# Digital literature and the three levels of the Digital

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## Introduction

In this paper I shall focus on the properties of the Digital in order to highlight the potentialities of digital literature. The Digital offers a range of technical possibilities, notably in terms of manipulation. To what extent can these possibilities modify the conditions and modalities of literary writing? The idea is to confront literary creativity with the manipulative possibilities of the Digital.

I shall make the two following hypotheses:
- Looking into the specific properties of the Digital can throw light on the potentialities of digital literature and even open paths for digital literature.
- In the same way, digital literature can act as a *revealer* for the Digital.

## 1 – The three levels of the Digital

I am currently leading a project in France (called PRECIP[1] and funded by the French Picardy region), which studies digital writing practices and ways in which digital writing could be taught, notably in secondary schools.In this project, our approach to the Digital is based on the distinction of three levels: a technical level, an applicative level and an interpretative level[2].

- level 1 : the technical possibilities of the Digital;
- level 2 :  the potential of the applications;
- level 3 : the expressive potential of contents.

In other words:
- level 1 corresponds to "What can be done technically with the Digital?"
- level 2 to "What purpose can be served by the applications?"
- level 3 to "What can be expressed by the contents?"

Here's a description of these 3 levels :

*1 – Technical*

On this level, the Digital is defined as a technical device based on discretization and manipulation with formal rules. Relying on sequences of zeros and ones, the Digital is the manipulation of discrete units deprived of semantics. There is indeed a "*semantic divide*"[3]: the Digital doesn't have any proper meaning or interpretation (cf. figure 1). This level is plain calculation; it is at this level that one has access to the universality of calculation and its possibilities.

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[1]  *PRECIP* stands for *PRatiques d'ECriture Interactive en Picardie* (http://www.utc.fr/si28/precip/).
[2] We have formalized a graph (in French) which distinguishes these three levels:
http://www.the12labors.com/download/PRECIP/les-3-niveaux-du-numerique.html
[3] Bachimont Bruno, *Ingénierie des connaissances et des contenus. Le numérique entre ontologies et documents*, Hermès, Lavoisier, 2007.
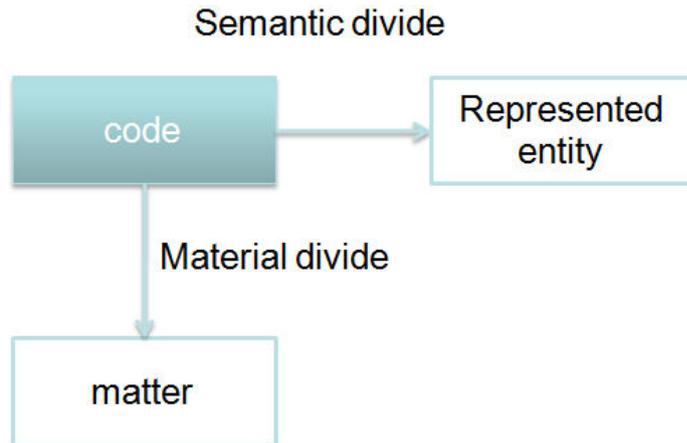
*Figure 1. The Digital's double divide by Bruno Bachimont.*

The properties shown on the technical level and which all result from discretization, are: manipulability, abstraction, addressability, integration, perfect duplication, interconnection.

*2 – Applicative*

The second level is a formatting of the first level. Applications introduce functionalities which offer various ways of manipulating and interacting with the digital material. Through the intended meaningful purposes of these functionalities, semantics is introduced at this level.
It is relevant to work on the relations between the Digital as such and the applications, and to study the link between the first two levels, between what is digitally possible and what is feasible application-wise.

*3 - Interpretative*

The third level expresses content and calls for interpretation.
This level contains the semiotic form represented for itself, with its own constraints and its own coherence. Each semiotic form (e.g. text, picture, sound, video) has its own logic, which may lead to a certain form of inertia, resistance to change. An application always makes a compromise between the possibilities of the Digital and the inertia of the content.

