# Creative Intuition as a Compositional Strategy in Electroacoustic Music

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*a Maritza y Julio, a Milly.*

## Abstract:

Creative Intuition can be said to be the motivating force behind the compositional act. To harness it the composer must develop those musical resources which allow him to deal with inspiration, when it comes, as well as developing the techniques to elaborate upon the inspiration received and remain true to his original vision.

In this compositional folio, I have tried to highlight different ways in which I as a composer deal with musical inspiration and the development of musical ideas. For this purpose, I begin by considering the moment in time in which I have had to write the pieces included in this folio, and its impact upon my musical practice.

In order to introduce my approach to sound creation, I have included a brief section on *timbre creation as composition* , here I revise some fundamental concepts and examine the general types of sound used and the methods of synthesis at my disposal. In considering intuition and musical association, I discuss improvisation as a compositional act. In *Son del Seis* , I am concerned with the composer's improvisation at his instrument and how this influences his writing; In *Salto Mortal* , I examine improvisation at the computer keyboard, and how it is possible, given the software facilities we have today, to operate directly upon the sounds themselves, and organize them musically, in particular I look at my approach to phrase construction with timbral gestures; In *Viaje* I combine the instrumental and computer improvisational approaches, dealing with pitched timbral gestures within the harmonic framework of modal jazz.

The compositional manipulation of time in electroacoustic music could be seen to present different challenges to the composer than those of traditional acoustic music. In considering the poetics of time in electroacoustic music I have used *Sin Ti Por El Alma Adentro* as a starting point for my discussion.

In my view, setting words to music presents the composer with an opportunity to impress his own reading of the text material upon the listener, in *Sin Medida* , I discuss my choices in musically illustrating the three poems used.

From the composition of all the pieces in this folio and my speculative explanations, I arrive at a number of concluding ideas and briefly state their relevance to my work: composition away from the traditional manuscript pad; the creative manipulation of timbre using synthesizers and samplers; the establishing of notational conventions for the representation of tape parts; the search for a compositional voice that would express my musical mind specifically in regards to integrating 'non-classical' idioms and electroacoustic sounds.

In the appendix I have included my summary of a neo-thomistic notion of art, proposed by J. Maritain, to illustrate the philosophical grounds for my compositional work.

# PART I

# 1. Preliminary Thoughts

## 1.1 World Music: technology, eclecticism, the media

As the 20th century has moved to its last quarter, compositional practices in western music have become, thankfully, multiple. It is becoming more and more the case that the post-serial methods developed by Messiaen, Stockhausen and Boulez, seem less ominous. In fact, the two "divergent paths" that Boulez writes about in his article Technology and the Composer (Boulez,1977, p.9), seem now outmoded and reductionist. 'Conservative historicism' versus 'progressive technology' is no longer a valid description of the options the composer faces today. The challenge is so multifaceted as to defy description. Composers born in the 1960s, my generation, have been exposed to a greater variety of music than previous generations, thanks to the development of the film, television, and recording media. This unprecedented boom has been possible thanks to modern audio technology. During the 1960's, the modern synthesizer began to be built; it was possible thanks to the arrival of affordable components such as transistors. The electronic industry was ready to facilitate the mass production of these self-contained systems, where it was possible to design and control sound in real time.

It was only in the mid-1960's that the first portable synthesizer, forerunner of the machines we use today, was built. It was the Moog synthesizer (1966), the brain child of American physicist Robert Moog. Around the same time, in the west coast of America, engineer Donald Buchla was working closely with Morton Subotnick and Ramon Sender in the design of a synthesizer system that would be compositionally useful to electronic musicians. Buchla was also the first to introduce a sequencer

capable of cycling through preset control voltages that could trigger pre-designed sounds. These developments filtered through to our ears via pop and rock music, as well as film and T.V. soundtracks.

Those who grew up in the 1960s and 1970s, have had a special relationship with audio technology. There developed the first mass-produced tape format, the Compact Cassette[1]. Tape recorders became easily available and affordable. The development of the music recording industry insured our participation in the media boom, as children and as teenagers. It became truly possible to listen to the Beatles' *Sergeant Pepper's* and to von Karajan's version of Beethoven's *Pastorale*, without a feeling of contradiction. The boundaries that separated "serious" concert music began then, very slowly, to disintegrate.

In the mid-1970's the first personal computers became commercially available, introducing us in this way to computer literacy, in an equally unprecedented way to developments in the audio field.

It is in the light of these events that my Folio should be heard: my sound world is as multifaceted as the choices presented to me, as eclectic as the New World culture to which I belong. Unhindered by the *fin-de-siecle* weight of the European Austro-Germanic tradition or the euphonism of the Franco-Russian composers, and at the same time able to borrow from them, I owe as much or more to the progressive rock of the seventies and to modern jazz of the eighties, and last but not least to *salsa* and the folk music of South America, especially of my native Venezuela and neighbouring Brazil.

The Folio I am presenting comprises five pieces of music: four are electroacoustic compositions and one is purely acoustic, for chamber ensemble. I intend to explore several topics which arise from both the

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[1] Although 1/4" tape had been in use since the mid 40's, its mass availability was limited.

compositional intent at work in this music and the compositional means employed.

The pieces I have included are:

***Sin Ti Por El Alma Adentro*** (1987), 11 min., for amplified flute played live against an electroacoustic tape part.

***Son Del Seis*** (1987), 10 min., for flute, Bb clarinet/bass clarinet, piano, percussion, violin, viola, violoncello.

***Salto Mortal*** (1988-1989), 8 min., for electroacoustic tape.

***Sin Medida*** (1989), 20 min., three songs for amplified mezzosoprano singing live against an electroacoustic tape part.

***Viaje*** (1991), 10 min, for electric guitar with digital multi-effects, played live against an electroacoustic tape part.

Before I embark on the discussion of the issues that arise from my compositional activity as exemplified by these works, I would like to describe in greater detail my position *vis-á-vis* the euro-centric musical practice specifically, in reference to the emergence of timbre as an important (not just accessory) musical parameter and the development of atonal and extended tonal harmonic practices.

## 1.2 The development of timbral awareness, perspectives of a current harmonic and rhythmic performance practice

The history of music in the 20th century could be viewed as the progressive discovery of the importance of timbre. The early years saw experiments in atonality, which could be understood better as experiments in timbre[2] than experiments in pitch organization. By this I mean to refer to timbre as seen from the macrocosmic level, as a

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[2] I.e. Schoenberg's pre-serial music most notably in *Erwartung* and the *Five Orchestral Pieces*, especially in number 3, *Farben* .

resultant of pitch density, as opposed to the microcosmic level, timbre of the single pitch, the manipulation of the harmonic spectrum.

This macrocosmic approach, in the light of the control we may exercise over timbre today, could be viewed as unsuccessful in harnessing the spectro-morphological aspects of composition. Possibly because the *klangfarbenmelodie* idea gave way to a preoccupation with the structuring of pitch classes, and possibly because of the lack of real timbral control, Schoenberg himself did not pursue the *klangfarbenmelodie* route. Similarly, in the early part of the century most composers avoided the issue in any depth, but seeds were being planted in Europe and America that would germinate, giving birth to new ways of creating and manipulating timbre. Although there had been earlier attempts such as the Telharmonium, thanks to the development of radio electronics and the arrival of the vacuum tube, the first "usable" crop of electronic musical instruments appeared in the 1920s, the most successful being the Theremin and the Ondes Martenot[3]. The climate was maturing, and there seems to have been a need for a new sound-world, not just a new harmonic language, as had been explored by Debussy and Satie in their use of whole-tone scales, and modality in the 1890s and early 1900s, or the atonal works of Schoenberg which would lead him by the mid-20's to his definition of *dodecaphonic* composition.

This longing for a new world of sound was well expressed by futurist painter-musician Luigi Russolo in his manifesto *The Art Of Noise* (1913)(Holmes,1985,p113):

*" • The Evolution of music is paralleled by the multiplication of the machine*

*• It is necessary to break the restricted circle of pure sounds and conquer the infinite variety of noise-sounds.*

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3 Still used today for pieces such as Messiaen's *Turangalila Symphony* .

*• We take greater pleasure in ideally combining the noises of trams, explosions of motors, trains and shouting crowds than in listening again, for example, to the "Eroica" or the "Pastorale".*

*• We want to score and regulate harmonically and rhythmically these extremely varied noises."*

Perhaps as an echo of the futurist manifesto, we find Varèse's statement in 1916, having arrived one year previously in America, on the pages of the New York Morning Telegraph: "Our musical alphabet must be enriched. We also need new instruments very badly... In my own work I have always felt the need for new mediums of expression... which can lend themselves to every expression of thought and can keep up with thought" (Holmes,1985,p116).

The advances in our understanding of electricity and electromagnetism, were to make gradually possible the futurist dream and, to an extent, the longings of Varèse, and other composers such as John Cage in America , and Pierre Schaeffer in Europe. It is the advent of sound recording that first allows us to capture sound, to freeze it as it were with some of the excitement of the original utterance: not a version of that sound, but the sound itself. Whilst the history of the tape recorder and the development of the electronic and *concrète* music fields, is outside the scope of this thesis, it is worth considering how this area of modern music making has remained a marginal one, only now beginning to appear as worthy of the time and effort composers would normally give to the mastering of traditional acoustic instruments.This is happening almost eight decades after Russolo's manifesto and Varèse's comments.

Regarding the pieces I have submitted in this Folio, it is important to trace their musical ancestry back to those early days of sonic experimentation, for it is in the acceptance of noise and the excitement of the act of recording and modifying sound that their motivation lies. In one of my works, *Salto Mortal*, I have tried to develop a purely timbral

discourse, one in which there was no real preoccupation with pitch. In fact, I avoided melodic writing on the whole and *rhythm* became the articulator of the timbral gesture world I tried to create. In the other four pieces with the exception of *Son del Seis* which is purely acoustic, I have tried to make a feature of timbral gestures, so they may become integrated into the music utterance, taking their place alongside traditional motivic gestures[4]. I have found in all four pieces, that I needed an idiom which was *tonical* . This is to say, an idiom based on some form of polarity between the chordal formations used that would give hierarchical value to a tonic area disregarding the classical rules of voice leading and going further than the late-romantic harmonic practice. This idiom should be grounded in a performance practice, but not bound by it. I found the harmonic idioms of modern jazz embodied this harmonic ideal.

The alternatives, such as those practiced by *structuralist* [5] composers, did not attract me for a number of reasons. Having used a variety of serial techniques, in works previous to those submitted in this folio, I found that the abandoning of the tonal centre was not so much an achievement of equality amongst all the musical parameters, but in fact a disregard of the individual pitch thus rendering the concept of the *wrong note* functionless. The high degree of *permeability* (as described in Ligeti ,1958) that the very nature of this kind of work allowed, rendered my choices of pitch material indifferent. Long before I read Ligeti

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[4] This is to say that they have a memorable and identifiable melodic or rhythmic contour.

[5] The term *structuralist* is used in the sense of deep structures, those which can be held to underlie and generate the phenomena that come under observation, see Fontana Dictionary of Modern Thought (1977); structuralist composers are those whose priority lies in the pre-determination of the relationships that can be established within the musical materials, in some extreme cases, the beauty of the structure is of greater importance than the music generated by this structure, aspiring in this way to translate music into "scientific truth"; given the essentially subjective nature of music, and its dependence on culture and taste, the result is *pseudo-scientific* at best.

(1958) I found that my resulting harmonic world of pre-organized material was very similar to the result of free improvisation.

Let us consider briefly this point regarding pitch material: if it is the ability to verify the "rightness" of a musical passage, that which allows us to "understand" the passage and to enjoy the virtuosity of the performer and the wit of the composer, we may safely conclude that the *wrong note* is indispensable. It is necessary then, to be able to play upon the listener's expectations, not just in terms of the global moments of tension and relaxation in the musical material, but also in the very fabric of intervallic relationships, in the moment to moment flow of the music. In this way performer and composer alike, are able to play with our perception of the musical idea, altering its nuances by means of emphasis, embellishments or improvisations. The composer must establish clear aural references for the listener to follow. Whilst these may not be strictly tonal or modal, they must relate to their traditions if they are to be understood aurally (as opposed to visually, on paper). The composer must establish also clear relationships of synchronicity[6] which will allow the listener to understand as meaningful, the coincidence of timbral gestures with motivic cells or melodic ideas. The listener must share in the intuitive knowledge of rightness which allows him/her to penetrate the musical experience in depth. It is important also to note that the concept of the *wrong note* is essentially cultural, and bound to change from one geographical region to another, and throughout the course of time.

Abandoning the structuralist approach to musical composition is not easy, for complexity in pitch organization and in overall formal

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[6] Borrowing the Jungian concept (*synchronicity*, an acausal connecting principle that would give meaning to a series of coincidences not explicable through notions of simple causality), to signify the bond which may be established by the composer between two or more events that happen simultaneously. I will deal with this point separately in section 3.4.

considerations, is taken as a sign of musical intelligence. Although audiences are more receptive to the diverse ethnic and cultural influences that are ever more present in concert music, in "serious" music making circles these are still exotic curiosities, useful as background influences that motivate the creative act, but no more. In the light of Stockhausen's work of the late 1950s and 1960s, it is astonishing to think that this has not been completely overcome in the 1990s. Perhaps works like *Gesang der Jünglinge* (1955-56) or *Kontakte* (1958/60) have not been heard properly. The manipulation of timbre and the compositional decision-making evident in the realization of these works is of a profound nature, only composers who ignore these works could argue that there are no "masterpieces" in the electronic repertoire. Furthermore, the works of the younger generation of electroacoustic composers, born in the 1940s, 1950s and 1960s all point towards a deeper understanding of the electroacoustic medium, the importance of which has yet to be properly assessed and diffused.

Composers who rely on serialist principles and ideas for the composition of their works, let us say structuralist composers, are now the conservative musical "establishment". Straying from their intellectual sphere can be damaging for a young composer's career. They have substituted the Aristotelian notion of art with that of science: their music is not a product of the practical intellect which may give rise to a literary idea of possible scientific interest, but rather a product of amateur science subjected to speculation with a sonic result[7]. It is still the case that the scientific complexity of the theoretical programme or plan of a work of music has become the indicator of musical value; it has become the

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[7] The Aristotelian concept of art as a virtue of the practical intellect is very thoroughly explained by Jacques Maritain in *Art et Scolastique*, Louis Rouart et Fils, Editeurs-Paris. In any case he describes science as *recta ratio speculabilis* and art as *recta ratio factibilis*.

object itself of creative elaboration. There is an obsession with the codification of the musical act as opposed to the musical phenomenon. This is to say that there has been an increasing tendency amongst composers to apply their imagination to the notational aspect of music rather than to the musical sound itself, this is particularly evident in the works of composers of the so called "New Complexity" school.

At the same time, composers pursuing a return to a more euphonic music are becoming fashionable with audiences, whilst still lacking credibility from the musical establishment. In my view, applying methods of composition which ensure a systematic use of the musical material has become a necessary condition for the production of serious musical art; the emphasis is on the method, if it is thorough and complex, then the music will be greater, regardless of its appeal to the senses.

However, all the schemes of pre-planned music cannot ensure its beauty, for it still lies in the making of sound itself. The composer is freer now than ten years ago to reject the cerebral approach, the "pre-planned" music, and return to the more traditional rituals of composition in which ideas flow as it were from the composer's instrumental shortcomings[8] and occasionally from his virtuosity.

Finally, I would like to consider what I believe have been the most creative fusions between popular music making and concert music: progressive rock and ECM[9] jazz. From these musics I have derived my ideas of pulse and my harmonic language. Since the *Danse Sacrale*, in my view, we have not really explored *pulse-based* rhythmic organization, be it polymetric or completely aperiodical. Even though the music of Varèse and others has been rooted in this practice, the views on rhythm

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8 Regardless of how unconventional his instrument may be, e.g. interactive computer software or custom midi controllers.

9 ECM is a German record label recording such artists as Chick Corea, Oregon, Keith Jarret, Pat Metheny and Lyle Mays, amongst others, although some of these artists are now with other labels, the ECM feel is still very present.

as stated in Adorno (1948, p.154) in regard to Stravinsky's treatment of metre in the *Danse Sacrale*, seem to have prevailed, namely that rhythm becomes split off from musical content, assuming as it were, the role of theme. Interestingly enough, in many parts of the world, rhythmic ideas have thematic validity in themselves, devoid of the need for melodic patterns, as can be found in the afro-american drumming of the Venezuelan north-eastern coast, during festivities such as St. John the Baptist on the 24th of June, to name but one instance. In view of how world music is influencing composition in the late 20th century, we should perhaps refer to Schoenberg's "Fundamentals of Musical Composition" and extend the concept of motive[10] to embrace the rhythmic and timbral gesture.

The complexity of total serialism's rhythmic organization, as practiced by Boulez (*Structures Ia*) and in much of structuralist music, results in static and durational rhythmic constructs[11], as opposed to *pulse-based* designs. It is the latter that concerns me in the pieces of this folio, although this does not mean to say that I am averse to the use of static textures, such as the last section of *Salto Mortal*, or the superimposition of many recognizable pulse based percussive phrases over static synthetic tones as in *Sin Ti Por El Alma Adentro.*

Apart from the musics of the Caribbean and Brazil, which are essentially periodic, but very syncopated, I have found that it is in British progressive rock bands of the seventies such as Gentle Giant (*In a Glass House*,1975, *Octopus*, 1974) early Genesis and Peter Gabriel (*Foxtrot*, 1974 *Peter Gabriel 1,2,3*), Yes (*Fragile*,1972) or King Crimson (*In the court of the Crimson King*, 1969, *In the Wake of Poseidon*,1970,

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10 "Memorable shape or contour, which usually implies an inherent harmony", Schoenberg (1948), inherent rhythmic vocabulary in the case of rhyhmic motive and inherent timbral world in the case of timbre.

11 Ligeti (1958)

*Discipline*, 1984) that exciting rhythmical constructs have been common *performance practice*, particularly in regards to polymetry. Another interesting British contribution I have found in the work of Brian Eno, who specializes more in the electronic music field (*Possible Musics*, 1980). The fact that such diverse influences can be brought to bear on my music is evidence of the power of the media, and the effect it has had on my generation.

In terms of my harmonic ideas, it is ECM jazz that has influenced my music the most, for the artists that record on this label practice a style of modal improvisation that appeals to me, as can be heard in the music of Keith Jarret (*Facing You*,1972) or the music of Chick Corea, whose brand of jazz-rock fusion is capable of embracing harmonic idioms close to Bartok, Ives and Stravinsky as well as Ellington and Gershwin (*Light as a Feather*,1974, *Septet*, 1985, *Eye of the Beholder*, 1988) . The pallette of "tonal colouring" used by these composers is indeed very broad, as it is capable of leading the listener from familiar hymn-like chords and melodies to aggressive and angular harmonies resulting from modal improvisations or arrangements.[12] It is also common for this group of artists to use amplified acoustic instruments, with or without signal processing, and synthesizers, extending tonal idioms even further into the use of microtonality and indeed the expressive control of timbre.

The language of jazz and rock, continually transforming and assimilating ethnic influences, is becoming richer every day: it has re-interpreted the traditional structural functions of tonal harmony[13], and it has developed new concepts of voicing that are grounded in a solid performance practice, not in theoretical constructs such as applying the

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12 I intend to discuss these ideas in greater detail in 3.5.1.

13 Particularly concerning the notion of inferior tones and voice leading in root progressions as discussed by Schoenberg (1948).

golden section to a number of bars or serializing durations[14]. Within the domain of jazz and progressive rock, rhythm has become *pulse-based* in a manner which is both old and new at the same time, extending our perception of what makes a stable or unstable rhythmic foot.

I intend to show, through detailed discussion of the music presented in this folio, not only the compositional mechanics but also the philosophies which motivate my work: how the Aristotelian notions of art and science still ring true, how neo-thomism, as presented by the French philosopher Jacques Maritain may provide fresh insights on the nature of musical composition, and how my music seeks to make the listener partake in the beautiful drama of musical creation, whether or not the speculative intellect is engaged, the practical intellect being the vehicle, the senses its aim.

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14 As in Babbitts time-point system.

# 2. The Creation of Timbre

***"Whenever I have a new sound, I have a new song."***

Joe Zawinul (Keyboard Magazine, March 1984)

## 2.1. Timbre Creation as Composition

In my work I have found that when creating a sound I am already composing the musical gesture which that sound will imply. With the technology available today, it is possible to have great control over the development of a sound from the moment it is triggered to the end of its amplitude curve. With the advent of programmable digital synthesizers in the late 1970s and early 1980s, it has become possible to store sound designs for recall in performance, thus enabling the composer to create many different timbres for a single performance. This was a cumbersome task in the early days of synthesizers. The production of complex musical gestures was very much the province of studio realization, not live performance. Now that any sounds created on a synthesizer may be stored onto magnetic media or kept on a computer hard disk by the hundreds and thousands, the composer is free to design his sonic gestures with the confidence that they can be recalled easily at any moment.

