(INTRODUCTION TO) CYBERTEXT NARRATOLOGY

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Introduction

This paper combines Espen Aarseth´s typology and textonomy of cyber-texts with three advanced late 20th century models of narrativity: those of narratology as systematized by Gérard Genette, Seymour Chatman and Gerald Prince, the well-known constructions of postmodernism by Brian McHale, and finally the combinatorial and constrictive practices of the OuLiPo as described by Marcel Bénabou and Jacques Roubaud. In its own modestly exponential way my paper also introduces cybertext fiction, not much in existence yet.

Consequently, we will focus on three main issues. At first, we'll see how the basic and still somewhat heuristic concepts and categories of narratology have to change in order to be able to map out the possibilities and new constellations of cybertextual narration. Secondly, there is the digital dominant, that is, a new set of both epistemological and ontological problems caused or called forth by cybertext fiction and theory. And finally we'll introduce oulipian objects and operations to temporally dynamic aspects of cybertext theory.

It is important to clarify right from the start that cybertext fiction denies its users' mastery in ways hypertext fiction does not. And in doing so it is much closer to that once hyped hypertext prophecy: print stays; electronic text replaces itself. Firstly, cybertext fiction reads its readers and reacts back by changing itself far more profoundly than by simply playing around with conditional links. In other words it operates as an average piece of

interactive art. It should be remembered that this so called interactivity, so far best explained and moderated by Aarseth's user functions, has a much longer conceptual and practical history in many other forms of art. In the wake of the forthcoming Bluetooth technologies and personal area networks (PAN) this knowledge from without may very well turn out to be indispensable.

Secondly, cybertext fiction is essentially more unpredictable than hypertext fiction, where contents of nodes rarely change. Users can never know for certain how cybertexts function and how they will function in the future, regardless of what the cybertexts may explicitly state. This means that the millenniums-old art of narrative unreliability is no longer restricted to fallible characters and unreliable narrators – it can also contaminate the whole, and as a result deny the possibility of finding out which narrators and characters should be seen as unreliable.

Thirdly, the relationship of parts to the supposed or at least titled textual whole gets looser as parts gain more or total independence. In that situation there's not much sense in trying to maintain one's hold of the hermeneutic circle any more amongst various provisional, ephemeral and even mutually contradictory functional rules. It should be realized that unlike books and static hypertexts, cybertexts divide or sequence themselves not only spatially but also temporally into phases. We are moving between slogans here, from the truly hypertextual "there's no easy way to say this" to the purely cybertextual "there's no easy way to repeat this".

Fourthly, within the intratextonic and textonic dynamics we are no longer stuck with stable and permanent signifiers. That gives us a whole set of new options for orienting, disorienting, and re-orienting readers and users in their attempts to master the text. Applying the concept of the horizon of expectations could also show the difference between cybertext and hypertext fiction. Quite simply we do not expect hypertext fiction to be dynamic (in either a textonic or an intratextonic sense), indeterminate, transient, and offering textonic or configurative user functions.

It would not be too difficult to deconstruct narratology. By referring to *Finnegans Wake* and certain Sanskrit narratives we'd be able to challenge narratology's claims for universality; by taking Kristeva's pulsating chora and the symbolic and the semiotic seriously, for once, we may state that narratology has always misunderstood the nature of narrative and textual communication. Alternatively we may also state that narratology underestimates the performative power of writing (not to mention programming)

and therefore still models itself after history and modernism. Or we may simply cite countless examples of postmodernist fiction that undermine and sabotage the neat binary distinctions of narratology. So it should be clear I will use narratology in this context only as a half-heuristic model which still can quite credibly and neutrally grasp or map out most narrative possibilities of print fiction, at least when compared to those fatally narrow definitions or studies of narrative derived from Aristotle or Propp or Victorian novels or from some other seriously outmoded source. Contrary to what scholars like Janet Murray seem to believe, such models do not and cannot show us even the pasts let alone the futures of narrative. Instead, we'll begin with Gerald Prince's minimal definition of narrative. There must be at least one temporal change, and a narrative situation. We shall discuss these interdependent sides separately.

