

## **Narrative motors - Eugenio Tisselli**

When we experience narrations created in a digital environment, we generally find a clear trend in which writers consider the computer as a mere tool and not as a medium. Thinking about the computer as little more than a rather sophisticated typewriter leads to tremendous limitations: the resulting texts are not a reflection of the computer's intrinsic qualities but just a continuation of the history of mechanized writing. Nevertheless, new formats (and thus, new ways of telling stories) come with new media, even if not necessarily new themes. This text explores new ways of narrating by exploiting the qualitative differences between computer and paper, both considered as media.

The computer's keyboard as physical interface clearly follows the model of the typewriter. In such machine, we face a series of univocal processes: each time a key is pressed, the corresponding character is printed on paper (the only possible variation comes from the binary choice between upper or lower case). Furthermore, such processes generate accumulation through repetition: a page is formed by many letters, words and paragraphs; a piece is made up of pages. A writer that is new to computers can feel related to them thanks to the keyboard, which he or she has known for a long time. When this happens, it is only logical that the writer approaches writing in the same way it was done before, that is: accumulations of text are created from an idea as a point of departure, only this time on a screen. It is true that now correcting, copying and pasting can be done much more easily, but the physical configuration of the keyboard as an interface between the text-idea and what is written on the screen encourages a way of working that is almost the same as working on a wooden desk. It is necessary to look beyond what the keyboard suggests, and turn our gaze towards the guts of the machine.

The mainstream operating systems usually follow the desktop metaphor. We can find documents, folders, a recycle bin... we can suspect that those who designed such interfaces (the keyboard as a physical interface, the "desktop" as a logical interface) couldn't or wouldn't leave behind the traditional ways of working and producing, and thus reducing the computer's possibilities to a rather unstable mimic of tools that already existed.

Which are the "new" capacities offered by the computer? Let's mention only the more significant ones. On a surface level, we could say that the contemporary nature of the computer is multimedial. Audiovisual layers are added to the text, affecting it strongly. It is true that multimedia narrations were created long before computers existed, but now we have it all enclosed in the same box, and always available. But let's go deeper: the computer is unprecedented by older audiovisual media (such as photography, cinema or video), because it is capable not only of reproducing external realities, but also of producing synthetic environments. The fusion of reproduction and production capabilities makes the computer an ideal medium for creating fictions. Computers can store large quantities of information: something that our old paper archives already did, at a great cost. Now it is commonplace to talk about storage devices with capacities of hundreds of gigabytes: entire libraries condensed in a small gadget. We also know that we can instantly view any file stored in our device: this is called "random access", and it is one of the fundamental characteristics of any modern computer. The possibility of instant multi-linearity offered by some digital narrations is based precisely on this.

Earlier in this text, we talked about a linear process: that of pressing a key and obtaining the correspondent character printed on paper. Computers not only can respond to physical impulses (such as a keypress), but they can also offer emergent responses to such inputs: variable manifestations that depend on an algorithm's execution and also affect it. An algorithm is a set of rules that define a process that leads to a result, and it is precisely in these processes where we can find enormous possibilities for generating new narrative forms.

Rules and writing have been closely related during a long time. We can cite a recent non-digital example: OULIPO, a literary group whose main work consists in the creation of well-defined constraints(1) in order to generate texts that follow them. These constraints can be seen as true narrative motors, which need textual fuels to produce new texts. Many digital works apply now this philosophy by "manufacturing" writing machines.

It is possible to see that, in works created with computers, everything that moves or manifests is an ensemble of algorithm and data. Since both elements can be clearly differentiated, we could say that the first one acts as a motor, while the second one becomes the fuel. In this way, we can think about digital narrations in relation to a machine paradigm in which the story moves by following a precise set of rules. We can also think about the author of such narrations not only as the writer of the text-fuel, but also as the programmer-manufacturer of the algorithm that transforms it. It would be necessary to find a new name for this "augmented author". Douglas Hofstadter(2) proposes a very interesting one: the "meta-author", that is, the author of the result's author. If the "material" author of a computer-manipulated text is the computer itself, then the meta-author is the human that wrote the program.

To illustrate what we call "narrative motors" in this text, we can approach different ways of generating digital narrations through some examples, divided in the following categories:

1. Narrations based on the paradigm of computer languages.
2. Narrations based on operations made on elements of language.
3. Process-driven narrations, or narrations in motion.
4. Databases as narrative fuel and motor.

