

Proposal of strategies to develop a taxonomy of digital narrative

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Abstract: this exploratory article seeks to justify the development of a personal taxonomy of the "digital narrative" notion applied in the field of digital art. It analyses the research process started in 2001 through classification tables and personal and bibliographic documentation from the last decade to conclude by preparing a definition of the study's objective and its semantic field at the intersection between contemporary and aesthetic art in communications.

Keywords: Art, narrative, taxonomy, audiovisual, *fictionalisation*, interactive fiction, hypertext, game, net art, augmented reality

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1. Terminological background

The democratisation of information technology in everyday life, both in the proliferation of personal computers and interconnection networks, has also transcended into the creative realm. Since artists Natalie Bookchin and Alexei Schulgin (1999) accounted for five years of digital art online or net art through the manifesto *Introduction to net.art* until the contemporary experience of easy access to all kinds of videos uploaded to YouTube, technology has been domesticated to the point that it is no longer necessary to go to a museum, gallery or screening room to see a work of art.

Since the mid-nineties, institutional websites of entirely digital art have emerged, like Gallery 9 from the Walker Art Center, Whitney Artport from the Whitney Museum of American Art or the still running Rhizome Artbase. On par with museums' physical

collections, they are increasingly available online through sophisticated projects such as the Google Art Project (2011).

Most notably, the unique character of the audiovisual screening room, its layout, screen size and copy quality has been overshadowed by the individualised experience of the TV, personal computer and ultimately household projectors.

The communicative paradigm of mass media, based on passive reception and designed to appeal to the maximum amount of individuals, is gradually replaced by interactive structures and practically personalised programming where even advertising is intended for specific consumers or consumer groups within a complex model of "network communications" where all possible combinations of interaction are given between "one" and "many."

With this communicative context in mind, this article seeks to delve into the detection of artistic digital narrative works. From the basic dichotomies of visual narratology as the distinction between "story" and "discourse" of Emile Benveniste, the terms "fable" and *suje*t from Russian formalism or the "signifier" and the "signified" appropriated by the cinematographic semiologist Christian Metz, in 2001, I first approached narrative creation with computers in the essay *Tempus fugit el relato interactivo*.

In *Tempus fugit*, the then existing creation of stories on CD-ROM was subject to discussion in both the discursive and formal sense, in the specific context of artistic creation and not in the commercial sense, mass production or educational multimedia either. This essay argued that the digital story tended to be developed fragmentally in fragments (not sequentially or linearly) and interactively (participatory). First, because it exploited the hypertext structure of the computer for processing images, and secondly, because it needed the dialog boxes to give precise instructions on actions to be undertaken by the running programs. While the study revealed various types of non-sequential structures as well as several classes of non-participatory works, the terms "fragmentary" and "participatory" went on to be considered constituents of computer language itself: they are part of digital creation, even they're not always present together and do not always appear in the same way.

After the preliminary study of the "interactive story" in *Tempus Fugit*, to dig deeper into the definition of digital narrative required an analysis of the kind of works that could be considered, essentially, narratives. After preparing a list of "genres of digital creation" based on the frequency of occurrence of terms in specialised dictionaries, publications and events, in 2006, I created the first version of the terminology (table 1) in order to cross examine basic formats and characteristics:

Term	Interactive fiction	3D environment	MUDs[1] and MOOs[2]
Description	Visual computer game with text commands, known above all as "interactive fiction" (IF) and for the "choose your own adventure" books.	Computer graphics that recreate three-dimensional spaces.	The first is an online role-playing game, the second is the same but "object oriented."

Term	Hypertext narrative/hypertext/hyperliterature	Video game	Generative text

Description	Literature that uses non-linear text or hypertext (links within pages and to other pages).	Game based on raster graphics images or bitmaps. Originally, it referred to video consoles, but now it defines any interactive digital game.	Text that has been generated through computer algorithms.
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Term	Net Art	CD-Rom	Virtual Reality
Description	Artistic production made in and for Internet, also sometimes called "web art", "Internet art", "net art", or net.art originally (1994).	Compact disc for storage and playback of multimedia data, which cannot be altered, where the first works of digital art were saved and distributed.	Computing environment that simulates real or imagined places, especially visual (although sometimes sound and even tactile). One example would be the interactive CAVE from Brown University.

