

**Diegetic sonic behaviors applied to visual environments,  
a definition of the hybrid sound object and its implementations**

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## .>Introduction

*'The most minimalist film consists of two different images that tell a story through their juxtaposition. This story is born in the mind of the viewers and can be interpreted in a variety of ways. The new creation of filmmakers who work with found footage is based on the montage of images which did not originally belong together and which now tell a story that was not inscribed in the original material.'*

Gustav Deutsch

*Über Gustav Deutsch(DVD)*

**We live in a world full of images.** The acquisition of new media awareness can be related to the constant development in the field of technology and how the artists use such facilities as mechanisms to express and manifest their personal views. As a consequence, the movement of modern visual culture has created new formats for new audiences. One possible explanation for this phenomena can be the massive distribution of digital technology, the access to specific software and hardware, and, finally, the presence of media providing spaces for the a broad and diverse audience.

At the same time digital audiovisual culture has experienced an exponential development as a result of the almost omnipresence of visual stimuli in daily life. From simple types of entertainment as TV, video games and internet, to more complex levels of interaction, visual culture has provided modern societies with a powerful tool to embrace images and, as a deep contradiction, virtual realities. More and more data management has transformed the way our eyes see and how we perceive the world around us. The new visual formats in digital art have broaden our general concept of multimedia and have provided solutions for the use of technology as artistic tools.

We experience the present struggle in re-defining new formats in art. Today we use words as installation, video art, performance, experimental visuals, interaction and internet art to define the different tools present in multimedia art. Such names have been created in order to make a delimitation of the diverse ways digital visual art has been presented to the viewer and the artists alike and, in a strong search for reference, help to experience this dynamic re-definition of art; the hybridization of formats inside such manifestations has allowed the expansion in the technological resources available for the artists and a deep revision of the language used to create them. It is my own experience with these new formats in digital audiovisuals the starting point for the present work.

**Montage is the order within the visual environment.** Therefore, a close understanding of how time is expressed inside the visual environment and how a fictional space is generated due to the development of the film story is a powerful tool to create more complex and interesting sound designs. Montage, as the implicit order of film reality, generates a reference to sound and silence. The sound objects manifested explicitly on the screen, the voices and dialogues, the incidental music, the effects, all of them are part of a overall structure aiming to provide the viewer's with a possibility: to create within himself a narration, partially generated for the pictures, partially expressed by the intention of finding meaning to the sound and images. In this direction, electronic music provides new dimensions to the images, because the possibilities for redefin-

ing what meaning has a sound inside the film are virtually infinite. At the same time, the study of sound inside the montage can be an important element to develop new approaches to the drama implicit in all narrative films. Moreover, to free sound from its traditional use has been one of the most interesting improvements in the history of cinema and, so far, still redefines how we perceive objects and actions inside the screen.

**Sound Objects can be enriched by the use of new technology** and by reinventing their use with the images. The sound design, as a manifestation of the film reality, still has many different possibilities and, therefore, should be taken as one of the key elements to generate a narrative context for the images. The aim of these thesis is to explain my personal approach to the issue of how montage and narrative content can be used as a main reference for generating digital soundtracks and to explain the different solutions I have used with that idea on mind.

**Two are the main sections present in this text:** the first one related to the elements that I consider are the basis for implementing and creating electronic sound inside the field of narrative audiovisual environments and, secondly, how these new object can be expressed and shaped in time as a coherent material interacting with their visual sources. I decided to call these sonic objects '*hybrid sound objects*' as they include within themselves different elements taken from the three so-called '*classic*' levels of sound in cinema: dialogue and human voice, sound effects and music. Giving priority to the second and third elements, these objects can be traced in different audiovisuals traditions and have been named in different ways.

The first part of the text deals with the theoretical frame of sound inside visual environments. Within first section I present the three main elements used in my own work with images and '*electronic*' music: audiovisual montage, film analysis and the creation of sonic behaviors for narrative films. Each one of these elements have proved to be the best way to understand the '*hybrid objects*' and to implement them inside the narrative audiovisual environment. In this section I include different descriptions of some particular qualities inside the '*hybrid sound objects*' like its capacity to move between the cinematic reality, their inner coherence on behavior and their tendency towards sonic stability based on different parameters as timbre and duration. Finally, a detailed description to how these objects affect the content of the cinematic image. Second part is an exposition of the different implementation of the '*hybrid sound objects*' on my own work. During the last two years I have exported these theoretical ideas to generate soundtracks for two silent movie and a series of small videos.

The choice of silent movies responded to the need for a narrative visual environment to try out the implementations of the research. This way, I made the music for [Santa], a reconstruction for a 1918 Mexican silent classic and '*Ménilmontant*', a beautiful avant-garde French film from the 20's.

This decision for early visuals gave me a particular framework to develop my ideas. The cancellation of dialogue provided a magnificent advantage as I was able to deal with only two elements of sound layer: sound design and music. To have the isolation of speech has been, so far, a lucky issue that overwhelms my

expectations. I am sure that the understanding of the '*abstract*' layers of sonic material in film has paved a firm basis for further research in the field of speech and voice within the hybridization of film sound.

Furthermore, the type of approach used for writing the soundtrack gave me many clues of mistaken ideas and lightened points dismissed from the research. This way, I was able to '*isolate*' those problems by creating my own visual environments to convert them to a '*cinematic*' reality. As a result, more and more I have felt secure to move into the visual generating side of the research. Is my desire to provide in this text a solid theoretical basis as a starting point for further work in the field of electronic music and audiovisuals.

## .>Chapter 1: history of montage on the narrative audiovisual environments

### 1.1.concept of montage

The relationship between sound and image as a correlative sort of events is one of the most crucial and interesting aspects of modern multimedia art. As a result of such process, the audiovisual presents itself as a rich, complex and versatile format full of creative possibilities. One of the most important questions is how the overall structure of an audiovisual environment depends in the small fragments of visual and sonic materials and how they are put together to generate a single object. The process that involves the editing of different cinematic layers is called film montage and is the most important tool for creating a narrative audiovisual.

Montage is defined as the process of selecting, editing and putting together separate sections of visual and sonic material to for a continuous whole. The hierarchical leveling of montage is based on two concepts, the cell named shot and the most basic grouping, the sequence.

In the next sections we will deal with the main schools of montage and the way different filmmakers have faced the issue of constructing a visual narration. Bering in mind that montage is the heart of the visual creation, we can point that an interesting editing can provide the needed information in order to express visual information and, at the same time, re-shape the audiovisual environment with new meaning and artistic directions.

### 1.2.Russian montage theory: from Eisenstein to Vertov

The Russian formalists were the first filmmakers to exploit in a theoretical level the concept of montage. By proposing a '*poetic*' development inside the film as a parallel process to the verbal gesture, these early attempts sought to '*verbalize*' the poetic content of the images and to give a use to the meaning that explicitly those images evoked. It is in this context that the montage as a process of narrative structure was born.

The first fine examples of this process can be seen in the work of director Yuri Tyanianov who used montage as a creative narrative process similar to that of dialectics inside written texts. He compared the use of '*counter-field*' as the function of '*verses*' in poetry and made serious attempts finding equivalents in cinema for other poetic structures such as '*epithet*' and '*metaphor*'. In this context that the visual environment is seen as a result of gesture similar to the process of speaking and declamation used in speaking and verbal language.

Taking the works of Tyanianov as a starting point, several directors attempted to research in the field of film montage. Led by Lev Kuleshov, those first attempts were seen as more rigorous experiments in film editing. Following the principle that considered as the essence of film dialectics the use of montage, Kule-



shov tried a more scientific way of placing the cinematic fragments together, and less dependable on intuition. It was after a series of experiments in this field that Kuleshov came to the creation of several theorems explaining the principles of montage and its basic organization based on a process of intermixing visual cell: the organization of the cinematic material based on the concept of image A cut bound to the image B in order to create a third concept, C. Kuleshov also made attempts in theorizing sound and image interactions saying that the imposition of *'different sonic and visual events together might lead to a new reinterpretation of both as their meanings would melt into something new'* (Bordwell 1996).

Following the steps of Kuleshov, Russian director Sergei Eisenstein explored the expressive qualities of montage. Taking as a starting point the idea of film editing as a *'science of cinema'*, Eisenstein experimented with different editing techniques and made specific classification of them. Names such as *'intellectual'*, *'metric'*, *'rhythmic'* and *'tonal'* were used to specify the content and procedures involved in each one of the montage techniques.

Eisenstein, as Kuleshov, made several attempts in doing a theory of interaction between sound and image. The editing made for his film *'Alexander Nevsky'* (1938, music by Sergei Prokofiev) followed the idea of a rhythm based on preexisting musical and to give a new definition to incidental music. For him, the musical event had to be specially made for specific types of images and montages, and not used as incidental material imposed over the visual motion. In a serious, methodic way, he discovered that a film cut can be made metrically and be related to a musical internal rhythm and beat. This process might lead to the creation of deep impact on viewers and to provide a new dimension to the idea of *'cinematic rhythm'*. Having these ideas in mind, Eisenstein confirmed his belief that the edited images can create a *'tertium quid'* (third thing) able *'to move the whole, greater sum of all individual cinematic parts the film'* (Cook 1996).

As with Kuleshov, many ideas presented by Eisenstein have a clear marxist influence. Based on the concept that editing and montage are originated by the *'collision'* between different shots, Eisenstein pointed how the processes of *'thesis'* and *'antithesis'* are applicable to the principles of cinematic space and time. This conflict is created by the different scales of volume, rhythm, motion and conceptual value implicit on the image.

However not all Russian formalist agreed with Eisenstein's concepts. Contemporary filmmaker Dziga Vertov stridently criticized Eisenstein's commitment to narrative films. Of course Vertov shared a lot of concepts with Eisenstein, even using a lot in his procedures to apply different types of editing in the film montage. Nevertheless, his early attempts in formalizing the camera freedom led him to documentary cinema as the ideal way of presenting the *'life caught unaware'* (Cook 1996). His acclaimed film *'Man With a Movie Camera'* (1929) took the idea of montage to lengths beyond Eisenstein using frenetic editing cuts. This way of working remained unmatched until the era of music video clip.

The last of the three prominent Russian film theorists, Vsevolod Pudovkin, also reacted against many of the Eisenstein's ideas. His approach to montage starts by taking the smallest cinematic cell, the film shot, as a basic representation of the overall reality of the film. For him, this cinematic reality can be configured from the most *'explicit elements of the image and depend only on how the visual parts are explicitly*

*presented and which type of information is generated by such nesting process*' (Sonnenschein 2001). Configuring the fictional reality becomes, for Pudovkin, the main goal of the film narration; the montage turns into a building block where the whole structure participates in the creation of a fictional representation of a narrative world. Pudovkin specifically remarks that the explicit fictional reality needs to provide a non external background of the material. In other words, when the implicit and explicit content of the shot are presented in a coherent montage, the stream of the cinematic narration can start to provide the viewer with its content. The final goal of this fragmentation process of scenes into shots is to create a more present narrative structure far beyond the specific qualities of each one of the small raw shots. When the explicit visual information uses all this nesting cuts and editing techniques, the elements of the fictional reality become fixed and those small pieces are recombined into selected and configured sequences. By *'shortening and lengthening them according to specific criteria, the director builds up his own cinematic space a time'* (Sonnenschein 2001). For Pudovkin the freedom of the shot provided another freedom to the overall structure of the film.

### **1.3.French New Wave: from Godard to Rohmer**

Working between 1958 and 1965, the New Wave of French directors made many contributions to montage technique. One big part of such contributions was made in the field of sound and its interaction with the images. The New Wave main discovery was the use of direct sound in location and its further use as a key source for the final montage of the film. This process can be explained from a sudden transformation in the mechanical devices used for sound recording and its uses in cinema. During the 50's most of the sound recording techniques changed from optical devices to magnetic and, in the field of cinema, 35 mm sound with a power supply to battery truck location shooting. As a direct result the way to record live inputs in shooting evolved but still required a large amount of equipment. But, despite this fact, filmmakers had a choice between location recording and sound sync and post-production at the studio.

Of course the new generation of directors was influenced by these technological improvements even though the slow process for its implementation. Indeed, it took some time before young directors had access to the new equipment and most of the sound technology had to wait several years before it was available for most filmmakers. However, most of them were aware of how useful the new equipment would be to provide new dimensions to sound design and dialogues in cinema. The possibility to record live sources gave a special quality and density to the sound and as a consequence in many ways the New Wave anticipated and pre-figured the technical revolution of sound design.

The *'Nagra 3'*, a portable tape recorder machine used for cinematic proposes, was introduced in 1958 and became a standard tool for direct sound recording. As a result of such introduction a new awareness in sound recording slowly developed into filmmakers. This can be explained in the fact that with these new technologies directors were able to record direct sound without the hassle of carrying heavy equipment.

Nestor Almendros summarizes these technical developments by pointing that *'the freedom of the film sound is also the viewer's freedom, and by improving our ability to listen, we sharpen our ability to look'*. (Almendros 1984). The presence of portable recording machines allowed directors to capture all sounds

of the city, streets, empty spaces and to establish a kind of equality between all the 'sonic elements' of film. The murmur of big cities as Paris now became as important as the film's music as it blended with the dialogues in a natural way. Later Godard would push this idea to the extreme by masking what characters were saying with other sounds. This way concrete, real and exterior sounds obscure the speech and prevent a clear understanding of the words spoken. New Wave approach to this new technology enabled sound to have a radius of action so large that covered what is both in and out of the frame. This extreme approach led the New Wave to combine and compose sound tracks from natural elements, the concrete and trivial components of everyday life. Directors of the New Wave played with this idea of the off-screen sound and exploited it to the extreme; the so-called 'sound pollution' appeared to make thicker sonic events on the images.

