

# Virtual and Creation

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His current research focuses on deconstructing the virtual, from various objects such as video games, territories ... architecture and art. Besides this deconstruction, are questioned, among others and respectively, the game and its relationship to the world of work, the territories facing the intense development of information transmission networks, architecture also, finally the definition of art, its relationship to cultural industries or the status of the artist... Her research also seeks to undertake the genealogy of the virtual, according to the tradition of the French epistemological school. Finally and more recently, they have been oriented on the epistemology of modeling in humanities and social science, as well as arts.

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## Keywords:

Creation, virtual, modelling, cybernetics, art, digital art, image-relationship, sound-relationship, text-relationship, virtual image, form of the relationship, perception, real fiction.

## Table of contents:

1. Shaping exchanges: the art of the virtual	p.2
2. Characteristics of the virtual	p.5
3. True-fictions: questioning the conditions of perception	p.6
4. Heuristics of the virtual	p.7
5. Footnotes	p.8
6. Bibliography	p.9

## **Creation and the virtual Heuristic virtues of the artistic practices of the virtual...**

The use and introduction of technology in artistic practices more often give rise to reluctance than consent. Technology, finance and production are indeed not supposed to be part of the artistic act. Be that as it may, what about virtual creation in artistic practices? What, more specifically, about the juxtaposition of these terms or their merging when 'creation' refers to art, and the virtual to modelling, computer programming and the digital coding of data?

After these initial questions – in order to discover what relationship virtual creation has with art, what new paradigms it offers or which dimensions it renews or reproduces in traditional artistic activities – one can only wonder at its heuristic character. Indeed, in featuring the virtual – and not representing it – such artistic practices undoubtedly have a cognitive character. It is true that the virtual is difficult to grasp because it is a fleeting notion, often hidden by the digital with which it is almost always confused.

And, if technically, it remains concealed; its relationship to reality is also variously appreciated. Sometimes it opposes it, like falsehood differs from truth or fiction differs from reality, sometimes nothing differentiates them when tangible reality is prolonging it, while being one of its necessarily degraded versions. It is as if it was almost impossible to reflect on their relationship any other way than in terms of difference or, conversely, of identity (Rodionoff, 2013, pp. 189-203) [1].

The artistic practices of the virtual, by pointing notably to the virtual's indifference to reality, theorize such a relationship. These creations therefore create heuristics of the virtual... This indifference is only one of the characteristics of the virtual. This is how artists *think* the virtual with their own means (Arasse, [2004] 2007, pp. 243-244) [2], their devices (or their creations) showing or featuring the characteristics of the virtual. To quote the words of H. Damisch, while applying them to the artistic practices that explore the virtual, the art of the virtual not only shows, it *thinks*. Do not these works offer a 'practical epistemology' (Lévy-Leblond, 2010) when they create theories by *thinking* the rules and properties of the 'material' with which they work? Our objective here is to use artistic creation as a starting point to identify what they conceptualize and to see the virtual 'in action.'

## **I. Shaping exchanges: the art of the virtual**

The artistic practices of the virtual examine the virtual by not masking the modelling [3] to which it relates, while expressing its specificities, as well as its relationship(s) to physical reality. Among some of the devices/artworks that I have initially chosen to examine, one was created by David Rokeby, the other by Kit Galloway and Sherrie Rabinowitz and the third by Mark Napier.

### **I.1 Sounds-relationships**

From the 1950s, artists were interested in the link, the relationship and technical structures that allowed exchanges of signals and information. When seeing the work *Well Tempered Clavier* [4] by Nam June Paik, one understands that he was among the first to be interested in these issues.

With *Very Nervous System* (or *VNS* (1986-1990) <http://www.davidrokeby.com/vns.html>), David Rokeby also focuses on exchanges by exploring modelling and programming, i.e. the virtual. VNS is a device, which comprises of a series of sensors and a programme processing the data collected on the basis of modelling. The movements of anyone close to VNS create a series of sound sequences, whose intensity; variation and tone vary according to these movements and depending on a programme, and which express *in fine* the link between the body and modelling.

