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Carr. Lago de
Guadalupe Km. 3.5,
Atizapán de Zaragoza
Estado de México.

Tels. (52)(55) 58645613
Fax. (52)(55) 58645613

A Semiotic Approach to Hypermedia for Literary Studies. New Conditions for the Act of Reading?

Número Actual

Por *Sabrina Mazzali-Lurati & Peter Schulz*
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Abstract

The increasing importance of semiotic analysis of new media is well acknowledged. In our paper we concentrate on the process of interpretation and comprehension of hypertextual transpositions. Hypertextual transpositions are a particular kind of hypermedia for literature and literary studies. In our research we aimed at understanding if and how the characteristics of the hypertextual form (namely, the fragmentation of contents and the absence of a predefined reading order) have an impact upon the act of reading. Such a question is central as to the improvement of the effectiveness in the use of this kind of artefacts. After having introduced the topic and the general framework, we will provide a definition of hypertextual transpositions. In the main part of the article we will outline and describe the two main features of this kind of hypermedial applications (namely, the logic of representation and the second order representation), taking care to point out their impact upon the user's act of reading and comprehending the application contents.

Keywords: semiotics, new media and hypertext studies, text comprehension.

0. Introduction

0.1 Semiotics and new media

On the borderline between semiotics and informatics stays the study of the process of interpretation and comprehension of new media artefacts, such as hypertexts and hypermedia. Because of the growing importance new media have been acquiring in communication processes, such a study is of high importance in order to assure the effectiveness of communication. The fragmentation of contents and the absence of a predefined reading order characterizing hypertexts and hypermedia can affect the process of text coherence building and, therefore, the interpretation and comprehension of the messages conveyed through such artefacts (cf. Engebretsen 2000; Fritz 1999; Storrer 2002). The hypermedia designer has to sustain the user in this process by taking care of the signs he decides to include in the application. In fact, as the semiotic engineering approach outlined (cf. De Souza 1993; De Souza et al. 1999; Prates et al. 2000), a successful user-application interaction depends on the reader's understanding of the designer's intentions and icons and messages constituting the user interface have to be studied as signs. Correspondingly, the interaction between user and interface has to be studied as a process of signs interpretation.

In this paper we present the results of a research devoted to a very precise aspect of this main topic, namely the use of a particular kind of hypermedial applications in the field of literature and literary studies and the conditions of its effectiveness.

0.2 Hypertext and literary studies

At the beginning of the spreading out of hypertext several professors and scholars underlined the advantages of the use of this new technology and textual form for the study of literature. A vivid enthusiasm accompanied the appearance of the first literary hypertexts. Since then, different kinds of hypertextual and hypermedial applications for literature can be found both on-line and off-line: archives, hyperfiction, presentations of authors,

presentations of themes, presentation of literary works. The reason of the initial enthusiasm was the belief that a technology had finally appeared that was able to realize the poststructuralist principles and the principles of deconstruction. ¹This was particularly evident in hyperfiction, but it was also related to new possibilities for literature teaching and learning and, thus, to the uses of hypertext for the educational presentations of different topics and subjects for literary studies (authors, themes, literary works). Different claims were made starting from the idea of this convergence between hypertext and post-structuralism and deconstruction.²

The central and most striking claim had to do with the nature of the reading experience. The literary text calls for reading and, therefore, reading is at the core of literature and literary studies. In the enthusiasm for the innovation introduced by hypertext, it was claimed that this new textual form would bring a new way of reading that, in the case of hyperfiction, was called "hyperreading". This new way should derive from the particular features of the hypertextual form, especially from non-linearity. Non-linearity (or multilinearity as it has subsequently been defined) was seen as the main hypertext's feature, the feature capable of breaking the unity, the stability and the canonical order of the literary text, thus allowing the reader to choose her/his own reading path through the text (Bolter 1991; Delany & Landow 1994; Joyce 1995; Landow 1997). In fact, even if reading cannot be but linear – the reading of a word after the other inevitably creates a linear sequence –, hypertext is, at least at the potential level, multilinear, since several different possible reading paths are made available (cf. Cantoni & Paolini 2001; Liestøl 1994; Miall 1998; Rosenberg M. 1994).

