

The sound dimension in cinema: remarks and spurs for the audiovisual didactics by Mario Lupone

Introduction

To submit to a cinematographic vision means incontrovertibly let ourselves be taken by the hand into a journey which involves senses in space and time. A flight where, paraphrasing Shakespeare “even in a nutshell we can be kings of infinite spaces”. A flight in which we are, however, benevolently complaisant towards the illusion, the deception which the means itself transmits for its own technological nature of reproduction, accepting to sign in the audiovisual experience what can be defined as a *contract*, based on the surrender and on the unconditional trust of the contractor-spectator. The cinema is an art of reproduction and as such implies, along the whole process of realization, possible forms of intervention on the material, aiming to underline, direct, deceive, manipulate the final perceptive experience. The process of realization of the audiovisual material is conditioned, since its initial design, by a series of remarks which refers to its function of use and its nature of acusmatic technological product, that is where the link between cause and source is at most implied, but it cannot represent in any case reality due to the very fact that it is object reproduced. This is also true for the listening perceptive experience. A fist never “sounds” like that in reality and the dinosaur’s cry can only be approximately supposed, since we do not have any possible comparisons. Ultimately, what I hear is not real but simply the reproduction of a sound produced by the oscillation of the final audio speaker: a mere cardboard cone which vibrates. Even in the world of the word, in the listening of a dialogue, where the approach to natural reality would sound more evident, we are used to postponing a numerous series of acoustic-perceptive incongruities and twists, to be led by the play of audiovisual experience.

On the basis of this initial remark we can suppose a possible phenomenology of the audiovisual experience where it is possible to give a renewed emphasis to the listening dimension: a dimension where we find material with unsure and changeable outlines which, more strongly than the visual experience, runs over us, submerges us and imposes itself to perception more instinctively and directly. And it is this very aspect which makes the sound be a powerful means of affective and semantic manipulation even if its scope of the survey is still relatively less explored, if compared to the remark we did about the function, meaning and technique of the vision in the cinema.

Through this analysis it is not my intention to refer openly to the analysis of the music of the visual section which someone improperly defines sound-track, but to the multi-faceted world which populates the sound experience of the audio vision (voices, noises, sounds) and which falls within the more general concept of **sound design**. A remark about the functionality of the general sound material in relation to a conduct of listening directed at a dialogical comparison with the audiovisual work. To this day, under this aspect, the sound element is often confined to a role of complement of the visual element, that it is defined as *surplus value*, that is expressive and informative value thanks to which a sound enhances the vision, to the extent of making people believe, as the theoretician of the audiovision M. Chion says, in the immediate impression we get or in the memories we have that that information or that expression naturally derive from what we see and are already contained in the simple image. Even in the field of syncrasis where we should establish the relation between what we see and what we hear, the vision, the visual world outlined by the screen frame, sets the rules of the perceptive fruition and everything develops in relation to it, even when, paradoxically, the image is absent. The sound of the cinema has always been based substantially on the supremacy of the voice over all the other present sound levels. What matters in cinema it to understand dialogues well, to the extent that even the technological developments, with a few rare exceptions, have been often directed mainly towards the search for the quality of the audio definition which favours an astonishing “effect presence”, an immersion into the dimension of the perceptive hyper-reality. That is a sound “more real than the real” to the detriment of the search for an experimental manipulation – exploration of the sound means able to free from the visual element, putting the audio matter under an alternative and driving perspective in the audio visual play

We do not even forget that the listening experience is a “plastic” experience, not only because it develops in the spatiotemporal field, but also because it leads us however to suppose a gesture/ source which produced the sound object of our listening. Even a virtual sound, produced by means of digital synthesis directly on the computer, pushes us, during the listening, to create mentally a gestural expressiveness and a generative source by operating a psycho perceptive analysis on the material and identifying, in the structure of the sound object, distinctive and identifiable elements. For example the individuation of evolutive, structural “grammars” turn out to be fundamental in order to handle the semiological process of the audio visual language. These remarks, however, would take us, in this place, too far away from our objective, by involving us in interesting, but complex fields concerning the psycho acoustic theories and the cognitive sciences.