Clear examples of this sonic idea can be seen in Jean Luc Godard's *Breathless*(1960) . Most of the movie was shot without sound using a non synched guide track, whereas Godard made the post sync by recording the sound and dialogue in bits and pieces. To achieve a 'live' effect during shooting, he whispered the dialogue so the actors would appear to be in lip sync. That is the reason why on the film we seldom see the characters speaking directly to the camera. As a result Godard developed several numbers of editing tricks in order to add a complexity to the simple sounds: voice-in and voice-over effects, an angle shooting in which characters are rarely seen as speaking and specific types of cutting the scenes. This creative way of using editing and montage in *Breathless* was a direct consequence of the limitations in sound recording and the limited access to hardware on which the production faced. However, it is amazing to see how Godard managed all these impediments and turned them into artistically valuable elements of the film. We can say that these *'limitations were in a certain extent responsible to the sense of innovation that the film had and contributed to its success'*(Temple, 2004).

Oppose to the way Godard approached the sound issue Eric Rohmer was extremely rigorous in the use of live recording: the sound that appeared on the film should be the same sound recorded during the take. This way sound is used to establish the climate of the film itself and becomes a separate character. For Rohmer the beauty of sound has an origin in a deep authenticity and is inside the reality proposed by sound that slow visual reality intrudes the narrative direction of the story.

From an aesthetic and financial point of view the way in which New Wave filmmakers used sound editing had a lasting effect of French films. The different methods used by them on location, very economical as they eliminated post-sync work and studio rentals, were in nearly all the aspects the same as those in use today and had a deep influence in later cinema schools of minimalism, video art and dogme95.

#### **1.4.the film resonance in the work of Andrei Tarkovsky**

The work of Russian filmmaker Andrei Tarkovsky is a clear example of how montage can be integrated as a whole with sound editing and complex camera shooting. Tarkovsky is very clear about his own idea of montage as he rejected the concept of manipulation over the image and the excess in film editing to distort the film fragments. In his book *'To sculpture Time'*, Tarkovsky expresses his opinion in this regards: *'I am radically opposed to the way Sergei Eisenstein and others used the frame to codify intellectual formulae.'*

*My own method of conveying experience to the audience is quite different. As Eisenstein makes through as a despot, it leaves to 'air' nor 'space', nothing of that unspoken elusiveness which is perhaps the most captivating quality of all'*(Tarkovsky 2005). Tarkovsky's main critic about the methods developed by Eisenstein is that they forced the linking of the images in order to create an '*artificial effect and to bound concepts where otherwise had none*' (Tarkovsky 2005). Facing the same problem, he applied the concept of '*artistic reasoning*' to the creation and editing of his films. This approach is more evident starting from his film '*Andrei Rublev*'(1971) where Tarkovsky worked with the idea of unveil relationships between the moving images and the events rather than imposing meaning to them. Naming this method of working with film as the '*resonance*' most of the montage is expressed as a flowing whole heavily dependent in long shots and complex movements inside the visual frame.

It is an evident influence of poetry and literature structures in the way Tarkovsky worked the motion in his films. Having as a reference the internal logic of the Japanese haiku poetry where very different images are combined to form a whole much larger than the parts, Tarkovsky sought a method to bring new perspective to the viewer by unmasking the small events inside the screen.

Another of the most interesting aspects of Tarkovsky's films is to see how he attempted to export this idea of '*resonance*' to the field of sound design. Taking as a starting point the denial of the need of music, Tarkovsky considers that the sound event inside the image is not needed as long as it is living outside the cinematic '*need*' of the film. Going as far as to say that '*I don not think that cinema needs music even though is always there*'(Tarkovsky 2005), he put special attention to the collision effect generated when parallel sonic events were bound to particular meaning inside the film, thus providing the emotional content of what was presented on the screen. As a result, music becomes a subtle element flowing inside and towards the images.

Tarkovsky also formulated the idea that the development of sonic material was subject only to the laws of its own by demanding a particular type of expression and avoided the patterns of logical speculation. Thus, the '*poetic reasoning*' finds a deep echo in sound and becomes much closer to the laws that shape music as something outside the generator of parallel drama. For him, music and sound were important components to express the deep meanings of motion and space inside the film. Following this idea, the sonic montage is, in most of his late films, something that is part of the landscape and not one imposed by external processes into the images.

Tarkovsky's main critic to artificial sound designs imposed over the visuals is based on the fact that in the moment we subtract the sound suggested by the visual world as it appears in first instance and we fill the images with new sonic events that are partially or completely outsiders and that are in a certain degree distorted, we provide a new meaning and thus a new resonance to the film. The fact that such processes or objects are present in many modern cinema gives us the clue that the conception of '*music*' and '*sound*' itself is changing and is acquiring a new meaning and once we have deep understanding of the visual material, we can find patterns that give the clues for building new sound structures inside the film.

As a consequence of his ideas, Tarkovsky integrated electronic music to three of his movies: '*Solaris*'(1972), '*The Mirror*'(1974) and '*Stalker*'(1979). Working with Russian composer Eduard Artemiev, Tarkovskyy mixed elements of concrete and synthetic sounds. '*Solaris*',for example, displays a series of electronic sounds amplifying the psychology of the main character, desperate to recover his dead wife. '*Stalker*' is based on long shots, traveling movements of the camera and static dialogues about the nature of the human nature and knowledge. In most of the movies Artemiev's soundtracks are based on nostalgic sounds and dense drones helping the long sequence shots.

### **1.5.editing and rhythm inside the Dogme95: Lars von Triers**

In 1995 Danish filmmakers Lars von Triers and Thomas Vitenberg launched the *Dogme95* manifest, an aggressive attack towards the excesses of commercial cinema and an attempt to create a framework for '*cleaning the essential elements of cinema that are at particular risk in big-budget productions using cutting-edge technology*'(Yvonne Tasker, 2002).

Such manifesto is basically formed by different '*vows*' of aesthetic purity based on technical specifications on the possible procedures to shape a film and some technical specifications. The manifesto also includes some suggestions about the content in feature films. In general we can point that the methods suggested are based on a naturalistic approach to the art of cinema. *Dogme95* uses as its main tools the intrinsic elements of film itself: light, movement and direct sound. Thus, this type of aesthetic has a deep hyper-realistic content promoting a more emotional and natural way of catching narrative reality.

When we talk about the way *Dogme95* faces montage, the first interesting thing that we face is a deep nihilistic attitude. This naturalism affected of course on the concept of sound in the film, or, more to say, how sound was put as a mere element of decoration and how any kind of special effect was persecuted by the filmmakers. The source of films is always *in-sito* giving special attention to the direct sound. The direct consequence of this lack of montage is, of course, the cancellation of any layer of sound outside of what can be recorded in the moment of the shooting. That has led many movies of this movement to a kind of sonic aggression and the absolute absence of any external music. Sound design and music are considered as the same level and consequence of other cinematic elements.

One interesting example of this aesthetic is the idea of '*music*' as an element belonging to the fictional reality. Some dogme95 movies have realized their own needs for music outside the incidental sound design. For such cases they have created a kind of indirect soundtrack; the presence a musical device or object that, implicit in the shoot scene, and it provides an extra sonic information not necessarily related with the action of the narration: radios, musical bands, characters singing, etc. In an extreme case even the sound of the editing cuts can be used to add a dramatic sound to the images.

### 1.6.the noise perspective: Walter Murch and the sonic director

Walter Murch is considered one of the most influential sound designers on film history. His methods of working and his dual participation both as an image editor and re-recorder mixer have given him the informal position of director in the post-production. Even more, his complex sonic designs have made him the direct responsibility of the amazing growth that sound montage has achieved for the last two decades.

The starting point for his astonishing career was the co-writing, editing and mixing for George Lucas' film *'THX-1138'* (1971), where he created one of the finest examples of sound designs until the day. So deep was the relationship between image and sound that Lucas himself defined Murch's work as *'the second soundtrack of the movie'* (Kenny 1998). After that, Murch worked in Coppola's *'Godfather'* (1972) trilogy and *'Apocalypse now'* (1979).

Most of the work developed by Murch in the past years has been classified by himself inside the concept of *'sonic immersion'* and can be described as an holistic approach where the sound gets bound to the image in order to create an *'ecosystem of sonic nets'* (Murch 1996). Following this idea, the sound material is based on sonic segments that affect deeply on the meaning of the images and the spatial movements to which they are bound. For him, such immersive processes work in different levels for the viewer allowing the *'riding'* of the audience into the film.

Another important element of Murch's language are the osmotic processes for incorporating techniques borrowed from contemporary concert music, specially that of minimalism. Some moments in his sound designs remind the motion created by the series of Steve Reich's *'phases'*, while high densities are similar to those of Penderecki. We need to add that many of Murch's approaches to sound are *'unconventional techniques based on ideas outside music, finding its roots in a more dramatic idea of development. One fine example is the idea of spending a certain period of picture editing time not to listen to sound at all'* (Hilton 1998). This way of working can, ironically, be a great reference to the sound on the film as silence is, for Murch, a powerful tool to break the sync motion traditionally used in sound design.

One of the finest examples can be seen in his creation of motorized sonic events as the ones used for motorcycles, jets and cars. Here, the electroacoustic techniques have been developed beyond the simple descriptive *acousmatic* approach to sound. As a result, the motorcycle sounds are designed from distorted pre-recorded females screaming. This idea of magnifying the visual event is expressed in his own statement about visual displacement: *'Whenever we as an audience are put into a visual space in which we are encouraged to 'feel' rather than 'think', what comes into our ears can inform of these feelings and give a new dimension to them'*. In other words, sound design is more than a simple placing of visual events in context, but an *'unconscious dialogue in the minds of the audience where the visual material is not giving enough information'* (Murch, 2001) and the *'combination of both image and sound seems to be pointing to the direction of a vaguely familiar container which we can pour the viewer experience and make something he never before quite imagined'* (Murch, 2001).

Murch work provides a fresh approach to sound design and to the editing process involving a careful control of the sound itself. For him, '*one of those things that a film editor does is to get rid of moments in the film where nothing is happening*' (Murch 1996). This way the editor and director need to be able to figure out when it will be useful to link inside a shot certain sound motion or stillness. Of course to achieve such result is helpful to have a scene that has been shot with useful pauses and, as a result, sound design appear to tell the viewer something about where the story has been or where's heading. In other words, it is to do a sonic description and embellishment of the visual motion.

With Murch we face the beginning and rise of a complex sound design beyond the action-reaction mostly applied to the archetypical the sound design in narrative cinema. With him we find the first generation of musical sound designers searching for a meaning to the sound inside the narration and the implicit drama inside film.

### 1.7.the video culture

Artists who use the '*time-based*' (Rush 2003) media in the late 20th and early 21th century have technologies at their disposal that could hardly exist a few decades ago. Stable tools are now available for the desktop computer and the easy methods applied to put art data in formats such as DVD or online means accessible to international distribution channels. At the same time spaces for presenting new media have expanded and now include not only theaters, museum and art galleries but also the internet and a series of new festivals that present independent animations, alternative film and video to a broader audience.

It is in this growth of new format that names such as '*Video Art*', '*Video Clip*' and '*Live Cinema*' which have appeared suggesting multiple meanings. As a consequence, new classifications refers more to the medium than a specific way of using them. Most of these new types of expression were born when different boundaries between traditional arts became broken by a new generation of performers in the late 60's. In the words of Michael Rush in his study about video art when '*video technology became accessible to a larger population, the art of moving images introduced a new hybrid type of visual expression*' (Rush 2003) using music, cinema, sculpture and painting. As a consequence of such massive distribution of technology, the artists had the chance to experiment with images, sound and different types of performing arts and interaction. Several of the video's early practices were closely related to the new techniques of image processing computer scanning and real time reproduction. After the introduction of *Portapaks*, the first affordable portable video cameras in 1967, artists could start to experiment with digital images and sounds. 'Extended cinema' movement, which started amongst these video artists in the late 60's, tried to expand a theatrical oriented, cinematic experience.

Further development in the field of '*music montage*' can be seen in the *Video-Clip* culture, perfectly exemplified in the work of British director Chris Cunningham. Deeply influenced by video art, Cunningham started making a name in the early 90's in the art department of major motion pictures as designer. He made his first video for the group Autechre's '*Second Bad Vilbel*' song. What followed was a series of video clips

with different English rock bands. In 1997 he directed Aphex Twin's 'Come to Daddy' which represents his outbreak into the wide mtv-oriented audience.

Most of the Cunningham's work deals with the subjects of human inner world and how it can be expressed in a world alienate by technology. Bjork's video '*All is full of Love*' is a clear example and, at the same time, reflects an exquisite technique for expressing deep emotions within the frame of a fixed musical, non narrative, environment.

Other attempts in visual-sonic interaction inside the cinematic environments can be in the films by Japanese director Shunji Iwai. Coming from a video clip and TV drama background, Iwai effectively brought a new aesthetic sense adopted from the pop promo world, filling his work with musical intermission set to modern music and a 'host of visual tricks' taken directly from the vide mixing desk. Iwai's films are firmly rooted in the era which they are made. His '*Love Letter*'(1995) uses a complex sound design interacting with long shots and a classical influenced soundtrack. During all these years Iwai has devoted himself to explore the new technology and the means of visual expression. '*All about Lily Chou-Chou*'(2001) is based on an '*interactive novel*' made available over the Internet. The resulting film version saw Iwai exploiting the multimedia environment to the top; moving between hybrid types of video manipulation and a narrative film, '*All about Lily Chou-Chou*' tells the story of a 14 year old kid and his obsession with the fictional pop idol of the film's title, escaping into a virtual community of the singer's fans by means of a chat room that he has set up. Eventually, the dialogues in such chat room become the fragments that bind the overall montage.