Such sequences are the results of a series of operations: the capturing of movement by sensors, their transformation into data that can be processed by a computer programme, and finally translating this data into sound, using modelling. The virtual is thus the centrepiece of the work, both to capture physical movements, process them and transform them, while ensuring or guaranteeing the transition between these three stages, all of these operations being performed in real time.

David Rokeby thus exploits the characteristics of Information Technology – capturing physical movements, writing a programme from a model – but in order to question the relationship between the former and the latter. These sound sequences make perceptible, or accessible to the ear, the links between the real world and the virtual world. The artist gives these links a sound form, otherwise they would remain invisible. Such sequences express the ability of the virtual to capture reality and, in particular, to capture relationships (Boissier, 2004a, p. 269) [5].

Such artwork expresses the relational nature of the virtual and VNS, defines itself as sound-relationship. Do not these sound sequences indeed come from, not the score that is played, but from the operations, calculations, data exchanges dictated by a programme, from the capture of relationships cut out from reality? Many other artists, like Bill Fontana, work with such sounds-relationships.

## 1.2 Images-relationships

With *Satellite Art Project*, Kit Galloway and Sherrie Rabinowitz play another 'score.' If they do not strictly explore modelling, the artists reveal by anticipation the relational nature of the virtual through image rather than sound. They focus on and highlight the creative abilities of links and exchanges.

With two groups of dancers located thousands of kilometres apart but connected by a satellite link, the two artists 'showcase' satellite exchanges, that is to say, transform them into images. What form does it take? It is choreography broadcast on monitor screens and performed by each of the dancers from the two geographically distant groups; a television image that is nevertheless not supported by any model.

Such an image is indeed the result from the satellite exchanges, which allow for the simultaneity of two physically distant sources. They bring together, in a single image, dancers from New York and dancers from Moscow mutually adjusting their movements, their steps, their posture. Such simultaneity requires the prior transmission, without any time delay, of an image of the American dancers located in New York to the Russian

dancers and, conversely, of the image of the Moscow dancers to the American dancers. The transmission and reception of images then allow the dancers on both sides of the Atlantic to harmonise their movements.

The choreography displayed on the screens has no specific location, as it only exists 'through' or 'in' these exchanges. The unity of place has disappeared and it is precisely these exchanges that give it a 'reality' via the images they broadcast and transport. This danced score is therefore the result of satellite exchanges, which are indeed the conditions for it to exist.

If exchanges usually remain invisible, here they take the form of moving images. The work or the creation, by embodying these exchanges, removing them from their invisibility, theorize or *think* them. While the artists talk about image-place to define or conceptualize such a singular image and what 'embodied' it, Boissier prefers the term 'image-relationship' to define the virtual image (Boissier, 2004b).

With *Satellite Art Project*, if the artists show the relational nature of a virtual image, their creation obliges us to reflect on methods of transmission and broadcast of images, televisual and others, as well as the nature of the images they broadcast. Unlike the images usually transmitted by satellite, images of a sports event for example, here the transmission networks allow the broadcast of images with no model since they have no referent. These networks do not just broadcast information as is, an image for example, but have creative virtues by producing images, sounds... without any model. Images and sounds indeed originate from exchanges supported by the information transmission networks. Such a creative 'power' can be measured through its ability to aggregate and link images, sounds, etc. How singular are these images-relationships conditioned by virtual or electronic exchanges, without which they have no 'right' of presence!

### 1.3 Texts-relationships

If sounds and images invade our computer screens, texts are equally invasive. *Shredder*, created by Mark Napier, focuses on programming code and eludes it, inviting us to understand what is going on behind the screens. With this piece, an infinitesimal change made in programming code leads to the break-up of a page of the online version of a newspaper, which then becomes unreadable (<http://www.potatoland.org>) [6].