Since most synthesizers commonly available today are capable of triggering very long sounds, in some cases up to a few minutes long, the synthesizer becomes a sort of miniature studio in which the initial sound gestures may be composed. If we consider the real-time control of amplitude, pitch and timbre modulation, panning and low frequency oscillation, as well as real time control of various digital signal processing parameters available on the latest machines, we are now in a very strong position to take *sound design as composition* seriously. All

the parameters mentioned in relation to synthesizers are also to be found on samplers. Sound samplers have gone some of the way towards facilitating the digital editing of recorded sounds, they are currently limited however by the length of sample (recording of sound) that they can retain in memory. This is usually unsatisfactory for composers accustomed to the traditional tape studio manipulations. The very latest technology is only now making easily available the "tapeless studio" concept, allowing the composer access to the recording and editing of acoustic sources directly onto a computer's hard disk. The new breed of synthesizers incorporate pre-recorded sound samples that can be layered with synthetic tones to produce new timbres.

Regarding the creation of timbre, it has been too often the case in the last thirty years, that the composer delegates this work to a "studio technician", thus limiting his own participation to pronouncing a kind of "aural judgement" on the results, accepting or rejecting the "technician's" work.

With the advent of *midi* [15] in the early 1980s it has become relatively easy for any composer to have access to high quality sound production systems, as well as making possible the putting together of a *workstation* ; having a personal computer equipped with sound design software and sound editor-librarian programs, it is possible to control a number of synthesizers or tone generators[16] and to produce sophisticated pieces of electroacoustic music. All the pieces in this folio have been written on workstations of this kind. These advances are "democratizing" the production of electroacoustic music, previously confined to radiophonic studios and universities or institutions with

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15 Musical Instrument Digital Interface, a protocol established to enable synthesizers, audio devices and computers to communicate with each other.

16 I shall use the these terms indistinctly to denote the same thing.

mainframe computer systems. We are indeed at the beginning of a new phase in the history of electroacoustic music.

An interesting result of the widespread availability of high technology sound production systems has been paradoxically a renewed appreciation of the fact that better technical means do not necessarily produce better music.

In order to be able to discuss the pieces in this folio without constant technical explanations, I would like to define my basic sound design terminology and describe in general terms the synthesis methods at my disposal.

## 2.2. The concept of the envelope

An *envelope* may be defined as the "life story" of any parameter of sound, and also as the control over time of any parameter of sound. Therefore there are pitch envelopes to effect changes of frequency, filter envelopes to effect changes in harmonic content, amplitude envelopes to effect changes in amplitude. These envelopes may be controlled in real time, and in varying degrees on most synthesizers. According to the different voicing architectures, envelopes may be applied to any parameter, so I shall use the term envelope to describe this pre-composed change in a parameter value through the course of time.

Given that different manufacturers label the stages and speeds of an envelope differently, I prefer to group these stages under the four traditional headings: attack, decay, sustain, release. Most tone generators provide more than one stage for each of those headings. I shall refer to the beginning of the attack stage as the *onset* .

In order to work efficiently, before I start work on programming new sounds, I create "template" envelopes with the most commonly used characteristics, for it is easier to modify a template than it is to create the envelope from scratch every time.

These template envelopes were mostly to do with the general amplitude curve of the sound. For example, I have percussion envelope templates that are characterized by very sudden onsets in the attack stage, a fast decay rate, no sustain, and variable release to act as resonance. If I need to design a percussive sound, it is here that I will start, filling this amplitude envelope with the right oscillator settings that will determine the timbral quality of the sound, and then altering the template as necessary.

## 2.3. Types of sounds employed

I divide my sound sources, whether synthesized or sampled according to their musical function in the following way:

**Pitch Objects**: these sounds have a pitch envelope that describes a familiar chord or melody, or contains a motivic cell.

**Percussive Sounds**: sounds whose general amplitude envelope is similar to that of a percussion instrument.

**Pads**: a slow attack, slow development and slow release. suitable for underpinning textures, hence the use of the word pad, as in "padding"[17]

**Timbral Objects:** sounds which present erratic pitch, amplitude and timbral envelopes.

**Rhythmic Objects or Loops**: sounds which contain a pre-recorded loop with an inherent rhythmicity.

**Literal Samples:** samples of acoustic instruments played in a conventional manner.

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[17] I am aware of the very different use of this word in audio engineering but it is rapidly becoming an established neologism amongst synthesizer users and this is why I have chosen to use the term.

I use the term 'Voice' or 'Patch' indiscriminately to refer to a timbre which has been created on a synthesizer or sampler. My approach is usually to start programming from an *initialized voice*. An initialized voice is a blank location on the synthesizer's internal memory, where it is possible to store a voice or patch that has been designed by manipulating the instrument's sound generating parameters (voice architecture), from their primary settings.

I only use pre-composed sounds if they are very neutral and can serve to re-inforce one of my own sounds or if they can be easily modified into something completely different. The types of sounds shown above are used in various combinations apart from being used on their own.

The following general strategies are employed in the combination of the sounds described above:

-Percussive sounds, literal samples with fast attacks, and rhythmic objects are used to reinforce the onset in sound combinations.

-Pitch objects, pads and timbral objects are used to provide textural development in sound combinations.

The possible combinations are increased numerically if we take into consideration that the character of a sound can change quite dramatically just by transposing it up or down. This is possible due to "scaling" parameters on synthesizers and samplers that allow the envelope times to change according to transposition. Therefore I tend to use more than one pitch of the same voice in order to enrich the timbral development in different voice layers.

## 2.4. Methods of synthesis and Instruments used

The kinds of synthesis techniques available to me during the composition of the pieces in this folio can be reduced to two main types: frequency modulation (FM) and subtractive synthesis.

In frequency modulation, the frequency of one oscillator is used to change the frequency of another oscillator, the basic idea is to effect a "vibration of vibrations"[18]

In subtractive synthesis, a sound is subjected to filtering in order to remove selectively different bands of the spectrum, this may be operated dynamically by means of a filter envelope.

My standard FM synthesizer is the Yamaha TX802, but I have also used the Yamaha SY77, which is capable of advanced FM, in the last piece in the folio:*Viaje* .

The Akai S900 sampler and the Korg M1 (which is more like a playback sampler) use subtractive synthesis to modify their pre-recorded sounds.

The Roland D110 is a subtractive synthesis tone generator with limited additive synthesis capabilities, but Roland call their particular approach to this technique "Linear Arithmetic".

A recent development in synthesizer design is the inclusion of digital signal processing capabilities within the tone generator's sound production architecture. In this way it is possible to recall a voice with its own reverb or delay, phasing or flanging[19]. I have tried, wherever

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[18] The technique was invented by Dr. John Chowning and originally published as a paper in the journal of the Audio Engineering Society, vol. 21, pp. 526-534, 1973, under the title "The Synthesis of Complex Audio Spectra by Means of Frequency Modulation".

[19] The specification of digital signal processing techniques lies outside the scope of my thesis.

possible, to make the signal processing an essential characteristic of the voice, not just a "cosmetic" afterthought; by the same token general reverberation is only applied at the final mix to add more depth to the stereo image.

# 3. Intuition and Musical Association

## 3.1. Intuition and Musical Association: Improvisation as a Compositional Act.

If a composer has no plan or scheme to fulfill, when writing a piece of music, how is he to articulate his musical thought from moment to moment? how is he going to ensure continuity? how will he ensure that the piece stands as a whole? I believe the answer to these questions may be found by considering the nature of improvisation.

Most musicians will agree that improvisation is essentially interactive. This is to say that when a player or composer is involved in improvisation, he creates and reacts to musical ideas instantly. The ideas he reacts to may not be his own, as is sometimes the case in jazz, when improvising on the tune of a jazz standard[20], nevertheless the process is intensely personal and relies on the musician's aural ability to associate musical gestures and elaborate them. This interaction cannot be the product of speculative thought, especially when the improvisation is done in a performance situation[21], there is no time to reason, the music must flow coherently unhindered by rationalization. This process, however, is not illogical[22], for it has its rules. These rules are the product of musical

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[20] Jazz standards are an accepted body of songs which have been created and interpreted by the great jazz musicians, they are collected in the illegal "Real Book", to which most jazz players have access or in other legal editions such as the "The New Real Book"(Sher Music Co., Petaluma, California,U.S.A.,1988).

[21] Not only when performing for an audience but when performing privately in "real time" as it were, with no pause for speculative thought.

[22] The issue of logic arises from considering whether or not it is possible for musical ideas to flow coherently if reason is not being exercised. This is a valid question for the use of reason would imply the quest for knowledge of the causes of events. Logic would then explain the connections between these events whose causes have been determined. Given the nature of musical performance, and in my experience, of musical inspiration, it would not be possible to explain fully the logic of the musical act, but it would not be possible either to qualify it as illogical. The consideration of empirical rules is therefore necessary in order to illustrate the complex motivations at work in the act of musical creation.

intuition at work, and therefore they are empirical. They may be formulated implicitly, but they are rules nevertheless, because they regulate the musical act, allowing the performer or composer to realize his musical thought. If these rules did not exist, there would be no way for the musician to judge whether he is playing correctly[23]. Even when the musician chooses to play or write absolutely "freely", he is only able to do this insofar as he can reject or accept stylistic features (rules), therefore exercising his musical freedom[24].

Rules are the result of cultural background and the player's own performance practice. They are applied intuitively by the player, who then conceives his musical gestures as a direct result of applying them to the material he is given to improvise upon, or previous ideas elicited by the material, or his own original idea.

It is not usual for the improviser to think far ahead as he plays. He is instead looking back upon his earlier ideas and choosing to depart, contrast, repeat, elaborate them. He must *hear* in his mind his previous utterance and respond to it, in the light of the music still resonating in his aural memory. This is essentially a "moment to moment" process, it is a process of association where an idea, considered against its immediate musical past gives rise to another one, it is a *musical association* , it is not rational, and because it works as it were by "seeing" the musical experience as a whole in a "flash of lightning", it is therefore *intuitive* .

On the one hand, this musical association ensures that the music is fresh and spontaneous, on the other, intuition provides unity to the

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23 The correctness being defined by the musician himself in that he is trying to realize an ideal of his aural imagination.

24 The notion of rules is still valid, even when the musician abandons himself to a "stream of consciousness" musical act, in this case he is choosing not to exercise his taste consciously but his utterances can still be explained by reference to empirical rules of performance practice.

improvisation as a whole. With the mind's ear, the musician is hearing what he should play, and in what musical direction to aim his energy.

In all the pieces of this folio I have used improvisation as my means of composing. Whilst intuition allows me to "hear" the piece as a whole, improvisation enables me to extract from my mind the music itself. The former gives me direction and unity, the latter moment to moment creation.

The composer's improvisation has a formal advantage over the performer's, namely that the composer is in a position to check and revise every utterance before it is presented to an audience. And because he may also require the performer of his work to improvise, he can control this improvisation and guide it, in this way he is also expressing himself through the performance of his composition, this is to say through the musical realization of the performance itself as opposed to the written music. For example, if a composer writes a passage which is nearly unplayable, he is not merely asking his performer to work harder at learning the music, he is influencing the actual performance of the music by introducing an element of risk in its realization which may a have dramatic content; if the composer determines improvisational parameters to be followed by the player, he is also shaping much of the form in which the improvisation will take place.

## 3.2. Approaches to Improvisation

I have had two main approaches to improvisation, one is guitar based (for this is my first instrument) and the other is computer based.

In **guitar based improvisation**, I conceive my ideas at the instrument and play the music through, learning it as I compose, so that entire chunks are committed to memory before they are finalized and

written down. I spend long hours improvising through the different ideas that arise until I am pleased with the aural result. The next step is to take the written passages, orchestrate and embellish the guitar-generated musical "core". *Son del Seis* (1987) was written like this.

In my **computer based improvisation**, I conceive ideas at the computer first by designing the sounds I will use: the sound sources may be recorded and then edited digitally on a sampler, or created on a tone generator[25], then, I use sequencer software on a *midi* workstation in order to assemble the musical passages which will eventually be shaped into the finished composition.

My sequencing is essentially improvisation because in playing the sounds from the synthesizer keyboard or inputing sequences of notes in step time[26], I establish a dynamic relationship to my material: the envelope characteristics of the sounds suggest the compositional alternatives. I am therefore engaged in a kind of performance as I record and edit, listening to the results over and over again, playing with the material in the true sense of the word. In the same way that an orchestral composer has techniques of orchestration which become his hallmark, both supporting his musical thought and stimulating it, when the electroacoustic composer designs his own sounds, he is creating his material and discovering it at the same time. In *Sin Ti por el alma Adentro*, the sounds produced by the tape part were sampled from the flute, by recording the sound of key clicks, whistle tones and breath noises, although the final section of the piece features a synthetic timbre which is meant to colour the flute tones produced by the player in

---

[25] Tone generator is the term that describes the sound producing part of a synthesizer keyboard, and is also used to describe modules without a keyboard which may be controlled via midi.

[26] In order to create musical gestures that would be impossible to perform for a human being, normally I will not give the computer a role that can be played by a person.

concert, which is the only electronic sound in the piece.In all the other works, the sound world has been created with the tone generators[27] by means of voice editing software on the Apple Macintosh SE computer or the Macintosh IIsi.

I have used the computer based approach in *Sin Ti Por El Alma Adentro* (1987), *Salto Mortal* (1989), and *Sin Medida* (1989).

In my most recent piece, *Viaje* (1991), I have combined the two approaches, by writing a piece for the electric guitar with digital signal processing, against an accompaniment on tape, previously sequenced at the computer.

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27 The exact setup for each piece is included in the discussion of the pieces to follow.

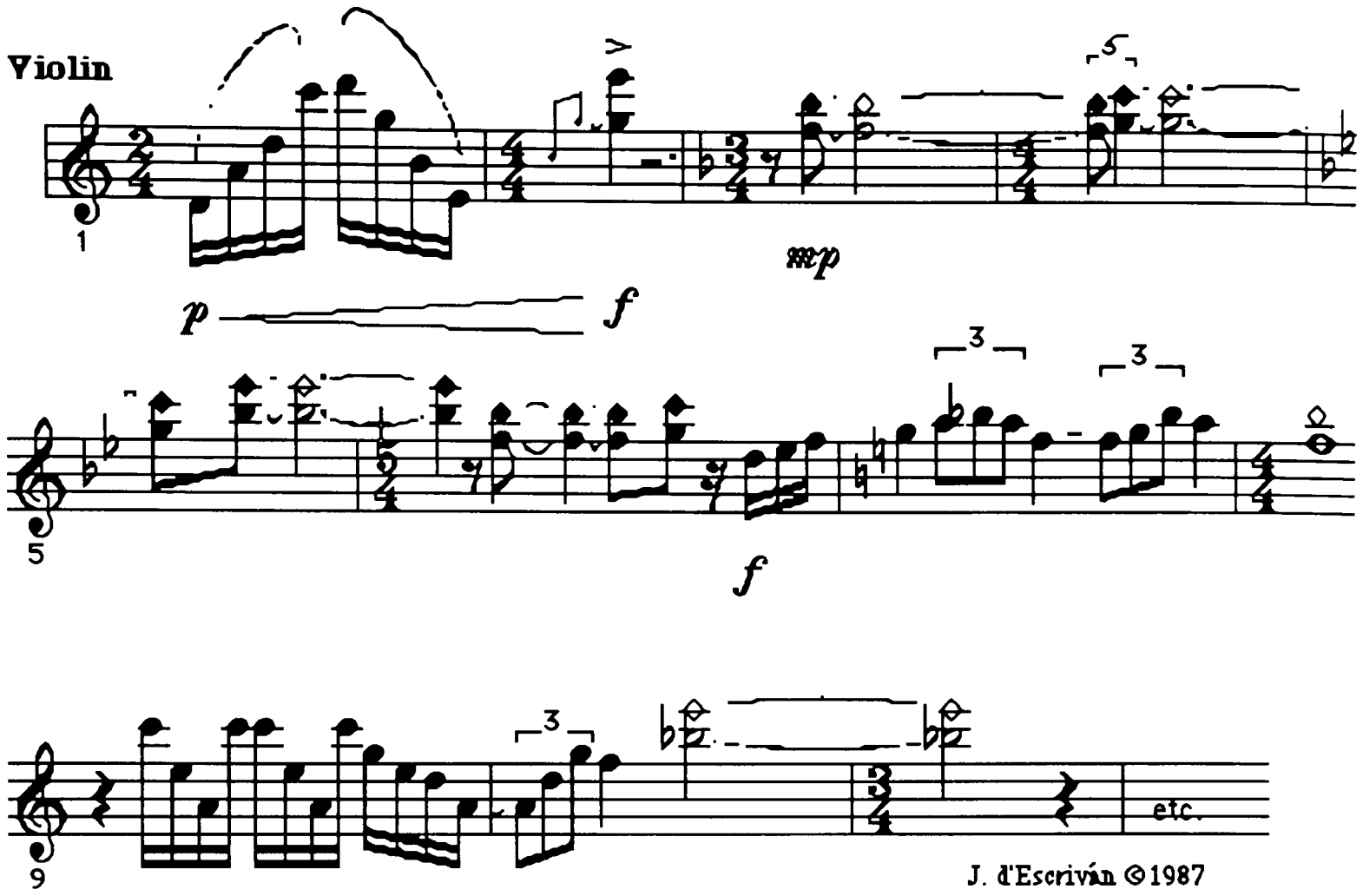
## 3.3. Guitar based Compositional Improvisation: Son del Seis

Throughout the past five years I have applied certain techniques that allow me to use the guitar as a compositional tool.

In *Son del Seis* , I was writing for a chamber group consisting of flute, Bb clarinet/bass clarinet, percussion, piano, violin, viola, violoncello. I was immediately drawn to the strings as the focus for my musical imagination. In order to stretch my knowledge of string writing, I tuned my guitar in fifths to produce the following scordatura from lowest to highest: starting on the C two octaves below middle C [ C - G - D - A - B - F# ]; because of the string tensions I was not able to tune the second string (penultimate in the above list) to E, so I left it the same and changed the highest string from the normal E to F#.

Once the guitar had been re-tuned, I then proceeded to improvise chord progressions and rhythmic ideas. Since the guitar is normally tuned in fourths, the new tuning had the effect of invalidating my usual chord fingering schemes. I also had to re-learn how to finger scales in fifths tuning. This preparation of the guitar determined how the piece would be shaped.