Term	Augmented Reality	Digital Poetry	Artificial Architecture, Architectonic Simulation
Description	Set of devices for displaying a real environment overlaid with virtual elements that create a mixed reality	Computer poetry based on visual/concrete forms of poetry, also called net-poetry.	Three-dimensional computer environment that uses the generative capacity of the program for creative uses beyond architectural projects themselves.

Table 1. First version of categories of digital narrative, 2006. Descriptions drawn from personal notes in 2006 plus the current definitions from Wikipedia.

From these initial categories, I detected certain similarities, differences and terminological evolutions that deserve mention:

- Both MUDs and MOOs, video games and artificial architecture are usually presented in 3D environments.
- Some pieces of net art are hypertext (hyperliterature).
- Generative text can acquire a poetic structure.

- Net art is the online version of the interactive CD.
- Virtual reality is the opposite of augmented reality: the first is generated in a fictional setting, the second is based on reality.

Because of these assessments I generated a new classification (table 2) relative to three variables:

- The disciplinary distinctions between literature and cinema (or audiovisual): the elements that make up the works might be closer to the printed word or to image in motion, each one (the word and the image) understood as different languages.
- The basic genre dichotomy from the literary and audiovisual traditions, in regards to whether a work does (or does not) cause a "suspension of disbelief", a term coined by Samuel Coleridge in 1817, and rescued by Janet Murray (1999) and other digital theorists: despite the unavoidable presence of the computer frame and the necessary interaction understood as phenomena of "diegetic transgression," still some digital works are closer to the documentary, and others more to fiction.
- The novelty raised by the Internet in terms of connection or disconnection to the flow of works (and not to a single one): hypertext is nothing if it isn't connected to other hypertexts like a rhizome.

And the preliminary tables resulted as follows:

According to relation with text and audiovisual	More text Interactive fiction/ generative text/ MUDs/ MOOs/ digital poetry/ hypertext		More audiovisual 3D/ interactive CD/ video game/ virtual reality/ net art/ augmented reality
According to level of fictionalisation	Less Artificial architecture/ interactive CD/ hypertext		More Videogames/ virtual reality/ 3D/ interactive fiction
According to condition of connection	Offline Interactive CD / virtual reality	Both 3D/ hypertext / video games/ digital poetry	Online Interactive fiction / MUDs/ MOOs/ generative text / net art/ augmented reality/ artificial architecture

Table 2. Second version of categories of digital narrative (2006) classified according to the variables that define them further.

These first simplifications indicate that:

- Regarding the text and audiovisual relationship. The distinction between audiovisual and textual trends is equal: there is a lot of experimentation and the results are varied.
- Regarding the level of *fictionalisation*: despite the equality of audiovisual and textual tendencies, the majority of audiovisual formats are closer to fiction than textual ones. The "suspension of disbelief" seems most evident when working

with moving images. The neglect of not having defined net art in this table 2 (even it is defined in table 1), is analysed in later pages.

- Regarding the condition of connection: online connection in 2006 is nearly omnipresent, so it is no longer a determining factor for classification.

2. Current Adaptations

As the terminological definitions already indicate in 2006 (table 2), some concepts were repetitive or were contained within another:

- Virtual reality and net art receded, the first one becoming a fading trend, the second one losing ground because of the depletion of its avant-garde formula. The former represents obsolescence in the commercial market, the second one in the artistic realm.
- New technologies like augmented reality won followers, new devices like the iPhone and the iPad were invented (whose artistic applications are being developed while researching this article) and software was updated (like the HTML5 version of HTML programming language, exemplified in the short film, *The Wilderness Downtown*, see B-Reel, 2010).
- Meanwhile, games consolidated in different versions and formats, appealing to various audiences.

