

Teaching living-art: drawing choice and rendering behaviour.

Carol-Ann Braun, contact@inner-media.org

Artist and Director, Association Concert-Urbain, Paris, France.

Abstract

Making living-art involves programming representations capable of adapting to an environment and engaging in an aesthetic exchange. A living-artwork does not necessarily copy nature or mimic human conversation. It does, however, imply the creation of a fully constituted rhetorical system that provides conditions for a poetical “give and take” between art-work and public, involving mutual recognition if not “communication” in the full sense of the word.



Figure 1. “Corps Complices”, Catherine Langlade (2009), co-produced with the CUBE, France.

How does one teach students to make “living art”? More often than not, the techniques associated with artificial intelligence are simply transferred to an artistic environment. The assumption: that aesthetic intelligence is a subset of an objective, general intelligence that “is”, a priori. When it comes to teaching young programmers outside of Art Departments, the aesthetic dimension of intelligence is not even taken into consideration.

Our paper will broach some aesthetic issues raised by living-art. First, we shall consider the nature of the digital sign and evoke a few aspects of intermedial aesthetics. We shall then set the stage for understanding what is specific to digital representation, by exploring the notion of choice. Examples of student projects, built around the tree structure of *Un Conte à Votre Façon*, by Raymond Queneau, will be described. Next, we shall discuss immersion, i.e. what happens when an entire environment “behaves”. We shall use examples taken from storyboards written by young game designers, inspired by Italo Calvino’s *Invisible Cities*, in order to challenge standard notions of seamlessness and transparency. Living-artworks designed by professional artists working at the “Living Art Atelier”, at the CUBE, France, will also be discussed.

The questions raised by this paper are not answered. They concern differences between terms such as “analogy” and “metaphor” when applied to information technologies. We allude to aesthetic theories and notions about “process” and “transparency” without having enough time or space to explain them in detail. Our approach is not philosophical, but the examples discussed provide interesting clues and venues for further research.

Keywords

Aesthetics, intermedia, metaphor, analogy, artificial intelligence, living-art, behavior, choice, immersion, representation, communication, process.

Living-art

Making living-art involves programming representations capable of adapting to new information and engaging in aesthetic exchange. A living-artwork does not necessarily entail copying nature or human conversation. It does, however, imply the creation of a fully constituted rhetorical system that provides conditions for an experimental and poetical “give and take” between artwork and public, involving mutual recognition if not “communication” in the full sense of the word.

An example of a living-artwork

At A Distance (figure 2) is such a work, created by the photographer Damaris Risch at the Atelier du CUBE, on the outskirts of Paris, France. The Cube is France’s largest digital art center, whose activities include sponsoring artists interested in making living-artworks. It has also launched a seminar on the subject, oriented towards professionals in theater, dance, music and the visual arts.

At A Distance was first shown during the outdoor “Festival Premier Contact”, launched by the CUBE in 2003. It consists of over a hundred photographed self-portraits, organized around a semantic map. Programming was done with a software package called Virtools (used for game design), hooked up to a neural network.

The photographs blend into each other and create the illusion of a seamless “living portrait”, generating a subtle range of responses to the gestures and attitudes of those who pause in front of it: the character has a tendency to smile when someone comes near; at night she sleeps, though she’ll wake up if a noisy scooter passes by. This “living portrait” is a full-fledged interlocutor and the effect is compelling: we seem to communicate with the image, and it seems to communicate with us, as if moved by a will of its own. And the public relates to it—Risch had to wipe lipstick off the piece several mornings in a row...

