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# **TEXT AND HYPERTEXT**

**Literature and new technologies**

**1995.**

## **TEXT AND HYPERTEXT**

(literature and new technologies)<sup>1</sup>

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*A new text processing technology called **hypertext** and **hypermedia** has been acknowledged and developed for quite some time all around the world. According to its followers, it was exactly this technology that brought up to the revolutionary turn in text processing computer use, since computer as a device of the modern electronic era was created primarily for computing the complex mathematics formulas (numeric data processing).*

*Putting aside the development of computers( hardware and software in general, we would hereby like to present (in a short and necessary simplified way) the basis of the above-mentioned technology, having in mind the fact that it has not yet been widely known.*

*Its followers, aware of the definition difficulties, usually start from contrasting of **text** and **hypertext**. This is, undeniably, a possible way of presentation, even though it shows certain disadvantages, especially due to the fact that the computer science experts (who are its main propagators) usually do not discuss the fundamental issues related to linguistics, grammatology, history, semiotics, theory of literature... This is why we seem it would be very useful to present the basic characteristics of the hypertext, in the first place, and then to pose some other important questions.*

## **STRUCTURE, FUNCTION AND APPLICATION OF HYPERTEXT**

- 1) **Hyperspace.** I believe that in hypertext the total material must be experienced as one whole. The elementary idea is to have the possibility to move around and over the total "text" as ever you need or wish.
- 2) **Multidimensionality.** The ideal is not only to achieve multimediality (combina-tion of text, computer graphics and TV technology <sup>2</sup>), but also to attain the broa-dest possible *register* of possibilities to move across different levels (climbing, branching, researching).
- 3) **Nodes.** A specific characteristic of informational organization is

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<sup>1</sup> Extended text of the lecture presented at the Computer Science Experts Meeting held in Belgrade on February 16, 1995.

<sup>2</sup> In literature, we can often find that this is a combination of "publishing, computing and broadcasting", but this definition is still incomplete.

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decentralization and splitting up into basic fragments which can inter-correlate. In creation of the hypertext (like in transferring classical texts into this form of presentation) "nodes" are the elementary tissue. Majority of practitioners believe that, in a quantitative sense of the word, the most useful node is one page or the computer screen space. On the other hand, quite often this is not possible to accomplish, so that, as a rule, these units can be either smaller or bigger frames.

4) **Links.** In the hypertext, special attention is paid to the links among fragments and between fragments and the whole, because this is its major advantage. This means a complete network of links, most frequently explicit, graphically marked links, while there are the implicit links, too.

5) **Participation.** All the time during the contact there is an interactive relation between the producer, the text and the user. This, of course, is neither the usual "on line" relation nor the passive "off line" connection but an active participation which provides admission of the users into the hyperspace. Due to this reason, I believe that "participation" would be the best expression (up to the level of co-authorship, which, naturally, depends on the type of the hypertext).

**Ad 1)** Both **producer** and **user** must have the feeling of the **hyperspace**. In the "book" or another form of presentation (all the time during reading, paging up and down or cruising) there is the following orientation: menu, review, global and local overview, control points etc.

**Ad 2)** Different forms of presentation are used depending on: **type** (usual text, drawing, picture, tone, animation, film...); **duration** (shorter or longer information, smaller or greater branching of the material for having a faster or better insight...); **level** (basic or deepened information, comments, footnotes, popup data, margins...).

**Ad 3)** The "nodes" are being designed with lesser or greater degree of completeness, always having in mind their function - not only 'knitting of the text' as the author has presented and proposed, but also the user's alternatives. With regard to this, hypertext is, practically, *open* and *never-ending*.

**Ad 4)** The "links" are built in within the "nodes" in different ways (by means of graphic signs, letter types, colour...) for establishing connection with other nodes or segments. The provided options include : jumping, backtracking, "compasses", history list...

**Ad 5)** Not only that the user can use the hyper text more freely( the user, actually himself or herself organizes the navigation) but also "creates" it (radical cruising, using the space for interventions, mostly for comments, notes, objections or suggestions, reminders for studying etc).

It is possible to say that the hypertext has brought the revolutionary changes

into three crucial areas: **a) memorizing**, **b) organizing and presentation**, and **c) retrieving** the information.

The changes have happened in the role of the author and the role of the reader, as well as within their relationship.

In the first place, the material is no longer sequential and one-way oriented (according to the horizontal development, following and understanding). The author's function of a text organizer, i.e. text composer is enhanced. In present circumstances (when the authors do not tend to behave in a hypertextual way), it is, most often, necessary to have **two** (or more) **authors** - one for the usual text and other(or others) for its presentation in the hypertext. On the other hand, the writer, while creating the nodes and the links, opens a possibility for the user to be an accomplice in the crime of creation. This really happens when the reader decides to take another "route". In this case, we do not have the common separation between the writer and the reader, but rather a situation in which the author "has shared" the authority with the "co-author".

Thus, the reader is in a position to move smoothly across the hypertext. The basic idea, actually, is the absence of the simple "reading". The user of the hypertext is just like the captain of the ship who has to : determine the route, navigation and to use all the options for discovering and searching... The reading is no longer a passive, monotonous following of a continual text (even though it is possible to be done) but an committed "hopping" from a node to node <sup>3</sup>, from a lower information level to a higher one, from a shorter and more general to a wider and more specific insight into the matter, from one to another "island in the hyperarchipelago"... The superfluous following of the material is abandoned and a greater extent of involvement required where all of the user's senses are, in an ideal case, engaged (sight, hearing, touch, and tomorrow maybe ,scent...)

It is important to point out to some key examples which offer an additional explanation about the basic concept of the hypertext. We will remain within the limits of those examples which represented turning points in the history of the technology:

1. *MEMEX*.<sup>4</sup> Bush has regarded his project as the memory extender in the era of scientific information expansion, as a sort of a "private file and

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<sup>3</sup>The initial node or spot is called the anchor while the referral fragment is called destination.

<sup>4</sup> Vanevar Bush, President Roosevelt's advisor for technology is considered as the pioneer of hypertext. In the article "As We May Think" (1945) he presented the ideas developed in 1930s. The project was called MEMEX (memory extender).