In the work we are presenting here we aimed at verifying the truth of this claim about hypertext reading by studying one particular kind of hypertext/hypermedia for literature, namely applications presenting a given literary work. We called them hypertextual transpositions (henceforth HT). We analyzed examples of this particular kind of technological artefact starting from a semiotic-hermeneutic perspective³ and this analysis allowed us to identify two main characteristics of this kind of hypermedia having an impact upon the act of reading the literary text. We will describe them in the following, after having defined what HT are and how we approached them.

1. Defining hypertextual transpositions

HT are hypermedial applications focussing on a given literary text. They are meant to be used in reading, enjoying and/or studying the literary text. Concretely, they consist of the electronic version of the literary text (which constitutes the core of the application) and of a series of added materials (that can be other texts, images, video clips and audio files) that aim at casting light upon the literary text's significance and at enriching the reading experience.

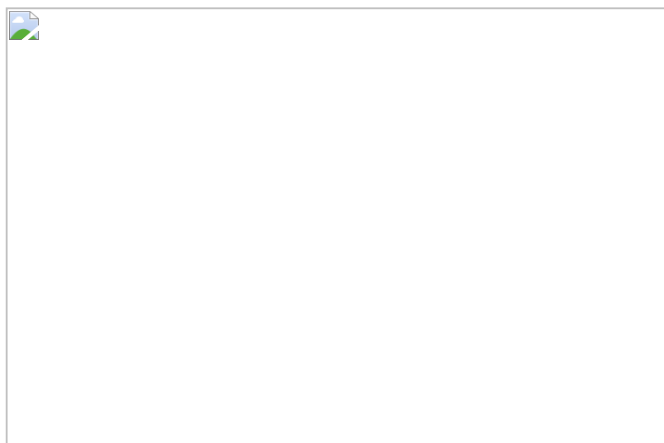


Fig. 1 – DC2 is an example of HT of the Divine Comedy. Here the electronic version of the literary text is available in the collection "Commedia" (which can be accessed

from the access device displayed in the upper part of the homepage). Added materials (such as texts of other works by Dante, essays about different themes developed in the *Inferno*, illustrations of the text, audio files with aloud readings, maps of the Hell) can be accessed from other collections, displayed in the low part of the homepage.

The most interesting aspect of HT consists in the fact that they imply the transposition in a new medium of a text that was originally conceived for a different medium. For instance, Dante wrote the *Divine Comedy* as a manuscript and since several centuries we have been used to read it in a printed form (as a book). In DC2 (cf. fig. 1) this text is transposed in a new medium, which essentially is a hypertext.

In fact, HT are hypertexts and, therefore, they present all the features hypertexts have. Namely, they are characterized by multilinearity (which comes from the fact that contents are fragmented in nodes, which are then connected through hyperlinks) and – usually, except the contrary is specified – by the absence of a preferential reading order. Several different reading orders are possible and more or less equivalent. Referring to the above-described claim concerning hypertext reading, we can wonder if and how these characteristics hypertextual transpositions share with all kinds of hypertexts have an impact on the act of reading the literary text. We can wonder what happens when literary texts we are used to read in a printed form are transposed in this hypertextual form.

According to a semiotic-hermeneutic perspective, HT have been considered as the result of the adding of new signs to the signs of the literary text. Consequently, their analysis was guided by the question “how does the reader interpret the signs composing them?” and “which contribution and which difficulties these new signs bring with as to the literary text’s comprehension?” The comparison of HT to printed annotated and/or illustrated editions (which we considered to be HT ancestors, since they are the artefact in which we are accustomed to read literary texts) also helped in identifying HT most peculiar features.

Particularly, this comparison let emerge the presence in HT of two main features, namely the increased presence of visual representations of elements or aspects of the literary text (which we called logic of representation) and the presence of signs (which can be contents, devices or tools) influencing the way in which the literary text is read (we called these elements second order representation). From these features of HT derive new conditions for the act of reading the literary text. First, the increased use of visual representations (of images) as means to understanding entails risks of misunderstanding as to the function of these images in respect to the literary text. These misunderstandings can prevent the reader from reaching the comprehension of the literary text’s significance. It is therefore necessary to avoid the arising of such misunderstandings. Second, the elements influencing the way in which the literary text is read (the second order representation) have to be adequate in respect to the reader’s goal and task; otherwise, such elements can prevent the reader from reaching the literary text’s comprehension.