### **1. Exercises in style with executable languages.**

Noam Chomsky devised a "language-generating machine": the Generative Grammar, in which there are words (vocabulary) and rules for their combination (grammar and syntax). Languages that are modelled this way become frozen, and thus they remain at a great distance from any contemporary human language. Everyday languages are mutant entities that are not limited to predefined structures; they are in constant transformation thanks to the influence of multiple flows (social, economical, cultural...). Nevertheless, Chomsky's Generative Grammar is quite useful for the design of programming languages because they exist within an artificial environment and are not exposed to the fluctuations of soft systems. Languages created by following this generative model are expressed in terms that are very close to those of mathematics, with elements such as iterations, recursiveness or nesting. Programming languages are mostly expressed as text, and share a basic quality: in these languages all that is written is executable. In this way, we can say that they are not expressive, but rather executive. Nevertheless, many writers/programmers have explored the parallels that can exist between the human's and the computer's reading of a program, by writing "literary" texts using programming languages.

Multiple examples of such exercises in style exist, such as this poem written in Perl, winner of the "Second Perl Poetry Contest" (<http://perlguy.com/contest.html>):

```
if ((light eq dark) && (dark eq light)
&& ($blaze_of_night{moon} == black_hole)
&& ($ravens_wing{bright} == $tin{bright})) {
my $love = $you = $sin{darkness} + 1; };
```

In english, it translates(3) to:

```
If light were dark and dark were light
The moon a black hole in the blaze of night
A raven's wing as bright as tin
Then you, my love, would be darker than sin
```

It must be said that the Perl code is grammatically and syntactically correct, so it can be executed by a computer. It is evident, however, that only a programmer could appreciate the multiple nuances of the fragment. It is a narrative for the initiated. Other experiments follow a similar line, yet with much more irony: they imitate the syntactic and grammatical structures of programming languages and apply them to non-digital narrations. For example, the group [socialfiction.org](http://socialfiction.org) has created a programming language executable only by humans called ".walk". This language is oriented towards the creation of "walkware", that is, "software" for walking through urban spaces. A "program" written in .walk could be:

```
repeat
{
1st street left
2nd street right
2nd street left
}
```

Here, narration becomes a programmatic dictation, and its reading implies a concrete action to be carried out by the reader: that of walking.

## **2. Combinatorics of language.**

It is possible to apply operations to a text with the aim of generating other texts. If we can fragment a text into its minimum units, their re-composition can be determined by combinatory, probabilistic or other types of algorithms. The roots of generative text and textual operations can be traced back to very antique origins, such as the Kabbalah. In the practice of the Kabbalah, the first five books of the Old Testament are interpreted in a quest for revelations. In this tradition, as in computers' ASCII code, every letter is related to a number: this makes it possible to operate with text on a mathematical level.

In the early stages of computer science, when one of the main preoccupations was to create models of natural systems in order to study them within an artificial environment, programs that tried to reflect social behaviour by simulating human language were created, such as the famous "Eliza": a digital "psychologist" that responds to our questions and worries typed directly into a command line. Eliza's replies are apparently logical (in some cases, they could be mistaken for human replies(4)) thanks to a combinatory and probabilistic algorithm that is fed by the patient's input, a set of generic questions and answers, and a database of loose phrases that can be combined by using some well-defined rules. Eliza is one of the first

steps in an area called Artificial Intelligence, which tries to emulate the complexity of human thought in a digital system. Nowadays, many implementations of Eliza can be found on the Internet. At <http://www.manifestation.com/neurotoys/eliza.php3>, the dialogue with Eliza takes the form of a chat: an interesting and elegant update(5). Another view on this topic can be found in projects such as "The Postmodernism Generator" (<http://www.elsewhere.org/cgi-bin/postmodern>), a random generator of essays on postmodernism that delivers truly surprising results. Each time "The Postmodernism Generator" is called, a random text is generated through combinatorial operations on fragments of other texts(6). This project shows how absurd and predictable an essay on postmodernism (or any other subject, for that matter) can be, and makes evident that, in a disturbingly usual way, humans write in such a way that their writing can be reduced to a set of simple rules that can be reproduced by a computer. In other words, many of the arduous experiments in Artificial Intelligence can be ridiculed through the generation of results that imitate almost perfectly our natural "machinality". These narrative experiments reveal many aspects of the process of writing... ¿what is it that makes it human, and how exactly can it be differentiated from automatic writing? ¿Which algorithms do we use to combine words in our own language engine?

