3 Paratext between Time and Space in Digital Media

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Introduction

This chapter proposes to review the current concept of the paratext, taking into account how the technocultural peculiarities of digital media force us to consider new aspects of textuality, particularly the relationship between space and time. The basic paradigms used in this analysis stem from classic digital media studies (such as those of Castells, Landow, Bolter and Grusin, and Manovich),[1] the key concepts of which have been refocused on paratext and the relationship between space and time.

In the contemporary cultural landscape, the great variety of paratextual materials that surround the world of mass media (literature, film, television) is extremely evident: commercials, trailers, "making of," merchandising, and so on. This proliferation creates a suggestion of ephemerality, it forces us to reconsider the temporality of cultural values, and it introduces a world of liquid and elusive textuality. But when we shift the focus from traditional media (old media, mass media) to the world of digital media, besides the parameter of time it is also necessary to pay attention to the parameter of space. More precisely, the world of digital media forces us to rethink the relationship between space and time in the organization of textuality.

Many of the innovative aspects that distinguish digital media are in fact strictly tied to the dimension of space: what Manovich calls the database culture,[2] in which information is stored using a spatial organization; the free availability of large amounts of data,[3] seen as lands to be traveled over; various forms of dynamic visualization, like the geographic explorations offered by Google Earth; social narratives, such as fan fiction or other forms of collaborative writing by authors all over the world; the peculiar characteristics of mobile devices, where moving in space is implicit; hypertextuality,[4] in the terms of Landow, a form of textuality that is strictly connected to the idea of explorable maps; transmedia storytelling, the organization of complex narrative forms based on the production of different but interrelated contents, disseminated across multiple communication forms (e.g., books, cinema, television, games, merchandising).[5]

Consequently, in order to examine how the concept of the paratext is changing in digital media, we have to start from a consideration concerning space. In digital texts, it is not easy to distinguish the boundaries that

separate the main text from the paratextual elements. Traditionally, the concept of paratext implies—as a premise and in opposition—the existence of a text and the fact that this text is closed and autonomous. In the world of print there is a clear distinction (also as it relates to layout and type set) between the text and the paratextual elements: footnotes, comments, and reviews. In mass media there is a clear distinction between text (a film, for example) and trailer, or review, or behind the scenes. In digital media text uniformity falls apart, and the edges of the text are weakened: for instance, while surfing the net, the constant movement from one link to the next dissolves the sense of main text. Alternatively, in the more advanced forms of web-docs[6] there is no single common thread because the different informational materials are combined by several logical connections.

Of course, this is not true when referring to texts that have been simply digitized (books, movies, music, images, videos, etc., transferred onto a digital support). In these cases, the text retains its compactness, and the difference between it and the paratext is very clear. We can say the same about phenomena related to the social dimension of the Internet, such as fan fiction or comments on blogs, where it is quite clear what is text and what is paratext.

But when we are dealing with natively digital texts (hypertexts, videogames, immersive 3D, augmented reality, etc.: the horizon toward which textuality is slowly evolving), the relationship between text and paratext becomes more complex (see the later section in this chapter, "The Deep/Surface Structure Opposition").

In the same way, in digital media there are complex relationships between space and time. Digital media are in fact characterized in many ways by "short time." Technological innovation causes the obsolescence of hardware devices; software evolution constantly pushes toward new text, image, sound, and video formats; the evanescence of text—appearing on the screen but not anchored to any physical media—undermines the concept of cultural life and renders the notion of cultural assets problematic. The endless dynamics of production and consumption lead us more and more to the creation of new products, formats, and series.

At the same time, closely connected with the temporal concept of "short time" is the spatial concept of "short form." The logic of digital media, based on modularity and recombination, leads to the creation of short texts,[7] which must be assembled by procedures of textual editing, as was the case with hypertexts in the 1990s. This same thing is happening now—in more general terms—in the "remix culture,"[8] where existing materials are modified and/or recombined to create new original works, in line with that "deep remixability" that according to Manovich develops and overtakes the old concept of "multimedia."