If *Shredder* shows the fragility of programming, this creation also reveals how virtual exchanges, invisible by definition, are the conditions of the visible and, *in fine*, of the perceptible. The alteration of the text obliges us to consider that any text is the result of a series of operations controlled by a programme and not a reproduction of the printed version. The operations, calculations and data exchanges used when programming are the conditions of the text – both of its appearance and disappearance – but not the conditions of its meaning. *Shredder* therefore illustrates the relational nature of the virtual, as evidenced by the texts-relationships obtained by entering a code (the e-mail address of a newspaper).

To summarize the heuristic virtues of the art of the virtual, these creations first illustrate the relational nature of the virtual. They indeed show exchanges that take different shapes each time: sound sequences, image-place, text... Contrary to popular belief, it is not the sounds, images or texts that are virtual but the system

of exchanges that supports them. Without invisible virtual exchanges, no appearance or disappearance is possible on screens, in one form or another. In doing so, they imply that the virtual is a condition of reality. They reveal another characteristic of the virtual, its indifference to reality.

## 2. Characteristics of the virtual

### 2.1 Condition

With *Shredder*, to continue with Mark Napier's work, the visible – a text that has lost its meaning – is controlled by the invisible code of a programme. Does not this artwork show that the virtual and the real are not opposed, that they even are necessary to one another and even complement or blend with each other? These are some of the issues highlighted in the work of artists exploring the virtual.

Alternatively, with *VNS*, David Rokeby *thinks* the virtual and the nature of its relationship with reality. This relationship becomes conditional when the sound sequences depend entirely or are subject to the operation of a programme. These sequences, through their auditive presence, are not virtual but part of tangible or physical reality. With *VNS*, the artist, by linking the programme to its results, demonstrates that the former is a condition of the latter.

### 2.2 Indifference

Beyond the *conditional* nature of the virtual, like other creations or artistic practices of the virtual, *Shredder* reveals another of its characteristics: its *indifference* to meaning. Sense and nonsense both indeed have a 'rightful place,' as modelling and programming do not bother differentiating between the two. In other words, the virtual, if it is a condition of both sense and nonsense, is capable of receiving one or the other. As a result, this indifference extends to everything it conditions: both sounds and images, and generally, if one refers to the physics of the Stoic doctrine, to the tangible reality of the physical world (Bréhier, [1907] 1997, Goldschmidt, [1953] 1969) [7].

### 2.3 Void

The virtual is a void, such is, *in fine*, the theory developed in their creations by the artists who work on the virtual, although they offer an exit from this conditional void by giving shape to virtual exchanges with their sounds-relationships, images-relationships, texts-relationships or even maps-relationships. This void, invisible by definition, turns out to be a condition of the visible, that is to say, of what is displayed on the screen of any computer. This void is the condition of the appearance and disappearance of images, sounds, etc., indicating that there is little difference between virtual cybernetics and solid, tangible, physical reality. There is therefore nothing to gain in opposing them or considering them as similar in an attempt to control the virtual. The creations theorizing the virtual thus offer a mix merging virtual systems and their productions.

The artists who explore the virtual by *shaping* exchanges invite us to understand them as virtual. These virtual exchange systems are paradoxically the conditions of materiality. Their creations *think* the virtual as an

occasional envelope, able to receive or host all kinds of objects, like a void... indifferent to what it hosts and lets vanish. Such are the heuristic and conceptual qualities of these creations.

### 3. True-fictions: questioning the conditions of perception

The exploration of the virtual in an artistic manner also questions the reality and conditions in which it can be comprehended, and thereby the fiction and the relationship of the latter with the former. Are not some of these artworks verging with philosophy when questioning the conditions in which everything is perceived?

It seems indeed that artists such as Stéphan Barron, Natalie Jeremijenko, Ken Goldberg and others put this issue back to the centre of the debate (Rodionoff, 2010) [8]. If invisible virtual exchanges are paradoxically the condition of the visible, some of their works indeed use this principle, but to reveal real fictions such as the Earth moving.

Natalie Jeremijenko's work, e-trees, takes the form of an artificial tree on a computer's desktop, which grows in real time, depending on CO<sup>2</sup> levels. The growth of this tree is induced by an algorithm specifically designed for this artwork and depends on the external data captured in the immediate environment of the computer.