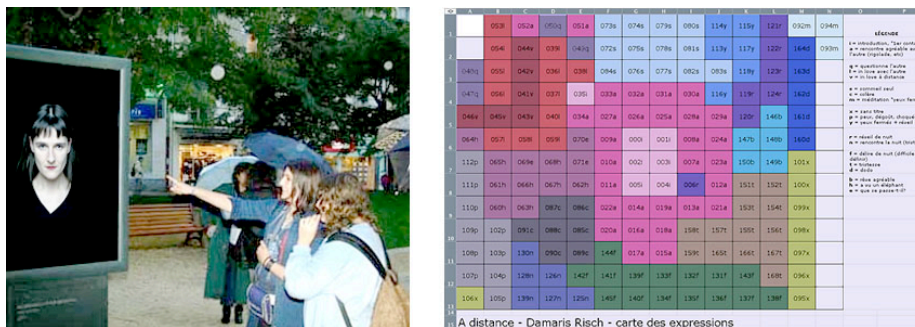


Figure 2. “At A Distance” by Damaris Risch, 2005, and a map of moods used to create paths and variations. C-produced with the CUBE, France.

At A Distance is a good illustration of the artistic horizon opened up by artificial intelligence. However much Risch’s enigmatic smile might resemble Mona Lisa’s, it has no equivalent in the history of painting and photography. It is derived from the application of information technologies to a new type of “representation”, difficult to link up to established aesthetic criteria.

Where does one start when attempting to judge the artistic quality of such a piece? In the context of 20th century art, *At A Distance* resembles dozens of other large photographic portraits. In purely pictorial terms, it is not as inventive as, say, a Picasso. From a commercial point of view, say a perfume advertisement, it is a bit drab. The dialogue set up by the work isn’t especially refined, either, however intriguing the experience of communicating with an autonomous image might be. Who cares if yet another pretty face smiles or not?

In spite of the quality of the photographs animated by Risch, the “wow” factor here is primarily technological and, secondarily, aesthetic. Something unprecedented, however, is at play. What current aesthetic criteria apply to this new type of “representation”?

Teaching living-art

From an aesthetic perspective, technology is neither a transparent nor a neutral conduit for a representation. The tools one uses and how one thinks are not two separate issues.

Much has been written on the relation between appearance, structure and process in painting and sculpture. One aspect of the subject is of particular interest here: “A work or art is not an analogy. It proposes a meaning in the form of constellations,” (Francastel,1965). Pictorial form doesn’t mimic the outside world. It is a unified way of being, of doing, of seeing, geometrically organizing spatial relationships within a whole and between its parts, “caught between material abstraction and the concretization of a concept.” Such principles are at the core of teaching in Art History and Visual Arts Departments.

When it comes to teaching outside of Art Departments, the aesthetic underpinnings of intelligence are not even taken into consideration. More often than not, the techniques associated with artificial intelligence are applied to an artistic environment without thinking that artificial intelligence might operate differently if exercised in an aesthetic manner. Aesthetic intelligence is a subset of an objective intelligence that “is”, a priori.

Our paper will attempt to illustrate the aesthetic tensions linked to living-art. The tensions concern transparency and process. First, we shall consider the nature of the digital sign and evoke a few aspects of intermedial aesthetics. We shall then set the stage for understanding what is specific to living-artworks, by considering the notion of choice. Examples of student projects, built around the tree structure of *Un Conte à Votre Façon*, by Raymond Queneau, will be described.

Next, we shall discuss the nature of immersion when an entire environment “behaves”, i.e. embodies a rhetorical system and builds a specific relationship with its public. We shall use examples taken from storyboards written by young game designers, inspired by Italo Calvino’s *Invisible Cities*, in order to challenge standard notions of seamlessness in the experience of immersion.

Finally, we shall return to a few examples of living-artworks created at the Atelier du CUBE. We shall quote from a recent publication on the subject, entitled “Living-Art”, written by Florent Aziosmanoff, Art Director at the CUBE. He sets forth a particularly astute way of articulating the technical parameters of an aesthetic relationship. Once again, we shall be very critical of the work presented, not because it isn’t interesting, but because there is still so much to do.