This convergence between "short time" and "short form" seems to lead to a kind of short circuit between space and time, which is emphasized by the increasing spread of mobile communication devices (see the section "The

Mobile/Locative Paradigm"). Beyond their current technological declinations in digital media, the relationships between space and time—and their cultural implications—are also topics of great interest in industrial modernity theories. According to Schivelbusch,[10] the evolution of transport modes in the industrial age has conditioned not only the physical geography of the areas involved, but also the "mental geography" of the people involved, and consequently the way space and time are perceived. This originates from the general phenomenon of space–time contraction, which not only increases the speed of transports, but also produces a general globalization and acceleration of communication, technologies, and markets.[11] Let's not forget that Marcel Proust's *Recherche*, written around the 1920s, is interspersed with interesting observations on how much the railway, the car, and the telephone modified social and cultural relationships between people and places.

Therefore, it is worth tracking down some elements in the recent past that may be useful in defining the concept of paratext from this point of view.

Between Time and Space

The complexity of the relationship between space and time is already clear in the distinction between time and duration developed by Henri Bergson (1859–1941) in 1889,[12] where the philosopher keeps his distance from the concepts of scientific and geometric time and opens his reflections to the social and psychological dimensions of time in the mental space of experience.

Even in literature, at the end of the nineteenth century we find the first signs of a crisis destined to affect the parameters of textuality. The compositional technique of the *feuilleton*, in fact, causes a sort of break in the linearity of space–time in the organization of the novel, which will later be the characteristic of the classic hypertext. The reading experience, which in classic tales provides an immersive experience of continuity, in the *feuilleton* forces the reader to make space–time leaps to switch from one episode to another.

In some fundamental semiotic theories, we already find a vision of the text as a territory, made up of several interconnected elements, which stands alongside the vision of the text as a fabric, which requires instead a pathway of linear, sequential continuity.[13] As can be seen, the parameters of space and time start to mingle at this point: the text fabric unfolds over time (weaving is a process of time), it requires a strong authorial identity, and it presents a consistent succession of events. The text-territory instead unfolds in space, is polycentric by nature, and opens the way to paratextual interventions from the outside (as with the readers of the feuilleton, who intervened in the plot, and as is now happening in the practice of collaborative writing, which is typical of digital media).

In 1937, the Russian scholar Mikhail Bakhtin (1895–1975) had already coined the term *chronotope*[14] to define the unit of analysis used to study the

temporal and spatial categories represented in the communication processes of a narrative—a methodological approach needed to tackle precisely the polyphonic complexity that, according to the Russian scholar, characterizes the whole historical development of the novel.

The narrative complexity that results from the combination of space and time is also the theme of Jorge Luis Borges's (1899–1986) reflections on the possibility of building what he defines as an "infinite book," a book that can be transmitted across generations by allowing individual reader–writers to add pages or edit what was written in the past.[15] Very often Borges was seen as the forerunner of the hypertextual narrative model: a model that is certainly not attributable to the world of print, where the edges of the text are defined once and for all, but rather to the world of handwriting, to the cultural tradition of the manuscripts that grew through the glosses and were modified by the paratextual practice of the scribes. Or even further back, the model may be attributable to the world of orality, where the text is always open to endless additions and modifications. In Ts'ui Pên's projects (the fictional character of *The Garden of Forking Paths* to which Borges entrusts the task of developing this hypothetical model), the "infinite book" should realize the presence of time (the writing) and space (the labyrinth), making an infinite return back in time, which becomes an infinite return back in space.

Thus, the evident dissolution of linear and sequential time in hypertext fiction is compensated by a strong emphasis on space. Visualization becomes predominant if compared to reading, and the representation takes over the narration,[16] as in videogames or interactive novels. In hypertext fiction, the flowing of time is replaced by the spatial exploration of the maze-text, creating a sense of disorientation, which results from the excess of information and from the uncertainty as to which path to follow. The linear time of the traditional tale is replaced by a cyclical, recursive time, basically static and strongly related to the spatial dimension.