The three levels are the levels of the tool, but with different degrees of resistance, of inertia : inertia of the technique, of the application and of the content.

Each level has its own logic of development and its own constraints:
-   the purely formal construction of computing as a combinatory space;
-   the applicative construction regarding the tasks targeted;
-   the interpretative construction which depends on the content's own coherence and on its context.

These logics are desynchronized and incompatible *a priori*. The resulting tensions call for resolutions, compromises which will be the cornerstone of practices. What makes this approach relevant is not so much the highlighting of these three levels, but rather the unveiling of possible interactions and tensions between these three levels.

To sum up: digital writing practices bring into play the technical possibilities of the Digital (technical level), the applicative potential (applicative level) and the expressive potential of the contents (interpretative level). Practices result from the tensions between these three levels.

## 2 – The three levels and digital literature

I am making here the hypothesis that digital literature plays on the tensions between the 3 levels and allows these tensions to be highlighted. Art (and literature in particular) acts as a telescope of tensions: it provokes them and makes them observable.

I am going to illustrate these tensions with different examples. The three levels are always simultaneously present, but each example focuses on a tension between two levels in particular.

## 1.1. Tension between levels 1 et 2

This tension concerns the relations between the Digital as an abstraction and the applications. It is a tension between the level of the technical possibilities and the applicative potential (for an *appropriate* use).

### 1.1.1. A very constrained hypertext

*Example :Thethingasitis, by* Michael Atavar (http://www.atavar.com/)

In *Thethingasitis*, Michael Atavar proposes an online work in a hypertext form. His work is a reflexive text about his practice with a computer. In this example, the hyperlink is reduced to its simplest expression. For every textual fragment, there is always one single link. The link anchor is based on one letter (and not on a word which could mean something), always the last letter of the word (arbitrary dimension), activable by rolling over (no need to click). It is a "passage to the limit" ("passage à la limite", Derrida) of hypertext technology in the sense that it is exploited in its minimal dimension. This literary and artistic proposal unveils and plays on a tension between the technical possibilities (any content is addressable) and what is offered on the applicative level (the last letter of the last word of the fragment acting as a single link, allowing access to the next fragment only).
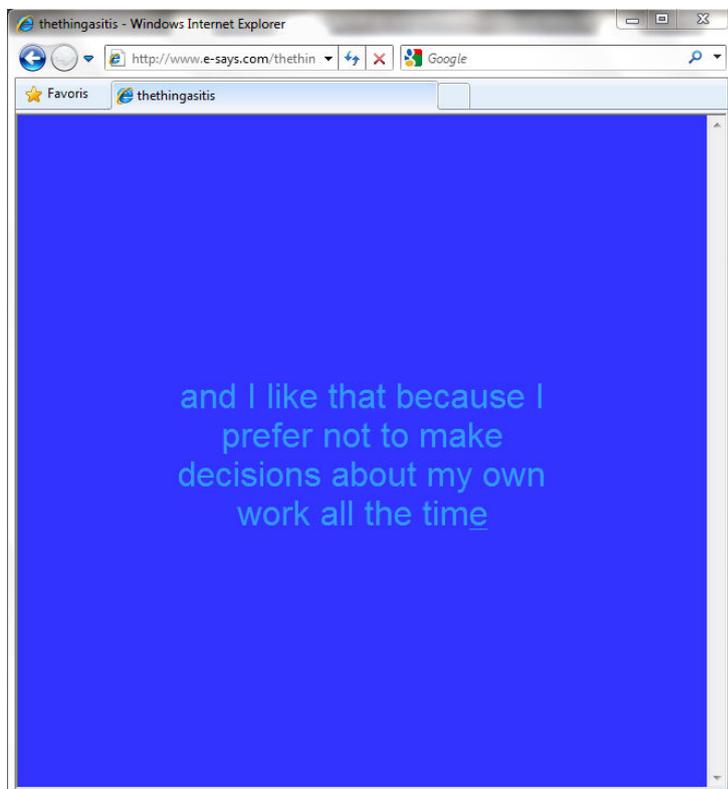


*Figure 2.Thethingasitis.*

## 1.2. Tension between levels 1 et 3

This tension concerns the link between what is possible technically and possible expressively.

