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Playing With Signs

Towards an Aesthetic Theory of Net Literature

Abstract:

Considering upheavals in literary communications through computerized, networked media we suggest describing communications in computer-nets as open, multiple recursive processes between “authors” and “readers” whose practices of writing and reading are transformed by “autonomous” programs, “agents” etc. This, however, poses several questions: What are the common features that allow us to speak of an operational field called “literature” under historically changed medial conditions? Can the specific aesthetic difference that in traditional media characterizes literature as language art be also pinned down under these changed medial conditions?

As a rule, events are characterized as upheavals if they have far-reaching and long-lasting consequences, both negative and positive. This entails natural or cultural catastrophes, massive destruction of things, circumstances, structures, or systems and their elements just as much as it does their completely new construction, i.e. the long-term establishment of other, historically not yet existing constellations. Both meanings only refer to the two poles of one single process: the radical capsizing or the sudden end of conditions and orders of things. Typically, their partial or complete dissolution is followed by new sets of laws, different circumstances, structures or newly stabilized conditions.

Literature as a specific organ of perception, as a “high-voltage” sixth sense for socio-cultural change of any kind, takes part in such upheavals on several levels. It always has sensed the slightest tremors, the hairline cracks, the amplifying reverberations of conditions that announce or launch the catastrophic breakdown—even if never directly, but by more or less labyrinthine detours albeit in a very lucid manner. A good example would be *Der Mann ohne Eigenschaften* [*The Man Without Qualities*] by Robert Musil heralding the end of the Austro-Hungarian Empire, but also *Der Process* [*The Trial*] by Kafka that registered the bureaucratically automated genocide. During the upheaval itself no other instance of observation is able to record and comment on the events as does literature. Even though, compared to the world of objects, literature is a wholly arbitrary medium composed of letters, yet its signs (and maybe for this very reason) are able to amalgamate the perception of all our senses in a specific,

synaesthetic way. This is possible only here in the literary interface as a sensitive area of contact between outer and inner worlds. We only have to remember the titles accompanying the great socio-cultural disruptions from the 19th to the 20th century: *Manhattan Transfer*, *USA*, *Ulysses*, or *Berlin Alexanderplatz*. These novels find images and stories for a new urban perception that had never existed in such density; they find possibilities to express the stream of unmitigated impressions of disjointed, freely combinable series of voices and glances in radio, cinema and telecommunications that were assimilated and made available by the new technical media.

But literature not only records and comments on the ruptures of social, cultural and—last but not at all least—medial conditions. It also participates constructively in their modeling as we can see already at the beginning of the 20th century when literature had not only registered or commented on the first great medial ruptures of audio-visions. It had also, both positively and negatively, designed, expelled or stabilized identities, self-images, goals of action, and possible ways of behavior for individuals, groups or even whole collectives. The whisper of literature not only reflects the stream of daily images and sounds. It also orders, frames and perspectivizes, thereby not only tying together multiple sensory perceptions but also furnishing them with possible meaning. A series of literary texts on the so-called Jewish world conspiracy for example equipped the bio-politics of fascism with quite practical goals and the “Protokolle der Weisen von Zion” (‘Protocols of the Elders of Zion’) transferred them into quite realistic actions (cf. Eco). And without the dissolution of traditional role models in women’s literature from Virginia Woolf to Margaret Atwood the development of the questions regarding gender, family, or career in at least Western cultures would have been quite improbable.

In the 21st century another position is assigned to the participation of literature in socio-cultural transformations; literature acts on a different level, so to speak, or, to be more exact, it acts within a hitherto inaccessible realm. Within the context of the developments in media technology, the so-called second rupture of media—i.e. in short, the digitalization of all technical media—literature operates not only on the two levels of registering and commenting. Its third domain, namely that of designing or of conceptualizing, today with the help of networked computers has widened in such a way that it surpasses the familiar interplay of authors, media and public. Computers and nets are therefore not only more comfortable typewriters and faster channels of distribution; they also creatively compose together with their users that specific interplay of signs that we call literature.

Tele-Communication: Language, Texts, Nets

We are talking of a literature then that is now not taking place in books any more but in computers and of a literature, to name but a few of the equally well reasoned terms—depending on the theoretical perspective—that is traded under the name of “digital,” “electronic,” “ergodic,” or “net” literature.¹ In our thesis of upheavals it may have become quite obvious that we refer to far-reaching and wide-ranging changes in literary communication regarding both literature in print-media and also literature in computer-aided media. Yet, we still need a theoretical frame enabling us to describe this specific phenomenon as a literary one. To be more precise, two questions arise that within the presented argument inevitably lead to a third one: Wherein, despite all differences, lie the common features that allow us to talk of a sphere of objects we can continue to call literature even across historically replaced constellations of media? And what difference is produced by the various media of production, distribution, and reception of literature, or, to put it otherwise: Wherein lies the distinguishing feature between the chains of letters of a text fixated in print and the “flickering signifiers” (Katherine Hayles) of computer-aided media? And even if it should be possible to find plausible arguments for these two questions, they will lead directly to a third one: Why do we, referring to literature in computer-aided media, speak of “net literature” and do not elect one of the earlier mentioned alternatives?

Let us at first remain in a quite general area, since in answering these questions once again the tension between the letters of literature, i.e. the realm of linguistic signs, and that of media technology has to be considered. In his latest publications on the “inner economy” of media, Hartmut Winkler has made an interesting suggestion to describe this relationship. His point of departure is language as a basic technology on the basis of which the linguistic praxis—as a fluid discourse—is connected inexorably with its material inscriptions or components that are manifested on the one hand in concrete media products like texts, films, images etc., and on the other in a more general sense in the machines and infrastructures of media technology itself. Already this first step in his media-theoretical argument connects the semiotic with the medial or better, with the media-technological process. Winkler finds two definitions for writing and—more generally—signs, which at first glance are surprising, but that are able to perspectivize the relationship between the symbolic and the technical realm in a manner that is helpful for our project.