2. Main features of hypertextual transpositions

2.1 The logic of representation

Usually in HT a remarkable amount of images is used in relationship to all the different aspects of the literary text’s structure and significance. Images are used in relationship to philological aspects, namely for the illustration of and the access to manuscripts, folios or different versions of the literary text. But they are also used for the description of characters and places (that is, for the illustration of the geographical setting of the narrated story; cf. fig. 2) and for the illustration of elements of the historical context in which the literary text has been produced

(such as images of important characters of the time, of important places or important events; cf. fig. 3).

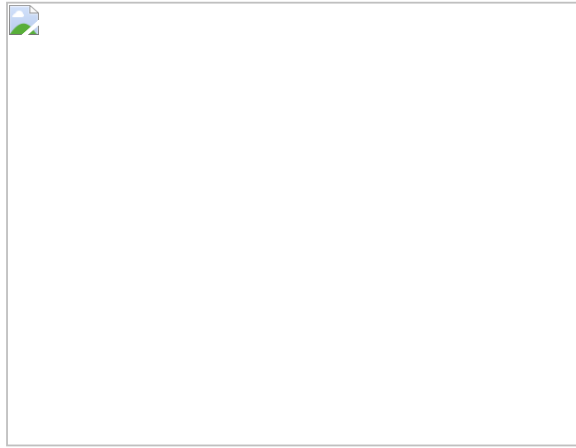


Fig. 2 – M1 – On the text's screen photographs of the speaking characters and a background representing the landscape are present.

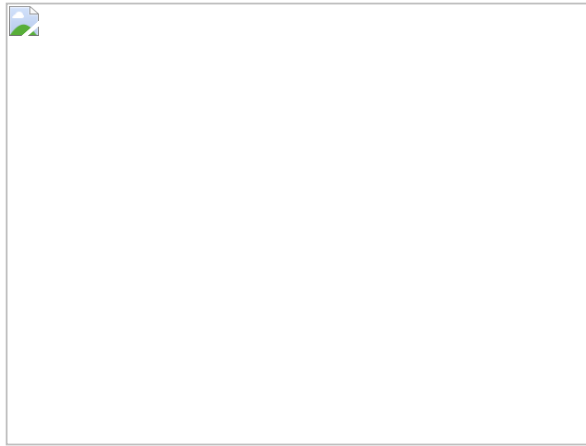


Fig. 3 – M2 – A gallery of images is dedicated to kings and queens of England.

In HT the literary text's significance is highlighted for a great part through visual representations. Several elements or aspects of the literary text are presented and explained in a visual way. In other words, in HT there is the use of a deictic modality, more precisely of the modality of *monstrare ad oculos*, for the clarification of the literary text's significance. This modality consists in contributing to the comprehension in allowing the user to see the object s/he has to know in order to understand a given word or passage of the literary text. We defined this modality as "understanding by seeing" maxim.

The goal of the adoption of this maxim is providing the reader with a more experiential knowledge and comprehension of the literary text by providing her/him with the knowledge of the *denotata*. This modality of providing access to knowledge and comprehension brings for sure benefits for the reader. In fact, the reference to *denotata*, that is, to the objects of the concrete world, is essential to human communication and the perception of objects is essential to human knowledge (it is essential for human beings in order to acquire the knowledge of something).

It is important to point out that benefits derive from this practice for the reader only if an essential condition is respected, namely the condition of correspondence between the content of the image and the content of the part of the literary text to which the image refers. Our analysis showed that in HT this condition is always respected. Nonetheless, the comprehension of the function of the images in respect to the literary text is not always immediate. This is due to the features of images as signs. Images are analogical signs and as analogical signs they present some particular characteristics. For instance, images are highly rich from a semantic point of view (an image transmits at the same time a lot of information in a dense way) and their perception is open to different possibilities. These two features can be source

of secondary meanings, which, in the case of images referring to a passage of the literary text, can go beyond the meaning of the passage the image aims at clarifying.

Because of this complexity and these features images as signs always imply a level of interpretation that cannot be avoided and that contrasts the attempt to provide to the reader a more direct and experiential access to the literary text's significance. In other words, the interpretation images as signs require can entail difficulties for the "understanding by seeing" maxim, in that the reader cannot understand the function of the image in respect to the clarification of the literary text's significance.

Two other factors intervening in the process of image's interpretation contribute to these difficulties, namely the reader's prior knowledge (which, when it is rich, can make easier for the reader the comprehension of the image and of the text) and the captions of the images (the information it provides can guide the reader's attention on one aspect of the image instead of another).