Narrative time: Linearities as trivialities

At first we have to regress into the realm of hypertext fiction and the problems it is supposed to cause for print narratology. Genette discusses time in terms of order, speed, and frequency. There still doesn't exist any reasonable study or survey about how much the order in which the nodes are actually read affects the concepts and comprehensions of the (hyper)textual whole (since for some curious reason that still seems to be the goal) put forward by actual readers. I guess the more one is familiar with heterarchic and achronic print narratives the less one shares the obsession of order and the resulting hype of non- or multilinearities in average hypertext theory. In other words there are texts and parts of texts that enjoy temporal autonomy since they cannot be arranged into a chronology without a reasonable doubt. Artists like Alain Robbe-Grillet and Robert Coover have long ago shown us that narrative can proceed in an aporetic order creating and destroying possible causalities along the way. Maybe their audiences have also learned to expect more than just simpleminded linearities and hierarchies. It seems that hypertext renders the category of order almost useless with the almost tautological exception of achronic texts. In their processes of navigation readers don't became writers but a species of co-narrator at best in their capacity to choose (prefabricated) paths. Still, one should not mistake one's changing interpretations for changing texts.

On the other hand, the category of frequency in hypertext fiction looks as valid as it did in print if we understand that the necessity of navigation only increases the probability of re-reading and there is nothing special in revisiting a node. If there's only one car accident there's only one car accident. And we can count how many times our middle-aged fraud of a narrator comes back to recount it and quite possibly also how many times his reader bears with him. And the reason we can count is that the hypertext does not change. However, it is not difficult to produce more dynamic results that undermine the basic assumptions of narratology. In Stuart Moulthrop's *Reagan Library* revisiting changes the nodes revisited – and these kinds of changes are capable of producing interesting shifts in and between the basic narratological categories of frequency, order, and speed.

The hypertextual situation is equally uninteresting with duration or speed. There is an ellipsis, a pause, a summary and a scene in Genette's model, and quite reasonably in addition to them a stretch in Chatman´s model, measuring the pseudo-time or the relation of the time of the story (in years, days etc.) to the length of narrative (in words, lines, and pages). Let me take an example. If there's one node of 15 lines for 15 years in some character's life we'll say it is a summary, and it is still the same summary until either the content or the number of those lines can be changed. That could be accomplished in cybertexts like John Cayley´s *Book Unbound* but not in classic hypertexts that are static (constant scriptons, remember) and intransient, which exist only to be explored and interpreted. So it really doesn't matter how many times some reader reads that node or if he doesn't read it at all. The act of not reading does not constitute an ellipsis and various re-readings do not constitute a stretch because the discourse time is not the same thing as the time of the reading and the pseudo-time is not to be confused with true time (at least under the usual hypertextual conditions described above).

To summarize: in hypertext narratives, users are capable of affecting only the aspect of order, but not those of frequency and speed. The fundamental reason for this is that both print fiction and classical hypertext fiction, like Michael Joyce's *Afternoon* and Stuart Moulthrop's *Victory Garden*, have three crucial and equally restricting features in common: their time is intransient, their scriptons are static, and readers have no means to change that. (This says nothing of their esthetic value or quality of course.) However, the textonomical case is a bit different with Moulthrop's *Hegirascope*, a web fiction that limits the reaction time of

its readers to 30 seconds per node. Narratologically speaking it made the crucial move of crossing the boundary from the pseudo-time of print and hypertext narratives to measurable and controllable true time. We can get a glimpse of new possibilities inherent in this move if we remind ourselves that the story and discourse times are always already accompanied with two other temporal organizations. I refer quite simply to the reading time and the time of the text (that is, the duration of its existence or life span). These two temporalities are uselessly unverifiable in print narratives for they cannot be measured, controlled, or calculated there.

In cybertext narratives there are then four time systems to take into account instead of the usual two. In addition to that the relations between story and discourse times can be fully altered in cybertext narratives by adding, removing or otherwise changing the text. Consequently we have alterable pseudo-time in contrast to print and ordinary hypertext narratives where that relation is unalterable. By combining the measurable and unmeasurable true times of reading and text to the alterable and unalterable pseudo-times we'll already have eight temporal organizations at our disposal, but there is still more to come. It might be possible to alter also the true time parameters. This means we have three basic kinds of true time: unrestrained, unalterably restrained, and alterably restrained. By combining these variables we are now dealing with 18 (2x3x3) different narratologies in contrast to the classical one.

Alongside these various cybertextual narrative temporalities there exist also other cybertextual temporal organizations. The uneasy relationship between narratives and cybertexts affects also the following preliminary typology of cybertextual temporality, an ergodics of time. It takes into account at least 12 variables, the first five of them dealing with the time of the text, and the next five with the reading time:

1. Permanence. If the existence of the ergodic work is temporally limited, then it is temporary. Otherwise it is permanent. There's also a third possibility: the ergodic text can be partly temporary and partly permanent.
2. Hybridity. If the ergodic text occupies only one textonomical genre position in cybertextual typology it is non-hybrid, otherwise it is hybrid. There are two elementary types of temporal hybrids: successive (consecutive phases of different genre positions) and simultaneous (having at least two genre positions available all the time as in Hegirascope).

