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The Visible and the Invisible

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Abstract

This paper is about the interaction of electroacoustic music with visual elements, (mostly) outside real-time hypothesis. The article focuses on works from the past to the present, showing the rich development that «audio-visual acousmatic composition» or, more generally, «multimedia or intermedia works (1)» had in about half a century: to describe this evolution, various authors are quoted for analytical purposes, from the past to younger generations: M. Adkins, M. Avantaggiato, M. Chion, F. Dhomont/Wickmann, H. Ishii, A.Ferreira/ Echeverry, A. Lewis, D. Raaijmakers, I. Drese, I. Xenakis/Fulchignoni, T. Grossi/Munari, J.P. Oliveira, and so on. Each paragraph of the present article tries to answer to the initial question: “Electroacoustic (Audio-visual) Music: is it still a form of experimental music?” moving from different points of view. All the examples indicated in the article show that electronic music allows an increase in the possibilities of communication of the music as it is thought, without further mediation by the interpreter, thanks to the novelty of keeping the original message of the composer intact.

1. Introduction

The title of this paper derives from the existence of two opposites: the “visible”, associated to “non-acousmatic” sounds which are not, or are not immediately associated to their generative source; the “invisible”, associated with the idea of sounds that immediately evoke their generative source, which we do not see in the images: these are the «akousmas». But there are other opposites of our interest: the visible are the visual elements of a video; while the invisible are the sounds, hidden by images, that can be recognizable or not. The title also refers to the idea of an experimental action, that is not foreseeable. According to J. Cage, an

¹ N. Sani (1) say: “I consider the adjective “multimedia” a term technical and commercial, related to tools that allow you to access multiple “media” simultaneously. It is therefore a term which is part of a lexicon not related to artistic language. “Intermedial” implies instead one choice of language. It is a term that has a lot to do with sound—sound in an expanded sense, at the center of a series of possible relationships with all forms, languages and contemporary aesthetics.” In a different definition Cook (2; 3) says, “what is involved [in intermedia] is a dynamic process: the reciprocal transfer of attributes that gives rise to a meaning constructed, not just reproduced, by multimedia. This emphasis on an emergent meaning that is constructed as a result of the interaction between the various components of a multimedia work is a significant contribution to the study of multimedia. Since the term “multimedia” most commonly refers to the presence of more than one medium at a given time regardless of their cognitive interactions, I will use the term “intermedia” instead of redefining multimedia”.

experimental action is an action whose outcome is not foreseen: for us, “experimental action” is something that is “not foreseeable” and doesn’t have immediate, «visible» results.

As reported by Rees (4, p.143) the definition of “experimental action by John Cage, “*stands as a motto or device for the avant-garde aspiration in film, video and digital media*”.

2. The audible and the visible

According to Chion “*acousmatic music in its conscious refusal of the visual, brings with it visions that are more beautiful than the images (5, 163)*”. So why combining images and videos? R. Frisius and B. Zelli (6) refer to the redefinition of the combination of audible and visible in the wide context of multimedia as one of the most important contribution of electro-acoustic music: the fusion of sound and image in electronic media can be considered something natural, because both signals share the same coded source, as filtered through filmic tradition based on the frame and the interval (7) «.

Secondly, “*video offers the opportunity to create music in which the smallest sonic detail is important, turning seemingly ephemeral, or transitory details into something permanent and particularly meaningful (8)*”. Outside real time, this allows us to reflect on our sounds, taking advantage of the possibilities of internal development diligently: we identify a sound, we experiment with it, researching its creative potential, innate and latent. This allows us to reflect on the nature of sounds, independently of whether they are recognizable or not.

Similar ideas are expressed by M. Adkins (9;10) talking about the potential of sounds in some recent works: “*...I think this comes in part from Schaeffer’s work in the studio and the concept of electronic music sculpting sound in space. For me, I have to work with my materials in order to see the potential of the sounds. I don’t want to impose some pre-determined structure on my sounds – it wouldn’t work*”.

Audio Visual Composition can be considered a metaphorical glimpse of the invisible world: “*I found that working with video seemed to offer analogies with the acousmatic world which sheds some light on it, the world of images somehow offering a **metaphorical glimpse of the invisible world** that lies beyond Pythagora’s curtain (8)*”.

Video also makes it possible to combine « Acousmatic » sounds and « Visualized » sounds - sounds accompanied by the sight of their source or cause: in film the source of an onscreen sound appears in the image, and belongs to the reality represented therein. This combination is achieved in many descriptive films: an important historical example is *Orient Occident* by Xenakis and Fulchignoni (11), a work in which there is a good balance of acousmatic and visualized sounds². This observation can be explained, to some extent, by the fact that the piece is narrative: it was composed for the soundtrack of a film by Enrico Fulchignoni.

Particularly, in *Orient Occident* the authors combine research on two different levels: a research on sounds, and a research on diegetic/extradiegetic relationship between images and sounds. This film can be considered experimental both for its compositional processes that are both “musical” and “theoretical” and for its functional objectives, achieved combining audio and images (12).