Because of these difficulties misunderstandings can arise between author/designer and reader as to the function of the image in respect to the literary text's significance. We take as an example the images available in DC1 at *Inferno I*, 71.

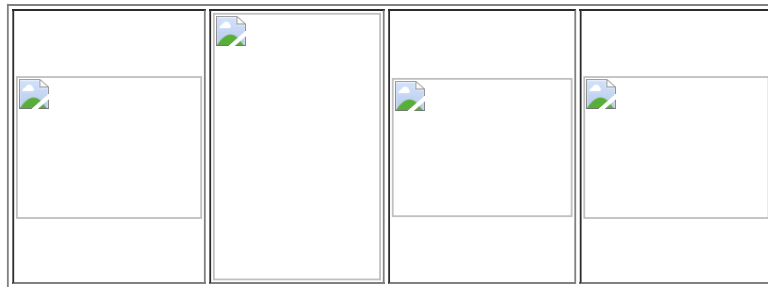


Fig. 4 – DC1 – Images available correspondently to *Inferno I*, 71 ("Nacqui sub Iulio, ancor che fosse tardi / e vissi a Roma sotto 'l buono Augusto / nel tempo de li dèi falsi e bugiardi").

Inferno I, 71 corresponds to the passage of the text where Dante met Virgil, but he didn't recognize him. Therefore, Virgil is revealing Dante who he is. Particularly, he is saying that he lived in Rome in the Antiquity. That is, Virgil is explaining the place and the time in which he lived. Correspondently to this passage of the text, in *The World of Dante* these four photographs of Roman remains (forums, Colosseum and the Basilica of Constantine) are available. These images aim at showing the place mentioned in the literary text as it was at the time the literary text is referring to. However, these images are photographs. Photographs have a strong indexical character that establishes a connection with the actual reality of the reader. Such a connection goes beyond the meaning of the literary text. It is an added meaning, which however is not part of what Dante wanted to communicate. The literary text puts the accent upon the past, while the photographs added to comment this passage put the accent on the present. The reader could interpret them in a misleading way ("Oh, look at what there is in Rome!"), without grasping the most relevant connection with the text. The available captions (which read "Forums, Rome", "Colosseum, Rome" and "Basilica of Costantino, Forums, Rome") contribute in focussing the reader's attention on this added meaning, since they only provide factual information about what is illustrated in the photographs and where it is placed. Of course, if the reader's prior knowledge about Rome, about the Roman period and about Virgil is rich enough, misunderstandings about the images' function due to this secondary meaning can be avoided.

The use of images can also entail another risk: the risk to induce the reader to stop at the literal level of the literary text's significance (thus preventing him to carry on the inferential process of comprehension in order to grasp also the levels of

meaning that go beyond the letter of the text, for instance the allegorical meaning).

2.2 The second order representation

Our analysis revealed the presence in HT of contents, devices and tools influencing the way in which the literary text is read. The presence of these elements introduces a new condition for the act of reading the literary text, which consists in the fact that these elements have to be adequate in respect to the user's goal and task.

Since they have an influence upon the way in which the literary text is read, we consider these contents, devices and tools as signs in respect to a way to approach the literary text. They are signs in respect to a reading strategy. We defined a reading strategy as a way to approach the text,⁴ to perform the act of reading the text. These elements are reading strategies representations. All together they create a representation that in the HT is superposed to the literary text (which is on its turn a representation). For this reason, we called it second order representation.

The presence or the absence in the HT of a given content, device or tool has an impact upon how the reader approaches the literary text. For instance, in DC3, the "I Canti" collection centre consists in an index displaying all the cantos of the Inferno. To each canto corresponds an icon with a detail of the image that will appear at the bottom left corner of the literary text screen. Rolling over each icon, information about the place and the time the canto takes place is displayed at the bottom of the screen. In this way, when entering the text of a given canto, the reader already got essential contextual information (cf. fig. 5).

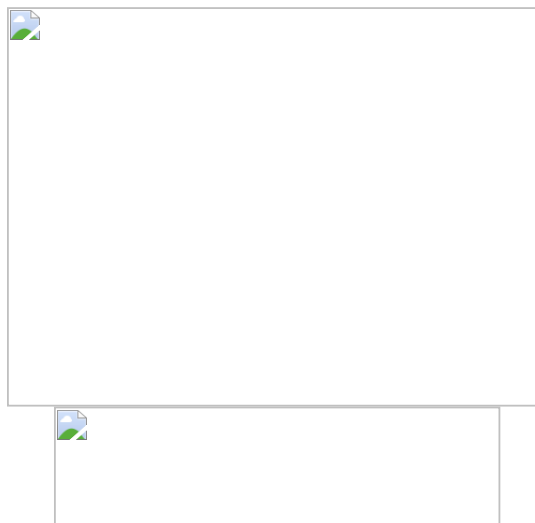


Fig. 5 – DC3 – "I canti" collection centre and detail of the information appearing the lower part of the screen.