With a future remark on a possible didactic methodology of the audio vision in mind, it will be advisable to clarify some fundamental aspects which can be summarised by a series of essential questions:

1. **what is the relation between sound and vision?**
2. **what do we have to observe in this relation?**
3. **how to identify and analyse the sound object?**
4. **how does the sound level rank compared to vision?**

It is evident that , in a hypothesis of a thorough analysis of the audio visual experience , we cannot , in my opinion, to prescind from the acquisition of fundamental elements of knowledge of the material and of the dynamics which imply the auditive experience. To consider the analysis of the sound world in the cinema as simple analysis of “sound tracks² accompanying the vision seems to be in fact too restrictive (even if it is a useful experience). The auditive and cognitive workings are not only correlated by the “ emotional” dimension of musical listening but by the totality of the relations which contribute to define a dimension, the sound one, which will interact with the visual dimension regulating, this way, the definition of the experience itself. Let’s take for example the dimension of the voice in Godard’s films, which sometimes sounds “raw” but which implies, in reality, a real functional use of it. The voice is resumed, orchestrated in the perceptive whole and dynamically outlined with precise intentionality of sign-symbol, even when it arrives to its extreme paradox such as the incomprehensibility or the descent into silence.

Le mépris (1963) by J.L.Godard

In the precincts of Malaparte’s villa Fritz Lang and Michel Piccoli are walking along an impracticable path, we hear them discussing the deep meaning of the film they are shooting (the Odyssey), the meaning of their work, of their existences, until they slowly plunge into a dark wood of Dantean memory . Their voices slowly trail off dynamically, follow the immersion which is immersion into the depths, a journey, like Ulysses or Dante, from which to resurface as in a new rebirth.

What is the relation between sound and vision?

As we said before, to answer this question means to recognize the functionality of the sound material bringing it back to a conduct of listening directed to a dialogical comparison with the audiovisual work. A series of examples taken from the cinematographic repertoire will be useful in this first phase of “focalisation” of the matter, highlighting specific relations between sound and vision.

Die hard (1988) by J. Mc Tiernan

As in most action films we are presented with an example of hyper-realistic sound design. The sound dimension is exacerbated by a microcosm , even virtual, of noises of complement, often rich in dynamics , above all in the high-pitched parts. Everything erupts, runs over us and “narcotizes” us in the totality of the perception.

Jour de fete (1949) by J.Tati

On the other side we have, on the contrary, an example of movie director “chiseller” of the sound world. The delicacy and quality, even when they are simple and essential, with which Tati handles the sound in relation to the vision, are evident in a lot of possible examples taken from his films, as the buzzing of a fly which involves in the distance a farmer and the postman, protagonist in Jour de Fete. A marvellous example of comedy based on a sole audio element skilfully set up in postproduction.

Raging bull (1980) by M. Scorsese.

The scenes of the fights of the boxer Jack LaMotta, are a real apotheosis of sensorial stimuli . The lights of the flashes which seize morbidly the dramatic moments of the match are not only blinding but resound loudly as dynamically and violently as the fists given on the ring.

The audio must not necessarily underline emotionally the vision, it can also be separated and autonomous (unempathic sound) In this case, however, the vision remains still correlated to the audio in its nature of audiovisual synthesis, a synthesis which is handled within the world outlined by the screen. The sound becomes “cosmic”, the noise-sound, or the music become archetypes , universal symbols.

Psycho (1960) by A. Hitchcock

We have a classical example in the scene of Psycho’s shower: the bloody murder has already been accomplished, but the water flows incessantly, almost careless, as if to sweep away in its flow, blood, life, death, humanity.

Of course these are only some possible examples which help us identify important elements of relation between sound and vision. A good exercise could be ,for example, to assign students the task of looking for and presenting personally

other examples taken from the immense cinematographic repertoire. They could choose precise elements of the relation (for example the emphatic or unemphatic relation, sound plausibility...) or develop a free personal research which can be connected with their own personal experiences and inclinations.