These considerations on the changes between 2006 and 2011 allow for a simpler classification of Table 2 without betraying the circumstances in which it was drafted. Following in order the variables on Table 2, we can confirm that regarding for the more textual works:

- We must maintain the categories of interactive fiction, hypertext and net art because they deal with historic genres being researched in the academy. For example, the second volume of the Electronic Literature Collection was just edited (see Electronic Literature Organization, 2011).
- Generative text and digital poetry must be overlooked as specific categories since they are forms of net art and hypertext. Thus, they can be considered subcategories of any of the latter two genres.

And concerning the more (audio)visual works:

- 3D and artificial architecture categories are simplified because they use technologies many games are based on.
- MUDs and MOOs are not longer taken into account as separate categories because they are types of games. Furthermore, nowadays they would be called MMORPG[3] (massively multiplayer online role-playing games).
- The category of videogames is simplified by such of just.
- The interactive CD is eliminated because, although there are still CDs, they are mostly used for administrative tasks, substituted by flash memory devices or even by "cloud computing" services.
- Virtual reality is discarded because it currently occupies a marginal place in the collective imagination and the entertainment industry; it has been subsumed within "simulations," which can be both artistic and commercial games as well as educational applications.

In considering the computer as a multimedia tool of creation and work, the insistent distinction between "textual works" and "audiovisual works" could be deemed irrelevant. Nonetheless, given the case at hand, the predominance of some kind of works over others is significant because this article questions the philological approaches that exclusively place "digital literature" or "hyperliterature" as the origins of digital creation, and to some extent obviate the influence of cinematographic and videographic languages. This approach can be seen in journals like *Dichtung-Digital* (Brown University) or collections of works, such as *Hermeneia* (Universidad de Barcelona). The literary substratum of analysed elements is undeniable, but is it the only defining substratum?

Likewise, the distinction according to the levels of *fictionalisation* proposed by Table 2 is maintained: some types of works are closer than others to the "suspension of disbelief" attributed to literary and audiovisual narratives that, based on abovementioned research by Janet Murray, Marie-Laure Ryan calls "immersion" within

the computer field (2004). The *fictional* distinction is still valid and manifests inasmuch as the question of diegetic transgression has not been resolved neither in the field of academic research, nor in that of artistic practice.

Finally, in relation to the connection status in Table 2, in our day it is less relevant if works connect to the Internet. The proliferation of broadband in homes and the increase in transmission speed for all devices in general imply that the connection to the Internet is to be as common as that of electricity; at least as far as more or less well-off Western households are concerned.

Thus, after some simplifications and clarifications, the proposed taxonomical draft in table 2 would be updated as follows:

According to its relation to text and audiovisual	More text Interactive fiction/ hypertext		More audio-visual Game/ net art/ augmented reality
According to level of immersion	More Game/ interactive fiction/ augmented reality	Variable Net art	Less Hypertext

Table 3. Taxonomy of the digital narrative for 2011.

This new version of the draft provides for a polarisation between textual and audiovisual digital creation, and for the tendency towards immersion through recreational structures (games) and simulation in general (such as augmented reality).

The neglect to define the "level of fictionalisation" of net art in Table 2 should not be considered entirely fortuitous, since upon preparing Table 3, it was also difficult to classify a genre that ranged between hyperliterature (such as *My boyfriend came back from war* by Olia Lialina, 1998), the conceptual work of code as text (such as *404* by JODI, 199?) or even the encoded moving image (such as *ASCII History of Moving Images* by Vuk Cosic, 199?): this complexity is another reason to take net art into account in the current taxonomy despite it currently lacks the relevance it had on the late 1990s.

3. Generic Derivatives

The documentation provided by personal pages, artistic archives and various reference works (see bibliography) allows to:

1. Place the origins of digital narrative in the avant-garde that embodied hyperliterature and net art.
2. Address the genre tension and academic debate between game and narrative (height of *game art* and game studies, which in general adopted a critical attitude towards narrative formats).
3. Detect the consolidation of the language of cinema and video art through the computer.

3.1. Hyperliterature and net art in the origins of digital narrative

Hypertext narrative precedes multimedia narrative created with a computer because hypertext is the basic connection structure between units of meaning or lexias (following the term coined by Roland Barthes), that generate hyperlinks and links between pages and groups of pages. The first personal computers have barely been around for a generation, which implies that affordable and manageable technology is

relatively new for everything that isn't complex calculations or strategies of military control.