Drawing choice

Metaphors

Digital representations are not bound by the same constraints as tangible media. Granted, a digital collage can look just like a paper collage. This much said, the artistic lineage between the two is not procedural but stylistic; it is superficial, not essential. With paper, edge is definite, surface real, and depth an illusion. On the screen, paper is simulacra, coded in text; its edge is arbitrary (or, strictly speaking, only visual), its surface is hypothetical and its depth is an optional dimension to be explored if so desired. Articulating the space between the center and the edge of a digital “re-presentation” can’t mean the same thing that it does on paper.

Digital media use metaphors to re-instate limits, artificially. These metaphors prolong known ways of finding form and meaning in a new technological context. “Metaphors, problems and technologies are interrelated. Metaphors set problems that technologies are commonly put

forward to address. These technologies in turn promote metaphors that set the problems. Technologies also provide metaphors of each other..." (Coyne, 1995). Metaphors facilitate the acceptance of innovation too, as exemplified by the easy switch from hand-held cutter to virtual scissor to make a digital collage.

It is easy to mix metaphors with digital imagery. Sandwiched between code, image and gesture, a digital sign determines function, choice, and movement. If a hyper-linked sign (e.g. →, an arrow indicating "next") has symbolic value subject to interpretation, it also has use value: a click on the sign leads to another level of information. What was once separate, i.e. "you don't have to know how to read in order to turn a page," is now conjoined. The augmented digital sign is both a messenger and a hinge (Jeanneret, Souchier, 1999), at the juncture of medium and genre.

Both conceptually and procedurally, the horizon is wide open to intermedial practice and thought. This makes it practically impossible to define how a given digital technique might influence the construction of a given representation. In this context, the relation between "material abstraction and the concretization of a concept", to refer to Francastel's expression once again, no longer operates in the same way. Here, material is abstract to begin with; concepts are rendered "concrete" by joining and articulating metaphors generated by technologies at several removes from perceptible form.

Does this necessarily condemn digital art to being mimetic? and if so, does the mimesis of media count as "analogical thinking"? Is there any reason for artificial intelligence to inhibit thinking in "constellations", as understood by Francastel, when describing aesthetic intelligence? Without venturing into the art-historical and philosophical issues implied by these questions, beyond the scope of this paper, a few concrete examples of class-work done with them in mind helps understand what is at stake in asking them.

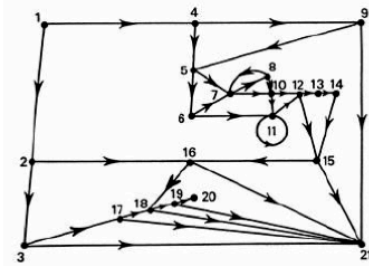
The Opacity of Choice

Choice is one of the "motors" of process in art (even when an artist chooses to abandon choice in favor of chance). As for interactive art, it is primarily about staging choice. This common ground is a good starting point for a discussion about analogy, process and transparency.

The examples discussed here are based on *Un Conte à Votre Façon* (1973), by Raymond Queneau, founding member of OULIPO (Ouvroir de Littérature Potentielle), a movement exploring formal constraints in what was then called "potential literature". *Un Conte* begins with a question asking if the reader is interested in a story about three little peas; if so, he's to move on to paragraph 4; if not, then he's to go to paragraph 2. From paragraph to paragraph, the reader skips his way through a whimsical narrative until he runs out of choices and the story comes to an end (*figure 3*).

"Little pea" in French is "petit pois", which sounds just like "petit poids", which means "light weight", i.e. like the weight of bits of information needed to pass from one node to another. *Un Conte* is laced with more or less cryptic references to information technologies: loops, the purr of machines, information break-downs, suggestions to consult a "dictionary", etc. Queneau parodies the structure of "command-response" and the "yes-no" of a binary world.

Un Conte floats between the reading and writing process battled out between several voices, often at odds: a "classical" narrator, with no story to tell; banter among peas who interrupt and provoke each other; whimsical circular instructions that catapult one to the end of the story without warning; the machine's voice, "suspended" in time, waiting for instructions; not to mention our own inner-voice, anticipated in the text. By hopping from one register to the next, by having his characters bicker instead of building narrative, by having us drop his text to go look up a word in a dictionary, by undermining our sense of purpose and efficiency, Queneau resists the transparency of choice.



