlap studies, more interested in connecting games to other phenomena, and

thus ultimately eroding the justification for the existence (not to mention future) of game studies as a distinct academic discipline. As always such distinctiveness wouldn't exclude interdisciplinarity; one simply needs to have a discipline before it is possible to become truly interdisciplinary.

Second, the necessary ontological question (what is a game?) begs additional questions concerning the constituents of narrative as well. The blind spot or imbalance among various contemporary definitions of narrative is that that they mostly predate the emergence of representational video games and certainly the recognition of the latter's cultural and aesthetic importance. Perhaps the most significant consequence of this historical fact is that narrative scholars still take for granted that narratives have an absolute monopoly for representing events, i.e. that every kind of representation of events is necessarily or potentially a narrative or at least contains narrativity. This type of thinking makes sense only in an environment, cultural context, or scholarly field that excludes or is not aware of simulations and representational games, and within which the closest competitors and points of comparison to narrative are other text types such as argument and description. Compared to these, digital and other games constitute a much stronger challenge to the cultural and theoretical hegemony of narratives, and may even provide a welcome alternative to the lesser blessings of the narrative turn.

Thirdly, ludology is much more than yet another anti-narrative movement, as its opponents often take it to be. The third section could therefore have been titled "In Defence of Radical Ludology", not only because it counters the serious and

unproductive misunderstandings and both scholarly and non- or semi-scholarly misrepresentations in the famous debate between ludologists and narrativists that is also the founding debate of (digital) game studies, but also because it brings to the fore several forgotten heuristic suggestions for further research in the early ludological work. In other words, the point is to point to the paths not yet taken or followed to their logical conclusions, and to the ludological project as being far from complete, and its role as a necessary countermeasure to the current fetishising of both players and game cultures that causes the field to gravitate towards an interpretative and meaning-oriented synthesis of cultural studies and social sciences. With some justification these two could be seen as moving game studies to the state and status of normal science, but as the section tries to show, the road there is less straightforward and perhaps also less rewarding than the prevailing consensus among the interested parties in academia and industry seems to assume. Perhaps the most important of the half-forgotten ludological paths leads from digital game studies to comparative game studies.

Fourthly, constructing a more unified ludology creates a heuristic perspective that can be applied far beyond games and game studies. As games are, unlike literature and art, a dominantly configurative practice[iii], ludology is useful in situating the wide variety of ergodic forms, modes and genres within a double perspective. In other words, we will have a fuller view if the current dyad of art and ergodic (or “interactive”) art is replaced with the triad including games.

1.4 Structure and Brief Outline of the Book

Chapter 4 The Textual Whole

4.1 Introduction

If we run a typical book through the typology of textual communication, it will have the following values: static dynamics, determinate determinability, intransient time, random access, impersonal perspective, no links and interpretative user function[xliii]. These values also determine traditional notions of the textual whole that can be applied and taken for granted in most cases of print literature. In practice this means (among other things and effects) that we as book readers both expect and know that it will be possible to both read and re-read the whole text within which the signifiers will remain the same (and do not change over time) at any time we want for as long as and as many times as we want.

However, there is a widening variety of texts that undermine these and many other expectations, conventions and common sense assumptions. What is the textual whole (or the literary work) if it can appropriate and mix texts not yet published, cannot be read in its entirety, if only a few of its signifiers can or will be shared by all its readers, or if there's no clear termination point to its metamorphosis and reading

process? Moreover, many digital and ergodic texts set conditions and constraints to their readers and users ranging from temporal limitations to personal and personalized perspectives. This affects the relationship between text and reading in ways to which we should pay more attention. Traditional reception studies will not help us, as they are limited to the problems and conceptualisations of the reader's interpretative activity in the context of non-ergodic print literature.[xliv]

Of course, the concept of the textual whole has not vanished from the scene. Minimally, the title may be enough to guarantee the identity and the "wholeness" of any text, even if different readers are presented with mostly or completely different sets of scriptons. This kind of textual entity could be said to have a machinic identity, as cybertexts are machines for producing variety of expression (Aarseth 1997, 3). Between traditional textual wholes, giving every reader complete access to their static and invariable textons and scriptons, and textual machines denying that to the extreme, there are several types of textual entities that demand varieties of strategies and rules of engagement from their users that have not yet been sufficiently examined.

Early on in *Cybertext* Aarseth states the core of his project and perspective: "The differences in teleological orientation – the different ways in which the reader is invited to "complete" a text - and the text's various self-manipulating devices are what the concept of cybertext is about." (Aarseth 1997, 20)

The varieties in the organisation of the text are bound to affect "both the reader's strategic approach and the text's perceived teleology."(ibid.) In what follows we'll

mostly deal with these two interconnected sides (self-manipulation and completion) separately without trying to force them into any preliminary conceptual synthesis.

4.2 The whole text: conventions and expectations

Conventionally, the notion of the textual whole includes at least the following five presuppositions, conventions and expectations: readers can easily read the whole text, as the only efforts and challenges associated with this conventional "goal" are of an interpretative nature; readers should read the whole text in order to be able to fully comprehend and interpret it; the point at which the whole text is read marks also the termination point of reading; it is always possible to re-read exactly the same text as its signifiers don't change between (or during) readings; and finally that the way the text is read doesn't affect its material string of signs. These expectations form a cluster: under "normal" textual conditions (i.e. the consumption of books) they appear together and can in principle be deduced or inferred from each other.

