

READER/READERS

1 SOMETIMES, READING CANNOT BE CONSIDERED AS AN EXTERNAL FUNCTION APPLIED TO A TEXT.

1.1 TWO THEORETICAL APPROACHES.

In classical theories of text, reading is an external function applied to a given object, the text, seen in the same manner by all readers. In these theories, the reading is a pure cognitive function of reception. It has a degree of freedom: the interpretation. In this scholastic theory, developed in a modern approach by Umberto Eco, the text is seen as a set of rules, a management of the interpretation. But, while the level of the expression (in the sense of Hjelmslev) is the same for everybody, his ontology is strong and it can be studied as an object.

Some theoreticians in semiotic, such as the Belgian group mu, have another approach in which the signs are constructed by the receptor but will not given to him. This percepto-cognitive approach is closer to the real functioning of mind : it is well known in cognitive science that cognition and perception interact in a unique functioning.

The percepto-cognitive approach of text is not incompatible with the previous. This model reduces to the classical scholastic model when the same archetypes are used in perception by all receptors and authors. It is the case in classical literature.

The percepto-cognitive approach is useful to explain emergent literature, when the archetypes needed by reception are not stable ; when the work goes away the "horizon d'attente" (horizon of waiting) in the theory of reception by Jauss.

1.2 THE MODEL OF "LINKED TEXT"

1.2.1 The system.

The model I am developing now is lied within this way. It treated reading and creating in a systemic approach. The system considered in this model contains all actors and machines, which appear in the communication between the author and the reader, including the author and the reader themselves.

The most important feature in such a system, is that the concept of "text" disappearing ; a text cannot be isolated, no subsystem appears with the same properties for each actor. The perception of text by an actor is linked to the archetypes that s/he is using and no text can be isolated out of a reading. Each reader can see a particular text with the same material. This point is

nothing else the exposition in literature theory of the "included outsider principle"¹ from the general systemic theory developed by Edgar Morin and Lemoigne.

1. 2. 2 The concept of "profondeur de dispositif".

The most important archetype for this perception is that governs the mind representation of the system. This archetype is named the "profondeur de dispositif" (system-deep) in the model. It is the representation of the nature of the system, of it functioning and of the role of each actor in it. The most classical system-deep is the concept of book. This system-deep is "flat" : the system reduces the book, which is constituted by a support and a text, but actors (reader and author) are not included in it. The role of the reader is simply the external interpretation of text, function in which the pages play no role. An other system-deep, very similar, is the mind representation of video screen. The unique differences with the book in the perception of text are the importance of time as well as the space and the association of sound. This archetype is often used for the reading of multimedia works. The text is then what appears in the sound-time-space of the screen.

In many emergent works, many system-deep can be used. This diversity are different solutions of the problem of perception that put by the work when no cultural consensus appears. This situation can arrive with new works or when traditional works are reread in a new cultural context.

For example, two different system-deep can be used in the reading of the book *cent mille milliards de poèmes* by Raymond Queneau. In one of it, the book is seen as a set of sonnets. The system appears like a classical book and the strips are not textual elements, they play the same role as pages. An other possibility, it considers the book as a object-book. In this way, the text is no more a linguistic object and the strips are parts of it. In this approach, the book contains only one text and at the same time it has much more than "cent mille milliards" moments of reading, depending on the manipulation of the reader and geometry of the strips which can show portions of clauses. These two system-deeps are the two possible responses to the problem of the treatment of infinity by the classical duality between closure and continuous².

1. 2. 3 The concept of "texte-à-voir".

In this theory, the observable elements which will be detected as the level of the expression of a classical text (in the sense of Hjelmslev) are named the "texte-à-voir". In the example of the book *cent mille milliard de poèmes* by Queneau, the strips are parts of the texte-à-voir when the archetype of object-book is used but not when the archetype of book is used.

In some system-deeps, such as in the procedural archetype presented below, the concept of text is not reduced to a texte-à-voir. In such deeps, the impression of deepness is strong and the ontology of the text is small : the work (which is the text) does not appear as a multimedia object.

The model is named the "linked text model" because the concept of text is linked to a system-deep.

1. 2. 4 Importance of the competition between different "profondeurs de dispositif" for the status of a work.

The system-deep is a mind representation. It can differ from the exact schema of the system. Emergent literary forms can be seen as works in which the reader is invited by the author to use a classical deep for a non-classical system. Two different system-deeps come into conflict : the new deep which is really compatible with the system, and the incompatible classical deep.

¹ In french : "principe du tiers inclus".

² This assumption is detailed in Ph. Bootz, "Comment c'est comme ça", acts of the conference "littératures à contraintes" in Cerisy in August 01. To be published.

Whether the author can use the new deep or not, it does not modify the behaviour of the system : a system-deep is only a mind representation, its action concerns only the sense, the definition and the cultural status of the work

It is the case when Queneau says that his book contains “cent mille milliards” of classical sonnets : The classical system-deep appears as a constrain for writing. It is also a “trap” in the reading for imposing the concept of potentiality. If the reader does not use this concept, which can consider the result of his/her manipulation as virtual and not potential, this classical system-deep is not used. Actually, virtual seems a more pertinent archetypal feature in e-poetry than potential.

In e-poetry, many discussions and works during the 80's can be seen as the discovery of the procedural archetype which explains the behaviour of the system. This discovery passed through the failure of reading with a classical system-deep. This particularity has generated a new aesthetic : "l'esthétique de la frustration" (the aesthetic of frustration).

2 DESCRIPTION OF THE PROCEDURAL ARCHETYPE.

2.1 COMPONENTS OF THE SYSTEM.

2.1.1 Structural and functional levels.

The elements that compose the system of communication are the reader, the author, the reader's and author's computers and the support for the transmission of the files which written by the author. This system is actually the most popular for works on floppies, CDROMS, and most of the works on the WEB. It is necessary to consider this system for explaining the behaviour of work in a private reading. But it is certainly not sufficient to explain the behaviour of works that use a third party in a network

The most interesting way to describe the system, is to construct its functional pattern. In this pattern, reading and writing are internal functions in relation with mind representations of the "text"³ (named "texte-lu" et "texte-écrit") and observable elements named "textes-auteur" and "texte-à-voir". The "textes-auteurs" are constituted by the set of files that written by the author and s/he can understand (data are to be seen as sounds and pictures, not as binary files and source files of programs, not executable binary files). The "texte-à-voir" is constituted by the multimedia observable elements. We will see that this texte-à-voir does not reduce to the multimedia texte-à-voir is induced by the archetype of a video screen commanded by a program : the work in the procedural archetype is not a real time programmed video.

A domain for the text locked to this system-deep can be delimited in the functional schema of the system (fig. 1). This domain does not appear in a structural schema. As its presence can explain the most important differences between a classical system and the procedural system, the functional level is a more pertinent description that the structural level for this system.

This domain is a subsystem of the global system of communication. It possesses observable components (textes-auteur, données induites, texte-à-voir) and a main function : the generation. This domain is the feature, in the model, closest to the classical ontological concept of text because writing and reading are external functions applied to it and because the supports of the structural components do not appear in this domain.

³ The actor considers the representation of what is the text by use of a particular system-deep.

In the procedural system-deep, the classical concept of text is failed into some objects (the textes-auteur), a process (the generation) and the temporal observable state of this process (the texte-à-voir⁴).

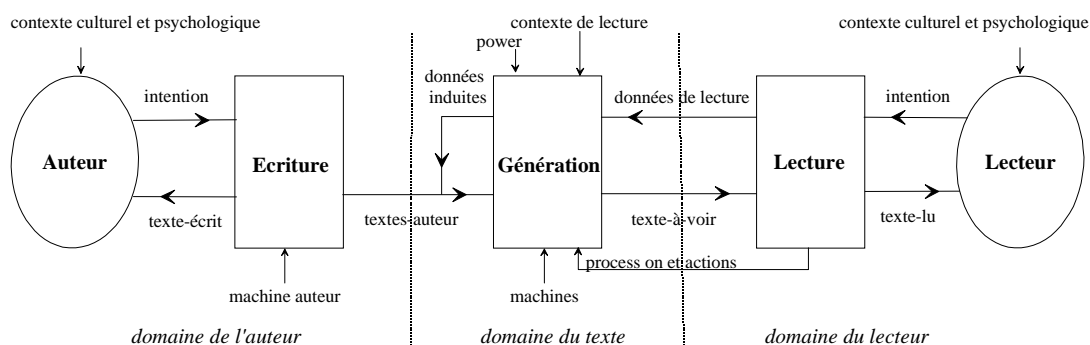


Figure 1 : functional pattern of the procedural archetype⁵.

2. 1. 2 “Autonomie du processus”

The function “generation” is the new feature, unknown in a classical system-deep. It is responsible of particularities of reading. Let us note that it is not the same function as the generation in the “automatic generation of text” (LGO). In the procedural pattern, the generation is an association of physical technical processes.

The principal of them is the running of the program of the text on the reader’s the computer. This running is governed by the lines of code (or scripts) that was created by the author and by the differences between the computers of the reader and the author (differences concerning technical data and configuration). Technicians play a role as a distributed actor, co-author during the generation.

The procedural pattern takes into account the non-said in the program : The program does not contain all the parameters (such as the speed of running of the lines of code) neither the totality of the rules needed to the running (such as the management of the computer at a low level) nor the management of timesharing and interferences between other programs in run (this level is managed by the main system). This non-said is described in the pattern by the “contexte de lecture” that contains all difference (in contextual rules and data) between the computer of the reader and of the author. So, in reality, the program that was written by the author and the intellectual logical function of the implement algorithm are not sufficient data to predict how generation will occur. The association of the two computers is not equivalent, for the reader, to a Turing’s machine that would be managed by the author. The project and models implemented by the author in the textes-auteur are unable to predict the texte-à-voir on another machine of the author, even if there is no use of random or interactivity : the electronic literature is not only an algorithmic literature, the “generation” is a physical process, not an abstract description.

This fact has been brought to the fore by the diachronic divergence in the behaviour of the works which were published in *alire* before 1994. It is responsible of a new kind of artistic form : the adaptive generator. In this form, the author tries to manage the impossibility for the program to

⁴ In this model, the texte-à-voir is not an object but a transient state of a process. So, the texte-à-voir is the unique readable component in the system by the reader, but it has no ontology and cannot be used as a text in the scholastic traditional way. We will see that this state is not reproducible, even if the program is simply a description of this state generated during running, without use of random or interactivity.

⁵ See for instance Ph. Bootz, "the functional point of view : New artistic forms for programmed literary works", *Leonardo* vol. 32 nb 4, 1999, pp. 307-316.

run properly. S/he is no more the master of play, the “*deus in machina*”, but a manager of the failing.

The generation function seems to be autonomous. This feature is named in the model “*autonomie du processus*” (autonomy of the textual process).

2. 1. 3 “*Séparation des domaines*”

This autonomy is associated with another feature, certainly the most important for the reading, named the “*séparation des domaines*” (domain-gap).

The text’s domain plays the role of a gap between the author and the reader because the functional pattern shows the domain of the text that cannot appear as the same manner for the author and the reader. A given actor does not know what the elements are observable by the other one and the structured properties of text elements are not the same for the author or the reader.

a) **Properties of the text’s domain for the author.**

The author does not know the exact properties of the *texte-à-voir*, because of the autonomy of the textual process. For him/here, the *texte-à-voir* can only be managed as the observable state of the execution, step by step, of the algorithm of the *texte-auteur* : the author does not know the failure imposed by the autonomy of the textual process, the properties of the *texte-à-voir* that will differ from those anticipated by the algorithm. The author can only manage and understand the work as an algorithmic work, even if it knows that electronic literature is not an algorithmic literature but a literature of physical processes. In the algorithmic point of view of electronic literature, all the properties of the *texte-à-voir* are determined in the *texte-auteur*, even if the author cannot see them in mind. We can say that the author manages the global structure and properties of each textual element that will occur to the reader (the behaviour of the generation and the semantic and aesthetic properties of the *texte-à-voir*). But, because of the autonomy of the textual process, the domain of the text is a gap and what the author has managed can never occur : the emergency is not predictable.

The modality of writing is a horizontal-editing and a meta-writing of models for the *texte-à-voir*. Let we explain these terms :

The montage, masking and manipulation of observable data can be made in real time by the program during the running. We can say that it is a “horizontal-editing” because it appears as a scenario⁶. In this case, the elementary observable elements that the program manipulates are known by the author, and participate to the building the sense of the work s/he makes. The reader can only observe the result of the montage. The building of the sense is not the same, because the phenomenal observable elements of the *texte-à-voir* are different.

In many works, the author does not realise or explicitly describe all the observable elements of the *texte-à-voir*. Certain features are “automatically generated”. The author, in this case, manages the rules of the algorithm of generation. We can say that the author constructs models for the text. It is why Jean-Pierre Balpe names this property of writing with computer “meta-writing”⁷.

According to a more classical algorithmic conception of electronic literature, the author cannot know what “*les données de lecture*” (reading data)⁸ will be because the author cannot anticipate the strategy of reading. It is the ergodic correspondence of the autonomy of the

⁶ It is truly realised in the *texte-auteur* with superposed lines in the scenario window when the author uses the program director.

⁷ Jean-Pierre Balpe, “*méta-auteur*”, *alire* 10/ *DOC(K)S*, livre, MOTS-VOIR, AKENATON, 1997, pp. 95-99.

⁸ The reading data are the data that the reader input during the reading. Every movement of the mouse can be a reading data.

interpretation in a classic textual theory. But the author has to manage the reading, in its cognitive and ergodic levels. So the author has to construct an Hypothetical reader, that is the theoretical extension of the ‘Model reader’ of Umberto Eco. This abstract reader possesses the competence the author supposes s/he has. This Hypothetical reader is a component of the *texte-écrit* (as a strategic management of reading) as well as a component of the system-deep of the author (as an actor which can do some actions but not all possible actions⁹).