It is also important to note that the definition of paratext formulated by Gérard Genette is closely related to a spatial definition. Both the term *paratext* and those terms connected to it, such as epitext and peritext, derive from the use of prepositional prefixes (para-, peri-, epi-), which in the ancient Greek language have a predominantly spatial meaning.[17] According to Ellen McCracken, who extends Genette's theories about paratext to the digital world, the act of reading (time-determined activity) on e-book devices produces a cognitive modification that leads the digital reader to continuous spatial movements, approaching ("centripetal") or distancing ("centrifugal") with respect to the central core of the narrative.[18]

For example, the experience of buying and reading a text for the Kindle through Amazon changes the criteria for defining the text in this direction. As I read the text on the Kindle, in fact, I can write some comments that refer to specific passages in the text. I can also choose that my comments be made public and then be viewed by other readers who have purchased the

same text. But this means that the future buyer of that text will also buy my comments. From his point of view, in some way, my comments are already a part of the text. For instance, in an academic essay, the future reader will probably have the opportunity to purchase the text already accompanied by all the comments that represent the various critical positions aroused by the text within the scientific community: a text that has integrated its paratexts, although it is still possible to distinguish them, as was the case for the glosses written in the margin of ancient manuscripts.

More generally, in addition to the comments added to the text, we must consider that all actions taken by the e-book reader contribute to composing a great paratext, investigated with statistical methods by the data mining systems. For example, the behavior of exploration preceding a purchase; the time and manner of reading; the chapters, or characters, on which the digital reader focused; the quotations shared on social networks—all of these items are recorded in an identity profile and represent a real hidden paratext (see the later section "The Deep/Surface Structure Opposition"). In this way the act of reading, which is naturally placed on the axis of time, produces an extension of the text size, which is located on the axis of space.

This interweaving of space and time has always marked the most reliable theories about mass media communication. In the work of John B. Thompson, there is clearly an awareness that the global spread of communication tends to cancel out both spatial and temporal distances, compressing them into a generalized space–time dimension. This is typical, for instance, of live broadcasting, where events are placed in a nondescript place and an everlasting present.[19] Delocalization and detemporalization are the key words that explain the deep change that the world of mass media introduces into the perceptual and cognitive habits of the media user.

In Castells's theory, one of the key points is what the scholar defines as "informationalism"[20]: the new global economy based on the production of value through the generation, processing, management, and application of knowledge. This global economy is realized in a new operational space, the space of flows, as opposed to the traditional static space of places. The space of places is found, for example, in relationships between neighbors, in close and confined spaces, between people who actually know each other. In contrast, the space of flows is the virtual space represented by the extension given by the net, connecting people via digital communication and not face to face.

More recently, in the context of digital culture, Bruce Sterling coined the definition of "spime"[21] (a contraction of space and time) in order to define the textual "meta-objects" increasingly present in everyday life, such as RFID (Radio-Frequency IDentification) microchips that can locate a book catalogued in a library at any given moment; or smartphones, which have the common characteristic of being "conscious" of their spatial coordinates (space) and of the moment in which they are operating (time). In other words, digital devices, especially mobile ones, seem to fully realize the

meaning of the Latin expression *hic et nunc*, which indicates the position of the subject in a defined spatiotemporal situation.

These brief considerations show how the superimposition of space and time has often been present in the cultural and communicative phenomena of modernity. In digital media, this combination is even more pronounced. In the next paragraphs, there is a proposal to reconsider the current concept of the paratext, taking into account how the technocultural peculiarities of digital media force us to consider new aspects of textuality due to the relationship between time and space. Particularly, we will consider two factors of change: the opposition between surface structure and deep structure, and the mobile/locative paradigm.

The Deep/Surface Structure Opposition

Digital media are the transposition of the technical, professional, emotional, and cultural world of mass media into the new technological environment offered by the rise of information communication technology (ICT). In this transposition, the key element that characterizes digital media is the distinction between two different levels:

- *The surface structure*: the place—on a computer or tablet screens—that offers a display apparently similar to what we are used to seeing on paper, film, and television screens;
- *The deep structure*: the place—consisting of hardware and software—where the digital information is processed. The deep structure is a logic engine, based on the underlying database and algorithms, which performs calculations on abstract entities, but which is able to generate everything that appears in the surface structure and render it perceivable to the human senses.[22]

These two layers are engaged in a dynamic process that is something like the vertical model of generative-transformational grammar that Noam Chomsky (1928–) formulated to explain the functioning of language, by basing it on the distinction between deep structure and surface structure. The central idea of generative-transformational grammar is that the two structures are different and that the surface structure is determined by repeated application of certain formal operations, called "grammatical transformations."[23] In this way, the component of the syntactic grammar must generate, for each phrase, deep structures and surface structures, and must link them.