Reading strategies are a hierarchical concept. It is possible to distinguish between high-level and low-level reading strategies. Low-level reading strategies deal with a very precise and partial aspect of the act of reading. They are represented by single contents, devices or tools included in the HT. A combination of low-level reading strategies represents high-level reading strategies, that is, reading strategies dealing with more comprehensive aspects of the act of reading.

All the elements of the application we recognized in the analyzed HT as having an impact on the way the literary text is read have been classified according to the low-level and the high-level reading strategy they represent. In this way, we obtained a picture of an ideally complete representation of reading strategies in HT. Fig. 6 provides an example. On the basis of this classification, the act of reading a literary text in HT can be defined as the result of the combination of various reading

strategies represented by contents, devices or tools included in the HT.5

High-level reading strategy	Low-level reading strategies	Devices	
Situating the part of the literary text the user is exploring within the whole of the narration	Being aware of spatial and temporal coordinates of the events narrated in a given part of the literary text	Place, date, time and main characters are displayed on each text screen	When on the text pages [DC3, M1]
			Before entering the text pages (behaviour anticipation pattern) [DC3]
		Visualization of the place of the narrated event	Map with the indication of the place that corresponds to the narrated events [M2 interactive maps]
			3D View [DC1]
			Screen backgrounds [M1, M3]
			Illustrations of narrated scenes [DC1, DC2, DC3]
	Gaining an overview on the whole narrated story	Easy access to maps and schemes from the literary text screens [DC2, DC3, O1 (collection centre of "Incontri")]	
		Easy access to a plot-line from the literary text screens [M1, MD2]	
		Easy and immediate access to a synopsis [M1 (from each text screen), M3 (already on the homepage, before the reader enters the literary text screens), MD2 (from each text screen), RJ1 (already on the homepage, before the reader enters the literary text screens)]	
		On the literary text screens, access to the summary of the part of the literary text to which the page the reader is exploring belongs [DC2, DC5, H1, M3, RJ1]	
		On the literary text screens, access to descriptions of the place where the narrated events happen [DC5]	
		On the literary text screens, access to summaries of the other parts of the literary text [H2 (even if it is less direct because the reader moves to another collection), M1, M2, MD2, O1 (already on the homepage and before entering the text!)]	
		The division of the text of a given part among several different screens follows a semantic criterion, that is, it aims at reflecting the sense of the text (not a fixed number of verses per screen, but narrated episodes) [DC3, H2]	

Fig. 6 – Example of classification of reading strategies representations. In the right column are the detected devices. For instance, screen backgrounds, access to maps and schemes. In the central column these devices are grouped according to the low-level reading strategies they represent. In the left column the low-level reading strategies are grouped according to the high-level reading strategies they contribute to represent.

However, to classify contents, devices and tools present in the application according to the low- and high-level reading strategy they represent is not enough in order to clarify the new condition the second order representation introduces on the act of reading literary texts in HT. Besides the second order representation itself, it is necessary to take into consideration the goal of the user of a HT and her/his major task.

The goal of the user of a HT can be defined as the success of the act of reading the literary text. In other words, the goal is the literary text's comprehension. Such a comprehension is reached by the user in different ways, owing to the major task s/he has (or wants) to accomplish. It is possible that the user has or wants

to read the literary text, to study the literary text or to conduct some specific research on the literary text. These are three different user's tasks, which can also be viewed as three different modalities in which the act of reading the literary text (which remains the basic activity in HT) can be carried out. Reading the literary text refers to immersive reading, that is, to the kind of reading that is considered to be characteristic of literary reading and that places at the core of the act of reading the interaction between text and reader's images, memories and desires. Studying the literary text refers to a situation where the reader needs to acquire a systematic knowledge about the literary text. Researching the literary text refers to a situation where the reader uses the hypertextual transposition in order to build a knowledge that was not made explicit by the authors in the HT contents.