3. The number of phases. One or several. Consequently there are one- and multi-phase texts. This variable has to do with the way cybertexts divide themselves temporally (into phases).

4. The number of time zones in the whole text. The text has one zone (homogeneous text), several synchronous or co-dependent zones (multiple), or several autonomous zones (heterogeneous). This factor considers the possible division of cybertexts into strings of signs having different durational values. Consequently, some textons will exist for a longer period of time than others.

5. The number of time frames within the visible part (screen or node) of the ergodic text. The screen is either homogeneous, multiple, or heterogeneous. The difference between frames and zones corresponds to the difference between the surface or interface and the archive or storage of the text, that is, between textons and scriptons. Consequently, some scriptons will exist for a shorter period than others.

6. Response time to the whole text. It is either unlimited, limited and more than what is needed, or limited and less than what is needed. The third possibility means that the text can be read or used only partly. We are dealing here with the usual "spatial" division between parts and wholes.

7. Response time to the part(s) of the text (individual screens or nodes). It too can be either unlimited, limited and more than what is needed, or limited and less than what is needed.

8. The possibilities to revisit the whole. Either none, limited, or unlimited. It is all about rereading.

9. The possibilities to revisit the parts. Either none, limited, or unlimited.

10. The time of reception. It is either restrained or not. Texts can either be available all the time during their existence or behave like nightclubs that close themselves from time to time.

11. The type of change (if there is any). It can be either cyclic (recurrent) or linear (non-recurrent).

12. In all previous categories there is an inherent division into given, chosen, and caused values.

In order to approach the third possible temporal system (in addition to pseudo- and true times), the real time, or the time of the communication, we must first discuss the second component of any narrative, the narrative situation. Still, we should recognize the possibility that these temporal systems can be programmed to affect each other. To take an obvious example, the way the reader uses his time may change the pseudo-time settings or shorten the textual time or speed up either the deteriorating or recovering processes of any cybertext. If we want to introduce yet another pair of concepts to our discourse we may state that these three temporal systems are either connected (dependent) or disconnected (independent) to each other.

Narrative situation: Narratology beyond navigation

Before concentrating on the new cybertextual constellations of narrative situation, a few words about the issue of change. When discussing change it's self-evident we must take into account the feedback loop between text and its users. It should be very clear that the concept of interactivity is here replaced by Aarseth´s four user functions. With one further specification however: I think we should make a distinction between a single user and a group of users. Nothing prevents us from assuming that one could also program consequences for collaborative readings, taking into account for example the number and situation of readers in the same text at the same time, or their cumulative consecutive pressure, and letting that then affect the principles of textual organization and reorganization, for instance by closing and opening connections between textual units and increasing or decreasing their number, thereby leading users towards or away from each other.

There are a few heuristic concepts and categories in the partly incompatible narratologies of Genette, Chatman, and Prince that can be usefully applied to the variety of cybertextual narrative situations. These situation components include narrative levels (intra- and extradiegetic ones), focalizations (external, internal, or zero), degrees of visibility and anonymity of narrators (covert, overt, and non-narrated types), and relations of narrators to their stories (hetero- and homodiegetic options). The last one of these dimensions is usually the most constant throughout the whole fiction, mainly

because the main dividing line is very simple here: a narrator either is or is not also a character in the story, although it may sometimes be difficult to decide which is the case.

There are at least four new directions in which to move from this static situation. For starters, because narrators and characters and other fictional personae are now potentially alterable strings of signs, we can and should be able to distinguish between textonic and scriptonic entities. On a slightly more practical level this means for example that there might be a pool or an archive of possible narrators, and every time the (cyber)text reorganizes itself a certain number of these narrators are first selected and then distributed to their temporary positions inside that fiction. It's easy to imagine possible operations of these dynamic fictive entities: they can turn more covert or overt, trade places with each other, split up or unite, extend or reduce their territories, move between narrative levels and homodiegetic, heterodiegetic, and mere character positions (turning bidiegetic so to speak), and alter the degrees of their intrusiveness, self-consciousness, reliability, and distance.