On the one hand, he is adopting Derrida’s concept of the deferral of signs, or simpler, its change from the context of production to the context of reception. On the other hand, he stresses the aspect of the repeatability of signs by

labeling them “Maschinen der Wiederholung” (‘machines of repetition’) (Winkler, *Diskursökonomie* 25).

Der enge Rahmen von Sender und Empfänger ist damit überschritten; beide sind nur Teil einer unendlichen Kette von Wiederholungsakten, die sie nicht überschauen oder kontrollieren können; Zeichen werden von Kontext zu Kontext verschickt oder übertragen, Zeichen sind insofern immer Telekommunikation. Dass sie auf Kontexte verweisen, die im Moment ihrer Aktualisierung nicht zur Verfügung stehen, macht ihren eigentümlich fremden Charakter aus. (98)

Thereby the narrow frame of sender and receiver is transgressed; both are only a part of an infinite chain of acts of repetition, which cannot be grasped or controlled; from context to context signs are sent or transferred, signs then insofar are [always] telecommunication. Their peculiar, strange character is constituted by the fact that they refer to contexts that are not present in the moment they are actualized.

One could of course intuitively object that by using the expression “insofar” he is hiding the fact that the term telecommunication, contrary to its common usage, here is generalized to an extent that makes it useless. But in our context the aim is not to understand the elaborate and very abstract derivation which lets Winkler arrive at this definition of the sign. The crucial element is firstly that semiosis is always already technical, i.e. that it skillfully connects in the sense of *techné* (i.e. operation or procedure); secondly that it always takes place in media and that these media invariably organize distance communications, irregardless whether the distance is bridged by the human voice, the physical transport of a book, or the immaterial sending by wires; thirdly that already in the process of the creation of signs the logic of transferal or transmission begins to work.²

In order to conceptualize a communicative model it follows that media not only are added as whatever kinds of objects, appliances or infrastructures after the conclusion of the process of sign-creation in order to establish neutral channels of transport between sender and receiver, but that they are already also participating in this very process:

Dies bedeutet, dass die technische Leistung der Medien, räumlich-zeitliche Abgründe zu überbrücken, in den Kern des Semiotischen vorrückt. Zeichen also werden keineswegs zuerst konstituiert und dann (sekundär) verschickt. Das Zeichen selbst ist die Klammer, die die unterschiedlichen Kontexte zusammenzieht, und die technischen Medien

exekutieren nur, was als Kontextwechsel im Zeichen immer schon angelegt ist. (Winkler, *Diskursökonomie* 168)

This means that the technical achievement of media to bridge spatial-temporal chasms now advances into the core of semiosis. I.e. signs in no way are first constituted and then (secondarily) sent. The sign itself is the bracket drawing together the different contexts whereas the technical media only execute those elements that are always already existent as contextual change within the sign.

But first this point has to be re-concretized, and we have to make this turn if we want to use Winkler's model for our purposes. How can we concretely conceptualize this continuity between the semiotic mechanism of a change of context and its implementation through technical media? And wherein do the different modalities of these implementations differ, once we compare different media of storage and transmission?

We therefore suggest to expand the ideas attained with the help of our brief outline of Winkler's media theory with some of the categories of Espen Aarseth's cybertext theory in order to ultimately attain a model of levels for the man-machine-dynamics in net literature, which, admittedly initially will be somewhat coarse. Such a model begins with the two traditional instances of language that cyclically refer to each other: the paradigmatic system of "langue" and its expression, "parole." Ordinarily—and this is important—these expressions materialize in syntagmatic chains. In the special case of a literary text in the medium book, the specific verbal externalizations of an author that he derives from "langue" are fixed in a storage medium and then transported or transmitted to the reader in various ways.

The essential point of Aarseth's model consists in the fact that he, in a very concrete and not only metaphorical sense, considers such texts to be machines for the production and reception of signs; however, in another place he also regards them as machines for the transmission of signs, hereby following Winkler.³ This machine consists of a technical medium, a user, and a set of signs composed of two levels, the so-called "scriptons," i.e. the character strings which the reader encounters on the user interface and the "textons," the character strings that hide in the textual memory.

Such a text then not only consists of a syntagmatic chain, but is in itself composed of two levels, which are again—and this is the main point—related to each other by the so-called "traversal function." It is described in more detail by seven variables (dynamics, determinability, transience, perspective, access, linking, user function). In our context the most important variable is the user/

reader function: The literature that Aarseth calls “ergodic” demands more of its users or “readers” than the mere interpretation of the read text. In addition it requires non-trivial efforts in order to navigate the text. These activities can be explorative (when the user is able to decide how to navigate, like in hyperfictions), or they can be configurative (when the user can vary or add “textons” or traversal functions). This model then can provide a first approach to relate verbal expressions—i.e. also literary texts—with technical media.⁴ However, by regarding a text as a machine does not yet bring us to the computer, since the outline is explicitly usable for all texts. Wherein, then, lies the specificity of the universal medium computer, and—in a further step—wherein lies the specificity of networked individual computers for literary communication?

With computer usage literary communications for the first time have acquired a programmable medium that does not only store and pass on its input. Rather, programming activities (protocols, browsers, word processing, electronic tools of whichever kind) enter the process thereby producing an output that is contingent for the “reader.” Unlike in print media, in literary communication recursive processes between human beings (programmers, authors, readers) and machines are built in.

But even the idea that we are dealing with feedback between these two actants is too simple. Both the human- and the machine-related share in these processes in itself is characterized internally by feedbacks between various levels. Regarding the computer, on the one hand on the hardware level we have to differentiate between input and output devices, as well as the CPU (processor, bus and RAM). However, we also have to add the various levels of software. If several individual computers are connected into a net, these effects that already are executed offline still amplify, since the mediality of a computer is owed to the structural correspondence of the (‘space *between* the individual digital machines and the space *within* these machines’) (Winkler, “Medium Computer”). We might even venture to say with Winkler that the computer has only become a medium because within it circulate signs, so that it is controlled by the logic of telecommunication. In this realm as well signifiers are transmitted, stored, processed and permuted.