For each HT it is possible to define the user's goal and task. Concretely, the user's major task appears from the information provided in the HT itself. Sometimes, it is explicitly declared. Sometimes, it has to be defined on the base of its intended audience. For instance, if the intended audience of a given HT is composed of students, it is likely that the major user's task is studying the literary text.

User's goal and task allow us to define the adequacy of the second order representation. In fact, we can now say that a reading strategy is adequate when it allows the reader to reach the goal by accomplishing the major task. What counts is the adequacy of the second order representation, not the second order representation itself.

From these considerations a model of the act of reading a literary text in HT can be derived, that highlights the adequacy of the represented reading strategies (cf. fig. 7). The act of reading the literary text in HT can be conceptualized as a pyramid, the vertex of which is the literary text's comprehension (that is, the user's goal). The user's major task coincides with the perimeter of the pyramid. The reaching of the vertex within a given perimeter is allowed by a combination of reading strategies represented in the hypertextual transposition. The pyramid surface coincides with the combination of represented reading strategies (in fig. 7 each number identifies one of the detected high-level reading strategies). The reaching of the literary text's comprehension depends on the representation of the combination of reading strategies, which is the most adequate considering the major task the user has to accomplish.



Fig. 7 – Model of the act of reading a literary text in HT.

As a consequence, we can say that the importance of each high-level reading strategy depends on the major user's task. For instance, if the major user's task of a given application has been identified as being "reading the literary text", strategies 3.1 ("paying attention to the literary text") or 4 ("getting immersed in the reading experience") are important, while they are less important if the major user's task is studying the literary text or researching the literary text. Therefore, the second order representation of this HT will be considered adequate only if reading strategies 3.1 and 4 are widely and clearly represented. Only if this happens, the second order representation assures the success of the act of reading. If the major user's task is studying

the literary text, strategies 2.2 ("integrating information provided by added materials and annotations with the meaning of the passage of the literary text it refers to") and 3.3 ("exploring further information") will be important and, therefore, their wide and clear representation within the application will be essential. If the major user's task is researching the literary text, strategy 5 ("investigating the literary text according to 'personal' needs or questions") and their adequate representation will be important.

Comparing HT and printed editions of literary texts as to the presence of a second order representation, we notice that, to a certain extent, reading strategies representations are also present in printed editions of literary texts. It is for instance the case of indexes, which are devices that can have an influence upon the way in which the text is accessed. However, in printed editions, mainly reading strategies remain implicit. In HT their representation is of higher importance. There, reading strategies that are usually implicit when reading the literary text in a printed form, have to be made explicit, that is, they have to be represented.

The reason of the major importance reading strategies representations have in HT comes from the above-described two main characteristics of hypertext, namely the physical fragmentation of contents and the particular presupposition of hypertext. Since contents are fragmented and since no canonical reading order is presupposed, the reader needs more explicit devices in order to build the coherence during the act of reading. In a printed edition such elements are implicitly present on the base of the presupposition that the reader will begin her/his act of reading from the beginning of the text towards its end. The reading strategy in the case of a printed text is taken for granted, while in a hypertext (more specifically, in a HT) it is not, since there this presupposition drops. This could simply be a cultural problem (we are not yet used to HT), but it could also be a technological one (a problem deriving from a feature of the medium).

The higher importance reading strategies representations have in HT in respect to printed editions is proved by the fact that the non-explicitation of given reading strategies creates an obstacle preventing the reader to put this reading strategy into effect. This means that their non-representation can prevent readers from an effective act of reading. It is for instance the case of the use of scrolling menus in the text's collection. They prevent the reader to have an overview upon the whole content of the collection and, therefore, upon the position of a given scene in respect to the whole (cf. fig. 8).

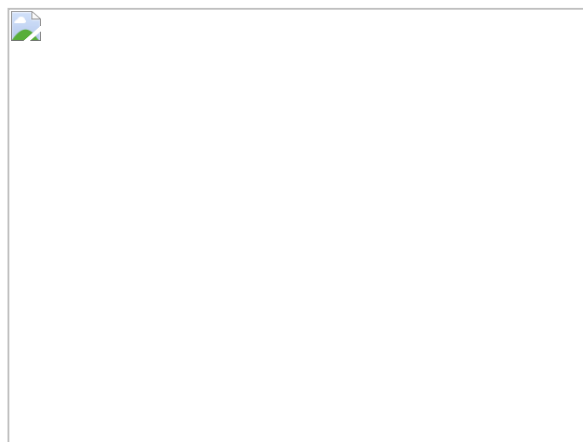


Fig. 8 – M3 – Use of scrolling menus.