4. Il y avait une fois trois petits pois vêtus de vert qui dormaient gentiment dans leur cosse. Leur visage bien rond respirait par les trous de leurs narines et l'on entendait leur ronflement doux et harmonieux.
 - a. si vous préférez une autre description, passez à 9
 - b. si celle-ci vous convient, passez à 5
5. Ils ne rêvaient pas. Ces petits êtres en effet ne rêvent jamais.
 - a. si vous préférez qu'ils rêvent, passez à 6
 - b. sinon, passez à 7
6. Ils rêvaient. Ces petits êtres en effet rêvent toujours et leurs muets secrètent des songes charmants.
 - a. si vous désirez connaître ces songes passez à 11
 - b. si vous n'y tenez pas, vous passez à 7
7. Leurs pieds mignons trempaient dans de chaudes chaussettes et ils portaient au lit des gants de velours noir.
 - a. si vous préférez des gants d'une autre couleur passez à 8
 - b. si cette couleur vous convient, passez à 10.
8. Ils portaient au lit des gants de velours bleu.
 - a. si vous préférez des gants d'une autre couleur, passez à 7
 - b. si cette couleur vous convient, passez à 10

Figure 3. Queneau, Raymond, 1967. “Un conte à Votre Façon”, in Oulipo, *La littérature potentielle* (Céations, Re-crétions, Récrétions). Paris: Gallimard, coll. “Folio/Essais”, 1973.

It may seem at first glance that this approach to choice is too far removed from the subtle equilibrium of living-artworks to be of any relevance here. With living-art, choices are not necessarily explicit or even perceptible. Yet behavior is a consequence of choice, however disguised or subtle.

Un Conte lays bare the mechanisms of choice. By playing with all the things choice can mean or do in an interactive work, Queneau manages to give weight to transition, to the space between one state and another.

It is interesting to note that in one the first digital interpretations of *Un Conte* (no longer to be found on the Internet), transitions were the first aesthetic features of the work to disappear. A simple click on a “yes” or a “no” button, situated right next to the question, made text magically appear or disappear. The technological “plus”: empowering result over choice, erasing doubt and irony, and short-circuiting the option to simply disobey and choose neither “yes”, or “no” so as to skip around the text at one’s own leisure.

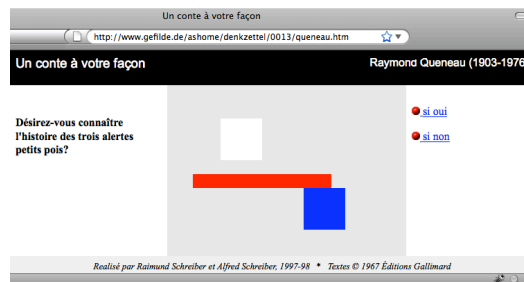


Figure 4. <http://www.gefilde.de/ashome/denkzettel/0013/queneau.htm>

Fifteen years later, much the same can still be found on-line, with a twist: a little geometric graphic animation evokes the idea of variation, though the link with the sequence of the text is not clear (figure 4).

Drawing Choice

Resistance to transparency is implicit in the tree-structure drawn by Queneau (figure 3, above). A tree-structure is not a simple, neutral element in a technological equation. Choice has a shape, and that shape is neither “de facto” nor without consequences on the representations it structures. Queneau’s drawing looks like a painting. It is framed in a box. It contains a horizon line, large open spaces, and even a hint of perspective. It is “pictorial” and cleverly self referential; the path of choice “winds up” in a corner opposite to the corner where it starts. In a

sense, the end mirrors the beginning. True to form, the story is not about different ways of getting somewhere, but different ways of going nowhere.

Below are some examples of the paths of *Un Conte* drawn by young apprentices in a class on interactive writing. Needless to say, each drawing reveals an entirely different approach to choice.

