

# Genesis and Hypertext: Exchanging Scores

*Aurèle Crasson*

It is difficult to give a precise definition<sup>1</sup> of hypertext since, in addition to its use as a technical tool, there is the conceptual dimension of a space for organizing memory and mapping connections. People often confuse the hypertext system, which makes it possible, through the digital medium, to link objects of different types, with the products (compositions?) created by means of this technique. Hypertext cannot be limited to either of these aspects. Like ink and paper, it is a medium for composition and expression and should also be seen as such. Whatever its purpose, and even if it involves collecting together pages on the Web in an ad hoc manner, hypertext delineates areas of knowledge and thus helps to produce a dual temporality, one that belongs to documents, the other characterized by instant actualization (which coincides with the eradication of any distance of space or time between the items of information).

Researchers at Altavista and Compaq show that the Web generates a type of 'bow-tie',<sup>2</sup> where the centre is hyper-connected at the expense of the wings. This should be seen implicitly as a space for composition. Although a whole raft of tools and analyses were needed to prove that the Web is not organized like a spider's web, it is possible to demonstrate on a smaller scale that a hypertext produces a shape that is more or less patterned. Because the contents in a digital memory have neither time nor place, using hypertexts may make us think that one screen follows another, with the organization of links thus appearing to be secondary compared with the data.

The purpose of hypertext is not only to bring documents together but also to create a new document on the basis of familiar data, even if it is of necessity heterogeneous. Thus it is possible to envisage hypertext based on an abstract model, as an evolving structure, building up probable pathways; these do not define convergent points from one node to another but moving contexts that determine each other.

The complexity of hypertexts also arises from the fact that the construction phase, which would correspond to writing time, and the consumption phase, which would be reading time, may merge into one another technically. So it seems worthwhile to develop the idea of a hypertext where the structure created would not be the result of users' interventions but a musical score that is planned to make the contextualization process relevant.

Hypertext is an innovative field where designs that deal with this structural aspect are still taking their first halting steps. I started out from the hypothesis that the classification, markup and interpretation methods used in textual genetics might be a suitable area for experiment.

The pre-text is a static memory and a place where, through writing, the author makes language distinctive and interrogates its strangeness. The manuscript stands for the

secret of the work in progress and also indicates the complexity of its semantic relations and time frames. For researchers in genetics it is composed of groups of objects that together form a system, writing, blank spaces, textualities, and for which they try to recover origins, continuities and transformations. The space of the handwritten text, which is both a fragmented memory and a constructed whole, also provides a complex approach to reading since the text's linear construction is latent. Because it requires us to reconstruct mentally the text's underlying relationships, this reading, which enlists the work of both remembering and forgetting, thus opens up an area for experimentation in modes of writing hypertexts.

Indeed, publishing in electronic form the genesis of a pre-text allows us to raise the conceptual problems of the hypertext in its aspect as an object to be (re)constructed; for example, we must decide on an organizational model, units of reference from which it will be possible to program pathways, and the hypertext's formal and plastic representations.

Given that it is impossible to measure the extent of the relationships between each data source, the genetic researcher's task consists of identifying, storing, classifying, compiling various types of links that will make it possible partially to uncover mechanisms of writing and thought. In this way every reading of a manuscript file proceeds from the deconstruction and, by way of successive hypotheses, reconfiguration of the textual space. Taking into account as well the material difficulty in placing markers within the manuscript and physically extracting units from it, the printed edition of a genetic study, because it cannot present visually the stages of classification and the reasons for it, has always included a descriptive commentary. In this respect the digital technologies offer alternatives for representing a pre-text and communicating an interpretation of it. It becomes feasible, for example, to display the whole file to be read in its entirety, while taking advantage of the medium's dynamic dimension. In addition the opportunity to create and set pathways lets the reader retrace the researcher's reading.

The project involving publishing *Cela a eu lieu*<sup>3</sup> in electronic form consisted of reconstructing the study of the genesis of this pre-text. It provided the opportunity to raise certain questions related to creating a stable electronic scholarly edition.

As far as the project itself was concerned, three modes of accessing the documents were planned for:

- default access to the original paginated sources;
- access to the reconstructed genetic order in the form of a topological representation;
- access to tools which would let users organize the resources according to their own criteria.

The question that came up at the outset concerned the choice of search method with regard to screen ergonomics, managing the document units, reconstructing the contexts and manipulating the research tools.