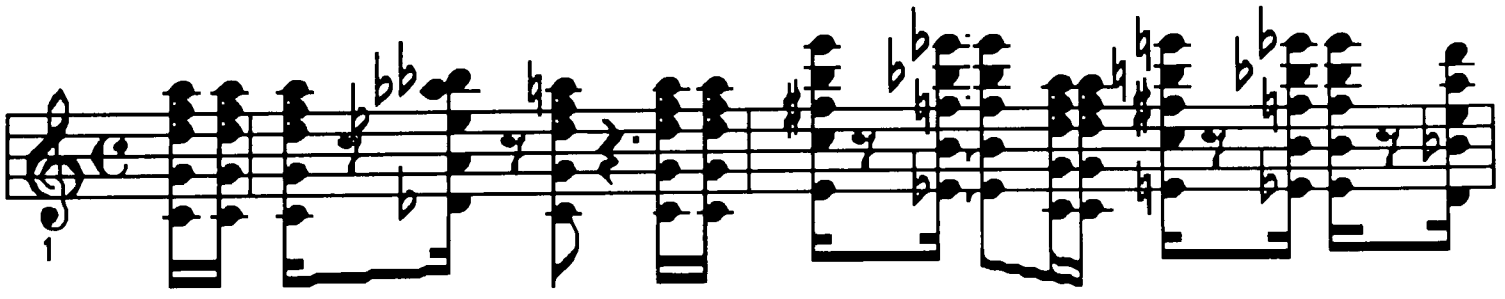
In particular, the solo violin lines were the result of many improvisations that crystallized in something I could play and feel through my instrument. This can be observed especially in Ex 3.3/1:




***Son del Seis:*** **bars 1-11**

**Ex. 3.3/1**

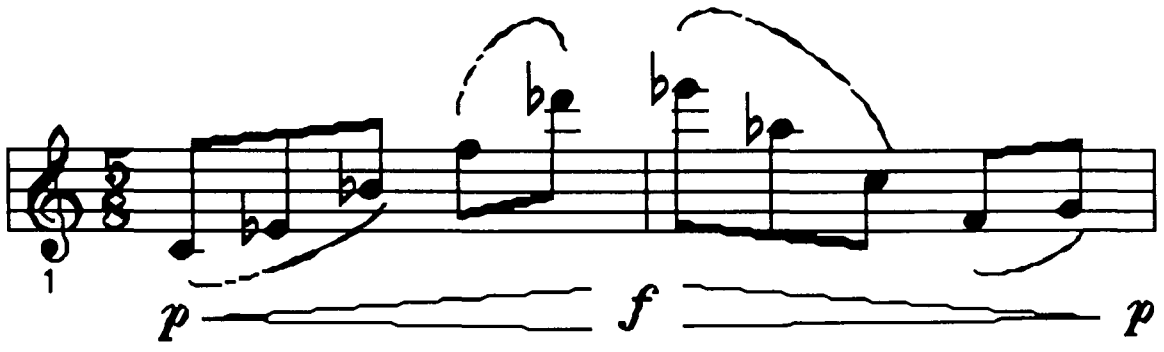
Regarding harmony, the kinds of chords that became idiomatic in this tuning are illustrated by the piano chords that appear at bar 120, Ex 3.3/2:




***Son Del Seis:*** **piano chords bar 120-121**

**Ex. 3.3/2**

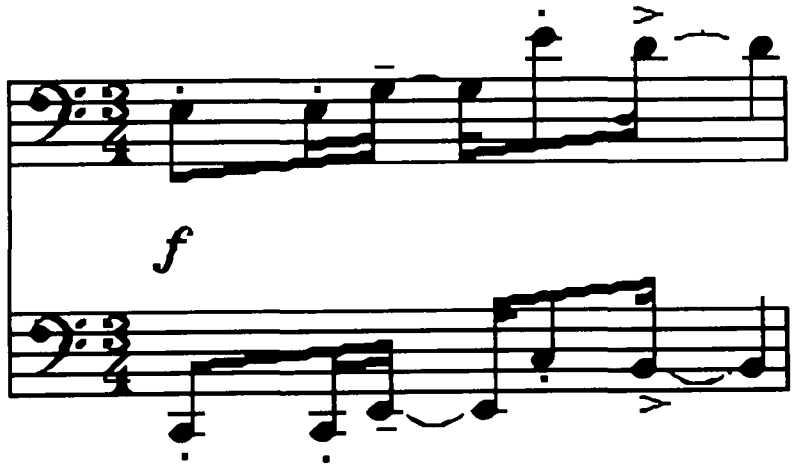
Arpeggios made predominantly of fifths such as the one found at bar 39, Ex 3.3/3, were also facilitated by the guitar tuning,




***Son Del Seis:*** **arpeggios in fifths**

**Ex. 3.3/3**

The expanding and contracting tenths motive, first found in the piano at bar 69, Ex 3.3/4, would have been very difficult or impossible to play on a guitar in standard tuning:

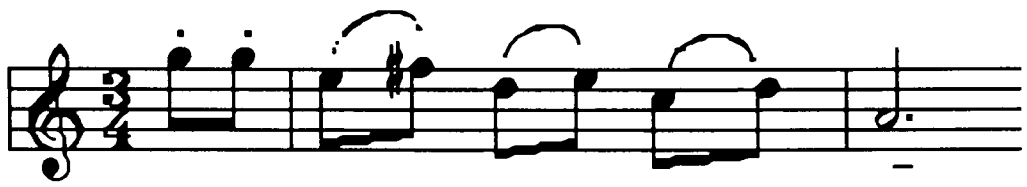



***Son Del Seis:*** **tenths motive**

**Ex. 3.3/4**

As I worked through the realization of *Son del Seis* , I found myself taking musical detours *en route* to my goal which was to present an orchestrated version of the *Seis por Derecho* , a Venezuelan folk style, normally played on the diatonic harp, with maracas and four string guitar accompaniment. Its form is of theme and variations, concentrating on the presentation of rhythmic variations upon very simple diatonic

material. I wanted to arrive at it through a gradual presentation of thematic ideas closely related to the simple diatonic melody which characterizes the *Seis por Derecho* refrain, as seen at Ex 3.3/5:

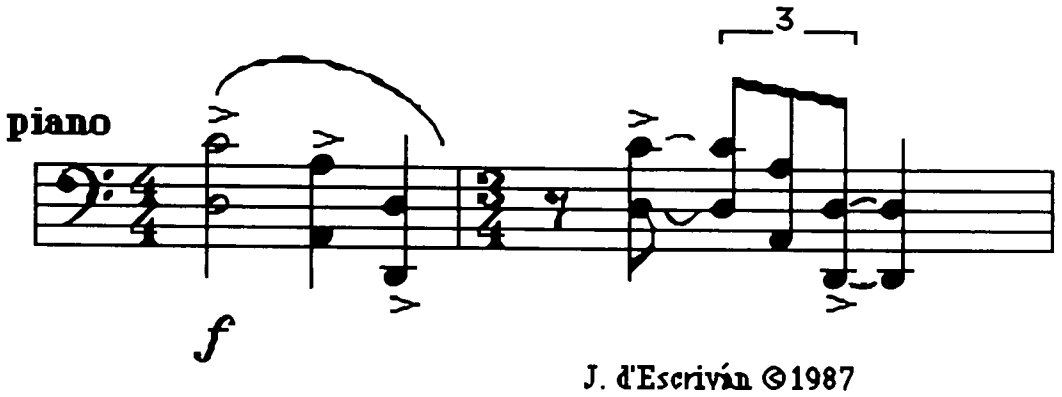


***Seis por Derecho:*** **refrain**

**Ex. 3.3/5**

In order to illustrate the choices I made in the realization of the material, I would like to comment on the form that resulted from my compositional improvisation. The *Seis por derecho*, being a folk style, was not conceived on paper, as it were. It has therefore many valid interpretations. What interested me about this genre was the ambiguity between two versions of the metre: 3/4 and 6/8. Sometimes they are juxtaposed in time, sometimes the accompaniment is in 3/4 while the melody is in 6/8. This is in fact a trait of much South American folk music. In particular reference to Venezuela, there is a further ambiguity between playing music which is in 5/8 occasionally in 6/8, this is done when the bar contains rhythmic figures such as: ♪♪♪♪♪ and by a tacit agreement the players occasionally perform it as ♪♪♪♪♩ , this happens in the course of a single piece, and it may seem unpredictable to an outsider. There are also versions of the *Seis por derecho* which are performed in 5/8 most of the time. It seems to be, and this is a matter for ethno-musicologists, that metrical variation is used as an expressive device in Venezuelan folk music.

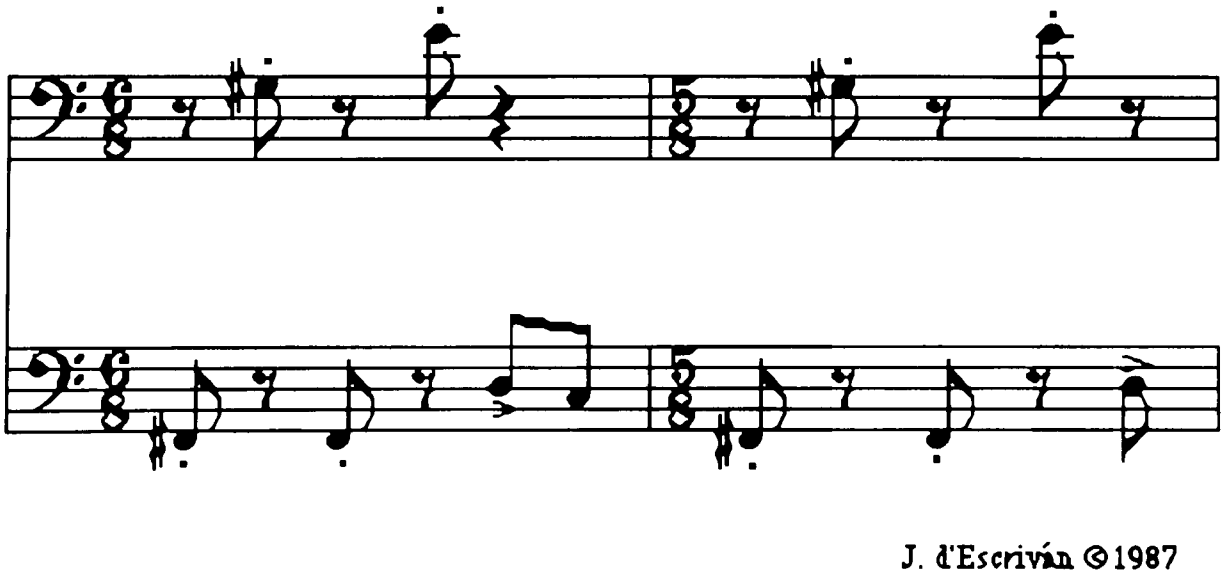
The first section of the piece deals with the 3 vs. 2 metrical ambiguity. The steady crotchet pulse which is implied throughout this section is slowly undermined by the triplets, until the meter is forced to modulate, piano and low strings restlessly play on the 3 vs. 2 while the violin performs a soloistic part with a counterpoint from flute and clarinet. I spent a long time improvising with the rhyhmic phrase at bars 2 and 3, Ex 3.3/6:




***Son Del Seis:*** **rhythmic phrase at bars 2-3**

**Ex. 3.3/6**

The metrical modulation which finally results is heard when the quaver triplet becomes the straight quaver at 33. Now the struggle is 6/8 versus 5/8, as can be heard at bar 41, Ex 3.3/7:




***Son Del Seis:*** **6/8 versus 5/8, bars 41-42**

**Ex. 3.3/7**

These metrical contrasts are not the product of an extramusical idea, they are what results when you try to perform in this style idiomatically. During the composition of that opening section I found myself having gone from one tempo to another, and had to stop and consider how it had occurred in order to write it down. I went one step further and altered the harmonies, substituting the very straight diatonic folk idiom with my own version of it, using augmented 4ths, major 7th intervals, 9ths and so on.

This first section extends up to Bar 65 and is the result of my improvisation and play upon these metrical ideas. These ideas were to come to fruition at the very end of the piece, when I tried to present a kind of "cubist" *Seis por Derecho*, before playing the original. Much like finding clues that in the end allow the listener to expect the straight version of the "Seis..." and to identify its distortions in the previous passages in hindsight. This happens properly from Bar 201 to the end (bar 382).

Diagram 3.3.1 illustrates the sections which constitute the piece. It provides an overall view of the sections and their length as well as their tempi relationships. Sections B and C are very similar, they follow a pattern of piano "breaks" and woodwind repetitive phrases, in the style of the *Salsa* [28] *Montuno*, this is an Afrocaribbean form in which the lead singer improvises in response to an ostinato phrase sung by the chorus. I have treated this idea by casting the piano in the "lead singer" role, and

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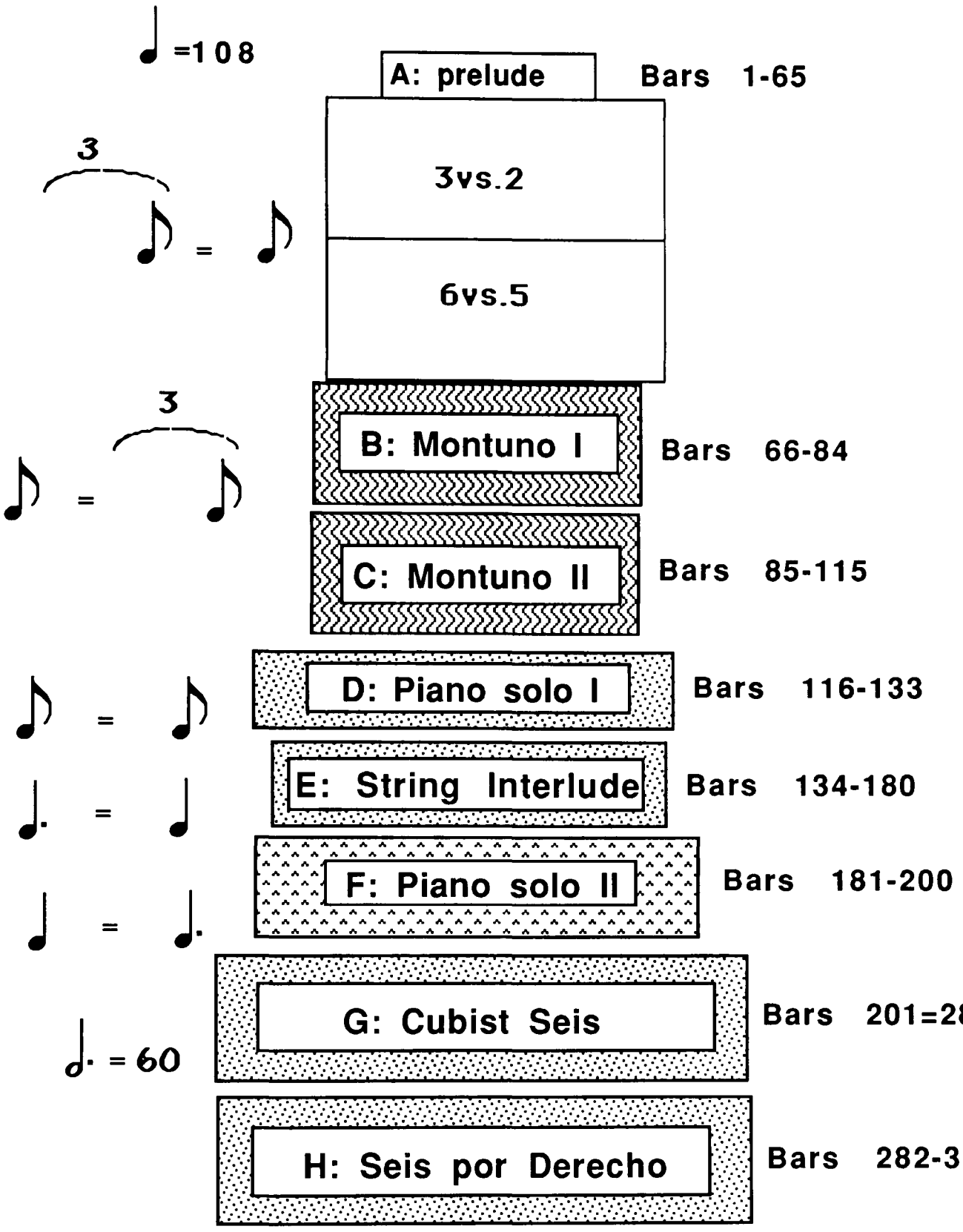
28 *Salsa* is the popular dance music of the Spanish speaking Caribbean since the 1960s, it comprises an eclectic mixture of rhythmic formulae borrowed from the original afrolatin percussion music of the various countries in the region. *Salsa* is mostly indebted to afrocuban folklore, but it is an idiom in continual transformation.




*Son Del Seis:* overall view of sections

Diagram 3.3.1

giving the ensemble the chorus function. The rhythmic figurations employed are stylistically *Salsa* . In fact, the rhythm of the woodwind interjections is strictly that of a *guajeo*, this is an ostinato pattern found in the instrumental accompaniment of *Salsa* music.

The use of repetition and fragmentation of the individual phrases and of the sections within sections owes very much to my studies of Stravinsky's music of the 1940s. In particular to *Orpheus* (1947) and *Symphony in three movements* (1945), both pieces are articulated by these means. Although it could be argued that this may be due to their relationship to dance and to film[29], it is worth quoting Stravinsky (1982, p. 52) on this point : *" Composers combine notes. That is all. How and in what form the things of this world are impressed upon their music is not for them to say."*

It could be said that sections B, C, D, E, F owe their elaboration to my improvising upon the musical sentences in a way very similar to the traditional electroacoustic studio techniques of tape editing: snipping and splicing, as well as layering[30]. I find these methods of treating the material more natural than the traditional development techniques of motivic augmentation and diminution, imitation and counterpoint.

The following extract, Ex. 3.3/8, heard at bar 83, is an instance of simple layering of the piano "break" over the string motive that is used as a link for the different sections and subsections mentioned above:

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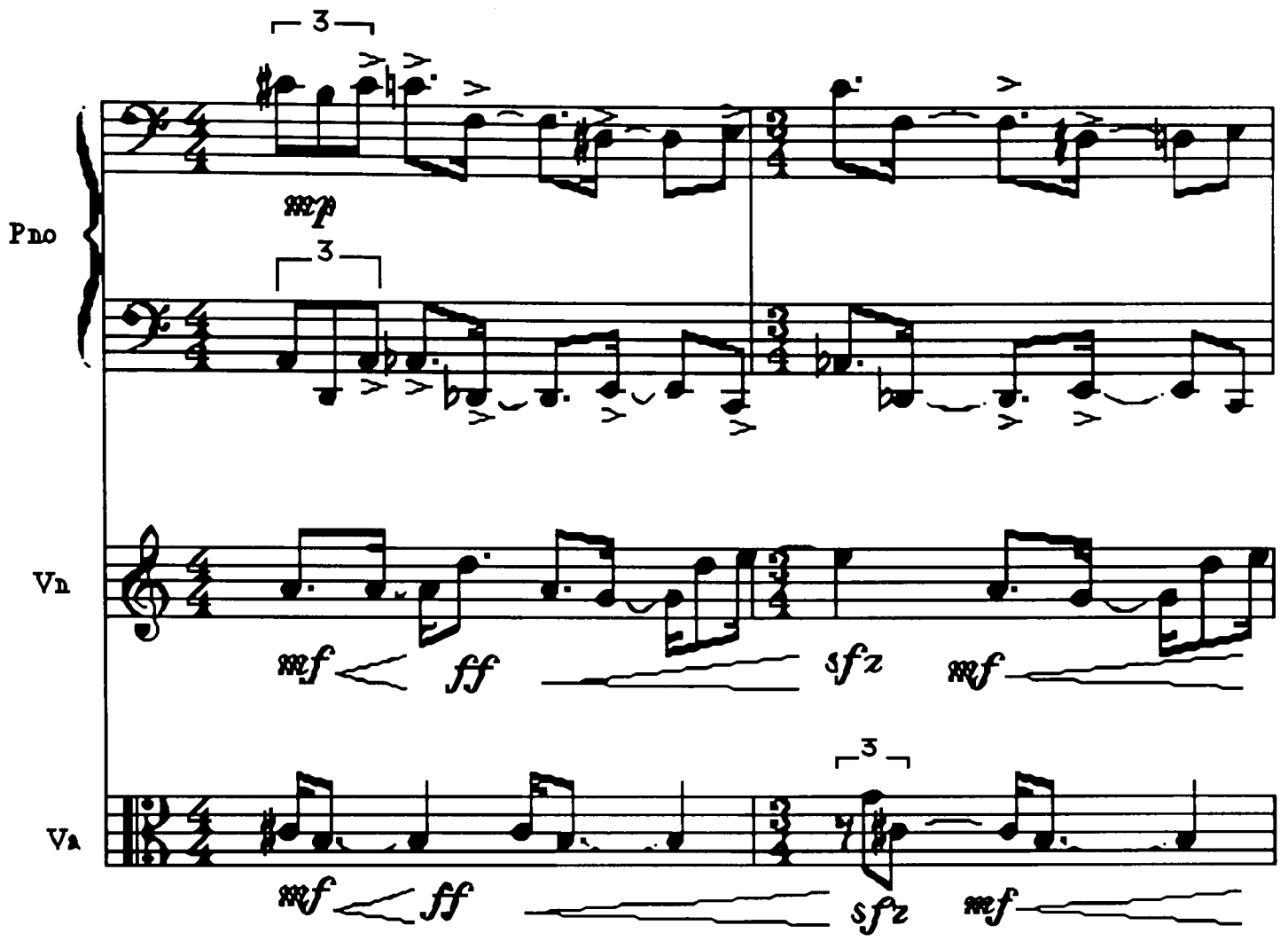
29 *Orpheus* was choreographed by Balanchine and he worked very closely with Stravinsky. *Symphony in three movements* was largely written as a reaction to filmed images of war, (see Stravinsky and Craft, Dialogues, 1982, p.51).

30 I would go so far as to say that my experience of composition is cinematic in the sense that I feel free to combine different sound "scenes" according to my own sense of the musical plot.