3. Experimentalism and technology: the conjunction between high art and popular art

Experimentation has also been a bridge among high art and popular art.

This conjunction was possible thanks to technological progresses.

According to Clement Greenberg (13): “*media are exploding and turning into each other: scientific technology is invading the visual arts and transforming them even as they transform one another, and high art is on the way to becoming popular art, and vice-versa*”.

Two different streams in critics developed over time. As outlined by Rees (4, p.11):

“the first map – Greenberg and Adorno - pitted modernism against mass culture with the avant-garde leading the attack, while the second – post Bürger and Huyssens – shifts the avant-garde into alliance with at least some elements of mass – now popular – culture to tear down high modernist elitism. For one group avant-garde exemplifies high art, while for the other the avant-garde is always opposed to it. The terms switched gear, so to speak, in the mid-century. Film, and the other media related to it such as video and either scientific technologies, always occupied a curious place in these debates and distinctions, wherever the borderlines were drawn. For some its technical base and mass-culture associations undermined its actual or potential status as an art form; for others, it was simply a new medium to be added to the range of media which an artist could use”.

Amongst artists of the second map we can cite D. Raaymakers (14) who received several awards for his contribution to the development of visual arts and music in the Netherlands³. Amongst the work by Raaijmakers we can remember his film-music series: *Mechanical Motions* (1960); *Bekaert* (1966); *Sidmar* (1969).

These works, show a certain attitude in the use of the technique of analogic hardware: ribbons, sinusoidal generators and so on. They are perhaps undervalued for their originality and non-academic character/ tendency and, in some ways, as outlined in the book published by Brower and Moulder (14), are a clear representation of the fact that the posterior stream of popular art were influenced by these pioneers and that there were some tendencies of avantgarde to connect with popular culture.

4. The management of time: some examples of interest

Temporality is influenced by the way in which the sound sustains the scene, through its variations or irregularities—from the predictability of the sound with respect to the image and the time. Timbre, frequency, amplitude, and speed of sound have, in this context, an important role and a significant impact on perception. In this way the composer, can enhance some internal characteristics of a sound. It’s also clear that in many audiovisual works, it is possible to identify salient synchronization points, those that create “meaning” and “effect”, because of course there are main and secondary sync-point, and their distribution defines what can be called «audio visual phrasing» (2, p. 222).

³ In 1992 from the Foundation for Lifetime Achievement Awards for Visual Arts, Design and Architecture (BKBV), in 1985 and 1994 the Matthijs Vermeulen Award and in 1995 the Ouborg Award for his lifetime achievements from the City of The Hague. In November 2011 Raaymakers received the Witteveen+Bos Award for Art+Technology for his entire oeuvre (14).

In J.P. Oliveira's *Et Ignis Involvens*, it is interesting to observe how the temporalization depends more on the regularity or irregularity of the sound stream than on the general musical time expressed in the piece. For example, if the flow of musical notes is unstable but the general trend is moderate the temporal animation will be greater than if the pace is fast but regular.

In our own recent work *Atlas of Uncertainty*⁴ there is a remarkable use of Visual Micro-Rhythms which are “*rapid movements on the surface of the image, caused by elements such as: volutes of smoke, rain, snowflakes, undulations of the surface of a lake, sand, etc. and at the limit by the same tingling of the photographic grain, when this is visible* (Chion, 5, p. 26-27)”. In this work, this result is achieved using small drops of water that accumulate with movement of different speeds (3'20-3'44; 6'35-7'13'') these phenomena of accumulation create rhythmical, rapid and fluid values, which establish a vibrating, quivering temporality in the image itself (15).

In *Remnant* by Monty Adkins (9) a stroboscopic ball is fixed at the center of the screen, while light of different colours and speeds create a “sonic” contour:

«To the contrary a certain speed given to the image seems to affect the ear, instead of the eye, to be converted into memory in a sound intuition.

The stroboscopic effect consists of breaking down the plane into micro-perceptions.

You have the feeling then that this visual fickleness, this luminous arabesque, is a transposition, in the realm of the visible, of the sound velocity”. As Adkins stated in a recent interview (10): “*(...) with J. Payne who did the video for Remnant there was an emphasis on the slow transformation and manipulation of long lines of material and colour with very little abrupt editing. With J. Payne, we often discuss the translucency of layers – allowing what is beneath to show through, multi-perspectival approaches to our work, the use of detritus and other found objects in our work, smearing and wiping off of layers, the opacity and saturation of colour – or sound through filtering or EQ – many different things”.*

In all the listed examples we can single out a conscious use of irregular/unpredictable sounds and regular sounds. In our own work *Vana Imago* (fig.1), predictable sounds such as punctuated rhythm tends to create a time animation lower than the one created from a sound with an irregular and therefore unpredictable development that puts the ear and the whole of the alarm constantly alert: this obey to a pre-ordered idea of dramaturgy by the composers (16).