It might be helpful to make at least one more distinction: the one between three different sides or dimensions of narrators, that is, their position or positioning, their identities, and their qualities or characteristics. In print fiction these three dimensions are glued together but in cybertext fiction that no longer needs to be the case. We can separate them, not without consequences of course. Once again, on a more practical level, this means for example the possibility of narrators exchanging pasts, or competing with each other for the key positions (in terms of time, space, and credibility) inside cybertext fiction, and also, as a result of these transformations or for other reasons, changing the number and identity of possible narrators in the following phase or version of that fiction on the run. It should be noted that in addition to the mere structural position of the traditional and static narrators, characters, and narratees, these new and dynamic cybertextual entities have also various behavioral and operational aspects and patterns specific to themselves, only a small selection of which has been described here.

Secondly, we must explore the possibility of adding conversation programs to ordinary narrative fiction, more precisely attaching them to narrators, characters, and narratees, maybe even to an entity sometimes called the implied author. These new fictive entities can be either alterable or unalterable like those traditional objects above. We'll choose to

call them subjects, as they are fictive entities that can talk and/or write back to us. In practice this means, for example, that competing conversation programs may be allowed to affect both developments and outcomes of narratives, including the behavioral patterns of certain characters and narrators (turning the harassed or collectively discriminated ones more confused, unpredictable, or destructive in their actions). In that way the attitudes and speech acts of our real world are given their chances to affect the fictive world. The immediate further distinctions here are similar to the situation above: the three variables of structural and functional position, identity, and characteristics.

Thirdly, there's a distinct possibility of accommodating and creating whole communities inside cybertext fiction. There are various possibilities. Membership of this kind of group may be required in order to get access to these kinds of fictions or some levels of them which may very well serve other than purely fictive purposes. You can think of a trivially polymorphic love story ("choose your own sexual identity"), which embeds both escort services and on-line dating and chatting channels. Or terrorist fiction with secure discussion groups for RAF supporters.

We can also bring users to communicate with other users or an author or a group of them or their surrogates or impersonators inside the fictive world. When this communication takes place in real time as it usually does, we can say the narrative situation is real and no longer fictive or simulated. To use another set of Genette's concepts this also means that the act of narrating and the time of narrating have a very different relation to both the narrative and the story than in print or in hypertext fiction. One needs only to imagine a MUD environment embedded inside or existing alongside some much more ordinary cybertext fiction. In such circumstances authors can easily step back into their fictions and play the parts of all the narrators and characters and other entities or existents, and users can play either themselves, other already existing fictive entities, or new fictive entities they themselves have created. We will continue this discussion in the final section of this paper titled MOOtooth.

Fourthly, in addition to the distinction between given, caused, and chosen parameters of textual organization and reorganization, there might also be emergent traits resulting from the application of simple a-life programs to generations and generations of cybertext. We can conceive glider narratives, that is, narratives using up their own lexias or nodes or narrative units the way cells are used in Conway's *Life*, living and dying from one text

generation to the next depending on the number of appearances (absences and presences) of certain characters and narrators in neighboring lexias. Maintaining processes like these is probably the task computers can manage better than the human mind. In any case, it is worth investing with computing power. Nodes or other textual units could also quite effortlessly be scripted as ecologically delicate islands getting easily off balance as a result from too many visitors or readers or their too heavy use of user functions. That way users as a collective entity bear responsibility for the well-being of their fellow fictive species who might suffer and face extinction as well as breed too quickly and face the danger of overpopulation. This kind of parenting of artificial narrators and characters is perhaps worth a try.

If we combine these eight or ten cybertextual narrative situations with those 18 cybertextual narrative temporalities we'll end up having 144 or 180 narratologies at our disposal in contrast to the classical one. This might sound as if I was playing a game of drowning narratology by numbers, and that's exactly what this is. To sum up: hypertext fiction offers no challenges to narratology and cybertext fiction offers far too many. That's why we should take one step further and approach constructions of postmodernism by Brian McHale. We aim to prove that cybertext fiction has created or will create its own set of both ontological and epistemological problems not reducible to the already automated acts of modernism and postmodernism.

Constructions of cybertext fiction: The digital dominant

To extract or locate a new set of epistemological and ontological problems inherent to cybertexts, one simply needs to concentrate on those categories of Aarseth's traversal modes seldom or never found in print or hypertext fiction. These are textonic and intratextonic dynamics, indeterminate determinability, personal perspective, transient time, and configurative and textonic user functions. In addition to them we'll test some possible hybrids or hybridization of Aarseth's model.