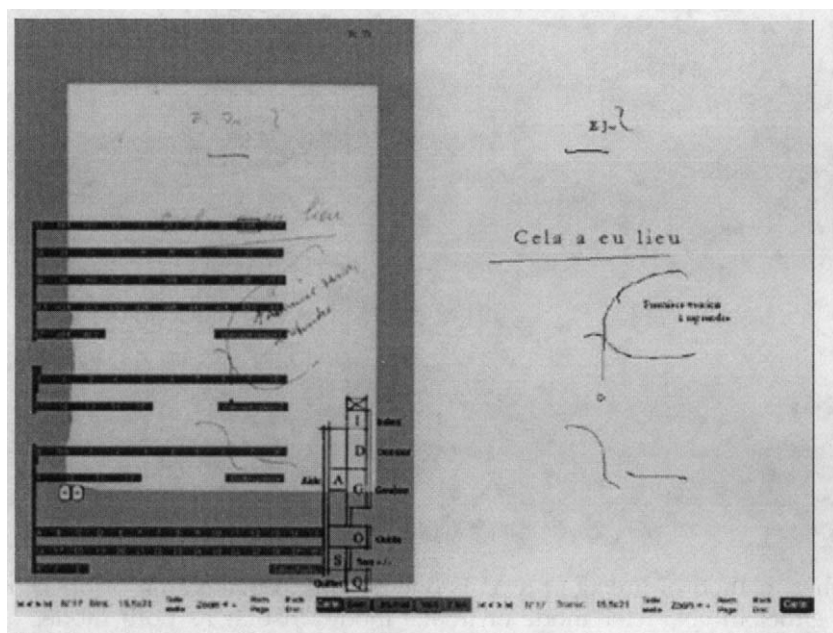
In order not to obstruct the process of pathway continuity it became necessary to restrict the proliferation of windows<sup>4</sup> on the screen; and that implied sticking to a minimum screen format below which it is simply not possible to read an entire document up on the screen.

Without going into the detail of all the functions of a genesis edition, what follows illustrates two proposals for the configuration of the visible space and the organization

of pathways. These points were developed with a view to reinforcing the logic of the pathways and organizing the hypertext structure on a single screen. So they are both completely interdependent.

### **Transparency as a concept of spatial structure**

In order to avoid complex three-dimensional representations, the interface of *Cela a eu lieu* was used to take advantage of the screen depth in a different way. Taking the principle of overlays means one can superimpose planes on one another and create a sort of immediate visual linkage between several documents or between the navigating tool and a document.



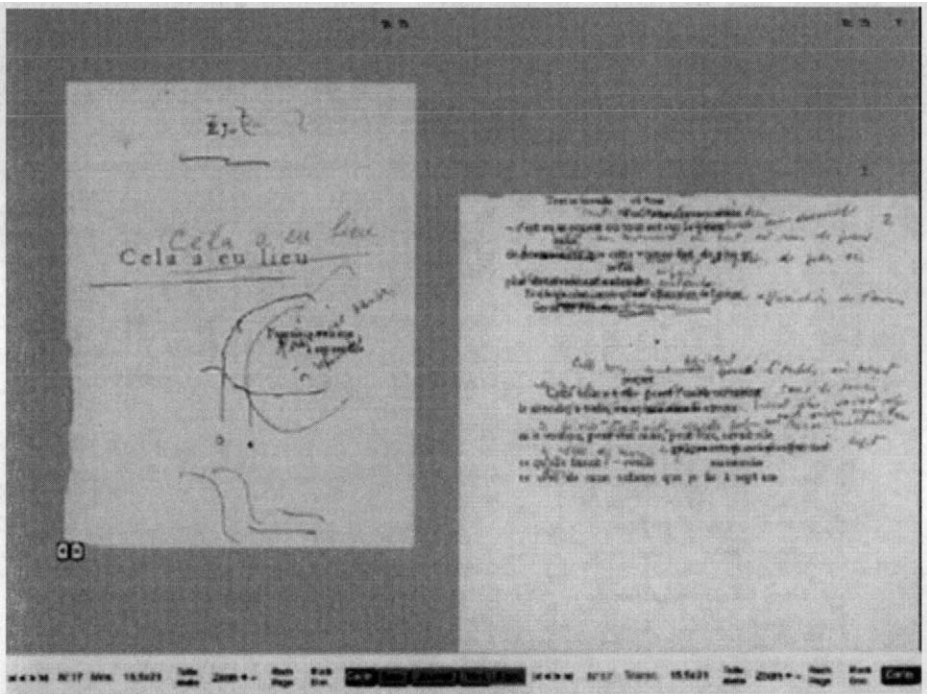
The illustration above, reproduced on a smaller scale and in black and white in this article, shows a two-level screen:

the foreground consists of navigation tools (which can be masked). Reduced to a very simple graphic format, they leave the user free to read the documents behind them.

the background, which here offers the reader a page of manuscript opposite a transcription of it, holds the hypertext data.

This arrangement, which is a metaphor for the car dashboard, lets users carry out certain routine functions (context search, annotations, etc.) without making them lose the thread of what they are reading.

