Journal *Hybrid*, n° 1

"Ephemeral Heritages"

Digital Literature: Ephemeral in Truth?

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Abstract: A brief overview of the current methods used to preserve digital works has us realize that they strive to make material states durable. This article introduces the lability phenomenon, which is the technical and semiotic dependence of the result displayed during the reading on the technological context of execution of the program, which prevents us from defining a precise state to preserve. Lability is considered as a fundamental, indispensable and unpredictable feature of "private reading" productions, which are designed to be read on the reader's equipment. Besides, some works induce a disjuncture between reception and digital reading, introducing meta-readings that sometimes implement some of the work's contexts, including its lability. The Spinozist ontology then provides us with the necessary heuristics to design preservation in terms of "the possibility to update a power to act," rather than making a materiality durable.

Keywords: lability, obsolescence, perception, preservation, reading, Spinozist ontology.

Full text (PDF format)

Obsolescence and lability. These two keywords define the digital apparatus and lead us to think that every artistic work created with the latter is completely and inherently ephemeral. Such a point of view certainly has a deep impact on the esthetic characteristics of a work, as well as on its chances to be preserved. It would then be impossible for a creator to choose

the way of digital creation without acknowledging this fundamental condition. It should yet be noted that many authors carelessly embark on digital literary forms, thinking that they are but a byproduct of books and that, although they offer more possibilities, their cultural characteristics essentially remain the same. By the way, don't we talk about "digital books" and "augmented books"?

In digital literature, the issue of the ephemeral is hardly ever discussed and sadly, the slightest modification of the prevailing digital paradigm leads authors to complain about the fact that their work cannot be made sustainable. Such was the case when both MACs and PCs supplanted family computers, then when the appearance of the web marked the end of the cultural CD-ROM, as browsers entered an "incompatibility war" in which every new generation of browsers would invalidate the previous generations' screen display of HTML files, or more recently as smart phones began to supplant computers. As well, HTML 5 is now gradually ousting Flash, this software tool in which so many authors believed to guarantee the digital durability of their works.

Maybe we should try to determine the *exact* temporal behavior of these productions before we draw general conclusions. Let us start with the analysis of the preservation solutions currently proposed: are they likely to stop the ephemeral or cancel it by making the same things happen again?

The preservation of digital works

The variable media model constitutes the main approach to the preservation of digital works.[1] It states that the work would be an "invariant" agent embodied in a variable media. Preserving the work would then consist in cancelling the media's variability. In museology, and in particular at the Guggenheim museum and Langlois foundation[2] (which are at the cutting edge of this approach), this invalidation is reached by replacing the faulty components with identical ones. In this sense, the aim is to ascribe the material existence of the work with a cyclic nature, by having it periodically return to its original material state. However, this approach can only delay obsolescence: sooner or later, it will be impossible to replace the defective parts with identical ones, especially in the digital field, and the media will be variable again.

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1 Jon Ippolito, Alain Depocas et Caitlin Jones (eds.), *L'Approche des médias variables: la permanence par le changement*, New York/Montreal, The Solomon R. Guggenheim Foundation/Daniel Langlois Foundation for Art, Science and Technology, 2003.

2 Anne Laforet, "La conservation du net art au musée. Les stratégies à l'œuvre," PhD thesis, Université d'Avignon et des Pays de Vaucluse, 2009.

The approach adopted by the archeology of media — theorized by Siegfried Zielinski,[3] among others— is faced with the same problem. This approach is based on Friedrich Kittler's[4] and Michel Foucault's[5] analyses. It deals with the issue of the preservation of works[6] through the restoration of old machines and their cultural, social and technological environment, which cannot be obtained outside museums or private collections.

The notion of variability cannot be dissociated from that of state. If a variable apparatus must be maintained or re-established, what is the moment, the state to freeze and preserve? In short, what is the reference state of the work? Is it the material state that "makes it" a work? This issue is explicitly tackled by the variable media theory, according which the creator's intent is the reference state. It invites creators to describe this state in detail.