On the other hand, neurobiological theories regarding creative processes exist maintaining that we also have to regard the products of the human brain as effects of feedback loops between nerves within networks of the brain. For example Wolf Singer describes the emergence of creative processes as an outcome of the human capacity to generate symbolic representations of internally coded relations in abstract form and to transmit these to other brains:

Die bereits für die einzelnen Gehirne charakteristischen rekursiven Prozesse weiten sich aus und beziehen die Gehirne der kommunikationsfähigen Artgenossen mit ein. Diese Iteration von Perzeption, Reflexion, Rekombination, Abstraktion, Kommunikation und Perzeption, die sich als unendliche Reihe fortsetzen kann, ist in der Lage, neue Systeme von fast beliebiger Komplexität hervorzubringen. (221)

The recursive processes already characteristic for individual brains open out and enfold the brains of members of the same species that are able to communicate. This iteration of perception, reflection, recombination, abstraction, communication and perception, which can be continued in a never-ending chain, is able to bring forth new systems of almost any complexity.

Of course we do not intend to put the functioning of human brains on the same level with computers in an offensively simplified way. The decisive question is, however, to what extent we can talk of an expanded *ars combinatoria* regarding creative processes between human beings, whose internal life is structured symbolically, and machines that process symbols.

It seems that we are dealing with recursive loops on and between different levels and actants. Following Winkler once more, the point of this recursion lies in the fact that it allows relating repetition and variation to each other in a very specific way. In fact, recursions permit the

. . . Wiederanwendung einer Verarbeitungsvorschrift auf eine Variable, die bereits Ergebnis derselben Verarbeitungsvorschrift ist. Der Variablenwert ändert sich mit jedem Durchlauf der Schleife, und Effekt der Wiederholung ist gerade nicht die Herstellung von Identität sondern einer vordefinierten Variation. Rekursion ist insofern nicht einfache, sondern erweiterte Reproduktion; und Rekursion verschränkt Wiederholung und Variation mit dem Ziel, ein Neues hervorzubringen, ein Ergebnis, das in dieser Form nicht vorvollzogen werden kann. (*Diskursökonomie* 173)

. . . renewed application of a processing rule to a variable that already is the result of the same processing rule. The value of the variable is changing with each loop and the effect of the repetition is exactly not the creation of an identity but of a predefined variation. Recursion then is not a simple reproduction but an expanded one, and recursion

links repetition and variation in order to bring forth something new, i.e. a result that could not be predefined in this manner.

These are the merely sketched reasons for centering our thoughts for the analysis of these recursive processes between humans and machines on the notion of the net. On purpose we are using here a wide notion of the net, encompassing more than computer networks so that we can include in it the interplay of humans and machines outlined above. The philosopher Hartmut Böhme for example (and we could just as well name Manuel Castells or others) has recently defined “nets” in the following way:

Netze sind biologische oder anthropogen artifizielle Organisationsformen zur Produktion, Distribution und Kommunikation von materiellen und symbolischen Objekten. . . . Netze bilden komplexe zeiträumliche dynamische Systeme. . . . Sie tun dies nach stabilen Prinzipien, doch in instabilen Gleichgewichten, selbstgenerativ, selbststeuernd, selbsterweiternd, also autopoietisch und evolutionär. (19)

Nets are biological or artificial anthropogenetic forms of organization to produce, distribute and communicate material and symbolic objects. . . . Nets create complex, dynamic systems of time-space. . . . They do this in a self-generating, self-controlling and self-expanding way according to stable principles, however, with instable balances, i.e. in an autopoietic and evolutionary manner.

Relating this to our field of literature this means that when we speak of “net literature” we do not speak of literary texts on the World Wide Web only, even though this may be somewhat irritating considering the general usage of the term “net” that directly thinks of the global internet.⁵

For those traditional models of literary communication that have stood the test of time for the analysis of literary communication in book culture this would then mean that the strict and clean division between the acts of production, distribution and reception on the level of different users now is collapsing, or at least is becoming less complex. This was the system that bound the well-known triad “author,” “work,” “reader.” And as long as we have not found any better terminology, we will necessarily have to hold on to this triad, even if only as a horizon—if necessary, we will have to use quotation marks! If we want to understand the specific characteristics of literary communication in computerized, networked media, as a point of departure we will have to take distributed generating systems and reciprocal connections between “authors,” “works,” and

“readers.” For an author like Jean-Pierre Balpe this means that he has to work on all the described levels—he calls them “niveaux d’engrammation” (‘levels of engrammation’). This differentiates him from the “author” of a book, who only has to bring the text to paper, but who can then leave the whole process of production and distribution to the publisher, the printer and the bookstores or publishing trade:

Faire écrire du texte par un ordinateur implique donc une relation à l’ensemble des composantes de la structure, donc, d’une façon ou d’une autre, une relation à la programmation que celle-ci soit directe ou indirecte. L’écrivain se trouve là face à des niveaux d’engrammations techniques très différents qui vont de la conception abstraite de la notion de texte à la définition d’un style en passant par la représentation de connaissances dans les univers sur lesquels ses textes doivent se construire. (Balpe, “Littérature numérique”)

To have a computer write a text implies a connection between all components of the structure. One way or another this entails also a connection to the programming process, whether this is a direct or an indirect one. The writer thus finds himself facing very different technical levels of engrammation that extend from an abstract text-concept to the definition of a style, also traversing a representation of those levels of world-knowledge on which its texts are based.⁶

If in the specific man-machine-dynamics we can see the new and interesting elements of literary processes within, with, or between computers we may provisionally differentiate net literature according to the following parameters of communication:

- Communications of humans with humans, i.e. several authors cooperate via nets and become co-authors of cooperative texts.
- Communications of humans with machines, i.e. programmed processing of signs from which letters, poems, scripts, or narratives “automatically” emerge (text-generators or “literary machines”); this also enables the reader to choose between different possibilities of ramifications defined at certain nodal points.
- Summing up the two other levels brings us to the last possibility, namely communications of a man-machine-man-machine-etc. approach, tending towards an interminable cooperation of several authors, editors, designers, censors or whomever. In these processes between “authors” and “read-

ers”—i.e. before, during and after the production, transmission and reception of “communication”—technical media are present in diverse forms and on various levels. They already contribute to the intentions, or better the strategic efforts of authors, and even more extremely in their realization. This in-between, or rather this intersubjectivity, gains a quite different dimension with the help of a certain autonomy that is granted the automatic transcriptions of the intended and realized texts.