### **1.8.the phenomenology of montage: Gustav Deutsch**

Important experiments in montage have been made by Austrian artist Gustav Deutsch who, by using old footage taken from different film archives made a dissection of the principles in motion and meaning on cinema. Deutsch has made a deep exploration of the cinema in his work '*Film Ist...*'(1998), a cycle of 12 short film collages that deal with different principles of cinema as formulates the question of what exactly constitutes the medium of moving images. The central question of the work is what creates and shapes film in time. In order to provide answers each one of the chapters that constitute the work has titles for specific areas where cinematic experience happens; '*Movement and Time*', '*Light and Darkness*', '*Magic*', '*Emotions and Passion*'. The titles provide the viewer with clues about what a film can be.

The starting point for these smalls collages in the use of only existing film footage to illustrate the subject each one of them deal with. Deutsch sought in several film institutes and archives, and collected different fragments of cinematic material that has been '*largely neglected the last 100 years*'(Deutsch 2001). Most of the materials used in the first six chapters are of scientific pedagogic nature. The interesting point of such sources is that they never were made with artistic intentions at all, maybe because the of sterile and boring content. The second part of the work is based on fiction films from the silent era.

One of the principles Deutsch uses for great effect is the so-called '*Kuleshov effect*'. This technique assumes that separate images have no meaning by themselves and that the meaning of film only originates



when separate images are edited together. He plays with this principle for the whole film by editing shots from several completely different films together as if they were one single film, which results in moments that are often funny and original. To give an example: an image of an ostrich running to the right side is followed by an image of a leopard walking to the left side. Then Deutsch rewinds the footage of the ostrich, as to create the impression that the ostrich is running away from the leopard, while in fact they are just two unrelated images taken from two different films.

## .>[First intermission]mise-en-scene and the visual cell

### a.1.definitions

In order to analyze the process of underlaying a visual environment with music we need to understand two concepts: *mise-en-scene* and shot. Both terms will be useful in next chapters when we describe the audiovisual behavior and the diverse sonic fields involved in the process of making soundtracks.

An original French word, *mise-en-scene*, means '*staging in action*', a term '*first used in theater and then imported to cinema by early filmmakers*' (Hickman 2006). In cinema, it has come to mean the director's control over what appears in the film frame. These elements include all those aspects of film that are present on the screen: setting, lighting, costume and the behavior of the actors and objects. The *mise-en-scene* is how the events are staged in the camera, at the bottom a theatrical notion as the filmmaker stages an event and then films it

### a.2.speed of motion inside the shot

The speed of motion we see onscreen depends on the relation between the rate at which the film was shot and the rate of the projection. Both rates are calculated in frames per second. During the silent era, films with shot at a variety of speeds, were usually ranging from 16 to 24 frames per second, gradually getting faster in the mid-20's. Once the sound was adopted in the late 20's it was necessary to record both sound and image at a standardize speed so that they could be in sync. The standard rate of shooting and projecting was standardize in 24 frames per second. Video and other formats have a complex relationship with frame speed and format and will not be explained in this thesis.

For a specific descriptive movement to look accurate. the shooting rate must correspond to the rate of projection. In that sense, the filmmaker can control the rate of the film's movement through the camera thus its drive mechanism to adjust and vary the shooting rate. A common range on 35mm cameras is between 8 and 64 frames per second. In the digital world is possible to manipulate the original source and to vary the image speed by specific software tools.

The fewer frames per second of the shot, the greater the acceleration of the screen action. This effect is called fast-motion and is commonly seen in comedy cinema. On the other hand, the more frames per second, the slower the screen action will appear. The resulting slow-motion effect is used mostly to overdrive the expressiveness of the *mise-en-scene*; notable is the use of such effect in publicity and broadcasted sports. Extreme behaviors of fast and slow motion alter the speed of the shown material and radicalize its content. Time-lapse cinema allows us to see movement and actions in different times as the sources.

### **a.3.time and mise-en-scene**

So far we have examined some movement effects that guide our perspective of a cinematic image. In addition, both the shot and our perspective of the image take place in time. Thus, a deep relationship is created in the viewer through the process of editing. The filmmaker decides how long the shot will last onscreen and how its content will create a sensation of rhythm and time development. The issue of rhythm in cinema is one extremely complex but we can, at least, say that the shot has a pulse and a rhythm, a pattern accented by visual triggers and stronger and weaker sections. All these elements are combined to generate a sense of the overall movement of the shot. At the same time, the scanning of the film frame brings time to the front of the mise-en-scene. Indeed, in most shots we get an initial overall impression that creates formal expectations. These expectations are quickly modified as our eye wanders around the frame.

Once again, the process of viewing the shot is strongly affected by the presence of movement. A static composition may keep throwing our attention toward a single element in its composition. By contrast, a fragment emphasizing movement becomes more time related because our experience may be directed from one place to the other by different speeds, direction, rhythms and camera movements.

This process of binding time involves not only looking and moving across the shot, but also creating an expectation into the image inner structure. A deep-space composition will often use background cinematic events to create expectations about what is about to happen in the front part of the shot. Thus, composing is not a matter of pictorial richness as it has a value in the narration of the story line, actions and rhythm of the audiovisual environment. Inside the same shot, the filmmaker can organize the movement that prepares the viewer for what will happen next onscreen.

As a group of techniques, mise-en-scene helps the composition of the shot in space and time. Such element can be the stage setting, lighting, event behavior onscreen, color and shape patterns and background materials, contrast between line and shape and light and dark. These events and patterns define and develop the space of the diegetic world, and emphasize the narrative information developed in cinematic time. Mise-en-scene, thus, creates behaviors that not only guide the viewer's perception from moment to moment but also help create the overall form of the film.

## .>Chapter 2: elements of sound on audiovisual environments

### 2.1.sound inside the film

One of the most interesting phenomena in cinema is how the viewer develops a strong need to attach those images shown on the screen with the *appropriate* sound effect or noise. However, most of the sounds that are presented in the film are made separately from the images. As a consequence, they are free to be independently manipulated and to create different types of interactions with the visuals. Because the film itself is strongly based on the image, it cannot bypass the fact that sound design is an important element to magnify different visual elements. This affirmation becomes evident when we think of all the properties of sound when used in cinema: the sonic event can direct our attention to specific visual events and guide the viewer through the narrative content of a film. This property becomes even more powerful when we consider how such event can anticipate visual elements and move the attention toward them. Sound is one of the most flexible elements available for film montage.

Together with all these properties, sound has another powerful tool in the use of silence which can bring a new sense of space and time to the film. The expressive use of no-sound can be pointed in different levels and can help to develop particular film qualities from deep psychological situations to the stop of motion inside the time line that the narration is presenting.

The initial purpose of music and sound design in cinema is, together with the huge arsenal of other cinematic techniques, to guide the viewer's attention towards specific motions inside the screen and to make specific visual material noticeable to the viewer. To provide the viewer a controlled and well designed soundtrack is an important element to consider when we edit the images.

After understanding all characteristic elements of cinematic sound, filmmakers and film editors have come to manipulate different sonic properties in order to generate more interesting soundtracks. These elements can be powerful tools to provide spatial and temporal backgrounds to the narration. One example is the use of loudness as the film sound usually manipulates volume to relate motion to space; often the louder the source is, the closer we consider it is. In the same direction, the pitch of a specific sound attached to the visuals can be a useful tool to help the distinction of the source and its possible modification. This property is closely bound to the timbre, a sonic element that filmmakers have constantly use to help the articulation of certain portions of sound and make clear differences between the different layers of sound inside the film.

### 2.2.sound layers on cinema

Sound in cinema is usually classified in three categories; speech, music and sound design. Some authors might add two more elements; voice off in documentary and silence. Occasionally some sounds might cross these categories creating a strong effect of ambiguity, element that has been largely exploited by different filmmakers.

The first of these elements, dialogue, is the transmitter of narrative information and usually is used as the main sound reference for the narration content of a film. As a result, most of the narration gives a special status to the human dialogue. The second element on film sonic material is the sound design which is used to supply an overall sense of a realistic content to the film. This effect is usually achieved by binding together the sound to their visual sources, giving them a special dimension inside the shot by the use of a counterpoint with the image. As a consequence, most of the sound effects tend to be considered less important than the other two layers (voice and music). However, if they were missing, most of the deepness assigned to the visual material would be lost.

Third layer, music, might be considered the less gravitational element of sound as it follows its own rules and principles. In many ways music just associates to visuals in way it provides a special mood to the image, amplifying or canceling particular elements of the visual information. At the same time, music can extend the character of some cinematic sections or anticipate particular moments of the narrative images.

One particular case is that of the documentary cinema where we can trace the use of a special sound effect: the *'voice over'*. This can be explained in how the internal motion of the documentaries depend strongly on the presence of a dialogue that is not evidently inside the cinematic reality, nor affecting the actions displayed onscreen. Documentary is a particular case of film where the main layer of sound has a strong dependence on human voices even though they are not be presented 'inside' the images.

### **2.3.use of sound layering on cinema**

This idea of three levels in sound does not often relate to their importance and presence inside the film. One clear example is the action scenes where the sound effects are the central sonic information while music dominates the transition sequences and emotional moments where dialogue is not present. This *'in-front'* process has been used by film directors to shift the weight usually assigned to each type of sound so the selection of materials for a soundtrack can fill a particular function inside the film. By selecting certain materials *'the director can guide the viewer's attention towards the image and the action of the audiovisual environment'* (Hickman 2006). Guiding the attention, then, relies deeply on selecting and the editing of particular properties of the sonic material and, eventually, the way they are combined in a concrete functional context. It is useful to think that sonic events are a set of discrete motivic units inside a continuous system based on a constant stream of audiovisual information. Each of these sonic events takes its place on a specific pattern related with the linking of specific information useful for the narrative direction of the visuals.

A coherent soundtrack creates motion by following the principles of film continuity. This way, filmmakers tend to use a dialogue overlap during the presence of a shot/reverse shot; voice is used as a virtual axis to give a narrative continuity to the shot and, at the same time, help the transitions inside the action.

More complex models of sound design can be presented when we add different materials by overlapping different sonic layers. The mixing of the sound levels based on specific parameters as volume, panning and timbre can provide a particular dramatic direction to the image and, at the same time, create a par-

ticular level of density. The filmmaker may create a mix of sonic layers in which each each other melts smoothly with other visual elements. At the same time, the layers may contain contrasts within themselves. generating motion from the use of transitions and modification in their inner parameters. To make one of the layers relative towards the other might modify the overall result and change the direction and even the content of an image. If we create a relatively dense mix that gives privilege to a layer and then turns the viewer's attention to the other sonic elements, we can modulate the sounds into a natural and harmonious ongoing development.

The choice and mixing of a sonic material can also create patterns which give a particular motion to the film. This aspect of soundtrack design can be seen in how filmmakers use the musical material. Sometimes directors will select preexisting pieces of music to accompany the images. In other cases it will be composed specially for the film, and from here different choices can be made. The inner elements of music(at least in a classical sense) can strongly affect the viewer's reactions towards the images. In addition, certain musical parameters as rhythm and timbre can be associated to specific characters, setting, scene, emotion or idea. The manipulation of motifs is one of the most common cinematic cliches as the manipulation of sound might, implicitly, involve the manipulation of moods and motions inside the film.

## **2.4.dimensions of sound inside the audiovisual environment**

In film sound dimension refers to the way sound relates to other elements inside the film and gives them different values. Such process can be explained from the fact that sound is organized in time so can give a rhythm to the image, and, at the same time, film sound can be related to its visual sources creating a sense of fidelity between what is seen and what is heard. Finally, sound has a spatial property in which it occurs creating a temporal description of the events.

### **2.4.1.first dimension: rhythm**

Rhythm is one of the most complex elements of cinematic sound. It has a deep relation with the way the film shot is constructed(*mise-en-scene*). The same way, the editing involves a tempo and a pattern for accents and pulses inside the images. In film music all these elements are easily recognizable as the elements providing speed and rhythm to the scenes where is edited.

Speech and sound effects also have a rhythm inside the film. The attachment of sounds to its sources creates a rhythm for the material and the editing might provide the context where these events happen. Any consideration of the rhythmic used by the sounds is a complicated issue as many of the movement of the images themselves have an individual rhythm as well. Thus, each one of them has its own principles of speed, beat and accent. In addition, editing and montage also have a rhythm depending on the length and succession of the shots; a quick tempo is created with the use of short shots, whereas long shots can be used to slow down the rhythm.

Most of the time all these rhythms cooperate. A close interpretation of this principle has led to a kind of feedback loop between images and sound; the bond of both elements is so close that one provides the rhythmic parameters to the other. A prototype of close coordination between screen motion and sound comes in the animations and video clips. Another process that can be chosen is to create disparity among the rhythms of sound, editing and image. In that sense, one of the most common options is to edit the dialogue scenes in a way that they cut 'against' the natural rhythm of speech. Forced by this situation, film montage smoothes over the change of shot and makes an emphatic use of the words and facial expressions of the characters.

There are several editing techniques to contrast the different rhythms inside the film. For instance, if the source of the sound is offscreen, the filmmaker can use the motion of the onscreen figures to create an expressive counter-rhythm. It is in the absence of cinematic movement that the sound offers a dynamic interplay of audio-visual rhythms.