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library" where an individual can "storage his or her books, notes and communications". Everything is "mechanized so that it can be consulted at a better speed and flexibility". The basic appliance is the microfilm and scanner by means of which new materials can be entered. The user is allowed to enter his or her own notes and comments. "Books of all kinds, photos, magazines, newspapers can be entered and put into proper place. It is the same with the business correspondence". Bush believes that everything is, actually, conventional except that modern technical and technological achievements are being used. These achievements allow the essential bit - associative indexing and linking. Bush also anticipated a system of trails and announced the appearance of a new profession for establishment of links within an enormous mass of information (**trail blazers**).

2. **XANADU**. Ted Nelson gave the name to the hypertext and he developed this project imagined as a storage of everything that had been written up to the time. This is a vision of an universal hypertext, practically, an utopia to enter everything that has ever been written in all the variants! It is interesting to note that Nelson thought of hypertext as of a literary medium and, primarily, had in mind the "literary machines". The main aim was to enter the overall world literature, where "everything is deeply interwoven" and for this reason, it should be available at any time. Naturally, this was not possible to be done by limiting only to personal or local databases, but by applying a broader approach on a sort of planetary level. In the light of this, Ted Nelson was, objectively, a visionary of today's "cyberspace", world space and network for electronic linking.<sup>5</sup>
3. **HES, FRESS, NLS**. These are the titles of the first operable hypertext projects and interactive work. Andries van Dam has developed and presented at the Brown University the first operable system HES (Hypertext Editing System, 1967), and demonstrated FRESS (File Retrieval and Editing System) at the same institution one year later. Dag Engelbart, the inventor of the computer "mouse" initiated researches within the AUGMENT project at the Stanford University (1962) and, as its part, demonstrated the first "on-line system" (NLS) in 1968.
4. **ASPEN MOVIE MAP**. Andrew Lipmann from the Massachusetts Institute of Technology (MIT) was the head of the team which had accomplished the first hypermedia system in 1978 in the shape of Aspen, Colorado town map. All the streets were taped on videodiscs by means of four cameras. The result was a film in which a spectator could choose one point on the town map, stop to visit it, "enter" and view the buildings...
5. **MARKET SYSTEMS**. The products for practical use have appeared

<sup>5</sup> The reader will not get a wrong association to the vision of Nikola Tesla about the planetary "energy wrapping".

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(Symbolics Documentation Examiner; Note-Cards by XEROX corporation in 1985), i.e. commercial products (Office Workstations Limited - "Guide" in 1986; Apple's product **HyperCard** in 1987...)

6. **PUBLICATIONS**. In 1987, at the Harvard University, the PERSEUS project was developed and its main aim was to serve as hypertextual support for classical Greek literature and history; there are hypertextual presentations of dictionaries, museum catalogues, library card file etc.; the first scientific magazine for hypertext called HYPERMEDIA appeared in 1989. This was followed by many literary works presented in hypertextual i.e. multimedial way.<sup>6</sup>
7. **READERS (Smartbook, etc.)**. All this activity was followed by the innovations for reading of hypertextual publications "in any occasion". Unlike the portable computers, these were more suitable for easy access and use, since they reminded of a book with all its advantages.

### **HYPERTEXT: PRO & CONTRA**

Just like all other innovations, the hypertext, too, met with both acceptance and denial. It has had the most dynamic development in the high technology countries where the computer is a part of everyday life (primarily in the USA, Japan, Western Europe). In the less developed countries, the old techniques still prevail.

On the other hand, even though the most radical supporters would be glad to see complete replacement of the printed matters ("elimination of the typographic man"), it is obvious that the book has not yet reached its "omega point" (McLuhan) and that still represents a most important part of our culture.

Thus, by trying to avoid the extreme opinions, it would be realistic to say that for a long time the things have not be the same (actually, the most renowned critics of the old communication methods -and in that sense, the predecessors of the new technology- were the people who did not know for hypertext, i.e. computers). This is why I believe it would be useful here to present some critical (positive and negative) observations, both related to old technologies and hypertext. The use of hypertext in literature is of special interest to me since I have had certain practical experience in this field which could be interesting (maybe equally) both for computer scientists and literary workers

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<sup>6</sup> We have recently learnt (*The Chronicle of Higher Education*, November 16, 1994) that a new *multimedial* edition of Kurt Venegat's "*Slaughter-house five*" appeared on CD 9text with interactive sounds and pictures; film clips; video-interview with the author; audio comments; illustrations, photos...).

(writers and literary theoreticians).<sup>7</sup>

1. Development of "text" (oral or written presentation) is directly connected with the development of communication technologies.

It is possible to say that we have had, up to now, four *phases* and types of basic communication technologies: a) *oral*, b) *script*, c) *printing*, and d) *electronic message*. Every of them has its specific characteristics. However, none of them has been abandoned but has taken a specific place and level in the modern culture. They are still being used. From a historic point of view, every new technology has remained influenced by the old one for a certain period of time and, finally, managed to overcome the old one and has taken over the domineering place in the communication. For instance, it has been known that in less-developed societies the "oral culture" is not only overwhelming the written text, but is also defining the culture in an essential way. On the other hand, in the developed societies characterized by written, and especially, printed word, the means of communication are not only adopted to these technologies, but the very speech is under their influence, too.

2. The technologies themselves influence in an essential way the process, contents and scope of communication.<sup>8</sup>

Based exactly on this presumption, the criticism of uniform and one-dimensional (**linear**) communications were developed, and one theoretical and practical base was created for development of new hypertextual technology.

*Linear communications* were the focus of attention for the creators of modern communication theory (developed in 1940s), Shannon and Weaver,<sup>9</sup> who had worked out a model with 6 elements: 1) source; 2) encoder; 3) message; 4) channel; 5) de-coder and 6) receiver.