But the consideration of hypertext creation as a prelude to "digital narrative" would corroborate the thesis by George Landow that "(...) according to a sign granted by fiction designed for print media, it can be seen that many previous narratives before hypertext show multiple endings and conclusions tied to new beginnings. Both Dickens' novels, written especially for monthly publications, and those of other writers from the 20th century whose first publication was in the then conventional three-volume structure, resort to a partial conclusion followed by a sequel. In addition, Trollope's Palliser series, *The Alexandria Quartet* by Lawrence Durrell, the works by Faulkner and countless trilogies and tetralogies, both fantastic and realistic, suggest that fiction writers have long since come against problems very similar to those facing hypertext fiction writers and have developed a whole range of formal and thematic solutions. In fact, the tendency to barely leave the reader with a conclusion, either because the readers are not provided with the "final" outcome to a given narration, or because the writer leaves the story before any outcomes develops, is present in many of the works of this [the 20th] century, and proves that, for some time now, writers and readers have learnt to live (and read) together with open endings, much better than the debates on narrative suggest" (adapted from the Spanish translation of Landow 1995, 142-143).

Net art is focused on making the main elements of computer language visible: 8-bit graphics from early personal computers (such as *The intruder* from Natalie Bookchin, 1999) and the representation of code (like JODI's works), are, not by chance, some of the regular topics represented by net artists. Given the limitations of video playback and upload at the end of 1990, net art drew from (audio)visually hyperliterature represented : words made into images and fragmented structures more in line with lost connections and HTML limitations than with film or video image streams. Christiane Paul, curator of Whitney Artport, comments on the period in *Digital art*:

"Most of the narrative projects in the realm of digital art are not primarily text-based but tell stories in a hypermedia environment, connecting text with visuals and sounds. The term 'narrative' is obviously extremely broad and, in this context, is meant to refer to works that explicitly represent an unfolding story (as opposed to the story that is told by a picture, or cultural narratives that develop on a meta-level). Many projects mentioned within the interactive film and video section of this book -such as Toni Dove's interactive films or Grahame Weinbren's *Sonata* and David Blair's *WAXWEB*- are prime examples of hypermedia narrative"

3.2. Developments in digital narrative through games

The argument that, after an initial period of "avantgarde" related to hypertext and net art, digital narrative would had focused on creating games can be justified by two practical reasons. On the one hand, there is the improvement of three-dimensional graphics and the game engines performance. We have come a long way since the first PACMAN game to current hyperrealistic simulations. On the other hand, games have risen to become a sector of strategic and commercial interest, whose turnover is now competitive with that of the film industry.

The proliferation of exhibitions dedicated to games, the recognition of online games for sociological studies on behaviour or the psychological implications of creating and cultivating a community, like in the Sims or Farmville in Facebook, has been coupled with theoretical debate about the difference between games and narratives.

The game studies stand, embodied by the "Copenhagen School" (with the likes of Espen Aarseth, Gonzalo Frasca or Jesper Juul) has focused on formal or even ethical aspects of games, but not necessarily narratives ones. To quote two recent examples: the possibility to take leaps in time generates a narrative (or multiple narratives) in *Braid* by Jonathan Blow (2008), but this structure is irrelevant in *Flow* by Jenova Chen (2006), despite they are both games and they both try to achieve

certain goals. The gaming experience and the narrative one do not necessarily go hand in hand.

3.3. New possibilities for narrative creation in computer moving image

Technical improvements in games must have contributed to some narrative experimentation, but it does not seem that the gaming genre is defined narratively. Moreover, as software developers have managed to surpass the limitations for uploading and accessing videos, creativity has rocketed in digital video: there is a before and after the creation of YouTube (2005) or Vimeo (2004).

But already in 2001, artist David Crawford, known for his series of movies with repeated, still images *Stop Motion Studies*, chose three artists focused on creating alternative web narratives for an art platform called Turbulence: Mouchette, John Cabral and Mumbleboy. Asked about the unique features of the narrative for the web, Cabral responded: "live action, short narratives, real-time data and distribution" (Crawford 2001). Both Crawford's curation and Cabral's statements summarize the features that have ended up being considered as "common" in the digital creation of moving images.