However we do not forget that the audiovisual analysis is based on the definition of sound objects and analytic categories. An activity which in any case will require a preventive exercise on the refining of the capacities and techniques linked to the listening , which cleanses the perception experience, sharpens it and makes it clearly conscious. It would be convenient to learn again how to “listen”, by doing exercises linked to the sound material, paying attention to the experience of listening, digging up that sensibility , debased heritage of our anthropological –cultural history

What do we have to observe of this relation?

To submit the experience of the audiovision to an activity of analysis means first of all to clarify what to observe in the audiovisual relation. I can , for example, concentrate on the identification of the link between the sound and its generative cause (**causal listening**):

“ Who framed Roger Rabbit” (1988) by R. Zemeckis

Interesting example of commixture between “plasticised” sounds, typical of the sound-tracks of the cartoons and the sounds of the “ real” world, of the human beings. The generative causes, sources of the sound produce different sound objects. In a film like that the work of sound design aims at underlying the difference of the two sound worlds, above all when they meet and bring the human characters in contact with cartoons

As we have already said the experience of the audiovision is always an experience of “reconstruction” where plausibility is more important than reality. The cry of a dinosaur , the laser sword in the Star Wars saga are illusions/allusions which we pretend to believe in since we signed what we have already defined as an *audiovisual contract* .We second the audiovisual experience helped also by the processes of perception and cognitive psychology which lead us, for example, to reconstruct the link source/ sound even in case the first is not visible.

24 “Hana-Bi (1997) by T.Kitano

A play of sound imagination, of virtual connection between source and generative cause: we do not listen to the request the little grandson whispers in his grandfather’s ear, but we hear his sorrowful answer. Unfortunately it is not possible to hear, at that moment, the sound of the bell of the Buddhist temple, but soon after, when the level of vision frames the two characters walking towards the exit of the temple, we listen suddenly to the bell ringing. Who rang it? Since we saw the protagonist sitting, looking at the scene, logic has no doubts, but nothing can confirm that supposition.

The analysis can also draw attention to the semantic elements which are present in the audiovisual experience (**semantic listening**)It can consider, for example, the use and the articulation of the elements which can be correlated to a specific, communicative code or to a language of reference. Let’s think, for example, of puns as comic elements, of the foreign or “ ethnic” accents typifying some characters , of the typical technical language of war films.

“Top Gun” (1987) by T.Scott

Let’s try to think of what we would be able to understand of a film mostly based on air scenes of war if we had not acquired a whole series of codes about this kind of language. Such affirmations as “roger”or “ at 12 hours” would be completely incomprehensible. To remark this particular aspect in the listening conduction means to put the stress on a semantic question linked to a specific typology of experience of audiovisual listening .

Under other circumstances the analytic listening can underline the archetypal nature, symbolic of a sound-noise, that is considering the sound objects as elements which arouse a particular sensation, a characterising moment, expression of a shared and recognized emotional state of mind (**referential listening**). The wolf’s howling plunged into the darkness of the night must certainly be considered as a sinister foreboding of misfortune and danger. But such a symbolic-referential characteristic can also be referred to a general musical or sound sequence which characterises an emotional state of mind typical of that specific audiovisual experience.

“Jaws” (1975) by S. Spielberg

A repeated intelude of strings which went down in the history of the cinema as symbol of imminent danger. It is interesting to note how in this film the vision deceives and sets traps of suspense the hearing, on the contrary would unveil: the shark’s appearance is announced only by the oppressing sound of the strings.

A further possibility of analysis introduces another important aspect linked to the sound morphological characteristics, that is to the perception of the sound as material, as sound object, with its parameters and its evolutive dynamics (**reduced listening**).