### 1.2.1. A random text/image relation

Example : *Grafik Dynamo*, by Kate Armstrong and Michael Tippett
(http://www.turbulence.org/Works/dynamo/)

*Grafik Dynamo* is a constantly changing mock graphic novel. It shows three frames which remind the reader of a comic strip. Narrative fragments are constantly loaded into these three frames where they are combined with images taken from the internet. Every few seconds, the content of the frame changes. Yet the reader never knows which narrative fragment or which image is going to change. The order of replacement is so erratic that the reader cannot anticipate the next change and never knows where to look next.

Marie-Laure Ryan[4] speaks about "ludic dysfunctionality" and "violations of familiar reading protocols" concerning this work. Indeed, *Grafik Dynamo* is a very subversive work. It undermines the reading principles of printed written material. In graphic narratives, the pairing of image and text is carefully devised and narratively meaningful. The result is a coherent story. In *Grafik Dynamo*, this pairing is haphazard and inconsistent and any narrative coherence is pure coincidence. Readability is undermined. The reader's traditional reading strategies and expectations are constantly thwarted. There is no visual unity nor semantic coherence between the frames, the narration and dialogues are disconnected. Readability is questioned as the basic principle of reading from left to right is challenged. The eye follows the transformations as they occur on the screen and "this results in a parsing of the display that moves randomly in all directions"[5].
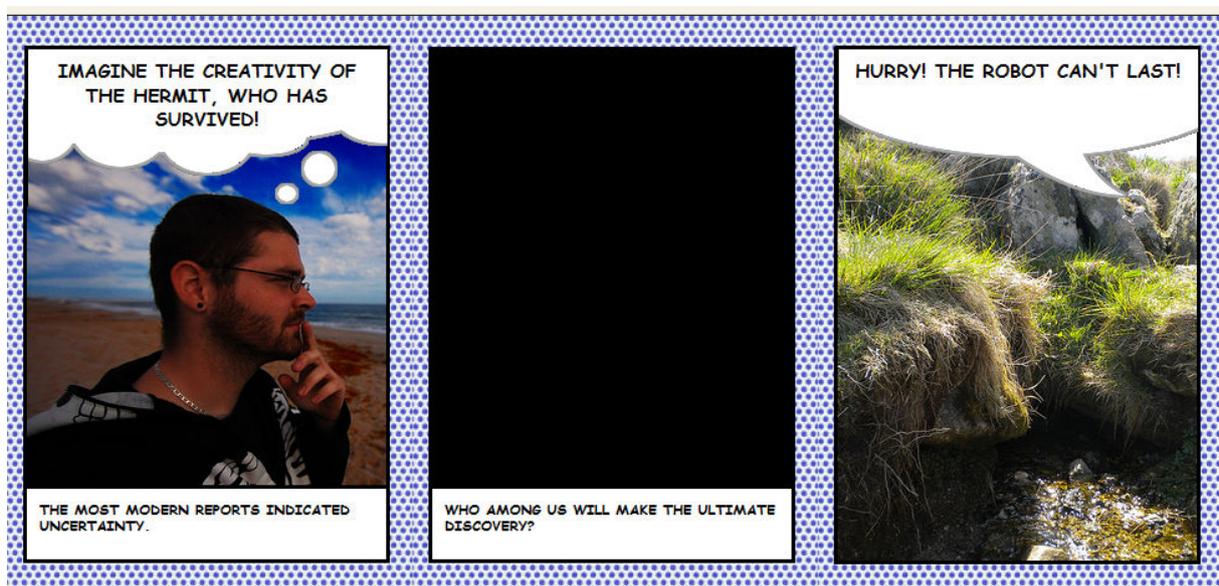


*Figure 3. Graphic Dynamo.*

The random dimension is made possible thanks to level 1, the technical level of the Digital. Level 3, the interpretative level, corresponds to the question : what can be expressed? In this creation, the reader may experience difficulties giving meaning to the random associations of texts and images.