In what follows, however, we'll have to separate these conventional threads from each other; in the expanded field of cybertextuality and ergodic literature, they are no longer necessarily clustered together. To take just a few examples, even if the reader would have no difficulties in reading the whole text, it may be or become unnecessary or unwise to do so (as in game books and *I Ching*). Even if the reader has read the whole text the conventional way (say from the first page to the last), the text may have to be read in a different order, in which case the last page doesn't necessarily signal the termination point of reading (as it doesn't in *Cent Mille Milliard de*

Poemes). Even if the reader has successfully completed every aforementioned task, the next time he approaches the text it may be materially different (as in Jean-Pierre Balpe's generative hypertexts), and in some cases it may become illegible based on the effects of its reading. Eugenio Tisselli's "degenerative" [2005] is a web page "where each time it was visited, one character from the page is destroyed (…) leading to a gradual degeneration of both its structure and content." (Tisselli 2010, 7)

At the very least, the assumed literary whole or totality can be described in interplaying perceptual, behavioural, structural, temporal, spatial, and causal terms.[xlv] Perceptually, printed texts give the reader all the time he needs to decipher and contemplate possible presentational complexities. Pages of concrete poetry and prose (for example in Raymond Federman's novels) may take some time to be fully perceived or should we say adequately scanned and studied, but in principle everything that is presented on any page can be perceived as nothing is (or could be) permanently hidden from the view. Encrypted texts may be said to constitute an exception to this condition, but they too become (or should become) fully and easily readable with the right "key"; moreover this dimension is more about private and secret communication than literature. The split between interface and storage media in digital media divides the textual whole into two layers, compared to the only one fully visible layer of print literature that can't permanently[xlvi] hide its strings of signs (textons and scriptons) from the reader.

It is not only the textons that may escape the user's perception in digital media, but in many cases also the detailed mechanics of the traversal function. With books the user

is responsible for executing the operations needed for producing or realising different sequences of signs, but if and when this work is performed by the textual machine and its algorithms, the way the text behaves and presents its scriptons becomes at least potentially much harder to understand, verify and control. The user may of course develop a certain feel for the textual machine, and may even learn to master it to some degree (much like an instrument), but there still may be elements, principles, consequences of choices and unpredictable future alterations that will remain completely outside his grasp and perception[xlvii]. This boils down to the difference between machinic instructions and instructed humans.

Structurally speaking the prevalent convention related to the textual whole is that the text maintains its structure both in presentation and between presentations. The book and its pages will remain the same; every printed signifier maintains its identity and doesn't move or morph into something else, and it is only our interpretations of them that may and usually do differ from one reading to the next. Obviously, this rule doesn't apply to digital media in the same way it does to paper and print. The text may change while it is being read and because it is being read in ways that have programmed consequences for the text's organisation and content. To put it in another way, books (unlike some cybertexts) do not read their readers.

Spatially, the book is a volume taking up a precise physical space and an entity that is distributed in copies. In strict contrast, web fictions exist on a server as virtual entities not distributed (and shared) in copies, and are as such open to unannounced revisions by the author at any time. In other words, the author retains complete control of (or at

least the power to intervene in) the text's form, content, behaviour and existence after its publication (Aarseth 1997, 81). Moreover, as locative texts and textual installations show, scriptons have already moved beyond the page and screen (or at least the more familiar screens of our PCs and mobile phones) and are now more or less readable from any more or less complex surface. On the other hand we have been surrounded by textual surfaces in our physical environment since well before the advent of computers. Still, it is important to reclaim public spaces for literature and to resist the pervasive advertising litterism all around us.

Temporally the common sense assumption is that the text doesn't self-destruct, although it of course may be destroyed in other ways and, if not restored or reprinted, may deteriorate over time. In other words, literary works, and especially those reproduced in print, are conventionally meant to be permanent (unlike, say, avant-garde textual performances that could in principle be saved only by recording technologies). Compared to this convention of permanence, digital and ergodic literature contains many examples of temporary texts and textual machines and environments. After its shutdown in 1990 the original *TinyMud* now reappears only once a year for a day[xlviii]; in other words it is only periodically available and at some point may cease to be so. The most interesting thing here is not permanence or transience as such, but the combination of temporary and permanent elements in a single work. This implies a new type of aesthetic and (literary-poetic) decision to be made by the author or whomever it may concern. Similarly, another major temporal assumption is that the visible (scriptonic) text, its parts, and their mutual relations do not change and evolve over time. Contrary to this, a programmed and networked text

can be divided into any number of semi-autonomous and dynamic segments, each of which has its own rules and conditions for its temporal development and interplay with the other segments.[xlix]

Causally, textual wholes are supposed to be autonomous and not affect each other's behaviour and be also materially separate from each other (if not bound in the same volume). However, digital textual machines can be programmed to affect each other's behaviour and linked to each other so that the user can seamlessly move from one to another. To get a fuller view of these and other changes we have to take a closer look at the dimensions of cybertextual self-manipulation.

4.3 Cybertextual self-manipulation and traditional wholes

The seven original variables of cybertext theory will serve to illustrate the ways in which the traditional textual whole may vanish or disappear from the reader's grasp if not also from his aspirations or work ethics.

Dynamics. The traditional concept of the textual whole is tied to the constant number and material content[l] of signifiers, i.e. static dynamics: it is not well suited to deal with potentially endless variations of scriptons and supplementation of textons. The only print examples in Aarseth's selections of texts (Aarseth 1997, 65-67) that don't have static dynamics are two game books (*Money Spider* and *Falcon*) with intratextonic dynamics. Here the shift away from static dynamics is not very radical, as every texton and scripton could still be read should the user so wish, and in that

way the alternatives to the textual output remain visible and immediately accessible. The books' game structure simply allows certain fragments to be skipped, as they don't belong to the correct or successful path to victory or completion. So in these two cases the user doesn't have to read the whole text, as the readily available parts of it happen to have different use value (which is similar to the way we use non-fictional texts from user's manuals to dictionaries). This replacement of the textual whole to be read in full with the game or puzzle structure to be completed (and often ignored after that) is also the conventional norm in digital text adventure games, which unlike their print counterparts are able to hide their strings of signs from the user.