From the experience of the French P. Schaeffer's *musique concrete* at the end of the forties, the will to plunge in a concrete sound reality opposed to a symbolic and preconceived faculty of abstraction has become apparent, enhancing the exploration of the sound object and of its intrinsic nature, as dynamic element, with its own parameters, plasticity, directionality and morphology. Thanks to the renewed interest of a sound universe to be discovered, even the sound dimension acquires a new light. It becomes an object endowed with richness and potentiality enhanced by the electro-acoustic analysis of the sound. The spectromorphological analysis, consolidated by Dennis Smalley's theories, fostered a remark on the deep nature of the sound, on dynamics which structure its existence and on the relative perceptive and cognitive mechanisms which are correlated to this existence. To be able to analyse, describe and represent the complex morphologies, even the electronic ones, meant to strengthen our perceptive sensitivity, to hypothesize links between sources, causes and gestures generators of sound, to analyse and to be able to describe the appearance of the sound object from its birth to its extinction. The sound experience which will develop as a consequence of this conscious remark will be no more superficial, limited, naïve, but, on the contrary it will be able to have the necessary means in order to become a conscious and mature experience. Before venturing into the procedure of audiovisual analysis, we move on to analyse the aspects which make possible the analysis of the sound object and of its spectromorphological dynamics, considering it as the main element endowed with identity, the linchpin of every activities of sound identification and classification.

How to identify and analyse the sound object?

The activity of electroacoustic analysis enabled to identify and highlight in sound those fundamental elements which regulate its spectromorphology, ultimately its evolution in the course of time. The **sonogram** represents technically a "X-ray" of the sound from which we can see the evolution of its main components (spectral content, dynamic wrapping)

The audiovision experience is however an experience which, at least at the beginning, is based on the immediate sensorial perception which is not supported by elements resulting from electroacoustic analyses which can direct the interpretative – analytic activity. It will be necessary, therefore, to try to focus our attention on the sound element as derived from the listening experience, above all after a thorough exercise of perceptive refining, trying to identify those intrinsic characteristics which define it as identity, govern it and, consequently, relate it to the image. The analysis of the sound material, even of concrete nature, involves obviously also the connections with cognitive and perceptive processes. If we use the term language in the widest sense of the word, as we do in music for example, it seems reasonable to admit, as Schaeffer said, that we can learn also the *language of things*. We trace the sound back to a hypothetic source which produced it through the characteristics of its parameters, because this is our experience and apprenticeship, identifying some qualities which, if they are well framed and focalised, push us towards a new consciousness of identification of the object. Starting, therefore, from the definition of sound object as element endowed with its own identity which can be analysed and defined, we can detect from the process of analysis derived from listening:

spectrum	it identifies the spectro- frequency nature of the sound in relation to a hypothetic scale of reference which, starting from the single vibration, moves from harmonious spectra to inharmonious spectra until it arrives to the noise
wrapping	it defines the dynamic evolution of the sound object in the course of time (<i>cue, support, decay</i>)
gesture and direction	it supposes a sound generator gesture (even if its nature is completely virtual) and indicates its tendencies of motion in the representation that the interpretation of perception suggests us.
Texture	it indicates the density of the sound material, the texture developed in the course of time
Space	it defines the space dimension of the composed and reproduced space where the sound object "lives". Obviously also the consideration of the listening space (what place I live in during the listening experience) is essential for a correct definition of the space relating to that sound object.

To concentrate on listening within the audiovisual experience means, therefore, to identify and define the elements characterising the sound object : we do not confine ourselves to a superficial " emotional" analysis, but give these elements their meaning in relation to the functional use they have within the audiovisual frame. To identify the internal elements of the sound object means to think over the consequent logical connections it develops in relation to the vision, remark which, afterwards, will be able to benefit from further elements deriving from a precise electro- acoustic

analysis of the sound. From this exercise of acquisition of consciousness we can draw therefore a procedure which will help us compare the experiences, providing us with the instruments apt to identify and define the various sound objects in relation to their morphologic nature and to their consequent utilization functional to the audiovisual experience.

How does the sound level rank compared to vision?

Let's consider, now, the question of sound fields, in the same way as the possible levels of visual shots are analysed. The definition of a space-time where the audiovisual narration develops, implies a "place" inhabited by sounds and introduces the first definition of

Environment the sounds-territory which live in the represented surrounding space

Children of a lesser god (1986) by Randa Haines

The crickets' texture accompanies the decisive moment of the film when the two protagonists made it up again, renewing their love. Vibrant violins are not necessary, the insects' cry becomes a bed where the emotional stress relaxes.