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[4] Ryan Marie-Laure, *Between Play and Politics: Dysfunctionality in Digital Art*, Electronic Book Review, http://www.electronicbookreview.com/thread/imagenarrative/diegetic
[5] Ibid.

"However, the reader can treat the random pairing of text and image as a stimulant for the imagination, by trying to create their own stories out of individual frames." [6] The indefinitely renewed tension between level 1 and level 3 makes this piece interesting and relevant.

### 1.2.2. **Manipulable video sequences**

*Example : Moments de Jean-Jacques Rousseau*, by Jean-Louis Boissier (CD-ROM)

The CD-ROM *Moments de Jean-Jacques Rousseau*[7] by Jean-Louis Boissier features eighty interactive videos filmed in the places where Rousseau[8] spent some time. These "moments" are played by actors and transposed to today's environment. A simple displacement of the mouse cursor on the screen starts the sequence, shot in subjective camera (POV).

Beyond the hypertext reading of Rousseau's work, the main interest of the CD-ROM lies in the possibility of having certain *moments* acted and offered to manipulation. The eighty interactive video sequences come in windows which slide across the screen. It is a panoramic shot, which is partly unveiled as the mouse cursor is moved. The characters' faces and gestures, the objects' behaviours vary according to the position of the mouse, creating short dynamic playlets calling up events from Rousseau's life (for instance the "cherry idyll", during which cherries fall into a young girl's low-cut blouse).

If we look at the files included in the CD-ROM, but not accessible from the interactive narrative itself, we can see a file entitled "*A* propos" [9], which shows the "diagram of an interactive sequence" (cf. figure 4). We understand that all the sequences are based on the notion of loop, yet also offer an itinerary. Every sequence is a short story that will only reach its end with the reader's manipulations. This pairing diagram-image is very stimulating when the reader decides to view it. However, this diagram was only a document used during the conception stage and was not meant to be included in the final work. The reader is only guided by the flux of images. The temporal dimension is here the decisive factor. So we have very short video loops which constitute a manipulable sequence. Unlike in a video panoramic, there is here an itinerary and a possible closure, the building of a mini-narrative.



*Figure 4. The diagram of an interactive sequence in Moments de Jean-Jacques Rousseau.*

In this example, level 1 is that of manipulability. Level 3, that of content, proposes video sequences. But a video corresponds to a flux. The standard interpretative form of a video is to be watched . A video sequence is not easily manipulated without losing its meaning. We can say that the semiotic

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[6] Ibid.
[7] Boissier Jean-Louis, *Moments de Jean-Jacques Rousseau*, CD-Rom, Éditions Gallimard, 2000.
[8] Jean-Jacques Rousseau is a French writer of the 18th century.
[9] In the « visuels » folder, « Documents interactifs » sub-folder, « A propos.exe » file.

video form resists manipulation. All three levels can be found here; level 2 is that of the assembling of the different video loops. Yet the reader is hardly aware of level 2.

There is a tension between level 1 and 3 insofar as the reader does not easily understand why the video (corresponding to a temporal flux) doesn't always have the same behaviour. Now for Jean-Louis Boissier, it is the manipulation of the video sequences which gives them meaning. He refers to them as *playable*.

## 1.3. Tension between levels 2 et 3

It is a question here of playing with the tension between application and content.

### 1.3.1. A semi-autonomous application

*Example (digital art) : Auto-Illustrator*, by Adrian Ward (http://swai.signwave.co.uk/)