Quite in our line of thought Philippe Bootz has worked out a model of procedural function in the communication between humans and machines. Writing and reading are seen as two functions within a system: authors and readers bring forth mental representations that are called “*texte-écrit*” (“text-as-written”) and “*texte lu*” (“text-as-read”). Between these cognitive processes an “author”-, a “text”-, and a “reader”-domain are placed. A procedural text therefore can only be explained as a cooperation of three functions or processes that are autonomous:

- *Writing function*: The author creates a “*texte-auteur*” (“author-text”) that includes everything since he has encoded it in a form that is significant for him. Therefore, he can indeed control the structure of the text, but not all parameters of their implementation like different types of programming or readers’ activities.
- *Generating function*: The changed notion of text not only comprises the “*texte-auteur*” but also autonomous technical processes. Bootz therefore defines the textual domain in which the text is generated and which in the end is read by the reader as “subsystem with a principal function: the generating of entrances and exits, in connection with its substances of works” (“Reader/Readers” 104).⁷
- *Reading function*: Finally, the reader observes a “*texte-à-voir*” (“text-to-be-seen”), a transitory status that is bound to time and space and that includes the interface.

However, also these proposals can refer to any form of a text. They do not yet reflect a specific literaricity. If in computerized media that alternately “read” and “write” each other on different human and mechanical levels multiple encoding and decoding steps are necessary between the writing and the reading of texts, then we can identify literature as a reflection or as an aesthetic perception of the transitions and disturbances between these levels.

The Aesthetics of Net Literature

So far, our considerations of the determining technical factors and of the formal possibilities of an altered textuality in electronic space have proven to be insufficient for a critical study of net literature since they might just as well describe all communication in computer networks. This also seems to be the blind spot in Aarseth's theory of "ergodic literature," since in analyzing structures and functional differences of the media in literary communication it loses track of a specific literaricity. We therefore have to add the question whether in changed medial conditions we can also discover a specific aesthetic difference like fictionality⁸ and metafictionality characterizing literature as language art in traditional media. Literature, with its very special usage of words, indeed differs from everyday language and writing in two ways.

For one, it de-automates through distancing, exhibiting irony, and by using effects of alienation, i.e. through playing with utilitarian processes of communication, thereby creating the above mentioned aesthetic difference that always is a difference in perception by observing itself, thereby simultaneously distancing itself from becoming merely utilitarian. It seems that literature internally negates itself as a unified entity thereby enabling itself to capture its readers. This differentiates its specific texts from other texts like newscasts, cooking recipes, business letters etc. This means that literature precisely does not allow for a simple distancing from every day concerns, institutional constraints or too personal obsessions. To be precise, it distances itself from itself and from its own story, i.e. from the fictitious worlds it creates with the same amount of energy that for example a more trivial travel-, adventure-, or love-story uses in ever-new variations in order to create their imagined worlds. This means that it asserts a power, an aesthetic imagination or imaginativeness surpassing all dialectics between the constraints of every-day life and our small flights of fancy. This power is always able to map out more than any book can fulfill.

Secondly, literature changes with and through the respective media through which it is processed and experienced. Above, we have already made some comments about this. It is important to us that only through the interplay or the interaction of both components, i.e. the text and its medium, the concrete literary form emerges. For, as we have seen, media are always necessary to give a form to the communicated aspect. We therefore might say that the medium always inscribes itself into the contents. If with regard to computerized and networked media we then want to speak of net literature we have to ask the question whether it conserves this aesthetic difference described above regarding communication within the net itself as much as regarding traditional literary texts. Up to date literary studies that bear in mind the interplay of texts with

their media therefore have to consider to what extent—i.e. in what forms and with which operations—this literature, in the sense of networked experimental activities, aesthetically reflects the far-reaching (man-machine-)communications, thereby making invisible processes visible and communicable.

Castells has shown extensively that computer nets create both technical connections between spatially distanced computers and also social connections between their users. Therefore, it should have become clear by now that the forms and contents of these communications in computer-aided networks are not merely transmitted neutrally. During the recursive circulation of the signals, signs, and symbols defined phases, sections, or parallel processes are automated more and more. This is true for the simple corrections of texts as well as for the organization of complete procedures of repair, operation or processes activated with the help of expert systems or software agents that do not need interceptions by human agents, who might not even be able to intervene or control the procedure without the knowledge of the respective program codes. Despite that, traditional sociology—and this is true from Parsons to Luhmann—continues to define communication as a simple relation of sender–channel–receiver and here the medium as “channel” is attributed no more function than simple transfers containing more or less disruptions and noise pollutions. Our position clearly is a different one: the channel is not merely neutral but generates unpredictable events.

It is just this development that constitutes the motivation and basis, the original object of perception of net literature insofar as we can continue to recognize it as literature, as literary *aisthesis*, aesthetic perception, and perception of perceptions. We then see the current pivotal and most momentous disruption in media systems in the growing autonomy of the technical medium within the processes of communication between man and machine and we see these processes as quite conflicting and at odds with each other: By implementing natural and especially cultural processes in networks they are made calculable; but at the same time they are thereby right away again eluding the desired control.

Net literature inscribes its narratives onto this open flank of technically supported processes of socio-cultural differentiation. Media technology then precisely does not widen—as some of its engineers maintain—but withdraws individual control; it hinders the transfer of control from individuals or groups to systems functioning without friction as much as possible thereby enabling a transfer necessary for cultural evolution. This transfer to systems becomes necessary because these systems are the agents that guarantee the survival of society and not foremost that of individuals. Aesthetic processes in their turn comment on and reflect this disinterest in individual concerns, be they imaginary self-positionings or physical needs. They have visions of short- or long-term

consequences and effects of this withdrawal of control from or its handing over to the individual. They activate or intensify, they condense or focus those perceptions that take place in processes of socialization, be they the most sensitive feelings or the most brutal, traumatizing pain. Literature is—as are all the arts—engaged in individual aesthetization rather than social “anesthetization.”