By linking CO<sup>2</sup> levels and the representation of a tree, Natalie Jeremijenko makes CO<sup>2</sup> visible, although it is in fact invisible data, abstract yet real. It is as if e-trees showed real fiction, i.e. made visible an invisible reality. With its ability to create links, the virtual therefore has heuristic virtues when it shows us invisible reality, which therefore takes on the form of fiction. Thus, although in a different way from previous works, the virtual is at the service of the visible...

Other artworks use this principle – creating a link or a relationship – to exhaust all its realisations, and notably to unveil real fictions. Ozone by Stéphan Barron, for example, links ozone levels to sound sequences (<http://www.technoromanticism.com>).

Various sensors measure ozone levels in Lille and Australia; due to automobile pollution, ozone levels are indeed too high in Lille but too low in Australia [9]. The physical data – invisible but real – collected by the sensors are then processed by a computer programme to be transformed into sound. Using the internet, these sounds are then transmitted and played in a garden in Australia and in the streets of Roubaix. The sounds played in Roubaix reflect the ozone deficit in Australia and those played in the garden in Adelaide; reflect its high levels in Lille.

Ozone levels – abstract data or even true fiction – thus become present by becoming audible. In other words, the man-machine or world-machine interface created by Barron expresses in a perceptible manner the level of pollution by ozone, which is abstract physical/chemical data. If it had not been expressed by the virtual [10], the ozone deficit would not be perceptible to our senses. Barron's work therefore explores a characteristic of the virtual: capturing abstract invisible data, and processing it to make it perceptible and thus actually present or real. Like other artists, Barron has therefore created a true fiction...

## 4. Heuristics of the virtual

If the virtual – I will use the word *cybernetics* to differentiate it from the virtual in philosophy, whose history remains highly charged – is defined from the point of view of logic, its nature, however, through its multiple applications, eludes analysis, in particular when trying to understand whether or not it is separated from tangible reality, which imposes itself through its presence; and how. Thus, while IT now populates many objects of our everyday life, one paradoxically finds it difficult to understand the characteristics of the virtual. What it challenges and allows remains elusive, except if one observes the artistic practices that explore it.

From a logical/mathematical point of view, the virtual is mainly understood by the very people who model and program, modelling meaning creating the mathematical model of a system for example, and programming meaning implementing this modelling [11]. A mathematical equation can thus be modelled, as cybernetics allows the virtual experimentation of its mathematical model using a large number of measurements or calculations. Saying, more commonly, that it refers to the calculation of equations, at a speed close to zero – and of an ever-increasing amount of diverse operations – therefore remains quite abstract. Here it is artistic creations that shed light on it and show its nature, its formation rules, as well as its properties. They describe and embody the singularity of the virtual and of what it allows, they think its operation.

When taking a closer look at these creations, one can understand the virtual as an exchange system of data that is often digital, these exchanges being managed *via* modelling and programming. Such artistic practices therefore invite us to further examine what is happening behind the screens to stress that neither images nor sounds or texts are virtual. But the exchanges from which they derive are.

It is the exchanges that are principally virtual. By linking virtual exchanges to their results, such creations emphasize the fact that the virtual is the condition for the body or materiality to exist. The invisibility of the exchanges is therefore at the service of the visible and appears as a condition of the visible. Without this process of *shaping* exchanges, virtual systems would remain elusive. These systems are also characterized by their *indifference* to materiality and their ability to welcome and let go of any object, sign, etc. like the void. Such is the technological or cybernetic virtual of which the artistic creations reveal the features or characteristics. These creations also question the conditions of perception challenged by increasingly pervasive virtual worlds, therefore becoming theorizing artistic creations...