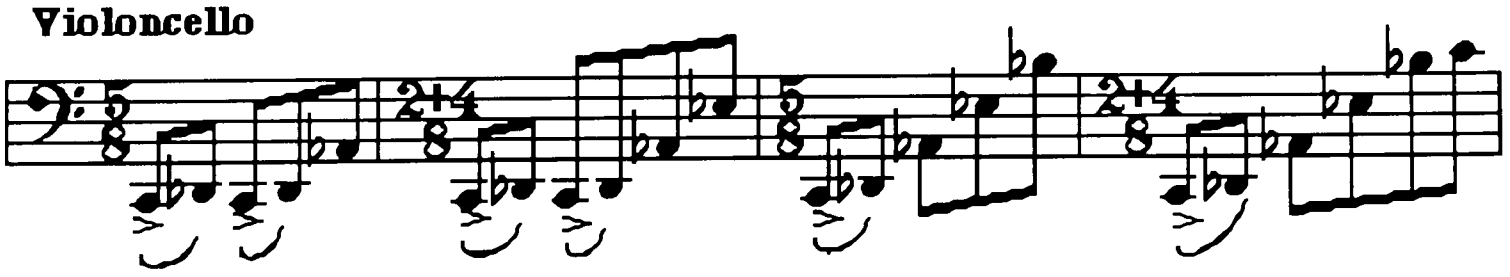





***Son Del Seis:*** **motivic layering**

**Ex. 3.3/8**

Another feature of my treatment of musical ideas can be heard at 242, Ex 3.3/9, where a kind of stuttering effect is sought by starting and stopping, without pause, an otherwise straight phrase:

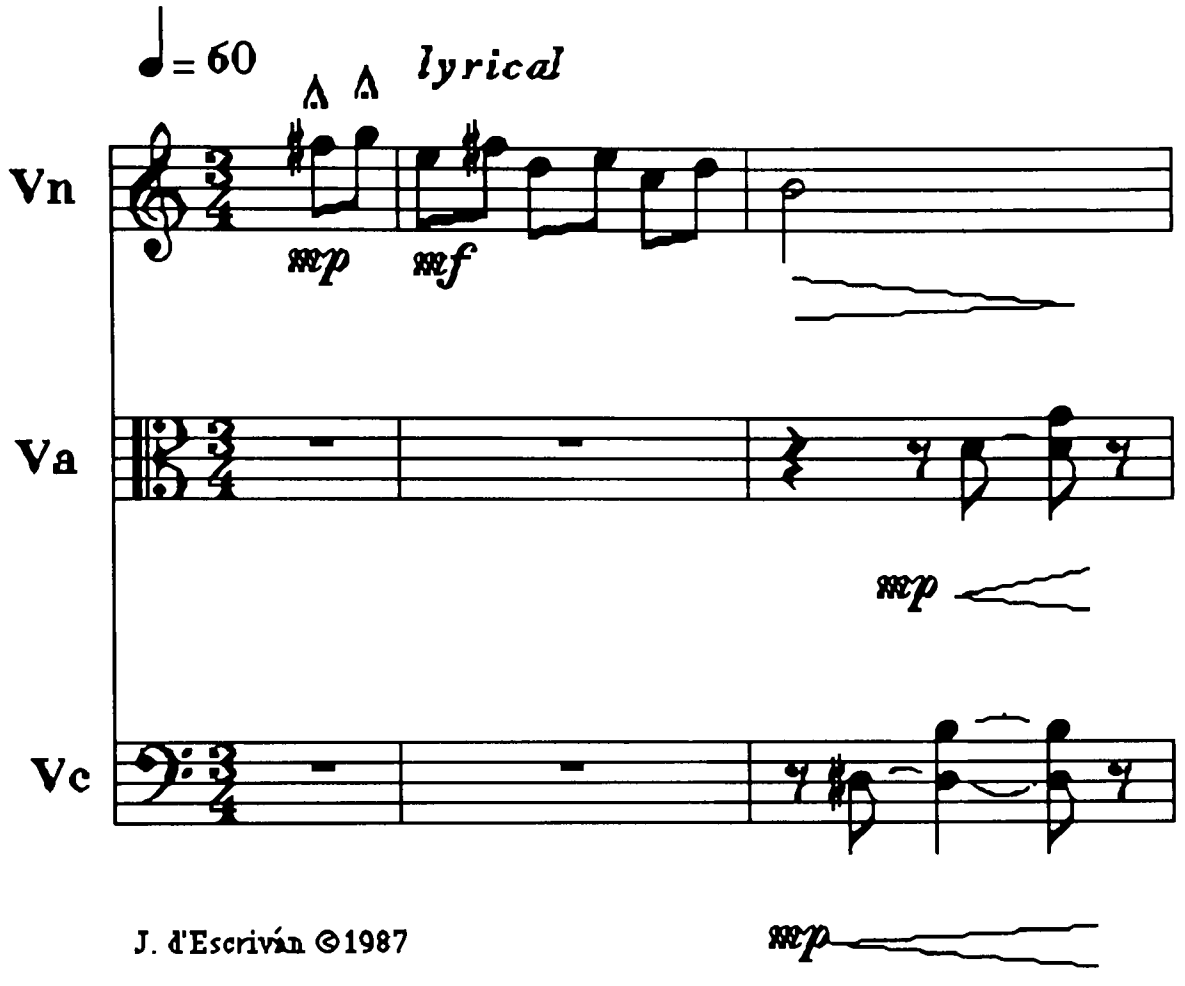



***Son Del Seis:*** **'stuttering' effect from bar 242**

**Ex. 3.3/9**

This piece, could be viewed as a whole like a piece within a piece, section A and sections G and H - the outer sections - are referential to Venezuelan folklore, while sections B,C,D,E,F - the inner sections - are referential to Afrolatin dance rhythms. However, section E, was inspired by presenting a typical melodic refrain of the *Seis por Derecho*

in a harmonization foreign to its own idiom. This can be heard at bar 141,Ex3.3/10:




***Son Del Seis:*** **reharmonization from bar 141**

**Ex. 3.3/10**

There are other references to the outer sections which can be found in the inner sections, these were the result of the folk music acting as a kind of preconscious[31] idea that I was able to tap at will. These references are also a unifying factor that contradicts the sectional nature of the piece.

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31 Psychoanalytic theory uses the term preconscious to refer to thoughts which although not conscious may be brought into consciousness by ordinary recall and effort.

## 3.4. Computer based Improvisation: Salto Mortal

The title *Salto Mortal* , is the Spanish for *somersault* also meaning *Leap of Death.* It implies a certain risk or mortal danger. *Salto Mortal* was a kind of compositional catharsis. I wrote it after a collaboration with a choreographer[32] in which I was having to tailor the sounds very closely to the dance, most of the time at the expense of the music. I was asked more for soundscapes[33] than for musical discourses. Soundscapes could be used very freely by the dancers so long as they did not "interfere" with the choreography. Musical discourses, on the other hand implied rhythmic ideas, conceptions of pulse that demanded interpretation from the dancers, translation into body movement. I wanted to write a piece of music which would reveal another dimension if choreographed. The choreographer wanted an electroacoustic backdrop for his movement routines that would not interfere with them in any way. Since there were performance engagements already contracted, I composed the music that was required. I then set out to compose the music I wanted to write, *Salto Mortal*, using exactly the same sound samples but introducing the Yamaha TX802 synthesizer.

In *Salto Mortal* I concentrated on timbral gestures that contained a strong rhythmic element. I set out to establish cue points that would aid a choreographer in exploring the rhythmicity of my sound materials and the way I put them together. Although *Salto Mortal* is related to an imagined choreography, it does not relate directly to an anecdote or story, it is not intended to be anything beyond the interplay of sound events within metrical structures.

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32 The Ventura Dance Company performed *Lover's Leap and Clown*, as an early version of this piece was called, in Zurich, Lausanne and London, in October 1987.

33 I am not opposed to creating soundscapes, but I was being asked to do this exclusively.

From the point of view of its moment to moment construction, it is the fruit of careful improvisation at the computer; from the point of view of the presentation of these improvisations as a whole, it is a very ordered composition.

### 3.4.1. Sound Material

### 3.4.2. Synthesis and Sampling

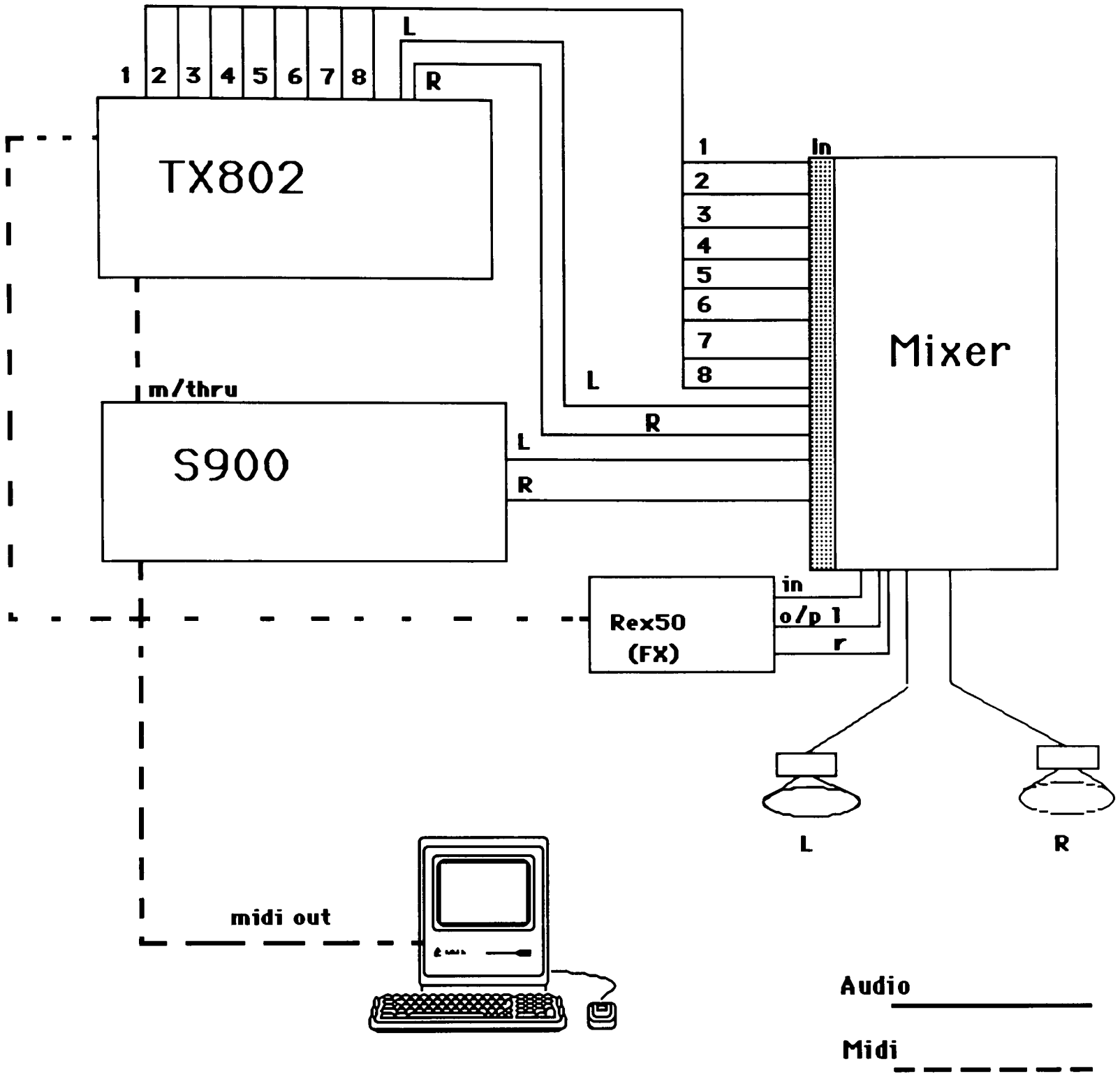
The piece was conceived at a Macintosh SE computer, an older generation Mac with a 28020 Motorola processor, adequate for midi sequencing, using Mark of the Unicorn's *Performer* sequencing software. The tone generators used were a Yamaha TX802 FM multitimbral synthesizer and an Akai S900 Sampler. I found that if I used the individual outputs of the TX802 as well as the right and left outputs, I was able to get greater depth in the final mix and to improve the clarity of the sounds by being able to apply equalization to the different internal tone generators.

For input of individual notes I used a master midi keyboard, but I never played it as a keyboard, only as part of the sequencer interface, in other words to input pitch and velocity data in step time.The basic setup is shown in Diagram 3.4.1 .

The sound world used in Salto Mortal could be divided into two categories:

- pre-recorded samples
- FM voices

The pre-recorded samples were: a metal tape spool falling to the ground and rotating with increasing speed until it came to a halt, the same metal tape spool being struck with a metal beater, a folk guitar string being struck above the nut of the instrument, and a roll of conga




*Salto Mortal:* setup

Diagram 3.4.1

drums. All these samples were designed to loop rhythmically, so that when a note was held pulse might be implied. Perhaps the first of these samples in particular could be described as a *rhythmic object* , as defined by Alvarez (1989), because of its "found" (pre- loop) inner rhythm, containing as it did accented and unaccented sounds, therefore implying order: pulse. However, not being able to transform the "inner" spectrum of the sample, I have concentrated on rhythmical techniques which I will describe below. My general approach to the manipulation of sound is a corollary of the limitations of *midi* technology : I try to construct timbral gestures made out of smaller gestures, sampled or synthesized. In this way I control the microcosmos, because I create it. These created timbral gestures are therefore more flexible than rhythmic or sound objects.

The FM sounds employed were either short sounds with a percussive envelope: fast attack with little or no decay, or rich sustained sounds with a slow attack and a slow release. For this piece I altered many pre-existing sounds that could be of use as well as designing others from 'INIT [34]voice'.

I found that acoustic sounds mixed very well with FM voices, each contributing sonic qualities lacked by the other;I tried to present them always in combinations, therefore with every sound gesture there is a different blend which can be traced back to these original components[35].

### 3.4.3. Iterative materials

To summarize the *midi* limitations mentioned earlier regarding the manipulation of timbre:

• I had no *real time* control over the harmonic spectrum of my individual samples and voices further than light inflections produced by

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[34] Initialized Voice.

[35] At this point I would refer the reader to listen to the first minute of this music since this will make the following discussion much clearer.

the modulation wheel on the master keyboard being routed to the Low Frequency Oscillator, or similar functions using aftertouch and other midi controllers.

• I had no *real time* control over panning.

These possiblities were not available at the time on synthesizers like the ones I had access to, but only on large computer synthesizers such as the 4X at IRCAM or other computer synthesizer programs. I was, however, determined to overcome these limitations.

In order to achieve something like the transformation of one sound into another, I used the very short FM voices, repeated at the highest speeds the sequencer would allow, interleaving two of them at a time, so that the tone changed every other onset. In this way the overall impression is more continuous. In order to achieve panning effects, I programmed these iterations to occur simultaneously on both speakers but with inverse midi velocity curves, thus achieving an impression of movement, the speed of which could be controlled by the slope of the velocity curves; by making them slightly different the sound appeared to linger more on one side before moving to the other.

The simulation of inner harmonic spectrum changes I achieved by layering FM voices that were essentially similar but with different modulation envelope speeds, at different initial pitches; the result of this was that as the modulation envelopes of the different voices changed the harmonic content of the operators within the FM algorithm, there was a kind of polyphony of modulation under the same overall amplitude envelope, giving the impression of one sound with internal movement. By further panning these different layers, a *real time* panning effect is also achieved as they traverse their modulation envelopes at different rates on the left, right or centre fixed panning positions. This procedure is used particularly for the last section of the piece.

In the way that I superimposed the FM tones on the pre-recorded sound samples, I was able to achieve a kind of component synthesis, assembling the different elements of the sound envelope from different sources; for example, the attack may be provided by one of the metal spool percussive hits, and the resonance of this downbeat would be created by an interleaving of short FM voices in the rapid iteration described above, plus a soft synthetic pad to underpin these and act as a kind of reverberation.

I had only one digital signal processing unit, this meant that I had to create the illusion of reverb, in order to give depth to the mix. I achieved this by adding FM pads with different degrees of harmonic content to some of the percussive sounds.

The opening gesture of the piece is an illustration of this technique and some of the ones described above. It also "summarizes" the two types of resonance or release forms, the one provided by the iteration with a downward sloping velocity curve and the one provided by the FM pads.[36]

### 3.4.4. Phrase construction and the concept of synchronicity

Apart from the choreographic implications of the piece, I was also very concerned that the music should be made up exclusively of timbral gestures, and that pitch material should be used only incidentally. For this I relied entirely on intuition both in order to associate and transform the musical events, either by juxtaposition or layering, and in order to choose pitched sounds whenever this was necessary.

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[36] It is important to note that the term resonance is used here in its colloquial meaning, "Echoing, resounding, continuing to sound, reinforced or prolonged by vibration or reflection" (Oxford Dictionary, 1988) as opposed to any of its technical meanings, for example in subtractive synthesis where it is used to denote a frequency band which can be emphasized on a sound which is being filtered.

I created an initial sound world of gestures by improvising with the material and recording it onto the sequencer. I then chose which of those gestures seemed most attractive and rich in implications and separated them into different sequencer files where I could further play around with them and improvise upon them[37]. I kept a detailed diary that referred to my work so that I never lost the thread of my compositional improvisation from one day to another. This diary has also enabled me to see the directions in which I thought the music was taking me and how I departed or adhered to these.

From the entries in my diary I can see that I was very interested at the time in Schoenberg (1967), and I was trying to apply his definitions of *sentence* and *period* to timbral gestures. Schoenberg defines *sentence* as being the articulation of a complete musical idea by presenting in its opening segment the basic motive and following this by an immediate repetition, the latter may be altered but without being obscured. Period, in his own words,

> *"...differs from the sentence in postponement of the repetition. The first phrase is not repeated immediately, but united with more remote (contrasting) motive forms, to constitute the first half of the period, the* antecedent . *After this contrast repetition cannot be longer postponed without endangering comprehensibility. Thus the second half, the* consequent, *is constructed as a kind of repetition of the* antecedent." (Schoenberg ,1967,p25)[38]

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[37] At this point, I must say that I used a midi guitar controller in order to input the original improvisations onto the sequencer, but as this was done very early on in the piece and all subsequent elaborations were done at the computer "qwerty" keyboard, I do not consider that the guitar controller was an important factor in the design of the piece and therefore I will not dwell on it.

[38] In a footnote to this paragraph, Schoenberg states that "the purpose of musical construction is not beauty, but intelligibility". Perhaps the reason for the existence of so much modern music which disregards the pleasure of sound can be traced back to this statement, which is implied in any case by most of Schoenberg's serial works.

I was also extending these ideas further by applying Messiaen's techniques of augmentation, diminution and repetition (Messiaen 1944). I was interested in what they had to say regarding the proportion and nature of the presentation of the musical theme or idea. Both their theories relate to tonal material so I had to adapt them to my timbral gesture world. I also found, though, that both theories failed to account for the more irrational and intuitive decisions which sometimes are a hallmark of the strongest ideas. I would like to discuss in the first place, how these theories influenced my composition in *Salto Mortal* and in the second place, how I sought to complete them.

In the light of their observations I was able to break down my initial improvisations into component gestures that I could work upon and elaborate. I was able to isolate four basic elements used to produce the basic gesture set, to which everything else seemed to relate:

1) Percussive sounds constructed by layering several different percussive voices, FM and samples.

2) Pad[39] resonances, made from layered FM voices with slow attacks, and used alone or as support for iterative gestures.

3) Very rapid iteration of short percussive sounds in order to simulate texture; sometimes this gesture is produced by allowing a sample loop to come through briefly, sometimes, as is found later on in the piece, this technique is used to produce a kind of restless undefined rhythmic grain, which I use as an artificial resonance for certain percussive gestures.

4) Rhythmic loops that convey a sense of pulse and tempo.

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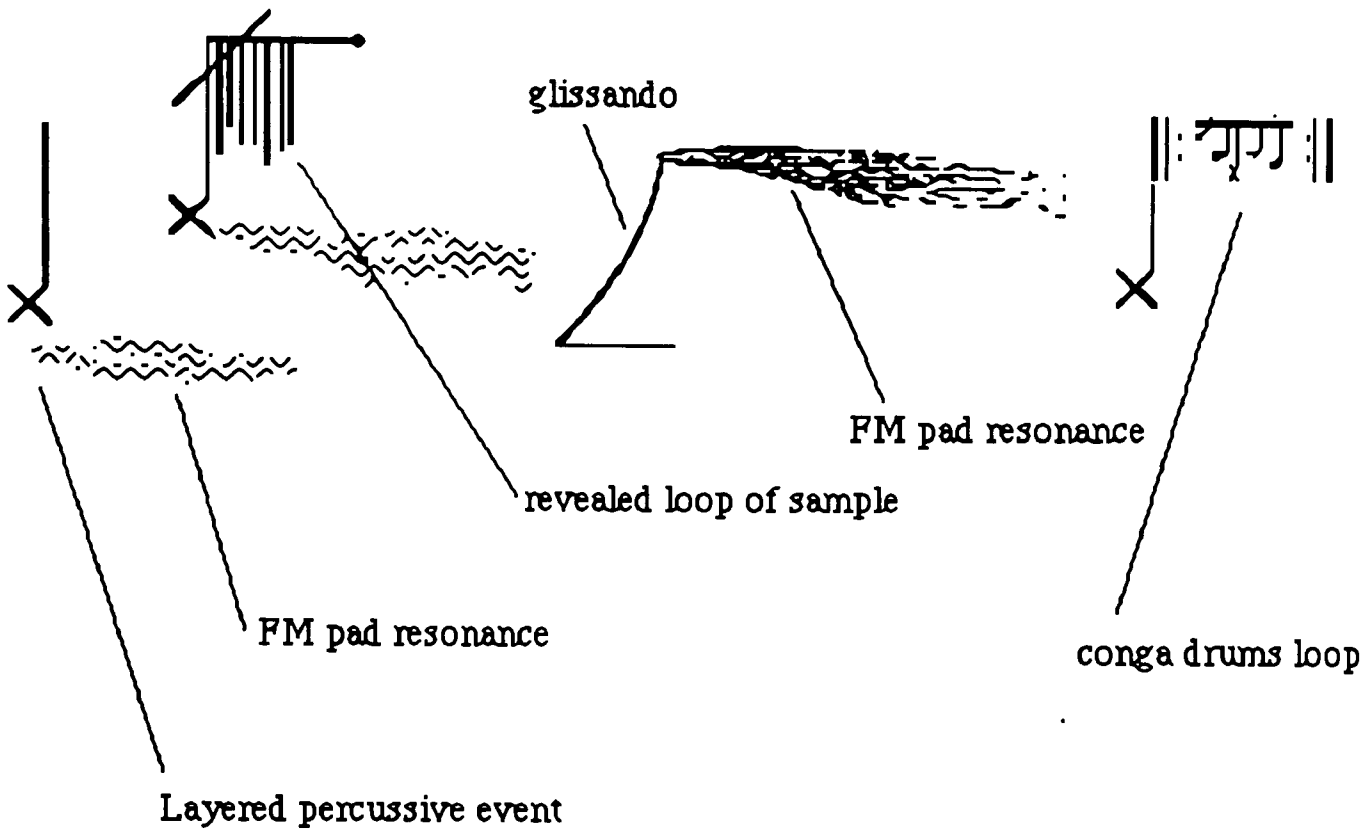
[39] See definition of 'Pad' above in section 2.