This engagement would be quite practical and could be directly observed and analyzed on the net. For example, if a client of a bank is relieved of the fussy banking transaction by a smart agent in internet banking, or if virtual travel agencies choose the holiday destination and accurately program the itinerary including even pit stops or if the traveler even can be relieved of writing a love letter to his *Dulcinea* at <<http://www.liebste.de/liebesbrief2.html>> or <<http://www.writeexpress.com/love.htm>>.⁹ Here, or in the Chats, MUDs and MOOs introduced by Uwe Wirth in his article on “talkative correspondence” as a new form of initiating real love stories, we can see the development of new original literary forms within which Werther’s fever is repeated on an electronic level as “modem-fever.”

We could also show this for a literary contemplation of violence. Computer games can allow us to observe the changes of perspective, the role playing, i.e. the aesthetic difference or distance to these social feedbacks that hardly can be blocked off, that even feed on themselves and that then culminate in concrete acts of violence when we weigh the high-tech control of killings in Iraq against the high-speed training at the Joystick.

And we maybe should also name the quite unstoppable automation of our movement in space represented by the growing number of systems of orientation, GPS, the proximity sensors, the above mentioned travel agencies to which net literature in its turn reacts with its specific “discovery of slowness.” We might name experiments in space, games of communication with the webcams in banks and the monitors in airports, as well as with special programs of exchange between text and body (cf. Gendolla).

Net literature now can be divided into different aspects, some of which are commented on in the contributions of this book. Looking at Michel Chaouli’s article on the possibilities of computers and nets, which has generally challenged the notion that the interactive potential of the net can generate this *other* aesthetic state that we normally call fiction, we may have to ask: What about the great narrative, the conclusive, indissoluble work that can’t be supplemented or shortened that until now has kept us sitting in our reading- (or viewing-)chair if the machine is constantly interrupting our processes of imagination? A similar question is posed by Florian Cramer: What about the aesthetic moment (*kairos*, epiphany), the moment of a feeling of truth that was made conceivable by the poetic avant-garde with their effective simultaneous double illumination of liter-

ary idea and realizing method if the poets on the net do not even understand the methods through which they work so that the codes play with them and not vice versa? What happens if the good will—or let us say the intention—to write the great “Hyper”-novel of the “Lost-in-Cyberspace-Generation” is located clearly before one’s mind’s eye but when in the process of writing this beautiful idea other authors always intervene or if a transformation grammar or a hidden Markov algorithm carries out a spelling reform of the third kind?

The furthest reaching dimension of our whole subject probably is playing. Literature always has had an affinity with playing if we regard the many word-games of antiquity, or the lipograms of women in the baroque era or even the methods suggested by Oulipo, even though without computer. With electronic devices and nets this playful literature now enters other dimensions and not only economic ones in the sense of “The novel after the videogame”—in this realm, film continues to be much more successful. No, our thesis is that in today’s computer-aided and networked media literary forms are developing that cannot be described any longer solely in the sense of internalization or sublimation of processes of disciplining or civilizing, as mentioned above, because in networked processes internalization is immediately followed by *externalization*, which cannot be instantly understood in Marcuse’s sense as a repressive de-sublimation. On the contrary: “authors,” “readers,” and their “media” are not playing as silent machines but are playing with, against or into one another in a highly reflexive way. Such practical integrations of traditional literary subjects, forms and methods into the activities of “authors” and “readers” that are connected with the narrative or performative staging of their own technical aids, automations and translations in a new way provoke the critical examination of some traditional aesthetic categories in computer-aided networked literature. First of all we will have to describe the present and long-ranging intentions of the contributing writers and the activities of the participating programs in detail. Secondly the specific emergence of poetical and narrative elements has to be considered, and thirdly we have to illustrate the performative contexts of their implementation. And in all probability—this would be a fourth premise—the new forms of net literature, their methods and “works” could be integrated within the notion of “games” as “playing” or vice versa. We cannot go into this in more detail. All we can do here is to hint at a direction, which then would have to be examined in individual analyses.

We are therefore coming back to our idea of upheaval, which implies that in current computer-aided and networked communications the quality of interaction between man and machine is once again effectively changing and that net literature registers, comments on and above all annotates this change—even if in an experimental way. We would like to repeat the claim that the automated

or programmed part of communications directed at practical solutions in our present societies are inexorably growing for reasons of differentiation and complexity and that the generation, circulation and storage of socio-economically or culturally necessary sign-processes is more and more turned over to agents of communication so that this results in hardly separable amalgamations of software with “human” ideas and of manager-brains with mechanized processes of understanding, converting and deciding.

For the programming of software agents we can turn to the projects of AI research by Luc Steels. In the *Talking Heads* project, for example, the experiment between “human” and so-called “artificial” intelligence has indeed already moved forward quite far: Here programmed agents get into simulated situations that force them into the development of a “dialogue” with rudimentary syntax and grammar, the semantics of which we, as observers, are able to decode:

Die Agenten spielen ein Sprachspiel, das wir Ratespiel nennen. Dabei übernimmt ein Agent den Part des Sprechers, ein anderer den des Zuhörers. Die Agenten wechseln sich in diesem Rollenspiel ab, sodass am Ende jeder beide Fähigkeiten entwickelt hat. Das Spiel kann so erweitert werden, dass ein menschlicher Mitspieler eine der beiden Rollen übernimmt und an die Stelle des Künstlichen Agenten tritt. (Steels, “Kognitive Roboter” 181)

The agents are playing a language game, which we are calling guessing game. Here an agent takes over the part of a speaker, and another the part of a listener. The agents take turns in this role-playing so that in the end each has developed both capacities. We can develop the game to the extent that a human player takes over one of the two roles, taking the place of one of the artificial agents.