## 5. Footnotes:

[1] On the deconstruction of the virtual, I would like to refer the reader to Rodionoff, A. (2013). *Le virtuel : une notion-valise in Les territoires du virtuel. Mondes de synthèse (MMORPG), univers virtuels (Second Life), serious games, sites de rencontre...* Revue MEI No. 37, dir. Rodionoff A., Paris: L'Harmattan, pages 189-203; Rodionoff, A. dir. (2013). *Les territoires du virtuel. Mondes de synthèse (MMORPG), univers virtuels (Second Life), serious games, sites de rencontre...* Revue MEI No. 37, Paris: l'Harmattan, 213 pages. *Les territoires saisis par le virtuel*. Rennes: PUR, coll. 'Espaces et Territoires,' 176 pages, Rodionoff, A. (2010). *Interroger le virtuel: architecture, territoires, création numérique*. Professorial Thesis in Information & Communication Science - Paris VIII University, 373 pages.

[2] The readers of D. Arasse will hardly be surprised at such a point of view, as the author said about the Annunciation painted by A. Lorenzetti that the artist showed infinity in action while infinity was not yet thought, that is to say conceptualized.

[3] If mathematicians, physicists and computer scientists speak indiscriminately of digital simulation or modelling, I associate it with the virtual, since *virtual* is the term most consistently and frequently used in the common discourse, to be associated with applications offered by computers. Digital simulation or modelling aims at predicting the behaviour of complex systems or at studying natural phenomena. It therefore presupposes knowledge of the equations and phenomena related to the objects studied and mobilizes the computer's power of calculation. To be implemented, modelling requires programming or developing a programme. Digitization refers to a binary coding operation. 'Digital' technology, in other words, is a binary code required for data transfer and for the exchange of information within transmission networks.

[4] One can also say that Nam June Paik, best known for his video installations, plagiarizes David Rokeby by anticipation. We owe Pierre Bayard the invention of the concept of 'plagiarism by anticipation'. Bayard, P. (2009). *Le plagiat par anticipation*. Paris: Minuit, coll. 'Paradoxe'. 'Well-Tempered Clavier,' created in 1963, consisted "of playing the left-hand part of the Fugue No. 1 (C major) of Well-Tempered Clavier by J.S. Bach in San Francisco [and of] playing the right-hand part of the Fugue No. 1 (C major) of Well-Tempered Clavier by J.S. Bach in Shanghai, starting at exactly midnight on March 3rd (Greenwich Mean Time). Metronome tempo crotchet=80, simultaneously emitting from both sides of the so-called 'pacific' 'ocean'." The work is only faithful to the score because of its broadcasting through radio waves. Thus, the broadcast is primary, and the performance secondary. In other words, the Fugue's presence derives from its broadcasting, that is to say, it exists as such. Or to put it differently, the Fugue exists only through its broadcasting, existing meaning becoming audible, or in other words, perceptible by the senses.

[5] According to J. – L. Boissier, the virtual thus expresses relationships captured from reality.

[6] The website of the American artist gives access to all of his works via a list on the left of the page. By clicking on Shred, a web page is superimposed on the previous one. The artist asks us to enter the web address of any newspaper. A new page appears, which corresponds to the address that the user has entered. But it is unreadable because the html code that composed it has been decoded or 'read' in an unusual way. If the same address is entered again, the page appears different each time you try, suggesting the instability of our world based on transmissions. The page 'appears' completely decomposed, as if shredded, crushed or torn, as the title *Shredder* indicates.

[7] On the Stoics and the so-called incorporeal concepts (void, place, time and the expressible) and their relationship to virtual cybernetics (Cauquelin, 2006).

[8] I examined many of their artworks in my Professorial Thesis.

[9] Natural ozone, normally present in the stratosphere, filters ultraviolet rays. A deficit in ozone has led to a significant increase in the number of skin cancer cases in Australia. According to scientists, both phenomena, ozone overproduction and ozone deficit, are linked, i.e. interdependent.

[10] Jean-Louis Boissier uses the capture of the body by the virtual to criticize the concept of the virtual body, which is, according to him, a contradiction. (Boissier, 2004c)

[11] The validity of modelling can therefore be tested, even when the experimentation of a system proves impossible.

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