Dynamics. In contrast to static scriptons of both books and hypertext fiction, dynamic scriptons of cybertext can be used to interfere with and undermine users' identification processes and attempts to create stable meanings, that is, their attempts to control, bend and master the text with

the feeble help of ideological, psychosexual and other forms of misreading. This is due to the fact that we can now decide very precisely what the reader can come back to if he can come back to at all. We are at last able to resist the psychopathology of everyday reading or at least play with it and partly use it for our own textual purposes whatever they may be. In cybertextual practice genders, tenses and emotionally loaded verbs and adjectives can change back and forth to create a real sense of ambiguity or ambivalence.

Determinability. This category brings us to the heart of the matter: the degree of stability of the cybertextual organization, and the possibilities of altering and controlling it. Moulthrop´s *Reagan Library* gives some indication of what this might mean. It rewards a rereading reader by reducing its own noise, quite concretely by altering its scriptons, and not just in an obvious interpretative sense. I guess the opposite, let's say, Alzheimerian filtering would also have been appropriate to the title.

Perspective. Personal perspective forms an obvious addition to Genette´s three categories of focalization. But there's more to it since it can be put to use in both the same and different levels and situations than the three previous ones. In the former case we're dealing with an addition but in the latter we have to encounter the much more complex case of a substitution. In practice readers may constantly have to do all the right things to keep their focalization channel(s) open and alive. Otherwise the story may continue but its reading may not if you manage to get your character killed or hurt. This may very well be one of the easiest points of departure for hybrids of narratives and games (and a true beginning for parser fiction), especially if combined with transient time.

We should also mention a rather unorthodox *way of using links*. It would be a very tel quelian thing to organize a cybertext around a search engine. Just feed in your favorite words or expressions, like the famous fetishist in Roland Barthes' *The Pleasure of the Text*, and then search and destroy. Whatever expression it is that the machine locates and then shows will be immediately wiped out of the system. If we wish to make things even worse for the reader we can limit his access to only one appearance of the input idiom in case the search results in finding multiple occasions of it. This kind of textual system functions very unlike those ordinarily built on conditional or explicit links.

Transience. Some consequences of this category were examined above in relation to narratological systems of time and pseudo-time, but there are

some other applications still, deriving for the most part from the distinction between given, chosen, and caused time and their relation to configurative and textonic user functions.

User functions. All four of them could and perhaps also should be viewed in terms of MUD like user rights. First of all, both writers and users can be situated in this scheme and the distribution of their positions might vary considerably from case to case. For example, an author may have more rights than a regular user but fewer rights than a certain number of unanimous users. Even more importantly we must finally ask how a cybertext configures itself – are these processes given, or caused, or chosen by users? In the first case we're dealing with transient time, and in the two latter cases with intransient time. There are obvious differences between cybertexts that change their narrator positions once a week, or after every 50 visitors, and those that make those changes dependent on a user's navigating habits or his ability to follow relevant narrative threads instead of trivial ones, and yet others that let users set their favorite narrators to their favorite positions. The same types of question could be addressed to different uses and abuses of the textonic user function too. To make more sense of these configurative and textonic processes beyond the mere interpretative and explorative ones we must now approach the traditionalism of the OuLiPo.

Objects and operations

In his heuristic description of oulipian processes and practices Marcel Bénabou divides text into objects and operations. Objects are linguistic levels or units, from a letter, a syllable, a phoneme, and a word right up to a syntagm, a sentence, and a paragraph, with an obvious suggestion that we can easily proceed further to larger units. The other axis of Bénabou's table consists of eight operations: displacement, substitution, addition, subtraction, multiplication or repetition, division, deduction, and contraction. Into this scheme Bénabou then situates nearly eighty oulipian practices while leaving some boxes empty. Some of them could now be filled on the basis of Eduardo Kac's Key concepts of holopoetry, and pixels should be added to the list of objects, but that's not what we intend to do here. Instead we'll apply this scheme to cybertexts having multiple phases, that is, it

will be transformed into a typology or topology of change, and temporal or ephemeral change in particular. In other words, these practices are usable as possible rules for transformations between two phases or versions of the same cybertext.

In order to achieve that, we need to make three other distinctions. Firstly, that between narratively relevant levels meaning the discourses of text, of narrators, and of characters. Secondly, the one between micro- and macro-structures of textual organization. That is, the organization within the textual or narrative units themselves and the constellations of these units to each other. The former are of the size of lexias or nodes or screens, in any case of something that does not contain all the text at once. Thirdly, the cybertextual distinction between textons and scriptons should have its full impact in conceptualizing the dynamic narrative process.