Although it is concerned with a physical process, the text’s domain has algorithmic properties. While the autonomy of textual is not predictable, the generation function can only be seen by the author as the pure execution of the line codes of the program, even if this program is an adaptive generator. The strategy of writing is limited to an algorithmic strategy.

b) Properties of the textual domain for the reader.

Vice versa, the reader is in a situation of local reading. The *texte-à-voir* is present and actual, neither virtual, nor potential. The properties of the *texte-à-voir* are limited for the reader to the one of the *texte-à-voir* that had really occurred. So, the structure of it can differ from the structure understood by the author because the structure is not an additional feature. This difference is used for example in *passage*¹⁰ : the *texte-à-voir* is a generated multimedia process for the reader, but, for the author, it obeys also to an hypertextual structure which governed by a non observable generator (a generator of inferred data).

The *texte-à-voir* contains, for the reader, paratextual information about the structure of the program, evenly the algorithms and the global properties of the *texte-à-voir* (for exemple, in hypertexts, by a map of the hypertextual structure). These paratextuals informations are always detected in a *texte-à-voir*, because the reader makes a mind representation of the algorithm of the generation function. this separation can differ from a reader to another, such as in non electronic works because the system-deep of the reader acts in the separation between “textual” and “paratextual” components of the *texte-à-voir*. Let us see what this separation between “textual” components of the *texte-à-voir* and “paratextual” components is not necessary in the procedural paradigm, and does not appear in the pattern, because all components of the *texte-à-voir* are managed by the same program and are created in the same manner by the generation function.

The reader does not see “the contexte de lecture”, except during rereading. For the reader, electronic literature is often seen as an algorithmic literature.

2. 2 STRATEGIES OF WRITING OR READING.

2. 2. 1 The mimetic works.

In many works, the author wants the reader can see all the structural and aesthetic properties of the *texte-à-voir*. These works are named “mimetic works” in the model, because we can say that the author wants the *texte-à-voir* in the reader’s field imitates the one s/he can observe on one’s machine then s/he is reading one’s own work. A mimetic work is like a programmed video work¹¹. In this class of work, the structure of the *texte-à-voir* is the same in each rereading and the reader makes a good idea of the algorithm of generation, even if the number of possible *textes-à-voir* is an infinity. All combinatory works, automatic generators and animated poems in the 80’s, HTML works and many flash works are mimetic. Even many interactive works, like *IO* by Andre Vallias, are mimetic works.

⁹ For example, the Hypothetical reader cannot modify the inferred data, but a real reader can do this out of the work ; the hypothetical reader does not make reverse engineering, but a real reader can do this.

¹⁰ By Ph. Bootz, *alire 10/ DOC(K)S*, livre, MOTS-VOIR, AKENATON, 1997, CDROM PC.

¹¹ But which perturbed by the autonomy of the textual process.

In a mimetic work, the *texte-à-voir* can be understood as the equivalent of the classical text (in fact phenotext).

2. 2. 2 “Esthétique de la frustration” and “Double lecture”.

a) “Esthétique de la frustration”

In a non mimetic work, the reader doesn't really understand of what the program is really making. This fact generates errors of reading and such errors can be used by the author in a particular strategy of writing which named the “esthétique de la frustration” (aesthetic of frustration). We can say, in non mimetic works, the work contains a “private domain” of the author that the reader can see but not read or understand. It is some extension in the procedural model of the unreadable constrains in a classic text.

The aesthetic of frustration supposes that the Hypothetical reader has a classical non procedural system-deep. For this Hypothetical reader, classical textual components of the *texte-à-voir* “are” the text. But, because the system does not perform as a classic textual system, some classical properties, as rereability, or navigation, do not work properly : some information escapes from the reader that is frustrated because s/he cannot make a mind representation of the global nature of this hypothetical text. My work *Le nouveau prépare l'ancien* is a typical example of a work constructed with this aesthetic.

b) “Double lecture”.

Another point of view for the writer that can create new artistic forms is to including the reading function inside the set of textual functions, i.e. to consider that not only the generation function, but also the reading function, are functional components of the text's domain. In this point of view, the mouse cursor at screen is a paratextual part of the *texte-à-voir*. It is the indice that the reading is a component of the symbolic representation in the work.

To read the reading as a party of the textual representation, the reader has to realise a “double lecture” (double reading) : to read the *texte-à-voir*, and to read how s/he is reading, how his/here function of reader acts as a part of the work's representation, as a component of the *texte-écrit*.

The double reading is similar to the two alternative roles of a viewer¹² in an interactive installation in electronic art¹³. When the viewer interacts with the installation, s/he can be named an interactor and s/he is the receptor of the events s/he is creating. But s/he is also a tool in the system, and sometimes a part of the work, for the other viewers that are only seeing the work without interacting with it. We can say that, in interactive installations, the interactor is not the final receptor of the work, because s/he cannot see in this situation his/here position in the installation. In works designed for private reading, such as in e-poetry, the reader is always an interactor and never simply a passive viewer seeing the interaction. S/he has to construct this second role by the cognitive action of “double reading”.

The double reading can be a real strategy for reading, but also a strategy for writing. In this case, the Hypothetical reader is not the final receptor of the work. Every reader can observe very different *textes-à-voir*, the work unveils its identity only to a virtual collective reader. Works which constructed in a double reading strategy respond to the society of communication and information¹⁴.

¹² We can say that the reader constructs a “Model author”, an hypothetic author that gives place to the reading . It is an extension of the “Model author” textual strategy of Umberto Eco.

¹³ *Terrain* by Ulrich Gabrielle is a good example of a work in which the viewer plays two different roles.

¹⁴ In my artistic production, this response consists to consider the reading function as an essential function of the life, which constructs mind representation by destruction of information. In this point of view, the reading is no more a tool to access

Let us note then, in the functional pattern, the “double reading” is not a new function. It is a part of the functioning of reading with time : double reading is always a reevaluation of the meaning of the *texte-à-voir* which is given by a first reading. This property is certainly the procedural equivalent to the modality of reading in a classical book. In a classical book, the reading is a playing between hypothesis / verifying. This strategy of reading needs the reader is accessing to the totality of information. When this information is truncated or differed, this strategy can only appear in retrospect. It is the double reading. When the reader has a classical system-deep, the reevaluation can invert roles of “textual” components and “paratextual” components of the *texte-à-voir*. This inversion is the measure of emergency of the procedural system-deep, the indice of failing of the classical system-deep for reading. This mechanism can occur in a strategy of writing, or a strategy of reading.

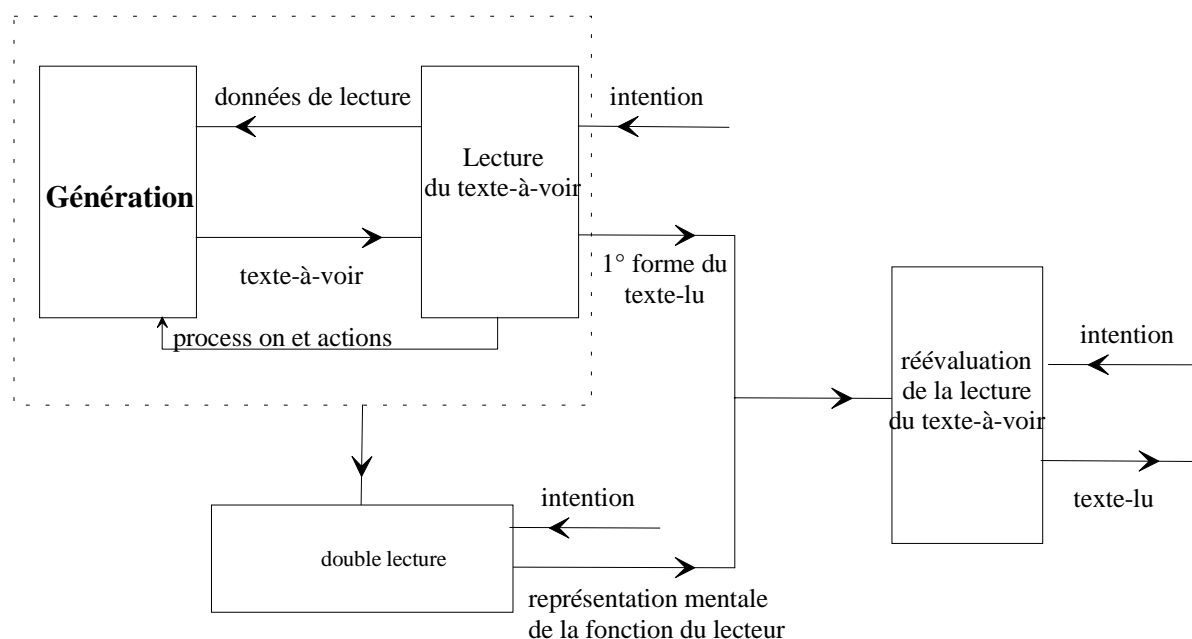


Figure 2 : pattern of the double reading

2. 2. 3 The “Hypothetical reader” in these strategies.

Each of these three strategies of writing uses different properties for the Hypothetical reader. Mimetic works and aesthetic of frustration uses Hypothetical readers which do not have a procedural understanding of the system. In particular, the Hypothetical reader in the strategy of the aesthetic of frustration has a classic system-deep in which the *texte-à-voir* contains “the” text. This system-deep gives no particular textual meaning to the text’s domain. It is why, what is defined as *texte-à-voir* in the procedural model, is seen by this Hypothetical reader as text and paratext. On the contrary, the Hypothetical reader has a procedural system-deep, like the author, in the strategy of double reading.

We can observe that works made in the aesthetic of frustration do not product frustration when a real reader has a procedural system-deep. The double reading which realised by the reader let the work to be seen as a “game”. When the reader has a classical non procedural system-deep, which is often the case, works use double reading product failing of reading. It is why the strategy of double reading can appear as a particular case of the aesthetic of frustration for a real reader because the *texte-à-voir* can give a failing of reading. My poem *Stances à Hélène*¹⁵ or of the poem *Florence Rey* by Patrick Burgaud has been seen so by some readers.

information but a tool to manipulate information in a destructive manner. It is why in the new form of the “unique-reading-poem”, rerunning destroys the potentiality : the reader cannot explore the different possible ways for the *texte-à-voir* by rerunning the generation function, this function cannot be reset by turning the power off.

¹⁵ Published in DWB n° 4, Leuven, Amsterdam, 1999, CDROM, part PC.

3 SOME EXAMPLES.

3.1 INTRODUCTION.

Let us examine two examples from the 90's. The first is an "automatic generator of texts" *L'esprit humain*¹⁶ by Jean-Pierre Balpe and the second the work "*Les mots et les images*"¹⁷ by Jean-Marie Dutey.

With the work of J.P. Balpe, we will see how the procedural double reading diverts the philosophy of algorithmic literature. With the work of J. M. Dutey we will see how double reading give senses to a failing of reading.

3.2 AN AUTOMATIC GENERATOR OF TEXTS.

3.2.1 Definition.

Jean-Pierre Balpe makes automatic generators of texts since the 1980's. This form uses a generative grammar and dictionaries to construct sentences and classical texts. It is the most complex algorithmic literature, certainly the final point of it.

J. P. Balpe defines the automatic generator of texts with these words :

*«Un générateur automatique est un automate capable de produire en quantité psychologiquement illimitée des objets acceptables dans un domaine de communication antérieurement défini, c'est-à-dire reconnu comme domaine par une communauté de récepteurs»*¹⁸. [«an automatic generator of texts is an automate which is able to product acceptable objects in a shown defined domain of communication, i.e. that will be recognised as a domain by a community of receptors»].

3.2.2 System-deeps.

It is clear that two system-deeps interact in this definition. In the author's point of view, the automatic generator is an algorithm of simulation. The "generation" function is not, as in the procedural system-deep, a physical process, but an abstract process : the execution, step by step, of the algorithm of classical texts creating. This point of view is relatively close to the procedural point of view. Notably, it knows the domain gap and the meta-writing¹⁹. But, else it does not accept the autonomy of the textual process, this conception decomposes the components of the procedural *texte-à-voir* into textual components, which are the generated sentences²⁰, and paratextual components which constituting the "non generated" visual user interface. In our general definition of the *texte-à-voir*, the textual components are the *texte-à-voir* in this algorithmic system-deep. In this conception, textual components are not interactive, the

¹⁶ Published in *alire* 8, MOTS-VOIR, Villeneuve d'Ascq, France, 1994.

¹⁷ Published in *alire* 5, L.A.I.R.E., Villeneuve d'Ascq, 1991, rééd in the CDROM *Le Salon de Lecture Electronique*, MOTS-VOIR, Villeneuve d'Ascq, 1995.

¹⁸ J.P. Balpe, "Génération automatique poésie-musique", *Rencontres médias 1 (1996-1997)*, BPI en actes, BPI, centre Pompidou, Paris, 1997.

¹⁹ This concept was invented by J.P. Balpe.

²⁰ In the procedural model, the ensembles of sentences which can be isolated on screen in a classical text, are named "textes-phrases" (sentences-texts). A sentence-text is a textual objet which has all the properties of a classical text on a book, except the existence because it is a component of an observable transient state of a physical process.

interactivity is reported on paratextual components²¹ and is restricted to an order of execution : the reader rests outside the text as in a classical system-deep.

The definition gives also information about the system-deep of the Hypothetical reader : it is a classical system-deep, Specifically the conception of a classical book. In this system-deep, the screen is assimilated to a page (page-screen) and the sentences of the textual components are assimilated to a text. So, the domain of the text is restricted to this part of the texte-à-voir and the domain of the author is enhanced to the generation function : no difference is made between the algorithm of generation and the running of the program. Lines of code which manage the paratextual components in the texte-à-voir are not taken into account in the textes-auteur.