The second illustration shows two manuscript documents, behind which their transcriptions appear. This configuration allows readers to access the transcribed text, since the handwriting on the manuscript is sometimes hard to make out, and appreciate the difference between the encoded text and the original document. It is also possible to modify the contrasts between the levels and hide transcription or manuscript for specific purposes. When one is searching for occurrences, this controllable transparency makes it easier to locate rapidly the required character sequence within the material on the manuscript page.



This other method of linkage prevents one having to make an a priori choice of digitalization either in character mode or image mode<sup>5</sup> insofar as both modes are offered, whether simultaneously or not.

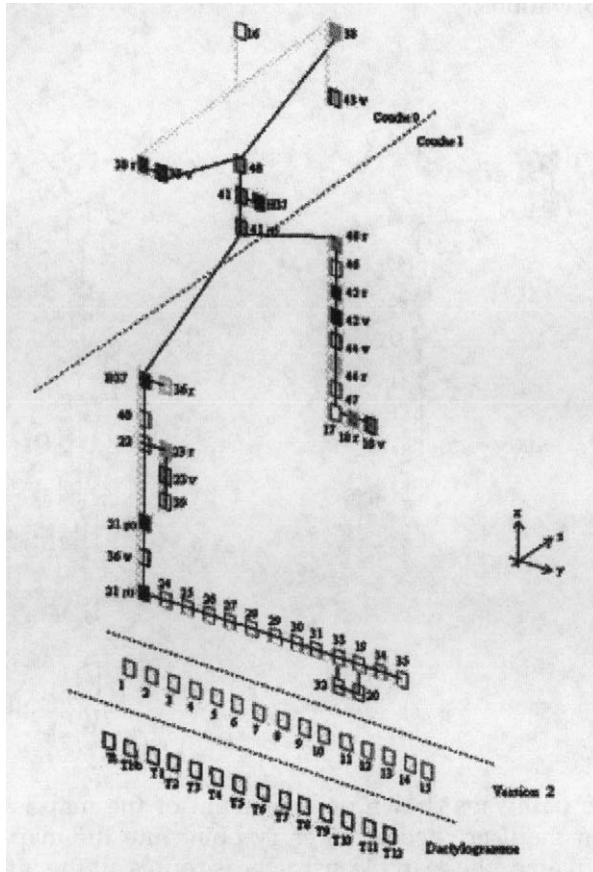
### Pathway construction and cartographic representation

Whereas in a library it is possible to identify a document in relation to its geographical location or classification criterion, it is inconceivable to imagine the position or character of data stored in digital memory. Because the cartographic projection of hypertext reconstructs all the contexts, it can for this purpose be thought of as a technique for memorizing the location of data and therefore of contents themselves.

The synoptic view of genesis shown on the following page firstly gives a visual impression of the order in which each folio is stored and its location in the general

context of the genetic file, and secondly provides preparation and guidance on reading the file because it makes the routes between documents visible.

In hypertexts the pathway defines data movements, the interval between groups of points. If we hold on to the idea of hypertext as it flows, for example, from Internet use, pathways exist only *a posteriori* – the 'back' function always takes you to the page you have just visited. But this map gives the impression that everything that seems to be a starting-point is in actual fact a pathway intersection.



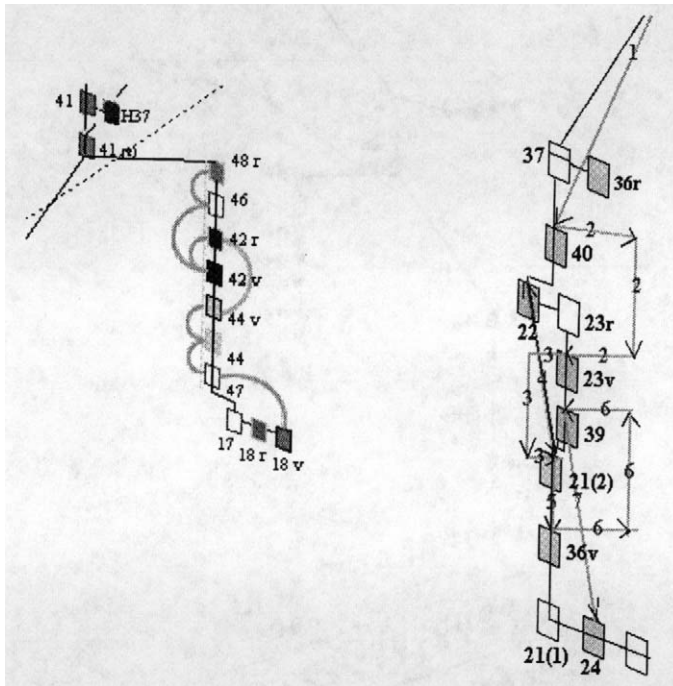
This map shows the different spatio-temporal structures of genesis: the sequential nature of the text is represented by 'y' and the rewritten sentences by 'x' and 'z'. Reading this diagram (which is interactive in the program) occurs on several levels symbolized by the axes and the numbering, colour<sup>6</sup> and route of links.