5. Metaphorical relationships between video and audio

In these examples, sound has the ability to give a sense of linearity to what could, instead, be perceived as abstract on a visual level. This function can be easily found in many acousmatic

⁴ The “hyletic” universe of *Atlas of Uncertainty* is represented by heterogeneous in-harmonic sound materials, in great part natural or electronically generated percussion sounds, explored through various techniques: granular, subtractive amongst the other. Four Classical elements, that typically refer to the Ancient Greece concepts of water, fire, earth and ether were instead used as presupposition and extra-musical factor around which the entire video was built: images were used indiscriminately and alternatively to handle very different sound phenomena. The music that accompanies this computer - generated video is a sonic continuum, ranging from unaltered natural sounds to entirely new sounds - or, more poetically - from the real world to the realm of the imagination. The sounds and the images were combined in well-identifiable gestures.

videos, where the use of abstract images is very widespread. In many videos watched for the purposes of study, temporality has been managed in the following different ways:

- “temporal animation”: sound changing the perception of the spectator, transforming it from «static» to «moving» and vice-versa;
- “temporal linearization”: sounds giving a comprehensible logic to - apparently - disordered images and disrupted actions;
- “directional properties”: the sound has the property of leading towards a predefined objective, a plausible or comprehensible end.

These three functions play an important role in the building of the plot; “directional properties”, particularly, can be used to mark the starting point and the end of panels/sections, with the aim to help the spectator to understand the structuring processes conceived by the composer.

In *Et Ignis Involvens*; *Remnant*; *Atlas of Uncertainty* the music is in large part empathetic, following the rhythm, the tone, the emotion of the presented scenes. In some Wickmann’s videos, music is non-empathetic, because it is substantially indifferent to the represented scene. The disjunction between sounds and images can take place by following different possibilities, casually or voluntarily: in the first case a perspective “à la Cage” (17) is preferred, with the possibility of random encounters, adding an unspecified meaning/sense to the visual plane.

In all the examined works, every author activate different metaphorical relationships between video and audio: conformity (18) or consistency (19; 20);

b) Complementarity (or complementation): one of the media expresses its potential dissimilarly and complementarily to the other;

c) Conflict (or contest): the two media are in conflict with each other and compete to impose their meaning: in this way the «emerging” meaning of a certain section of a work is to be understood as an interaction between the various components of the multimedia work.

6. The extension of meanings

Another function of audiovisual composition is the extension of meaning: video enriches a piece of music with extra-musical contents: poetic-literary; pictorial; biographical; descriptive. Some examples:

A) *Landscape with mirror* is a «descriptive» meditation on the body, its shadows and transparencies, which change and dissolve to the music of Ingrid Drese. A gaze reflected in the mirror witnesses the metamorphosis of an intimate landscape, dreamlike and secret. «*Guided by the form of the narrative, inspired by the atmosphere of the images, attempting to seize their meaning, the sounds intermingle and coalesce (21)*»

B) In our own work *Endless Alphabet* (fig. 1) some figurative elements such as lines, textures, circumferences and visual objects dear to Emilio Scanavino, master of the Informal movement, become the elements that populate a virtual canvas, created in digital and partially manipulated in real time. “Endless Alphabet” is the title of one of the main works of Scanavino's most experimental years dating from 1973 to 1977, during which the artist focuses on the nature of the space. The emptiness understood as an infinite field is made such and exalted by the presence of geometries that are

variously recomposed, structures «suspended» in the purity of monochrome color, in which the author's language develops, in an expressive tension carried to extremes.

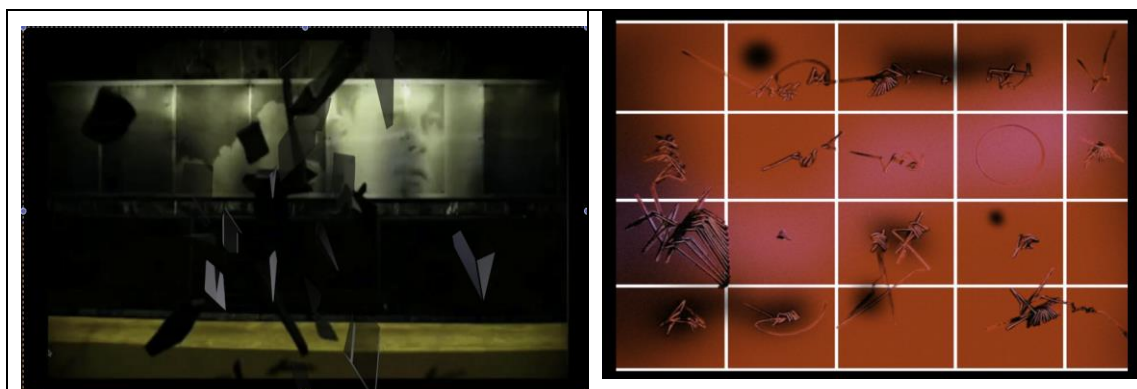


Fig. 1: two screenshots from our own works *Vana Imago* (left) and *Endless Alphabet* (right) - © M.V. Avantaggiato.



Fig. 2: Two Screenshots from our own work *Atlas of Uncertainty* - © M.V. Avantaggiato

c) Sometimes videos has also the function of sonorizing an identified environment.