These elements were used to produce the gesture set, or timbral motives of the piece, Ex 3.4.4/1:




***Salto Mortal:*** **initial gesture set**

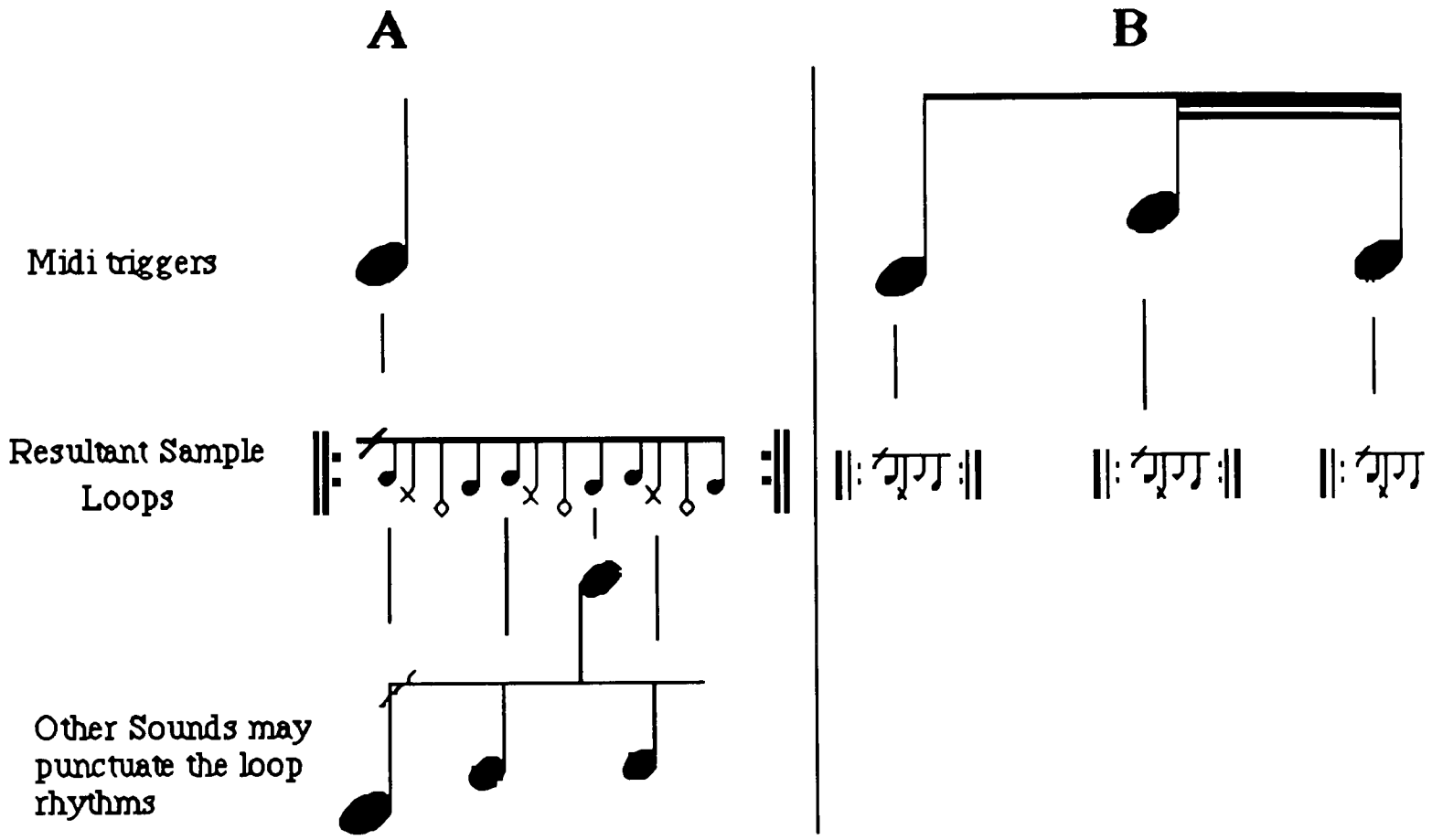
**Ex 3.4.4/1**

Once I had a clear idea of what my basic material was, I was able to start developing musical passages. I would isolate a particular idea or approach and dedicate to it a separate computer sequencer file in which I could improvise , fragmenting, repeating , augmenting it.

I concentrated on presenting related timbral gestures sometimes as *themes*. Sometimes as *sentences*, as explained before, by presenting the motive and repeating it with a slight change in the layering or in the transposition, sometimes as *periods*, by presenting the motive followed by more remote material, as an *antecedent*, constituting the first half of the period, and then repeating this with an emphasis on the basic initial motive as the *consequent*.

The first section of the piece is entirely devoted to constructions of this type, the interesting fact in applying these ideas was that given the

nature of sampling in which the tempo changes when a transposition is applied, different amounts of looping could be heard, given the same note duration. This enabled me to play with the different pulse implications. Sometimes the sample loops define the pulse, and at other times, the samples are subjected to a pulse of a higher order. In the first instance, see Ex 3.4.4/2, I would double the rhythmic gestures of the loop, in order to highlight them (A). In the second instance I would use the sample as a whole, obscuring or eliminating the loop (B).

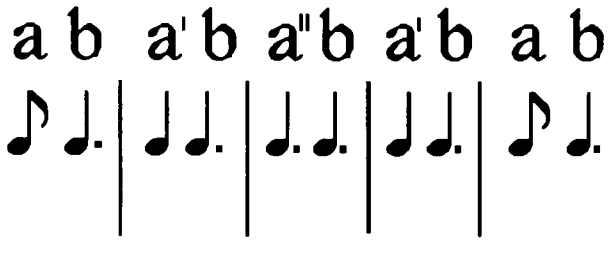



**Sample loops and midi trigger pulse**

**Ex. 3.4.4/2**

I found that given the kinds of rhythmical materials that could be derived from the sample, and the resultant tempi from different transpositions, to apply the traditional techniques of augmentation and diminution as described by Schoenberg (1967), would not be appropriate. I needed to be able to relate motivic repetitions by a proportion other than just the division or doubling of the component

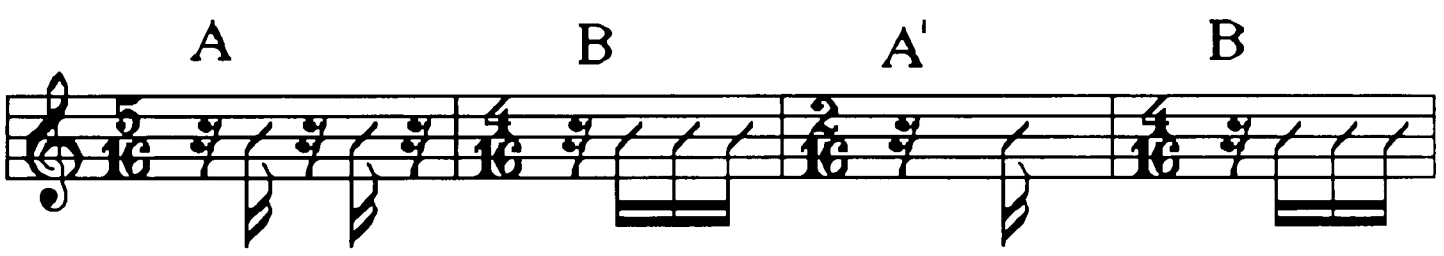
musical durations. Messiaen 1944 provided me with an alternative. His idea of augmentation and diminution amounts to a transformation of the rhythmic phrase. In Ex 3.4.4/3. we see a rhythmic tala called *Simhavikridita*, which Messiaen proposes as an example of rhythmic transformation. The two notes of the motivic cell do not grow together in duration, rather B remains constant while A expands and contracts.




**rhythmic transformation**

**Ex. 3.4.4/3**

Another example he offers is from Stravinsky's *Danse Sacrale*, Ex. 3.4.4/4.




**Stravinsky: *Danse Sacrale***

**Ex. 3.4.4/4**

The same principle is applied at Ex 3.4.4/3-4 : in a string of rhythmic values some are modified while others remain constant, so the result is not a standard diminution or augmentation of the phrase, but a transformation, a kind of variation by fragmentation or "local" elaboration.

In composing my motivic gestures in the first section of *Salto Mortal*, I applied this sort of development technique, contradicting the

implied metrical foot by fragmentation of the basic rhythmic ideas inside the sample (loop) or by regulating the frequency of the sample appearance (Ex 3.4.4/2).

In order to clarify my musical thought for the listener, I found that I had to point out to him/her what I considered to be landmarks in the musical passages. With this intention I felt the need to couple together certain musical elements so that they appeared always in a similar way. In this fashion, through an insistence on certain combinations, I intended to show a link between the component elements that seemed necessary for me. For example the glissandi gesture of Ex 3.4.4/1 was always followed by an FM pad resonance. Even though I considered these to be separate compositional elements, whenever the glissando voice appears a resonance is necessarily coupled with the decay of its amplitude envelope.

The establishing of this relation by consistent coincidence, I have called *synchronicity* [40] . This term is used in psychology in a broader sense to refer to the nature of acausal connections between events. I have used the term for its implication that the perception of the musical idea is not simply linear. I have also used the term because I felt that arranging the presentation of motivic ideas in the sense described by Schoenberg (1967) or Messiaen (1944) is only a partial means of organizing musical material, there must also be an intuitive process at work which cannot be neatly partitioned into component elements.

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[40] Jungian term for an acausal connecting principle that would give meaning to series of coincidences, not explicable through notions of simple causality, as well as to the experiences labelled *deja vu* and *precognition.* In this concept Jung argued against the classical elementaristic view of experience, in favour of a *view of events as participants within a structured whole.* Hence, in this view, the meaning of events is to be found in terms of their structural relationships as well as their causal antecedents. Jung's structuralism entails a form of experiential harmony among events, and a harmony between the structure of our understanding and the event structure. ( Fontana Dictionary of modern thought, ed. A. Bullock & O. Stallybrass, Fontana/collins 1982, page 618)

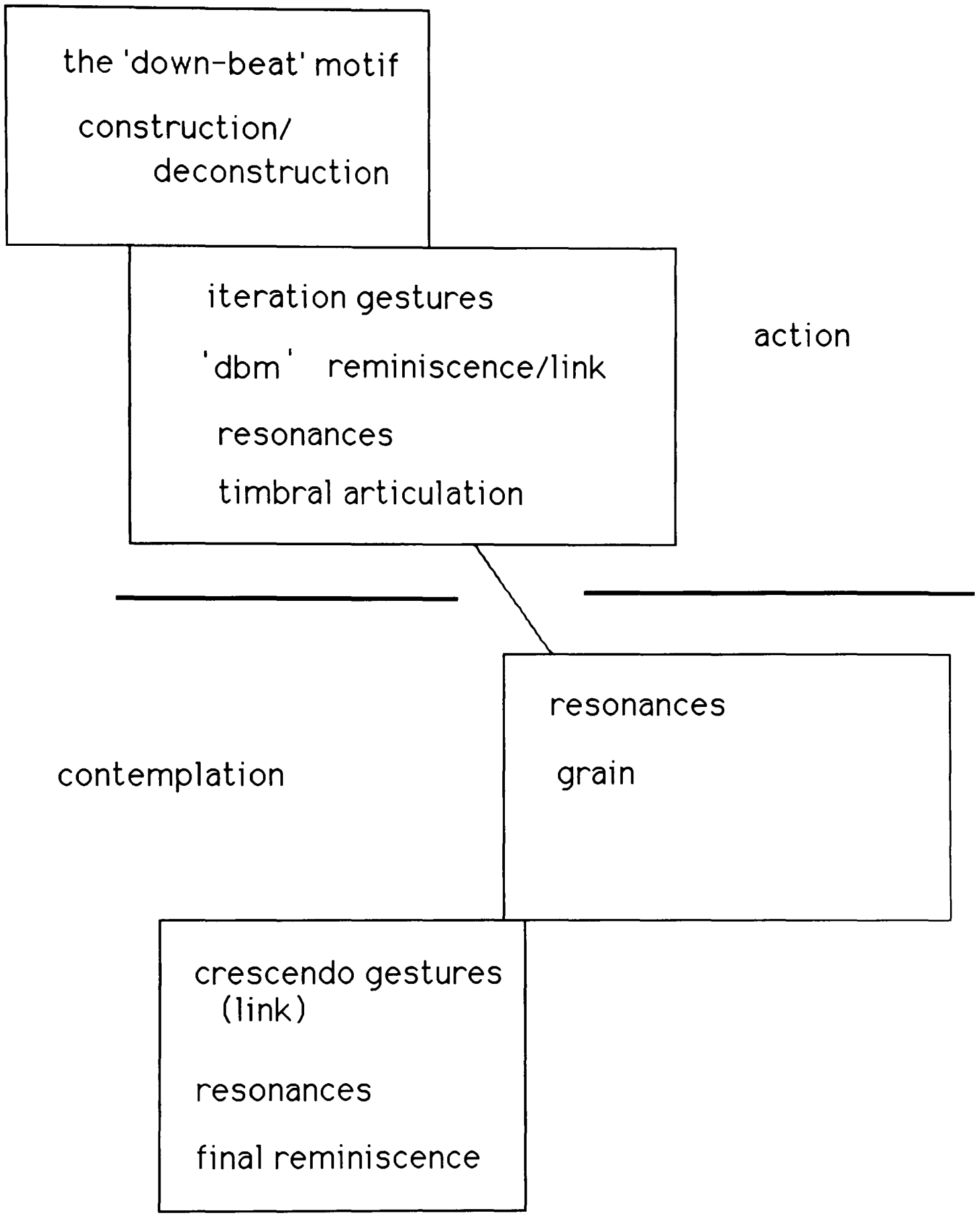
This idea of *synchronicity* allowed me to depart from the thematic development procedures outlined above, admitting that there was more to the composition than I could quantify, and legitimating the irrational element of my musical mind.

With the benefit of hindsight I have been able to determine an overall view of the piece (see Diagram 3.4.2 ). I found that in the first part of the piece I was more concerned with "action", that is with the metrical foot and its affirmation or contradiction. In the second part of the piece I was more concerned with "contemplation", that is just taking pleasure in the sound objects and musical elements themselves, as opposed to their elaboration.

I called the main motive the "down-beat" motive (dbm), because it was always there when a pulse was about to be implied or contradicted. Diagram 3.4.2 shows the main thematic concerns in each of these sections throughout the eight minutes that the piece lasts.

This pattern of action and contemplation is in fact a characteristic of all the pieces in this folio. The music seems to follow restless developments and then retreat into an enjoyment of the sound itself. This is particularly the case in *Sin Ti Por El Alma Adentro* and in *Viaje*, where the final section deals with very static soundscapes, as a counterpart to a busy previous section. It is as if musical discourse stops and the musical-irrational takes over. For me, at these moments it is necessary to work on the soundscape.

In retrospect I can see how *Salto Mortal* has shaped my later works, in particular *Sin Medida* and *Viaje*. These last two pieces constitute, as it were, the second part of my folio and in them I felt that I was freer to integrate the timbral gesture with more traditional pitch based phrases. *Salto Mortal* provided me with the experience I needed to feel at ease with the timbral gesture *per se*.




*Salto Mortal:* Overall view

Diagram 3.4.2

## 3.5. Guitar and Computer based Compositional and Performance Improvisation: *Viaje.*

"...[on the dances of the young girls, the Rite of Spring]*it was a chord I found out which was very pleasant to my ear and very significant and it meant harmonically a lot of things...*" Stravinsky (1991).

### 3.5.1. Timbral and Harmonic tension in extended tonality

One of the disadvantages of abandoning the traditional harmonic practice, is that the composer has to introduce his listener to the musical material before he goes on to elaborate upon it. In a sense he becomes a teacher first and a composer later. He must do this because no matter how well thought out, the relationships he establishes within his pitch material may be perceived as arbitrary. In other words, the composer has decided that a particular group of tones are related and proceeds to compose motivic phrases and chord progressions, thus establishing his melodic idiom and his harmonic vocabulary. In my view any treatment a composer may give to his musical material *must* be founded upon aural experience, not just upon theoretical experimentation, in this way the listener may gain real insight into the composer's sonic discourse.

Communicating with an audience which is unfamiliar with one's work, (or just superficially acquainted with it) has probably always been at the heart of the craft of composition, it is perhaps harder than ever nowadays as we live in multi-cultural societies, where the media is capable of diffusing as many ethnic musics as have been recorded (apart from the commercial explosion of jazz and rock, and the consumer oriented marketing of classical music).

Even if the composer is to use a tonally centred idiom, he has to do a certain amount of presentation of his musical material. There are as many different treatments of tonality as there are composers who practice it today.

My views on the validity of using tonally centred idioms stem from my readings of Jacques Maritain (1972) and Stravinsky's *Poetics of Music* (1982). It is not the case that the philosopher and the composer explicitly endorse any kind of harmonic language, but rather that they support a notion of art based on intuition and familiarity with the materials and the harnessing of musical imagination. I have included a more extensive discussion of this topic in the appendix.

In my view, the goal of musical composition is the attainment of beauty in the act of organizing sound, not the attainment of scientific knowledge, whether or not this knowledge results accidentally from the quest for beauty.

I believe that composition should grow out of an empirical knowledge of the idiom that the composer is writing in, illuminated by his aural experience of other musics foreign to him; in other words, we can be aware of our harmonic practice without being a slave to its "rules", for we create and modify these as we go along. For these reasons, I have found that jazz is an ideal idiom to work in. In my view it embraces the European traditions of immigrants to the American continent by the assimilation of western harmony through the use of religious hymns, as well as the pentatonic scales and microtonal inflections for which it is well known , while at the same time contributing a rhythmic-melodic vocabulary which is quite foreign to the European way of making music. (Nettl,1973,pp227-231)

### 3.5.2. Harmonic and Timbral Language in Viaje:

Instead of planning the realization of a piece of music, in my view the composition should be discovered gradually as it is being made. In this way, the process becomes such that the composer is truly the first listener. For this, the composer must set a number of pre-conditions,

much in the same way that an improviser must set himself restrictions, for this allows him to exercise his choice and therefore be free: " The creator's function is to sift the elements he receives from her [imagination], for human activity must impose limits upon itself. The more art is controlled, limited, worked over, the more it is free" Stravinsky (1982,p.63). This is not to suggest that the piece of music should become a work of the subconscious[41], but rather by making the ear rule supreme, it may become the product of improvisation and play as opposed to "logical" elaboration and planned development. If the composer possesses the *habitus* of composition, then he will intuitively apply to his music all the techniques of his particular compositional practice. Musical ideas will transform and metamorphose with a minimum or no rationalization.

*Viaje* is a piece for electric guitar and tape, made up of three movements that are meant to be played without interruption:

*-Vista de Araya*

*-Ritmos Orientales*

*-Luna Antigua*

The two outer movements are static soundscapes, where the musical thought is aimed at superimposing timbral layers over harmonic progressions. The middle movement is concerned with metre and throughout the piece the role of the guitar is akin to that of a soloist in a concerto.

The electroacoustic sound world of this piece was completely designed from initialized voices. I erased all the factory voices from the tone generators and set about creating the sounds. I decided to make them in families, much the same as I described earlier on in the discussion of

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41 Although it is very important that the composer allows the subconscious to work, I am using the word subconscious here in the loose colloquial meaning.

timbre creation; therefore I designed pads, percussive sounds , sound objects, pitch objects and rhythmic objects. The general strategy was to create voices that could support and re-inforce the harmonic language, so therefore most of the sounds created have a strong pitch content.

Although the harmonic language, which will be dealt with below, is that of modal jazz, the general sound and gestural world is referential to British progressive rock of the seventies. For this reason the guitar solo part was conceived with particular signal processing effects, emphasizing various types of distortion reminiscent of valve amplification, and contrasting these with various types of "clean" sounds.

During the recording of the piece, in which I played the solo guitar part, I was able to experiment with the different effects and decide empirically on the most suitable ones. By mixing these I defined different personalities for the guitar solo which are also indicated in the score. The resulting treatments are summarized in diagram 3.5.2/1.