However, Shannon's introduction of the concepts of *entropy*, *negative entropy* and *redundancy*, as well as of *feedback* cybernetics concept of Norbert Wiener, satisfied neither the critics which objected to **linearity** nor

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<sup>7</sup> In the first literary work on hypertext experience which was used in our country ("The Last book", 1994), the author, however, encountered insurmountable difficulties. He himself overtook the burden not only to write the book (for many years), but also to typesetting, technical editing, graphics, copying (PC 486 DX, Word for Windows 2.0, then 6.0 Corel Draw 4.0, then 6.0 HP III P Laser Printer)... but also to "fight" with printing companies, financing, marketing... which can sometimes be far greater trouble than the creation itself! In such circumstances, it was not possible to realize not even 30% of the idea to illustrate the material (other possibilities could not even be mentioned). Why would, then, publishers, critics or readers (especially because they are not able to follow the latest events in the world) appreciate writers? That is why I have always welcomed as a compliment all the remarks to my book which characterized it as a "strange one"! Especially since, for me, it was a miracle that it had appeared at all!

<sup>8</sup> For the purpose of this article, it would be best to stick to the oldest, the broadest and practically, comprehensive, opinion given by J.A. Richards (1928) that *communication occurs when one mind has such an influence to its surroundings that it manages to influence the other mind to develop an experience so similar to the one created in the first mind, and was partially caused by that experience.*

<sup>9</sup> C.E. Shannon, Warren Weaver, *The Mathematical Theory of Communication* (1949)

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the followers of a *dynamic* model of communication which, on one side, asks for more flexibility and interactivity, and on the other side, point out that the very technical elements (channels) influence to both content and form of the message. The theoreticians of art communications especially criticise all the linear models. However, they do not deny the usefulness of mathematical models as the above-presented one.

3. Among the most significant followers of non-linear and more dynamic, "more dramatic" approach to the text, we can distinguish the representatives of the modern linguistics, semiotics, grammatology, structuralistic and poststructuralistic anthropology and communication science.<sup>10</sup>

**INFLUENCE OF GRAMMATOLOGY<sup>11</sup>**

The issue of textual communication was usually raised in the most radical way in the periods which marked the transition from one technology to the another: first, when the alphabet appeared; second, when the printing technique was discovered; and now, when the means of audio-visual communication are being developed. This does not necessarily mean that the issue was not discussed in other periods, too, due to various reasons.

Even *Plato* disputed the appropriateness of writing. In his famous dialogue<sup>12</sup>, he makes clear distinction between the "dialecticians" and "rhetorics", i.e. "live" and "written" word, believing that the latter is "a shadow". According to him, the written signs are not a means for preservation of memory and wisdom, but on the contrary, of their disappearance; their abstract nature is a source of unclearness and imprecision. They are a "bad game" in comparison to "serious work when someone, by means of dialectics, chooses a convenient soul and skillfully plants and seeds in it the words that can be of help both to themselves and to the person who planted them, they do not remain sterile but become fruitful".<sup>13</sup> The *Plato's* pledge for a *dialogue* (the form which he applied in his works) will have the counterpart in many later criticisms of written text which were launched from the same standpoint.

<sup>10</sup> Some of them (mostly Derrida and McLuhan) are being mentioned by the hypertext theoreticians, though, as I was able to see, very rarely and, sometimes, incorrectly.

<sup>11</sup> Litre understood *grammar science* as "discussion on letters, alphabet, syllables, reading and writing" and this general definition was accepted by Derrida.

<sup>12</sup> "Phaedrus or On Beauty", Beograd, 1970.

<sup>13</sup> In a very similar way in his other works ("The State", "Cratyl", "Sophist"...), *Plato* understands dialectics as a mutual discussion on issues, since the "midwife skill" is the basic method which *Socrates* applied.

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Another period can also be regarded as interested with regard to this issue. It is the period of discussions on *universal language*. Supporting this, both Descartes and Leibniz point out to disadvantages of the existing writing (not adapted to expression of philosophical thoughts, impossibility of establishing universal communication, in brief - its linear, superficial and reductive character).

However, by characterizing this discussion as a "Chinese" prejudice (due to strict priority given to Chinese characters which, according to Leibniz, was a more suitable model than the European one), Jacques Derrida, who had a critical attitude towards all the attempts of neglecting "letter" as a "substitute", "continuation of speech" etc., did not discuss the advantages which linguistics and theory of communication had due to these critical approaches. Derrida himself, however, deserves credit for a new technology in written communication by preferring the "non-linear writing". The anthropologist Lerois-Ghuran (the real fulcrum of Derrida) speaks about one-dimensionality - linearity of the letter in general, especially of the phonetic letter which has had due, due to historical (economic, ideological etc) reasons overpowered "mythograms", the letter "which distributes its symbols in multi-dimensionality". Both experts obviously think that the notion of *linearization* is "more efficient, more faithful and closer than those used in classification of letters" and that mythogram "presents unity of all the elements that the linear letter destroys: techniques (especially, graphics), arts, religion, economy".<sup>14</sup> In the light of this statement, Derrida also pledges for the development of "multi-dimensional, symbolic thinking" and believes that "*the end of linear letter would be the end of a book*".<sup>15</sup> According to his opinion, the *non-linear* letter allows motion in all directions, following "endless traces leading from one thought to the others".<sup>16</sup> The meaning of Derrida's text concept lies in its interlacing with other texts by means of their elements.<sup>17</sup>

**INFLUENCE OF LINGUISTICS AND SEMIOTICS<sup>18</sup>**

<sup>14</sup> Jacques Derrida, *O gramatologiji* (On Grammar Science), Sarajevo, 1976, pp.115-116.

<sup>15</sup> i.d.p.117 (author's italics) In the footnote Derrida quotes Ghuran : "The books can preserve their usefulness and short-term suitability for quite some time. The huge *magnetic library* with possibility of electronic selection will, in a near future, deliver chosen and immediately newly-created information. Reading will preserve its significance for centuries to follow, despite the fact that it is a regression for majority of people, but the letter (as a linear letter) will really be doomed to disappear soon because it is being replaced by dictaphonic devices with automatic printing". In such a process of development "scientific thinking will not suffer a loss after disappearance of the letter, while it is evident that philosophy and literature will progress in their own forms" (Leroi-Ghuran, *La geste et le parole*, Paris, 1965 (author's italics).

<sup>16</sup> J. Derrida, *La dissemination*, Paris, 1972, p. 51

<sup>17</sup> S. Carlshamre, *Language and time. An Attempt to arrest the thought of J. Derrida*, Goeteborg, 1981. p. 159 (quote by Subbotin).