Similarly, in digital media the paratextual elements are not directly observable by the user, but they lie (and work) at a deeper level. While in pre-digital media the paratext is visible on the same horizontal plane of the text (for instance: the footnotes are on the same page as the text), in digital media the paratext is not visible to the reader, but it determines the structure of the visible text, as, for example, in HTML instructions, hidden to the reader but fundamental to build the text that appears on the surface.

Given the difference between deep and surface structure, the main characteristic of digital media is interactivity. That means the text becomes able to receive an input, perform calculations, and return an output. In other words, the text—which used to be only visible—in the last quarter of the twentieth century becomes practicable and accessible. This transformation of the textual space from visible space to a viable, playable space represents the decisive turning point in opposition to the previous mass media age and is due to the fact that the paratextual elements, which guide the dynamic behavior of the text, are placed in the deep structure.

One area where this phenomenon is most visible is the new graphic, aesthetic, and communicative design of digital texts. The use of advanced technologies at the deep paratextual level (HTML 5, Cascading Style Sheets, JavaScript, server side programming, etc.) allows us to abandon the traditional paper-based graphical settings. For instance, the source code of an HTML page includes (a) the content elements that will appear at the superficial level of the text; (b) the formatting elements that will remain invisible but that are crucial for the global definition of the text because they work as an organizational tool for viewing, understanding, and contextualizing the text. In other words, they play a paratextual role. The question is even more complex when we consider a third category: (c) the semantic elements:

- *metadata*—paratextual elements par excellence, with the task of guiding and clarifying the interpretation of data: a typical example are key words that enable the user to search for specific information within the text;
- *ontologies*—logical patterns used to describe the semantic relationships between the various elements of the deep structure and able to guide the work of intelligent agents. Examples are the logical relations used by the recommendation systems that guide us in our purchases or in our online booking, or algorithmic problem solving;
- more generally, *the Semantic Web*—the transformation of the web from a simple stock of texts into a complex structure where—by means of metadata and ontologies—the semantic interactions between documents can also be identified. Examples include "derived from …," "connected to …," and "contemporary to …," establishing a true network of meanings.

This way, dynamic pages are produced using a multiplicity of layers and the automatic reconfiguration of the graphic elements that compose the page, in conjunction with semantic metadata that provide the reader with a complex experience. This change can be seen increasingly in all communicative contexts and products: economic, institutional, and artistic.

A particularly strong feature of the digital text, where we can easily understand the relationship between deep and surface structure, is the introduction in markup languages—such as HTML, the universal language for web pages—of Cascading Style Sheets [CSS], a programming technique

that incorporates some functionalities already known to advanced users of writing programs and to those who deal with editorial composition in the professional field.

Style Sheets allow authors to specify the instructions for presentation of the text only once, rather than insert them individually into the tag for each item. Style Sheets are sets of instructions (which may be contained within the text itself or in a separate file) that tell the browser how to graphically display the different parts of the text. Of course, the browser must be able to recognize the "different parts of the text," and it does so thanks to the fact that these are marked with tags. For example, paragraphs are preceded by the <p> tag and followed by <[illegible]>; headers are preceded by the <H1> tag and followed by <[illegible]1>; and so on. This means that when the browser finds a pair of tags, instead of displaying the text between them in a standard way, it goes on to read the instructions in the Style Sheet and applies them to the tagged text (e.g., the font to be used, the color, and the spacing). This results in a greater versatility of the text and a remarkable ease of management. If we want to change the font size of all the sections of a site, we only need to modify the statement contained in the Style Sheet and not all occurrences in the text. The process may seem complex, but it is emblematic of how the text in digital media is no longer located on a single level but is the result of the sum of instructions placed on several paratextual levels.[24]

Faced with a digital text, it is therefore always necessary to assess the two levels: the surface one, which shows objects, colors, and shapes that appear on the page; and the deep one, which acts on a level below and determines how the page is built. Unlike reading on paper (where the page exists before reading and the reader's task is just to place himself or herself in the best condition for reading), in computer-mediated communication the page does not exist physically but is built by an algorithm that carries out the instructions placed in the paratext when the player comes into action. In this sense, a text on the computer is always virtual: the reader never has direct access to the medium on which the information is filed, as with books, paintings, posters, and the like, but sees only, on the surface, the result of operations that take place at the deep level of the paratext.