Gladney[7] puts this choice into perspective, although he does not reject it. Interested in digital productions that are not intended for museums, he proposes a model in which preservation is ensured by certified copies and integrates the notion of version into his model, which means that it no longer includes variability as a characteristic of media, but as a property of the digital production.

As for the V2_center, it refutes the existence of a reference state and proposes the concept of unstable media[8] in opposition to that of variable media. This instability must be integrated into the preservation process and the V2_center performs captures of works, which are then stored in the archives, like so many snapshots of the work.

K.-H. Lee *et al.*[9] propose a re-mediatization solution that must be implemented before the re-mediatized media is impacted by obsolescence, which ensures a faithful transformation and allows for its re-exploitation. In all these projects, as well as in the latest ones, such as the CASPAR[10] and

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3 Siegfried Zielinski, *Deep Time Of The Media*, Cambridge (MA), The MIT Press, 2008.

4 Friedrich Kittler, *Grammophon, Film, Typewriter*, Berlin, Brinkmann und Bose, 1986.

5 Michel Foucault, *L'Archéologie du savoir*, Paris, Gallimard, 1969.

6 *PAMAL*, *Preservation and Archaeology Media Art Lab*, Avignon, École Supérieure d'Art. [Online] http://esaavignon.fr/recherche/pamal [accessed November 14th 2013]

7 Henry M. Gladney, "Principles for Digital Preservation," *Communications of the ACM*, 49(2), 2006, p. 111-116.

8 V2, *Book for the Unstable Media*, Rotterdam, V2_Institute for the Unstable Media, 1992.

9 K.-H. Lee, O. Slattery, R. Lu, X. Tang and V. McCrary, "The State of the Art and Practice in Digital Preservation," *Journal of Research of the National Institute of Standards and Technology*, no. 107(1), 2002, p. 93-106.

10 David Giaretta, "Caspar and a European Infrastructure for Digital Preservation," in *European Research Consortium for Informatics and Mathematics*, News 66, 2006, p. 47-49.

Digital Preservation Coalition[11] projects, preservation is closely linked to documentation and most of the time carried out in standardized open archives.

The latter approach is now widely adopted in digital literature. There are currently many international databases (ELO directory, ELMCIP, Hermeneia, to mention but a few) trying to get together and form a consortium (CELL) to ensure their interoperability. Documentation seems to have supplanted copying.

All these approaches are yet based on the same axiom: preserving a work amounts to preserving its materiality at one or several precise moment(s), either by copying this materiality or simulating it, or in other words, by copying some of its aspects. This approach is ill-suited to works that are designed for what I call "private reading," meaning works that are inherently destined to be read by everyone in various, widely differing, digital contexts and reception conditions. Then, we are to observe that variability is expressed by a phenomenon of lability —which I consider as a constituent of the very materiality of the work— rather than a media that would embody it. Incidentally, some works operate through lability. As we will see later on, it is sometimes part of the author's project, sometimes not.

To consider variability as a fundamental characteristic of the work and media leads us to reconsider the role of preservation: is it really a specific materiality that must be preserved or restored? The Spinozist ontological model will provide us with the necessary heuristics to tackle this issue. Let us now introduce the latter through a reflection on the role of time.

Ephemeral or temporary?

The terms *ephemeral* and *temporary* are often regarded as synonyms. They both refer to a temporal system. However, the dictionary of the Académie française gives two distinct definitions for these words. The definition of the word *ephemeral* is very close to its Greek etymology: "Which lasts only a day. By extension: which lasts a short moment, without a future." As for the word *temporary*, it is defined as follows: "Which exists only for a short time."

The notion of *temporary* does not convey this idea of a tomorrow. In other words, *ephemeral* is the antonym of *eternal* (which is endless), while *temporary* would be the antonym of *permanent* (without interruption). What is apparent here is the dichotomy between eternity and immortality that Spinoza has developed in his ontology. Now, Spinoza proposes a solution to this dichotomy. Let us summarize it briefly.

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11 Najla Semple and Gérard Clifton, *DPC/PADI What's New in Digital Preservation,* no. 16, April-August 2007, Heslington, Digital Preservation Coalition & Canberra, National Library of Australia.