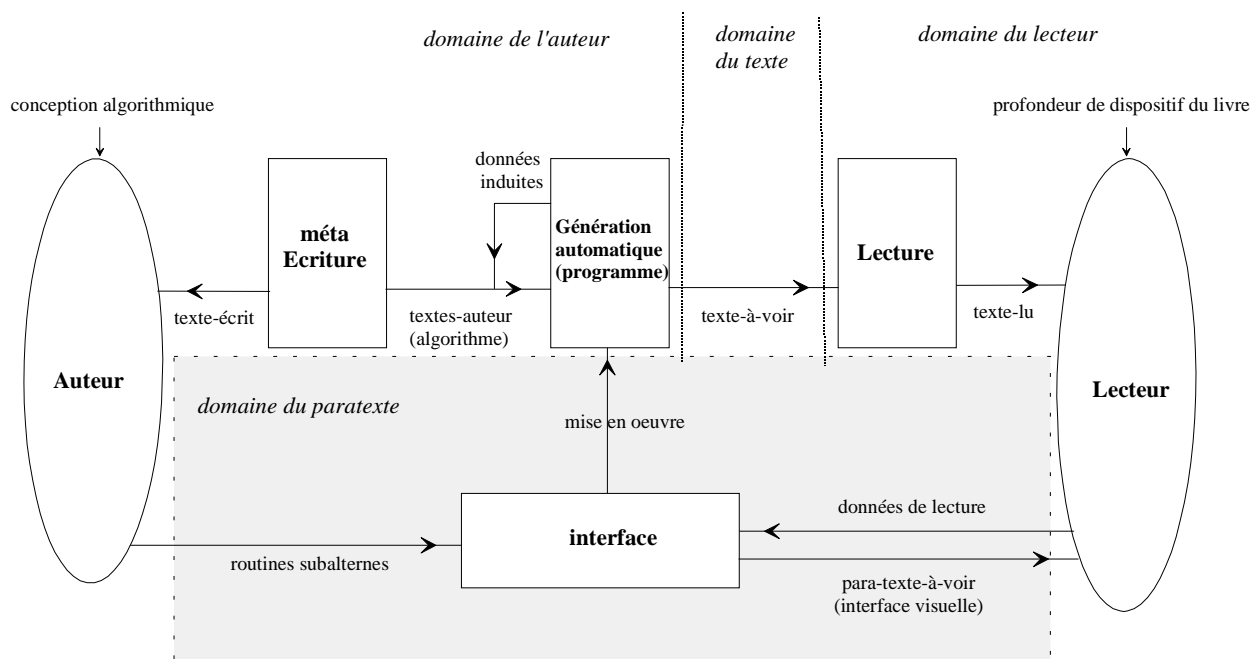


Figure 3 : algorithmic system-deep of an automatic generator.

²¹ In the procedural system-deep, the texte-à-voir is never interactive : it is a pure output. This is the generation function which is interactive. The mouse cursor is an indice of the textual significance of reading which acts in double reading. By seeing the mouse cursor, the reader is seeing its reading inside the texte-à-voir.

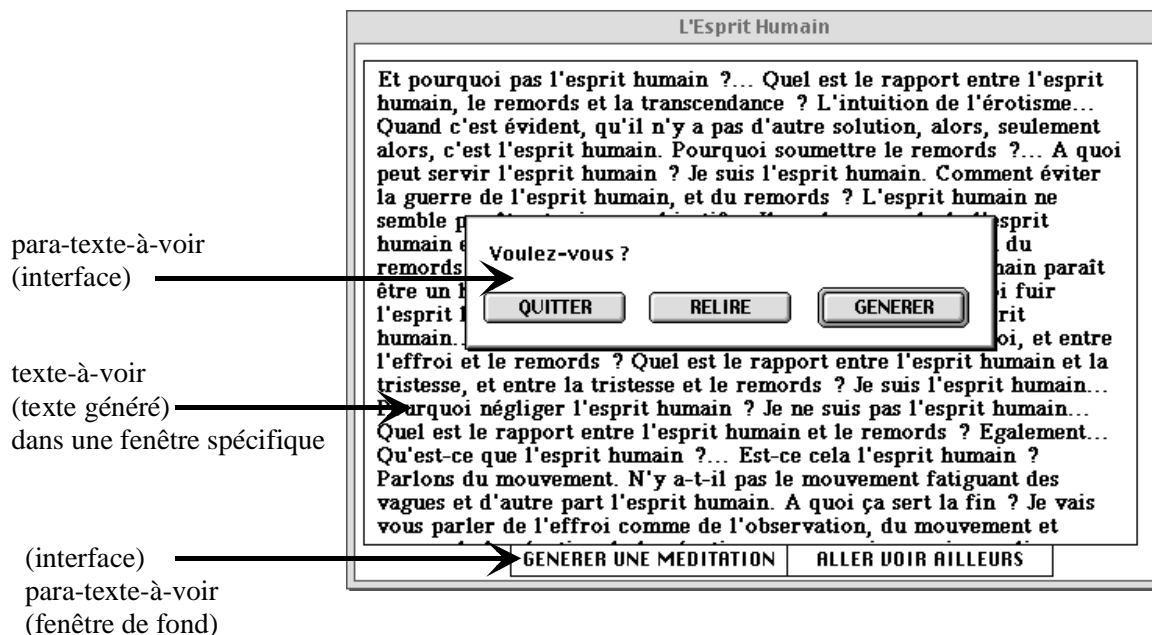


Figure 4 : screen capture of *l'esprit humain* and interpretation of the visual components in the algorithmic system-deep.

3. 2. 3 Application of double reading.

In the algorithmic conception, the *texte-à-voir* (generated text) is potential. But the using of a procedural system-deep gives a different significance to the automatic generation. In this archetype, the physical process cannot be separable into textual and paratextual processes. We can see, when a bug occur during running²², these two processes are interwoven and managed with the same program. So, when the autonomy of the textual process is visible, it acts on the totality of the physical process.

Using double reading, the reader re-evaluates the significance of the generated sentences. Even if they have a meaning, as a text, they do not constitute a text, but metastable transient states, screen-pages, of a physical process. It is why they do not need an incipit or a closure: the meaning is “open” and successive generated texts have no temporal relations. In fact, the generation function is a loop which is achieved by the reader during rerunning the generation of a “text”. So, physically, the reader is the necessary “process on” actor in the system. In a procedural point of view, the reader is the center of the work, because physical observable components of it does not exist out of his/here reading. While the autonomy of the textual process distorts the abstract execution in mind of the algorithm, or completes it in its aesthetic level, we cannot say that the existence of a program by the author is sufficient to consider that the work is created: it is only a document on the work. In the procedural point of view, the work, which is virtual, does not exist out of a real communication according to the difference between the potential and the virtual.

We can say that the double reading makes an inversion between “textual” and “paratextual” informations. The interface is the “textual” component in the procedural *texte-à-voir*, which means the insertion of reading inside the *texte-à-voir*. But the “generated text” is the paratextual information of the looping of the algorithm of generation.

Finally, we can say, in the procedural system-deep, the automatic generator is a typical example of a strategy of writing which uses the aesthetic of frustration. The reader can read the generated sentences in the *texte-à-voir* (sentences-text) as a moment of a classical text, without the

²² Some bugs products *texte-à-voir* (in the procedural system-deep) non compatible with the algorithm of generation! The limitation of the algorithmic conception of literature is an observable phenomena, not an abstract limit.

classical legitimacy of the text, its ontological “sacred aura” which explains that, in a classical system-deep, the text “cannot” be different, even if hypertextual²³ rewriting constitutes a part of the “textual dispositif”. The legitimacy of the work does not reside in the *texte-à-voir* but in the central role of the “process on” actor ; in the belonging of reading to the work.

The frustration is included in the visibility of the unreadable private domain of the author : the reader cannot know the coherence and models of automatic generation algorithm which used by the author.

If s/he has a classical system-deep, the reader can understand this frustration as a destruction of reading²⁴ : no coherence, no community of readers, understanding of the “process on” action as a Pavlov’s reflex.

If the reader is also an author, s/he can understand the “process on” action as a simulation of the arbitrary choosing words by the author²⁵. In this case, the double-reading detects a real communication between the author and the reader, beyond the generated text : it is the condition of writing and not a text that is communicated by the author. Double reading appears as a meta-reading which is the answer to the meta-writing in the reader’s point of view.

If the reader is sensible to potential literature, it will understand the automatic generation of text as the limit point of the potential literature.

And if s/he is sensible to the physical process, s/he will read the functioning of the procedural generation function as a loop process depending upon his/here action. The failing of reading to access information appears also in this case as the sign of fundamental failure of communication : in double reading, reading appears as a tool to construct a mind representation (the *texte-lu*), but not a tool to access information which contained in the *texte-à-voir*. What is communicated is no more the condition of writing, but a symbolic representation of the relation between life and information. The work is a “model” of the lived world in which the functioning of life is symbolised by an other function, reading, and not by a “text” or observable signs. The procedural archetype says that functioning “is” a component of the symbolic representation of the work. The work cannot be reduced to signs. Double reading is the way to read these particular non semiotic components.

3.3 JEAN-MARIE DUTEY’S WORKS.

3.3.1 *Voies de fait.*

In *alire*, several authors have put in light with time the particularities of the procedural archetype. Jean-Marie Dutey has illustrated the most important features of the insertion of reading in the work. Two works are significant : *Voies de fait*²⁶ and *Les mots et les images*.

In *Voies de fait*, the reader is explicitly shown as a man which responds to the keys of direction. But this man does not move on the screen, it is the sentences-text which is moved by the action of the reader. This is clearly a symbolic representation of the role of reading in procedural archetype : reading is a part of the symbolic representation of the work, and this part, but not a “text”, is the focus of this representation. The consequence is even shown : else reading, but not “the” text, is central, the sentences-text becomes more difficult to be read. “Reading hides the

²³ In the classical sense of Genette.

²⁴ See for example Hélène Violle, « Portrait du lecteur absent », *Action Poétique* n° 129/130, Avon, 1992, pp. 13-16

²⁵ It is the condition of writing for Valéry.

²⁶ *Alire 2*, L.A.I.R.E., Villeneuve d’Ascq, 1989, republished in the CDROM *Le Salon de Lecture Electronique*, MOTS-VOIR, Villeneuve d’Ascq, 1995.

text”, “reading forbids to read”. This last sentence is the most popular paradox of the aesthetic of frustration. It is illustrated in many different ways in *alire*.

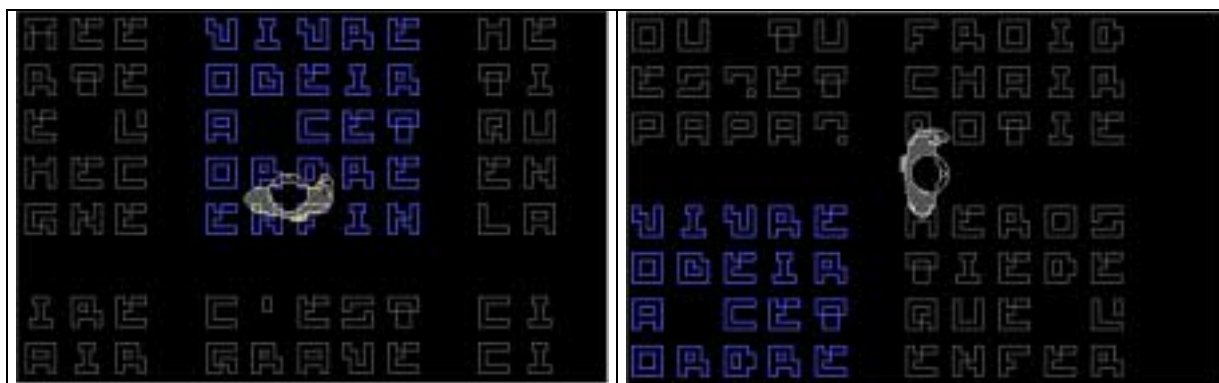


Figure 5 : screen captures of *Voies de fait*.

3. 3. 2 *Les mots et les images.*

The second work I want to speak about is *Les mots et les images*. It uses a classical work by Magritte to show the inversion between classical text and classical paratexte when the reader uses the procedural point of view and double reading.

The texte-à-voir simulates an hypertextual interface with two levels that gives texts by Magritte under a classification on arbitrary concepts.

	<i>magritte</i>	tableau forme	pour <i>alire</i> N°5 octobre 1991	
		proposition		
	mot (s)	représentation	image (s)	
	autres objets	nom	objet (s) autre nom	
		contours	signification	réalité
	figures précises choses		figures vagues choses	
	Ph.Bootz DUTEYJ	ou bien le contraire.	1928	
First level of the interface : The reader has to choose a word				
	<i>magritte</i>	tableau forme	pour <i>alire</i> N°5 octobre 1991	
		proposition		
	mot (s)	représentation	image (s)	
	autres objets	nom	objet (s) autre nom	
		contours	signification	réalité
	figures précises choses		figures vagues choses	
	Ph.Bootz DUTEYJ	ou bien le contraire.	1928	
Second level of the interface : The reader has to choose a colour.				

Figure 6 : the interface of *Les mots et les images*.

But this work by J.M. Dutey is not a study on Magritte : it is a work that published in a review of literature. So, it is clear that the “text” of Dutey, in a classical sense, cannot be the text of Magrit, but the interface, normally gives access to it. What is to be read in this “text” ? The existence of double reading of course. Two particularities indicates this. The one is that the reader can open a help screen, but s/he must open it through the interface : this help screen can only be open after a click on a vertex in the first level of the interface, then click on the brown colour . The reader opens this help for first time by chance !

When the reader opens the help, the only thing s/he does not know is how to quit the interface without reset the computer²⁷. But the help does not say this !

