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MEDIA ART : HYBRIDIZATION AND AUTONOMY

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MEDIA ART : HYBRIDIZATION AND AUTONOMY

During the last thirty years the flourishing of a new art form could be witnessed. It brought together rich and heterogeneous works, trends and artists. It was branded with great many names, which has led a certain confusion. It is therefore necessary, in order to replace Media Art in its technical, historical and intercultural context, to understand its fundamental specifics, despite the enormous differences that often appear between its many expressions. For practical reasons, I will use the term Media Art to refer to this art form that is difficult to label, even though the concept of "mediation" is no longer appropriate concerning the production and flow of information that characterizes real time interactivity.

The distinctive feature of Media Art appears to me as a hybridization. In biology, hybridization is the natural or artificial crossing between two varieties, between two breeds within one species (*métissage,* in French) or between two different species. In the field of art, hybridization is the crossing between heterogeneous technical, semiotic and aesthetic elements. In Media Art, for example, artist's CD-Roms are more or less intricate crossings between still or

animated images, sound (noise, the voice, music) and text (poetry, the novel). Hybridization is not specific to Media Art, it could even be considered as a permanent and more or less assertive feature of art. For example, romantic theater with its mixture of tragic and comic elements may be seen as a hybrid form, as compared to French classical theater. Modern art arose partly by confronting the traditional and rigid system of the fine arts that required each genre to cling to its own exclusive technique which use was forbidden to other genres. *Collage*, rubbings, combined paintings, prepared pianos were hybridizations of heterogeneous images, materials, objects, and sounds whose coexistence within a single work of art was banned by academic art.

Hybridization was encouraged by the evolution of techniques throughout the last two centuries. Photography, photoengraving, the recording of images and sound made it possible to freely recompose sequences of animated images or sounds and broadcast them to a very large audience through mass media. Artists gradually preferred fluid or fragmentable material that encouraged crossings, to more pure and noble materials. In the sixties, electronic images and video-TV allowed for totally novel visual and communication effects, long before the web. It is during those years that the historic forerunners of Media Art appeared.

The result was that around the seventies, many artists attempted to bridge the gap between technology and science: a significant example is that of E.A.T. (Experiments in Art and Technology) in the United States. In Europe, like the impressionnists already in the nineteenth century, cinetic artists were interested in the laws of optics,

but they were also interested in the psychophysiological phenomena of visual and tactile perception, in real and virtual motion, in cybernetics (as I was myself, with my 1965 Musical Mobiles that were luminescent electronic devices that reacted to sounds in real time). Other artistic trends also referred to science in those same years. Geometric and minimal art drew inspiration from mathematics, while a section of conceptual art fed on structural linguistics, and sociological art, on sociology. I could give similar examples in the musical field.

Parallel to this, the spectacular and-ill controled technoscience boom caused opposition and criticism from other artists, which led them to consistently reject anything that appeared as a compromise with technology. This explains the disappearance of some artistic trends, such as cinetism, æthe profit of what seemed to be a more *engagé* art, an art requiring deeper involvment or possessing a stronger expressionnistic streak. But, generally speaking, most contemporary art shows a more and more asserted tendency towards hybridization. The pure medium dogma, defended by Clement Greenberg seems have completely vanished.

During the sixties, a new, deeper and more complex type of hybridization appears. It is encouraged by emerging digital technology that breaks radically with traditional techniques. Computers no longer operate on real objects (wheather they are physical or energetic), but on information units — BITs that encode images, sound and text in the same way. This makes it possible to handle a very deep, almost genetic, level of organisation.

It is thus possible to establish a typology of hybridization. The first type of hybridization concerns the *morphogenesis* of computer calculated virtual objects, that is to say the way computers deal with the internal formal constituents on the most elementary level. Thanks to pixels, a plethora of faster, more complex and more precise operations become possible. This also applies to sound whose parameters can be processed independently with millisecond precision.

Also noticeable, are hybrids of objects belonging to the same species, but from different origins (paintings, drawings, photographs, films and video tapes, noise and music, voice or instruments). This type of hybridization takes traditional techniques, such as collage or embedded images a step further but makes totally new effects such as interpolation between two images or two sound sources.