Of course such experiments trigger off the primordial fears of the replacement of the species by their own technical creations. Recently, Bill Joy with his theses of the end of humanity, of a post-human era in societies of clones with manipulated genes, mixed beings, cyborgs, autonomous robots who finally can go about their business peacefully has set off a debate of pros and cons that reverberated throughout all media. As if the species had not already replaced itself with its first scream and its first carving of a line into a branch by articulating or inventing signs through which it could invent itself away from its present state into an open future. Of course, the species believed it was talking about something that already had to be there, something that gave reason and coherence to things, from the stones to the angels. But this is only the undoubtedly necessary illusion

of signs, their insurance system, their anchoring in the past so that the design would not become arbitrary, random, and unbearably open. In our present time, however, with the possibilities of media, or better technologies of simulation this illusion is dissolving more and more. The fact that we rigidly hold on to it probably rather proves the fear of individuals and of societies to have to take over the responsibilities for their own designs instead of leaving them forever to other, “higher,” metaphysical authorities. At the present time, under the socio-technological conditions of a species that could through its media to all intents and purposes become aware of its activities, the fact that it is holding on to such metaphysical illusions of a different, higher will cannot lead to any other than a grotesque fundamentalism with all its atrocious consequences. The creation of artificial intelligence indeed is nothing but the exploration of one’s own intelligence, even though it is a practical exploration that makes one’s own possibilities visible and communicable and explicitly not its replacement or its end. For Steels there is still a “weiter Weg, bis wir eine der menschlichen Intelligenz vergleichbare künstliche Intelligenz erreichen” (‘long way until we have reached an artificial intelligence that is comparable to human intelligence’) (182). But it is this experiment that allows us to see the beginnings how intelligence might have developed and what we might be able to launch with its liberation:

Indem eine breite Öffentlichkeit hier erstmals direkt in die Interaktion mit Künstlichen Agenten involviert war, konnten alle Beteiligten für sich selbst entscheiden, inwieweit das, was die Agenten tun, sich tatsächlich mit unseren Vorstellungen von kognitiven Phänomenen wie Lernen, Wahrnehmen, Sprechen, Kommunizieren deckt und ob die Kohabitation zwischen Künstlichen Agenten und Menschen in der Praxis überhaupt durchführbar ist. (Steels 182)

By involving a wide public for the first time in the interaction with artificial agents, all participants could decide for themselves in how much the activities of the agents match with our ideas of cognitive phenomena like learning, perceiving, speaking, or communicating and whether the cohabitation between artificial agents and human beings in praxis can even be accomplished.

This suggests cohabitation, the living together with media-technological duplications instead of technophobia and aggression, which is nothing but a denial of our own capacities, nothing but self-blinding regarding the notion that somebody else, outside of ourselves, is controlling and directing our own activities.

It is this, and not more or less than this permanent and fatal self-illusion that the projects of net literature are trying to bring to the screens, monitors, or interfaces and they thereby are initiating a playing with the possibilities of self-imposed determinations as well as surprising realms of freedom.

The linkage or coupling of our perceptions with sensor technology and of our activities with technical motoric functions or the not yet experienced net of interdependencies of neural patterns and computer programs does not simply run along by itself effectively. Net projects attempt to open up this linkage to cognition in another way. Like already one hundred years ago, in classical avant-garde like Futurism, Dada or Surrealism, practical experiences are also at present transformed into aesthetic perception, and technical configurations into more or less artistic designs. The inability to perceive electronic processes that remain unclear but that (almost) with the speed of light increasingly take part in the scopes of political, economical or social activities here are made perceptible in—also technically—artistic ways. Its means or methods are those that for a long time already literature has articulated: it disturbs, irritates, and breaks expectations and thereby de-automates etc., i.e. it suggests alternatives in perception by inventing new shapes, coherences, “gestalts” that have not yet been perceived in this specific way.

Special projects for instance make the delineated close connection or the control of realms of perception or action perceivable with the help of programs and protocols; they playfully show the dependence of human behavior on automated rules and illustrate them aesthetically as irritations. For example in Susanne Berkenheger’s *Die Schwimmeisterin [The Bubble Bath]* users at first glance in groping their way into virtual space believe that they can choose freely among the directives, requests, commands or prohibitions within the windows of the monitor, thereby quickly making decisions. However, the interaction between them and the machine decides even faster than their eyes can see. A sort of multiple being made of human impulses, movement and programmed activities sets off quite unexpected images and texts; it makes windows disappear and open up new ones, sometimes obeying the users’ will, often, however, only following the chance decisions of the machine. The group *Netzaktivismus* tries to illustrate the artificial processes behind it, the scripts that generate the texts, the relationship of authors’ intentions and their programs by visualizing the source codes. This type of illumination of computer processes was continued for example by Vuk Cosic, a member of the *ASCII Art Ensemble*. Dragan Espenschied and Alvar C.H. Freude tried to demonstrate the possibilities of control in their art project *insert_coin* that was accompanied by a research program. The images of traditional audiovisual media at present are massively digitalized and the analogue archives of images are brought into archives on the net. Thereby with a

little bit of programming the digital can be made visible as a shape. The *ASCII Art Ensemble* is carrying out an about-turn, a reverse transfer of moving images in film into “net-based moving ASCII”:

Erklärtes Ziel des 1998 gegründeten ASCII Art Ensembles (eine Gruppe mit Mitgliedern in Amsterdam, Ljubljana und Berlin) ist die “Rückübertragung” bewegter Filmbilder in “netz-basiertes bewegtes ASCII.” Hier ist es nicht, wie bei Jodi, der Sourcecode, der zum Bild wird, sondern hier werden (bewegte) Bilder durch ASCII-Zeichen dargestellt. Das Verfahren erinnert an frühe, grafiklose und 24-nadelige Stadien der Druckertechnologie, als Bilder nur durch im Computer vorhandene ASCII-Zeichen dargestellt werden konnten und dementsprechend unentzifferbar waren. Das ASCII Art Ensemble hat bereits ein Javascript und einen Java Player für bewegte ASCII-Bilder entwickelt. Nun wird noch an einem schnellen Konverter gearbeitet, der bewegtes ASCII in Echtzeit im Netz unterstützt. Hehres Endziel ist die Entwicklung eines RealPlayer G2 Plug-Ins, das besagtes neues Dateiformat unterstützt und für eine weite Verbreitung sorgen könnte. Bislang entwickelt worden sind u.a. die *ASCII to Speech history of art for the blind*, die in ASCII-Zeichen gewandelte Bilder aus der Kunstgeschichte Zeichen für Zeichen vorliest. . . . Auch existiert bereits eine *History of Moving Image*, die in sieben Clips eine Übersicht über die Stilentwicklung und die Distributionsmedien des bewegten Bildes gibt, sowie *Deep ASCII*, eine ASCII-Version des Films *Deep Throat*, die auf einer Pong Arcade läuft. Hier sind nicht die pornografischen Bilder, sondern nur deren unentzifferbare ASCII-Versionen zu sehen. (Arns 239f.)

The declared aim of the ASCII Art Ensemble, founded in 1998 (with members in Amsterdam, Ljubljana, and Berlin) is the transfer of moving images in film back into “net-based moving ASCII.” It is not, as in Jodi’s case, the source code that becomes the image; here (moving) images are represented with ASCII signs. The method reminds us of early states of 24-pin needle-printer technology without graphics, when images could only be shown with the help of ASCII signs available in the computer, thereby becoming quite indecipherable. ASCII Art Ensemble has already developed a JavaScript and a Java Player for moving ASCII-images. Now they are working on a fast converter supporting moving ASCII on the internet in real time. The noble final aim is the development of a RealPlayer G2 PlugIn that supports the mentioned new format and could thereby take care of a wide circulation. So far,

the *ASCII to Speech History of Art for the Blind* was developed, reading sign by sign images from art history that were transformed into ASCII-signs. . . . There is also a *History of Moving Image* offering an overview of the development of styles and media of distribution of the moving image in seven clips as well as *Deep ASCII*, an ASCII-version of *Deep Throat* running on a pong arcade. One does not see the pornographic images but only their indecipherable ASCII-versions.

Finally, the media art project *]insofern[* attempts to visualize the aforementioned coupling of the central nervous system or certain neuronal patterns with computer programs:

Die von Cod.Act entwickelte Maschine ist ein mobiler Scanner, der es erlaubt, ein künstliches menschliches Gehirn zu erforschen. Der Zuschauer steht isoliert in einer Schleuse, allein mit dem Gehirn. Er ist eingeladen zu einer Reise voller Klänge und Bilder, während er in eine bewegte, transluzide Welt eintaucht. Sobald der Lichtstrahl des Scanners die Nervenmasse durchdringt, erwacht diese zum Leben: sie bewegt sich, schwillt an und sendet Töne aus. Fragmentarisch offenbart sie die in ihrem Gewebe eingeschlossenen Informationen, lässt sie zu Zeugen des sensoriiellen Kontakts mit der Außenwelt werden. Mittels einer Simultanübertragung verlässt das individuelle Erlebnis den geschützten Raum der Schleuse und gelangt hinaus zum Publikum. Der Vorgang lässt sich erinnern, er ist Gedächtnis geworden und verbreitet sich im öffentlichen Raum. (Cod.Act)

The machine developed by Cod.Act is a mobile Scanner allowing investigating an artificial human brain. The viewer stands isolated in a “lock,” alone with the brain. S/he is invited to a journey filled with sounds and images while being submerged in a translucent world. As soon as the light-ray of the scanner penetrates the mass of nerves, it awakens to life: it is moving, swelling, and sending out sounds. It reveals the information contained in its tissue in fragments, making them into witnesses of the sensorial contacts with the outer world. With the help of simultaneous transmission this sensorial experience is leaving the protected room of the lock and reaches the outside public. The incidence can be memorized; it has become memory, thereby spreading into the public realm.

These projects may mean nothing to many lovers of familiar art and literature; in the best-case scenario they seem to be intelligent games with the complex technologies of the computer or an interested exploration of public possibilities of cooperation between networked cultures. The actual dimensions of this upheaval in media history may only be visible in fragments, more as the disappearance of beloved shapes of medial dimensions than as the discernible outlines of new ones. Networked computer technologies currently are only offering scaffolds that help to construct something. The forms, structures and shapes that can be erected with these scaffolds are less apparent than in the gothic cathedrals or the skyscrapers of the 20th century. Net literature does not only register or comment on the socio-cultural dislocations and shifts connected to these upheavals. The fact that it is directly—and not only later on—connected to these processes, and above all the fact that it is a direct contributor to the process of designing the 21st century allows it to also discern some possible shapes, so that perceiving the obscure, highly accelerated recursive processes becomes a bit more easy by opening up the realm of sensual perception, thereby possibly allowing more premeditated decisions.

Translated by Brigitte Pichon and Dorian Rudnytsky

Notes

1. Cf. Roberto Simanowski's article in this book.
2. Ludwig Jäger uses similar arguments by stressing the fundamental importance of language as anthropological archimedium regarding cognitive processes. Language for him is a "semiological form of processing," which actually allows the creation of inner, mental episodes only within the networks of linguistic signs (cf. Jäger). These episodes then are externalized via other media (cf. Schäfer).
3. Aarseth's main definitions can be found in two areas. In order to define a text as a machine he says: "As the *cyber* prefix indicates, the text is seen as a machine—not metaphorically but as a mechanical device for the production and consumption of verbal signs. Just as a film is useless without a projector and a screen, so a text must consist of a material medium as well as a collection of words. The machine, of course, is not complete without a third party, the (human) operator, and it is within this triad that the text takes place. The boundaries between these three elements are not clear but fluid and transgressive, and each part can be defined only in terms of the other