Amongst the other, we cite Grossi's «Tetrafono» which is an “expansion” of a pre-existing work by Bruno Munari. Pietro Grossi was offered several possibilities: «... it would have been possible to offer multiple superimpositions of noise; Grossi prepared only one version on tape, and Munari was very satisfied with it. Listening to the work suggests the intentionality of working with elements that remain identifiable in their abstractness, so as to favour the reading of superimpositions and variations (22)”.

If sometimes the sounds allow composers to contextualize extra-musical contents and the images gradually presented, in some audio-visual composition the process is inverted, as happens in *Et Ignis Involvens* by the Portuguese composer Joao Pedro Oliveira an «audio-visual composition» that takes its title from a passage by the prophet Ezekiel (1,4). The video of *Et Ignis Involvens* moves from this extra-musical datum, which allows the composer to proceed to a complex elaboration of graphic and sound elements, elements that allow «contextualizing» the electronic percussion sounds used in the piece. Despite the rich transitions and the transformations of the graphic material, the main protagonist of this audiovisual work remains the fire, which represents the divine wrath, depicted through «a

large cloud with a dazzling fire and a glow around it, at the center of which we find a glow of metal (Ezekiel1,4)”.

The link to sacred or religious themes seems to be a constant for the Portuguese composer: in the audio-visual work *Neshamah* was inspired by a text of Genesis: “*Then the Lord God formed the man of dust from the ground and breathed into his nostrils the breath of life, and the man became a living creature (Genesis 2:7)*”.

7. The enhancement of sound details and silence

“The enhancement of sound detail” is an element that contributes to produce added value in several visual works. The concentration on details is important for various reasons:

- to fill perceptive gaps of images;
- to enhance some internal characteristics of sound of particular interest, that is, the way in which it evolves spectrally, or in amplitude, or in frequency. In the video *Hypothèse* based on the sound composition by F. Dhomont *Dènature Parmeson* (23), the objective of Ines Wickmann is finding “*a convergence between visual instants and particular sounds: between the movements of the image and of the sound morphologies* (17)”.
- to give importance to spatial movement inside images, moving from the general to the local or vice-versa: composers can emphasize spatial movements not only in the acousmatic piece, but also in the video, shifting the attention from general to details and vice-versa (24).

In other case, in audio-visual piece we can have images that are without sounds. This is the case of *La Messe de Terre* by Michel Chion is an entire Mass with its different movements: the disjunction between the image and the sound, particularly in the «Kyrie» seems to be a fundamental law of the audio-logo-visual scripture by Chion: some visual plans suggest a movement that lacks sound: the author names them «athorybes».

8. Gestures, Phrases, Discretization and sense of form

Sculpting sonic material into gestures or phrases, which are the middle layers of musical structures - involves mediation between the nature of raw sound materials and the poetic of the composer: a mediation that is not always easy and it's not immediately successful. Things, moreover, become more complicated if we combine sound and images. Gestural organization of sound objects and of visual elements can be intended as an intermediate level of «aggregation», which allow the creation of “discrete entities”. This discretization process can guide the listening and watching processes, helping the spectator acquiring much a sense of a form. To achieve this aim, composers can re-read the acoustic surface of their piece using techniques of segmentation. What J. McAdams [34] expresses for music, regarding discretization, is also valid in visual organization: “*We remember discrete entities more easily than continuous or unclearly demarcated ones, at least for the memory of structures. This does not mean that continuous variation is not important in the appreciation of musical form. It is certainly vital for expressive variation of musical gesture*”.

9. From analytical language to audio-visual composition

9.1 The use of repetition

The repetition processes in music can be identified at the level of the sound object - mini-structure, at level of rhythmic patterns - meso-structure - or at a higher organizational level: musical gesture and phrases, subsections, overall form.

Repetition at various levels, is often indicated implicitly by various analysis technique (Fig.1); only sometimes in explicit way. Amongst these, we can cite: a) Temporal Semiotic Unit, which describes the Invariant Temporal Semiotic Unit by Repetition [26]; b) Roy's techniques [27], in his functional rhetorical analysis and c) the adaptation of Pierre Schaeffer's [28] Typo-morphology by Lasse Thoresen [29]. But why repetition is so important?

Identifying repetition allows to create points of convergence or synchronization between visual moments and specific sounds, between a movement of the image and sound morphologies. An example of synchronization can be a theme or a sound pattern that accompanies the same type of image. This sound creates a special atmosphere that recalls the image and reproduces itself each time this image appears. In the same way, the dynamics, the frequency, the speed of a sound can follow and reinforce the appearances and thematic variations of the image (*Et Ignis Involvens* by J.P. Oliveira; *Atlas of Uncertainty* by M.V. Avantaggiato; *Remnant* by Monty Adkins).