The form determined by the storage of the file, that here runs from page 16, the earliest genetically, to page T1, the most recent in time, shows that the file comprises two versions plus a dactylogram. The distribution of the first version demonstrates how difficult it is for the researcher to establish definitively the writing phases.



This form can be schematized along two time axes: the chronology of the 'narrative' (the time arrow) as 'y' and the chronology of the writing (the *pentimenti*) as 'x'. In this example page 35 follows page 34 which follows page 19, etc.; similarly with the 'x' axis, page 48r is rewritten as 46, which is itself rewritten as 42r, etc. There is furthermore a 'z' axis that is peculiar to this genesis. It represents a different time-frame from the other two axes that it is not possible to merge with the others.

Beyond this first information level that makes the organization explicit, the map can be accessed through many pathways, among them the two instances I show here, which correspond to interpretations,



Each one of these pathways drawn on a segment of the map is made visible in the overall context when the user chooses an entry point into the map or the list. Once all the pathways are activated, the map reconstructs as routes all the interpretations that led to the genesis. It could equally well show the hypotheses and viewpoints adopted by researchers to demonstrate genetic methods.

Of course superimposing all kinds of relationship (listed one by one in the interface), whether intertextual, structural, didactic, etc., on one and the same map would make it scarcely legible but would certainly bring out the different levels of approach to the reading of a corpus.

Starting from the hypothesis that a hypertext, besides being a technique, is a medium for producing meaning, the areas discussed in this article in relation to publishing a genesis electronically concentrate on the decisions made with regard to displaying the documents

and representing relationships between data, since these two points are the necessary conditions for achieving the emergence of pathways rather than a succession of links.

Neither the data-processing tools provided for the 'scholarly reader' nor the program's aesthetic aspect has been addressed. However I must stress the important role played by recording the user's navigational pathways and manipulations, because this makes it possible to determine point of origin for a train of thought that can be reconstructed. Every action on the screen that is recorded in this way reconstructs each state in a chronology; thus, when saving or deleting their routes, users may add notes and develop pathways.

Then the aesthetic aspect of the program relates to the plastic and rhythmic choices of the edition itself. It uses the idea of a graphic chart with iconographic functions, the effect of colour on legibility, etc. I shall just mention here that each navigational choice, each choice of interface functioning, each decision to separate out data while retaining a reference to a whole, is linked to decisions that are of necessity dependent on the logic of the hypertext's construction.

It is no accident that researchers in textual genetics are interested in the new technologies: for all the reasons touched on here studying manuscripts encourages us to use hypertext both as a method of storing structured data and as a method of writing. Furthermore, the prospect of finding a hypertext model via methods applied to genetics supports the idea that the increasing importance of textual genetics is not due to nostalgia for what we have lost with the 'graphosphere', as Régis Debray appears to be claiming. Quite the reverse; the manuscript makes concrete in an exemplary manner the issues associated with hypertexts and their cognitive approach.

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Translated from the French by Jean Burrell

## Notes

1. What is commonly understood by 'hypertext' is a system composed of links and anchors that makes it possible to cross-reference units of text in a collection of documents. This gives rise to a dynamic mode of reading that offers the reader the opportunity to choose a succession of links depending on need, a logical train of thought or intuition.
2. See the article in *Libération*, Wednesday 17 May 2000, *Le Web est un grand noeud pap'*.
3. A manuscript by Edmond Jabès, the text of which was issued as an unpublished work by Editions Fourbis in 1992 and reissued in its original stage version by Editions Jean-Michel Place in 1995.
4. In this regard the example of the electronic book made of pages with rechargeable ink illustrates this option not to let windows wander around and to compensate for this shortage of space. To a greater extent one can even imagine being able to deploy reading pathways using a virtual architecture.
5. Character mode in fact means that automatic processing of the text is possible, whereas image mode almost runs counter to the abstraction of digital and hypertext unit autonomy insofar as it is not yet possible to encode the elements of an image. One of the problems that remain to be solved, which is still difficult to automate, would be to make each area (spatial boundary, transition, typographic breaks), each word, each formal space correspond precisely to a digitally encoded equivalent, like *pentimenti*, in order to make the manuscript image interactive.
6. Because of printing constraints colour has not been retained here; in the original program it provides visual clues to the identity of each component and codes the physical characteristics of the pages (recto, verso, formats, etc.).