<sup>18</sup> To my deep regret, I have to limit myself only to several, insufficiently mentioned contributions and aspects significant for this topic

Majority of linguists have not experienced popularity among the supporters of the *hypertext*, especially not the *fathers of the modern linguistics* (De Sossir, Jakobson). We believe that the criticisms have no excuse, due to two important reasons.

*First*, linguists did "marginalize" the significance of letter in comparison to "language" and "speech". However, they do not deny it. But, *language* and *speech* are, undeniably, not only the most fundamental entries for linguistics but also for literary creation (poetics is also a part of linguistics as "global science on verbal structure"). From the standpoint of hypertextuality itself, it has to be said that the letter, in the printing era, presented a reduced dimension in comparison to the previous period (when reading aloud and illustrations were applied...) and that it continues to *reduce* human communication.<sup>19</sup> After all, how come that there is a general agreement that the forms of new literacy have more similarities with those known before the letter has appeared?

*Second*, we cannot say that Jakobson at least does not introduce some moments which are of essential importance for the hypertext. In a most direct way, he links linguistics with the theory of information and communication. Taking over the fundamental mathematical model, Jakobson defines six functions of the language: *emotional, conative, fatic, referential, meta-lingual* and *poetic*, which are aimed at (respectively) *sender, receiver, contact, context, code* and *message*.<sup>20</sup> In Jakobson's work we can find the following comments: "granular structure" of the language "susceptible to quantic description"; lingual "dichotomous principle"; "*non-monolithicity*", i.e. presence of "a series of sub-codes" in a language code; necessity of replacing "static" description with a "deepened presentation of dynamic synchrony of the language", having in mind the "time-spatial coordinates; to introduce the participants "on both ends of the communication channel to the scene" because encoding and decoding are two equally significant aspects of the language and "complementary" (as Nils Bore understood it)...<sup>21</sup>

I think that Jakobson's dichotomy *metaphore-metonymy* is also of great significance for the theory of hypertext. It is still very vividly present in linguistics, poetics, anthropology...<sup>22</sup> Putting aside a deeper linguistic discussion, as well as the fact that there are quite successful interpretations of

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<sup>19</sup> Among at least 50 forms of human communication (Encyclopaedia Britannica, 1974), the written word is only one, and it has a lower ability of linking to other forms of verbal and non-verbal communication, at least before the appearance of the hypertext.

<sup>20</sup> Roman Jakobson: *Linguistics and poetics*, Beograd, 1996.

<sup>21</sup> id.

<sup>22</sup> Those who are interested in the value of this concept in the semantics are kindly asked to observe: Michel Le Guern, *Semantique de la metaphore et de la metonymie*, Paris, 1973.

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modern novel based on the standpoint <sup>23</sup>, I believe it is more interesting to point to a less known value of this concept in anthropology. For this purpose, it would be enough to mention the opinion of the anthropologist Edmund Leach. By applying Jakobson's theory (where proximity and continuity belong to metonymy, and discontinuity and similarity to metaphor), he says: "Levi Stross, in the tradition of F. De Sossir, describes almost identical distinction by using expressions *paradigmatic-syntagmatic*. Such a contrast can be found even in music where *harmony*, in which different instruments make simultaneous sounds which can be heard as combination, differs from *melody* where notes follow one after another". <sup>24</sup> Leach, as a structuralist, thinks that all the relations (in signs, rituals, art...) are based on a mechanism of "transformation" of different aspects of communication between two poles (where the "metaphoric non-sense" in a double transformation can be proven as a "metonymic sense"). In a symphony, for instance, musical text is arranged sequentially, in a metonymically *horizontal* way, while its performance is simultaneous, metaphorically *vertical*. Levi-Stross applies the same mechanism in his myth interpretation concept: "First, Levi-Stross breaks up the syntagmatic chain of a myth story into the sequences-episodes. Then, he presumes that every episode is a partial metaphoric transformation of every other episode. This means that the story can be seen as a palimpsest of arranged (but incomplete) metaphoric transformations". <sup>25</sup>

I hold that a great contribution to the hypertextuality was also given by Charles Sanders Pierce's *semiotics*. This general "doctrine of signs" (quite elaborated in Pierce's endless "triadomania") was simplified by Charles Morris by dividing it into three classes: *icon*, *index* and *symbol*. <sup>26</sup> Pierce's idea that every designation is "only a translation of one sign into another sign system" <sup>27</sup> manifests the freedom of combinations, replacements and transformation of signs as bearers of the meaning. Based on this, hypertext today (just like other media till yesterday)<sup>28</sup> can be understood as unique *semiotic space* and hypermedia venture.

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<sup>23</sup> David Lodge, *The Modes of Modern Writing*, London, 1977.

<sup>24</sup> Edmund Leach, *Culture and Communication*, London, 1976, p.15.

<sup>25</sup> id. P.25. This is an element of hypertextuality, too, related to the artistic forms of expression... Anyway, I limit myself strictly to Leach's understanding of Levi-Stross's interpretation of the myth (this is one of major topics in anthropology). Levi-Stross's work deserves much better attention.

<sup>26</sup> Charles Morris, *Basics on the Theory of Signs*, Belgrade, 1975.

<sup>27</sup> Collected Papers of Charles Sanders Pierce, IV, 127. We will easily notice the similarity with "transformations" Leach is talking about.

<sup>28</sup> Supported exactly by this idea of "complex information network" (with "instructions" for strolling around different levels of the unique informational "universe"), and by the lexicology from the period, the author of this article edited the one-volume, general "Popular encyclopaedia", BIGZ (1976).