The Mobile/Locative Paradigm

The "mobile/locative" paradigm means that the fruition of cultural contents, in mobility situations and in exactly localized geocultural environments, is deeply changing the relationship between experience, information, visualization, and spectacularization. The position of the user in both space and time, equipped with a smartphone, becomes the paratextual element that determines the particular text that the user "writes" while walking in the urban space.

Mobile communication is a revolution not only because it relates to the consumption of telephone devices (today mobile phones have a higher

worldwide diffusion than fixed connections) but also because it changes the cultural setting of networking. The scenario is still evolving, as mobile phones have not yet found that stability of form and function needed to launch a phase of standardization in production and consumption. In this sector, the proprietary temptations of consumer electronics manufacturers, telephone operators, and major players in the communication business are still strong. Overall, however, the process of domestication has begun, which represents the threshold required for a stable placement of mobile communication in the social and cultural horizon of people.

Mobile devices are certainly objects through which we can communicate, but they are also objects through which our physical position can be determined. This applies not only to satellite tracking systems like GPS (Global Positioning System), but also to all devices that incorporate cellular telephone systems, which allow full traceability in geographic space and the recognition of the user. The applications of these tracking systems are now widespread in promotion. For example, in 2008 special billboards were prepared for the launch of a Coldplay album. They were equipped with a microprocessor that was able to get in touch with the mobile phones of passers-by and allowed them to download the video clips of the songs. They are developing hypotheses akin to science fiction, very similar to those presented in the movie *Minority Report* (Steven Spielberg, 2002) where the main character is recognized by billboards that automatically address him with personalized commercial offers.

Interactivity, targeted distribution of media content, tracking of user mobility in the urban environment: these are the elements that now form the basis of the processes—ever more widespread and increasingly important from an economic point of view— that require us to see real spaces as texts. Consciously or unconsciously, the modern *flâneur*, equipped with a phone, moves in the urban space continuously, leaving digital footprints of her or his passage, that represent the paratext according to which data mining systems will propose tailor-made entertainment and special offers. In this sense, mobility is now closely associated with location, that is, with the communication and media paradigm where the physical location of the user becomes a parameter of the utmost importance. "Where are you?" is the opening phrase of a cell phone conversation, but "Where are you?" is also the question that—thanks to geolocalization—the big players of media can immediately answer, in order to profile, with increasing precision, their commercial offers.

We are witnessing what might be called a relocation of communication, in partial contrast—or at least in countertendency—to the interpretive tradition that insisted, as in the case of Joshua Meyrowitz, on the concept of delocalization (with its related forms of deterritorialization, detemporalization, etc.) as a fundamental characteristic of media cultures.[25] In digital media, as I have noted elsewhere, texts become spaces as they become viable (e.g., in hypertexts and videogames). In contrast, spaces become texts as they become readable and writable (e.g., in media walls and geotagging).[26]

In this particular moment of cultural evolution, from mass media to digital media, the space factor is gaining considerable relevance. A scenario emerges in which spaces and technologies are interrelated and where the perspective of what Dourish and Bell label ubicomp (ubiquitous computing) is becoming a part of our daily life and culture.[27] The technology extends more and more into all fields of experience, and at the same time becomes more and more miniaturized, thin, mobile, pervasive, and invisible. It impacts on interpersonal relationships, but also on the interaction design of augmented reality, on the input processes resulting from the multiplication of context-aware sensors, on the management of big data that is collected by sensors, and on the infinite forms of visualization with which these processes are returned to the sensitivity of "human" users.