Analysis techniques	Index of a repetition process
Schaeffer Tipomorfolgia	Redundant Sounds (Hx ; Hn ; Tn – Tx Special Weft)
Lasse Thoresen	Accumulation; Iteration; Impulses
Vande Gorne – Space Figures	Accumulation; Envahissement; Scintillement; Vague
M.I.M. Temporal Semiotic Unit	Invariant T.S.U. (Waves, Spinning, Obsessive)
Roy (Functional Analysis - Process)	Intensification/Accumulation; Attenuation/Dispersion
Roy (Functional Analysis - Retic)	Thème; Réitération; Affirmation; Articulation; Déviation
Roy (Functional Analysis Stratification)	Mouvement
Roy (Functional Analysis – Orientation)	Extension; Prolongement; Engendrement
Bayle I-Son	Le murmure; Le cri; Tapage; Pulsation

Fig. 3: Repetition process in various Analysis Techniques.

9.2 Analytical techniques and suggestions

The development of a video can use suggestions derived from analytical techniques of acousmatic music. They can suggest new ways of interpretation of music, increasing the overall efficacy of the whole audio-visual work. We can make four examples referring:

- A) to the term «Fondu Enchainé» (Figure d'Espace by Annette Vande Gorne). This Term was largely used in the manuscript for the making of the work *Orient Occident* (31):

00'03''	“Gènérique Début”	Generic Begin
00'16''	“Vènus tournante”	Rotating Venus
01'11''	Bas relief avec musiciens, plan general	Relief with musician - front and center
05'14''	Statuette Orientale, panoramique de bas en haut, tournant	Oriental Statuette, panoramic from bottom to top, turning
05'32''	Gros plan visage	Close-up of face
05'53''	«Fondu Enchaîné»: Bouddha aux bras: panoramique de bas en haut	«Linked background»: Buddha with arms: panoramic from bottom to top
08'49''	Archer Sarde	Sardinian Archer
08'55''	Archer Sarde, Gros plan sur Tête , Tournant	Sardinian Archer, Close-up of Head, Turning
09'26''	Etrusque tournante	Etruscan rotating
10'39''	Aphrodite	Aphrodite
10'55''	Trois Graces	Three Graces
12'04''	Statue de Rhòdes, panoramique haut -bas	Statue of Rhòdes, panoramic high-low
14'47''	Deux Santons	Two Santons
16'42''	Jambe en avant tournant	Leg in front turning
16'56''	Diane ou Aphrodite avec pommes, tournant	Diane or Aphrodite with apples, turning
18'27''	Statue Cyclades, tournant	Cyclades statue, turning

Fig.4: The recurrence of Linked Background («Fondu Enchaîné») in *Orient Occident* (30)

In the film version of *Orient Occident*, “Linked backgrounds” or “Fondu Enchaîné” (12) were largely used to describe a panoramic movement around statues, relief and other ancient figures, using a camera movement from bottom to top. Fulchignoni said “*The aim was to give the idea of an evolution, immutability, and magic permanence of the human body. These facts were difficult for the film director to achieve* (11)”.

B) to the terms «Disapparitions» (or «Disparitions»), used in the technique Figure d’Espace by Annette Vande Gorne (30): sometimes music is the engine and the impulse of the entire visual work, as happens in *Disparitions* by Ines Wickmann, on music by the composer Francis Dhomont. In this work, both images and audio are informed about the idea of «progressive visual disappearance», as told by the author of the video: “*Ici, c’est la musique qui impulse l’œuvre. Elle a été composée la première, puis proposée à la vidéaste; elle informe donc l’image. Son principe formel est très perceptible: débutant sur un «tutti» très dense, certaines de ses voies vont disparaître progressivement au cours des cinq courtes parties qui la composent, chacune étant déclenchée par un même type de son d’attaque de saxophone. La dernière partie ne comporte plus qu’une voie. La vidéo obéit au même principe de disparitions visuelles progressives; née d’un paroxysme, elle conclut par une séquence minimaliste*”.

C) to the term «transition», used by Roy, Catégorie d’Orientation (30): in «Dèrive» by Dhomont/Wickmann, the added value is provided by the prevalence of the transitional dimension. The radical use of the transition, as a poetic and technical element, imposes itself from 6'03" with a transition to an all-encompassing white background.

D) To the word «Suspension» and his contrary, «Extension», extensively used by Michel Chion. These terms are recurrent in Roy's analytical techniques: «Categorie d'Orientation/Suspension»; «Categorie d'Orientation/Extension» (28);

In our work *Atlas of Uncertainty* we can find some “suspension” phenomena:

«The suspension effect is typical of sound cinema, and represents an extreme and characteristic use, on the contrary, of the extension. Suspension is given, when a sound naturally implied by the situation, and generally heard earlier, comes to be insidiously or suddenly suppressed, creating an impression of emptiness and mystery (2, 156)».

An empty noise effect is then created, and the perception is filled with a massive, global sound, mentally associated with that visual tingling. The vibrating, and swarming surface that we see, produces a noise of images.

The importance of coordination with analysis techniques for acousmatic music was emphasized in our own writing “Audio-Visual Composition: the case of *Atlas of Uncertainty* (24): this writing tries to suggest how analysis techniques for acousmatic music can help and support - without the presumption of being general or strictly objective - the creative process for realizing any audio-visual work. This coordination can suggest new ways of interpretation of music, increasing the overall efficacy of the whole work, identifying some guidelines to exploit the potential of sound at different structural levels.