The processors used were: Zoom 9002 Guitar effects processor, Yamaha SPX90II, Bell Delay, Alesis Midiverb. The guitar was input into the Zoom 9002 directly and from there to the desk, equalization was applied both at the Zoom 9002 and at the desk. The other effect units were used by means of auxiliary sends from the desk (Soundcraft Series 2000).

The configuration of instruments for *Viaje* can be see in Diagram 3.5.2/2, A software sequencer,running on a Macintosh IIsi, Performer 3.61 ® [42], controls 4 tone generators, a Roland D-110, Korg M1 and Yamaha TX802 and SY77. A digital effects unit was used to provide general reverb at the final mix, but was not instrumental to the composition and is therefore not included in the setup diagram.

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[42] Performer 3.61®, Mark of the Unicorn, Cambridge Mass, USA

## *Vista de Araya*

first section (chords).....Compression>Equalization>Chorus>Delay>Reverb

(this treatment is close to the sound of a hollow body electric jazz guitar)

second section(improvisation)....Compression>Distortion>Reverb

(for the second section we decided to reverse the solo track entirely to achieve a more evocative guitar sound. This was done digitally on an AKAI S1000 sampler, and then layed back onto the digital 8 track, since the latter lacks the sample editing facilities of the S1000)

## *Ritmos*

Bars1-36.....Compression>EQ>Chorus>Delay>Reverb
(emphasis of the low frequencies, hollow body Jazz guitar sound)

Bars 36-55.....Compression>Distortion>Chorus>Reverb
(rich distortion sound, rock guitar)

Bars 55-63....Compression>Distortion>Pan>Delay>Reverb

(the solo improvisation, on repeat, is performed with a very distorted guitar sound, emphasizing high frequencies)

Bars 64-74..... Compression>Distortion>Chorus>Reverb
Bars 75-104..... Compression>Chorus>Reverb
Bars 104-end..... Compression>Distortion>Chorus>Reverb

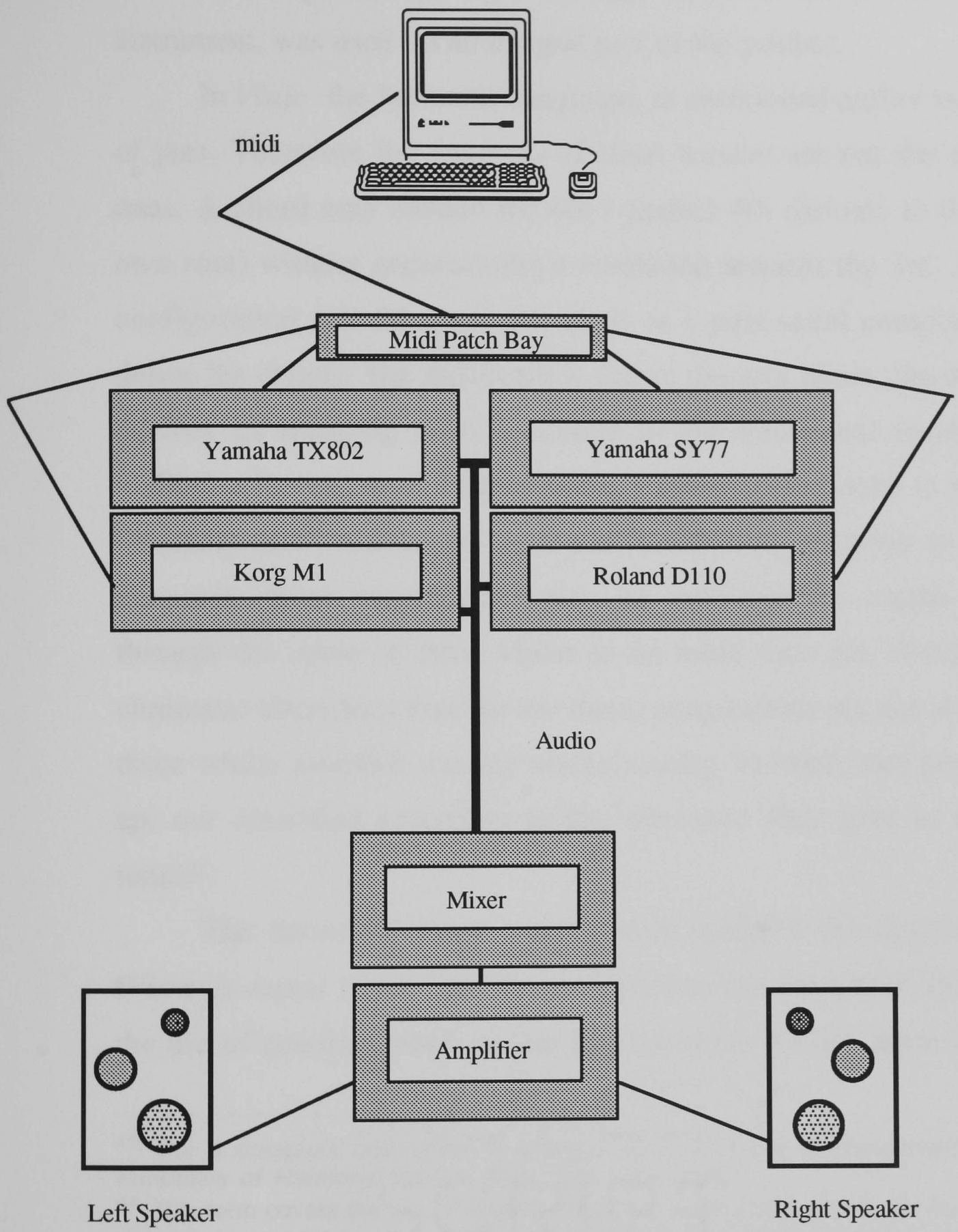
## *Luna Antigua*

Compression>Chorus>Reverb>Delay.

(this technique of delaying the reverb results in a very spatial effect, for the reverb is heard "through" the delay, as it were)

## *Viaje:* **electric guitar effects settings**

**Diagram 3.5.2/1**




*Viaje:* midi and audio setup

Diagram 3.5.2/2:

The digital signal processing, when available onboard the instrument, was used as an integral part of the patches.

In *Viaje* the harmonic language, as mentioned earlier is an idiom of jazz. Therefore the concepts of tonal tension are not the traditional ones. A chord may contain the 4th ( perfect 4th diatonic to the chord's own root) without necessitating a resolution towards the 3rd. A chordal configuration just *IS*, much the same as a post-serial composer would define his chords. The difference is that in the jazz idiom, the dissonance derives its meaning from reference to the traditional tonal practice without adhering to it. In post-serial practice, dissonance is as it were "emancipated", it does not have the intention of referring to the tonal language. Root progressions may be explained as simple journeys through the cycle of 5ths, whilst at the same time the chords contain chromatic alterations that flavour them; progressions are not restricted to those which establish tonality unequivocally. In brief, root progressions are not classified according to the relevance they give to the chord tones[43].

The harmonic idiom employed is modal[44], the opening chords (*Vista de Araya* ) spell familiar progressions that have been spiced up by the use of tension tones[45], as can be seen in Ex 3.5.2/1, these chords are

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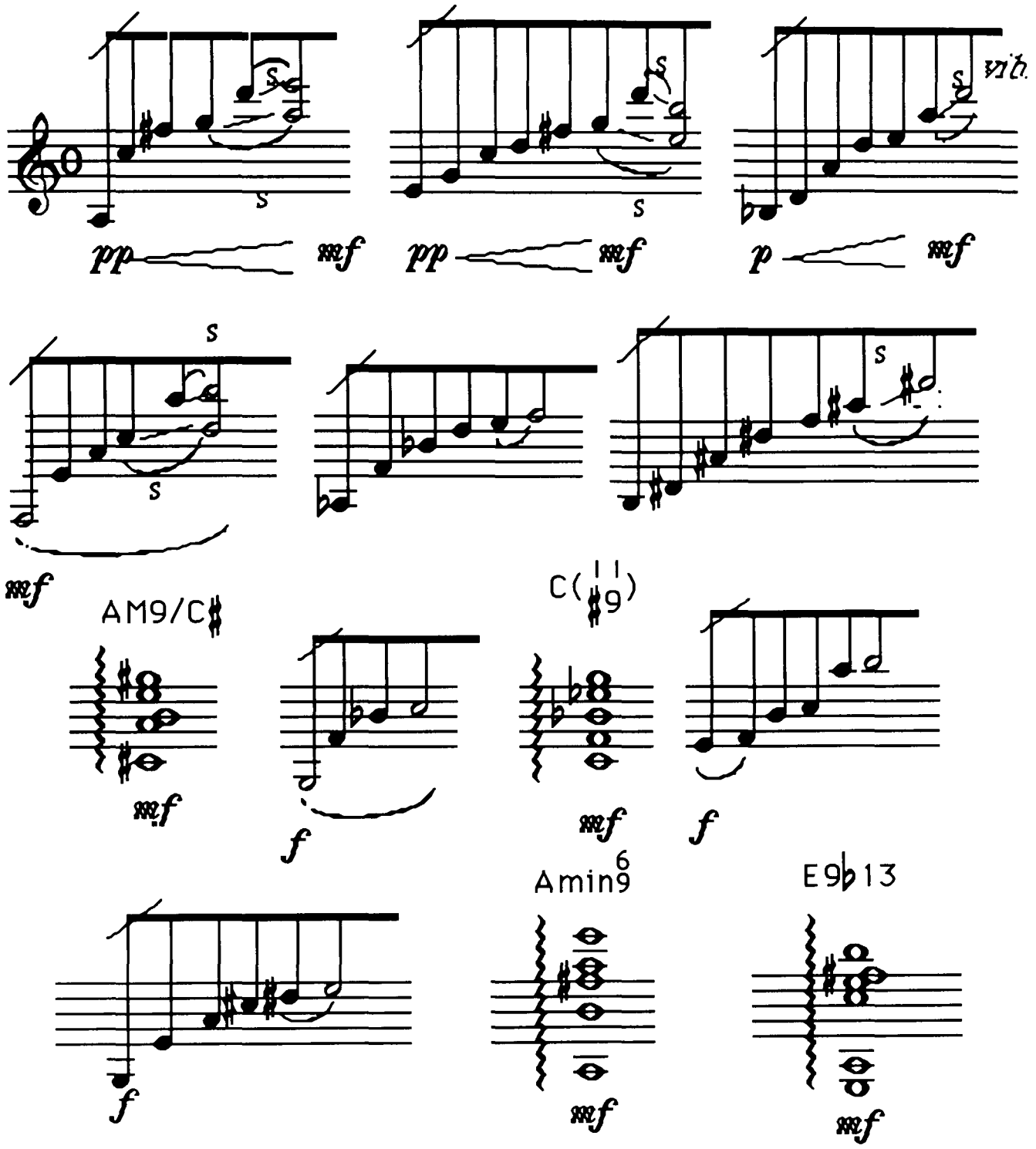
[43] For a complete discussion of chord progressions see Schoenberg's *Structural Functions of Harmony*, Norton, New York 1954, pp6-7.

[44] This term covers the use of chords where the notes of the chord are not necessarily diatonic in respect to the overall tonal centre, thus implying modes or scales that will be diatonic in respect to the root of the chord rather than in respect of the tonal centre. Miles Davies, the jazz trumpeter was a pioneer of this style of jazz with his album *In a silent way*, it also developed with the work of composer/players such as John Coltrane.

[45] The conventions for naming chords will be the standard jazz convention:
**major chords**.....the letter name of the chord only (i.e. B = B major)
**minor chords**.....the letter name followed by small case "m" (i.e. Bm=Bminor)
**sevenths**.....If the numeral 7 is by itself, then it is a minor 7th, if it is qualified by the abbreviation "Maj" then it is a major 7th. (i.e. B7 = B major with a minor seventh)
**extended chords**.....the tones present are indicated by numerals (i.e. B7b5 = B major with a minor 7th and a flattened 5th)




**Vista de Araya:opening chords**

**Ex 3.5.2/1**

supported by pitched synthesized sounds which accompany the chord progression.

It is not necessary for the performer to play these sounds at exact cue points, except for those indicated. In general the soundscape on tape is to be, as it were, inhabited by the performer, with a free rendering of the progression. The chords can be arpegiated as well as strummed, therefore allowing the player to make the music very personal and stylistic within his own performance practice. This last point, is very important to my conception of the piece. The solo improvisation sections should be seen as cadenzas in a classical concerto. In my opinion, the loss of improvisation as a performance practice is a grave one for contemporary classical music.

The first chord sentence describes a root movement of a fifth, the chords are enriched with 6ths and 9ths, the following movement towards F major introduces a tritone root progression which presents the first harmonic tension and then relaxes it upon reaching the Fmaj7. The tape part enhances the texture by shadowing the chords with its own detuned version of them and introducing inharmonic sounds that colour the resultant timbre. These sounds are subservient to the harmony, but they extend it spectrally, because they introduce pitch envelopes which highlight the chord formations and modify them without an essential change.

In the 2nd movement (the movements follow without a break but they are differentiable entities) *Ritmos Orientales* [46], modal jazz is practiced, in the tradition of such standards of the jazz repertoire as "So

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numerals are assumed to refer to the diatonic tones in respect to the chord, so for example, in the key of C major, the chord F11 is a chord of F with a B natural, not as a passing tone but as a stable element of that chord.

46 "Eastern Rhythms", the east of Venezuela.

What" (Miles Davies), a progression made of Dmin7-Fmin7-Abmin7-Bmin7, creates an aural image which is harmonically analogous to M.C. Escher; The harmonic rhythm is very slow and the chords act as harmonic pedals during which the dorian mode for each one is implied in turn; The progression describes a root movement of succesive minor thirds which results in the same four chords always and this produces a sensation of movement towards a goal which is never reached .

In a modal style, it is customary that each new chord type will generate its mode and the improviser must remain within this mode for as long as the chord type is played. In this way harmonic movement is achieved by juxtaposition of tonal centres. However, because these successive juxtapositions themselves may imply an overall tonal area, the ambiguities that follow enrich the language and its aural interpretations by the listener.

The third movement, *Luna Antigua* , is of a simpler harmonic flavour, avoiding the kinds of tensions employed in the first movement. It is a moment of repose, allowing for some aural reflection on the first two movements.

The tape part throughout the piece functions in a way similar to a progressive rock ensemble: there are sounds that play the role of the drum kit , the role of bass, the role of the synthesizer player, and so on. The choices of gestures and electronic instrumentation follow this "implicit ensemble". The writing of the solo guitar part completes the sonic picture and establishes the stylistic reference even more clearly, however *this is not rock music*, and the kind of electroacoustic idioms employed in the tape part are, as far as I know, unique to this particular stylistic crossover: although they may not be unique from a purely electroacoustic point of view - albeit their intensely personal sound - I have not found them in any contemporary rock/jazz work.

### 3.5.3. Improvisational Methods used in *Viaje*

It is important to remember that in modal jazz we are dealing with consonance or diatonicism in respect to a pedal chord. There will be a mode which is generated by the tension notes present in this chord and many different ways of organizing the notes of the mode. This will allow the performer to "weight" the harmonic flavour of the pedal.

This modal approach is born strictly out of performance practice, and what sounds right within an ever changing idiom at one given moment in time. This means that the methods I have used are just one instance of harmonic practice within the "continuum" of stylistic change. Although many approaches to developing fluency in jazz improvisation have been discussed in countless books and manuals, the fact remains that they are only "tools" which allow the player (performer or composer) to develop his ear and to generate his own musical idioms. I would like to discuss the particular approach I have employed in *Viaje*, whilst stressing that it is not a normative approach, but a generative one. As a matter of fact, this piece will be able to change (within a tonal centred approach) as the harmonic practices of the players who perform it change, for it has ample scope for improvisation, in well defined sections.

With these ideas in mind, let us look in some detail at the possibilities opened up by the use of Dmin7 as the seminal chord type in the piece *Viaje* [47].

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[47] These improvisational techniques are based on standard modal jazz improvisation, as practiced by the great composer performers such as Miles Davies, John Coltrane, Ralph Towner, Bill Evans. They are to be found in many books on jazz improvisation, the one I have used often is Gambale ,1987.

Dmin7 states explicitly the following notes: D-F-A-C. And implies that within this mode the 3rd will always be minor and so will the 7th. A chord with such weight upon these notes implies the dorian mode[48].

If we progress in thirds from D onwards until we reach the pitch class D again we will find: D-F-A-C-E-G-B-D. The first four notes constitute the basic chord ( 1 3 5 b7), the next three constitute its extensions (9 11 13). If the chord had included in it the flat13th, it would then imply the aeolian mode or natural minor, for it changes the dorian by adding the flat 6th.

If we re-order the pitches yielded by our Dmin7 chord, from D to D, we find:

D-E-F-G-A-B-C-D

this is the scale of D dorian; if we re-order them again, by starting from C, we have:

C-**D**-E-F-G-A-B-C-(**D**)

This is the scale of C major; if we play any note of C major, we will be diatonic within D dorian; harmonic tension will be generated according to the way we construct our melodic lines. For example, we may use melodies that imply C major melodically but are denied by the pedal Dmin7 chord; we may use all the diatonic arpeggios of C major to create musical motives and phrases and create the impression of bitonality, according to which ones we use.

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48 A pedal chord may of course allow any number of interpretations, so mine is just one of them, which has arisen from performance practice.

If we look at the 7th chords that result from a diatonic harmonization of C major, we will find that degrees II, III and VI are min7 chords. We may build a minor pentatonic scale( 1 b3 4 5 b7) on each of these, and still remain diatonic to C and therefore to D dorian:

II, Dmin7, D F G A C

III, E min7, E G A B D

IV, Amin7, A C D E G

again, the emphasis on the pentatonic root will create tension with regard to the pedal chord[49].

Chromatic inflections may be achieved by extending these pentatonics into blues scales[50] and using the blue notes (b3-nat3; b5-nat5; b7-nat7) as passing notes.

A similar treatment may be applied to any chord type and the performer, having definite guide-lines for his improvisation, is in a good position to exercise his musical freedom.

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49 Except for D pentatonic, which will re-affirm the mode.

50 [1 (b3-nat3) 4 (b5-nat5) 6 (b7 nat7) ]

# 4. The Poetics of Time in Electroacousic Music.

## 4.1 *Sin Ti Por El Alma Adentro:* Time and the inner rhythm of the sound object

This piece for flute and tape was my first encounter with the art of sampling. I was fascinated by the dual nature of the sample. On the one hand it froze an instant in the life-time of a musical gesture, on the other hand any inherent rhythmic or timbral elements in the recording were rich with compositional implications. The former would bring time to a halt, the latter could articulate time.

I was interested in sampling all the accidental sounds of the flute, such as the sound of the rubber pads on the keys in action, or the pure breath that the player employs to produce the tones, the rhythm of the keys as they are tapped to stop the flute at different pitches, the whistle-tones resulting from overblowing or just gently blowing across the embouchure. I wanted to give live music to the player that would not require any 'modern' techniques. All the multiphonic and percussive sounds that the instrument is capable of generating would be the province of the tape.

My approach to the samples made from the recordings of the flute was to tailor them into loops that would exhibit a strong rhythmic element; this was the first time I concentrated on seeking the inner rhythm of sound objects. My technical approach to these is described in detail in the chapter that deals with *Salto Mortal*, for this reason, I would like to discuss my personal philosophy towards this "recording of time".

I believe that the composition of electroacoustic music is articulated through the manipulation of time perceived. Time is therefore a *poetic* element - poetics understood as the theory of artistic production

as opposed to aesthetics, the theory of the beautiful in artistic production-

The latter part of the 20th century has seen the advent of recording devices capable of literally duplicating "the message". The recording of sound and light has seen the dawn of a new audio-visual tradition, that in which we actually preserve the spoken word, the image seen. A kind of oral tradition of the second order, one heightened by the visual, is the hallmark of our century. We may say that, with regard to the past, when words and 'frozen' images were the means to record events, there is a difference in kind: *in our time we are able to record time itself.* Not the plot of a novel, but an actual unfolding of that plot in real time together with its suggestion of time imagined: virtual time (as in the case of the cinema). Not the score of a piece of music but the *actual interpretation* of the music, and in the case of an electroacoustic piece of tape music, not an interpretation, but the music *itself* [51]

Thus the *course* of time is being recorded both in the inexorability of time passing and in the poetic subtlety of time suggested. Let us make an analogy with the cinema. Andrei Tarkovsky, the Russian film director, in his book '*Sculpting in Time* ', comments "The dominant, all-powerful factor of the film image is rhythm, expressing the course of time within the frame" (Tarkovsky, 1986, p.113). which is to say that the rate at which the different audio-visual images succeed each other gives rise to a 'virtual' time.

Working in the electroacoustic medium today, a composer has at his disposal the resources to record and process sounds, as well as the means to synthesize them. For the purpose of this discussion, let us

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51 Some composers hold the view that a given sound diffusion is an interpretation of the taped piece, however, merely controlling the amplitude of the music pales in comparison as an interpretative device with manipulating the sounds themselves.

concentrate on recorded sound and its implication for the composer. Because we are dealing with *recordings of sound* and not the *sounds being produced in real time*, we find that the basic untreated material is already *imbued* with time.