Let us take the example of a work which is also an application and which plays on a gap between application and content. It is more an example of digital art (software art) than digital literature properly speaking. *Auto-Illustrator* is a parody and a generative exploration of the vectorial drawing software *Adobe Illustrator.* His creator Adrian Ward defines this creation as an "experimental, semi-autonomous, generative software artwork".
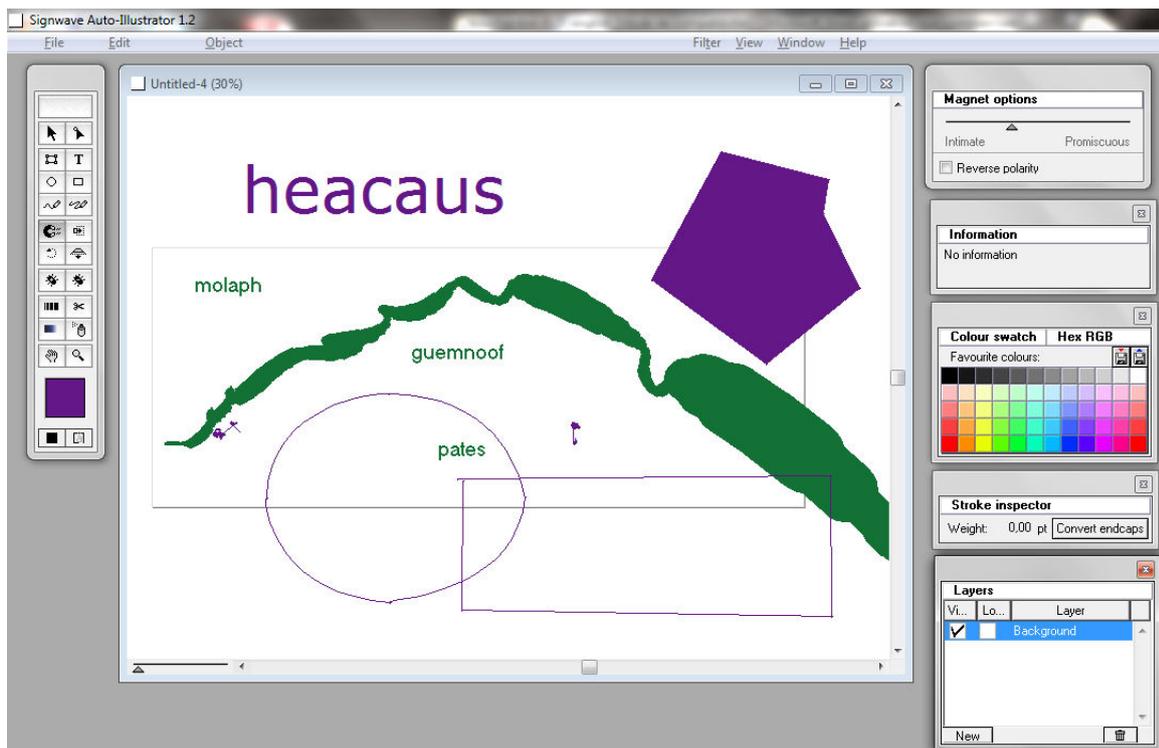


*Figure 5. Auto-Illustrator.*

"We take it for granted that in a graphic program the code listens to our input: if we select the straight line tool, we do not expect the program to draw an arabesque. *Auto-illustrator* breaks this basic contract between the software designer and the user by complicating (rather than completely severing) the relationship between the movements of the hand and the behavior of the tools: the program does listen to the position of the cursor, but it translates it into output through a mysterious algorithm. If you select the freehand pencil tool, the system draws unpredictable (though rule-governed) graffiti; if you select the text tool, the system picks the letters and invents nonsense words. The square and the oval tools do not draw regular geometric shapes, but give you a choice between "shabby" and "precise"

shapes, as well as between "childish," "artistic" and "regular". There is also a bug tool, which places moving creatures randomly on your screen. They will create art for you by crawling around and drawing lines." [10] This creation stages the creative dimension of the programmer's activity.

Level 2 is named "applicative" in terms of uses and functions. It raises the question of a function in relation to a task. In this example, *Auto-Illustrator* highlights a tension between levels 2 and 3. What does it mean when the task is not carried out as intended in the application?