Finally, one distinguishes a more heterogeneous hybridization between images, sounds and techniques that allow operations that were still impossible with non-digital technology. This type of hybridization is the corner stone of multimedia. One can trace its origins in the opera, for example, which brings together singing, music, dance, narrative, decorative painting, visual effects, etc. But digital technology allows types of hybridization that are technically far more "genetic".

The second type of hybridization applies to the *distribution* (the exhibition, publishing, copying, conservation and circulation) of virtual objects. These objects are most often interactive, which means they can react almost instantaneously -in real time- at the moment the receiver gets them, through various interface systems. The

development of input interface systems, first limited to alpha digital keyboards, made it possible to introduce non-symbolic information from the real world (movements of the hand and fingers, sounds, body motion, speed, accelerations, warmth, presence, breath, a heart pace, etc.)in the computer, through calculation. Output interface systems, such as those used in virtual reality, made it also possible to immerge the viewer in an enveloping visual and sonic space. Immersion is a form of hybridization between two types of "proximy" — as E. T. Hall said —, a close one, generally implying body shifts and movements, and a more distant one, implying eyesight and hearing.

Interactivity thus radically transforms relations of man and machines. Contrary to a commonplace idea, a kind of subjectivity may be introduced in the computer (a choice between several possible options, an untypical gesture, a bodily expression), through sensors that convert this information into digital data the machine can process instantly. A hybridization then appears between the work and its receiver. It associates a "human subject" and a machine in an intimate way and sets up an absolutely unprecedented relationship between man and man-made automatic artefacts. Besides, thanks to digital networks, interactivity implies many web-users. This is "Network Art"; it is done by many artists and constitutes a specific field that opens up onto very original expressions.

The enhancement of the level of hybridization draws several consequences. The most important concerns the relations between an author, a work and its audience. The work is no longer a fixed object, it may be modified, under certain conditions, by the spectator. It is nothing else than a set of potentialities and only exists and has

meaning in so far as the spectator actualizes it. In such a way the addressee of the work becomes in turn its co-author. Of course, associating the spectator to the creation of a work of art is not limited to digital art –a deeply influential idea in seventies' aesthetics- but it finds a new life with digital interactivity. It becomes one of the main features of Media Art. The status of artist, work of art and audience are redefined, which in turn causes a redefinition of the access to art works, of art criticism and of aesthetics.

And, last but not least, in the core of digital process, there is a fundamental hybridization between technology and language. It's the first time in history that a machine, the computer, functions with language. It is through this specificity that the crossing between art and science takes place. For this language, software, is made at its very base, by logical and formal models from the scientific realm (computer science, mathematics, physics, biology, linguistics, cognitive science, etc.). When the computer is used for artistic ends, the relation of art and science is no longer theoretical and metaphorical, but practical and operational. Science is then at the core of art, it forms its equipment and its material.

Following the evolution of techniques, in particular, figurative techniques and communication technology since the Renaissance, one is struck by the fact that they are more and more automatic. Linear perspective, photography, the phonogram, cinema, radio, TV: each step towards automatization in the production and transmission of sounds and images favours hybridization, radically transforms art and culture, creates crises, questions, and causes artists to invent answers.

But, with the computer, automatization reaches a very high level of complexity. The evolution of interactive technology goes far beyond mere feed-back and tends to endow the machine with a certain degree of autonomy, ie: the capacity to create its own laws. In their intercourse with their receivers, virtual semiotic objects have become capable of behaving as more or less "live" and "intelligent" artificial beings.

This evolution is the result of advanced research in the field of cognitive science and of connectionnism in particular, thanks to which "genetic algorithms" and "neural networks", virtual networks that are capable of "emergent behaviour", were invented.