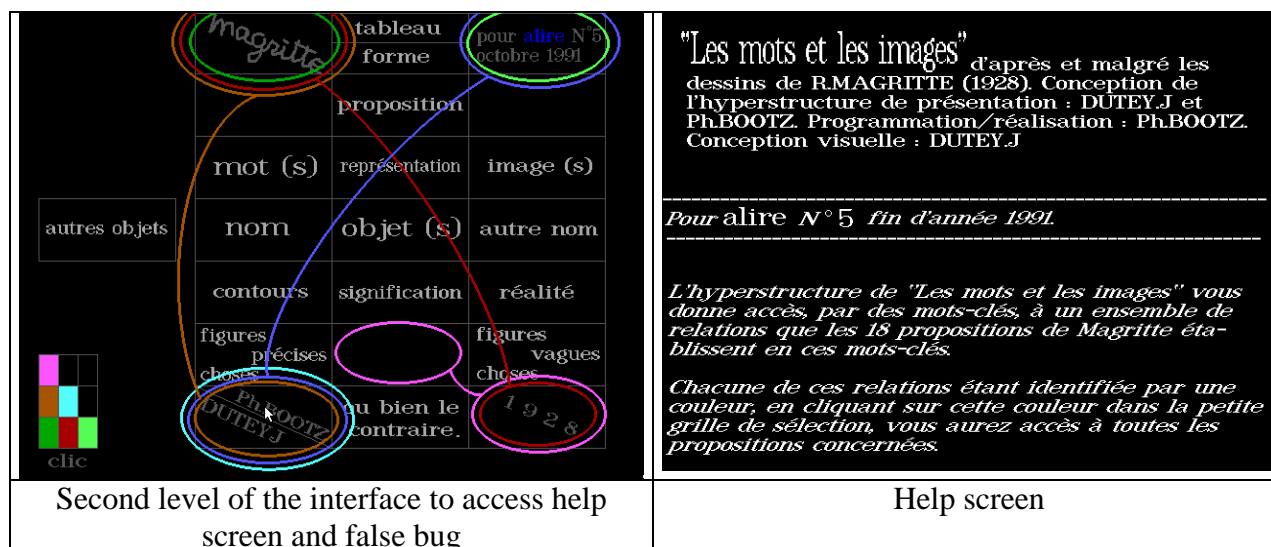


Figure 7 : particularities in *Les mots et les images*.

The other strange property of this work is a “false bug”. In the same second level of the interface, nothing runs when the reader chooses the pink colour. It is only why this colour joins a vortex of the table of words (1928) with a hole, which is a “null” concept. Or no picture by Magritte are concerned by the “null” concept. So, this false bug seems incoherent with the general Pavlov’s philosophy of interface “click to open” but it is coherent with the significance of links between colours and pictures in this interface. With false bug, the reader is seeing that s/he does not navigate into an information but into a procedural work which made by an author, and that resists him/here.

3.4 ANIMATED POEMS.

The double reading is concerned with interactive works. But, in the early issues of *alire*, I have developed an “animated poetry” which is a syntactic-moving poetry. The animation of syntax has created non algorithmic combinatory poems. The combinatory happened by a physical process : the swapping between two modalities of reading, the one was coming from writing, and the other from oral character. We can say that these poems introduce “oral character inside writing” and not only “temporality inside writing”.

This non algorithmic combinatory was made by the reader who could change his/here modality of reading at each time. Effectively, because words and sentences were changing with time, the reader could read the animation (temporal reading) or the instantaneous sentences-text written on the screen (spatial reading). The meaning was different, and yet, the difference was coming only from the reader, and, not at all, from the work !

The difference of meaning used a fact for a syntagm GN-GV-GN, the GN subject of the verb is the first appearing at screen in temporal reading, but the GN is written at the left or the top of the GN in a spatial reading.

In these works, the reader is invited to understand the meaning depends only on his/her reading, and to see s/he is in the same position as a “gauge” in quantum mechanics. It is shown a double reading reads the importance of reading in the perception, and not only in the interpretation of the texte-à-voir.

²⁷ The work is programmed in Qbasic, with the DOS main system, and the classical key ESCAPE does not work : there is no general way to quit a DOS program.

4 THE MODEL OF “MACHINES DE MONSTRATION”.

4.1 INTRODUCTION.

The dichotomy of double reading versus frustration is not the only characteristic of reading. We have said that the function generation is creating a private domain for the author and the impossibility for the reader to guess the exact structure of the *texte-à-voir* which was imagined by the author. So, the system-deep has a great influence in the hypothesis the reader makes to interpret the algorithmic structure of the generation function²⁸ and the nature of the *texte-à-voir*. It is why the classification of works into “hypertexts”, “moving poems”, “algorithmic literature” seems to be only available for mimetic works. But in more complex works, these categories are mixed. As an example, the structure of the *texte-à-voir* of my work *passage* is created by a combination of an hypertextual structure and two types of generators²⁹.

It is why I have developed a model to describe the different ways a reader can approach the *texte-à-voir*. In this model, for the reader, the *texte-à-voir* is described as a combination of observable elementary classes of processes. This combination is a diagram, similar to an electronic diagram. A few number of elementary schema can describe all the works which can be described by the procedural theory, but these diagrams cannot classify the works.

This model permits to take into account the system-deep : a given work can be described with different diagrams, each of them is available in a particular system-deep.

This theory describes the understanding of the function generation for the reader. The name “machines de monstration”³⁰ is coming from a structural study of the system of two computers. This system is not a Turing’s machine for the user (which is author or reader). I have developed an abstract model with new machines. In this model, it appears that the generation function can be run by a particular type of machines : a “machine de monstration”. Let we note that, in fact, this function is supported by two computers : the authors’ and the readers’.

The diagrams respond to this question : “for me, who is reader of this work what would be the minimal classes of processes that a minimal “machine de monstration” what would be dedicated to this particular work, would it be able to do ?”. In other words, the process of the function generation is decomposed into its elementary perceived processes. The diagram is a functional description of a minimal “machine de monstration” in the reader’s point of view.

4.2 DIAGRAMS.

4.2.1 Components of a general machine.

All “machines de monstration” have to do at least 4 physical processes.

- They have to create an observable *texte-à-voir*. This is an emission of an observable state (the *texte-à-voir*), on screen or on phones.
- This emission is the final process of the observable process in reading data and the actions of the reader are transform into the *texte-à-voir*. This process is the way by which the generation is perceived by the reader in

²⁸ We have said then, even in a procedural functioning, the mind generally interprets the functioning as the execution of a program which created by the author, without seeing the role of the autonomy of the textual process.

²⁹ See Ph. Bootz, “The functional point of view : new artistic forms for programmed literary works”, *Leonardo*, vol. 32 nb 4, 1999, pp. 307-316.

³⁰ Literally : a machine to show the work.

his/here particular reading. It is only seen by the reader. I named it “processus de l’oeuvre” (“process of the work”). For reader, the function generation is the process of the work. This process of the work is the perception of the function generation by the reader.

- To run, processes need power and the order to run which entered by the reader. This last action is the command “process on” made by the reader. This command is the way to say these diagrams, that the reading is a part of the processes of the work. This command has two roles for the reader : it starts the emission of the texte-à-voir and initialises the “process of the work”. Electrical power acts on all structural components of the machine. So, by convention, it is placed at low on the diagram. By convention, the elements appear in the domain of the reader (texte-à-voir, command “process on”) are putting at the right of the diagrams. The elements are “imagined” by the reader and which describes the process of the work are putting at the left. It is a conventional description of the gap between the author’s and reader’s domains : the reader can only imagine the functioning of what s/he is seeing. It is why a description of the process of the work in classes is sufficient, more details are not needed.

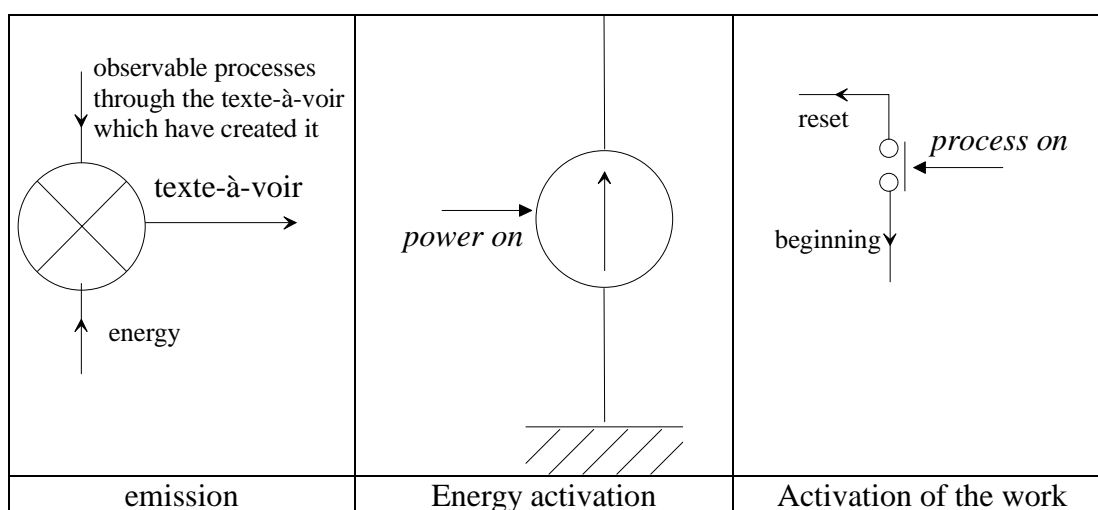


Figure 8 : fundamental processes which is running in a “machine de monstration”.

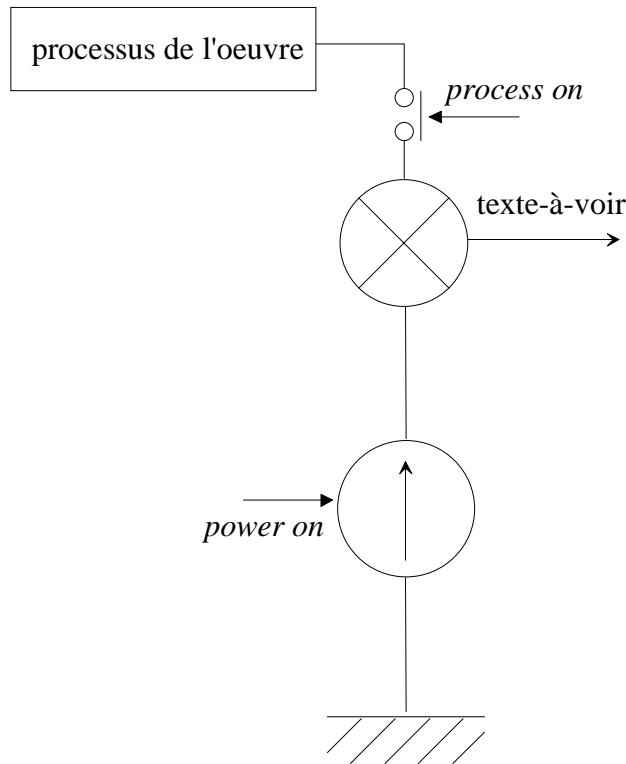


Figure 9 : general diagram of a “machine de monstration”.

4. 2. 2 Elementary processes.

The process of work is an assembly of elementary types of processes.

Materialisation ³¹ of a data	Algorithmic non looping process	Algorithmic looping process

Figure 10 : classes of non composed elementary processes

Reading from RAM	Writing in RAM	Materialisation

Figure 11 : treatment of temporary data

Reading from hard disk	Writing on hard disk	materialisation

Figure 12 : treatment of permanent data (from texte-auteur or inferred data)

³¹ Materialisation³¹ on screen or by phones of an observable data. The “emission” concerns the output devices, “materialisation” concerns the CPU and program by the author.

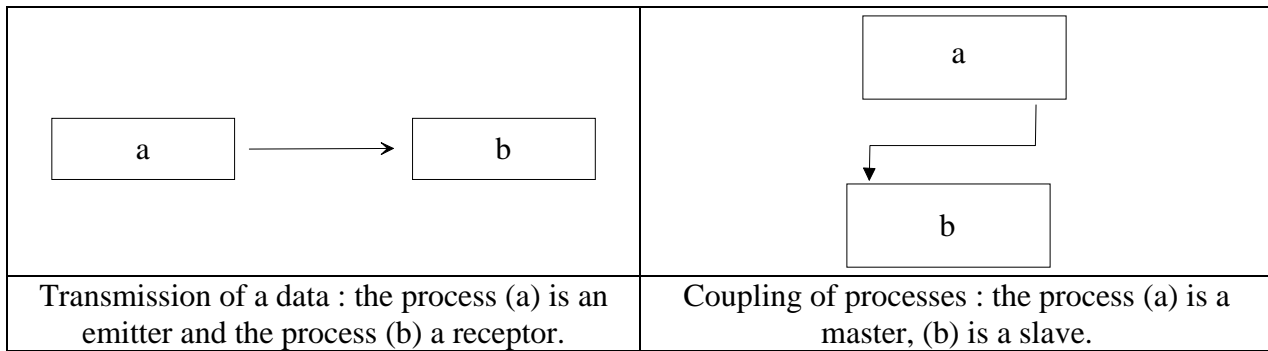


Figure 13 : exchanges between processes.