**TEXT AND HYPERTEXT****INFLUENCE OF COMMUNICATION SCIENCE**

Marshal McLuhan's name is associated with so many contributions in the field, and to the theory of hypertext. We are all very well acquainted with his works and I do not intend to focus on them now. He is, undeniably, the most influential representative of going beyond "Gutenberg's galaxy" and the creator of the metaphor of the "global village". On this occasion, a special interest for his approval of a book as a means of communication is underlined. As a participant in a discussion on future destiny of the book, McLuhan pointed out that the new electronic ambient seriously questions the traditional form of communication in the print-dominating environments, while "in a contrast to this, the ordinary tribal or illiterate man does not feel any danger". The new environment has changed everything. In the era that preceded the appearance of letter, the book represented "a magic form of miraculously repeated symbols"; for those who were literate, it had "numerous functions - ornamental, recreational, utilitarian"; in the electronic era (when whole libraries can be put into a "box for matches" and become portable) the pattern and the use of books have undergone enormous changes. The Western man, always ready to undertake adventures (without giving a thought to the consequences of technological changes to which the Eastern man is always prone), "has shaped himself in accordance with the alphabet and printing machine". More than ever before, the consequences are reflected to the inner life of people inducing new technologies - photo-printing, xerography...- while the new graphic and printing processes require simultaneous use of a great diversity of effects" (which the stream called *Poesie concrete* has sensed and, partially, adapted to). By reaching the general point that the book is a remnant from the "era of privacy" in a new period of time in which the privacy has become almost impossible (electronic media have flooded the society, working places, families...), McLuhan thinks that the "printed book as the only available means for development private-initiative-oriented habits, private aims and endeavors" cannot be further developed within a cultural milieu based on electric sound and information, "because the acoustic world... is neither private nor civilized, but tribal and collective". This brings the modern man back to "oral habits and behaviour" of the pre-Gutenberg era. While the "book of Nature" metaphor had a domineering role throughout the Middle Ages, with the appearance of printing it vanished, and today we are faced with questioning not only the existence of the book itself but of the very idea of writing, too. Sartre has already pointed out to the fact in his work entitled "What is the Literature", stating that "we, literally, do not know who we are writing for?" McLuhan draws a conclusion that the "video cassette offers an immediate opportunity to both writer and author to acquire

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a completely new relation". He says that "the reader will be given a chance to participate in the creative process in a new way, indicating that the book is on the verge of a completely new path of development".

A historian, Asa Briggs, determined "that the book had never meant a lot to the broad masses of people" and that trend would obviously continue in future. However, the role of other media will be increased. According to him, the book has so many disadvantages today: it had to hand over its documentary role to the photography and film; in printed document a great lot of historical evidence is lost (tone, social impression...); the appearance of telephone and telegraph has also left less space for the book... But, as a work of art, "an occult need/use" and "a piece of wisdom", it will manage to preserve its function in future. On the other hand, the book has already undergone changes under the influence of new media (historical textbooks contain more statistic data and illustrations), while the 'magazines' have made such a strong breakthrough that we can even talk about "*mooks*" (magazines and books).

Inter-relations between the media are beneficial for all because one form of communication contributes in spreading up of the other one. On one side, we can say that the modern electronic devices are much more suitable for storing the information (in 19<sup>th</sup> century there were 7 million new titles, while in the 20<sup>th</sup> century till 1970s we have had as much as 25 million). On the other hand, it would be wise to presume that the oral communication (in teaching, for instance) will preserve its importance. The inter-relation between media is fully complementary.

The other participants also pointed out that the book is in a serious crisis either due to the prevalence of speech (which, according to some opinions means everything in direct communication and propaganda) or due to new electronic media which can offer more space for storage and retrieval of information. However, I would like to stress the opinion of George Steiner who especially clarified two important problems: position of the reader and the author once and now. He says that our way of reading commenced as late as in mid-17<sup>th</sup> century. It has been known that St. Augustus said that the first man in his experience who had started reading "without moving lips" (which means, silently, as we do today) was St. Ambrosias and that his contemporaries had been amazed. Montagne says that he had been surrounded by books, but that modern way of reading was to be seen only with Montesquieu, meaning - a private relationship with the book which could be carried over and not to be read "chained" (attached to a table) or in some exclusive book temples. During that period of "silence" and loneliness, reading was a serious task, while a private library was a real blessing. Nowadays, in the overall "electronic noise" era (radio, TV, cassette-players,

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gramophones...) it is not possible to single out; private libraries have become an anomaly; real book stores have disappeared and have been replaced by general storages... The difficult and demanding job of reading has turned into a superficial glance-reading, while the "paperback book" despite its contribution towards liberalization and democratization of the book, has turned it to a mere consumption. The destiny of the authors was no better at all. The Latin terms which designated a close connection between *auctor* and *auctoritas* (author and authority) have lost their original meaning today. From Pindar, via Horatio, till our days the author has been trying to "build his own monument", to compete with God as the "creator". This cliché has completely eroded. Reminding of the fact that Robert Escarpis has earlier (in 1964) driven attention to the crisis of the book (in his work *La revolution du Livre*), Steiner lists data which confirm this: a Frenchmen "opens" one book per year; an Italian - not even one; in America, the original book stores are dying out (they have become "emporium of all sorts of things"); even in England, the omnipresent "organized amnesia" is prevailing... The crisis of the novel is a product of two specific circumstances: long "absence of the attention from the part of the half-literate audience"; the very change of the novel. "We have to be completely sincere in this: majority of modern novels do not ask for a serious reading that we have mentioned before. They represent momentary superficial intrusions which can be done in the airport lounges." And real reading is a "very difficult task" and it is getting more difficult with the disappearance of the really-educated audience which existed till the beginning of this century. Nowadays, practically even the most elementary text requires at least a long footnote. The circle of real participants in the author's cultural endeavor has been reduced to academic persons. "A great deal of such a reading is now a specialized skill...of those who themselves cherish the hope to write a book one day".<sup>29</sup> And the poets have, all the way till Mallarmé, been tranquil believing that every being is one "page" of the "book of Nature", i.e. that the meaning and existence of the world is in the "book". However, with new techniques of reproduction (McLuhan has "Xerox" in mind) we reach the situation when everyone - as the American publisher, William Jovanovich has said in his letter to Saroyan - "will become a writer, publisher, librarian, and critics at the same time" so that the literary profession can easily fade out 'since one man will take over all the literary roles'.<sup>30</sup>

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<sup>29</sup> See *Do Books Matter?*, Leeds, 1973

<sup>30</sup> McLuhan's quotation, loc.cit.