### **3. Process-driven narrations.**

The possibility of modifying the execution of an algorithm in the computer through external events, some of them triggered by the user, opens the road to narrations whose development through time depends on other events besides reading, or that require an "augmented reading" in which the reader also acts and modifies. We are talking about texts that include the reader's action as a fundamental element, as a necessary complement. To illustrate such cases, I would like to comment three of my works: The first one, "degenerative" (<http://www.motorhueso.net/degenerativa>) is a web page that is destroyed one character at a time each time it is visited. When someone enters "degenerative", one of the characters that form the page is deleted or corrupted, leading to a gradual degeneration of both its content and structure. The original text in the web page deals with issues and asks questions such as: "the only hope for this page to survive is that nobody visits it. but then, if nobody does, it won't even exist", "your visit will leave a permanent mark. this page will not be the same after you visit it.", or "are our eyes predators of their targets?". "Degenerative" was made public for the first time on march 11th, 2005; a few days later the page was already illegible. Here, we play with a gradual and collective process, in which the action of visiting a web page becomes the motor of the narration. The story that is told is about a dying virtual being, but also about the deadly erosion that the (apparently innocent) act of viewing provokes. The next project, "meaning" (<http://www.motorhueso.net/meaning>), plays with the concept of synonyms: equivalent words within a language. The dynamic of "meaning" is similar to that of "degenerative": the action of visiting the page triggers the narrative process. In this case, each time the page is visited one of the words that form its content is replaced by a synonym. If it is true that a synonym is "a word that has the same meaning as another word"(7), why does the meaning of the text get increasingly twisted, and now it has nothing to do with the original? This project was announced on april 9th, 2005, and now the text in the page has gone very far from its original state (the base text is about the philosophy of language, and among other things, it asks "What is the meaning of 'meaning'?") In "meaning", collective action narrates the doubt about the validity of such a thing as a synonym.

Finally, I would like to mention "synonymovie"  
(<http://www.motorhueso.net/dcr/synonymovie/synonymovie.htm>) Extending the theme of synonyms, "synonymovie" aims to create a "movie" from a word and its successive synonyms. In this project, also based on the Internet, the user is asked to introduce an initial word or "seed"(8). An image taken from the net, and corresponding to that word, is then shown(9). From this moment, the movie goes on through the concatenation of recursive processes: a synonym for the current word is found, and then an image for it. The movie ends when no more synonyms can be found. The movie's development through time is relational: the current frame is semantically related to the previous one. In this way, "synonymovie" creates relational movies that are made up of fragments of the enormous, chaotic and subjective database that is Internet. The movies generated by "synonymovie" can be all seen as movies about the net; they only need an initial choice from the user to define their course and duration.

As I hope to have shown, process-driven narrations, in which many ends are deliberately left loose, offer little space for the writer to develop plots or characters as in traditional stories, since they formally acquire a mobile, emergent and multidirectional nature. Nevertheless, process-driven narrations open the possibility of actively communicating ideas through the readers' actions.

#### **4. Metadata in motion.**

Internet has grown in a more or less uncontrolled way, in spite of multiple attempts to guide, order or limit its expansion. Nevertheless, sooner or later the day arrives in which the actors of Internet, that is, all the publishers and consumers of net contents, feel an almost instinctive desire of sorting things. This desire has nothing to do with an encyclopaedic order, nor is it about rigid taxonomies: it simply wants an order from which many routes, and thus narrations, can be generated.

Internet may be the biggest and most disorganized accumulation of information ever, and this has led to the development of very specific methods of classification: enter metadata(10).

Metadata are data about data. They are words, tags or descriptors associated to units of information (texts, images, videos, etc) in order to classify them, access them through semantic filters and relate them to other units. These organizational possibilities turn metadata into something more than a tool for ordering things: they are (at least potentially) a true narrative motor that allows us to browse information sequentially but in multiple ways, according to varying criteria.

On the first paragraphs of this text, we defined "random access" as the possibility of getting immediate access to any fragment of information in a computer. It may be obvious that all these fragments must be organized in a certain way in order to be able to "enter" at any point. Usually, the tools used to achieve such organization are structures called "databases", which are much more than simple containers of information: they truly can be relational machines, in which rules locate each fragment of information automatically in a specific place, assigning it a set of relations with the information already existing in the base.

Databases are usually designed following a relational model, in which almost any system can be described by well-differentiated entities, and specific relations between them. Thanks to this way of linking fragmented data, databases can offer different views of the information they contain: fragments can be ordered in multiple ways and relate to each other under different criteria, always in coherence with the rules defined to structure the content.

We can find many ways to create stories by taking the database model to

the narrative territory. Let's suppose we have a database with fragments of text, image, sound and video. If we could associate metadata to each of these fragments in order to describe their content (geographical location, characters and so on) or their formal attributes (colors, movements, styles), the possibility of creating algorithmic combinations opens up: narrative sequences that are defined by filters applied to the relations between fragments. For example, we could create a sequence of images taken during night time, in which only the character "X" appears. Or videos where light colors are predominant. Here, the traditional order followed by narrations is subverted: instead of starting with a script and creating representational elements based on it, we now start with a database of multimedia fragments and explore the different sequences that can be generated from it.