Another example is constituted by situations in which, once the reader entered the literary text collection, only the possibility to move forward in browsing the literary text is represented. This prevents him to move back, to previous pages (cf. fig. 9). This is absolutely impossible in a printed edition.

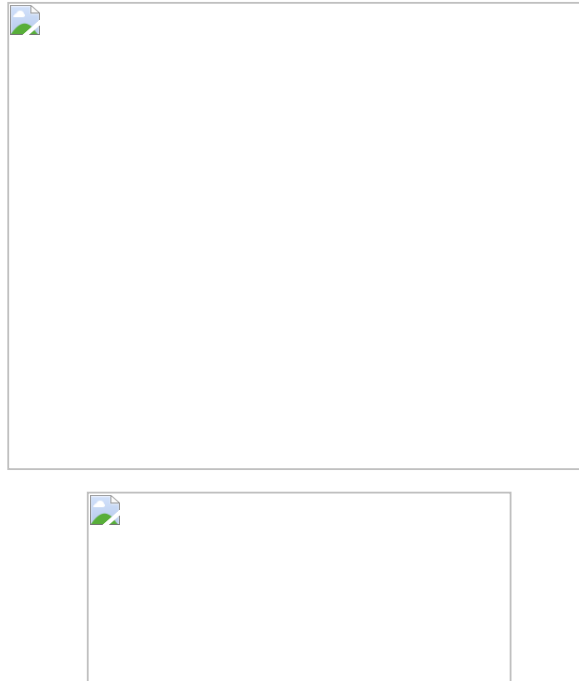


Fig. 9 – MD1 – Text screen and detail showing that the reader can only move forward.

Both the explicitation of reading strategies and their adequacy in respect to the user's goal and task constitute essential conditions for the success of the act of reading literary texts in HT. The second order representation has to be adequate.

A key-point of the second order representation is constituted by the interpretation of hyperlinks. This is for two reasons. First, in order for the reader to adequately perform a given reading strategy, it is necessary that the access to such contents appears meaningful to him. The reader needs to grasp the semantics of the hyperlink, to understand to which content the link provide access. For instance, in order to adequately perform reading strategy "Gaining an overview on the whole narrated story", it is necessary that the link providing access to a map, a scheme or a text summarizing the story appears clear to him. Second, understanding the semantics related to each type of link available in the HT allows the reader to become acquainted with certain rules lying at the base of the application. The knowledge of these rules allows the reader to perform the adequate reading strategy. The performance of the adequate reading strategy depends on a regularity that the reader can perceive only in observing the signs made available by the author/designer.

In order to clarify the working of this crucial point of the second order representation, we studied hyperlinks from a semiotic point of view, by describing them as signs and by describing the process of interpretation the user has to perform in front of them.

"Hyperlink" signs are composed of an anchor (the perceptible part of the link, its strategy of manifestation) and of a function, which is the signified, the meaning. But hyperlinks as signs are characterized by the fact that within the link's meaning two layers can be distinguished. First, the link is a proposal, an invitation, of the author for the continuation of the communication. Second, this proposal of the author contains a promise of relevance.

Because of the presence of these two layers within the link's meaning, when interpreting a link, the user always has to apply at the same time two of processes of interpretation: one in order to identify the link as an invitation, a proposal, and another one in order to understand its relevance. The process of interpretation the user uses in order to interpret the link as an invitation is always an indexical process. This means that the user's reasoning is the following "Since this word is underlined in blue colour, here there is a possibility to go on in the communication". The process

the user uses in order to interpret the relevance can be an indexical, but also an iconic or a symbolic process of interpretation. For instance, "Since the word 'Virgilio' is underlined in the literary text, clicking there, I will get information about who Virgil is". These two different processes of interpretation are interlaced. Usually the first one is not problematic, it is almost automatic, while the second one is difficult; it is the one where misunderstandings can occur.

In the analyzed HT we noticed that two modalities are used in order to avoid such misunderstandings. First, iconic processes of interpretation (which are the most risky ones) are avoided by making available in HT links requiring only indexical or symbolic processes of interpretation. Second, the reference to common practices of the field of literary annotation and criticism are exploited in order to make the hyperlink's interpretation easier. For instance, the underlined words or expressions used in fig. 10 exploit a common practice in literary criticism. In fact, also in footnotes of printed editions usually happens that different kinds of comment are provided and the reader cannot predict which kind of comment he will find by reading the footnote.