With textonic dynamics, the challenges to the traditional notions of the textual whole become even more complicated. In principle, the source of supplements, changes and additions can be either the user himself (as in *Book Unbound*), other users (as in many MUDs), or the text can supplement itself from outside sources as in *The Impermanence Agent*[li] or John Cayley's idea (Cayley 2001, 99) of using a Reuters news-feed to provide real-time material for one of his *Speaking Clocks*. As textons are strings of signs as they are in the text they also constitute the core components of textual ontology, and if textons can be added to (or removed from) the text or changed after its publication, we have entered a new kind of textual ontology (especially as these alterations have nothing to do with the tasks of philology, such as new editions that don't physically erase previous ones). In textonically dynamic texts the basic units of textual variation also become dynamic, and to complicate matters textons become (and may cease to be) parts of the text at different times, which gives them different durations as textons. In principle these self-supplementing texts open up the

possibility that they could also appropriate texts that are published in the future, which makes them radically open compared to the texts that will remain closed entities after their publication.[lii]

Determinability. Indeterminability is associated with randomness or chance, but that's only one side of it, and perhaps not the most interesting one. As noted in chapter 2, in Aarseth's model determinability is about the stability of the traversal function. In practical terms indeterminability means that regardless of whether the user reacts or acts the same way in the same situation, the system doesn't respond the way it did the last time. At one possible extreme of indeterminability there are neither same situations nor same responses available, as everything happens only once. This kind of indeterminability would not only complicate but deny the process and possibility of rereading the same text. Here too, the traditional wisdom related to the textual whole doesn't get us very far, as it is bound to the notions of endless repeatability controlled by the user and guaranteed by the copious permanence of print. One could say that such permanence has now become only a special case of repetition (i.e. unlimited repetition).[liii]

Transience. Transient texts don't usually allow the reader to control the time and the rhythm of reading. Texts may be available for limited periods of time, sometimes only once, as is or was the case with William Gibson's *Agrippa*, or more precisely with its non-hacked copies. They may also set other kinds of conditions for their temporal availability, behaviour, reception and use. Here we are dealing with cycles of appearances, disappearances and potential reappearances in the context where the

text, and not the reader, controls the presentation; i.e. we are not only reading textual objects but textual processes as well (or textual objects through textual processes). In the course of these presentations we may have to prioritize our fleeting perceptions and try to decide what to read and see, if and when it is impossible to read and see it all. According to Janez Strehovec (2001,104), in the context of digital web poetry this easily leads to foregrounding kinetic and visual affects, effects and constellations at the expense of the usual syntactic and semantic complexities.

Even more importantly, the text may now become a cluster of appearances, disappearances and reappearances in a process that doesn't have to have a termination point (*Book Unbound*), and which may also exceed the limitations of the human attention span (*The Speaking Clock* working around the clock guaranteeing we'll miss substantial portions of its output). Texts may also at times become illegible and be only occasionally meaningful to human observers (as in John Cayley's recent ambient texts such as *Overboard*). Generally speaking, transient texts open up the dimension of the presentation process that doesn't have to be as conventional and uncomplicated as the processes of dramatic and filmic presentations and performances.

In further theorising the appearances (and disappearances) of scriptons and cybertextual presentations in general, it is important to notice that there are many other conventional temporal parameters besides the parameter of order that has dominated the discussion so far. While the order of the textual presentation may be linear or non-linear[liv], its duration and speed may be either variable or invariable and in some cases too fast, repetitions either possible or impossible, teleology finite or

infinite, and it may or may not present two or more dynamic events at the same time[lv], as shown in table 4. It is also possible that its speed may be too fast[lvi] or that there may be mandatory pauses in the presentation.

< **INSERT TABLE 4 HERE** >

Access. If we don't have random and complete access to every part of the text, our potential mastery (readerly omnipresence) is once again denied by constraining our traditional right to traverse and skip the text any way we please. Controlled access includes the possibility that some parts of the text will remain hidden and out of reach despite the best efforts of the reader. Moreover, the distinction between textons and scriptons implies that the textual whole is divided in two. In some cases the user can access textons as well: as already noted they can't be hidden from him in print, and in other cases, as in classic hypertext fiction, textons and scriptons happen to be identical: every string of signs that is in the text can be read exactly as it is.

In addition, depending upon the digital conditions, the quantitative ratio of hidden to visible parts or phases of the text may escape the reader. In *Reagan Library* (Moulthrop 1999) the reader is occasionally given information about the percentage of the text he has so far read. This numerical value is randomly generated and thus false, but the way this falsity can or is supposed to be figured out is more complicated. Even if the announced percentage sometimes decreases despite the fact that the reader has definitely read more, that doesn't necessarily prove a thing, as in principle it would be possible that the text has expanded much faster than the reader

has been able to read.

Links have the potential to complicate the relation between parts and wholes, allowing and opening several paths through the text, but in practice that potential should not be overestimated, because the average hypertext fiction shares many stabilizing qualities with its print predecessors, from static dynamics and determinability to intransient time and impersonal perspective. Generative hypertexts (Balpe 2007) are more challenging in this respect, because their link-node structure is different from one reading session (or generation) to the next.

Personal perspective forces the reader to assume strategic responsibility and then face the consequences of her actions. This is a very game-like feature, but it is also possible that the required strategic choices have to be made in the absence of explicit rules, goals and manipulative procedures in a more relaxed role-playing environment. Compared to the traditional textual whole, the user's need for strategy in order to traverse the text constitutes a substantial novelty to be further theorised. In "Non-linearity and literary theory" Aarseth (1994, 80) distinguishes between the figures of forking (in printed texts), jumping (in hypertexts), permutation, computation and polygenesis. Each of these will have as its necessary counterparts different series of reading, using and completing strategies.