10. Social Impacts: some thoughts

The production of experimental video has an important role also from a social point of view:

- 1) a first important role is emphasizing the work conducted by a research group: in *Lisboa Reloaded* different authors, from Lisbon or with strong ties to Lisbon⁵, pays homage to a place known as the White City and features audio-visual projections of the Portuguese Capital: the video works presented shows a wide variety of expressions, both representational and abstract.
- 2) Audio-visual experiments have had an impact also on the development of some principles of open source, free software distribution, and modern licenses creative commons. This is the case of the *Home-world* poster, as well as in *Home-book* experimental works made by Pietro Grossi (22), a forerunner of generative art. The *Home-book* is a sort of personalized editorial for which Grossi created programs that ensure the graphic uniqueness of each work. One of these exemplars, a model, was presented in September 1991 at the Pecci Museum in Prato during an evening dedicated to the theoretical interventions of his artistic activity. Subsequently, he created numerous graphic programs partly intended for the elaboration of the characters of the alphabet, partly to those of geometric figures. This model, used for some improvisations with the Florentine composer and pianist Daniele Lombardi⁶

⁵ In June 1993, soundscape artist Michael Rösenberg and cameraman Uli Sigg spent ten days recording daily life in Lisbon for a radio documentary co-authored by Hans-Ulrich Werner, subsequently released as the CD *Lisboa: A Soundscape Portrait*. The opening piece on this DVD, Werner's “MetaSon Lisboa”, returns to the same material, incorporating Sigg's video footage for the first time in an evocative blend of sounds and sights that will be familiar to anyone who knows the Portuguese capital (or who's seen Wim Wenders' *Lisbon Story*), from clanging tram bells to street vendors to the planes that fly perilously low above the city on the approach to the international airport.

⁶ “Daniele Lombardi (3) has always been deeply interested in a multimedia concept of art. His education, in both music and the visual arts, has placed him in the position to incorporate sign, gesture, and sound into a unitary concept of multiple perception, through analogies, contrasts, stratifications, and associations (3)”. In 1998 he was the first artist invited by SMAC (Metropolitan System for Contemporary Art)

(32), were published in the catalogue of the exhibition *Arte e Computer* at the Central National Library of Florence. Home-art programs were made in Basic by P. Grossi using Apple's Archimedes. The subjects do not have single titles, but belong to series called for example *Flowers*, *Monsters* etc. The last sequence of *Flowers and Monsters* is from the 30th October 2001 and collects materials from previous years.

As outlined by Journalist G. Rossi, an important role was played in this direction by the Italian Television (33): *"In 1984 RadioRai broadcasted home computer programs for ZX Spectrum and Commodore 64 - The transmission of FM radio software to the whole territory of Italy is the first experiment of its kind in Europe, which stems from the pilot experience of Open, an avant-garde broadcast by Controradio in Florence. Radiotaxi's contents are many: from the Olympics to the new frontiers of visual communication - graphic computer experiments will also be done...»*

The noise of the body, of the visual, of emotions, and of gender

Sometimes audio-visual composition speaks for silenced or dissident voices: *"At other times film avant-garde emerge out of wider social movements to speak for silenced or dissident voices. Dating back to political documentary in the 1920s and on to today's cultural minorities. Their search is less for formal purity than for a new language uncompromised by the regimes they resist (35, p.1)"*. As J. Attali states: *"Many of the principal figures in these new styles come from groups traditionally marginalized, who are defined by the mainstream as "noise" anyway, and who thus have been in particularly good positions to observe the oppressive nature of the reigning order. Women, for instance, are not only strongly represented in these new modes of Composition - they are frequently leaders, which has never before been the case in Western «art» music. Instead of submitting their voices to institutionalized definitions of permissible order, composers such as Laurie Anderson and Joan La Barbara celebrate their status as outsiders by highlighting what counts in many official circles as noise. Some individuals composing new kinds of music were originally associated with other media (David Hykes with film, for instance) or have found their most responsive audiences among dancers and visual artists (Philip Glass).*

Sometimes Visual has encountered new forms of contemporary cultural expression such as Cabaret: *"The cabaret is considered the contemporary cultural manifestation of sexual minorities mostly under oppressive political and/or unfavourable economic circumstances. It encompasses witty, comic, outrageous and exuberant performances, partial nudity, cross-dressing and highly politicized messages, reflecting the spirit of their time, in a true avant-garde form of self-expression". We can cite in this case the work by A. Ferreira and the visual artist S. Echeverry (36)".*

Also in this case, audiovisual composition is a way of expression for silenced or dissident voices: images can represent something that is not representable by sounds, or using the words by J. Attali (35, p.1): *"Voices from people who managed not to be silenced by the institutional framework, who are dedicated to injecting back into music the noise of the body, of the visual, of emotions, and of gender".*

to present his multimedia work for Regione Toscana with exhibitions and concerts: at Prato (Pecci Museum), Pistoia (Fabroni Museum), and Florence (performance of the Two Symphonies for 21 pianos at the Uffizi Courtyard.