The point of view that is expressed here is that of Deleuze,[12] who brings the Spinozist ontology up to date in his course. According to Spinoza, the individual consists of three dimensions: the essence that shapes their mind and constitutes their power to act, an infinite number of extendible material parts that constitute their spatiotemporal extension, and singular relations linking these extendible parts with the essence. According to Spinoza, the extendible parts and essence are two perspectives on the individual rather than two distinct entities. He then states that the extendible parts are lethal because they are linked with the essence and ruled by temporary relationships, while the essence is eternal, as it partakes in Life, the Universe and Everything.

This concept leads us to wonder about the power to act and its relationships with the materiality of productions: we know for sure that obsolescence and lability have an effect on the materiality of productions, but what about the productions' power to act? Is the work defined only by materiality? On the other hand, materiality and perception are intimately linked: what status does perception acquire when the work's power to act is disconnected from its materiality? Then, what does the preservation of a work mean?

To answer these questions, we have to examine in greater detail what lability and obsolescence consist in and what they really have an effect on.

Observations

Lability

We call "lability" a property of the result that is displayed, most of the time on a screen, as the program is run: for a given program, this result depends on the technological context in which the program is run. Therefore, it is a phenomenon that first and foremost affects the digital reading. Lability is above all a technical phenomenon. It was first observed in 1990, through the behavior of the works published in the *Alire* magazine, a historic magazine in the field of digital literature. We soon realized that the display of the work would vary greatly depending on the machine on which it was run, regardless of generativity or interactivity. This process is inherent to the functioning of computers and a direct consequence of IBM's invention of compatibility.

This phenomenon would not, or hardly, occur on family microcomputers, as programs would mostly be related to a single machine and always to a given manufacturer.

With the invention of the PC, IBM also invented compatibility, or in other words the possibility of running a

12 Gilles Deleuze, *Spinoza: immortalité et éternité*, 2 CD audio, Paris, Gallimard, "À voix haute," 2001.

program on all compatible machines. However, this possibility does not mean that the displayed result will be identical on all machines: this difference constitutes the technical aspect of lability. The capacity of the average IT equipment has kept on increasing, which has resulted in the appearance of a diachronic, automatic and irreversible lability: within a few years, it became impossible to find machines that would run the works' programs as initially designed by their authors.

Lability can be the result of various technical factors. Although I have analyzed various cases,[13] I will only deal with the most common one in this paper, *i.e.* when lability results from a change in the execution speed of instructions. The execution speed of programs has globally increased with the improvement of the IT equipments' capacity. For example, the nature of Jean-Marie Dutey's[14] digital work entitled *Le mange-texte* changed very quickly. The original running time of this work's program was 20 minutes. Four years later, it would take only a few minutes to run it. As *Le mange-texte* is an animated work consisting of readable phases and typographic transformation processes, this acceleration has had a tremendous impact on perception: the readable phases became too short, while the graphic transformations became smoother, which improved their visibility. This transition from readable to visible was the expression of an apparent change in the esthetic nature of the work: for readers, the work was not so much literary as it was graphic by that time.

In this sense, technical lability goes together with semiotic lability, the most problematic being the latter. Semiotic lability occurs when the technological context influences the semiotic decision and construction of meaning, as well as the emotional or esthetic feeling.

Properties of lability

Technical lability is in no way comparable to noise. The program's behavior is perfectly reproducible in a given technological context, without inducing any jamming or noise phenomenon. It just changes the observable properties of the result. Therefore, readers will generally detect no sign of lability and will become aware of its existence only by comparing the various displays obtained through the execution of the program on different machines, which they usually cannot do. *A fortiori*, they cannot compare what they observe on their screens with what authors can see on theirs. Moreover, this comparison will not prove convincing if the program is generative, in which case the program induces different results from an execution to the

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13 Philippe Bootz, "Formalisation d'un modèle fonctionnel de communication à l'aide des technologies numériques appliqué à la création poétique," PhD thesis, Paris 8 University, 2001.

14 Jean-Marie Dutey, "*Le mange-texte*," *Alire 0.1*, 1989.

other, or interactive, in which case the observed result depends on the reader's actions.