Mobile/locative media extend the cultural revolution of the network into physical environments, where they release the ability to hypermediate social relationships through new differentiated, perhaps adventurous, unpredictable practices. This is a new territory to explore, where digital creativity can give rise to forms of locative art that bring together the so far disconnected experiences of pervasive computing, site-specific installations, place-based storytelling, geotagging, and urban interaction.[28]

There are several areas of contemporary cultural communication where this specular relationship between text and paratext is evident, for example:

- *Location-based games*—one of the most important forms in which we can find this specular relationship between text and paratext. A location-based game somehow evolves and progresses via the player's location; it needs localization technologies (for instance, satellite positioning like GPS) to use positional data as paratextual elements that guide and determine the macrotext of the game in play.[29]
- *Augmented reality*—some experiments in this field are also proposing attractive situations in which a new mix between text and paratext is able to build innovative forms of mediated emotion and real/virtual involvement. An example of this hybrid approach to the urban experience, characterized by a textual fragmentation seeking new forms of aggregation, is Komplex.28.[30] This is an integrated project, a multimedia experience that mixes participatory technologies such as augmented reality with literary and filmic references that constantly evoke the nomadic uncertainty of the urban experience. The real and imagined city overlap into a synthetic experience, where the city itself with its mediated forms and metascreens, used as paratexts, gives life to the emotional interface of the project. Nomadism becomes the key to interpreting these forms of urban art games, where the aesthetic experience merges with forms of gaming activities placed within an urban space, which is historically full of social, political, and emotional significance.
- *Geotagging*—these are forms of participation where the physical presence and socio-spatial-temporal location of people during the communication processes are of the utmost importance. In geotagging, people

use mobile devices while they explore urban spaces, signaling their position but also commenting on the historical, geographical, cultural, and artistic places they visit. In this way, at a deep level, a paratextual network of references is formed that is superimposed on the geographical territory. It also generates a network of micro-textual, modular, elements that form a coherent collective experiential macrotext, as in the case of the "walk show" organized in Rome in the context of the Urban Experience initiative.[31]

- *User's movement tracking*—these are systems that are increasingly embedded in the most important social networks, such as Foursquare or Google, in order to keep track of people's movements in space and time, using paratextual metadata to reconfigure the textuality of the live experience in spectacular forms of interactive visualization.

Conclusions: Cultural Heritage between Ephemerality and Resilience

Walter Ong has taught us that the great transformations in communication systems force us to completely reconfigure our cognitive and cultural framework, although this change is often slow and always has some elements that recall the past.[32] At the time, Marshall McLuhan pointed out that often the true extent of technocultural change is not felt by the people who are surrounded by it. For example, the car, at its appearance, was regarded as a sort of "horseless carriage" because its actual innovative power was not seen in terms of a cultural and social paradigm shift, or in terms of a reorganization of the space and time experience that the new means of transport necessarily brought with it.[33]

Resuming the reasoning of McLuhan, today we have to face the problem of how digital media are radically reorganizing our textual and extratextual experiences, in particular the mental and social configurations related to space and time. Ephemerality and resilience should not be seen in the light of the print culture, or of the mass media, as if they were "horseless carriages." As Yehuda Kalay observed, today we run the risk—when considering the contemporary culture—of looking at digital media as mere instruments of reproduction and renewal of the past, losing sight of their inherent principles.[34]

In this chapter, we have attempted to identify—condensed around the theme of the paratext—the most important features that characterize the textual culture of digital media. The most challenging reflections in this field lead us today to the definition of a remix culture, a conceptual embrace where the significance of deep structure (where "software takes command" says Manovich[35]) is essential and where—through modularity—social actors elaborate concerted practices to take possession of the textual complexity that digital media offer them, taking on the challenge to better understand these new shapes of knowledge.