- 3) Audiovisual experiments can celebrate the difficult communion of man with nature. Here we can remember the already cited work *Dèrive* by I. Wickmann (37). Sometimes nature is cited using sound material directly derived from surrounding environments. Amongst recent works we can cite the two pieces by Japanese composer Hiromi Ishii: *Avian* (5'22''), a visual music piece related to the bio-sphere theme; and *Aquatic*. In the program notes of *Avian* we can read that the sound material is mainly represented by recordings of voices and noises of flocks of cranes which flew over my town. The visual section is abstract and is created by motion-graphics which may imply a "relation to the birds". Both parts – moving images and music part - were composed in parallel, structured along these two time-axes.

11. Conclusion

Each paragraph of the present article tries to answer to the initial question: "Electroacoustic (Audio-visual) Music: is it still a form of experimental music?" moving from different points of view.

In the paragraph entitled «**The audible and the visible**» we describe how audio-visual can combine sounds that are recognizable with sounds that are not. The great quantity of audio-visual work created in over 70 years tells us that both perspectives were used. Using video offers the opportunity to create music where small and seemingly ephemeral sonic detail become important.

In paragraph (4;5), we describe how sounds can influence temporality in different ways, that is to say through: «temporal animation»; «temporal linearization»; «directional properties». We also analyze some issues related to "temporality", referring to some recent audiovisual works: *Et Ignis Involvens*, by J.P. Oliveira; *Remnant* by M. Adkins; *Atlas of Uncertainty* and *Vana Imago* by M.V. Avantaggiato; *Dèrive* by Wickmann/Dhomont.

In paragraph (6) «**The extension of meanings**», we describe how video enriches a piece of music with extra-musical contents. Experimentation can also consist in the: a) Extensions of a meaning of a pre-existing work; b) in the sonorization of an identified environment. We underline how independently from the chosen theme, video productions represent an important opportunity, even for the less expert composer, to be able to reach new artistic goals and circulate their works.

In paragraph (7) entitled «**The enhancement of sound details and of silence**» we describe how both sounds and silence have an important impact from a dramaturgical point of view. The development of a video can use suggestions derived from analyses techniques of acousmatic music.

In the paragraph (8) entitled «**Gestures, phrases, discretization**» we says that sculpting sonic material into gestures or phrases, which are the middle layers of musical structures, involves mediation between the nature of raw sound materials and the poetics of the composer: a mediation that is not always easy and not immediately successful.

Gestural organization of sound objects and of visual elements can be understood as an intermediate level of «aggregation», which allow the creation of "discrete entities" that sometimes correspond to «semiotic units». This discretization process can guide the listening and watching processes, greatly helping the spectator acquiring a sense of a form.

In paragraph (9.1) we describe audiovisual composition structuration as a kind of multi-level composition: we describe the role of repetition, that makes it possible to create points of convergence or synchronization between visual moments and specific sounds, between a movement of the image and sound morphologies.

In paragraph (9.2) «**Analytical techniques and suggestions**», we single out the opportunity to keep in consideration analytical techniques because they can suggest some hints to composers. We report some examples focusing on some terms used by Analytical Techniques:

- a) “Linked backgrounds” or “Fondu Enchainé” (*Orient Occident* by Xenakis/Fulchignoni); b) “Transitions” in the work *Disparitions* by Dhomont/Wickmann;
- c) «Disapparitions» (or «Disparitions») in the work *Dèrive* by Dhomont/Wickmann;
- d) «Suspension» and his contrary, «Extension» in the *Mass* by Chion and in our own work *Atlas of Uncertainty*.

In the last paragraph «**Social Impact: some thoughts**», we try to describe some social function of video:

- a) the exaltation of the collective work conducted by groups of study;
- b) the representation of silenced voices and of environmental issues;
- c) the free dissemination of knowledge and the development of some principles of open source, free software distribution, and modern licenses such as creative commons: the figure of Pietro Grossi (22) is remembered.

This last paragraph shows that Florence has been for a long time an important center for the development of experimental music and has had a pivotal role across Europe: the experience of avant-garde broadcast by *Controradio* in Florence is recalled.

References

- [1] SANI Nicola, “Musica e videoarte: una prospettiva intermediale”, https://iicpechino.esteri.it/iic_pechino/it/gli_eventi/calendario/2017/11/musica-e-videoarte-una-prospettiva.html, retrieved December 2018.
- [2] COOK Nicholas, *Analysing Musical Multimedia*, Oxford University Press, Oxford, 1998.
- [3] OLIVER Ryan, “Intermedial Cognition: Towards a method for analyzing electroacoustic intermedia through an interpretation of the topoi in Jarosław Kapuściński’s ‘Oli’s Dream’.” in *eContact! 18.2 — TIES 2015: 9th Toronto International Electroacoustic Symposium / 9e Symposium électroacoustique internationale de Toronto*, April 2016.
- [4] REES A. L., *A history of experimental film and video from the canonical avant-garde to contemporary British practice*, Chicago University Press, Chicago, 2018.
- [5] CHION Michel, 2005, *Audio-Vision: Sound on Screen*, Columbia University Press, New York, U.S.A., p. 230.
- [6] ZELLI Bijan, Space and Computer Music: A Survey of Methods, Systems and Musical - Implications. In *eContact! 11.4 — Toronto Electroacoustic Symposium 2009 (TES) / Symposium Électroacoustique 2009 de Toronto*, December 2009, p. 2.
- [7] <http://www.vasulka.org/archive/Vasulkas3/Video/ArtOfMemory/WrittenMaterial/Afterimage.pdf> , retrieved October 2018.