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I have already mentioned that hypertext expresses and supports the dialogical form, and with regard to this, I have mentioned that so-called Socratesque dialogue in Plato's work is a bastion of such an approach. With this, we have stepped into the field of literature, having in mind that Plato's influence in it is enormous (both in theory of literature and in the development of literary genres, including the novel).

The topic which I have started here is so broad that the whole article could be considered as a note of secondary importance .<sup>31</sup>

I have deliberately used the expression "footnote" exactly because, in a broader sense, at its very beginning, the hypertext was regarded as a sort of "general note" (footnote), i.e. "comment". In the light of this, the elements of hypertextuality have existed for a long time: 1) This is the case with "holy texts" ("The Bible", "The Khuran" etc) which have been edited in a manner to allow comparisons between different parts (instructive "links" to syntagmes and moments in gospels, surahs ...); 2) A great number of medieval, primarily religious books were also equipped with different additions (comments, correspondences etc.) Besides, they were illustrated, with margin space left blank for various additions and other purposes; 3) All the lexicographic works (encyclopaedia and dictionaries...) contain the elements of hypertextuality with different degree of links and correlation between its parts which can be considered as some type of "nodes". 4) It is the same case with the philosophic, literary, scientific and other works which were published equipped with scientific apparatus (comments, explanations, remarks etc). The classic texts were processed in this way for better understanding. The same model is being applied to the "complete works" editions with criticism of writer's work itself, scientist, etc.) 5) For a long time now, the books for training (school textbooks, manuals, tests etc.) ,just like the literature for children, have contained additional information (pictures, drawings, illustrations, maps...).

We add the fact that many streams and trends in literature have emphasized the elements which were to bridge over the limited textual unilinearity, from alexandrimism up to the French symbolism, surrealism, various synergistic movements, and ,finally, up to the "new novel" and "post-modernism". The assumptions presented by many theoreticians, especially in the period of formalism (in Russia after the First War I) structuralism and post-

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<sup>31</sup> Due to these reasons, I am not going to discuss it further. I am aware that the information scientists will , naturally, be interested in the first part of the article, while the literary experts will show their interest in the second part of it. Risking to evoke the displeasure on both sides, I find it useful to make them, at least in this way, start building links between themselves since it is high time they started cooperating between themselves rather than ignoring .

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structuralism (in France and other countries), can be taken as standpoints for one hypertextualistic poetics (I will mention only the concepts of "transformation, "intertextuality"...) I would like to mention here only one quotation : "Maybe it would be interesting to create *once* a work which would, in every of its *nodes*, express the versatility which the spirit could drive from them and from which it could *choose* the unique order given in the text...This would be the replacement of the illusion on unique and imitating determination of the reality with a *permanent possibility* which seems much more credible to me. It occurred to me to publish different texts of a same poem: we would be able to find there even contradictions, and the critic at my expense would certainly be there, too." <sup>32</sup>

However, the most important name which I have in mind is the theoretician of the novel *Michail Bachtin*. He is being quoted by the followers of the hypertext, too. Thus Subbotin thinks he has shown that "written text can be viewed in a new way, and understood as an open text, in a dialogical relations with other texts, communicating with them and replying to their answers". The meaning of a text is not in the text itself but in its relationship with others. "This means that a separated text loses, its closed and self-sufficient character becomes a part of a broader whole within which the texts are being intersected with regard to content, extending one another, posing questions to another and sending replies". <sup>33</sup>

In Bachtin's work we can really find such possibilities. However, I believe that he himself would have two remarks: that this approach to his work is incomplete and that it, at least, is one-sided.

Bachtin's concept of **dialogue** is one of prevailing ones in the modern theory of literature. He developed it with regard to the interpretation of a Dostoevski's novel. <sup>34</sup> He stated that some of basic characteristics of the writer's works were : (an impression that) in his novels there was not only one author but a series of authorship essays and remarks, i.e. several authors, so that (for the old criticism) his work "fell apart" into versatile and mutually opposed works (Grosman was the first one to point out to this fact, agreeing with Bachtin that this was "the most versatile" material which created something completely different from "one piece novel" in the manner of Flaubert); the characters were realistic people, equal to their creator, who could even oppose him; versatility of styles; incompleteness of the work; several planes, several worlds which were connected, confronted and influenced by each other... The essence is that Dostoevski is the creator of a *polyphonic* novel, which is, according to

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<sup>32</sup> This is the way in which Paul Valeri understood "future literature". Out of my contact with his work (and with the work of E.A. Poe) my "poetics of mignonettes" (in *The Last Book*) was born.

<sup>33</sup> M.M. Subbotin, *Hypertext*, Moscow, 1994. p.12

<sup>34</sup> M. Bachtin, *Problemy poetiki Dostoevskogo*, Moscow, 1979.

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Bachtin, all in a dialogue. The writer himself (in his famous letter to his brother on the occasion of publishing "The Letters from the Underground") emphasized the decisive significance of the musical "transition" from one tonality into another i.e. to *counterpoint* as the essence of his understanding of the composition of the novel. And the counterpoint itself "connects different stories involved in the novel, different fables, different planes".<sup>35</sup> Bachtin found the elements of polyphony in literature in the works of Shakespeare, Rabelais, Cervantes, Grimmelshausen etc. but believed that Dostoevski is the creator of this type of novel.