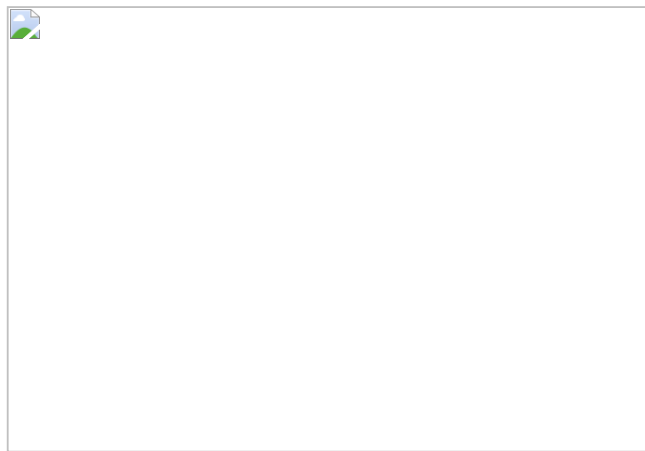


Fig. 10 – MM1 – Underlined words or expressions as hyperlinks.

As it is for the explicitation of reading strategies and for their adequacy in respect to the user's goal and task, also the use of anchors for hyperlinks avoiding processes of interpretation that can be misleading is an important condition for the success of the act of reading literary texts in HT.

3. Conclusions

The adopted semiotic-hermeneutic perspective allowed us to identify two main features of HT entailing risks for the effectiveness of their use, namely for the success of the user's process of interpretation and comprehension. Such findings alert HT designers to take care, on the one side, of the use of images as explicative means in the perspective of the user's understanding of the function of these images in respect to the literary text and, on the other side, of the adequacy of the second order representation in respect to the user's goal and tasks.

Beyond HT, this semiotic-hermeneutic perspective could be fruitfully applied to other kind of hypermedial applications. Our first step toward this direction of research (we applied this perspective to hypermedial applications dealing with health communication topics; cf. Mazzali-Lurati & Schulz 2003) proved to provide interesting findings.

Notas:

¹ The first works on hypertext and literature make constant reference to theorists such as Roland Barthes, Jacques Derrida and Michel Foucault. Cf. Bolter 1991, 2001; Joyce 1995; Landow 1997.

² They ranged from the claim that hypertext has an associative nature that reflects

the way in which human mind works better than printed texts, to the claim that hypertext provided new possibilities for literature teaching and learning, bringing students to become more active (for instance, by allowing them to contribute to the creation of the hypertext itself by adding new connections to the ones established by the hypertext's author or by learning from the reasoning that led the teacher or the expert to create given connections) (cf. particularly Landow 1997).

3 In our study we analyzed seventeen hypertextual transpositions, devoted to different genres of literary texts, namely hypertextual transpositions of Dante's Divine Comedy, some of Shakespeare's plays (Hamlet, Macbeth and A Midsummer Night's Dream), of Homer's Odyssey, of Boccaccio's Decameron and of Mary Shelley's The Last Man. In the following all the analyzed applications are indicated through abbreviations. Complete references are provided at the end of this paper in the References section.

4 We assume that the act of reading entails two levels: an operational level and a semantic-cognitive level. The operational level has to do with the manipulation of the artefact, while the semantic-cognitive level has to do with the understanding of the text. Reading strategies have to do with both levels; they allow the reader to manage these two levels in order to reach the literary text's comprehension.

5 It is important to assure the reader the possibility to perform these reading strategies. In order to help this, we identified for each reading strategy a design pattern. That is, for each reading strategy a reusable design solution has been identified, the aim of which is to overcome the difficulties preventing readers from adequately perform reading strategies. For instance, to reading strategy 2.1 "situating the part of the literary text the user is exploring within the whole of the narration" corresponds a design pattern "sustaining the reader's orientation within the whole of the narration" that proposes as a solution an easy access to devices such as summaries, plots, schemes, etc.

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Sabrina Mazzali-Lurati

Graduated in Italian literature at the "Faculté des Lettres" of the University of Fribourg, Switzerland.

Peter Schulz

Professor of Semiotics and Vice-director of the Linguistics-Semiotics Institute of the School of Communication Sciences at University of Lugano, Italia.