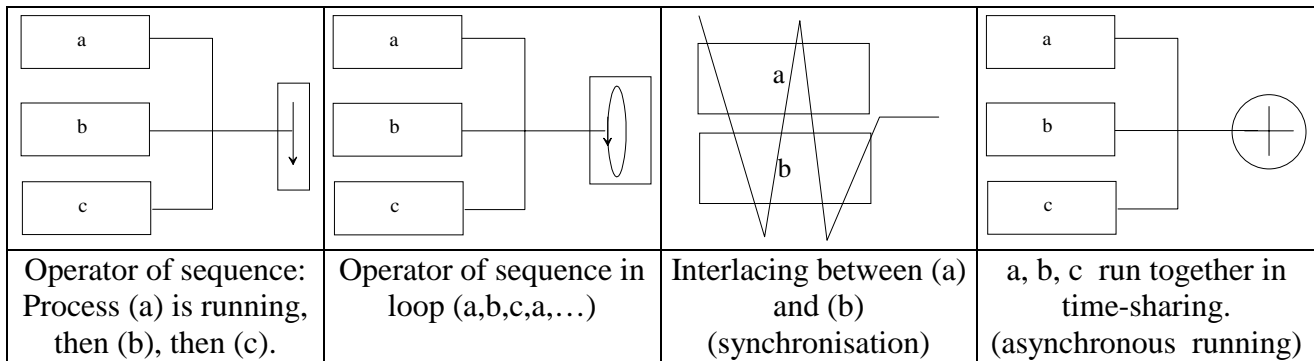


Figure 14 : meta-processes : operators³² on processes.

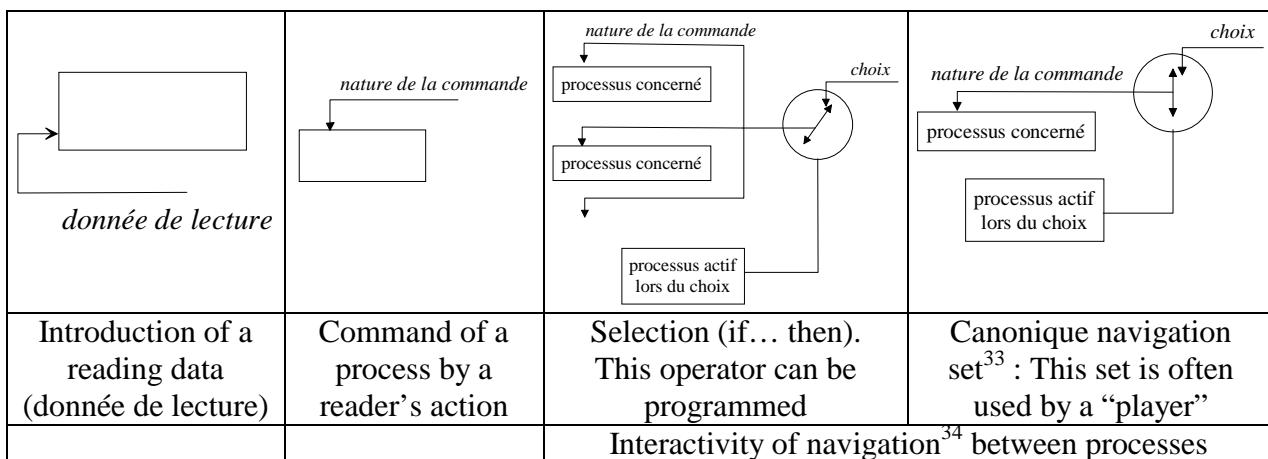


Figure 15 : interactivity with the reader.

4. 2. 3 Composed processes and recursive processes.

a) Composition or decomposition of a class in levels.

To simplify diagrams, some usual classes can be composed into a single process, as in systemic diagrams :

³² By convention, only 3 processes are generally shown on a diagram, for readability of it. The circle is used for operators or processes which are not managed by an algorithm. Here time-sharing is managed by the capability of computer and main-system. It is very sensible to the autonomy of the textual process.

³³ The nature of command can be : moving into the process, moving back, going to a cue point, pausing, continuing, stopping.

³⁴ Let us note that navigation between data (nodes) is not an elementary class.

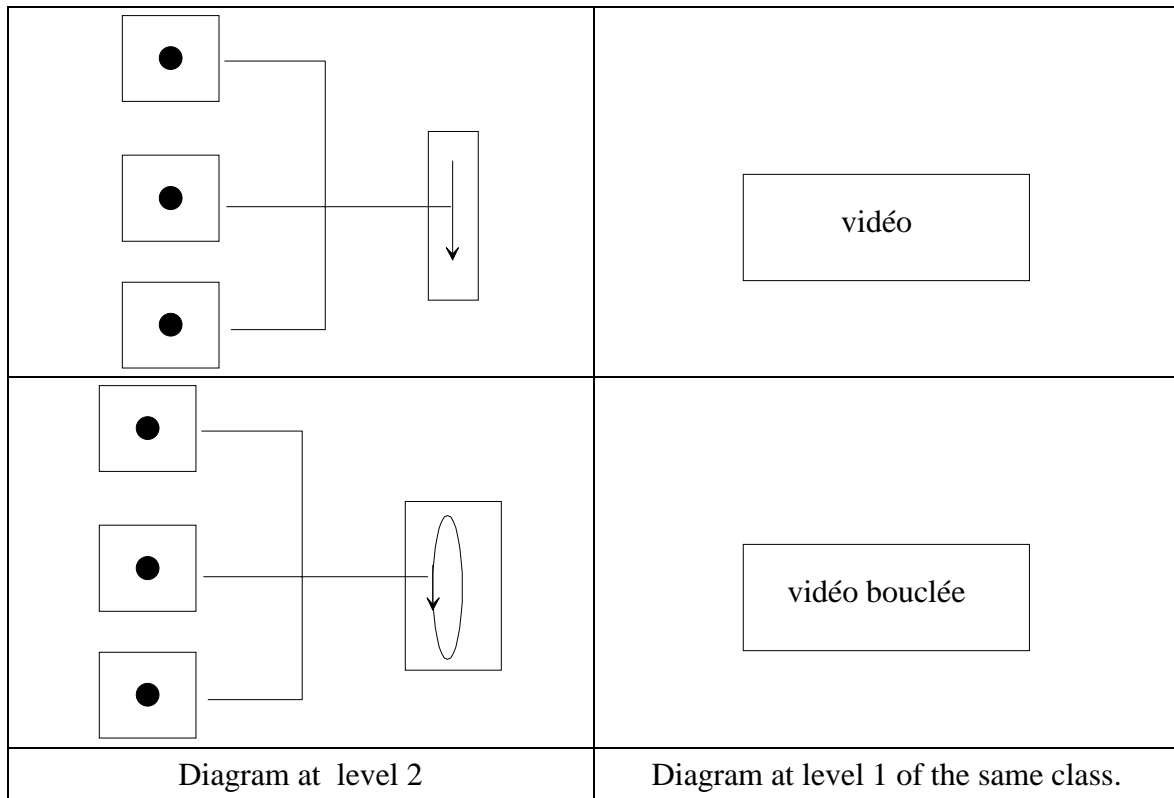


Figure 16 : definition of the composed classes : video³⁵ and looping video

b) Recursive classes.

A recursive class is a class which uses itself. This property appears by the fact then the diagram of level 2 of a recursive class contains itself with a diagram component at level 1. The traditional hypertextual link between nodes can be described by a recursive class : the recursiveness comes from the fact that a link points to a node that contains other links. So, the “link” class calls itself in the actually texte-à-voir.

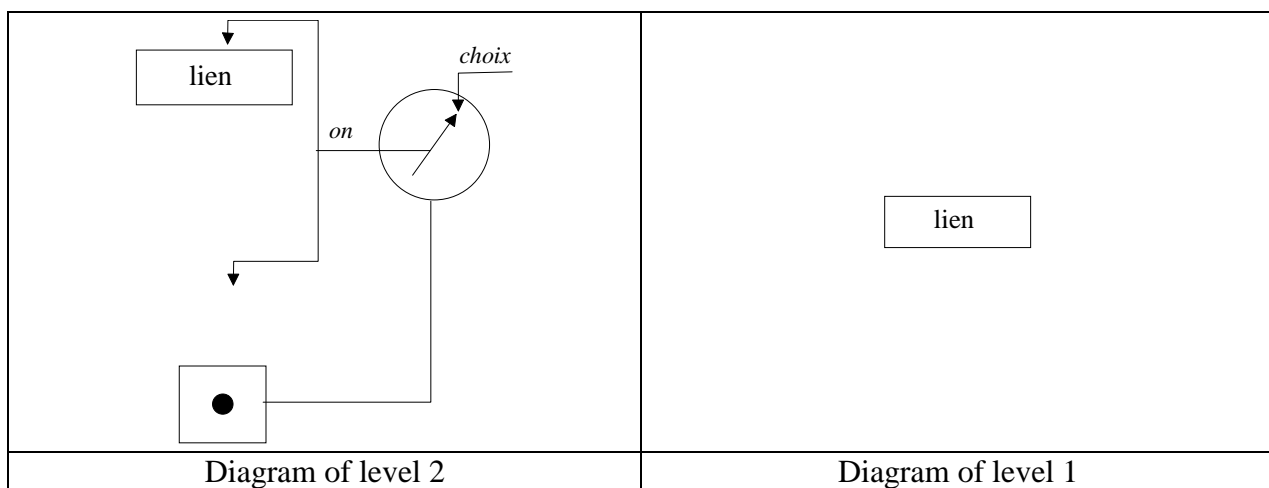


Figure 17 : diagram of the class “link”

The composition can become very complicated. It is possible to describe differed processes in which an action of reading acts only after some processes. It is also possible to describe processes which co-managed by the reader and the author.

³⁵ Let note then the class “video” can be a sound sequence or a sequence of screen pages and not a video.

c) extension

Others composed classes can be constructed. Two examples are the “memorised link” class, which describes the “history” function in classical hypertexts, and “DD” class which describes the “drag and drop” function.

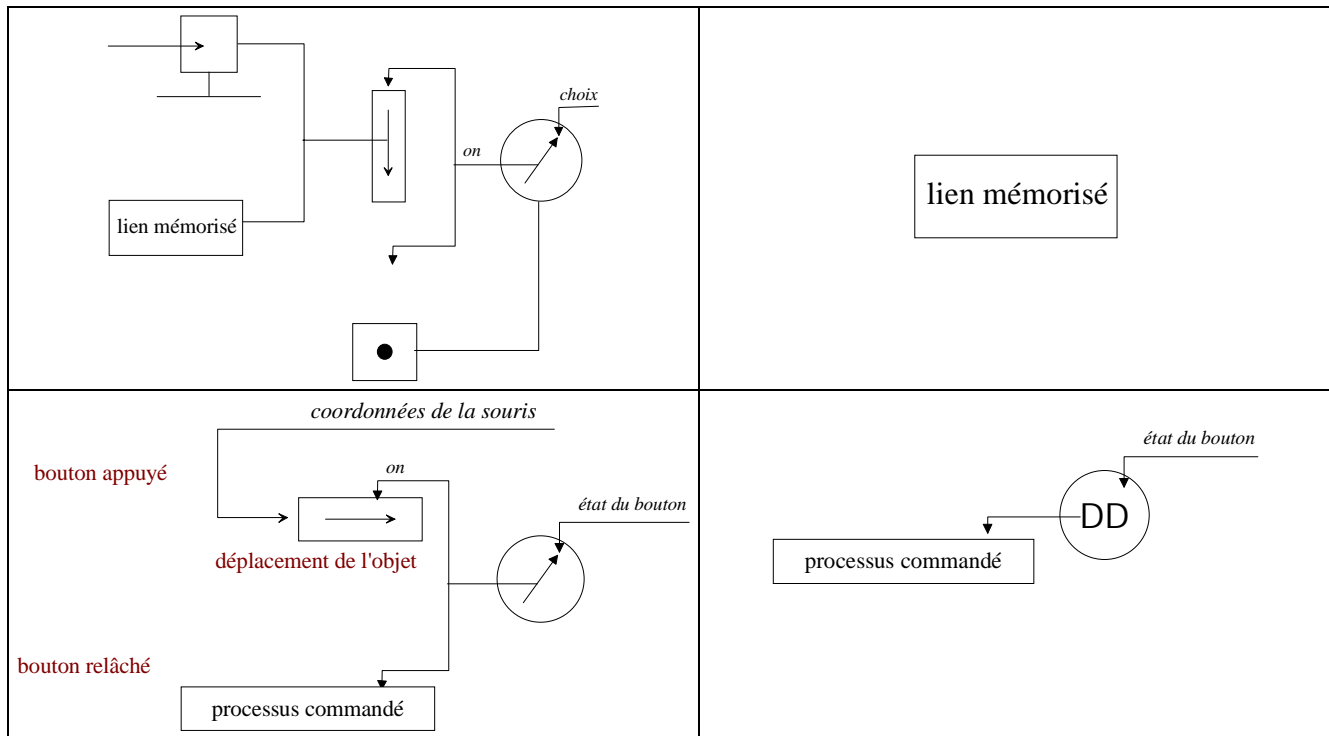


Figure 18 : levels 2 and 1 of some complex classes.

New kinds of classes will probably occur in future works. One of them will certainly be the “interpreter” operator which changes data into program lines during running.

4.3 EXAMPLES.

4.3.1 The principal machines.

The most usual machines are called by the name of an author which published in *alire* and that have created a typical work of the class that described by the machine. descriptions of these usual machines use the procedural system-deep and a knowledge about textes-auteur. Without this knowledge, the reader can describe a given work by an other machine. We have already said that this mismatch was generally due to the using by reader of a non procedural system-deep as we will see.

The principal machines can be ordered by growing complexity :

The machine by Tolsty can display a picture on screen, playing a sound or printing a page.

The machine by Develay, can play a sequence of data. It is a player of sound or of mute video that constructed as a compressed sequence of pictures.

The machine by Papp, describes all programmed animations. These animations do not really run as a set of pictures. The machine by Sérandour describes a loop programmed animation.

The machine by Balpe describes classical automatic generators and the machine by Rosenberg describes the hypertextual linking.