### 1.3.2. An input with fleeting inscription

*Example: Anonymes v.1.0* (http://www.anonymes.net/anonymes.html)

The internet user clicks on the reactive zone made up of the word "Anonymes" and has access to a first scene. The video of a man getting up from an armchair keeps playing endlessly. This man obviously refuses to be filmed. Does he want to remain anonymous? The reader is invited to type his name in an input zone. Action is expected from the reader for the sequence to start. The reader types a letter, but this letter, instead of remaining in the input zone, drifts away and disappears from the screen. The reader is likely to type a letter again, to verify if the result will be the same. The second letter also drifts away. By then, the reader is bound to type several letters faster to watch them scatter. The resulting effect is close to certain kinetic poems (letters *on the move*, drifting around on the screen and drawn to each other), but here the data is introduced by the user himself.
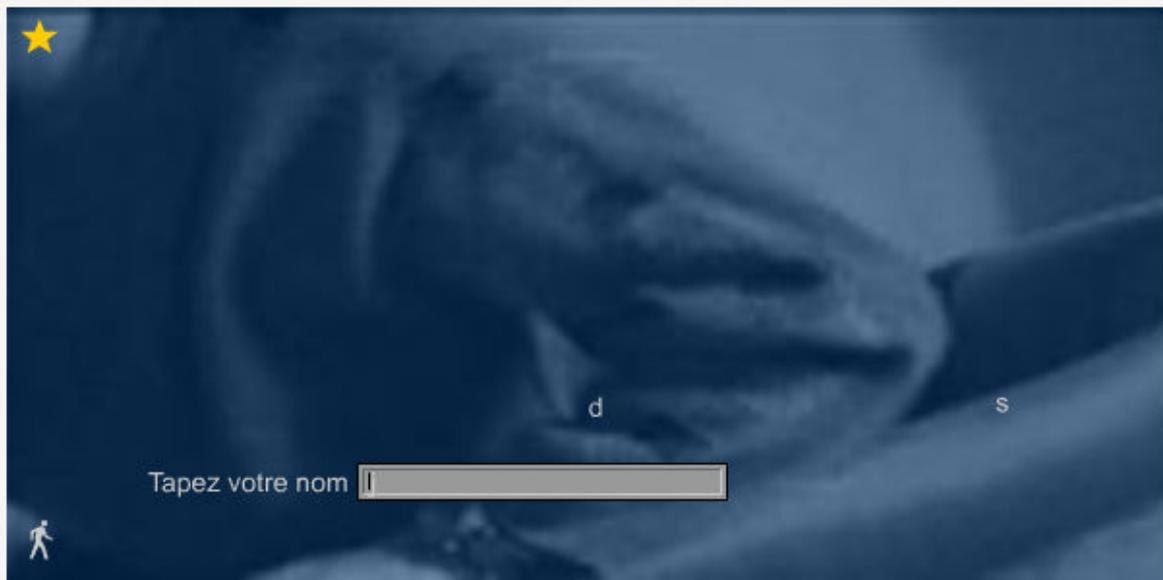


*Figure 6. Anonymes.net.*

On the applicative level, the internet user can type letters in an input zone. But this keyboard input doesn't result in a lasting inscription. The reader introduces data (level 2) which drifts away (level 3). The meaning of the scene (the letters of the name which inevitably drift off the screen) is to be related to the title of the whole work, *Anonymous*. The impossibility of engraving one's name echoes the video (a man wants to leave to be out of shot). This is a never ending scene: the reader remains anonymous forever. The power of this scene is based on the tension between level 2 and level 3.

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[10] Ryan Marie-Laure, *Between Play and Politics: Dysfunctionality in Digital Art*, Electronic Book Review, http://www.electronicbookreview.com/thread/imagenarrative/diegetic

## Conclusion

Digital literature can *reveal* the tensions between the different levels of the Digital. Emphasizing these tensions and the ways of giving them meaning throws light on the Digital.

The tensions unveiled can be the cornerstone of an educational program for the teaching of digital writing. Since these tensions are best highlighted in digital literature and digital art, studying such works at school is particularly appropriate (this is part of the *PRECIP* project).

In the same way, this three-level approach, which emphasizes the "technical trends" ("tendances techniques", cf. Simondon[11]) of the Digital, can open paths for digital literature.

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[11] Simondon Gilbert, *Du mode d'existence des objets techniques*, Aubier-Montaigne, Paris, 1958.