Finally, *the user functions and the user position.* Whereas the explorative user function brings in the rhetorics of choice, navigation, and labyrinth – and forced repetition (enjoyable or not), the configurative and textonic user functions clearly

foreground the user's own extranoematic activity by giving him the chance or necessity of affecting the text and therefore approaching it as a playground, an obstacle, and more or less malleable raw material to build upon. The continuum of the user functions also entails a continuum of the possibilities for self-expression within its higher user functions, to the degree that the texts also include personal perspective and/or such additional discourse levels as negotiation, quasi-events, and construction.[lvii] Interactive fiction requires that the user gives commands, which counts as a form of self-expression, although it is severely constrained by the limited variety of accepted commands. MUDs are much more flexible in this respect when they open communication channels between humans and let users construct dynamic entities (characters, rooms and objects) capable of triggering genuinely unpredictable communicative and self-expressive events.

The dependent user position brings in social conventions and norms, thus offering yet another set of organisational principles to supplement or replace the perhaps ineffective, insufficient or inapplicable literary and textual conventions. One could also imagine texts that would be absolutely unable to be read because of the excessive demands they set for the user's position, location and movement, but at this point the existence of such texts is pure speculation, although they would just continue the long (and somewhat long-winding) tradition of the aesthetics of frustration.

4.4 Variations and conventions

If we translate the aforementioned shifts in media position in terms of variation we'll

have the following types to address: variations in the output (IDT), textual constitution (TDT), situations and responses (indeterminability), textual processes and their control (transience), inaccessibility and invisibility (access), strategy and roleplay (personal perspective), paths, parts, and wholes (links and explorative user function), and temporary and permanent textual construction (configurative and textonic user functions).

The notions and conventions of reading and completing the text need to be adjusted to better suit this cybertextual or machinic variety. First of all, reading the whole text is the strongest literary convention, but as was implicit in the above discussion it can now mean at least four slightly different things: reading every texton and scripton, reading every texton, reading every scripton, and taking every given path through the text (i.e. exhausting the variety of paths).

The first situation is the most common; almost any print novel gives the reader an easy access to its textons and scriptons and classic hypertext fictions (*Afternoon*; *Victory Garden*; *Patchwork Girl)* cannot ultimately hide them from a sufficiently persistent reader. The second situation happens with texts like *Cent Mille Milliard de Poémes*; its overwhelming number of scriptons (in this case texton combinations) can't be consumed by any reader, but instead its 140 textons can be read almost in no time. The third situation takes place for example in our dealings with *Eliza*; we read and respond to whatever scriptons are presented to us without knowing (or caring) what the textons and language generating operations "beyond the surface" actually are. Finally, if there aren't too many paths through the text, we can take them all one

by one as in *Hopscotch* or forking texts in pattern[lviii] and visual poetry.

From the user's point of view there's a crucial difference in the difficulty between different ways of reading the whole text. To read every texton and scripton in a non-ergodic novel, every texton in *Cent Mille Milliard de Poemes*, and every presented scripton in *Eliza*[lix], or to take the two specified paths in *Hopscotch*, the reader-user doesn't need to have a strategy, as it is trivially easy to accomplish those tasks. Not so with hypertext fiction that requires a strategy and in any case makes it much more difficult for the user to read every static node.[lx]

In his conclusion to *Cybertext* Aarseth (1997, 180-182) distinguishes between anamorphic (solvable enigmas) and metamorphic (the texts of change and unpredictability) works of art that are different from novels (in which Aarseth on this occasion included *Afternoon*-type hypertexts). Based on this, we have four basic types of processes: regular reading in which it is trivially easy to read the whole text; hypertext reading in which reading it all is usually possible but requires non-trivial work; solving the enigma posed by an anamorphic text which also requires non-trivial work that is compensated by the decreasing need to re-engage and reread the text again, and finally finding ways to adapt one's strategies to a dynamic and unpredictable metamorphic text that has no final state or point of resolution.[lxi]

To Aarseth (1997, 181) *Afternoon* is not anamorphic as there's "no clear, final state of resolution (or ending) in which all is revealed." On the one hand, this makes sense as *Afternoon* is not a solvable enigma like textual adventure games, but on the other

hand one could argue that a clear and final state of resolution occurs whenever we have read the whole text, in the sense of the sum total of every individual node – if that is possible (and it clearly was in the early- and mid-1990s hypertext fictions). At this point the reader is in the same position as he is on the last page of any complex novel: he has read it all.

In short, while the need for strategy and the impossibility of exhausting every path through the text separate hypertext fictions from most novels, they both give the user the chance to read every texton and scripton. From this perspective hypertext fiction just complicates the reading process without rendering impossible the conventional goal of reading it all. [lxii]This complication or enstrangement (Sklovski) is also a strong indicator for hypertext fiction's inclusion in the traditions of experimental and avant-garde literature.

In a bigger picture, however, both interactive fiction and hypertext fiction and poetry are variant complications of the usual rhetoric of the reader's pre-ordered progression (and occasional digest). The user navigates, gets lost and gets it right by either clicking links or typing commands, cannot take every possible path through the text or produce every possible event, but regardless of this lack of exhaustion the end is sooner or later at hand for the competent user capable of being helped by textual or paratextual cues and clues. The difference is that interactive fiction flirts with game conventions and marries them with literary conventions by adding the discourse level of negotiation and shaping it as a challenge. In this context. game conventions help domesticate the potentially endless variation by providing a goal for the process and

relieving the reader-user-player from having to aesthetically contemplate every textual output. Instead, it is the use value of the inescapable variations and effectiveness towards the given goal of completing the puzzle that matter. This difference between “high” experimental and “low” game aesthetics in handling the user's progression goes a long way to explain the intense tribalism on both sides of the digital fiction divide and the resulting generic stagnation.

This leaves us with the metamorphic texts that seem to pose the greatest challenge to contemporary literary theory. Much like avant-garde literature, most of these texts can’t be conveniently mapped onto existing textual and literary conventions, and in the lack of such acknowledged conventions the ways these texts behave and are consumed become theoretically enigmatic. The usual game conventions wouldn’t seem to fit either as there’s no point of resolution or winning, but luckily there are other applicable conventions.