#### **2.4.2.second dimension: fidelity**

Fidelity does not mean in this case the quality of the recording but the degree to which the sound is faithful to its visual source and how it is expressed on the screen. From this perspective, fidelity has nothing to do with what originally made the sound in the production but how the filmmaker may manipulate the sound independently of the image. We first face the concept of information inside the cinematic reality. In the next chapters we will have the chance to extend and explain in detail such concept, is enough for now to say that film reality refers to the context where the cinematic reality 'happens' and, at the same time, is displayed onscreen. If the viewer takes the sound to be coming from its visual source as it is described in the fictional world of the film, then the sound is '*faithful*'.

Fidelity is a matter of expectation. When the viewer becomes aware that any sound is unfaithful to its source, this awareness is usually used to redefine the internal value of the sound and the image to which it is bound. In other moments, the fidelity field can be used to prepare the over imposing of scenes or to give special meaning to certain actions or circumstances inside the screen. In other cases we can manipulate the fidelity of a sound by a change of volume or any other parameter.

#### **2.4.3.third dimension: space**

Sound has a spatial dimension in cinema because it comes from a visual source. At the same time our concept of that image has a powerful effect in how we understand the sound. If the visual reference is a character or object in the story space of the film, we consider the sound to be 'inside' the fictional reality. The voices of the characters, sounds made by objects in the story and music represented as coming from instruments in the story space are all example of these type of sounds. On the other hand there are sound which by their properties are 'outside' the film reality which is represented as a coming from a source outside the story space. Familiar examples of such sound are easy to find as music added to help the cinematic action. The

most common type or to extend certain type of '*mood*'. Details of such properties would be given in the next chapter dealing with film *diegesis*.

#### **2.4.4.fourth dimension: time**

Sound also allows a filmmaker to represent time in various ways. This is a direct result of the fact that time represented on the soundtrack may or may not be the same as the one represented in the image. This process is evident in the case of synchronization between sound and image. The matching of sound with the image in projection creates a synchronous sound. When a specific sound event is synchronized with the visual trigger, we hear it if we experience the source of it. Dialogue is a common example of this process. A distracting effect can be generated when the sound goes out of synchronization while watching.

Synchronization relates to the screen duration in time. Narrative environments can also present plot and story time. That is the order, duration and frequency of all events belonging to a narrative context. Plot time consists of these three temporal qualities represented in the film. Montage as a process only selects certain story events that only refers to the others. As a consequence, it usually covers a shorter section of the complete story.

Story and plot can be manipulated by sound in two principal ways:

1-simultaneous sound: when the sound takes place at the same time as the image in terms of the story events. This is the most common in use and is used when characters speak onscreen.

2-non-simultaneous sound: when the sonic event occur earlier or later in the story than the triggers that we see in the image. The most common example of this is the so-called cinematic flashback.

Temporal relationships between image and sound are complex. A deep detail of the connexion between the sonic event and the *diegesis* of time will be given in the next chapter.



## .>Chapter 3:the diegetic field on narrative audiovisual environments

### 3.1.definitions

The concept *diegesis* is a word directly taken from Greek philosophy and applied to different types of literature and film analysis (Chion 2003). First used and defined by Plato and by his late student Aristotle, *diegesis* is based on the concept that a narration is fundamentally a linguistic activity whose development process is related to the praxis of the narrator in opposition to the concept of imitative narration defined as *mimesis*. Drama, for Plato, 'is the best example of a mimetic process of narration where a virtual world is created inside the borders of the literal world. As a matter of simple analogy the mimetic process is based on presenting and showing the elements of reality whereas the diegetic approach to drama is constructed over telling a narrative content' (Chion 2003).

The modern concept *diegesis* and its various adjectival forms, 'diegetic', 'non-diegetic', 'meta-diegetic', 'homo-diegetic', etc, have long been present in literature and film studies as tools to analyze the inner elements of the story and how they interact at different levels. In the particular case of film studies the French term *diégèse* was introduced around 1950 by Etienne Souriau on his article '*La structure de l'univers filmique et le vocabulaire de la filmologie*' where he attempts to make clear delimitations of the inner elements that defined the narrative world expressed explicitly by the images. *Diegesis* is mentioned by Souriau as a descriptive tool used to manifest the explicit and non-explicit elements inside the film universe. In this way, film *diegesis* is used as a narrative type of analysis that includes all the implicit elements of the history despite the fact they are actually displayed on screen or not; this description might include fictional events that happened in the past, people mentioned or actions that occur elsewhere in the fictional space and time. All inner events helping the development and presentation of the history are considered *diegetic* in essence.

From here we can start sketching the concept of *diegetic* field, the fictional time and space that include all events represented in the narrative reality of the film. This descriptive element also provides information about the possible levels of interaction between internal and external elements of the story in order to present a coherent development of the narration.

### 3.2.diegetic field and film reality

When it comes to this *diegetic* field inside the film we might find some specific difficulties, mainly the procedures to establish a coherent division between the different levels of interactions and their implications inside the manifested audiovisual material. In this sense Souriau himself identifies two main levels of *diegetic* development; one related with the spatial events of the film and a temporal displacement of the visual information. From there, Souriau concludes that the temporal *diegesis* is based on the parallel motion of the visual information with any other element that has helped the story to exist. All explicit elements shown on the screen are representation of even deeper spatial-temporal relationships created between all the inner ele-

ments of the narration. Souriau remarks that deeper the analysis of the non present elements is, the better understanding of the film narration and its content.

Noel Burch, however, points that the *diegesis* must not be treated as a fixed, simple object as it must be understood under ‘*two complementary and dynamic aspects*’(Hayles 1999). For Burch, the constitution of the *diegesis* is a process and not a ‘*fixed reference suggesting a more dynamic approach to understand the diegetic process inside the film and its repercussion inside the narration*’(Persson 2003). Following this idea, Walter Murch has pointed that the ‘*diegetic motion*’ of a film is a combination of a development in the spectator's absorption of the visual information, and a process of providing meaning to the narration. Murch describes the screen as the ‘*implementation of the codes which catalyze the absorption of the referential points inside the story*’ (Chion 2003).

Both elements of motion and meaning presented on the film are used as a process to create a narrative content for the images, The final result is an effect that helps the spectators ‘*to experience the fictional world as environment which is only incidentally related to ideological categories*’(Dancyger 2002). Burch has identified an intermittent change in the *diegesis* of every film as the quantity of the ‘*diegetic gravity*’(Hayles 1999) which gets modified from one moment to the next.

### **3.3.sound and the diegetic field**

The subject of music and sound inside the film differ from other elements such as photography and acting in several important points. Hearing is less direct than visual perception. To see something means an instantaneous effort to identify the shape in objects while in hearing not necessarily relates the sounds with their visual source. Even more, the constant distortion in sound design has a deep impact in the viewer. One of the most powerful tools for designing soundtracks is based on generating a deep sonic ambiguity for the film following this principle.

The moment we recognize to what degree sound and film music shapes our perception of a narration, no longer it can be considered as a simple incidental element or event. Sound itself provides moods and particular narrative information inside a film. As a consequence, when we talk about a fictional space and time defined inside a film, the viewer receives much more than a story. In fact, the film itself becomes a group of elements that interact in different and variable levels of feedback.

The concept of ‘*sound diegesis*’ refers to the relation between sound to the depicted and represented space of the narration. We can point that all the visual information that is explicitly presented on the screen is to be considered *diegetic* by nature. However, some cinematic elements gravitate with less presence inside the internal reality of the film than other. This way, more the information becomes abstract to the context of the narration, more it moves outside the *diegesis* into an *exo-diegetic* state. Following this principle, the sonic event has a wide space to move, from very concrete and descriptive situations to over imposed material gravitating in parallel to the image. How this referential information is switched from internal to an external depends in the nature of the images and the possible visual and narrative elements that are attached to it.

This principles can be seen when we talk about narrative cinema, where the viewer devotes his concentration to the successive events and struggles to find the meanings bound to them. This process finds its logic in the way the selection of shots allows the existence of a narration and the story develops based on actions ‘happening’ inside the fictional world. However, incidental music, works with completely different principles based on its own abstractions and rules. Music inside cinema can bind itself to the intrinsic meaning of the image but, at the same time, it can escape from the film reality and provide other narrative elements to the story. In other words, music is one of the internal elements of film that can exit the fictional reality of the story.

An *intra-diegetic* sound is one where the source of the sound, in both cinematic space and time, is tangible and, in most cases, visible within the limits of the image. This way, we can associate the visual sources with a particular sonic event. At the same time, the *intra-diegetic* sound makes possible to distinguish its existence from other sonic layers like other *intra-diegetic* sources or dialogue. As a result, the relationship of visual ‘action’ and their correspondent sonic ‘consequence’ becomes closely attached and evident to the viewer.

For Walter Murch, this process of attachment can be explained in the fact that sound helps the eye to see. ‘*Humble sounds had always been considered the inevitable*’ (Dancyger 2002), Therefore, in sound design, every successful association is a kind of metaphor that can stretch the relationship between visual and sonic event. The greater such stretch is between the sound and the object, the deeper the potential of cinematic truth it might include. The tension produced by this metaphoric distance between sound and image serves somewhat to create a distance of ‘*localization*’. The risk of is course ‘*that the conceptual thread that connects the image and the sound can be stretched in excess and the dimensionality will collapse*’ (Dancyger 2002). The main risk of binding sound to images is when a sound coming from the internal *diegesis* of the film suddenly finds itself moving into the outside sphere of the film reality into the realm of ‘mood’ music and we are not being able to associate the sonic event to any image anymore.

Michel Chion devotes a variety of his writings to the particular phenomena of sound moving between both sides of the ‘*diegetic space*’. For him, the ‘*sound can move on the film depending on its function and presence with regards the image and how it is manifested through the montage*’ (Chion 2003). In the classic sound layering used in narrative cinema the effects and dialogues fall into the internal reality of the film (*inter-diegetic*), opposite to the incidental music and voice over (*exo-diegetic*). This process depends mainly on the place a sound has related with the visuals and how the sonic information might amplify or distort the meaning of the image. However, because the border between both sides of the sound *diegesis* (internal and external) is not clear enough, the contradiction of emphasis in action/result ‘*events can be taken as a moving force*’ (Chion 2003) inside the field. The tension caused by the dynamic behavior of the sounds provides motion to the narrative direction of the material.

We can represent this *diegetic* field as a space divided in two: the first part is the space that contains all the sonic elements attached to the film reality. Meanwhile, the other extreme represents the elements that are not bound to the narration and that interact externally with it. In the center of the graphic we have a critical

point, the bound between both sides of the field. This section can be described as the most ambiguous space and can be classified as the transitional turn where sonic events can be organized and redistributed towards both sides of the field.

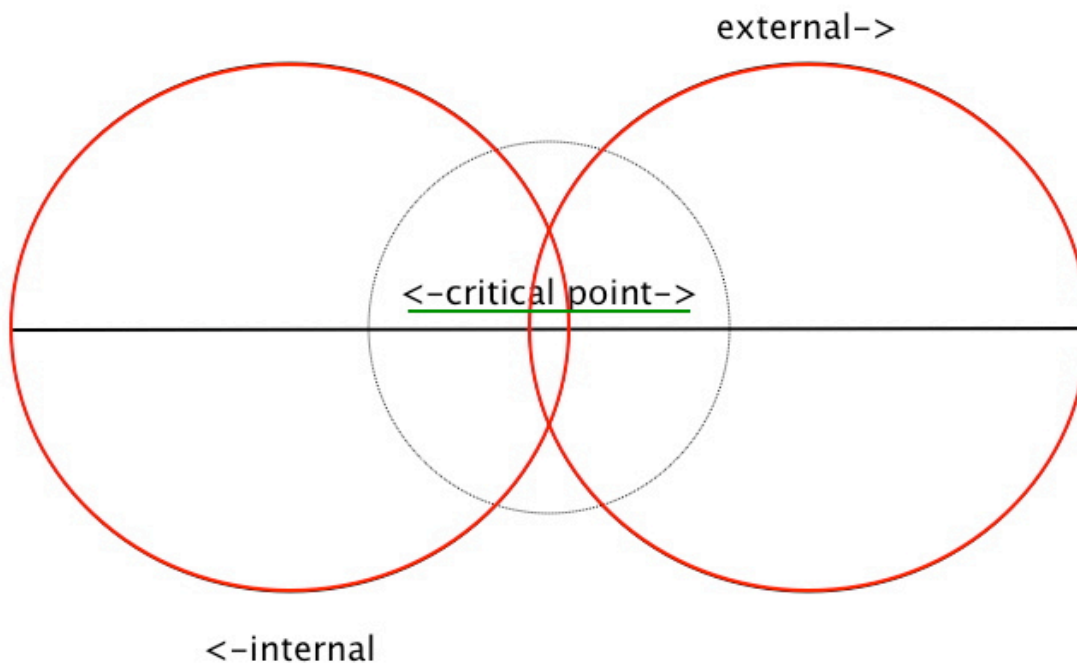


Figure 3.1.a visual representation of the diegetic field

### 3.4.intra-diegetic and exo-diegetic sound

Michel Chion has pointed that '*only the sound can go beyond the intra-diegetic field of a narrative film by alienating its inner elements from the main virtual narrative space that the film creates*'(Chion 2003). When a sonic event moves between the polarity of both sides of the *diegetic* field it might be difficult to identify its function within the overall film structure. Commonly, the *intra-diegetic* material stands as the most important part of the narrative discourse but does not magnify any visual element and only giving a context to the image. Opposite to this process, when an *exo-diegetic* element gains importance, it might signify the development of a particular state of mind, feeling or sensation not manifested on the screen. Moreover, the link with the image is to a certain extent broken and a narrative tension is caused. This type of sound is usually referred as '*incidental music*'.