In the initial performance gesture of *Sin Ti Por El Alma Adentro*, I layered all the samples that I was to use throughout the piece in an imagined "time blend". The flutist exhales a noisy breath sound, and the other sound objects seem to be born out of this gesture. It is as though the flute metaphorically contained the piece itself. It also serves as a theatrical substitution for the actual individual gestures that produced each of the recorded sounds. I found this "enactment" of gesture to be an important compositional element for the piece, and it is to be found in all of the performer and tape works in this folio.

To borrow Trevor Wishart's terminology (Wishart,1985), the *gestural-structure of the sound-object* is fixed; the imprint which the sound bears in its spectrum and envelope, as a consequence of the manner in which it was produced and *shaped in time*, is fixed. But our ability to fragment the recorded sound through sample editing, and to change its frequency, allows us to obscure the evidence of the actual gesture that gave existence to the sound therefore opening the way for the enactment discussed above.

Commenting on gesture, Denis Smalley writes : *"If we do not know what caused the gesture, at least we can surmise from its energetic profile that it could have been caused, and its spectromorphology will provide evidence of the nature of such a cause. Causality, actual or surmised, is related not only to the physical intervention of breath, hand, or fingers, but also to natural and engineered events, visual analogies, psychological experiences felt or mediated through language and paralanguage, indeed any occurrence which seems to provoke a*

*consequence, or consequence which seems to have been provoked by an occurrence"* (Smalley, 1986, p.82).

Although I edited and looped all the samples used, and frequently presented them incomplete or multilayered, I tried to preserve the basic gestural structure of the samples, because this preserves the time imprint of the sound event. Another analogy with the cinema may be introduced here, in Tarkovsky's words: "Editing brings together shots which are already filled with time, and organises the unified, living structure inherent in the film and the time that pulsates through the blood vessels of the film, making it alive, is of varying rhythmic pressure", (Tarkovsky, 1986, p.114). He also points out that time flows through the film in spite of the editing.

The task of the composer is to give order to his "shots"/samples, and the way in which he groups them and tailors them gives rise to the musical argument: the way in which he emphasizes or contradicts the *inherent time* in them determines the flow of musical time.

The obvious difference with the cinema is that in composing a piece of electroacoustic music we are not so concerned (unless the piece is literally programmatic) with the *anecdotal* value of the recordings, but with their pure sound behaviour. In other words, the sound of a train leaving King's Cross Station is of value for the composer as a sound with a slow attack, and containing evenly accelerating rhythmic pulsations. The listener has no way of determining, if he can recognize the sound of a the train, whether the location was Euston Station instead. For a film-maker it would be important to know whether or not it was King's Cross since this may be of value to his plot.

These two approaches raise the two main treatments that a recorded sound may receive:

•The more literal the recording, the more anecdotal the content and therefore the less abstract the resulting raw sample and hence the greater difficulty in composing gesture substitutions as described earlier.

•The more abstract the recording, the less anecdotal the content, the easier it becomes to manipulate the sound as pure sound.

The excitement of electroacoustic music, for me, lies in this tension between the anecdotal nature of a recording and its use as pure sound. The "thunder" and "rain" sounds found in the last section of *Sin Ti Por El Alma Adentro*, from 7m44s onwards, are more poetic to me simply because they have been heard for most of the piece as breath and key-clicks.

The samples of key-clicks were in fact my main thematic material, because they could generate textures (when multi-layered or iterated rapidly) as well as establishing pulse relations (when played individually) thanks to their looping. Their irregular percussive quality allowed me to establish a continuum between discrete pulse implications and *texture,* this continuum was regulated by *fragmenting, iteration and multilayering.*

We may think of texture as being the simultaneous unfolding of *many* separate musical actions perceived as *one* complex musical action. In his article Smalley refers to texture as follows : "Texture ... is concerned with internal behaviour patterning, energy directed inwards or reinjected, self-propagating; once instigated it is seemingly left to its own devices; instead of being provoked it merely continues behaving... Where gesture is occupied with growth and progress, texture is rapt in contemplation" (Smalley, 1986, p.82).

My textural passages in the tape part of *Sin Ti Por El Alma Adentro*, were composed from the manipulations of a few basic samples: the more fragmented the sample, the less its inherent time is perceived, so to return to our King's Cross train, if we were to edit the recording

and reorganize the order of segments, introducing elements of repetition at various places, we would begin to impose a compositional rhythm upon the sample, and therefore we would obscure the original "time content". This is the approach I took towards the flute recordings, in order to control the degree of "literality" they exhibited.

Of the techniques mentioned above, regarding the continuum that leads to the creation of textural material, *iteration* is for me the most important, the consequences of iterating fragments I see as twofold: the first one, the generation of texture, has already been mentioned; the second, is a corollary of this: the suspension of time. Here lies *the inner rhythm of texture* which *is* its living fabric. Texture does not refer beyond *itself* if each moment presents a unique state within the attack-effluvium continuum[52]. It refers to the *piece as a whole* when the fragments are recognizable from previous occurrences; this gives rise, partially, to the poetic resource of *refrain*.

Yet again, if we consider the example of the train, in the measure that we present the unadulterated recording we evoke the initial moment of identification of the sound source: "here is a train leaving the station", we are referring the listener back in time to the initial hearing. However, if we have manipulated the recording to obscure its anecdotal quality, the resulting sound will be less familiar to the listener and will refer to the original recording less. As a result of this, the new sound places the listener in the present as opposed to creating a sense of *refrain*.

In my view, to the extent that texture refers to itself - to the present moment - by virtue of the sample fragments being sufficiently unrecognizable, we perceive a kind of stasis, a *rallentando* of time. If,

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[52] Smalley, 1986, defines the result of creating a texture with more or less differentiated grain as an "attack-effluvium continuum", because our perception of individual events moves focus from the recognition of individual onsets or attacks to the blurring of this individual event recognition.

on the other hand, the fragments lengthen and it is possible to recognize previous material, an element of partial refrain is introduced and the music is propelled forward by the sense of change. Finally if the refrain is too literal then time appears to come to a halt, and the *virtual* time of memory is introduced : the flashback.

A refrain which is not literal implies variation, and variation in turn implies development, which embodies the passage of time. A literal refrain implies stasis, it belies development. Tarkovsky, again: " I find music in film most acceptable when it is used like a refrain. When we come across a refrain in poetry, we return, already in possession of what we have read, to the first cause which prompted the poet to write the lines originally. The refrain brings us back our first experience of entering that poetic world, making it immediate and at the same time renewing it. We return as it were, to its sources... Plunging into the musical element which the refrain brings into being, we return again and again to the emotions the film has given us, with our experience deepened each time by new impressions" (Tarkovsky, 1986, p.158).

In composing *Sin Ti Por El Alma Adentro*, I have found that I worked in a "cinematic" way. I created textural passages as settings in which to place the solo flutist, in a quasi-visual manner. During the composition of this piece I was haunted by the memory of battle scenes from the film RAN, by Akira Kurosawa, with music by Toru Takemitsu. In these scenes, there are no sounds of battle, but a passionate orchestral accompaniment. I also had recurring memories, from other scenes, of the sounds of light wooden percussion, and of shakuhachi solos. The battle scenes moved me to write the final section of the piece, while the sounds of wood prompted my treatment of the key-clik samples throughout the work. Sometimes these reminiscences intruded on the compositional thought proper, as heard at 5m17s, where a sudden burst

of key-clicks is accompanied by a diminuendo ostinato pattern in the flute solo.

Although I did not use explicit references from RAN or indeed from any other pieces of music[53], I was more than aware of the powers of evocation that a sound sample may have. Sampling allows great flexibility in the use of borrowed material (quotation) and in recreating extraneous sound events (mimesis). In the same way as refrain points back to first poetic principles, quotation and mimesis point to the poetic references outside the work proper. That is to say, they are clues to the compositional world from which the piece has emerged, or simply to the everyday life of the composer. These clues exist even if the composer is not aware of them.

Quotation and mimesis interrupt the flow of musical time in proportion to the length of the reminiscence they may elicit. In other words, while our ears are being diverted towards this sudden "vision", the main development of the music is interrupted. This interruption is in itself a poetic resource.

Whilst the perception of quotation and mimesis is dependent on the listener's possible familiarity with the composer's extraneous sources, the kind of interruption in the flow of time caused by a refrain depends on the clarity of the reference within the piece and the familiarity with the work itself.

All these considerations regarding the flow of time are only possible through the discovery of relationships amongst the *time-imbued* samples.

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53 Except for the tape cue at 1m40s which comprises the opening intervals of a well known *bolero* from the Caribbean.

I believe that refrain, mimesis and quotation are the means that allow us to shape the musical narrative through the articulation of musical time; they are its poetic principles. The narrative of music is like a narrative of the aural imagination, of the sensitive experience of sound. This is what it *is* in the first place, but being a narrative it also brings with its unfolding the definition of causal relationships between its elements, or of simultaneity, or simply of succession. Although the key to understanding its poetics lies here, the secret of its beauty is always beyond us. We only know it by intuition, when the intellect "finds its joy without abstraction, effort or discourse" (Maritain, 1972, p.34).

# 5. Music for Words

The question arises, when considering the sonic resources of the electroacoustic medium, whether the setting of words presents any problems different from those encountered by the composer in writing for traditional acoustic instruments. I have found that apart from the obvious technological advances that allow the electroacoustic music composer to manipulate the voice itself, and to extend the timbral world, the compositional situation remains very much unchanged.

There is a healthy tension between what a poem demands in terms of its own structure and metre and what the accompanying music demands. In my view, the composer has to choose which to follow, as they cannot both have equal weight throughout a whole piece without endangering comprehensibility. In the case of *Sin Medida* , submitted in this folio, I chose to focus my attention alternatively between words and musical thought; however, it was essential for me to decide on a particular reading of the poems so that I could be precise about what I was trying to convey. As the reading of poetry is subjective, one composer's particular decisions concerning mood and atmosphere are bound to be different to another. What is important to realize is that this is no "quest for truth", but that all versions are valid and it is precisely in this multiplicity of readings that the richness of a poem lies.

## 5.1 *Sin Medida*

This piece for mezzosoprano and tape was especially written for Loré Lixenberg, who premiered it in Amsterdam in October 1989. The texts are taken from a book of poems by Venezuelan writer Luis E.

Pérez-Oramas, called *La Gana Breve* [54] (brief desire). The poems chosen were *Cementerio de Lillers, A Veces Pasan Los Cantantes,* and *El Guayabo* (The Graveyard at Lillers, At times singers go by, The Longing)[55]

The style of these poems is a development of what was known in Latin America as "Poesía Conversacional" and "Poesía Urbana" (conversational poetry and urban poetry). These styles emerged in the mid-1970's as a response to the busy city life of modern Latin America, and partly also as a reaction to a structuralist approach to literature which thrived in being hermetic; it sought to find the poetic element in everyday situations, no matter how trivial; it sought to rescue the personal element, the anecdote; its settings were the hometown, the block of flats, home life, the office; it relished communication.

I was involved in meetings and poetry readings with some of these poets in Caracas, in the late 1970s, and I have found in their poetry a common creative vein. As the years have passed, the writing of those involved has matured and undergone transformations which are beyond my capacity to assess but I have remained fascinated by their attempt to rescue that which is apparently trivial.

*Sin Medida* means "without measure", it is a pun in Spanish that conveys the Italian musical term *Senza Misura* and also means "without measure", that is: not being measurable. This refers to the abundance of non-metrical musical notation in the piece, where the melodic lines are to be sung freely between musical cues from the tape. *Sin Medida* consists of three songs : *Cementerio de Lillers* , *Y A Veces Pasan Los Cantantes* and *El Guayabo* .

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54 Unpublished manuscript.

55 Full text and translations are included with the score.

In this piece, I tried to make "sonic photographs" of certain musical situations that were relevant to me as a composer. Therefore I included such "snapshots" as the 6/8 rock drum-kit pattern from the beginning of *Y A Veces Pasan Los Cantantes,* where the soprano has a solo in "quasi bel canto" superimposed on the sound of the drums, with no harmonic accompaniment; and the *Son Montuno* [56] from the middle and end section of *Y a Veces...* , where a piano, double-bass and claves on tape, accompany the soprano as if in an imaginary piano-bar.

Apart from the sounds I programmed for this piece, I also used many literal samples, such as the sounds of percussion instruments (congas, cymbals, claves, drum-kit) and the sounds of Spanish guitar, acoustic and electric piano. Diagram 5.1 shows the basic setup used to compose the tape part.

One programming technique that I used here in order to generate musical material was the creation of *virtual instruments* , this consists in using a set of voices which have been created separately and then mapping them across the keyboard, with overlaps and layering. In this way it is possible to sit at this virtual instrument's keyboard and improvise in order to generate new ideas. I used this specifically for the middle sections of *Y A Veces Pasan Los Cantantes* , and for the whole of *El Guayabo.*

Apart from the purely synthetic tones employed, the literal samples are blended with percussive sounds on the tape and are used to modify these sounds making them familiar and strange at the same time. Such is the case in the opening of *Cementerio*, where the Spanish guitar sample is coupled with an FM electric piano to produce the accelerando gesture and the arpeggios, between 0m14s and 1m45s.

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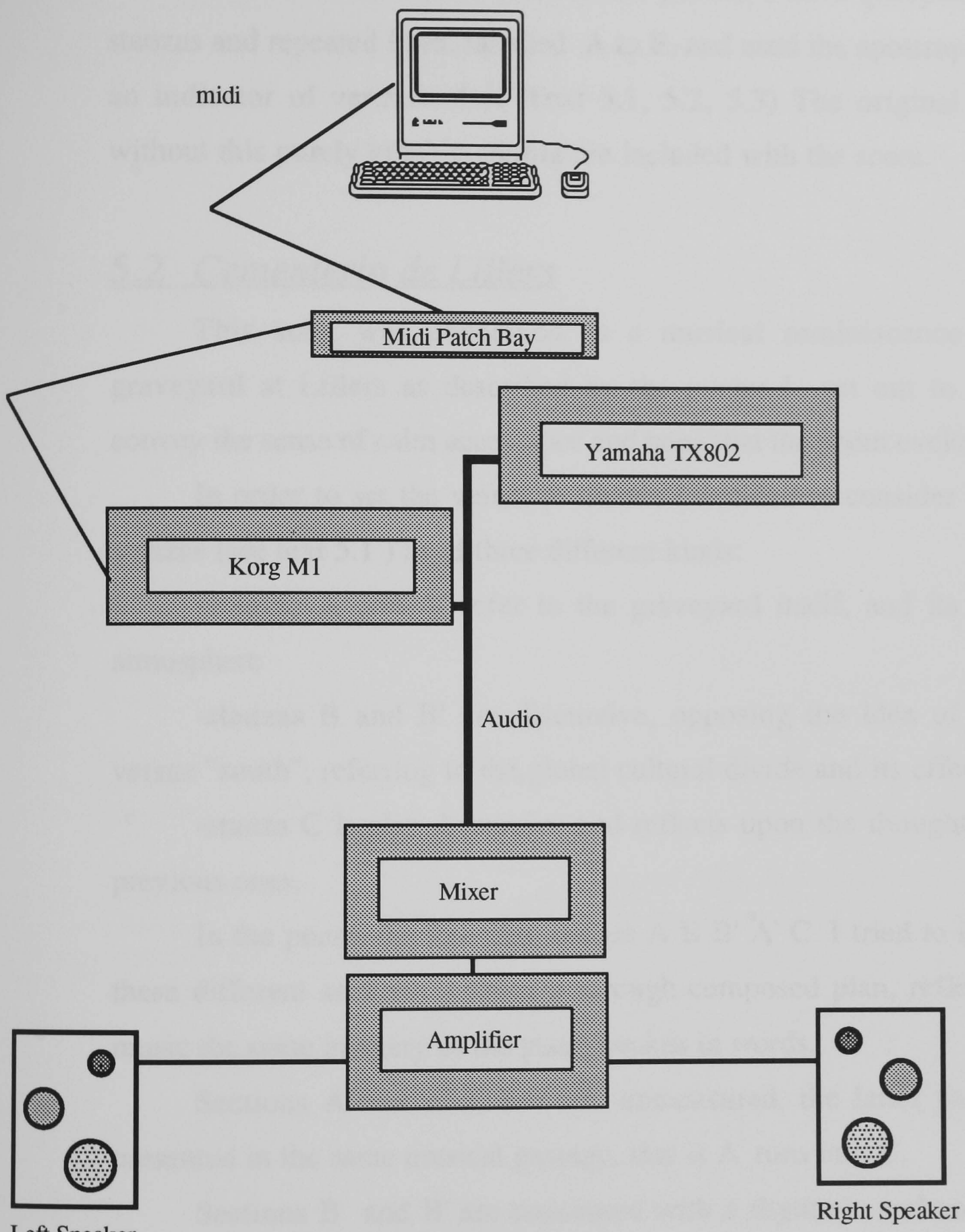
[56] Afro-caribbean song form.




*Sin Medida:* midi and audio setup

Diagram 5.1

In order to be able to refer to the poems, I have grouped certain stanzas and repeated lines, labelled A to E, and used the apostrophe (') as an indicator of variation.(see Text 5.1, 5.2, 5.3) The original poems, without this purely graphic editing are included with the score.

## 5.2 *Cementerio de Lillers*

This song was conceived as a musical reminiscence of the graveyard at Lillers as described by the poem; I set out to try and convey the sense of calm acceptance and hope that the poem evokes.

In order to set the words to music, I decided to consider the five stanzas (see text 5.1 ) as of three different kinds:

-stanzas A and A' refer to the graveyard itself, and its general atmosphere

-stanzas B and B' are discursive, opposing the idea of "north" versus "south", referring to the global cultural divide and its effect.

-stanza C is also discursive and reflects upon the thoughts of the previous ones.

In the poem, the structure is thus A B B' A' C. I tried to illustrate these different sections without a through-composed plan, reflecting in music the same imagery as the poem evokes in words.

Sections A and A'+C are set unmeasured, the latter pair being presented in the same musical passage, that is A' runs into C.

Sections B and B' are concerned with a rhythmic and colouristic use of the voice.

Throughout the music the sections follow closely the ordering of the poem:

A [B+refrain of A "head" melody] B' [A'+ C]

# Text 5.1

## Cementerio de Lillers.

**Luis E. Perez Oramas©1989**
(Translation: Julio d'Escriván)

*a Philippe Blockelet*

**[A]**
Cementerio de Lillers.
Las aves vuelan bajo,
La niebla pega susto en las espaldas.

**[B]**
Yo vengo del Sur, de los bolsillos tibios
Del planeta.
El norte me ha tendido, sin embargo, sus celadas
Sus mas dulces trampas.

**[B']**
Yo vengo del Sur
Y no tengo en mis oidos el ruido de los trenes.
El Norte me ha impuesto, sin embargo, sus costumbres
Sus horarios precisos inmutables.

**[A']**
Cementerio de Lillers, tres y cuarenta
Las aves vuelan bajo.
Yo vengo del sur y aqui desciendo bien pronto a tierra.

**[C]**
Espero que la ultima estacion me sea propicia.
Que las puertas no resistan y se cierren en silencio.
Que nadie atras, en un vagon, me añore.
Que nadie hable con sorpresa de mi ausencia.

## Graveyard at Lillers

The graveyard at Lillers.
Birds fly low,
The mist fright clings to my back.

From the south I've come, from the warm pockets
of this planet.
The north has layed, however, its lures its sweetest traps.

From the South I've come
And my ears have not known the noise of trains.
The North has imposed on me, however, its manners
Its precise, unchanging timetables.

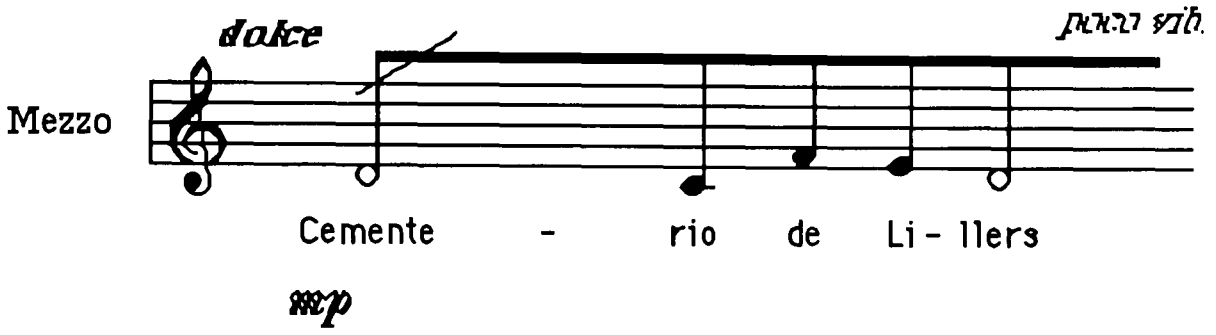
The graveyard at Lillers, forty minutes past three
Birds fly low.
From the South I've come and here I lay
Soon enough on the earth.