Technical lability is unpredictable and out of control. The program cannot measure it, because there is no technical feedback between the program and the result displayed on the screen. Technical lability can even go as far as to break up the executed program, so that the latter can no longer be considered as a description or model of the observed result. I have already witnessed the temporary interruption programs' parts, while others would continue, which would result in a display against the program's logic, with no apparent mistake and perfectly reproducible. Obviously, that kind of technical behavior has a deep impact on the construction of meaning, as semiotic lability is extreme.

However, one can demonstrate that lability does not affect all programs in the same way. In a program, three usually intertwined categories of instructions are to be observed: generative instructions which create a memory representation of media (text, music, image), instructions which manage the interaction with the machine (management of inputs, outputs, memory, disc reading…) and instructions which ensure that media are displayed on the screen. Technical lability may affect all three instructions categories. On the contrary, semiotic lability will mainly impact the third category, as it is closely related to perception. Undoubtedly, this is the main reason why it was not evidenced before the development of animated poetry. This particular form of poetry mainly resorts to this third category of instructions.

Lability and perspective

Although the identification of lability results from the development of animated poetry, it is not exclusively linked to the technical properties of these productions. For technical lability to induce semiotic lability, the elements undergoing this technical lability must be ascribed with *textual* meaning, which is not necessarily the case.

Here is an example taken from the field of generation. Let us note that the following observations, relating to authors or readers, can be applied to all forms of digital literature. Jean-Pierre Balpe is one of the most important authors of the "texts generation" branch of digital literature. In the 1990s, his generators would take a lot of time to build a memorized text and nothing would be displayed on the screen during that time. The author then had the idea to display parts of the elements involved in the generative program during the generation process. Readers would try to predict the generated text before its display. With the improvement of computers' processing speed, this calculation phase became shorter and shorter, while the display of these elements grew more and more "ghostly," mostly because their duration was too short to allow for the

anticipation of the generated text. However, Jean-Pierre Balpe has never ascribed these transitory states with meaning: for him, the text of the work (in the semiotic sense) was limited to the alphanumeric text that was generated, which was not influenced by lability. Simultaneously, he attributed a paratext value to the transitory elements undergoing lability. Therefore, semiotic lability is not only a matter of perception, it also depends on the value ascribed to the element undergoing lability.

Lability and obsolescence

Technical lability leads us to make a distinction between what falls within the perennial, i.e. the source-program written by the author, and what falls within the temporary, i.e. the result that can be observed during the execution. While this result is undoubtedly a temporary state, the source-program remains a perennial object which is still productive as long as the technological context allows it. Let us note that several technical operations are performed from the time the author writes the program until the reader executes it. The source-program is the object created by an author in their programming context. It may be a simple text when the program is directly coded (in Java, C programming language…) or a more complex object manifesting itself in the programming environment in a series of texts (scripts), or images when this environment is a graphic one (Flash, Pure data…). In any case, the source text cannot be self-executed. However, it can easily be printed or captured (image capture) and then transferred to another medium. In this sense, it is perennial as the variability of the media does not affect it. In order to be executed, this source text must be interpreted or compiled. When interpreted (a HTML file, for instance), the functional dimension of the code, and thus lability, is transferred to the interpreting program. When compiled, the first step consists in coding it in a hexadecimal language before adding the hexadecimal libraries that it uses. As a result, we are provided with an object file that is not yet executable. The last step consists in linking this object file to the operating system, so as to obtain the executable file. The latter is no longer perennial, as it is the one undergoing lability.

It is precisely this perennial characteristic of the source program that allows certain preservation techniques to prevent obsolescence. Obsolescence only affects hardware. It may be offset through programming, in the form of various artifacts: simulation, emulation, virtual machines… This is the reason why the very first digital poem that I programmed on a family computer in the mid-1980s was made available to the public only recently: there is now a PC emulator of the machine I used back then. Obviously, the execution of the program in the said emulator does not reproduce the exact esthetic behavior of the initial machine, but it is quite similar and neutralizes obsolescence (not lability) anyway.