In the apparently realistic model on which the narrative cinema is based, this group of external sounds has the big advantage of not being controlled by any rules in film motion, nor forced to justify its presence by any concrete element coming from the images. The presence of *exo-diegetic* sounds, with their own rules and limitations, can smooth the visual material and, at the same time, underline certain actions and gestures, amplify instants and extend thematic motifs. A good example of this process is how a dynamic range is used

on music to generate tension and motion to some of the narrative elements on visual montage. A sudden forte in music can point a specific psychological or physical situations to the characters or the story. To be able to distinguish between a concrete *intra-diegetic* and an ambiguous *exo-diegetic* sound is an important tool that might help the music and sound design to work so strongly in favor of the film. Moreover, as the *exo-diegetic* sound is freed from its directional link to the image, it has the quality of breaking with a certain fixed paradigm in the film structure and its development in time.

As we have seen a sonic event can happen anywhere inside the bipolar *diegetic* field. The closer it is to the *intra-diegetic* side, the more fidelity towards the image and closer its descriptive properties are presented on screen. In the other hand, the material appearing into the *exo-diegetic* side tends to develop itself using sonic rules that not necessarily depend on the visuals but in the counterpoint created with the montage attached to it. This way, *intra-diegetic* sounds are used as an effect and the process to bind it to the images is called 'sound design'. The second case is the sonic elements that become the 'soundtrack', the mood music that develops in parallel to the visuals. Nevertheless, there is another important sonic event: the voice. It is usually presented as dialogue between the characters, *voice over* or sound effect. However, the voice properties are, in many ways particular and have strong repercussion on the sound design. The montage of a visual material can allow that human voice to work as part of the internal narrative world (*intra-diegetic*) or, in the opposite case, as a casual or musical material developing outside the context of the narration(*exo-diegetic*).

The complex behavior of voice can be explained in the way it faces the visual environment. Dialogue can contain important part of information used for the narration. This way, it becomes descriptive inside the film and an important provider of narrative information. However, voice material can deal with a particular level of sonic effect by reinforcing the dialectics of the image from outside the frame of the narrative/fictional world. The voice itself is a powerful binder of narrative and descriptive information of the *intra-diegetic* side of the field, but with the use of different procedures it can work as an independent sonic event providing 'textures' and 'color' to the images. Such properties can be seen in documentary cinema where the most complex voice behavior is presented as a dialogue interacting in a kind of *diegetic* ambiguity with the film. For documentary cinema, sonic data relates directly to the visuals as provider of information, but in a kind of contradiction does not belong to the *intra-diegetic* reality of the images. Another example might be how thoughts and states of mind are usually expressed with *voice over*, a functional type of dialogue bridging the objective/subjective *intra-diegetic* reality.

To separate the sonic properties of human voice and the narrative data that it might contain is one of the most interesting techniques used in modern cinema and experimental video art. When filmmakers provide a new meaning to vocal models, many different types of sonic events can be derived. Human voice becomes an *environmental* event, a musical source input of simply a 'texture' background. In the book '*The Voice in Cinema*', Michel Chion has described a process called the '*acousmetre*', a kind of voice character specific to cinema that '*derives mysterious powers from being heard and not seen*'(Chion 2003). For Chion, this method of controlling voice data depends on the fusion of image and sound to the extreme and '*withholding the image of the sound's true source until nearly the very end of the cinematic image*'(Chion 2003). As a result, the viewer searches up to the final moment the '*source*' of the sound, creating himself the image

of the present sonic event; the displacement from *exo-diegetic* to *intra-diegetic* positions of the sound is extremely clear here.

### 3.5.the offscreen sources and the sonic perspective

As with cinematic fidelity mentioned in chapter 2, the distinction of *intra-diegetic* and *exo-diegetic* sound does not only depend on the real source of the sound in the filmmaking production. Rather, it depends on our understanding of the conventions of viewing the film. We know that certain sounds are represented as coming from the story world, while others are represented as coming from the outside space of the film. Such viewing conventions are so common that we usually do not have to think about which type of sound we are hearing at any moment. However, to play with such elements can be used to puzzle or surprise the audience, to create ambiguity, or to achieve other purposes.

The space of the narrative action is not limited to what we can see on the screen at a given moment; if we already know that certain information is presented in a certain specific cinematic space we simply have the sense that the sound can be presented in onscreen or offscreen. If we assume that a sonic information is attached to the offscreen sources, we still assume that the sound is coming from that part of the story space. Thus the *intra-diegetic* sound can be onscreen or offscreen depending on whether its source is within or outside the screen.

At first this might seem as a trivial distinction, but offscreen sound can suggest space extending beyond the visible action and may control our expectations about the offscreen space. This sound, moving somewhere so that it can be seen on screen but exists in the *intra-diegetic* reality, can make the image narration less restricted and to expand the idea of 'existence' in the internal reality of the film. Most of the time such procedure is used to specify actions that are not described but are related to onscreen material, creating the idea of action or movement. At the same time, this approach can be used to manifest non-explicit *intra-diegetic* realities described to the viewer. Some type of montage follow this principle by stopping the dramatic tension and making a poetic manifestation of the reality where the film story exist. Mamoru Oshii's '*de-riva*' concept is a clear example of such approach, where the '*atmospheric pieces and character's actions are the same thing, stopping any motion inside the film*' (Asian Invasion, DVD).

'*Sound perspective*' can be defined as the '*spatial distance and location similar to the effects generated by visual depth and the volume in order to achieve a visual perspective*' (Persson 2003). This process can be suggested from the volume of the sound, as loud sources tend to seem nearer; a soft source, more distant. This perspective is also created by timbre. The combination of directly registered sounds and sounds reflected from the environment can create a specific timbre providing a particular idea of distance. Such timbre effects are most noticeable with echoes, reverberations and delay effects.

Multichannel recording and reproduction tremendously increase the filmmaker's ability to suggest a sonic perspective. Modern systems as 5.1 use the central speaker to transmits most of the onscreen dialogue and the most important effects and music. Left and right speakers not only carry important sonic information

but also provide the direction to some sound effects by suggesting a region of sound within the frame or material offscreen. The surround channels are, mainly, mirrors for sound effects and can be divided among several speakers arranged along the sides or the back of the space where the film is presented.

By using stereo and surround tracks, a film can more strongly imply a sound's distance and placement. With system such as the 5.1 we can scan each frame on the screen searching the sources of the sound. Thus, we provide a type of motion where details, magnified by the sound, become an interesting object inside to look at. A remarkably convincing three dimensional sound environment may be created within the space. Like other techniques, sound localization need to be used for realistic purposes as the bind between source and spatial localization is needed.

### **3.7.new audiovisual technology and the diegetic field**

So far the present state of film theory has dealt with an obsolete reality. That most of the technical devices used in filming, editing and projecting audiovisual material have found an incredible development in the last 20 years. Massive distribution of technology making the film art accessible to the broad public and technical development in the ways multimedia environments are presented. This process of re-creating the media has generated a revision of the idea used in the last 50 years of cinema. In the field of sound we face the reality of electronic-generated events as a valid musical element outside the sound design and, within this framework, the expansion of formats available to representing a narrative reality using audiovisual environments.

The idea of *diegesis* has suffered a transformation due to this new concepts. Thus, the idea of space and time, reality and abstraction inside the film are finding in the new digital formats a cathartic process of enrichment. The expansion of film language into a kind of global media vocabulary, valid for different sort of artistic activities, is rebuilding its internal elements: editing, montage and fictional reality. *Diegesis*, as a formal type of narrative analysis, can face different transformation in further years as the conquest of audiovisual space and time continues. Interactivity, installation, multimedia, video creation, all of them are enriching experiences willing to expand the cinematic reality.

## .>Chapter 4: behavioral models of the Hybrid Sound Objects

### 4.1.definitions

Hybrid Sound Object can be defined as a digital processed sonic material that shapes its musical behavior by wandering freely inside the diegetic field of a visual environment. This way, the sonic object defines its components by taking and placing elements from all the sonic layers present on the sound design. We can say that the HSO (Hybrid Sound Object) is constructed by taking smaller fragments of sonic events and binding them together as a single unified structure.

Emanating directly from this property, the sound can have different levels of interaction that directly or indirectly affect the fictional time and space of the film narration. In other words, the implementation of an object having different *diegetic* connections to the visual can generate a web of nested events acting together to enrich, describe and gesticulate the image. Following this principle, the created *diegetic* ambiguity can be used as a starting point to generate a more interesting musical material interacting with the film.

If we are to consider that the behavior has an internal motion based on how it is described in time, we need to point all the micro components that shape the general musical gestures. These particles are called '*sonic events*' and can be defined as values describing the current state of a sound parameter. In other words, the instances of the structural state of the object in time. As an example we can use a sinusoidal wave which has two parameters, frequency and amplitude. When we reevaluate the current state of the object, we can describe the values of the instance in a specific period of time. This way, we can generate a transformation of the object by providing new values.

This approach, of course, has limitations. In general, electronic music has a dependency on the tools used to create a sonic gesture. This dependency finds a constrain on the level of abstraction we can exert from the software used to design the sound object. The exertion of complexity applied to the object can be taken from a microscopic view into a more macro-functional perspective. This paradigm can be explained by the type of approximation we take in order to generate the object and its behavior. By experience I can say that several computer music program languages-type tend to be more flexible in the procedure followed to generate the parts that will, eventually, gather and shape the sonic object. The creation of behaviors depends, in many ways, on the protocol and interface used to communicate with the environment to design the digital sonic material. Software can limit the framework for the designing of the objects, but, at the same time, the use of a specific language might allow the deeper comprehension of how the sonic material is created and instanced. However, it is only in the realm of macro components that we can define the direction and type of interaction the object will have with the visual environment.

Another important concept that we need to understand is *visual trigger*. In simple words, it can be described as a fixed moment inside the film reality where something '*happens*', becoming the physical moment



for expressing the creation of an HSO. The visual *trigger* is the *root* from where the musical behavioral appears and grows.

#### 4.2. sonic event and its temporal construction

As we have mentioned, events are of primary importance to create behaviors as they establish and schedule the values of the sonic parameters transforming the HSO. If we take a close look into the event itself, we can say that it is formed by three main elements: a *property value*, a *context* and a *temporal interval*. The *property value* can be defined as the numerical value assigned to a specific parameter of the HSO or its dependencies. *Context* refers the group of values bound to a specific instance of a digital sound object. Finally, a *temporal interval* is an affirmation of the existence of an unique event in the moment it actually happens. This way, the event becomes a part of a behavioral chain only when it meets another event.

A group of events depend directly on the elements that shape the stream from where they retrieve values. The process that provides values to a specific sound parameter is called *pattern*. Such abstract processes define the structure of the HSO and give a temporal existence to every single instantiation of the object.

So far in my work I have used two types of processes to generate values and schedule them into the sonic object. Such processes are:

- a) a fixed list based on specific values used on specific scheduled times
- b) a specific function for generating the values. This processes can be subdivided in:
  - b.1) random and weight random
  - b.2) masked distribution and tendencies.
  - b.3) iterative functions.

After we have designed the HSO with specific parameters and specified the stream of values which will shape its behavior, it is important to describe how the first instantiation of the object is going to be presented. The starting state will determinate the first values of the object. Going back to the example of the sinusoidal wave its root state would be, let's say, 440 Hertz and its further behavioral development would depend on the values that are provided to it. If we decide to place different values every second so the frequency parameter would be modified in an specific growth rate, 100 Hertz every time for instance.

How we generate the values is a matter of the software environment used and the approach we take to solve the assignation issue. This way, the temporal behavior of the HSO starts with the existence of a first instantiation, a starting state that will determine the first values of the object. Parallel to this process we can point that the behavior itself is contained inside the pattern, made of temporal events ready to move as digital streams providing values to the parameters that will reshape the object.

One final consideration, probably one of the most complex, is how the sonic behavior happens after the existence of events and their interdependency in time. The automation of each one of the streams will provide the correct values to the specific parameter of the HSO. This will allow the correct order to shape the

desired sonic object. The existence or referential positions in time of the events and the process that contain them assures the development of sound. The schedule of values signifies, in many ways, the existence of an abstraction inside the abstraction; meaning a deeper stratification of the behavioral architecture that allows a bigger control over the development of sound in time. If we consider that a behavior is made of streams containing values, we can take that data and reassign them so their output would be a part of a bigger stream or data list. I used such idea for the final part of the silent movie [Santa], together with the principle of looping layers over the streams. At a certain moment this procedure modified the data values and created unstable zones inside the sound. The final consequence was a constant 'variation' on the material despite the use of a stable looping motion. This approach to sound has been, together with other late processes used in the film '*Ménilmontant*', one of the most interesting discoveries in the area of making time structures for the HSO.

### **4.3. creation and interaction of behaviors.**

All these ideas were developed during the writing of two audiovisual works, the long movie [Santa] and the video '*ph\_érique*'. I was struggling in order to understand how a sonic object with the hybrid properties was supposed to be placed inside the visual environment. The first approach would have been the absolute '*intuitive*' method where the music would have been placed written based on less systematic ways of composing. However, one of the goals of the present research was to discover an organized method for developing sonic behaviors to be able to interact with the images. Of course there is no single solution for placing sound inside the visual environment. Even more, it is amazing to point how flexible the musical behavior of a soundtrack can depend on the smallest changes in designing the sound and in how the sonic events are generated and presented. Let us not forget the case of Walter Murch where a strong sound design can be turned into the most distinctive sonic layer for the film, even more than dialogue and incidental music. Moreover, the interaction between montage in both realms of sound and image can be described as a complex series of possible musical options. Dealing with this principle of availability, the level of interaction is just a matter of interests and technical resources available. In that sense, there is no a 'correct' music for a 'correct' image.