In Aarseth’s selection there are at least seven texts that could be labelled as metamorphic: *The Unending Addventure*, *TinyMUD*, *Eliza*, *Cent Mille Milliard de Poemes*, *Book Unbound*, *Racter*, and *Tale-Spin*. Queneau’s poetry book is the most trivial of these: the user can almost effortlessly keep on producing poems one after another, at his own pace and in as many sessions as he likes, until he grows bored with the quality of the outcome or gets the general idea (that could be called a conceptual epiphany) or is already familiar with the centuries long tradition of *ars combinatoria*. Inherent in this monotony there is however a much more important qualitative structure at play: as individual poems are complete in themselves, they are

at least in principle aesthetically rewarding independently of each other and the hypothesized yet unattainable whole. In other words, the metamorphic process is divided into small potentially rewarding steps or phases, rekindling one's love for fragments.

In this respect the two story generators (*Racter* and *Tale-Spin)* work much the same way, although the process of configuring them is more complicated than mere cutting and bending pages. In these texts, the output presents one complete and simple story at a time, after which it is time to configure the system again and let it produce another story. Even if this process of producing short stories and poems could in principle go on forever, it too is divided into clear-cut phases and outcomes that are or could be potentially rewarding enough often enough. In short, in these simpler types of metamorphosis literary conventions can be applied to each individual outcome (within a potentially endless series). The *Unending Addventure* isn't any more complicated, as it can be conceptualised according to both literary conventions (serialized story) and game conventions (its information for beginners describes it as a game).

Instead of literary and game conventions, *Eliza* and *TinyMUD* are more clearly organised around conventions of social communication such as dialogue, polylogue, improvisation and self-expression. The user may want to save *Eliza/Doctor*'s face or to trick it out of its pretended role as a Rogerian psychotherapist in the dialogue that can always be started anew, but the question and answer format keeps the process both familiar and well in balance. More than anything this is based on *Eliza's* non-

human limitations, as the rhythm of its failures to make enough sense guarantees that individual sessions with it will not continue endlessly: it is usually better to start again than to continue failed communication for too long. So once again there are almost natural points of resolution and termination on a micro-level.

This is even clearer within *TinyMUD*, which is (or was) regulated both by the usual social conventions and their familiar and flexible rhythms on the one hand and the processes of autotelic textual construction of characters, objects, and rooms on the other hand. Under such circumstances it matters little that the user-player-writer-socialisers cannot read everything, as the textual-social world is constructed and organised around other kinds of human activities, experiences, encounters and expectations that will make the multiple metamorphic processes more familiar and meaningful (including missing or missed information).

After our short inventory[lxiii] of literary conventions (reading the whole text or a series of self-contained fragments), game and puzzle conventions (completion; winning), social conventions (dialogue; polylogue; collective improvisation) and possibilities of self-expression channelling, domesticating, familiarising and motivating variation we are still left with *Book Unbound.*

However, *Book Unbound*, although it is a metamorphic text, is far from being strenuously difficult. It gives the user the chance to set his own goals for the process, but as he is not in full control of the cumulative process these goals are necessarily fuzzy (and not clear-cut) and may well be or become impossible to achieve.

Nevertheless there still remains the process of slow and partial personalisation that is both intentional (the segments the user chooses to feed back into the system as parts of the seed text presumably reflect his tastes and preferences) and unintentional (the user is not fully aware of the patterns of his choices and their effects) leading the user slowly towards realizing the consequences of his choices. Besides these long-term goals and processes *Book Unbound* gives its user the opportunity to save the parts of the output he likes. This way the process goes from one satisfactory variation (or sequence) to another through less successful variations that still play their part in the process. This kind of cumulative filtering, selection and collecting could be seen to form a series of rewarding sub-goals in the absence of an overall goal or point of resolution and compensating quite adequately for that absence. Finally, the whole process is turn-based, and thus the user is not time-pressed in making his choices (of what to feed back to the system as its additional textons) and can take a more meditative attitude towards the whole hologographic process of giving and giving back.

It seems then that the metamorphic texts we discussed are not completely disconnected from the applicable conventional frames and goals, short- and long-term rewards, and user objectives that make the metamorphic process meaningful, although in ways that may sometimes defy current literary theories.

Regarding conventions, the main dividing line seems to be situated between the discourse levels of events and progression on the one hand and the discourse levels of construction and quasi-events on the other hand. The texts organised by the former

put focus on some kind of pre-given goal, closure, end, or accessible totality. The texts organised more on the latter provide room for the rhythms and often self-asserted goals of the user's self-expression and its manifold manifestations as playing, improvisation, seduction, competition, collaboration and community building (etc.) The discourse level of negotiation can serve both ends of the scale. For our purposes in this chapter it is sufficient to see the resulting difference between the meta-conventions of reading and literary-ergodic self-expression (that can of course be combined, mixed and remixed like everything else in this study).

4.5 Attitudes

As always there are or may be simpler ways out. If one is having a typical single-user experience without the guidance of sufficiently strong literary, media, game or social conventions and can't read it all, then so what? In principle one could be happy and content with one's partial reading. In hypertext theory, Jim Rosenberg (1996) proposed a concept of session as a new unit of reception and attention (i.e. reading and navigating until one's current interests are satisfied – or, presumably, thoroughly frustrated) to account for the difficulties in traversing the text and variations in the reading order the hypertext reader is or was supposed to struggle with. Despite that common sense effort, the paradigm of reading it all (while complaining about it) still reigns, probably because well-informed readers (at least) know that it is possible to read every single unchanging node of *Afternoon*, *Victory Garden* and *Patchwork Girl*. The case is a bit different in the later works of Stuart Moulthrop, especially in *Reagan Library* and *Pax*. The paratextual introduction to the latter tries to convince the

reader-user of the impossibility of reading and experiencing it all (Moulthrop 2003b), which could also be read as both permission and instruction.