Ten years later, the creation of audiovisual works that are uploaded online is a constant, not an exception, as occurred when experiments were initiated by Peter Horvath, Carlo Zanni or Gregory Chatonsky, who started out with net art and also promoted categories like "data cinema" (Zanni 2010) or "programmatic fiction" (Chatonsky 2003). Today the audiovisual genre proliferates in discontinuous presentation structures, which are not linear, but not necessarily participative: the file is interactive, but the work does not have to be. It seems to comply with the prediction of Juan Martín Prada, curator of the exhibition *Donde y Durante* for the Noche en Blanco in Madrid, when he claimed:

"The audiovisual regime of web art has always been a paradigm of an order of time not based on succession, but rather on internal time relations in line with the *time-image* that was redefined (taking the term from Bergson) by Gilles Deleuze. Evolution of that "realm of the immeasurable" or "irrational cuts" which introduced the most ambitious cinematography of the second half of the 20th century (that wherein time would have "flown off the handle" presenting itself in a "pure state"), the *time-image* will find its best context for development in the electronic field. (...)" (Prada 2006).

4. Birth of a Personal Definition of Digital Narrative

These first classification schemes of features in digital works have helped to draw up a new definition with which to initiate a new process of academic analysis. In the doctoral research, "*Narrativa multimedia, narrativa intransitiva: investigación interdisciplinar sobre la narrativa digital como narrativa audiovisual no convencional*" [Multimedia narrative, intransitive narrative: interdisciplinary research on digital narrative as audiovisual unconventional narrative] I understand "digital narrative" as:

"the group of works [not -only- communicative objects] which are narratives, [that have a narrative structure and narration or story]and, multimedia ones at that, [i.e., that combine still and/or moving image, text and/or audio], as well as present themselves online, and as such mostly share the constituent features of the computer medium (i.e. simulation, randomness, non linearity, fragmentation and/or interactivity)" (adapted and translated from Herrera, 2010, 63).

Considering "digital narrative all those works known as digital literature, video and digital (not digitised) cinema , as well as games with narrative elements" (adapted and translated from op.cit).

The previous definition is reused, as a summary, in the chapter "Art en l'era digital" from the work *Disseny gràfic i disseny web. Breus lliçons sobre història, teoria i pràctica*, which speaks of "metanarratives" like "sets of digitally encoded expressions

of audiovisual design involved in narrative aspects, both in their sequential nature ("narrative") and in the contribution of elements of fiction ("narration"). In this category, those works that are structured according to the computer interface and use elements like fragmentation, non-linear access and interactivity are especially noteworthy. Digital literature, in online video and many (although not all) video games can be considered expressions of this kind." (translated from Herrera, 2010, 66).

5. Conclusions

The definition of "digital narrative" used in the research and the notion of "metanarratives" of the quoted reference work can be considered synonyms. The development of these definitions, along with the taxonomic process of delimiting its semantic field that has especially taken shape since 2006, has sought to meet several objectives:

- To historically document the evolution of creative narrative manifestations in the computer field, highlighting the changes, disappearances and incorporations generated by digital art since the 1990s.
- To explain which variables are most important to classify such creations, these being their links with textual and audiovisual elements and the degree of immersion or *fictionalisation*. This dual role is useful for a specific research of digital narrative but also it could be exploited to analyze the elements that define the "language of new media." (Manovich, 2005).
- To articulate a clear definition of "digital narrative" to include the first creations, later developments and current efforts in a changing media landscape, halfway between "traditional" mass media and the exponential growth of digital and digitized manifestations.
- To establish the basis for a continuation of this article that develops a "social" taxonomy based on different resources from museums, institutions, databases and specialized publications, whether online or offline, to contrast personal research with the social perception of digital narrative. But this task will take more months of digging, contrasting and reflecting over the available sources.

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y Electronic Literature Collection, (<http://collection.eliterature.org/1/>).

- [1] Multiuser dungeon(s)
- [2] Multiuser dungeons(s), object-oriented
- [3] Massively multiplayer online role-playing game



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