The final goal for this interaction can be the principle of '*reaction*', where the sound and the image can take a common space where common data behaviors are shared. This procedure might bring a reactive transition between one and the other. A single gesture or event can be taken as a value manifested in both image and music. The design of *closed* system depends in how the '*action*' of data is translated into behaviors that shape the internal structure of a visuals and sound.

But this principle of interaction had a specific limit for this research. As my work has been basically dealing with narrative materials, I was aware that the first step to generate the music was to trace the active moments inside the visuals. This process is called in film analysis '*decoupage*'. That can be defined as the particular moment of the visual montage where the gesture is manifested by providing the story a significant meaning. This way, I was able to establish the spatial limits inside the film in order to create the sound behavior.

#### 4.4.implementation of the HSO.

So far i have been able to trace four main processes to implement the HSO on narrative environments.

- a)a creation of a hybrid object
- b)a creation of the behavior for the object
- c)an application of the sound object to the visual environment
- d)a possible feedback

Such models are based on the practice and,of course, is still an open schema of how to tackle the problem of generating electronic music capable of interact with a narrative gesture.

##### 4.4.1.creation and positioning of the object

During the writing of [Santa] I generated the different sonic objects by finding a starting point to position them inside the film reality(*diegetic field*) and, afterwards, by generating motion changing the values of the data that shaped the object parameters.

This type of *allocation* allows the positioning of the sound towards the image itself. The closer it was to describe something explicitly present on the screen, the more it was bound to the idea of sound design. Similarly, the more distant it was to the cinematic reality, the more it was turned into an independent sonic abstraction closer to the incidental music. However, most of the objects were generated by presenting them somewhere between these extremes and, thus, enriching the sound material. The most powerful type of sound were of the objects unable to be described as an effect or as incidental material. Of course this effect was generated thanks to the process of allocation inside the *diegetic field* but, moreover, the HSO were able to move themselves freely and reshape their relationship with the image . As a consequence, different sections of [Santa] generated a strong dramatic effect and, by allowing the motion inside the HSO, work as both sound design and *mood* music. Of course we can notice the important dimension they might have to the overall soundtrack. This first *diegetic positioning* of the HSO can be seen as a sonic affirmation and it provides the starting reference of sound towards the image. Thus, the more preference is given to any of the extremes inside the *diegesis*(intra/exo), a more abstract/concrete properties can be described inside the object. In other words, if the HSO appears as an *intra-diegetic* element of the film, it will have a bigger fidelity to the image; when the object is more abstract, closer it is to the musical aspect of the visuals.

##### 4.4.2.motion of the behavior

Once allocated inside the *diegetic field*, the HSO should define its behavior in time and provide pattern values to the internal parameters that shape its internal structure. This important step will generate the specific sonic gesture towards the images. However, is very clear that one of the main limitations to achieve the construction of the sound is the software used to generate the internal structure of the object and its values. The way we approach the assignation of values and durations to the internal parameters of the HSO is of vital importance and, thus, we can not deny the importance of the software involved in this process. Modular

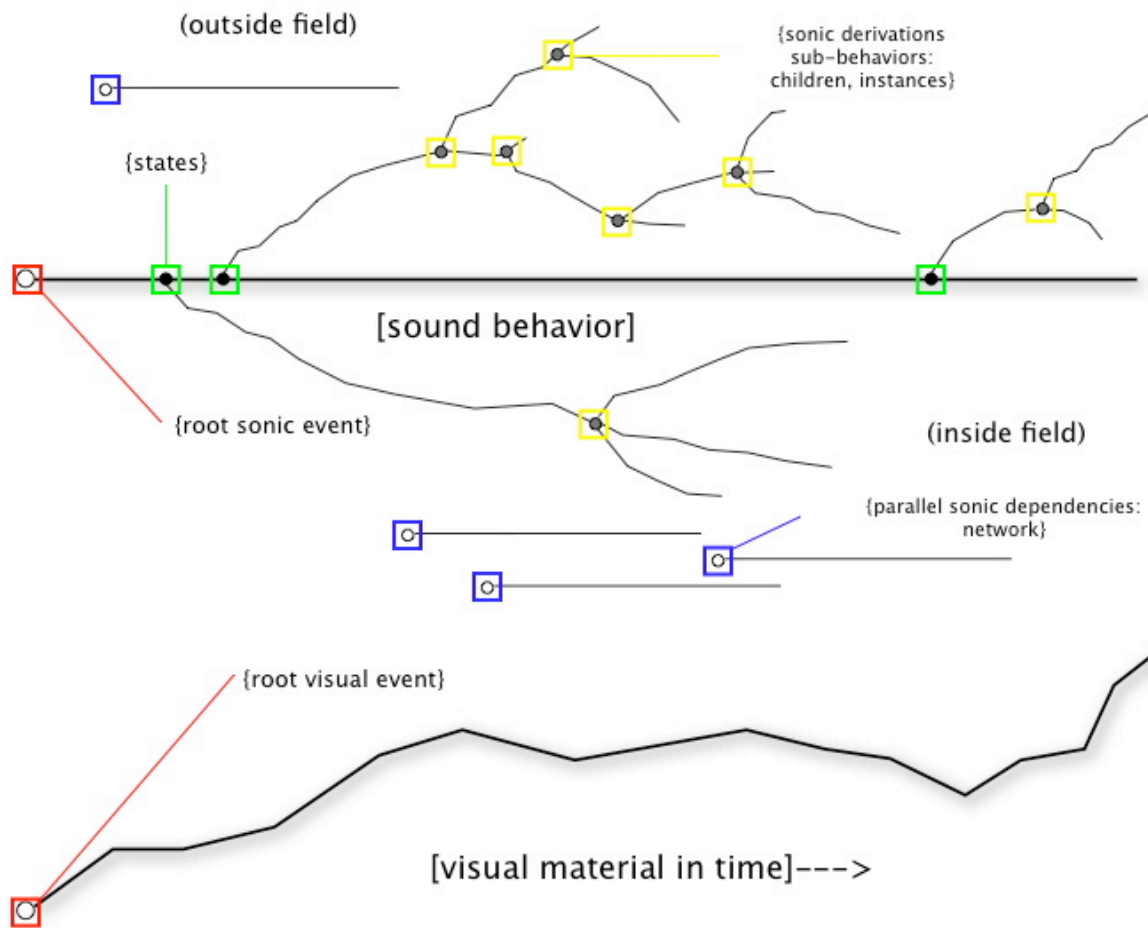


figure 4.1.the sonic behavior and the visual environment

interfaces might provide a broader space of '*intuition*' whereas code-type related software rely deeply on a careful planning of how the event will be placed on the information stream. Personally I consider both tools powerful and interdependent.

So far I have used different solutions to deal with the issue of providing some numerical data to the HSO in order to allow their development in time. One example are the third and fourth reels of [Santa] where I used loops over the gestured musical fragments which would repeat the internal values of the different objects but generated motion by clashing different sonic layers. This way of working was an important key element for creating complex sonic behaviors for the images. This way, the final sonic material was able to transform the musical gesture by adding several behaviors and mixing them one over the other. objects This approach led me to search for the same principle inside abstract visuals and how the layering of fragments might sketch a completely new gesture. The final result of such approach was my video '*ph\_érique*', where both music and image generated a deep dependence on sub-behaviors and their displacement over iterations and loops. The 'character' of the overall image depended on how the sonic and visual data were evaluated and bound together.

An important point to keep in mind is how the object will grow. A clear planning in the object's development can provide a powerful control over certain dramatic instants where the image would require particu-

lar 'moods' or where an interesting turn in the position of the HSO can provide a different dimension to its visual counterpoint. A close analogy to my idea of sonic growth can be the image of a tree: the trunk taken as the main sonic source and the branches its possible behaviors developing in time.

So far I have been able to trace different processes to generate growth inside the sonic material. Important is to point that some of them are more successful than others but in the overall scope, this idea of having a behavioral tree might help to understand the complex system of placing and shaping a sonic material and put it to work as the film soundtrack.

#### **4.5.application of the object to the visual environment**

We have dealt broadly with the available techniques for editing image and sound. When the sonic object is placed with the image we need to consider the montage of the shots, the frame speed, the visual elements presented to the viewers. Once we have all the visual data we can proceed to place the sonic material on the visual environment. The first step is to detect the important visual gestures and to place the sonic object based on this information.

Following this principle, we can have different objects generating sonic networks interacting at different places with the film reality. This way, all the sonic events happening inside the *diegetic field* tend to be bound to a visual element whereas the *exo-diegetic* material can or cannot share such property. Of course a positive feedback is possible. 'Live cinema' and other types of real time montage have based a big part of their aesthetic principles on an active feedback between images and sounds.

A more radical model can be seen when the *diegetic field* is broken and common behaviors appear in both visual and sonic domain. The result is the realm of abstract data shaping both models where the event becomes a common space, reinterpreted as both sonic and visual data. In this context audiovisual time no longer means a cut of the *diegetic* reality but a bidirectional feedback loop that generates a redistribution of digital information. It is outside the scope of the present text to deal with the idea of closed audiovisual systems, but it is important to consider them as important tools used in different types of live montage and visual performance.

## .>[Second intermission]documentary film and sound

### b.1.documentary montage and the sound object: bridges

Inside the documentary films we can find some of the most interesting and complex examples of sound design in modern cinema. Moreover, inside this genre and its hybrids we can trace important developments in the overall concept of montage. One possible explanation for such developments can be seen in the nature of the visual material used in documentaries and how film directors deal with the fragmented nature of the images and their visual discontinuity. In extreme cases, the sound overcomes its descriptive nature and becomes an important integrator of motion and meaning. Sequences whose principles are based on segmentation can gain immensely from sound design, either vocal gestures or dialogues, either incidental music or effects.

When we come to the realm of feature cinema, that with a story and actors, much of the drama depends on the ability of the director to use all the elements and to bind them together to generate a narrative and coherent overall. Thus, the correct equilibrium between photography, acting, light, editing and music can provide the film the correct dimension to express the story. But in the case of documentary cinema, the director faces the lack of dramatised incidents and must, therefore, grasp the mood and intention of the material by other means. It is here where sound can be a powerful tool to help such proposes.

As mentioned in chapter 2, documentary cinema uses different types of sound 'exceptions' regarding the presence of voice and incidental sound. In the case of human dialogue, documentaries provide a particular type of exception in the allocation of voice towards the internal reality of the film which is *intra diegetic* by nature. This way, the gesture of voice used as dialogue usually is presented in a space traced between the images and the incidental music, as much of its existence cannot be bound either to the manifested material and the background sound. When we come to talk about behavior of sound objects, as we have made in chapter 5, we cannot skip the presence of this 'commentative' sonic event inside the narrative film reality.

### b.2.'Images of the World and the Inscription of War'

The documentary movie '*Images of the World and the Inscription of War*'(1988), directed by the German filmmaker Harun Farocki, is a clear example how the dialogue can be used as a powerful tool to enrich the cinematic experience. In this film, Farocki tries to portrait the internal nature of presenting the image as a functional element in film and to describe the representation of the reality as space full of ambiguities. By triggering the question of how the representation of any external form can contain a process of catharsis and drama, the movie wanders around the anecdote two incidents: the first one in the 19th century where an architect, Albrecht Meyenbauer, faced a near death experience while making a measurement of a cathedral and, as a consequence, developed an interest for *photogrammetry*. The other incident being the taking of topographic photographs of Auschwitz during a routine operation for mapping bombing targets by the allies air forces. When Faorcki approaches these two non related situations, separated by circumstances and time, he

generates an exercise of tacking the concept of self representation and, with the aid of a well made discourse, how the idea of use and reuse of image can provided important clues of the way human consciousness has developed due to the aid of representing reality.

When we come to analyze the sound design, it is amazing to discover how the director relies basically on the use of voice as dialogue to generate the dramatic tension inside the film. Moreover, the *diegetic* use of dialogue generates an ambiguous character to the film. The only incidental sonic source is the presence of a fragmented background made by chopping some 18th century piano music. Besides that, Farocki presents a rich world of *intra-diegetic* sound effects and discursive elements for the images. This '*commentative*' material becomes, in the end, the dramatic element.

The story becomes more complex when a third reference appears towards the mid part of the film: the French government campaign during the 60s in Algeria where native women were requested to unveil in order to be photographed for a national identity card. Farocki switches the attention not to the photos themselves, but to the act of recognition and reflection generated by the officers tasked to the duty. The movie then, trapped between these three poles, illustrates the cycle of distant, '*safe*' action of reconnaissance. This paradigm becomes the element that gives provides the dialogue a rich discourse. Sound, on '*Images of the World and the Inscription of War*', extends the fictional reality displayed by the images.

### **b.3.documentary montage and sonic rhythm**

To achieve a desired rhythm for the montage, the fiction cinema '*moves*' the scenes in a certain fashion so that speeds between shots can be appropriate for a desired tempo. Reinforcement of time can be a big task for documentary cinema where individual shots tend to have a non controlled rhythm from where the director can generate an overall tempo. As a consequence, shots are given a rhythmic value only when the editing happens. In general, sound design becomes a powerful tool to aid such processes as dialogue can control the pace of the original shots and generate coherence between the parts.

An important characteristic of documentary sound design is how the process of editing actually happens. The order which is taken as the common thing for edit the visuals is to generate the visuals before the sounds. This way, music is used to help the stream of information provided by the images. However, in many cases, documentaries need to deal with the presence of ambient sound provided by the image itself which, in many cases, dictates the important contents of the material and provides it with a specific character. Documentary film has a low dependency on incidental music leaning more on the sonic material that can be extracted directly from the filming; thus, the sound design becomes a key element to assure the rhythm of the visuals and help the gesture generated from the voice. Of course each filmmaker has its own method to approach the sound, but the fact that a soundtrack can be generated before the actual movie is finished shows that in the realm of documentary film (even in the most extreme cases) the sound has stopped being an adjacent material to the picture; both are equal and complementary in importance.