The shadow of the textual whole may still be hard to shake, but it is also ultimately dependent on what the user is personally seeking. Conventions and cognitive strategies are only one part of those preferences. More than two decades before Rosenberg, Roland Barthes drafted four pleasurable ways[lxiv] in which readers could combine their reading neurosis with the hallucinated form of the text (the form we could claim is now an inevitable result from the invisible, inaccessible and hidden layers of digital, ergodic and potentially metamorphic texts**)**:

> The fetishist would be matched with the divided-up text, the singling out of quotations, formulae, turns of phrase, with the pleasure of the word. The obsessive would experience the voluptuous release of the letter, of secondary, disconnected languages; of metalanguages . . . . A paranoiac would consume or produce complicated texts, stories developed like arguments, constructions posited like games, like secret constraints. As for the hysteric . . . he would be the one who takes the text for ready money, who joins in the bottomless, truthless comedy of language, who is no longer the subject of any critical scrutiny and throws himself across the text (which is quite different from projecting himself into it). (Barthes 1975, 63)

Maxis 1989. *Sim City.* Electronic Arts

Maxis 2004. *The Sims 2.* Electonic Arts

Gamson, William A. 1966. *SIMSOC*

Taito 1977. *Space Invaders.*

Sierra Online 1987. *Space Quest 1*. Sierra

First Star 1984. *Spy vs. Spy*

Shirts, S. Garry 1969. *StarPower*. Simulation Training Systems

Strat-O-Matic 1968. *Strat-O-Matic Football*. Strat-O-Matic

Stern, Eddo and Mark Allen 2001. *Tekken Torture Tournament*. Game performance/ custom hardware.

Pazhitnov, Alexei 1985. *Tetris*. Spectrum Holybyte

Persuasive Games 2006. *The Arcade Wire: Oil God.* http://www.persuasivegames.com/games/game.aspx?game=arcadewireoil (31 July 2011)

Saber Interactive 2007. *TimeShift*. Sierra Entertainment

Capcom 2003. *Viewtiful Joe*. Capcom

Nintendo 2003. *Warioware Inc.*. Nintendo

Blizzard Entertainment 2004. *The World of Warcraft*

[i] In *Cybertext* Aarseth represents his theory as an extension to literary theory, challenges the primacy of narrative by introducing ergodic discourses, studies both

literature and games, and presents a heuristic theory of media that shifts the focus from what a medium supposedly is to what it actually does. In short, the book more offers much more than perspectives on ergodic literature.

[ii] Co-incidentally *Cybertext* (Aarseth 1997, 103-105) includes a schematic model of internal structure similar to Wardrip-Fruin's model.

[iii] "In art and literature we may have to configure in order to be able to interpret whereas in games we have to interpret in order to configure and proceed from the beginning to the winning or some other situation." (Eskelinen 2001)

[iv] It is important to notice that the relation between textons and scriptons is arbitrary in digital media and not trivial as in non-digital (projector/screen) cinema. That's the "essence" of its unique dual materiality, which stems from the (historical) separation of the storage medium from the interface medium (Aarseth 1997, 43).

[v] The model is not closed, as the parameters of the cybertext typology can be supplemented, changed, and removed, or made more detailed should the evidence or need arise.

[vi] The all important links of hypertext theory form only one of the seven dimensions, and it is exactly this broader view that is valuable, as it gives us more to think of than simple link and node-structures. Consequently, it doesn't make much sense to contrast links with the "computational" as Hayles (2001a) does, because they are both included in Aarseth's model. Hayles' own theoretical contribution (albeit not her only one), cyber|literature, then becomes just a simplified version of Aarseth's cybertext.

[vii] The theories of audiovisual media are far from reaching equally comprehensive and inclusive conceptualisations and models, despite several in-depth media-

archaeological studies from Ceram 1965 to Huhtamo 1996, Manovich 2001, and Zielinski 1999 and 2006 and their interest in the history of machines for seeing and hearing.

[viii] The concept of ergodic literature cross-cutting a wide variety of media is also able to signal an end or at least a well-grounded alternative to the use of such unfocused, muddled, and overtly hyped concepts as interactivity. The distinction between ergodic and non-ergodic literature is clear and pragmatic and much easier to verify and work with than the myriad more or less insufficient and contradictory definitions of agency and interactivity.

[ix] Cf. chapter 12 in McHale's *Postmodernist Fiction* (1987).

[x] To my knowledge this deduction and the statistical method behind it has not been questioned in sometimes heated discussions around *Cybertext*.

[xi] This is not to say that a medium doesn't matter, as there probably are also other than historical differences in the range of media positions that different media can occupy. Seen in this light the typology could be applied to pinpoint media specificities in much greater accuracy than N. Katherine Hayles' (2002, 29-33) media specific analysis currently does.

[xii] There are three obvious sources for additional textons (Eskelinen 2000): the text itself (as in Cayley's *Book Unbound*), the user (as in most MUDs), or an outside text or texts (as in Wardrip-Fruin's *The Impermanence Agent*).

[xiii] Bootz's description of cybertext theory is not entirely accurate as the latter also includes "a schematic model of internal structure" that we already discussed above.

[xiv] In his early paper on computer games (Aarseth 1998 [1995], 85-86) Aarseth proposes a category of user position.

[xv] See Parlett 1999, 21.

[xvi] It is different to be able to skip scriptons at will (tmesis) and to necessarily and involuntarily miss some of them.

[xvii] Five second intervals would make transient time the dominant mode of time, whereas five minute intervals between the program's interventions would very likely make *Hegirascope* seem intransient.

[xviii] In this holographic poem substantives turn into (or are seen to turn into) adjectives and vice versa relative to the spectators' perspective affected by his movement.

[xix] *Agrippa*'s (Gibson 1992) accompanying art book was intended to include fading images executed in "disappearing" ink. Exposure to light or air would have made the images gradually vanish, but due to technical problems Dennis Anspaugh's idea was never concretised. Even if such fading ink were used and applied to words the transient process would have been irreversible – a severe limitation of transient possibilities readily available in digital media.