Here, interactivity reaches a higher stage. New simulation patterns complete the physical or mechanical patterns or sometimes replace them. The computer acquires specific features of live and intelligent beings. A still limited number of artists attempt to make these techniques their own. My colleagues Michel Bret and Marie-Hélène Tramus from Paris Eight University have created virtual beings, in a partnership with the neurophysiology laboratory of the Collège de France, headed by Alain Berthoz. These creatures, a tight-rope walker and a dancer are endowed with a certain degree of autonomy and are capable of interacting in real time with existing people like you and me. After a training phase with a real tight rope walker or dancer, these creatures can invent behaviour that was not programmed by their authors. This entails an other type of aesthetics, based on the confrontation – which is in fact a kind of hybridization — of two types of autonomy, a natural autonomy and an artificial autonomy, that try to converse, to question each other mutually.

Another remarkable fact is that the dialogue between the audience and the work implies a greater involvement of the body and of sensorimotor actions and perceptions.

Simulating life and intelligence is no longer a laboratory quirk, but a general and probably unavoidable trend related to digital technology as a whole. We fill our immedaite surroundings with more or less lively and intelligent virtual beings, such as the "intelligent agents" that move around on the net and have started animating electronic games or robots. The eldest myths and fancies of humanity (from the Golem to Robocop) become real, not without provoking questions and anxiety. Media Art will undoubtedly be deeply affected by this phenomenon.

What does all this entail for art? If our project is to replace Media Art within its historical, technical and intercultural context, it is now necessary, after having attempted to understand its specifics, to adjust our theoretical tools to its evolution, which is closely connected to that of technology and science. Of course, even though simulation of life and intelligence has raised hybridization to unprecedented levels, this technical superiority does not entail any superiority in the quality of the artworks. Believing the opposite would lead one to confuse art and technology. However, this technical superiority does cause a definite change that can only deepen in the future. Art's tendency towards autonomy is not a novelty and has already been the object of a reflection on aesthetics, developed in Umberto Eco's *The Open Work* (*Opera Aperta*, 1962).

Drawing from the theory of information, Eco notices that, contrary to what Abraham Moles claimed shortly before him, maximal

unpredicability does not lead to the maximal flow of information, but to maximal chaos. It then becomes — I am quoting — "impossible not only to organize the most ordinary significations but all significations". It is therefore necessary in these conditions to give a dialectic form to predictability and unpredictability, order and disorder, "form and openness." He wrote that Art, understood as openness, has the function of creating "autonomous forms that complete already existent forms, and possess a life, and laws, that are specific to them". This was already the aim of the sixties, through the "participation of the viewer". Digital technology widens greatly the scope of this opening. The question is still for art to remain open to hybridization – and to its effects of unpredictability- while maintaining a form that resists crumbling into chaos.

Let's take a look in the direction of cognitive science and technology (CST) that bring together artificial intelligence, neuroscience, cognitive psychology, epistemology and linguistics around the cognitive paradigm. One could lean on works such as those of Francisco J. Varela and his collaborators, that cast an innovative light on the notions of information and autonomy. Very briefly, what must be retained from these works is the central idea of an enlarged definition of the classical notion of information (inherited from Shannon) and a redefinition of autonomy. In strongly autonomous systems,Varela says in substance, what we call "information" has a very different meaning from that given in computer science. In such systems, any kind of information refers to the conservation of the system's identity (I would say of the "form" in art) and can only be described in relation to this identity. Information is not received from

without the system, but co-produced by the system and what is outside of it. This is exactly what happens when works tend towards autonomy.

I would need more time to develop this theory, but I think here we have a model that can draw the dialectics of openness and hybridization, a model that is more appropriate for this situation. Following a tradition of thinking that goes back to Gombrich, it can be applied to the understanding of how artworks function on a cognitive level, whatever the degree of autonomy of these works, but it can also be applied to communication technology informational systems and to the systems of analysis and knowledge proper to art history and criticism. The cognitive paradigm provides the same models to art, but also to the way art works on the social and cultural level, which is unprecedented in the relationship of art and science. Nowadays, the links between science and art no longer revolve mainly around technique by way of industry, as in the days of the E.A.T, but around C.S.T. To conclude, I would add that the question of hybridization and autonomy is one of the most crucial questions arising today in our world. Cultures around the world attempt to maintain or reinforce their autonomy, while the globalisation of technology, of the economy and of political relationships, compells them to open up to other cultures and hybridize with them.

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