Notes

1. See Manuel Castells, *The Rise of the Network Society* (Oxford, UK: Blackwell, 1996), George Landow, *Hypertext 2.0. The Convergence of Contemporary Critical Theory and Technology* (Baltimore, MD: Johns Hopkins University Press, 1997); Jay David Bolter and Richard Grusin, *Remediation. Understanding New Media* (Cambridge, MA: MIT Press, 1999); Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001) and *Software Takes Command* (London: Bloomsbury, 2013); Henry Jenkins, *Convergence Culture. Where Old and New Media Collide* (New York: New York University Press, 2006).
2. "After the novel, and subsequently cinema, privileged narrative as the key form of cultural expression of the modern age, the computer age introduces its correlate—the database," Manovich, *The Language of New Media*, 218.
3. See Henry Jenkins, Sam Ford, and Joshua Green, *Spreadable Media. Creating Value and Meaning in a Networked Culture* (New York: New York University Press, 2013).
4. See Landow, *Hypertext 2.0*.
5. See Andrea Phillips, *A Creator's Guide to Transmedia Storytelling* (New York: McGraw-Hill, 2012).
6. See *http://lasthijack.submarinechannel.com/?_ga=1.31164284.2121843823.1424192569,* accessed 19 October 2015.
7. Gudrun Held and Sabine Schwarze, *Testi brevi. Teoria e pratica della testualità nell'era multimediale* (Frankfurt am Main: Peter Lang, 2011).
8. Lawrence Lessig, *Remix: Making Art and Commerce Thrive in the Hybrid Economy* (New York: Penguin Press, 2008).
9. Manovich, *Software Takes Command*, 110.
10. Wolfgang Schivelbusch, *Geschichte der Eisenbahnreise: Zur Industrialisierung von Raum und Zeit im 19. Jahrhundert* (München-Wien: Hanser, 1977).
11. This aspect has been investigated, for example, in the works of historians such as Geoffrey Barraclough, *An Introduction to Contemporary History* (London: Watts, 1964) and contemporary philosophers such as Diego Fusaro, *Essere senza tempo. Accelerazione della storia e della vita* (Milan: Bompiani, 2010).
12. Henri Bergson, *Time and Free Will: An Essay on the Immediate Data of Consciousness* (Mineola, NY: Dover Publications, 2001).
13. See Andrea Valle, "Osservazioni preliminari sulla teoria dei modi di produzione segnic[illegible]," *VIC Rivista dell'Associazione Italiana Studi Semiotici*, 20 March 2007, accessed 15 July 2015, *http://www.ec-aiss.it/includes/tng/pub/tNG_download4.php?KT_download1=0c591285c790b8ea9648cf485c475f7c*.
14. Mikhail M. Bakhtin, "Forms of Time and of the Chronotope in the Novel," in *The Dialogic Imagination*, trans. Caryl Emerson and Michael Holquist (Austin: University of Texas Press, 1981), 84–258.
15. Jorge Luis Borges, "El jardín de los senderos que se bifurcan," in *Ficciones* (Buenos Aires: Sur, 1944).
16. Jean Clément, "Afternoon, a Story: du narratif au poétique dans l'oeuvre hypertextuelle," in *A:\LITTÉRATURE*, numéro spécial des Cahiers du CIRCAV, Actes du colloque Nord Poésie et Ordinateur (Roubaix: CIRCAV-GERICO, 1994).
17. Gérard Genette, *Paratexts: Thresholds of Interpretation*, trans. Jane E. Lewin (Cambridge, UK: Cambridge University Press, 1997).

18. Ellen McCracken, "Expanding Genette's Epitext/Peritext Model for Transitional Electronic Literature. Centrifugal and Centripetal Vectors on Kindles and iPads," *Narrative* 21.1 (2013): 105–124.
19. John B. Thompson, *The Media and Modernity: A Social Theory of the Media* (Cambridge, MA: Polity Press, 1995).
20. Castells, *Rise of the Network Society*.
21. Bruce Sterling, *Shaping Things* (Cambridge, MA: MIT Press, 2005).
22. For these points, see also Giulio Lughi, *Cultura dei nuovi media* (Milan: Guerini, 2006), 110–30.
23. Noam Chomsky, *Aspects of the Theory of Syntax* (Cambridge, MA: MIT Press, 1965).
24. An interesting example of creative use of CCS is visible to the URL *http://www.csszengarden.com*, where we see how the same text can have completely different layouts, simply by applying different style sheets.
25. See Joshua Meyrowitz, *No Sense of Place* (Oxford, UK: Oxford University Press, 1985).
26. Giulio Lughi, "Text-space dynamics" (NUL–New Urban Languages, Milan 19–21 June 2013 Conference Proceedings), *Planum. The Journal of Urbanism* 28.2 (2013): 1–6.
27. Paul Dourish and Genevieve Bell, *Divining a Digital Future: Mess and Mythology in Ubiquitous Computing* (Cambridge, MA: MIT Press, 2011).
28. This is the theme of a collection edited by Erik Ekman, *Throughout. Art and Culture Emerging with Ubiquitous Computing* (Cambridge, MA: MIT Press, 2012).
29. Borries et al., *Space Time Play. Computer Games, Architecture and Urbanism: The Next Level* (Berlin: Birkhäuser, 2007).
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