[xx] Aarseth's model is descriptive and focused on what the existing genres (hypertext fictions, text adventures etc.) do and not on what they could do, which is our "poetic" focus in this chapter.

[xxi] This is typical of heuristic models in general and is not to be considered a defect. Aarseth's model has more than enough analytical and explanatory power compared to its theoretical alternatives.

[xxii] It may be important to note that in cybertext theory permanent scriptons do not imply static dynamics. Although one could argue that printed signs are materially permanent (they don't move or morph or change their position on a page or disappear except through material deterioration and damage) the way some digital

signifiers obviously are not, that difference is of no importance to cybertext theory (Aarseth 1997, 65-70). Printed game books such as *The Money Spider* (Waterfield and Davies 1988) have intratextonic dynamics because the reader is not supposed to read the same strings of signs every time, although the strings of signs as such are as permanent as the static scriptons in *Moby Dick*.

[xxiii]Interval control is one of the categories of internal time in Elverdam and Aarseth's game typology (Elverdam and Aarseth 2007) that will be discussed in chapters 14 and 16.

[xxiv] If textons are involved it is only because they are identical to scriptons; i.e. the classic theories move back and forth in the codex corpus within which the difference between textons and scriptons doesn't usually become important.

[xxv] This type bears no resemblance to the hypertextuality theorised a decade later by Landow and Bolter. The relation of Genette's concept to Ted Nelson's ideas of hypertextuality, already relatively well-known at the time of the publication of Genette's *Palimpsests* (1982), is more complex. If actual and potential nelsonian systems such as *Xanadu* or *ZigZag* (see Lukka and Ervasti 2001 for details) would contain and archive every subsequent modification of every text ever included in them, they could be described as hypertextual machines also in Genette's sense. Throughout this chapter, however, we'll use Genette's concept.

[xxvi]See Aarseth 1997, 65.

[xxvii] As opposed to autographic sequels written by the same author.

[xxviii] In order to see the full scope of changed relationships between and within texts we should free ourselves from the confusion promoted by the old-school hypertext theory (cf. Landow 1992) that saw links embodying the post-structuralist ideas and

conceptualisations of intertextuality. Obviously, links can be used to make explicit references and transclusions will work as direct quotations, if for some obscure reason we wish merely to emphasize, foreground or boost the traditional notions of intertextuality. However, it should be equally obvious that although links have been too often confused with intertextuality, there are both intertextual relations that cannot be shown by links, and various uses of links that have nothing whatsoever to do with traditional intertextuality. Every traditional notion of intertextuality is ultimately dependent on the unpredictably varying interpretative and transpositional skills of the readers and this dimension can neither be reduced to links nor fully expressed in them. On the other hand, the links forming concrete connections (instead of mere references) between online hypertexts are already potentially very different from their distant print relatives, as unlike the latter they are not merely interpretative and they could also be timed, changed, conditioned, chained, concealed, randomized and layered for complex effects the tradition knows nothing about.

[xxix]That can be obtained from Wardrip-Fruin et al. 2002.

[xxx]Given the ambiguity in Genette's definitions of hypertextuality (concerning only an earlier or another text) we can have at least two interpretations of the hypotext. It can be either a text published before (such as the newspaper article that is to be transformed in *Regime Change*) or a previous text published as a part of the machine transforming it (such as Wardrip-Fruin's original story in *The Impermanence Agent*). In this chapter we'll use the latter interpretation without necessarily resorting to Genette's (1997a, 52) hypothesis of an allographic ad-hoc hypotext.

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[xxxii]In a mesostic poem a vertical phrase or word intersects the middle of horizontal lines.

[xxxiii] In Genette's terms described earlier in this chapter.

[xxxiv]"If texts are laid out in a regular grid, as a table of letters, one table for the source and one table for the target, to morph transliterally from one text (one table of letters) to another, is to work out, letter-by-letter, how the source letters will become the target ones." (John Cayley; http://www.shadoof.net/in/intext01.html)

[xxxv] The horizontal texts can transform to vertical texts but not to other horizontal texts and the same logic applies to the vertical texts.

[xxxvi]Of course a print volume could in thousands of pages record and reproduce every single step in the 512 transformation processes in *riverIsland*, but such a copy wouldn't be either transient or ergodic.

[xxxvii]Typing yes or no hardly constitutes an intertextual let alone a hypertextual event.

[xxxviii]The dimensions of user position and user objective are omitted, as the main purpose of this table is simply to visualize the general point made in the discussion

of different behavioural transformations.

[xxxix] There is an obvious difference between the Oulipian practices that necessarily involve previous texts, such as perverbs, and those that don't, such as lipograms. See also Genette's (1997b, 39-53) discussion of Oulipian practices and Roubaud's (1998, 41) dismissive comment on it.

[xl]If the text is programmed to vary its expression and/or to supplement it from the outside, there's no reason why this variability couldn't sometimes affect also the text's architextual determinants (genres, modes, discourse types,) although I'm not aware of any actual examples of such mode or genre shifters.

[xli]This could be interpreted to be the case with Quoneau's *Exercices de style* (1947). Still, its 49 texts are stylistic variations of each other without any one of them being specified as a hypotext. Moreover, none of them could be said to be a prior text, unlike Wang's texts in *riverIsland* and Wardrip-Fruin's original story in *The Impermanence Agent*.

[xlii]This behaviour of *The Impermanence Agent* is related mainly to intertextuality, but it could be turned into hypertextual "mode" too if the user were persistent and patient enough to limit his browsing to only one or two sites.

[xliii]With the exception of their transient time, various kinetic literary works on video and film share the same values.