Perception and reading

In the light of the above, the material system of digital productions can clearly be split into two orders: the first one is a perennial element consisting of the source program and its data, taking a non-binary and intelligible form that the author can manipulate —though not directly the machine— which we shall call the "source." The second one consists of transitory elements: the machine that uses and usually transforms this source in order to create an executable file, as well as the states resulting from its execution, which we shall call "observable transitory." The prevailing view often has the work mistaken for its states, because the reception of the work is often mistaken for the perception of these states. Although dominant, the relationship between the reception of the work and perception of part of the apparatus is sometimes ineffective.

Mistaking the work for the observable transitory is not always justified. Some processes do not produce an observable transitory, for the poetic nature of the work lies only in the program. This is the case of *perl poetry* (digital poetry written in the programming language called Perl) and certain obfuscation approaches, a technique which consists in making the source incomprehensible to any human, while preserving its computer relevance to the machine. In other instances, the source program may be decomposed to show that it contains esthetic representations which are neither updated during its execution, nor written in the program.

In other words, there are representations that remain virtual forever and can be reached only through an operation that is not limited to a digital reading. They are still perceptive components of the work, but their update requires that the program be manipulated. I have been able to give evidence of this "*ghost in the source*" property through experiments on my own creation programs.[15] In other cases, the source makes what is removed or transformed by lability quite explicit, restoring a perennial perceptive dimension to a textual component, although this dimension cannot be reached through digital reading.

In this way, without even appealing to a potential conceptual dimension that is sometimes part of writing projects, the relation between the work and perception of the execution's result is not obvious at all. We too often refuse to admit what is yet considered as obvious in printed texts analyses: the materiality of the work must be decomposed, so as to reach degrees of perception that are unattainable through the usual reading apparatus. In the case of digital productions, this means that one must experiment on the programs, decompose them, isolate parts of them, make video captures of the produced states,

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15 Philippe Bootz and Marcel Frémiot, "*Passage 2009*," *Alire 14*, 2009.

process these recordings to retrieve data that we cannot directly perceive through our senses.

All these operations put the role of direct perception —which is provided by digital reading— into perspective. They still constitute reading modalities, in the sense that they provide access to the representations constituting the esthetic dimension of the work (and not the modality of this access). As a result of the dichotomy established between this perennial object that is the source and the observable transitory, reading goes through the same process as writing did when generation was created. Generation has forced us to dissociate the two traditional roles of the writer from one another: that of creation and that of writing. According to the generative perspective formulated by Jean-Pierre Balpe,[16] the human being is the one who creates and his/her creation is expressed by the source. The author then plays the role of meta-author, while the machine displays the generated text before the reader's eyes during the execution. In the same way, reading traditionally consists in both the ability to access the esthetic representations of the work and its modality of access. It is this precise concept that the digital forces us to dissociate. The work is always destined to a recipient, but reception becomes manifold by subdividing into multiple modalities, which usually cannot be performed simultaneously and, for some of them, lack the adequate tools: the direct reading of the observable transitory, usually a digital one, and other, sometimes instrumented, observations which I call "meta-readings" in reference to the meta-author theory. In this sense, it is fragmented and —in certain cases— now partial, because it is insufficiently instrumented.

Perception and power to act

Work and perception

So, the perennial and transitory only concern the perceptible material elements —states or objects— and depend on the perspective taken on these elements. Is the work likely to be identified through these elements? Obviously, there again the answer depends on the point of view. One cannot ignore that certain approaches, mine included, integrate lability as one of the work's fundamental esthetic components. In this case, it is not technical lability which is concerned, but semiotic lability and its consequences on reading, since no one can pretend that one "has read this text."

Lability prevents us from limiting the work's surface esthetics to our perception of the work at a given time. *The transitory dimension constitutes a perennial property of the work*. Consequently, any attempt at crystallizing a perceptive

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16, Jean-Pierre Balpe, "Méta-auteur," *Alire 10/DOC(K)S*, 1997, p. 95-99.

identity, like preservation approaches tend to do, only hampers its power to act, or even destroys the esthetic project.