Another, very important concept, introduced by Bachtin, in connection with Rabelais's work and the specifics of composition of Dostoevski's novels, is carnivalization. Heterogeneous nature of materials, liberty of mixing of different genres, multitude of styles, multi-voicedness, courage and proneness to experiments, contradictions (funny-sad) and the dialogue itself... are a part of the approach to the work in this way, from Socratic dialogue, over the "Menippeics" (called after Menip, classical Greek satirist), Rabelais, Voltaire, Sterne... up to Dostoevski. In this concept is the initial root of participation (both by characters and readers), because "the carnival is a performance without barrier, void of division into participants and spectators". Analyzing some of the last works of the famous writer, Bachtin points out to the procedure which (pronounced through words of one of his characters) Dostoevski had used: "Your syllable is changing. It is cut. You cut and cut - when introductory paragraph is out, you add another introductory word to the existing one, then some words in the brackets, and cut and cut again..." ("*Bobok*") Apart from this, according to my opinion, obvious fragmentation and commenting in a modern sense, Dostoevski is also using another modern procedure: time "jump-over" ("*The Dream of the Funny Man*"), where, according to Bachtin he "concentrates on the *critical points, turning points and disasters*" moving around in "the carnival-like mysterious space and time".<sup>36</sup>

In his "philosophical analysis" of the "text in linguistics" problem, too (in 1959-61, first time published in 1976), Bachtin wrote something that can be of interest for our topic. Here, among other things, he mentions "the dialogical relations between texts and within text"; "double plane and double subjectivity of humanistic way of thinking"; "complex interrelation between *text* and *context*"; "dramaturgy" of the creative procedure; intersubjectivity of understanding; "given and created"; text as original fact of humanistic sciences; giving status of "participant" in the statement to the one who

<sup>35</sup> op.cit. "Polyphonic Novel by Dostoevski and its Clarification in the Critics Literature".

<sup>36</sup> id. "Genre and Topical and Compositional Basis in the Works of Dostoevski"

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understands it ...<sup>37</sup>

However, despite the fact that Bachtin's contribution is, undeniably, in support of hypertext followers, on the other hand, in my opinion, his work is a criticism of every superficial approach with regard to that. Here I have in mind, in the first place, his key concepts:

1. *Dialogue*. This feature was not so much emphasized by the theoreticians of the new literacy. However, we should not be surprised by their failure to understand it if we know that the structuralists have also reduced Bachtin's concept to "intertext". Thus Julija Kristeva (in her work "Word, Dialogue and Novel"), quoting Bachtin, says that there are "three dimensions or coordinates of a dialogue-author, addressee and the outer texts". The horizontal axis (author-addressee) and vertical axis (text-context) are coinciding. Even though she admits that in Bachtin's work there is "no clear distinction" between these two axis, she draws the conclusion that in his work "every text is designed as a mosaic of a quotation; every text is an absorption and a transformation of the other one. The term *intertextuality* replaces the term intersubjectivity and the poetic language is read at least as *duality*."<sup>38</sup> This opinion is, by all means, a structuralistic reduction (obviously accepted by hypertext followers, too). To substantiate this assertion, I will mention some assumptions about the character of Bachtin's dialogue concept: it is the relationship between the *meanings* carried by the texts, but which have the significance only within the relation of *subjects*; inability of text "reification" (in cybernetics, theory of information, structuralism); participants in dialogical relations (which is broader than dialogical speech) are *partners*; prohibition of "unitotality" (such as Lotman's attitude of multi-stylness only as a procedure of replacing one code with the other); narrow understanding of a dialogue as "one of compositional forms", multivariance, games; dialogue in *artistic space* includes not only the author and the reader, but also their worlds<sup>39</sup>; the act of understanding, just like the act of creation, is a creativity ("co-creative" aspect of understanding); there are not only the author and the addressee, but, also, "the third person" - "*over-addressee*" because the author does not address only to his/her own time and surroundings; in short, dialogue is not a "superficial" issue, but on the contrary it is a "deep point" (in his last notes Bachtin writes about "micro-dialogue", as before, but also mentions something that I would call "macro-dialogue", *dialogue in totality of the work...*). Finally, he admitted himself that he was not to be classified to

<sup>37</sup> M. Bachtin, *Estetika slovesnog tvorcestva*, Moscow, 1979.

<sup>38</sup> *The Kristeva Reader*, ed. T.Moi, NY, 1986 Also, see: J. Culler, *Structuralist Poetics*, London, 1975.

<sup>39</sup> "We can call this world as the world which *creates* the text: however, all of its moments - the reality expressed in the text, the authors who create it and the performers of the text(if any), and finally listeners-readers, who re-create the text, renewing it during the process - are equally participating in creation of the world conjured up in the text" (*Forms of the Time and Chronotope in the novel*", *Voprosy literatury i estetiki*, p. 402).

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any "specific stream (structuralism). I am fond of variations and multiformity of terms towards some issue. Multitude of standpoints..."<sup>40</sup>

**2. Polyphony; Carnivalization, Chronotope.** The essence of Bachtin's attitudes is expressed exactly through these concepts without which it would not be possible to understand the dialogue itself (thoroughly discussed here, due to the character of this article). In observation notes for revision of a book on Dostoevski (in 1961-62, published in 1976) Bachtin says that "polyphony is - the main thing". In works related to his concept of "chronotope" (time-spatial) in literature, we can encounter some highly relevant thoughts about the development of genres, dialogue, polyphony, character of the novel etc.<sup>41</sup>

It would be improper to touch superficially such important and complex issues. That is why I would like to say two things only:

**a)** Even within the broadest interpretations of its meaning, hypertext or any new technology cannot absorb the literary nature, the artistic essence of the created work. For this reason, as the author of "The Last Book", I have used its advantages without forgetting for a moment that the main thing is the artistic and anthropological character of the work; that I long before discovered some key elements which correspond to the hypertext; that the base for this approach to the written communication have been developed much broader in literature and its theory; that the "deep point" (on which Bachtin insists) cannot be exhausted by the way of presentation. "In more complex texts", Luria says, "the meaning of the whole cannot be reduced to successive meanings of its parts and it requires a more complex process of analysis and synthesis - which means comparing of fragments of statements which are, sometimes, very distant, *stating of a hypothesis on a general meaning and -often- distancing from the external text and transition to subtext which presents the general idea of the statement as a whole, and, sometimes, the judgement of the motives hidden in the text*".<sup>42</sup>

**b)** Novelty, experiment, freshness of the form are, without any doubt, very important for any work of art. However, literature cannot be reduced only to this. For instance, as a writer, every author is sometimes faced with the possibility to be seduced by experimenting.<sup>43</sup> The art is a game, but not only a

<sup>40</sup> M. Bachtin, *Estetika slovesnog tvorcestva*.

<sup>41</sup> *Vorposy literatury i estetiki*, Moscow, 1975.