The other possible fields present within the audiovisual frame place themselves within the environmental sound field; we can therefore speak of

In shot the relation sound-source is clearly evident and correlated to vision

Mon Oncle (1958) by J.Tati

Still the French movie director's sound refinement he expresses when outlining with care the sound dynamics of a contraposition between world and social classes. It is sufficient to note, for example, how carefully Tati underlines the train of people along the stone path, inside the court of the bourgeois detached house. The silvery flick of heels resounds like the ladies' ringing voices. Most interestingly, the sound of the heels was produced by recording a ping-pong match in postproduction.

Out of shot the source producing the sound is not visible (acusmatic sound)

Indiana Jones and the last crusade" (1989) by S.Spilberg

Amusing gag played on the effect of the out of shot sound. An inoffensive employee is at the centre of a perceptive illusion: his stamp resounds with heavy strokes because, in synchrony with his movement, Indiana Jones hits the floor of the nearby room with a heavy metal column to slash his way into the subsoil.

Universally we are used to distinguishing, in the field of the experience of audiovisual analysis, between *diegetic and non diegetic* sound (also said *extradiegetic*) to differentiate a sound source correlated to the space-time of the audiovisual representation from another one which has, on the contrary, no relation with it. This situation is expressed by the sound

Off the sound object correlates with a source which is not present and non diegetic

"Apocalypse now" (1979) by F.F.Coppola.

An initial introduction of the film which leads slowly to the dreamlike, feverish dimension of a space-time dissociated from the contemporaneity of the story and of its narrative dynamics. Internal voice out of time, sounds and noises which populate a visionary world and with an altered state of conscience.

The internal sound can however be also diegetic classifiable as

Internal subjective sound, physical or mental, correlated to a visible source.

"Hilary and Jackie " (1999) by A. Tucker

There are a lot of examples in the cinematographic repertoire where physiological sounds become internal psychological resonance. The breathing, the technical movement are full of intensity in this scene of Tucker's film

where the leading actress, famous cellist, is seized during the concert by a sudden and violent aggravation of her illness.

Finally, let's consider a situation in which the sound level is defined with an English term

On the air the sound object is reproduced and diffused by mechanical instruments.

The Matrix (1999) by A.e L.Wachowki

The dimension of technological media represents the context where the story develops, hovering between two parallel worlds (the telephone is, for example, the door which connects the two dimensions) . This nature is already affirmed in the initial presentation becoming the pivotal element of the story: a telephone conversation hints cautiously at the events which will affect the protagonist and will form the central plank of the whole story.

In conclusion, the experience of audiovisual analysis can be considered as a useful experience for educational aims as it provides the necessary instruments for a correct use and interpretation of the audiovisual communicative experience, increasing perceptive, analytic and critical sensibility and providing elements to acquire conscience and consciousness in relation to the use and function of the means. All that also in an attempt to revalue a culture of listening to oppose to a prevailing culture of the vision, also providing instruments of close examination which can turn out to be useful to a development of the audiovisual creative sensibility. Trough a word pun: to break the hegemony of the vision to give imagination its freedom , in a media – technological context where we' d better think of being subjects of *intercreativity* rather than objects in *interactivity*.

Mario Lupone. Composer and sound designer. He is the author of musics realized in context which range from dancing to theatre, multimedia installations, video art and to experimental music.

Promoter of the diffusion of technological-musical culture, he has published essays and realised important collaborations with several artists and institutions. (New York University, Computer Art Lab CNUCE/CNR-Pisa, Xear/Zone Gemma, Pentalogos, Académie des Beaux Arts de Toulon, RAI3, La Città del Teatro – Cascina) . He carries out an intense didactic and seminar activity and is a teacher of *Multimedia Composition* at the Music Institute in Lucca, of *Sound Design* at the Accademia di Belle Arti in Carrara, and of *Composition and new technologies* at the Istituto Superiore Artistico in Lucca. He is a member of *Xlab-digital factory* concerned with the promotion and production of digital synesthetic arts .He adores his old Alfa-Romeo sports car. He hasn't got Pod