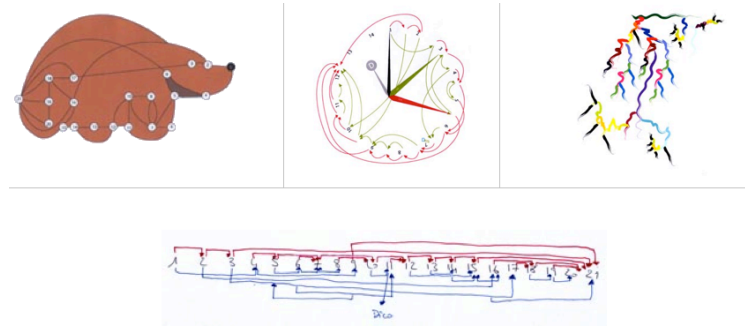


Figure 5. Representing the invisible: diagrams for Queneau's "Un Conte à Votre Façon". From left to right : hedge-hog, clock, strokes, and, below, 'yes' / 'no', by apprentices at the CFA'Com, Bagnolet.

While figuring out the links between each paragraph one student wound up with a drawing of a hedge-hog (figure 5). This got her thinking of burrowing through tunnels, blindly, oblivious to the options lying ahead. At best, a "yes" could mean "turn right" and a "no" stand for "turn left". A loop could be a dead end; consulting a dictionary could mean breaking out of the tunnel into sunlight.

More importantly, the drawing raised the issue of what role to give the mounds of dirt left behind. Each choice implied residue dirt. What to do with it? Were the mounds of dirt left from previous readings and "passages through the text" to remain visible?

Her neighbor in class drew a tree-structure in the form of a clock. Each choice implied "skipping" to another time of the day. In this example, "turning back the hands of time" was not possible; each choice was a kind of "life choice", day leading into night leading into dawn, etc. We discussed at length the relation between the "real time" it took to make a choice and the "fictional time" of the story. Bridging the two tempos became the central idea of this student's multimedia rendering of Queneau's text.

Another student decided to imitate the process of painting, building up an image stroke by stroke, scraping away options and re-painting over old choices. Each "reading/painting" of the Queneau's fable contained similar motifs, but distributed in different combinations on the surface of the "screen-canvas".

Students singled out verbs, adverbs, adjectives, etc to describe the gestures, tempos and textures to be associated with choice: to match, to glue, to turn, to skip, to unfold, to roll, to tear, to zap; quickly, slowly, hesitantly, indifferently, collectively, alone; rough, smooth, jagged, arbitrary, evanescent, chemical...etc. They were then free to combine any of the words in order to imagine how to stage choice digitally.

One student, for example, decided to equate "yes" with black and "no" with white, both co-present on the screen. The resulting interpretation of Queneau's text was an Escher-like animation, switching in and out of positive and negative modes, and, during the choosing process, vacillating between the two. Choice became a kind of morph, focused on "the seam" between two representations.



Figure 6. “Un Conte a Votre Façon”, by Raymond Queneau. Interpreted by Antoine Denize and Carol-Ann Braun, in *Machines à Ecrire*, by Antoine Denize and Bernard Magné, Gallimard, 1996.

The screen captures seen above (figure 6) avoided all mention of the word “yes” or “no”. Queneau’s text was split in two parts. In the first part, choices were made on the pages of a school book; moving objects (spilt ink, a rolling marble, pen nibs in a box) marked each step in the narrative. Spilt ink meant being interested in dreams; the appearance of a shadow meant being interested in “why” something had happened....Throughout the “choosing process”, traces of past choices accumulated on the page. A second part was built around a game of hop-scotch, allowing an uninterrupted account of the choices made in the first part, all while maintaining a sense of what was being skipped over.

Beyond the mouse

One could argue that these forms of choice are hemmed in by pre-determined formalisms intrinsic to “informatics”: screens, pointers, mouse pad, etc.