Figure 19 : machine by Tolsty for *sans titre*³⁶

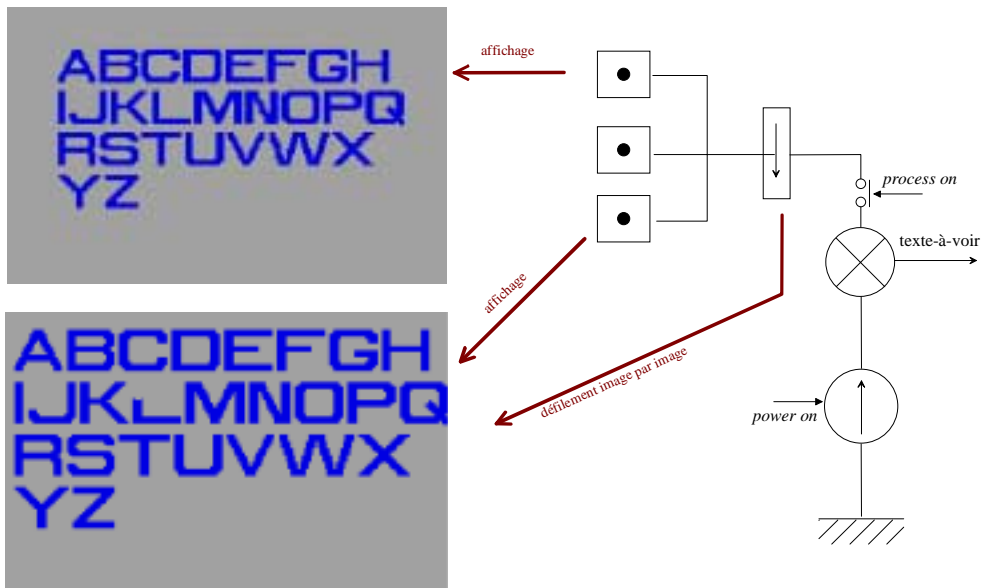


Figure 20 : machine by Devalay for *La fatigue du papier n° 4*³⁷

³⁶ By Tolsty, picture which published in *alire 10/DOCK(S)*, MOTS-VOIR & AKENATON, 1997.

³⁷ By F. Devalay, fli animation which published in *alire 1, L.A.I.R.E.*, 1989, disquette PC republished in the CDROM PC *Le Salon de Lecture Electronique*, MOTS-VOIR, 1995.

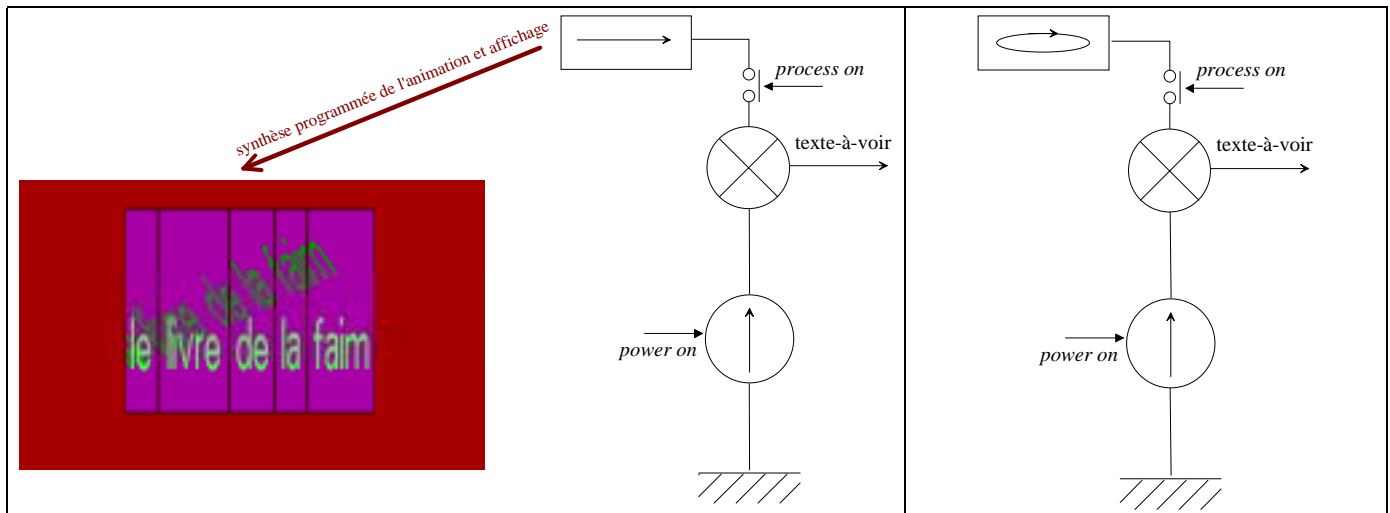


Figure 21 : machine by Papp for *Les Très Riches Heures de l'Ordinateur n°4*³⁸

Figure 22 : machine by Sérandour.

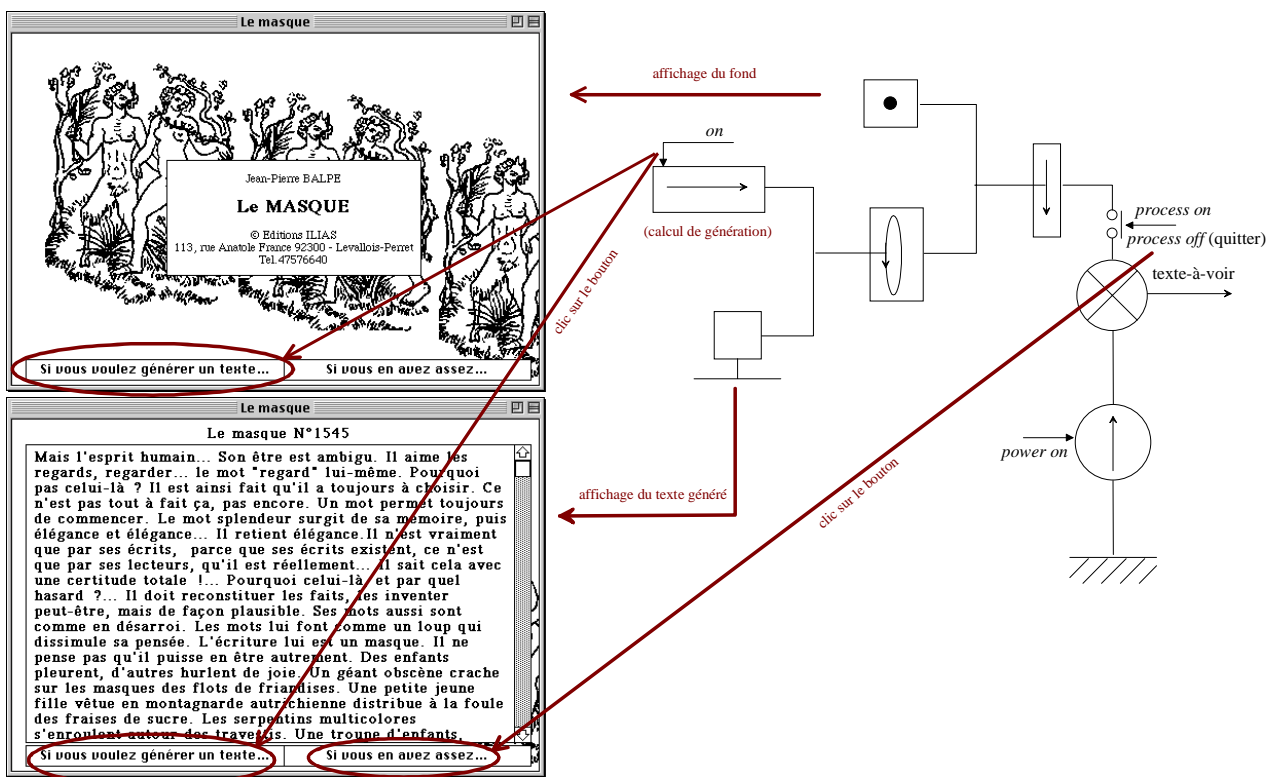


Figure 23 : machine by Balpe for *Le Masque*³⁹

³⁸ Programmed work by T. Papp, which published in alire 1, L.A.I.R.E., 1989, disquette PC republished in the CDROM PC *Le Salon de Lecture Electronique*, MOTS-VOIR, 1995.

³⁹ Automatic generator by J.P. Balpe, Ilias, Levallois-Péret, floppy MAC, 1994.

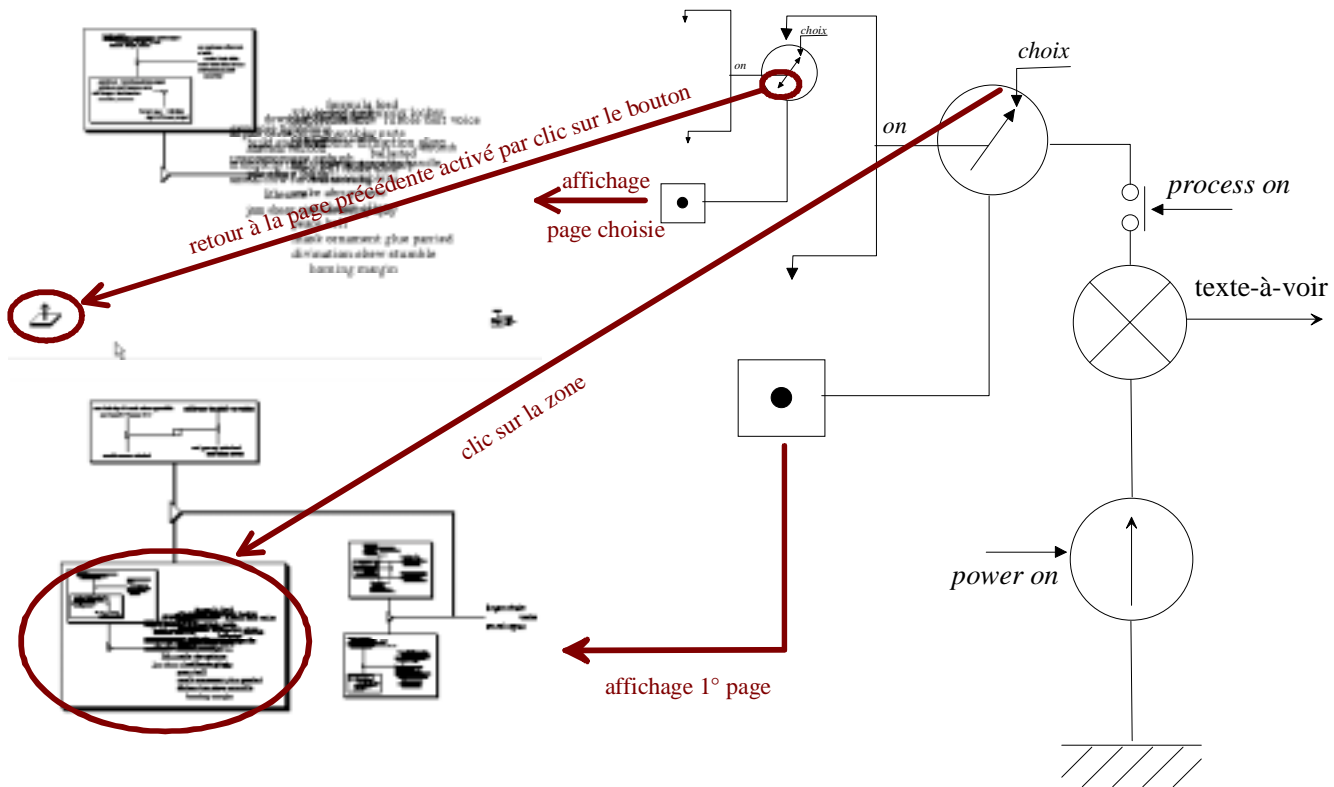


Figure 24 : machine by Rosenberg for *Diagrams Series 5#4*⁴⁰

⁴⁰ Work by J. Rosenberg, which published in *alire* 11, 1999.

4. 3. 2 Examples of processes of works which controlled by the reader or the author

The last example only is controlled by the author.