<sup>42</sup> A. Luria, *Basics of Neuro-Linguistics*, Belgrade, 1982, p. 209 (italics by the author)

<sup>43</sup> As early as twenty years ago, I wrote a work which was "completely hypertextual": by using the chess as the metaphore (long time present in literature, even in De Sossir's linguistics), I composed the "urban prose" with all the elements of a chess party! Despite relatively favourable criticism of a reader and friend (S. Lukic), this work has, naturally, finished in the ....dustbin. Because, it was an excellent chess party (Botvinik's) but a bad piece of literature...

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game. The above-mentioned Valeri's hesitation was not groundless! I have mentioned that in lexicographic works we encounter the elements of "weak" hypertextuality. Why didn't I, then, want to present my book in the form of a lexicographic work (especially since I have already come across those elements and "strengthened" them through my work on encyclopaedia)? Well, in the first place, because, as Bachtin says, *every novel is an encyclopaedia*! It is, in fact, a syncretic form which in a special way "adopts" different genres, histories, elements... Its presentation in a canonized form of encyclopaedia does not add anything to its depth and literary character. On the contrary, it could easily lead to the mannerism, as it happened with the French "new novel", and post-modernistic constructions. Anyway, even the novel in the antique period (the Greek, and later, Byzantine) is a genre with a strong tendency towards "encyclopaediality".<sup>44</sup> This trait later found its reflection in the baroque and Gothic novel (with addition of elements of fortune-telling, oracles, auspices, tradition, exotics, bizarre turns etc.). Naturally, this could contribute to the interestedness of the work. However, "no artistic genre can be built only on the bare interestedness. Even to be interesting, the genre must touch into an essential thing".<sup>45</sup> It is not incidental that nowadays all possible "renewals" of chronotope of classical (Byzantine, baroque, Gothic...) novel suffer from the same diseases as their originals: *technically-abstract link between the time and the space, reflexivity of moments in the time span and their overcoming the space*.<sup>46</sup> On the other hand, for me of much greater significance in the field of *composition* was to add to the experience of *polyphonic novel*... The time of *monologuism*, anyway, belongs to the literary and cultural past (and mere series of variations still do not form polyphony). Thus, according to my *historically-anthropological* sense of the world, I favoured, *within polyphony*, to search for new possibilities for *condensing* (but not canceling) time and space; for *simultaneousness*; for chronotope of the *chronicle and the way*; for limits of *mystery and the intrigue*; historical and genre-generated *multi-styleness*; for *coherence* in the form of the *fugue*; for *counterpoint*; *documentarity* ...<sup>47</sup>

<sup>44</sup> *Voprosy*...p.238. The encyclopaediality is, as Bachtin says, "a characteristic of that genre".

<sup>45</sup> *id.s.* 257

<sup>46</sup> Some contemporary tendencies can be judged in a similar way ("new novel", "post-modernism")... Not wishing to degrade our work in any manner, nor its positive contribution and historical significance, the other side should also be enlightened: the tendency to *substitute* the "disintegrating world" with "disintegrating art" which substitutes *magic* with *illusionism*, profound *impacts* with glass of *stirring water*, *real* game with a *false* one, *riddle* of the history and future with a *trick*, *wisdom* with easily-launched cynicism, and an unacceptably rude *engagement* with *neglecting* of true human values... Thus, one superficiality is replaced by an other (naive *mimesis* of realism with no less naive *artificial ludism*). Cf. Iand J. Kuehl, *Alternate Worlds*, NY, 1989.

<sup>47</sup> "Documentarity" as "holographing" (neither "faction" nor "fictious history") was discussed in my work "*Factio* and *Fictio* of Danilo Kis" in 1980.

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Finally, I must say that I have doubts about one of key postulates regarding not only the present hypertext theory, but also some literary experiences - *associativeness*. Just like the authors of "stream of consciousness" novels, the followers of the new textual technology insist on associativeness. It, of course, has special importance. However, its concept has been *essentially* changed nowadays. Namely, the understanding of associativeness as a *horizontal* link between (meaning, external) "nodes" and points of human psychic activity has been seriously questioned. Like in the case of memory, a *new metaphor* and an experimentally tested *model* have been offered, presenting its *vertical, in-depth* activity - according to a *hologram* principle...<sup>48</sup> However, I will not discuss it further this time, since it is another important dimension of my book, too. This could be an initiation of a poetics of *virtualism* which partly converges with but also separates from the "virtual reality" in technical sciences.

**In short, we can draw two basic conclusions:**

**1.** *Hypertext*, as all modern techniques and technologies of writing (regardless of the fact if it really is a *technology* or not), is by all means welcome and of undeniable significance for literature. Hypertext itself (as well as a multimedial approach) has revolutionized some fields. It is especially suitable for all types of education and training, economic propaganda, techniques of "persuasion"... The writers should get used to the facts underlined by the historians of the letter: "Whether we are aware of it or not, the computers have already become an integral part of our lives".<sup>49</sup> In the case of hypertext, we talk about a technology which has been *humanized, user-oriented* and can be of enormous help in the hardworking job of writing. Computers can no longer be treated as a substitute for a typewriter (How many people still don't do even this?!)

**2.** On the other hand, although the communication channel has influence to the message itself<sup>50</sup>, it is clear that literature existed and was preserved in all technologies known, and that has outlived many of them: it was there before letter, before print, before electronic message... The same will happen with the new techniques and technologies, still unknown to us. Thus, the real literature, following the achievements of its time, will, at the same time, tend not to remain on the surface (technologism, mannerism, fashion trends) but to

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<sup>48</sup> Karl. H. Pribram, *Languages of the Brain*, 1971

<sup>49</sup> *Albertine Gaur, A History of Writing*, London, 1984,p.208.

<sup>50</sup> McLuhan rightfully warns that the age of electronic technology, unlike the industrial one, is primarily interested in "the process and not product, effect and not the content".

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develop its essential dimensions. In any discourse there are, at least, two sides - the *obversive* one (visible, superficial, manifest...) and the *inversive* (not visible, deep, latent...). The art has the third side, *subversive*, the one which will save every genuine creator from "automatic uniformity" ("a typographic man") and save every true reader from the destiny of Wittgenstein's "reading machine" (*Lesemachin*). This side of art is completely turned to human beauty and humanity... And this is something to exist as long as the mankind itself.