two. Furthermore, the utilitarian possibilities of each element combine with those of the two others to produce a large number of actual text types. . . . Cybertext . . . is the wide range (or perspective) of possible textualities seen as a typology of machines, as various kinds of literary communication systems where the utilitarian differences among the mechanical parts play a defining role in determining the aesthetic process.” (Aarseth 21f.) Further on, he sketches the aforementioned parameters of his typology: “A text, then, is any object with the primary function to relay verbal information. Two observations follow from this definition: (1) a text cannot operate independently of some material medium, and this influences its behavior, and (2) a text is not equal to the information it transmits. *Information* is here understood as a string of signs, which may (but does not have to) make sense to a given observer. It is useful to distinguish between strings as they appear to readers and strings as they exist in the text, since these may not always be the same. For want of better terms, I call the former *scriptons* and the latter *textons*. . . . In addition to textons and scriptons, a text consists of what I call a traversal function—the mechanism by which scriptons are revealed or generated from textons and presented to the user of the text.” (Aarseth 62)

4. Concerning the relationship between language and technical media, Winkler even goes a step further, thereby surpassing Aarseth who presupposes a more or less autonomous development of media technology. Winkler, on the other hand, presupposes an erratic transition, or better turn from “soft,” symbolic to “hard” technological procedures—and back! This is not the place to discuss advantages or disadvantages of this idea. However, it could be helpful for a further discussion of a media history of literature to view discursive articulations and media technology as two cyclically connected forms of enunciation instead of ideas that follow a deterministic approach regarding technology. Winkler maintains “dass es ein Kontinuum gibt zwischen der Abrundung/Freistellung einzelner Äußerungen oder Texte (die nur auf Basis dieser Abrundung zirkulieren können), der Systembildung im Umschlag von Diskurs in den Code (die oben Verdichtung genannt wurde), der Herausbildung von Institutionen und der Einschreibung/Abrundung/Einkapslung spezifisch ‚technischer‘ Infrastrukturen. . . . Der Übergang von der Enunziation_1 zur Enunziation_2 nämlich hat seine Besonderheit darin, dass die Enunziation_2 den Raum des Symbolischen verlässt. Die Enunziation_2 argumentiert nicht im Symbolischen sondern im Faktischen” (“that there is a continuum between the rounding off/release of individual articulations or texts (which can only circulate on the basis of this release), the creation of systems within the change of discourses into

codes (which was called condensation above), the forming of institutions and the inscription/rounding off/encapsulation of specifically technological infrastructures. . . . The transition of enunciation_1 to enunciation_2 is specifically remarkable *because enunciation_2 leaves the realm of the symbolic*. Enunciation_2 argues not in the symbolic but in the factual realm” (Winkler, *Diskursökonomie* 145f.).

5. However, how do we deal in this context with texts that are stored as linear chains of signs in connected computers, but that could just as well be stored and distributed as print media? This type of literature for heuristic purposes might rather be called “literature on the internet,” in order to differentiate it from “net literature.” We make this differentiation on the following grounds: Computers are disperse machines that are integrated only within a specific frame of discursive practice into specific constellations (cf. Schröter). As a universal medium the computer potentially can simulate all media. This is why in the literary system at first the orientation was focussed on the functions and semantics of book culture. Widely discussed in the nineties was the metaphor of a “universal library.” It stood for the provisional limitation of a freely programmable universal machine to the function of a medium for downloading (also literary) texts that seemed to realize the utopia of a universal archive on the internet. This brings forth specific extensions and upheavals of the traditional literary scene, or rather the “social system literature,” from which in the 18th century the four activities production, mediation, reception and processing emerged (cf. Schmidt). The mediation of literature in particular has been expanded through the World Wide Web. The transfer of texts through electronic media consists in a replacement of the channel of distribution with a completely differently structured system. It reaches from text databases like the “Gutenberg Project” <<http://www.gutenberg.org>>; <<http://gutenberg.spiegel.de>>, that makes classic texts available in a free online edition to the innumerable websites of authors that cannot be systematized—mostly hobby writers who cannot interest any publishers—to e-book or book-on-demand-offers of commercial publishers.
6. Cf. also his contribution to this book: “Principles and Processes of Generative Literature: Questions to Literature.”
7. Cf. Bootz’ article in this book: “The Problem of Form: *Transitoire Observable*, a Laboratory for Emergent Programmed Art.”
8. We do not talk of fictitiousness in the sense of things or events that are simply invented. We remain insistent on Käte Hamburger’s idea of a difference between the fictional and the fictitious. From this very difference she has deduced the specific “Logic of Literature.” Cf. *The Logic of Literature*.

9. For example: “Dear Yinka, I am still on my knees begging for love, not to a stranger but to one I know . . . you. I’ve been in love and know it’s fun. Each night and day I hope and pray that you’ll be mine forever more. I know it’s hard to trust a man—giving your heart, body and soul, but know it’s me that’s on my knees swallowing my pride, begging you, please . . . once again I say please; be mine. Love always, Lanre.”

“Dear Chris, I’m so in love; I get this warm sensual feeling every time I think of you. When I sleep at night, all I can dream about is you. I wish I could hold you in my arms. I dream of the day when I could kiss you passionately on your soft sweet lips and listen to your heart beating because it’s sweet music to my ears. All I can say is let me be the one you love; let me be the one whose love you need. Love always, Secret Admirer.”

On March 21, 2005 an automat writes: “At the moment I am imagining you you’re standing in front of me dressed only in heels and coat. No woman I’ve ever met was as beautiful as you. I hardly can wait till I can sip champagne from your navel. I also want to kiss your shoulders, knees, and lips, especially if you’ve eaten pudding earlier. I have never experienced a relationship that was as exceptional as ours. Just forget for a moment modesty and telephone and fulfill my dreams. I also would do everything for you—I would even walk through town with you as a dog on a leash.” We can’t get rid of the suspicion that this machine was fed with texts by followers of Peter Weibel—some contemporaries may remember quite well when he was pulled through the streets of Vienna by Valie Export. Cf. Valie Export, “Aus der Mappe der Hundigkeit.”

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