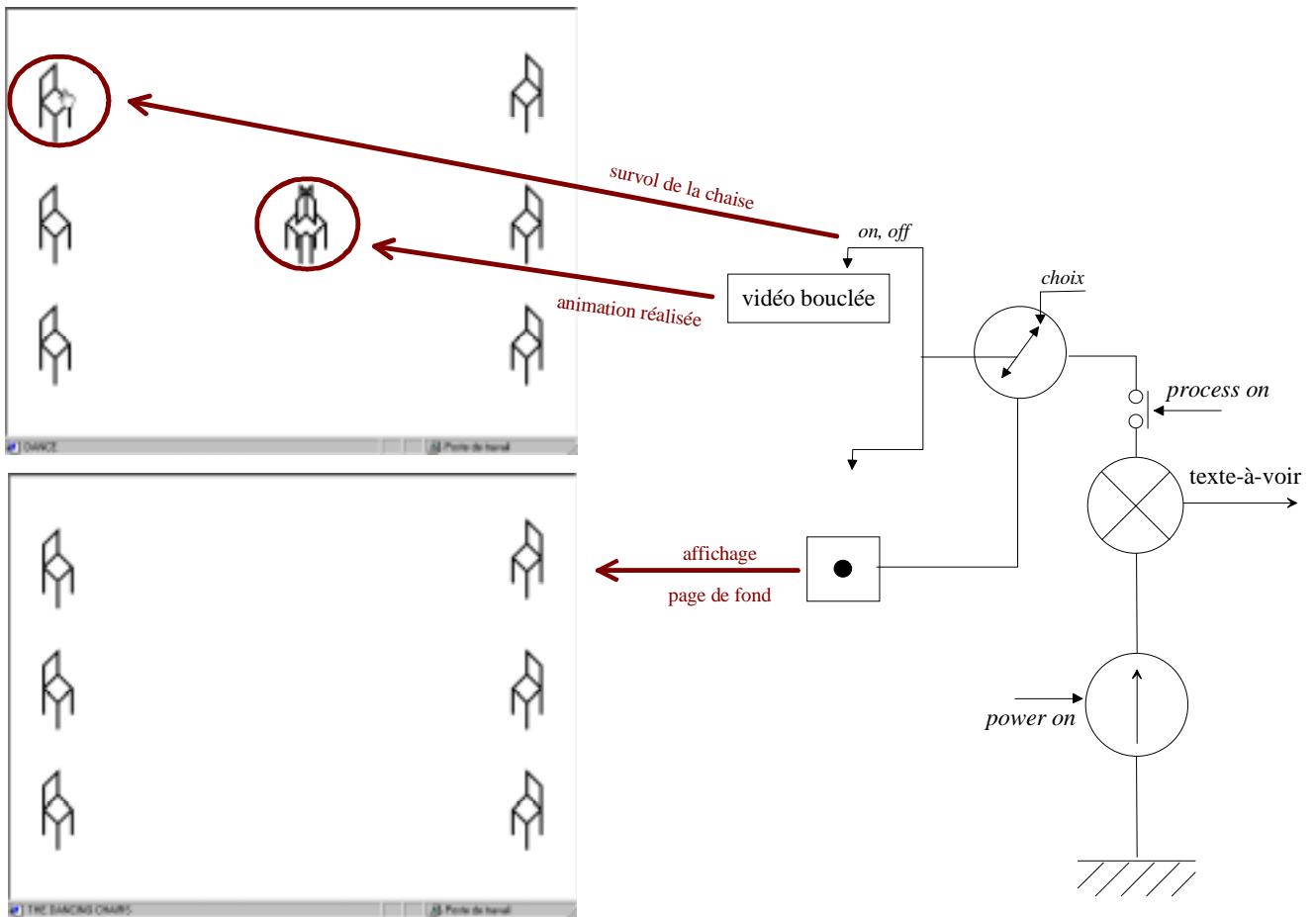


Figure 25 : navigation between processes by selection⁴¹.

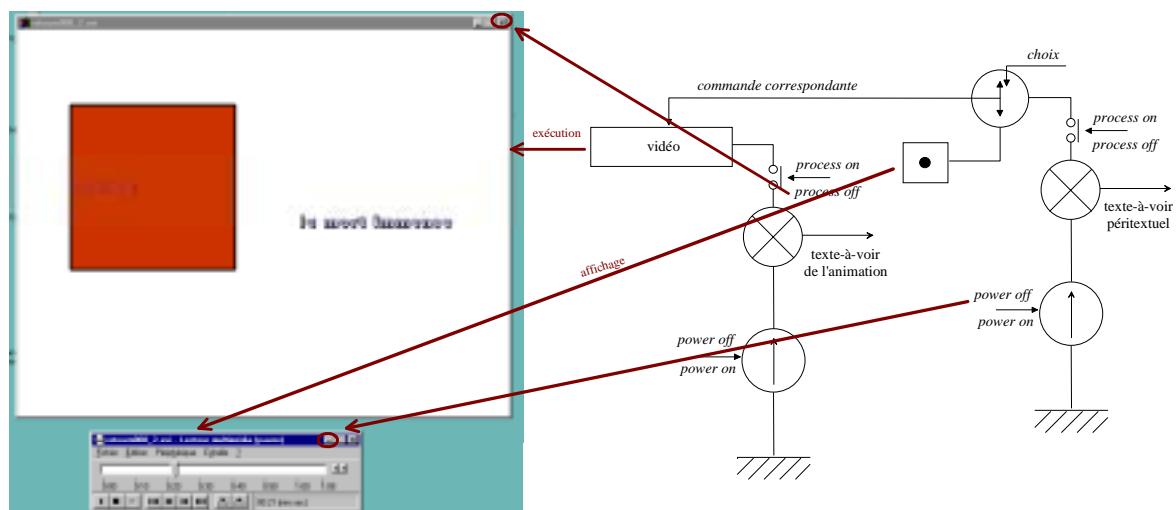


Figure 26 : machine for a video which managed by a player⁴².

⁴¹ *The dancing chairs*, by R. Strasser, *alire* 11, local site, 1999.

⁴² *Retournement*, by Ph. Bootz, *alire* 5, floppy MAC, L.A.I.R.E., 1991, republished in *alire* 11, MOTS-VOIR, 1999.

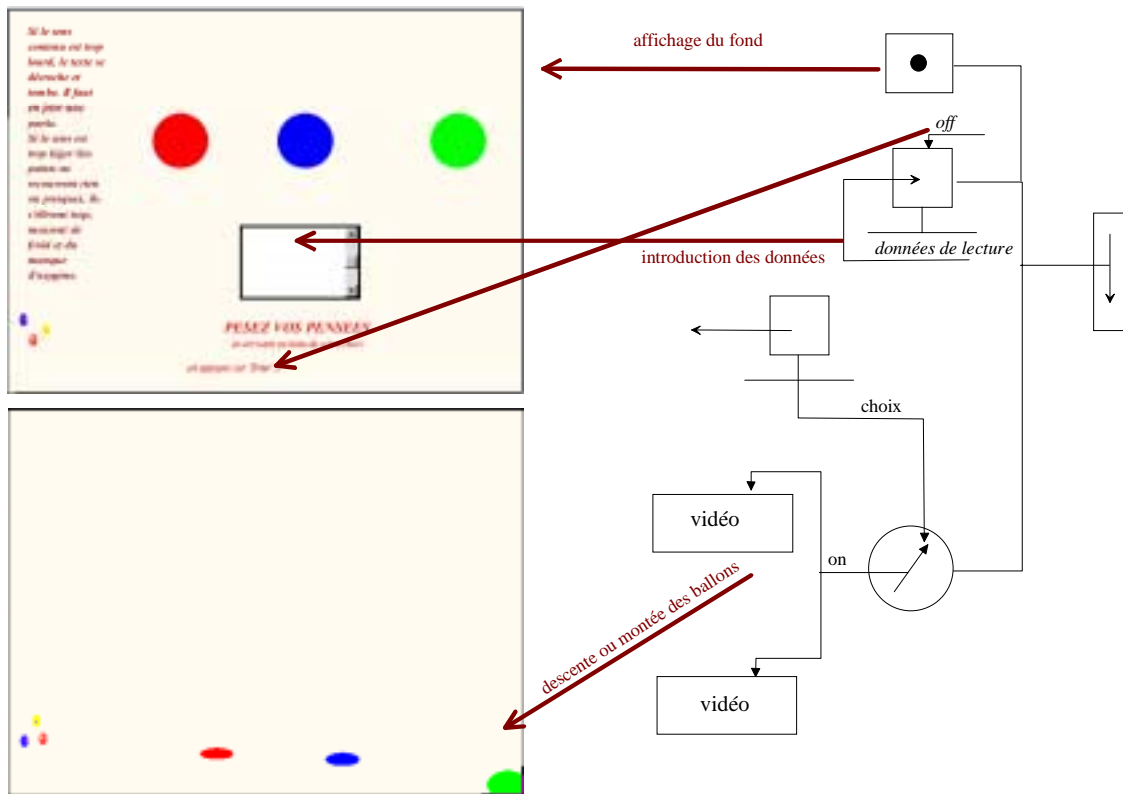


Figure 27 : process of the work in a control of a process by using reading data⁴³

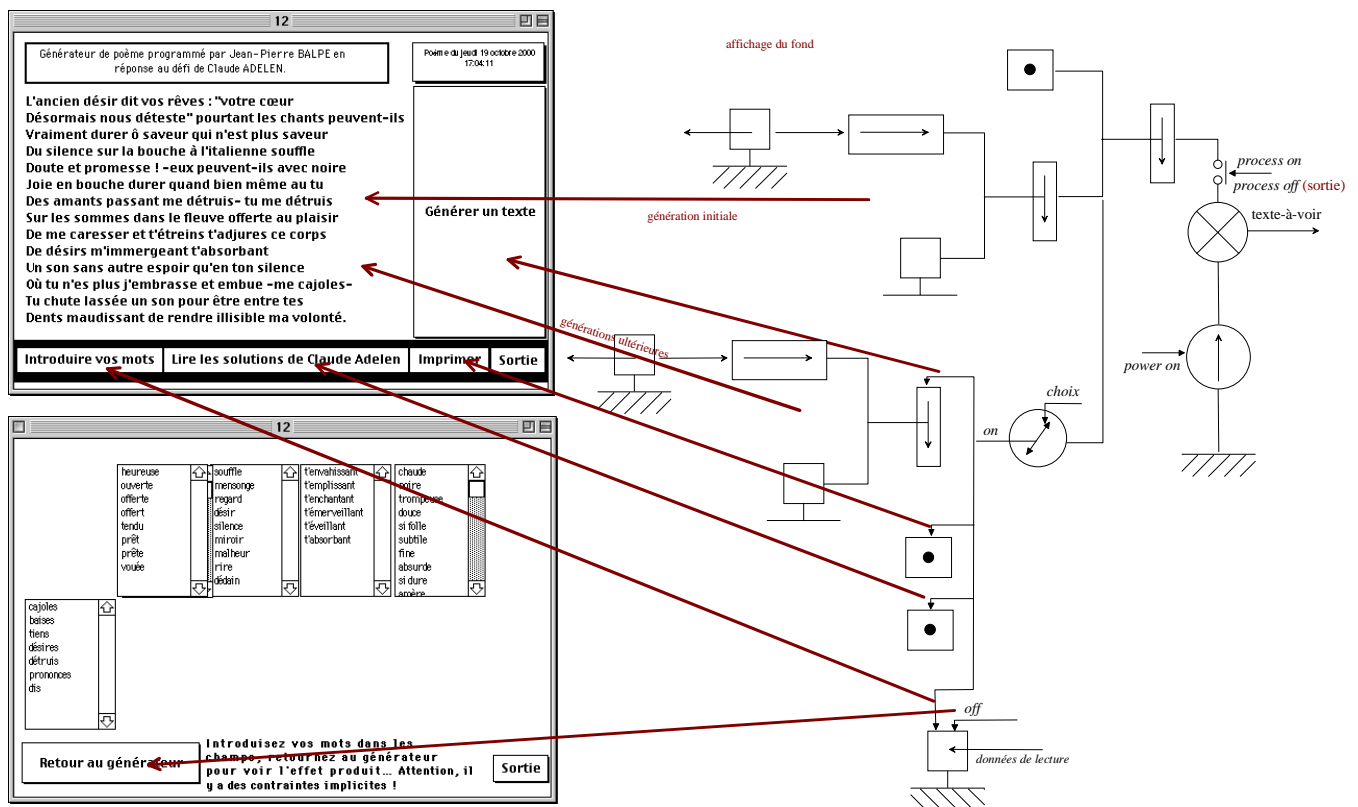


Figure 28 : control of an automatic generator with inferred data⁴⁴

⁴³ *Animation interactive*, by P. H. Burgaud, *alire* 11, MOTS-VOIR, 1999.

⁴⁴ *Réponse de J.P. BALPE à Claude ADELEN*, by J.P. Balpe, *KAOS* n° 3/*Action poétique* n° 129/130, floppy MAC, 1992.

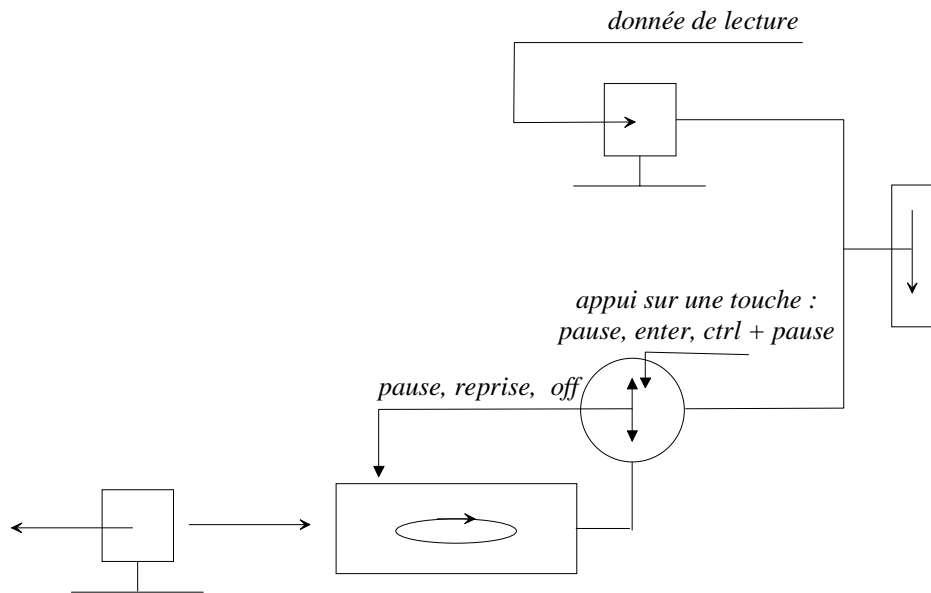


Figure 29 : management by a reader data (process of the work in *Cut Up*⁴⁵)