This case of parallel editing where images provide sources to the sound design and they create the particular rhythm needed to assure a successful development of the narration, can be seen as one of the most interesting relationships established inside the audiovisual environments. Once again, the richness of a picture depends on many ways in how directors and their creative teams deal with the construction needed to generate subtleness inside a clear dramatic direction of the story and, at the same time, to allow the viewer to experience all the integral elements as a whole. When we mention voice and sound as imaginative sounds, which are both ambiguous and realistic, we find that documentary cinema has the possibility of escaping the limitation of only being a '*commentative*' element for the editing; richness is found in how the sonic event reinvents what is displayed on the screen.

Documentary cinema is one of the most interesting and powerful film genres also in the field of sound design. It seems for me that many possibilities are open for implementing interesting sound elements of documentary and take them to narrative environments. Special attention should be given to the elements of ambiguity and hyper-realism taken to the field of sound design.



## .>Chapter 5: implementation of the Hybrid Sound Objects

### 5.1.the case of [Santa]

[Santa] was the first serious attempt to implement the idea of the Hybrid Sound Objects(HSO) as a narrative element for a visual environment. The material used for this project was the surviving reels of the original movie filmed in Mexico in 1918. [Santa] was an attempt to work with different ideas and to implement the complex sonic behaviors working as a soundtrack.

### 5.2.sources of the movie

The author of '*Santa*', Federico Gamboa, published the book in 1903. Heavily influenced by the French naturalism, the book tells the story of Santa, a young girl from a small town close by Mexico City. Raped, forced to escape to the city, she is turned into a prostitute. It is at the brothel where she discovers her sensuality and, after different situations and to being loved by several men, she attempts to find a spiritual redemption. Her only friend, a blind pianist named Hipólito, tries to help her.

The movie was produced by Germán Camus, who took the young photographer Luis G. Peredo as the director for the film, The artistic origins of '*Santa*' can be traced from the Italian silent cinema, in particular the drama film '*Il fuoco*', directed by Giovanni Pastrone. Following the dramatic structure of this film, Peredo tried to portrait the image of a Mexican '*femme fatale*' whose life follows a path from innocence to sin, attempting a final spiritual redemption. Such characterization of purification was first exposed to Mexican audiences one year earlier, in the film '*La Luz*'(The Light) from the director Jaime Jamet.

### 5.3.plot

Santa is the story of a young girl living in *Chimalistac*, a small town close by Mexico City. The description of her life is rather bucolic: she wanders freely in a landscape full of hills, woods and river. In that moment she is seduced by a local sergeant. Pregnant, she is discovered by her mother, and rejected by her family. Left alone, she flees to the city just to finish as a prostitute in a local brothel where she meets a blind pianist named Hipólito.

Provided by an extraordinary beauty, several men fall in love with her. One of them, a bull fighter nicknamed '*el Jarameño*' decides to take Santa out of the brothel and live with her. The book describes how Santa fights her own sensuality in order to stay faithful with '*el Jarameño*'. However, she finally falls in love with another man, a Spanish exile named Ripoll, betraying her former lover. Rejected after being discovered, Santa goes back to brothel where, after having affairs with different men, she gets sick. Hipólito declares her promising to love her forever. After a difficult surgery attempting to cure her, Santa dies.

#### 5.4.lost, recovered and lost again

The movie was presented in different places for several years. As with most of the early cinema, 'Santa' was seen as a '*entretenimiento de carpa*'(marquee entertainment), fair spectacles filled with different acts of magic, comedy *vaudeville*. Even though its popularity, all existing copies of the movie were lost or incomplete.

In 1942 Elena Sánchez, the main actress of 'Santa', became the supervisor of the Mexican Cinema Archive(*Filmoteca Nacional*). Fully convinced of the artistic value of the film, she decided to rescue the surviving. According to the cinema journalist Enrique Rosado, '*Elena became obsessed with the idea of rescuing 'Santa' from oblivion. For several years was impossible to trace any copy of the movie until one was discovered in a remote town in the north of Mexico*'(Rosado 1972). The isolation of the town forced Elena and the group of professional restorers to spend several hours riding on a donkey's back in order to reach the closest city and transport the negatives to Mexico City.

However, the movie was partially burnt on the fire that destroyed the Archive in mid 80's. The surviving reels, four in total, and now kept in two film archives in Mexico: the National Archive(*Cineteca Nacional*) and the University of Mexico(*Filmoteca de la Universidad Nacional Autónoma de México*).

#### 5.5.state of the original material

The material used as the source for the project consisted of four reels. The duration of each one was around 12 minutes and all of them included the negative left overs. The material included subtitles but not credits. The speed of reels varied from around 19 frames per second to 24 fps. There was no soundtrack attached to the original material.

From the conditions of the material I faced the necessity of composing the music over a extremely fragmented movie. The starting point of my work was to conceive a method to generate a narrative continuity with the fragments available. The process of writing proved that the material, as a whole, wouldn't work as a single, unified movie. As a consequence, the dramatic development of the material was not assured following the first state of the material. Moreover, I faced the possibility of having empty spaces inside the narrative content of the film. Facing this situation, I decided to use the attached negative left overs of the film to generate a narrative. This way, the movie would generate a particular type of development based on the internal gaps of the narration. Following this principle, I used the biggest defect of the film to generate a dramatic motion and to provide an internal coherence to the images. It is very noticeable how the fragmentation became the unifying principle of the work.

It would have been really risky to use any thematic material beyond the temporal space used by each one of the reels. To be able to avoid such linking became one of the main elements to deal with during the writing of the soundtrack. Even more, I wanted to isolate all the different reels as simple visual windows of an *archeological material* attempting to generate a montage closer to that of documentary cinema. This mu-

tation of the narrative content inside the film shaped the sections of the film and helped the internal development of the story. For me, the best way to make an interesting use of the images was to improve their negative qualities.

### **5.6.the documentary editing and the soundtrack**

The montage of [Santa] followed several montage principles taken directly from documentary cinema; its main goal became to recreate the traces of the fragmented movie and to generate a distant relationship between the film reality and the viewer. This way all negative elements of the visual material became evident and turned into constitutive elements of the movie. At the same time, this type of editing made possible to rescue the discontinuous development of the reels.

Moreover, the final result became immersed into a particular type of *intra-diegetic* reality where the images provided a narrative content but outside a specific direction. Even more, the use of certain sonic resources got privileged by the presence of a this deep *diegetic* ambiguity. Based more on the creation of specific sonic elements not necessarily related to the film reality I tried, however, to show as much as possible how the original material lacked the dramatic strength to generate a coherent dramatic development. Moreover, by understanding this lack I tried to create a particular narrative gesture inside each one of the isolated sections.

The first step in this process was to generate non-fictional references for the film. This way, I edited the film by placing subtitles between the reels specifying the name of project([Santa]) and the number of the negative which was presented. This procedure was a classification for the sources and, at the same time, generated a particular state of mind for the viewers where what is seen could not (and should not) be referenced to anything else. By breaking the development of the story I tried to sketch the main gesture in [Santa] and to present a distant, strange image of something that was, somehow, a movie. Thus, [Santa] became an archeological film over an original movie, a myth which present state will not ever allow the viewer to watch. As a consequence, certain freedoms on the construction of the sonic material appeared. The lack of link between reels switched the work form writing one single soundtrack into four smaller sections of sound designs. The concept of fragmentation became the key word to understand the way I gesticulated the sound on the project.

Once separated by the means of editing, the reels gained a narrative richness and acquired particular expressiveness. Knowing that each material would have a limited amount of time for implementing sound, I devoted myself to generate different ways to use the HSO and to discover ways to magnify the dramatic direction of the images.

### **5.7.the music on [Santa]**

As said previously, there is not a single soundtrack for the movie. In fact, I consider that each one of the sections had their different sonic approach and generated particular musical structures. One important consideration is that reels 3 and 4 are closely linked, as they are the end of the movie and had several narra-

tive connections. The final decision to keep such material separated followed the criteria of coherence with the rest of the film. This way, the soundtrack of [Santa] can be considered eclectic following the idea of generating an experiment with different technical procedures to compose musical behaviors using digital resources as their tools. As a result, one part of the material resembles closely different processes for generating complex signals, whereas other parts of the movie present a rather more rhythmic motion based on looping sonic material. In fact, rhythm and image became one of the main features of the soundtrack. This exploration had a close link with the video, '*ph\_érique*', where the idea of pattern, beat and loop was explored within an abstract visual environment.

The second group of musical techniques used followed the idea of a '*pseudo*' sound design. This material was used on movie sections where the sound became closely linked to the visual actions provided by the images, particularly present on reel 2 where '*el Jarameño*' tries to kill Santa after discovering her and Ripoll together. Binding more explicit sonic behaviors to the images became an important element to create a closeness with the fictional reality of the movie. Using this link of gestures it was possible to create a particular type of dramatic development. I will talk more about this approach later.

The last group of HSO followed a more conservative musical approach. This way, I used melodies and harmonies in order to provide a sonic richness to the soundtrack. Clear examples are reels 1 and 4 where I used a electronic sounds nested in a similar fashion to orchestral music. These sounds, generated under the principle of sonic masses, based their internal construction on the ideas of melodic repetition and the variation of volume and duration.

A good example of this technique can be seen on the reel 4 where, after reviewing different options for the ending of the movie, I faced two possibilities: the first one close to the idea of sound design, or a more '*emotional*' approach. Here I will like to draw special attention of how important endings are when we come to narrative cinema as they can provide the final impression of a film. Even in the most experimental type of cinema, the ending can change the perception of the whole story. When I started to formalize the montage of [Santa] I was aware how difficult would be to place a correct ending for the movie, specially in the sense of the dramatic content: Hipólito takes Santa's corpse to bury it on her native town. The ending, therefore, was presented as an extremely emotional and cliched situation.

### **5.8.beat, loop and motion**

Montage itself contains a rhythm. The process of generating a motion for [Santa] followed different steps in order to achieve a coherence between the visual material and the soundtrack. Being the images slow on internal motion, I was intrigued of which procedure would allow a better development of the visual material and the possible elements to provide a better rhythm to the soundtrack. Different options were considered and, at the same time, some particular types of implementations were researched.

Among this group of possible solutions I found myself fond to the process of looping different sound layers and to generate motion with them. This technique finds its origins on different types of elec-

tronic popular music and has been explored extensively by different musicians like the Canadian Marc Leclair or the Mexican Fernando Corona (Murcof). Following these principles of moving sonic textures, I explicitly attempted to provide motion to different sections of the film where montage tends to be loose and the quality of the narrative material was weak.

On the same direction, another important musical technique used to generate motion on the soundtrack was the use of beats, specially on reels 1 and 3. I found this particular effect of slow/fast by binding together a more or less stable rhythmic section to a constant developing sound material based on repetition and loops. As a consequence, some particular musical gestures presented in the soundtrack got enriched by exploring the effect of a deep dichotomy between heavy sonic layering and a constant beat. By exploring these principles of motion based on repetition, [Santa] acquired an interesting contrast between melodic material, abstract sound design and rhythmic motion. Later applied to more abstract environments, the use of loop has proved to be a powerful tool for creating rich and powerful musical gestures.

### **5.9. the effect of a 'pseudo' sound design and the end of [Santa]**

As mentioned before, opposite to the use of a heavy sound layering I generated a type of sonic effect similar to a 'pseudo' sound design. This technique was based on using a musical material as a descriptive element bound to the narrative reality of the film, turning the music into *intra-diegetic* gestures. As a consequence, it is possible to trace a close relationship between the sonic material and the explicit visual gestures represented onscreen.

Most of reel 2 was designed following this technique. I was aware that the quality and motion provided by the images was a favorable space for writing a soundtrack following a close sonic representation of what was being presented onscreen. The action of the scene gathers around the murder attempt by 'el Jarameño' after discovering Santa and Ripoll together. By a stroke of luck the knife which is supposed to be used to kill Santa gets stocked into a closet and, by the violent attempt to pull it out, an image of the holy Virgin falls into the 'Jarameño's hands'. After being shocked by the situation and by prompting the idea that the intervention of God has saved the woman from punishment, 'el Jarameño' becomes furious and expels Santa from his house. During the sequence we can see the gestures of anger, fear and anger. At the same time, the overall scene provides the most aggressive images on the whole movie.

The original approach to these sections was to write a musical material based on an extremely aggressive music, exaggerating the dramatic tension between the two characters. But slowly I came to the conclusion that the power of the images came from showing the screaming gestures and not to avoid them. Moreover, it is within that violent action that the drama inside the scene should be exploited and magnified. By considering these images as something close to the internal reality of the movie, I tried to make a musical counterpart by generating a material that would present a more realistic sonic expression to the characters.

### 5.10.cinematic space in [Santa]

Visual environments find meaning on what is displayed onscreen. Moreover, sometimes the idea of displaying the explicit is the only way to drive attention into the narrative content of a film. However, it is interesting to notice how the development of a history can be extended outside the realms of the image by creating virtual spaces inside the soundtrack. This effect has been used in different surround systems as 5.1, where the idea of sonic space is used to create effects within the image; when something approaches to the scope of the screen we can listen to it coming 'from' the speakers and, eventually, to bind the sound with an explicit event on the screen. Thus, time and representation become key elements to help the extension of a virtual space inside the image.