Why bother with all the trappings? One student imagined *Un Conte* as a “live” obstacle course in the Alps. Form here was woven in a mix of auditory and visual cues embedded in an “augmented” landscape, orchestrating the voices of the narrator, the characters, the instructions, and musings about choice in the fast lane.

Choice can take any shape, any scale, any speed; yes, it can be orchestrated on an immersive, polyphonic and multi-modal scale. The important thing to remember here is that choice is not “free” and “transparent” but an opaque gesture laden with aesthetic meaning; it is an essential material factor in the “concretization of concepts”.

Rendering behavior

With living-art, choice is a sub-set of a larger concept, that of “behavior”. At issue here is not only the viewer’s behavior but also the art-work’s behavior; in a viewing situation, both are interdependent.

An episode from Italo Calvino’s *Invisible Cities* is useful in understanding what is involved. At one point, Marco Polo, recounting his many travels to a curious Kublai Kahn, describes a bridge, stone by stone. Kublai Kahn asks: “Which stone props the bridge up?” Marco Polo answers that no single stone is more important than the other. It is the shape of an arc, formed by all of them, that keeps the bridge up. Kublai Kahn then answers, “Why talk to me of stones, then?” To which Marco Polo replies: “Without the stones, no arc exists...” (Calvino, 1972). The form behavior takes is both material and immaterial, spanning and structuring the passage between two points.

This exchange between Marco Polo and Kublai Kahn brings to mind Francastel’s constellations, “caught between material abstraction and the concretization of a concept.” More than a topography, each of the cities described by Calvino embodies a deep symbolic structure, imagined around a dozen key abstract figures: exchange, desire, signs, gaze, memory, the double...

The inhabitants of *Ersilia*, for example, “stretch strings from the corners of the houses, ... according to whether they mark a relationship of blood, of trade, authority, agency. When the strings become so numerous that you can no longer pass among them, the inhabitants leave: the houses are dismantled; only the strings and their supports remain.” Here, Calvino has given physical form to invisible relationships. These relationships are a kind of social “fabric” that both reflect and impose behavior.

The metaphors of interest here are procedural. They relate to models that organize behavior. To quote Coyne again: “...categories of objects and actions do not exist merely in isolation but are formed into experiential gestalts—basic metaphor structures- [...] There is a metaphor structure pertaining to containment...distinguishing an interior from an exterior...Other metaphor structures pertain to paths, links, forces, balance, the up-down orientation, the part-whole relationship and the center-periphery relationship.” (Coyne, 1995) Applied to living-art, these metaphors provide a vocabulary for articulating relationships, with any technology or assemblage of technologies and representations, on any scale.

With living-art, the challenge is in re-presenting relationships that remain abstract, that are drawn in an invisible space. The space is not a physical architecture but an intelligent environment. Immersion here is more than spatial, it is about how behaviors — those of an environment, those of visitor — are structured by a specific kind of abstract form.

Animating immersion

Using Calvino’s *Invisible Cities* as a spring board, students in game design at the Ecole Supérieure de Création Interactive Numérique, Laval, were given the task of making environments behave. Although gifted in 3D rendering, they were not asked to do so with the sophisticated tools at their disposal. It was important to get them to think “out of the box”, specifically, out of the “black box” of tools with built-in answers to the questions being asked.

Based on the city called *Ersilia*, described above, one student scenario read like this:

“20 or so visitors, each dressed in full-body haptic feed-back suits and stereoscopic glasses, share a virtual space. The floor is a large checker-board of square tiles, that light up at each step taken, projecting images of all sorts. As soon as someone looks steadily at one of these images, it is frozen in space and a thread links up the image and the person. Ersilia is also capable of understanding thought and emotion; if two people look at each other and their hearts skip a beat, a colored thread is drawn between them as well. These virtual links create paths, but also obstacles, eventually trapping people in an elastic but resistant web. When it becomes impossible to move, Ersilia creates a holographic “double” of each visitor, freeing them to contemplate the city its maze of links from afar.”