[xliv] Some critics (cf. Douglas 2001; Gardner 2003; Mangen 2007) have conducted small-scale studies on how hypertext fictions are being read, but that's about all there's to it. We know next to nothing about how text generators such as *Book Unbound* or textual instruments such as *Regime Change* and *The Impermanence Agent* are being used. To make matters worse, some reader-response scholars cannot

even understand the basic concepts characterising how their newly found research objects function and what kind of textual behaviour their empirically studied readers have to face: ”Empirical study of readers underlines the inadequacy of Eskelinen's characterization of literary texts as »static, intransient, determinate«: readers show not only considerable variation between their readings (pointing to the indeterminacy of the literary text), but also much flexibility within readings in the perspectives taken from one episode to the next.” (Miall 2003) Miall's category mistakes are all the more astonishing because he is “knowingly”participating in the cybertext debate without realising that Aarseth's determinability (and mine) has nothing to do with the always and already variable interpretations of readers, which are not news to anyone. See also Schäfer 2010 for the problems of applying reader-response theories to literary objects on and beyond the screen.

[xlv] Needless to say it is not reducible to any of these dimensions.

[xlvi] Certain artists’ books may complicate the process but cannot deny complete access to readers persistent enough.

[xlvii]Recently Wardrip-Fruin's (2009) three effects have shed new light upon the relation between textual surfaces and processes.

[xlviii] See http://toccobrator.com/classic.html for details.

[xlix]We come back to these and other assumtions in chapters 8 and 16 that are more specifically devoted to time in narratives and games.

[l] As opposed to interpreted content.

[li] This happens through the mediation of the user’s browsing activities, but the user is not in the position to directly add textons as he is in *Book Unbound.*

[lii] This possibility was discussed in more detail in the context of transtextuality.

[liii]That perhaps mirrors a common control structure (repeat/while).

[liv] According to Aarseth’s definition (1994, 51), non-linear texts don’t present their

strings of signs in one fixed (temporal or spatial) sequence because of the shape, mechanisms or conventions of the text.

[lv] In other words, two or several simultaneous appearances or disappearances of signs are presented on the reading surface.

[lvi]As always there are borderline cases. William Poundstone's *Project for Tachistoscope* (2005) utilizes subliminal effects in presenting a looped Flash-narrative one word at a time. Although the work is non-ergodic and strictly sequential, the positioning, size and very short duration of each word accompanied with visual effects and the audio track very effectively undermine the user's ability to piece together a semantically valid story. On the other hand, it is not impossible and after a few additional reading-viewings the task could or perhaps should be completed. From the theoretical perspective adapted in this study, *Project for Tachistoscope* is a fine example of spatio-temporal sequencing and transient time. Its aesthetics of disturbance and its paratextual explicitness correlating concrete poetry to manipulative advertisments bring to the fore the questions of misappropriation and possibly malign cultural contexts of literary media. One may be tempted to ask whether we need separate machines for the reception of such works. In Poundstone's case, however, a simple video recorder would do to slow down the flow of scriptons.

[lvii]Of these discourse levels, see Aarseth 1995, 141 and 171-177.

[lviii] Pattern poetry is Dick Higgins' term for pre-20th century visual poetry (Higgins 1987).

[lix] There's no upper limit to the number of possible scriptons *Eliza* may produce, but the user can read all that is presented to him in the session both initiated and terminated by him. The user will soon experience the Eliza effect (Wardrip-Fruin

2009, 32-38) that affects his approach to scriptons and how to play with them.

[lx] Perhaps ergodic work should be divided into non-strategic and strategic forms.

[lxi] Here too we have an epistemological problem. How do we know there will be no resolution at some distant point in the future? This is just one example of many new and intertwined epistemological and ontological problems not to be found in modernist and postmodernist fiction.

[lxii] Perhaps one should distinguish between text-based and link-based schools of hypertext readers and scholars. To the latter the proof of the much hyped inexhaustibility of hypertext fiction is ultimately grounded in the devastating number of possible paths through the text. Such readers are probably more familiar, and certainly more at home, with mainstream fiction than experimental texts with altering perspectives and multiple fragmented story lines (and other standard tricks of the trade). The latter types of fiction already disrupt and complicate the reader's cumulative gathering of knowledge and validity of the hypothesis he makes; as each new segment, sequence or node has to be interpretatively connected to the hypothesized whole one could argue that the order in which these segments, sequences or nodes are read shouldn't matter too much.

[lxiii] We could add conventions from audiovisual media to the list. For example simple transient texts such as *The Dreamlife of Letters* could be seen as textual movies. This type of domestication should work for those users that are not familiar with video and other non-digital kinetic poetry.

[lxiv]Should we want to cybertextually update Barthes' variety of pleasures, we may have to add (given the communication and control-aspect inherent in cybertext

theory) several ergodic ”perversions” to the scene beginning with voyeurs and exhibitionists exploiting the possibilities of multi-user communication and sadists and masochists overtly interested in the control of the feedback loops.

[lxv] This opposition between narrative and ergodic texts is one of the key subtexts in the debate between ludologists and narrativists that we’ll pay close attention to in chapter 12.

[lxvi] Aarseth (1994) divides cybertexts into determinate and indeterminate ones.

[lxvii] As ergodic texts are not a novelty introduced by the emergence of digital media, but existed well before the technologies of paper and print (*I Ching*), one could imagine that they would already have been recognized and conceptualised as a text type or a discourse mode, but that doesn’t seem to be the case.

[lxviii] Therefore ergodic literature is a mixture or a cross-section of two transmedial modes of cultural expression: literature and ergodics.

[lxix] Thus we are not trying to construct digital genres. Of these attempts and their inherent problems see Block (2010) as well as Glazier (2002), Stefans (2003) and Funkhouser (2007).

[lxx] They also represent both classical and post-classical narratology.

[lxxi] Definitions of argument seem to be the least problematic and they can well do without references to and discussions about narrative. The status of description is more complex: to some scholars it is eternally subservient to narrative and only an aspect of it (Genette 1982) or a common surface phenomena but not an independent text-type (Fludernik 1996); to others description is a text type in its own right, one that needs to be emancipated from the tyranny of narrative (Chatman 1990; Hamon 1981).

[lxxii] In the last section of *The Architext* (pp.80-85) the whole range of architextuality is