Following the idea of expanding virtual narrative spaces, I became aware how [Santa] could benefit and enriched by using some of this techniques. The clearest example can be seen in the reel 4 where Santa is taken into a surgery and Hipólito is full of fear. The last part of the scene, just before the girl dies due to the heart complications, the film shows a clock that is hanging on the wall. Taking the book sources as a reference, Gamboa describes this element as the agent that brings Santa's life to an end; by representing time in the materialization of a device, the author expresses how the life finishes and provides a clue that Santa would be passed away. When it comes to the images, the film takes in consideration the presence of the object but by means of the montage it is used as a transition shot without any relevant importance. Hence, the visual material did not give any important consideration to the use of that particular material. But by bearing in mind the idea of a possible extension of the space inside the movie, I decided to add the clock 'sound' as a virtual object inside the sound design. The process itself proved to be very successful as the juxtaposition of the beat generated by the virtual clock, the layering of other sonic sources and the final manifestation to the visual source of the sound created a sensation of narrative drama and direction to the image. Moreover, the sound of the non-present clock turned to be the key element to give coherence to the soundtrack in that specific sequence.

### 5.11.'Menilmontant' and [Santa]

The direct result of the work with [Santa] was an important awareness of the key use of montage in my research. As a direct consequence, as [Santa] was an exercise to rescuing visual fragments and to generate a final structured material, the next movie where I attempted to implement the HSO, the French film '*Ménilmontant*' became an attempt to write a discrete and precise soundtrack over an extremely network of interacting shots configured as a complex editing.

Filmed in 1926, '*Ménilmontant*' has been considered as one of the most intriguing movies done during the 20's in France. Directed by the Russian filmmaker Dimitri Kirsanoff, the movie can be seen as an interesting mixture between French '*avant-garde*' and Russian '*formalism*'. Moreover, the absolute absence of subtitles commenting the actions provides a particular narrative dimension to the acting, montage and visual appealing of the film .

The movie an attempt to explore one step further the use of *diegetic* positioning of the HSO and the use of more complex synthesis placed as internal elements of the sound design whereas less abstract material becomes the source for all the *exo-diegetic* music of the soundtrack. Moreover, how both *diegetic* materials could be used as reference for each other by implementing extreme cases of ambiguity between the sonic sources and the image. Following this idea, one of the goals was to present the film reality and to switch it from a subjective perspective to a more concrete and objective narrative reality.

### 5.12. 'Ménilmontant': plot and type of montage

The story of the movie revolves around two orphan sisters. The movie opens with the murder of a couple somewhere in the countryside. The two daughters of the family are playing in the woods ignoring what has happened. When they decide to come back home they discover a crowd and find out that their parents have been murdered. The sisters move to the city and start working at a local factory in Paris. After different situations, both of them became involved in a three-way relationship with a somehow enigmatic young man.

Filmed in France by a Russian exile, '*Ménilmontant*' is a particular case of mixture between a formal montage heavily influenced by Eisenstein, and a poetic approach to the construction of the images. That can be seen in the way the director took the best elements from the French avant-garde and melted them into a complex and rich visual exercise of dramatic development and rhythm. As a consequence, if there is a single word that might describe the movie that would be, without any doubt, ambiguity. The drama, as complex itself, adds the lack of any subtitle explaining any action or dialogue, turning into the viewer's duty to find the cryptic meaning of each of the images.

Being interested in the processes involved for generating musical gestures inside visual environments, the movie presented itself as a good opportunity to explore the possible solutions for keeping the narrative and dramatic content of a complex edited material. However, the film inherited many of the techniques used in the previous movie but provided a new framework to work with rhythmical gestures, complex sound synthesis and, over all, how a complex visual montage can be related to the concept of sound design and silence. Thus, the soundtrack grew in a fashion completely different from that of the previous movie, creating specific solutions for particular needs.

For designing the sound, it was my idea to use the dramatic tension inside the montage as a trigger for developing the musical material in larger forms. Moreover, the soundtrack has an important dramatic content aiming to achieve particular and specific bounds between sound and image and to provide a twist in many elements provided by the excellent montage form where '*Ménilmontant*' is structured. So for creating the musical material I kept in mind the idea of a drama and how the sonic event could include a particular state of mood beyond what images were describing, that is, recreate a fictional space inside the narrative frame of the movie. Again, the bound between the two *diegetic* sources, internal and external, has provided me with some clues of how we think images should sound and to which *diegetic* extent musical material is needed for helping the emotional content of what is seen on screen. Is in the case of this work that for the first time I

seriously considered the presence of presets in the way viewers desire to experience the narrative flow of images. The most interesting variable in that sense might be how such expectations can be twisted in order to modify the intentional direction of the visual material.

### **5.13.the sound continuity: switching from subjective to objective**

'*Ménilmontant*' is a strange case of silent movie. Opposite to [Santa], the whole film has no subtitles and relies solely on the montage of the material. Moreover, this ambiguity on the presentation of the images generates a deep sensation of ambiguity and delivers an open story to the viewer. In this way, visual continuity is one of the main qualities of the movie as the editing helped to achieve a particular type of peace and narrative development.

If we take a close look how the movie is constructed we will be able to realize how the story has a cyclic motion. This effect is achieved by binding together thematically the beginning with the end by displaying the murdering. More interesting is to notice that in both moments of the film the causes of the actions are somehow unknown to the viewer and , thus, leave an 'open' interpretation of the images. The middle part of the film has a more linear narrative motion as presents how the two orphan sisters struggle to survive after their parents have been murdered and how their love for the same man becomes the turning point where drama develops.

Having a close look to this structure, the movie provides pauses by use of certain cinematic effects like the use of the iris. The rest of the time the material moves following the wonderful work of editing, thus having an opposite gesture of what was presented in [Santa]. When it came to plan the soundtrack of the movie I was aware that such 'motionless' display of material would require a less *commentative* sound and, at the same time, something that would provide a clear link in both dramatic tension and movement to the film.

Moreover, there is a moment when the narrative twist of the story required a high degree of musical continuity that would help the development of the story. When it comes to the field of sound design, such situation provides the main framework for composing the sonic elements that would be put over the images. Particular attention was required for the central section of the film where the drama gains tension and finishes with the climax of the final section.

Having all these things in mind, the final decision to design the sounds was to establish a clear division between the ending and the central part of the film. This effect was generated by using exactly the same musical elements but differencing the way they were used with regards to the film reality, that is the way the music affected the emotional state of the characters. As a consequence, the first part deals more with a subjective representation of the *diegetic* space of the actors: any type of external motion displayed on the screen becomes a manifestation of the personal feelings of the two sisters. A final resolution is provided towards the end of the movie as the two orphans find each other and the representation of birth and death are exhibited by the just born baby and the murder of the main character. This process of moving from a subjective situa-



tion into a common representation of reality following a cyclic story became the core of the sound design and led the writing of the music.

The main reference for such switch inside the music can be related to the perspective and intensity of it towards the images. When the two parents are murdered in the first scene of the movie, I tried to present a rough sound for a short span of time. All the music generated afterwards is just a dramatic consequence of it. Moreover, several questions might get triggered from here into the viewers as they might not clearly understand the relationship between the couple murdered and the assassin. The first important transformation of the film reality happens when the young sister follows the man into his house and, by the use of an extraordinary efficient montage, we discover she has been seduced. The music for the scene made the use of several amounts of silence in order to generate an anti-climax state for the movie. The transition for the material starts there and becomes clear in the moment when the young woman gives birth to her child.

As a conclusion we can say that most of the music in the film was generated by following to the idea of generating a dramatic tension by the use of different diegetic ambiguities inside the sound design. Following the model proposed by Gustav Freytag where the narrative climax of a text is achieved by the constant generation of dramatic tension and then released by an important action inside the story, I was interested in the different processes that could be used to accumulate of tension by using different processes on the soundtrack and to help the switching of the subjective to the objective inside the movie.

### **5.15.further work**

When I started this research I was aiming to try out the possibility of binding the idea of a whole abstract electronic soundtrack and a narrative visual environment together. That has kept me during the past years searching for a possible solution and, as some of these questions were being answered, new ideas were appearing on the way and driving the whole processes of writing the music for [Santa] and '*Ménilmontant*' into directions never expected. Moreover, in the state of my work I can say that still a lot of interesting possibilities are there waiting for being explored.

Not just the layering of *intra* and *exo diegetic* material has thousands of possible implementations and options, but the possible use of the third layer into the Hybrid Sound Objects: human voice. To think about what is the use of dialogue and vocal gestures inside the sound design for cinema still intrigues me and, in many ways, triggers different ideas of solutions and abstractions. On one hand has been seen in different ways that voice can work as the bridge between then external and internal cinematic reality and, somehow by the different methods of abstraction, enrich the meaning of what is seen.

In the same direction the idea of montage and ordering for the audiovisual material can be used as a reference point for implementing the HSO outside silent movies. How do we imagine the narrative environments using our modern technology to develop the images?. Which direction can take the sonic material if the visuals are bound in completely different way than a parallel counterpoint?. Moreover, what if the sound

objects stop their active function inside the film and become a wandering element in similar motion to the '*deriva*' montage proposed by directors like Andrei Tarkovsky or Mamoru Oshii?

One final aspect that can be explored is the intimate relationship between narrative information and a nonlinear unidirectional source for the audiovisual triggering. In other words, to jump from the idea of screening into a visual ecosystem providing a dramatic context for developing both sound and music. Can the narrative process be represented in both image and sound?. It is not my main goal to discover a precise answer to this questions but to figure out new possible angles to imagine the small windows that screen the films world, that space where the viewer experiences a partial reality filled with objects, sound and actions.

## .>Conclusions

This thesis has explored different elements used for generating complex sonic behaviors for narrative visual environments. Despite that, the goal of this thesis is not to present all the possible solutions for the use of sound and images, but to work as a guideline for how my work has developed up to now and the artistic achievements generated from such approach. So far, I have compared different types of montage, *diegetic* analysis and electronic music in order to describe a general description of the Hybrid Sound Objects(HSO). At the same time, I have discussed different tools which might aid the analysis and the practice of writing electronic music for narrative visual material. At the same time, I have also proposed a pertinent terminology for the implementation of all these ideas. In the first chapter I talked about the different approaches taken by filmmakers to deal with the issue of montage. Chapter 2 has been an analysis of all the elements presented in the sound design and how these materials can be traced in different ways. *Diegetic* space and time was discussed in chapter 3 and, after explaining the principles that rule this type of analysis, how sound objects can be placed in close relationship with the narrative images. I have also presented a technical solution for implementing the sonic objects in chapter 4. Finally, a detailed analysis of my own works has been given in order to understand the practical use of the theoretical ideas of the thesis.

The process of writing has helped me to give a form to the ideas, thoughts and dilemmas I have experienced during my practice with images and sounds. I have also learned a great deal about the influences and history of electronic music, sound design and montage in cinema, which has given me inspiration and has also helped to understand the long trajectory of interaction between image and sound. It has been difficult to scale down this broad area of study without leaving something important out. I found rather challenging to unify all these ideas and influences. Comprehensive theories in the area of electronic music and film music in general are scarce, although there are writers who have approached themes related with the subject. I found myself proving different ideas and facing a trial-error work on creating a coherent framework for implementing all the ideas expressed in the thesis. The first result [Santa] was an extraordinary exercise for understanding the hybridization of sound design in narrative film. The second film, '*Ménilmontant*' and all small visual materials that followed [Santa] have been short steps towards something more complex: the generating of both sound and image in a narrative context and the possible implementation of more direct interfaces with the sonic objects. I hope this thesis offers interesting ideas on the Hybrid Sound Objects and their particular application to narrative images.

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### **On-line resources available**

[www.cathuria.com/bcd/bcsilent.htm](http://www.cathuria.com/bcd/bcsilent.htm)

[www.cinemexicano.mty.itesm.mx/peliculas/](http://www.cinemexicano.mty.itesm.mx/peliculas/)  
[www.cinemedioevo.net/Film/cine\\_film\\_italiani\\_mutilb.htm](http://www.cinemedioevo.net/Film/cine_film_italiani_mutilb.htm)

[www.ditl.info/arttest/art823.php](http://www.ditl.info/arttest/art823.php)

[www.filmscoremonthly.com/features/skelton.asp](http://www.filmscoremonthly.com/features/skelton.asp)

[www.filmsound.org/articles/moving\\_images.htm](http://www.filmsound.org/articles/moving_images.htm)

[www.filmsound.org/filmmusic/](http://www.filmsound.org/filmmusic/)

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[www.sensesofcinema.com/contents/directors/04/eisenstein.html](http://www.sensesofcinema.com/contents/directors/04/eisenstein.html)

[www.sensesofcinema.com/contents/directors/02/tarkovsky.html](http://www.sensesofcinema.com/contents/directors/02/tarkovsky.html)

[www.uca.edu/org/ccsmi/journal2/ESSAY\\_Hersey.htm](http://www.uca.edu/org/ccsmi/journal2/ESSAY_Hersey.htm)

[www.xtec.es/~xripoll/edicion.htm](http://www.xtec.es/~xripoll/edicion.htm)

### **DVD**

Gustav Deutsch '*Film ist' 1-12*', 2004, DVD.

BBC Documentary series '*Asian Invasion*', 2003, DVD

.>Appendix

**Contents DVD 1**

*'Santa'*

México 1918, 50 min.

Director: Luis Peredo

Writers: Federico Gamboa(novel)  
Luis Peredo(adaptation)

Music: Emmanuel Flores

*'ph\_érique'*

video, 2007, 6'09"

**Contents DVD 2**

*'Ménilmontant'*

France 1926, 33 min.

Director: Dimitri Kirsanoff

Writer: Dimitri Kirsanoff

Music: Emmanuel Flores