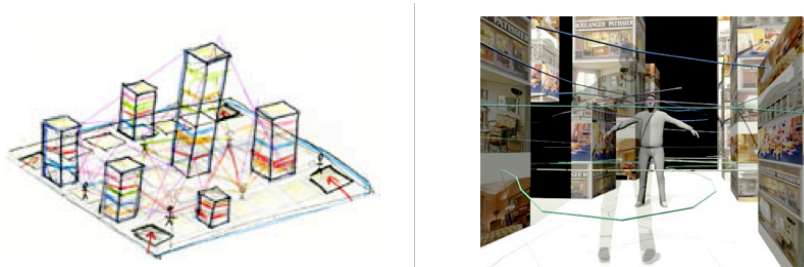


Figure7. Storyboard for *Ersilia*, of Calvino’s “*Invisible Cities*.” By students in game design, ESCIN, Laval.

The students’ interactive adaptation of *Ersilia* doesn’t simply propose a “décor” for a text. Their *Ersilia* is an environment that “behaves”: it shows initiative, independently of any “command” performed by a visitor; relationships between it and its visitors determine the way it evolves.

These links also have a physical impact on how people continue to move and relate to each other. Moreover, the project is open to a three-way exchange: people and the art-work, people with each other, and internally, among fragments of the work itself.

Calvino's *Ersilia* includes specific types of relationships (blood, trade, authority, agency...). Calvino does not describe these in detail. Game designers, however, need to find ways of explicitly factoring them in. In spite of instruments measuring heartbeats and capable of capturing thought, the students never managed to translate what "blood" or "authority" might mean in the context of an intelligent, autonomous, environment. Their problem was two-fold.

Reasons for behaving

First, the 3D rendering they "threw in"—even though specifically asked not to—numbed their imagination. *Ersilia* in 3D is more weighted down by gravity than by the links between people and objects. It reflects decisions made by tools that assume that horizons are a starting point, that people walk, that buildings are built sky-wards, etc., typical of gaming environments that hide the aesthetic nature of choice within a seamless geography. Everything here "works" fine.

The problem: *Ersilia* is made of seams, i.e. woven by the lines between people and things. In the student's renderings, these lines look and feel like traces left by bullets or strings of chewing gum. In Calvino's text, they hold more "weight" than the buildings themselves.

3D rendering techniques offer no ready-made solutions to "filling in" interstices, to giving more presence to the space between things than to things themselves. The analogical nature of the tools used by the students asphyxiated their aesthetic intelligence.

Second, concepts such as "authority" or "blood" had to be translated into behaviors and, specifically, behaviors that made sense in a virtual environment. This meant thinking about what it means to relate to someone "with authority", or how to move towards an image "as if it we wanted to buy it", or be looked at by a building as if we "belonged to it."

Getting perceived information to have a symbolic impact is not easy. A face looking straight at an image can mean several different things: attentiveness, fear, boredom, puzzlement... The author has to be clear about the assumptions that determine how signals are interpreted. This also means getting the viewer to understand (before her attention wavers) what in her presence is being taken into formal consideration by the work. Patterns need to be established that help the viewer "read" a larger, formal, scenario that defines the terms of co-presence within an augmented representation.

What are the terms of the "aesthetic and social contract" between the work and its public?

Staging reciprocity

An indirect answer to this question lies in a description of how to get students to imagine living-art scenarios on their own, without standing on the shoulders of great thinkers such as Raymond Queneau and Italo Calvino. We shall describe, briefly, the tenor of one of the classes taught at the "Living Art Seminar", initiated by Florent Aziosmanoff, Art Director at the CUBE, Paris.

One of the classes begins with an analysis of the formal conventions that pertain to a selection of works by photographers, sculptors, musicians, dancers, etc. Students are asked to retain key concepts about how each work structures space and maintains the public's attention. They are then asked to write a sentence synthesizing one or a combination of the works analyzed. The sentence is supposed to be "personal," in the hope of bringing the student's imagination to mitigate the very formal approach to the class.