An example of this approach is "Soft Cinema", by Lev Manovich(11): a software that is fed by a database with hundreds of short videos, all of them described using metadata. The software can be used to generate different sequences that reflect formal or content criteria defined by the user as initial conditions.

Antoni Abad's mobile audiovisual narrative projects(12) provide further examples of this approach. A system for classifying multimedia content is used in these projects, in which participants capture their urban surroundings using multimedia-capable cell phones, and send the images, sounds and videos directly to a database on the Internet. Once the content has been stored, the participants describe each of their multimedia fragments using words (descriptors) that come from a special "dictionary" specifically created within each project's context, making it possible to search through all the content by using keywords: images of children, or videos taken during a celebration, for example, can be recalled by the users of the database. Such searches can be seen "emergent narrative vectors" in the process constant transformation.

Content classification is becoming an increasingly popular act of collective construction of meta-realities. We can observe this phenomenon in rapidly growing Internet sites such as del.icio.us(13), described as "a social bookmarks manager", in which registered users can create collections of links, all of them classified using "tags" (another name for metadata). We have to say that this process of classification has enormous doses of anarchy: an order is created but, as we had already calculated, it is far from being encyclopaedic. The definition of new tags is made by the users themselves, making the tag dictionary quite prone to incoherences and inconsistencies. Maybe this is becoming a new mutating, subjective encyclopaedia: collective and personal at the same time. Anyway, a term for describing this new process of collective description-narration has been invented: "folksonomy", or folk taxonomy: a real social classification game. We owe this new word to Thomas Vander Wal, who used it for the first time in an attempt to describe the effervescent activity in communities such as del.icio.us(14).

We could say that the classification, re-ordering and linking of pre-existent texts under mutable criteria reflects an attitude which is coherent with a time where too many things have already been written (the vertigo before immensity described in "Los demasiados libros"(15), by mexican writer Gabriel Zaid). Now, instead of feeding that unfathomable collection, it can be a time for applying relational games to it and find the new within the guts of the old.

(1) According to the dictionary, "constraint" means "The act of constraining; the threat or use of force to control the thoughts or behavior of others." In spite of such an oppressive definition, the members of OULIPO found that precisely constraints gave them great freedom: the freedom of moving within a territory where the rules and limitations are perfectly clear.

(2) Hofstadter, Douglas R. Gödel, Escher, Bach: An Eternal Golden Braid, Basic Books Inc., 1979

(3) Derived from the song "The Invocation", by Jim Steinman.

(4) In this respect, we can mention Turing's test, which basically consists in trying to distinguish if a speaker in a conversation is a person or a machine. Turing's test provides an indicator, among other things, of the level of sophistication of a computer system.

(5) A contemporary variation on the Eliza theme is Gogolchat, by Christophe Bruno and jimpunk. Gogolchat responds to whatever the user writes, but its replies are taken from found texts in the Internet.  
<http://runme.org/project/+gogolchat/>

(6) "The Postmodernism Generator" works thanks to an algorithm known as "The dada engine": <http://dev.null.org/dadaengine>

(7) Definition taken from  
<http://www.macmillandictionary.com/resourcedictionaryterms.htm>

(8) The concept of seed is linked to the generation of random numbers in a computer. The seed is an initial number from which the computer obtains series of (apparently random) numbers, based on different mathematical algorithms.

(9) The Altavista (<http://www.altavista.com>) search engine is used in this case. Anyone familiar with Altavista or similar search engines will know about the enormously diverse and disparate results.

(10) One of the bigger projects currently being developed to create taxonomies and classifications on the Internet is the "semantic web", which can be seen as an attempt to create a dictionary of metadata that can be associated to any web page in order to describe its content. More about this subject at: <http://www.w3.org/RDF/>

(11) [http://www.manovich.net/cinema\\_future/sc\\_concepts\\_full.html](http://www.manovich.net/cinema_future/sc_concepts_full.html)

(12) sitio\*TAXI, canal\*GITANO, canal\*INVISIBLE by Antoni Abad.  
<http://www.zexe.net>

(13) <http://del.icio.us>

(14) The first time the word "folksonomy" was used publicly is documented in:  
[http://www.atomiq.org/archives/2004/08/folksonomy\\_social\\_classification.html](http://www.atomiq.org/archives/2004/08/folksonomy_social_classification.html)

(15) "The too-many-books"