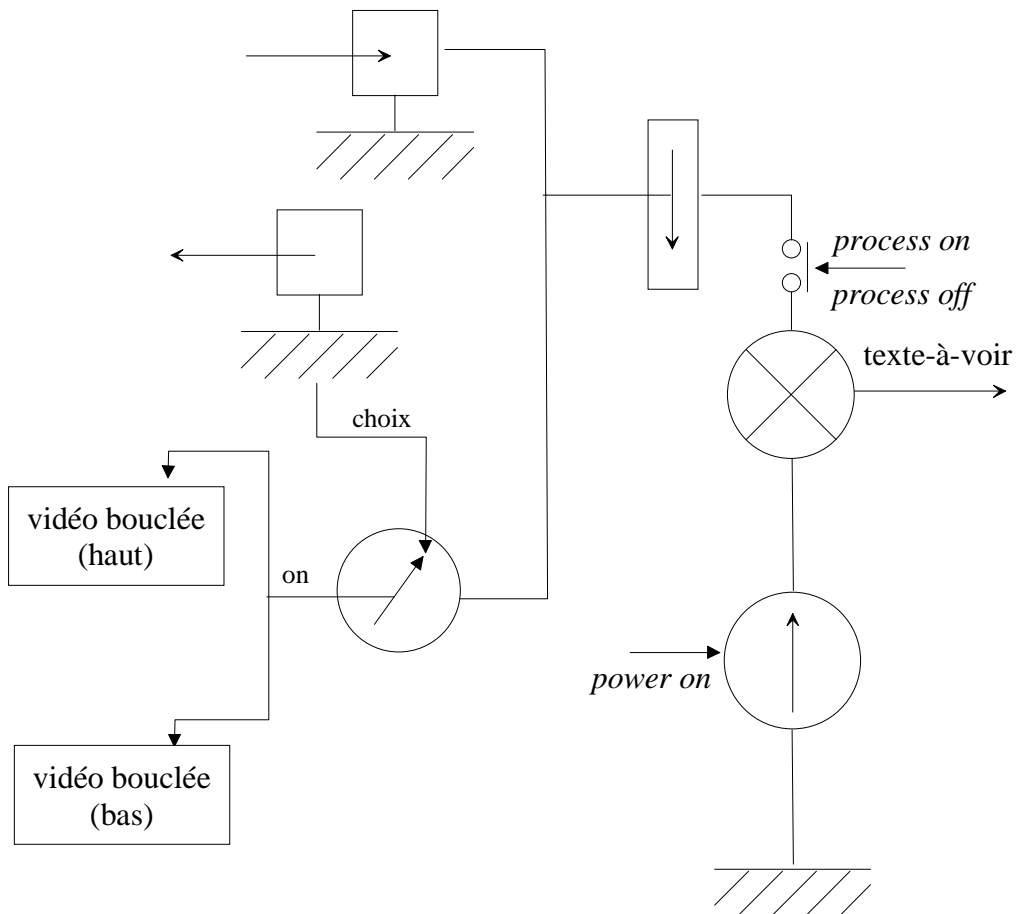


Figure 30 : management by an inferred data (machine for *animation*⁴⁶).

⁴⁵ By C. Petchanatz, *alire* 6, floppy PC, 1992, republished in *Le Salon de Lecture Electronique*, MOTS-VOIR, 1995.

⁴⁶ By J.M. Dutey, *alire* 10/DOCK(S), MOTS-VOIR & AKENATON, 1997, CDROM PC.

4.3.3

Examples of processes of work co-controlled by the author and the reader.

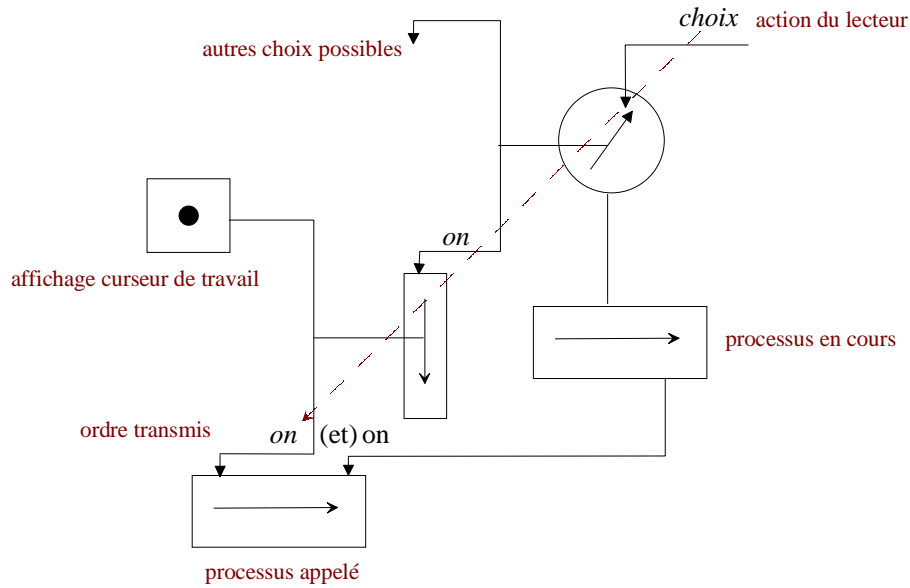


Figure 31 : conditional interactivity in the second part of *passage*⁴⁷.

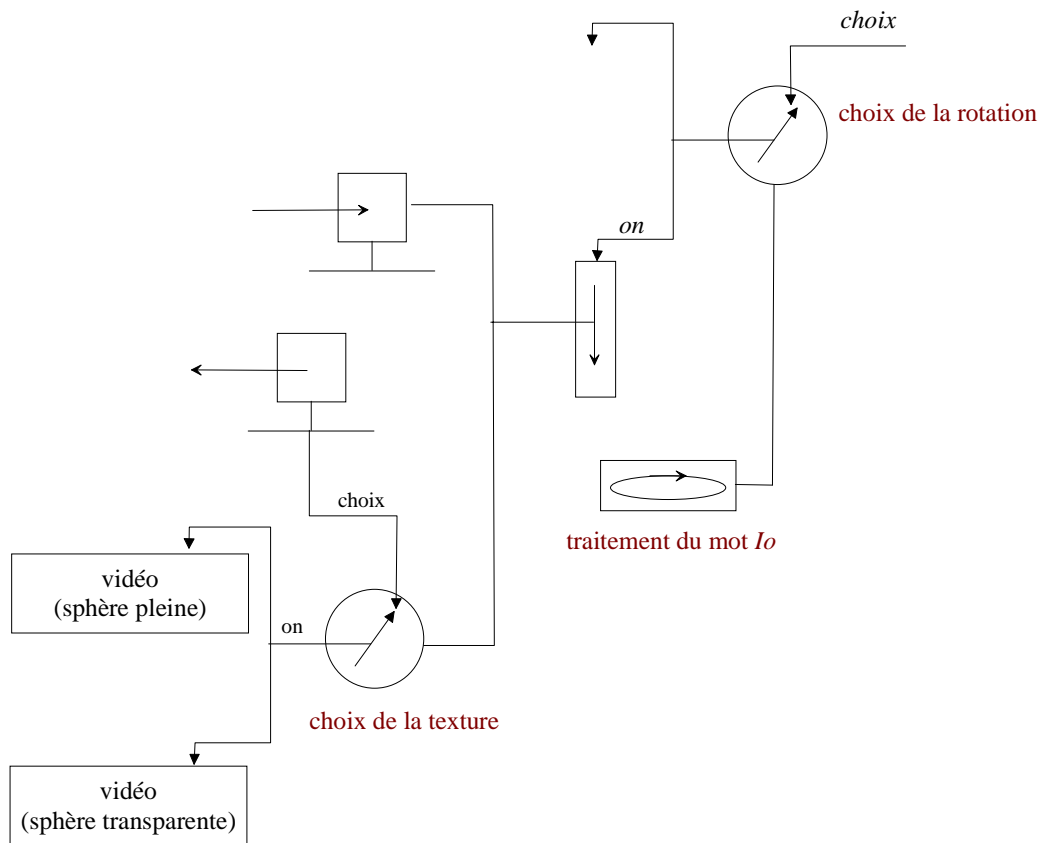


Figure 32 : co-managed navigation in *IO*⁴⁸

4.4 USING OF THE MACHINES.

This model can take into account the system-deep of the reader by different ways. A work can be described by 2 or more machines. For example, when a programmed animated work is seen as a video, the machine used by the reader is a machine by Develay and not a machine by Papp.

⁴⁷ By Ph. Bootz, , *alire 10/DOC(K)S*, MOTS-VOIR & AKENATON, 1997, CDROM PC.

⁴⁸ By André Vallias, 1995, *alire 10/DOC(K)S*, MOTS-VOIR & AKENATON, 1997, CDROM MAC

Graphical transformation can also be performed on diagrams to show the components which are the most significant for the reader. This transformation is called the “gG rule”. The two ways : using of the gG rule or using different machines are equivalent. The gG rule is better to see the similarities and differences between points of view, the changing of machine is certainly better to understand the origin of frustration.

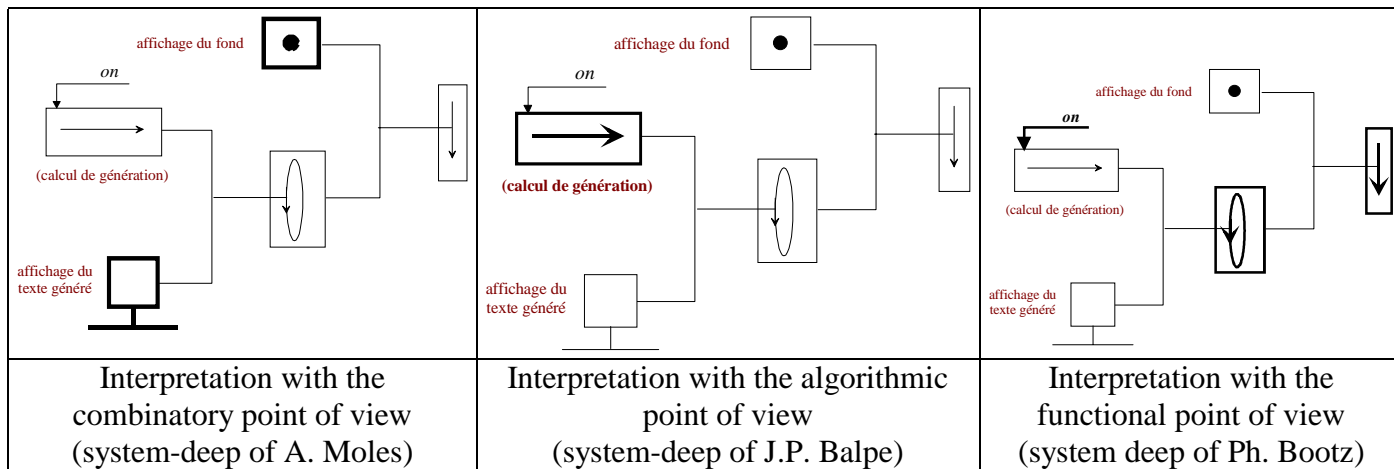


Figure 33 : applying gG rule to a machine by J.P. Balpe for describing the 3 points of view on automatic generators

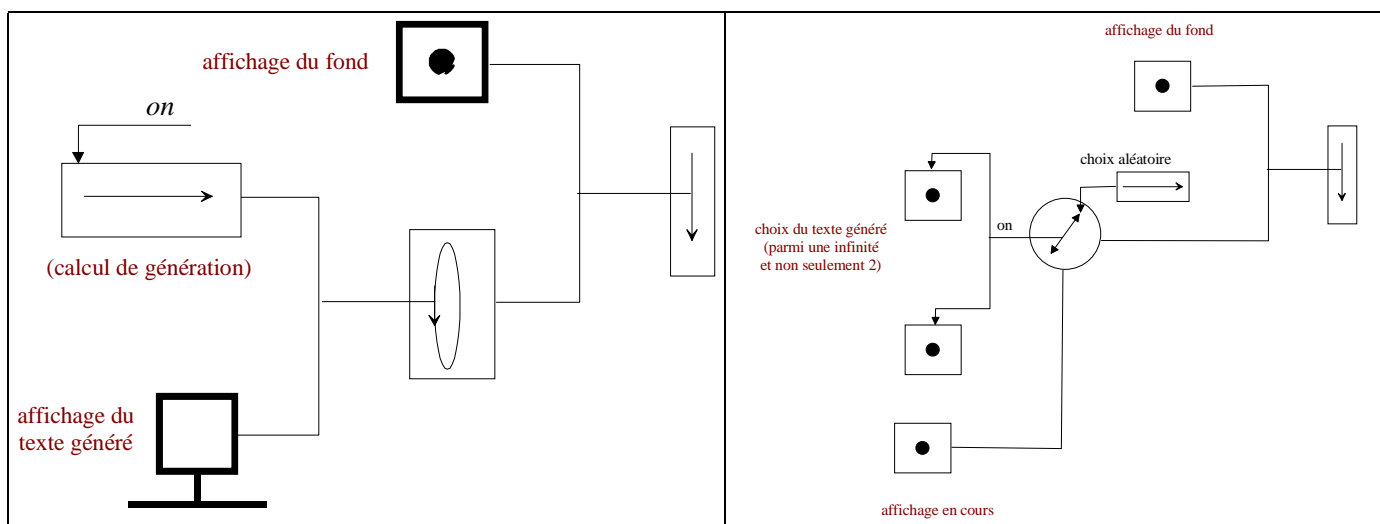


Figure 34 : equivalence between gG rule transformed diagram and managed machine by Devalay in the combinatory point of view on automatic generator.

5 CONCLUSION.

The functional procedural theory is completed by a semiotic and psychological theory of reading and writing. It is actually a complete theory which presents criteria of scientific character. It is a useful pragmatic theory which can describe new artistic experiments such as the unique-reading-poem. This theory probably enters in a deep way of literary theories which first were centred on “actual text theories” (classical theories by Eco, Genette...), then moving to “potential text theories” (Max Bense, A. Moles, P. Barbosa), then “virtual theory of literature” (group mu). This last way focuses on human. Procedural theory enters in this last category. Its Morin’s complex approach let it abandon the concept of text. It is perhaps the first literary theory which does not rest on a concept of “text”.