- [8] LEWIS Andrew, “Lexicon: Behind the Curtain”, in *eContact! 15.4 — Videomusic: Overview of an Emerging Art Form / Vidéomusique: Aperçu d’une pratique artistique émergente*, April 2014.
- [9] <http://www.themilkfactory.co.uk/st/2011/04/interview-monty-adkins-composing-layers/>, retrieved October 2018.
- [10] <https://montyadkins.wordpress.com/articles/>
- [11] FULCHIGNONI Enrico, “Sur Orient-Occident”, in *Regards sur Iannis Xenakis*, Paris Stock, 1981, pp. 257-262.
- [12] AVANTAGGIATO Massimo V., “Orient/Occident by I. Xenakis: alternative analysis”, in *Proceedings of Festival Diffrazioni*, Conservatorio Cherubini di Firenze, Florence, Italy, 2016.
- [13] GREENBERG, Clement, *Avantgarde Attitude*, Sydney: power institute of Fine arts, University of Sydney, 1969, p. 1-12.
- [14] RAAZMAKERS, Dick, *A Monograph*, Joke Brouwer and Arien Mulder, 2008.
- [15] TUMA, Regina, *The Oxford Handbook of Media Psychology: Media Psychology and Its History*, Oxford University Press, 2012.
- [16] GARAVAGLIA Javier Alejandro, “Music and technology: what impact does technology have on the dramaturgy of music?” in *Journal of Music and Meaning*, vol. 7, n°2, 2008, pp.1-8.
- [17] WICKMANN Ines, “Vidéo-musique: Une Image Son”, http://econtact.ca/15_4/wickmann_videomusique.html retrieved December 2018.
- [18] CHION Michel, *L’audio-vision: Son et image au cinéma*, Ed. Armand Colin, 2013.
- [19] CARTERETTE Edward, R. KENDALL Robert, “The communication of musical expression”, in *Music Perception*, vol. 8, n°2, 1990, pp. 129-164.
- [20] LAKOFF George, JOHNSON Mark, *Metaphors we live by*, Chicago, U.S.A., University of Chicago Press, 1980, pp.1-50.
- [21] DRESE Ingrid, «Landscape with mirror», <https://vimeo.com/76884371>, retrieved December 2018.
- [22] DE SIMONE Girolamo, *Pietro Grossi. Il dito nella marmellata*, Firenze, Nardini Editore, 2006, p.74-75.
- [23] WICKMANN, Ines, «Hypothèse» based on the composition *Dènature Parmeson*, by F. Dhomont, <https://vimeo.com/19865634>.
- [24] AVANTAGGIATO Massimo Vito, “Audiovisual Composition: the case of Atlas of Uncertainty”, in *Proceedings of the 24th International Conference on Auditory Display (ICAD 2018)*, June 10-15, 2018, Michigan Technological University.
- [25] BAYLE Francois, “Image-of-sound, or i-sound: Metaphor/Metaform” in *Contemporary Music Review*, 4, 1989, pp. 165-170.
- [26] <http://www.labo-mim.org>.
- [27] ROY Stephane, *L’analyse des musiques électroacoustique. Modèles et propositions*, Paris, France: L’Harmattan, Univers Musical, 2004, pp.1-590.
- [28] SCHAEFFER Pierre, *Traité des objets musicaux*, Paris, France: Editions du Seuil, 1996.

- [29] THORESEN Lasse, “Spectromorphological Analysis of Sound Objects: an adaptation of Pierre Schaeffer’s Typo-morphology” in *Organized Sound*, vol.12, n°2, pp.129-141.
- [30] VANDE GORNE, Annette, December 2002, L’interprétation Spatiale. Essai de formalisation Méthodologique, Revue DEMèter, Université de Lille 3, pp.1-21.
- [31] SOLOMOS Makis. Orient-Occident. From the film version to the concert version. In *Das elektroakustische werk*, 2006, Germany, p.118-134.
- [32] ROSSI Gianni, Il primo esempio di trasmissione di software in Europa realizzato dalla Lega Informatica, cos’è la microtelematica” (Archive source).
- [33] <http://www.danielelombardi.it/press.html>.
- [34] BREGMAN Albert, McADAMS Stephan, “Hearing Musical Streams” in *Computer Music Journal*, Vol. 3, n°4, 1979, pp. 26-43.
- [35] ATTALI Jacques, *Noise: The Political Economy of Music*, University of Minnesota Press, Minneapolis, London, 1977.
- [36] <https://noisefloor.org.uk/visual-music-2018/>
- [37] WICKMANN, Ines, Dèrive, <https://vimeo.com/77292120>