Consequently, in a cybertext narrative, macro-level textual units can be displaced and substituted, their number may increase or decrease, units can be combined to form larger units or divided into smaller ones or merely extended or cut shorter, and the connections between them can change as well as their temporal parameters, most importantly restrictions of their reading time or textual time. It is easy to see why we could continue endlessly here although that would not be very interesting. If we were to use Genette's concepts once again we'd say that temporally dynamic cybertexts produce series of hypertexts from their own hypotexts. In that sense they are truly transtextual machines activating and transforming all kinds of relations between texts (inter-, para-, and metatextual as well as archi- and hypertextual ones) and their various phases, versions, and mutations.

There is still more to this: a more comprehensive model would combine operations upon traversal functions and divide objects into scriptonic and textonic dimensions in much greater detail. But to cut a long story short, here's a preliminary typology or topology of configurative and textonic narrative processes of cybertext fiction. It takes into account only five basic variables, but it would be easy to add ten more.

1. Level of textual organization. Changes take place on the micro level, macro level, or both.
2. Level of narrative organization. Changes affect the discourse of the text, of narrators, or of characters. There are seven possible combinations of these three elementary levels.

3. Level of cybertextual organization. There are changes in textons or in scriptons. Consequently, the process is either textonically or intertextonically dynamic.
4. Textonomical genre position during the process. It either changes or it doesn't.
5. Type of change. Given, caused, or chosen. Consequently there are seven different combinations of these three options.

Even these five variables give us 588 (3x7x2x2x7) options in addition to that famous one (1) of the good old narratologies of static scriptons. And we could continue compiling options on top of each other, but we won't, not here, not now.

Conclusion: Mootooth, or, forget hypertext fiction

MOOs are probably the best place to begin the study of textonic processes. To properly approach the esthetic potential of MOOs and MUDs we must first try to combine theories of narrative and drama and reach a better understanding of the communication between users or participants in and through cybertexts. Obviously, both of these components must be moderated. The fully programmable and dynamic deixis is very different from the traditional "it's me here and now with this". On the other hand, that is not the traditional narrative situation either. Suffice it to say, the environment is not a static setting or backdrop any more. Despite that, it should not be too hard to build a model based on narratology and theatre semiotics, as they have a lot in common. Instead of that I'll take up four other points of departure – solely for the sake of diversity of course.

From the perspective of Augusto Boal's Invisible Theater the MOOs are just that. Their participants do and cannot know the boundaries separating the realms of fictive and real-life communications, or those between persons, actors, and roles. They do participate but they do not know for certain in what. I'm not implying it's an obstacle.

From the perspective of the *Natyasastra* every art includes parts of other arts. In their capacity of metamediality, digital media and MOO environments in particular are and should be very flexible translation machines, turning one kind of bits into another kind of bits without much

respect to traditional disciplinary or other boundaries. Consequently we can produce textual movies, one time only textual performances, 3D textual architecture or kinetic textual dance quite easily or even trivially by borrowing rules, practices, devices, programs, or whatever is required. Once these borrowings become trivial enough, literature may finally be included among the proper or mature interactive arts. It's almost needless to say this metamediality is perhaps the easiest way to challenge or expand the good old genettean notions of transtextuality in general and of architextuality in particular.

From the perspective of David Rokeby's writings on interactive art we may then conceive MOO-spaces as more or less complicated combinations and constructions of navigable structures, transforming mirrors, automatons, and creative mediums in their own right. And just like John Cayley once said, when entering MOOs we are not leaving anything behind. All the previous possibilities are there too. However, in relation to forthcoming applications of Bluetooth technologies this is probably not enough. We'll have to ask at least two more questions.

The final two questions concern both the communication between, and the partial esthetic overlapping of, MOO and Bluetooth spaces. The latter means, first of all, that your resulting PAN (personal area network) or any part of it, that is, a room, an apartment, a building, an area, can be used as a giant interface to a cybertext you're involved in. Obviously, this process is easy to invert. I'd hope something better comes out of it than remote control vibrators and other peripherals, or vice versa. Anyway, real acts, speech acts, fiction, and drama can soon merge in the privacy of your own areas, public or not. On the other hand, this might be unprecedented in literature, but certainly not in theatre or amphitheater. I truly think we'll need to come back to this surveillance situation.

In the meantime, please forget hypertext fiction. It stayed static and cybertext fiction replaced it.

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