Each sentence is a springboard for a "living-art scenario". Some examples of sentences: "Narcissistic trio opens sand"; "Spiral bird-flight lights against presence"; "Blue silhouette jiggles against yellow signature"; "A ruptured shadow transcends insults".... Not all the quotes are

clearly traceable to a given art work. “Spiral bird-flight lights against presence” was inspired, in part, by Robert Smithson’s *Spiral Jetty*. It became the following living-art scenario:

“A spiral of light is projected on the wall. Left alone, it has a tendency to dissolve. When a visitor appears, the spiral tightens up. When more visitors appear, the spiral starts turning. The tone of the small-talk among visitors affects the spiral’s behavior: when it is upbeat, the spiral tends to turn rapidly and projects holograms of sparks in the visitor’s space; when it is downbeat, the spiral retracts and quiets down. Once spectators understand the dynamic, a balance of power emerges: the visitors become musical instruments of sorts, and the spiral their conductor.”

Once a scenario has been written, the class tries to make the scenario “come alive”. A group of students act out the part of the living-art work, another group takes on the role of the public. A relational “dynamic” emerges from this dance, each side taking its cue from the other. This allows a relationship between the work and its public to be articulated through gesture and in conversational terms. As people talk to each other, they also talk to the work, who (?) joins in. The model is that of an exchange, not a “command”: choices exist, but they are subsumed to the rhythms of conversation. With this in mind, students examine each of the stages of the communication process. They begin by defining how the work evolves of its own accord, with no one around; if visitors show up and start talking, they enact the factors that cause the spiral’s behaviour to evolve. The terms of recognition and reciprocity are articulated through these movements.

An aesthetics of living-art?

Through continued “conversational” exchanges of this sort, an aesthetic relationship is defined and deepened. *Symbiose*, by the Collectif Experientiae-Electricae, will serve to conclude this chapter on “staged reciprocity”. The work is currently featured at the Armenian Pavillion at the World’s Fair in Shanghai, 2010. *Symbiose* simulates artificial life on earth. The terrain includes bacteria that evolve on land, in volcanoes and in the ocean.



Figure 8. “Symbiose”, Collectif Experientiae-Electricae (2007), co-produced with the CUBE, France.

If the “system” runs out of water, the bacteria die; too much water and the grass disappears. The work doesn’t respond to touch (the central image is misleading in that respect). Visitors are signalled on screen by little graphic symbols that correspond to sms they can send with their mobile phones. These symbols participate in *Symbiose*’s eco-system: the messages sent by viewers live off the bacteria; too many messages imperil the whole system.

Here, representations “feed” off of algorithms. The cross-over between “image” and “artificial life” is explicit. But is the approach “aesthetic”, or are we still mired in a “wow” effect? Experientially, we are faced with a coherent, complex world. Yet a troubling lack of “material abstraction and conceptual concretization” persists. Intelligence here is showy. Its mechanisms are “transparent”. This living-art is mired in mimesis, with little of the synthetic complexity characteristic of Queneau or Calvino. At best, these works assemble a “constellation of analogies”. The artistic intelligence is not quite there...yet.

References

Aziosmanoff, F. (2010). "Living Art". Paris: CNRS Editions.

Calvino, I. (1978). *Les Villes Invisibles*. Paris: Editions du Seuil.

Coyne, R. (2005). *Designing Information Technology in the Postmodern Age, From Method to Metaphor*. Cambridge: The MIT Press. pp. 97, 265, 286.

Jeanneret, Y., Souchier, E. (1999) "Pour Une Poétique de l'Écrit d'Écran." *Xoanna*, No6, Paris.

Queneau, R. (1973). Un conte à votre façon, in *Oulipo, La littérature potentielle (Céations, Re-créations, Récréations)*. Paris: Gallimard, coll. "Folio/Essais".