Several of my works experiment on lability in various ways. I will only deal with two of them, developed in the work called *passage*. One of the work's sequences, entitled *La Série des U* (*cf.* the selection of works included in this first issue of the *Hybrid* journal),[17] uses two generators, a sound one and a visual one, which can in no way be synchronized, because the visual one is particularly sensitive to lability, contrary to the sound one. I have observed that the program's running time can double from a machine to another. However, this is imperceptible during the narrow reading of the work. Moreover, almost all executions give the impression that sound and image are perfectly synchronous. This result is obtained through the inclusion of psychological coherence constraints: generators exchange data ensuring coherence and grant each other authorizations to further display the elements they produce. In this way, although the result is variable, it is perceived as permanent, like sunsets are never exactly the same and yet never completely different. We are left with a strange and pervasive feeling of an "immediate-forever."

Another part of *passage* resorts to an adaptive generator. It is a program that takes measurements on the machine and adapts its functioning according to the results. Consequently, I was able to design a program that none of the then available machines could run entirely, which would yet produce a result on every machine. I have not yet seen what a full running of the program would result in, as none of the machines I have run it on was capable of executing all of its parts. In his review of *A hundred thousand billion poems*, a journalist was surprised that Raymond Queneau had produced a work "he himself had not read." In the same way, he could be astonished that I have created a program "the result of which its own author has not seen." Lability is here clearly accepted as a future inherent to the work. Obviously, it is not accepted for its perceptive result, which remains utterly unpredictable. In this case, perception is but a modality semioticizing lability.

The power to act in the work

Perception can be exploited in the work. It can constitute a component of esthetic representation, in which case one no longer reads the work, but reads *within* the work. The reader becomes an extendible part of the work, through a relation that is specific to its essence, updated in the reading process, be it a narrow reading or meta-reading.

The traditional material aspects of the work remain largely inadequate to define the power to act, which may also consist in

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17 Philippe Bootz and Marcel Frémiot, "*La Série des U,*" in *Electronic Literature Collection*, vol. 1, Cambridge (MA), 2006.

a power to contest, a subversive and radical questioning of common practices, or a unifying power which, in any case, is subjected to a singular relation to the language defining its poetic nature. From then on, preserving the work no longer consists in preserving its materiality, but in allowing for updates of its fragmented power to act. I highly doubt that we will ever be able to simultaneously update all aspects of the power to act, because they are expressed through relationships endowed with different temporalities. Of course, the power to act is partly implemented through narrow reading and although legitimate, the will to save a readable and perceptible state of the observable transitory is not sufficient. It does not even ensure the preservation of the work's initial "acting," because the cultural context of reception is transformed in an irreversible and non-reproducible way. We also have to admit that other aspects of this power are operated through the decline of perception —the "perceptive death"— and that this destructive process must be preserved *too* if we are to update these aspects of the power to act. For instance, a detailed analysis of Jean-Marie Dutey's *mange-texte* (Philippe Bootz, 2012) shows that the unsolvable loss of the perception of the observable transitory meets the work's narrative objective, while its author could not have planned it, as the lability phenomenon had not yet been discovered at the time this work was created.

Conclusion

Thus, far from being trivial, the issue of the ephemeral has led us to question the relation between perception and reception, to tackle that of preservation and ultimately, the very definition of the digital work.

The supported point of view —which consists in preserving the work's power to act and potentially favoring it over its materiality, in allowing further updates of this power sets the ephemeral as a constituent of the work. This has led me to develop, together with colleagues, an approach in which preservation is primarily operated through the documentation of as many observations as possible (preservation or capture of perceptive aspects of the work, analyses, context observation, readers and authors' reactions…), without trying to rank or value them. Some projects[18] have come up with prototypes for adequate indexation tools that principally resort to the concept of perspective. In this light, documentation and indexation do not neutralize the ephemeral, they assume it.

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18 Philippe Bootz and Samuel Szoniecky, "Vers une ontologie du domaine de la poésie numérique," *Revista Cibertextualidades*, no. 5, p. 65-96, 2013; Philippe Bootz and Inés Laitano, "*Cross-reading*: un outil de visualisation de *close readings*," *Formules*, no. 18, to be published.

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