I hope for good favour at the last stop.
May I not be left out, the doors closing in silence.
May no one in the rear cars miss me.
May no one speak of my absence with surprise.

The melodic writing used was of two basic kinds. One is lyrical and presents the words in a melodic style, emphasizing line, and the other is rhythmical and fragments the words into percussive sounds.

My approach towards melodic writing in this piece is to have an "anchor" tone, which may or may not be the same as the tonal centre, and to weave the line, as it were, around this note.

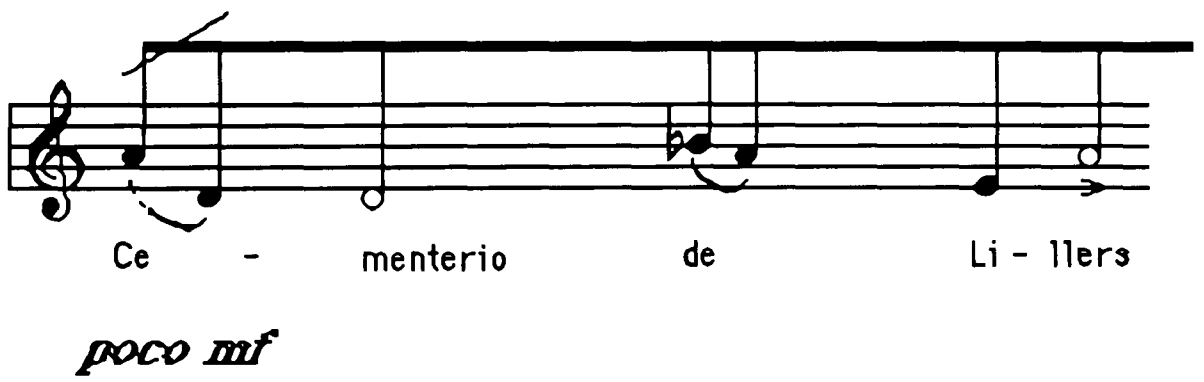
Here is an example from section A, at the very opening, D is the anchor, Ex 5.2/1:




***Sin Medida, Cementerio de Lillers:*** **section A, opening**

**Ex. 5.2/1**

A variation, using the same note D as an anchor, still in the opening section, Ex. 5.2/2:




***Sin Medida, Cementerio de Lillers*****: variation**

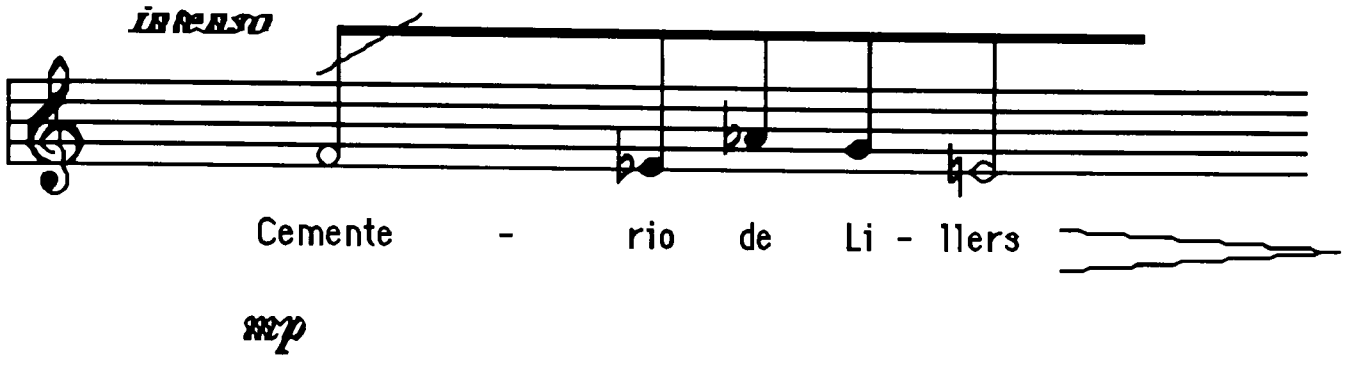
**Ex. 5.2/2**

These two melodies are presented over a harmonic alternation of

Fmaj7(6 9 11) Emaj7 (b9 11) Fmaj7(6 9 11)

During the last note of the second melody, the singer is asked to blend with the sound on tape; this is not an isolated instance. The singer must be able to produce a full bodied singing tone but at the same time be able to merge with the electroacoustic sounds by imitating them.

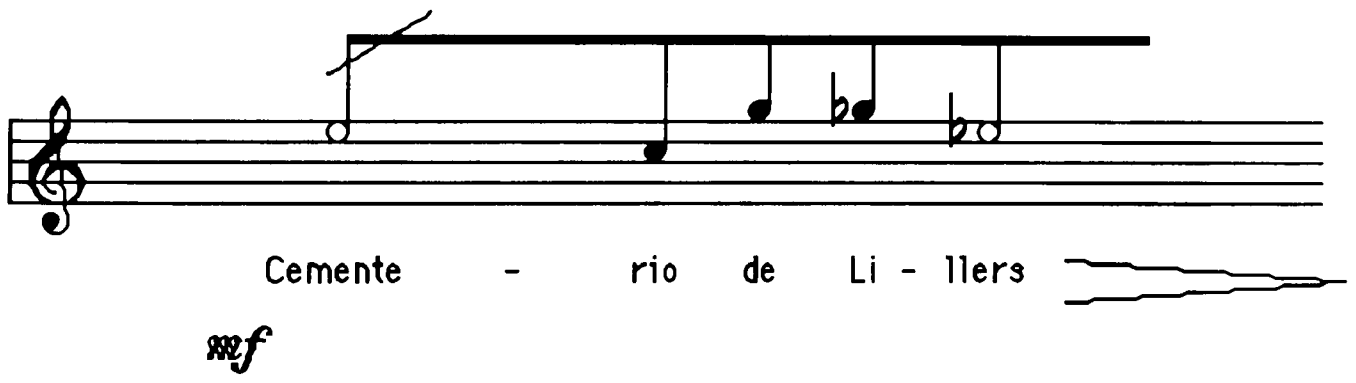
At the end of B, I recall the opening motive, transposed up a minor third, Ex 5.2/3:




***Sin Medida, Cementerio de Lillers:*** **opening transposed at the end of B**

**Ex. 5.2/3**

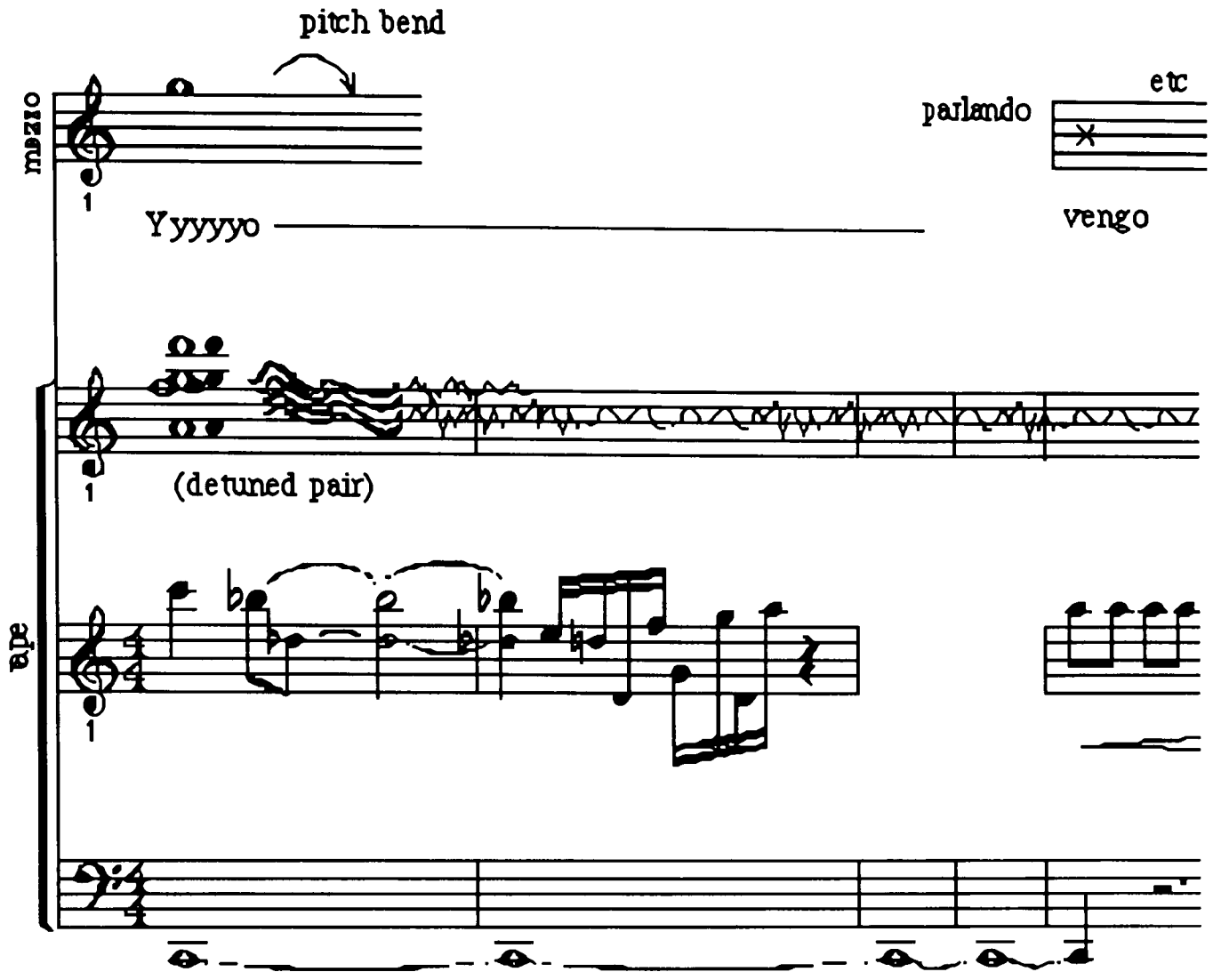
at A' a variation of the motive begins the final section, Ex 5.2/4:




***Sin Medida, Cementerio de Lillers:*** **further variation**

**Ex. 5.2/4**

In B and B', where the emphasis is rhythmic interplay between the voice and the percussion patterns on tape, spoken words and exaggerations of consonant letter sounds are used, to enrich the timbral world and the mood of the text as seen in Ex. 5.2/5:



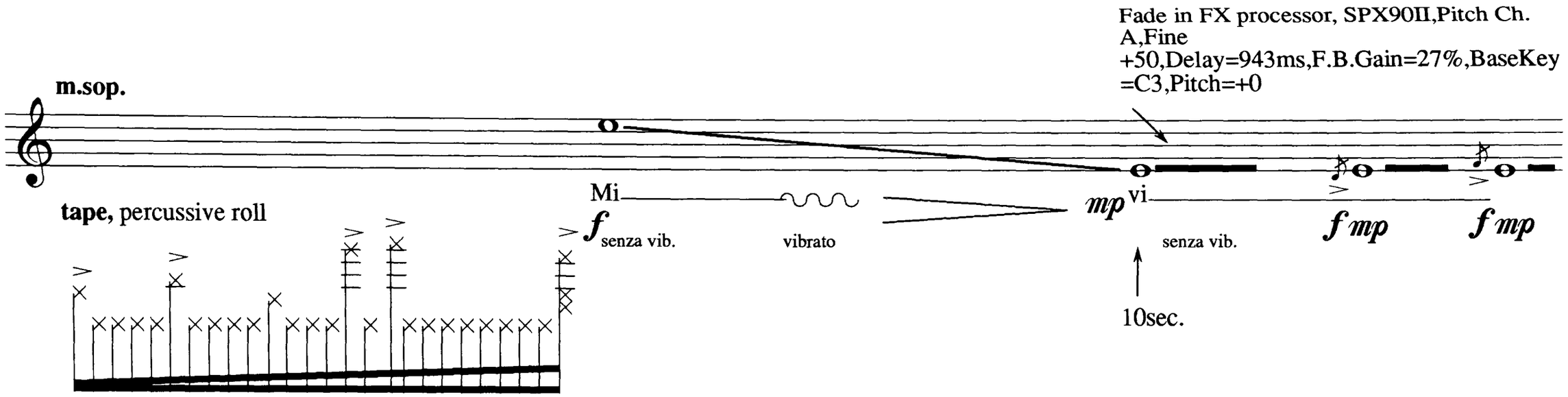

***Sin Medida, Cementerio de lillers:*** **vocal writing**

**Ex.5.2/5**

## 5.3 *Y A Veces Pasan Los Cantantes*

For this song, I had to do some minor re-arranging of the text, in order to reflect my reading of the poem through the music. I conceived this one as a more operatic solo, with drama in the vocal delivery and making use of the "snapshot" techniques I mentioned above.

The poem opens with an enumeration and description of the things "Mi vida..." (my life) is. Therefore I chose to dwell on a timbral game with the actual sentence "Mi Vida" (my life...), before launching into the poem proper, in the manner of a prelude: after a drumroll on tape, the singer begins a 26 sec. long gradual delivery of the phrase "Mi vida", Ex 5.3/1. In the course of these 26 sec the voice has to move through the music continuously , with the main pitches marked out and the inflections




**Ex 5.1/6: Y A Veces Pasan Los Cantantes**

before these pitches notated as grace notes to be sung as fast as possible. This passage ends when the singer reaches a vocal multiphonic[57], and the drum pattern on tape comes in.

This enumeration and description is sustained until the end of the poem, but the last phrase, "Y a veces pasan los cantantes", seems to be a kind of sudden interruption of the imagery. To me it is as if it reflects an event surrounding the writing of the poem but does not strictly belong to it. For this reason I chose to set it to the music of a medium tempo "Son Montuno". The first glimpse of this snapshot is at the words "Y retoña el sueño", meaning "and dreams are conceived", in this way the music is relating this short phrase to the end of the poem. If the words are being followed, this snapshot appears to be more logical than could be appreciated with no understanding of the text; it is a poetic solution. I would like to discuss my interpretation of the poem in detail, in order to better illustrate my musical choices, but first let us determine the overall map of the music.

The order of sections can be described as:

A B C D E A' E' B' D'

As can be seen in Text 5.2, I inserted the phrase "Mi Vida" at the beginning and at A'. The latter is the opening of the second section proper which deals with the same musical ideas of the previous sections, but modified or extended, and in a different order.

From the point of view of the relationship of sections to their variation:

-A' is a very similar repeat of A, the differences are in the interpretation of the microtonal glissandi and in minor inflections.

-E' is a shorter variation on the original E

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57 This extended vocal technique is only asked of the singer if they can already produce it, as it is somewhat difficult to control. The singer for which the piece was written could perform the vocal multiphonic.

# Text 5.2

## Y A VECES PASAN LOS CANTANTES

**Luis E. Perez Oramas©1989**

**[A]**
(Mi Vida)

**[B]**
Mi vida tiene
el eco abierto de las casas nuevas
donde no hace falta repintar las puertas.

(Mi vida tiene)
Las historias viejas, las leyendas de rincon.

**[C]**
Son tan metalicas las voces que no se da el slencio

**[D]**
ni retoña el sueño.

**[E]**
De donde vienes me dijiste
con los pies asi, de donde traes el sucio,
hace cuanto el barrro pesa en tus zapatos.

Apenas hoy espero los muebles
solidos, la atenuada voz de los objetos
que me daran sus rostros.

**[A']**
(Mi Vida)

**[E']**
Mi vida tiene el eco abierto de las casas nuevas,
el gusto neutro, por hacer, de panes crudos.

**[B']**
Animales furiosos, humeantes
acorralan mis mas minimas historias.

**[D']**Y a veces pasan los cantantes.

## AND AT TIMES THE SINGERS GO BY

(My life)

My life has
the open echo of newly built houses
where doors are in no need of another cover of paint.

( old tales, sitting room stories)

Voices are so metallic
that silence cannot be had or dream blossom.

(or sleep be allowed)

Where have you come from, you said
with your feet like this, where has
this dust come from,
how long has the mud been weighing down your shoes.

Only this day have I been expecting
the solid furniture, the soft voice of objects
that will give to me their countenance.

(My Life)

My life has the open echo of newly built houses
the insipid flavour, to be made, of uncooked bread.

Furious, smoking animals,
corner my most minimal stories.

And at times the singers go by.

-B' Is a re-orchestrated repeat of B in regards to the tape part; the melody line is similar in contour to the original one.

-D' is an extended version of D , where the musical "snapshot" takes over and becomes the coda to this song.

From the point of view of my interpretation of the poem, this is the character of each section:

[A],[B]: the imagery here is that of a newly built house, with the doors recently varnished, no carpet on the floor, just space, ample, resonant. I chose to set this using the rock 6/8 pattern with little else, and the voice with no harmonies because to me this elicits an image of emptiness. The second stanza of [B] appears after [C] and [D] in the original poem, but as it seems to relate more to the first two lines I have included it here. To me it is a sort of paradox: how can there be both "the emptiness of the newly built house" and "the old tales, the sitting room stories"; the second image is warm and seems to contradict the first.

[C],[D]: Although these belong to [B] in the original poem, I chose to differentiate them musically. [C] evokes the metallic quality of the reverberation in the empty house, this kind of reverberation makes it difficult to understand what is being said, it impairs communication, hence my choice of setting, very timbral and melismatic, with microtonal inflections. [D], as described earlier sows the seed of the musical snapshot at the end because of its reference to sleep and dreams.

[E] and [E']: these are the discursive stanzas. I found that here, more than anywhere else, the poet is showing us his own face in several disguises, through the use of domestic imagery, always referring to the house.

[B']: For me this is the violent image within the poem. It suggests a threat to the voicing of poetry, perhaps in the sense that any revealing of one's inner self becomes a dangerous exposure.

[D']: the interruption that I perceive in the last line of the poem is set here by the *Son Montuno*. It simply takes over and the singer must deliver the vocal line in a popular style, with little vibrato. The music fades away, like a mirage.

## 5.4 *El Guayabo*

The setting of this poem is difficult for me to discuss, because it was composed in a completely intuitive way. Although I could see from the poem a number of "scenes" to be worked upon, I could not break it down into sections without it losing something. I tried several settings with no success until I stopped trying to think about it and began to compose.

For this to happen, I had to experiment first with the building of a sound, a synthesizer voice that would reflect my mental image of the words. This is a procedure that I normally follow in composing with electronic instruments: the sound itself generates ideas.

In the case of *El Guayabo* , I had a number of percussive voices on the Yamaha TX802 and the Korg M1. They were all of similar onset characteristics but I attached always a short release to the percussive envelopes of each voice. I then proceeded to assign these percussive voices to different areas of the keyboard, and made sure that they overlapped and became layered in different parts of the range. I then set the sequencer software in "step record" mode[58] and proceeded to enter semi-quaver values in a sort of *moto perpetuo* , improvising the pitch

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[58] In this mode the user may specify a pitch and a rhythmic value to every "step", as if writing the music directly onto the computer file.

# Text 5.3

## El Guayabo

**Luis E. Pérez Oramas** ©1989

Hasta aqui me llegan los ruidos de los trenes
la lejana vecindad de mis afectos
estoy jamas en casa y suena el telefono
y nos llaman
al almuerzo.
Hasta aqui me llegan los ruidos del domingo
los cantos, la Iglesia llena
de gente ociosa.
(Padre,Madre y alimentos)
Estoy en un terreno vago que conozco
y que ignoro siempre con escandalo.

Son, sin embargo, los mismos animales
que ladran por el mundo,
los mismos motores lejanos que despiertan
el guayabo,
las mismas llamadas, llamaradas del viento (la enfermedad la compañia)
las mismas voces abiertas en techadas piscinas como el alma.

la máxima felicidad está siempre afuera.
Adentro estan las cosas, los libros viejos y rayados.
Adentro estan las voces fieles, usadas, próximas
llamándonos.

Adentro están los cuerpos indolentes dejando pasar el tiempo con sus ruidos.

From here I listen to the trains whistle
the distant neighbourhood of my affection.
I am never at home and the phone rings
and we are summoned to lunch

From here I listen to the noises of sunday
the hymns, the church full
of idle people.
(father, mother and food)

Aware of the vague territory I inhabit
I ignore it always with scandal.

Yet the same animals bark everywhere
the same distant motors awaken my nostalgia
the same calls flames of wind
(illness, company)

The same open voices in indoor pools like my soul

The greatest happiness is always outside
inside are things, books old and scribbled upon
inside are faithful voices, used, nearby
calling us.

Inside are the idle bodies letting time go by with its noises.

choice, by modal areas. So, for example, if I set out in D, I would try to establish D as a key centre by my choice of pitches, creating tension by using different interval relationships and ostinato patterns. I would then play back at a fast tempo and listen to the effect of going through the different percussive combinations of voices. I repeated this process several times, creating the music linearly and always moving forward through repetition of intervals and tone centres. I then designed velocity curves to shape the dynamics, and make it all flow. From there on, I worked like this until the song was finished deriving the vocal line from the implied harmonies of the accompaniment.

Because of the layering and mapping of the available voices onto the note range, I had no polyphony left, and this was the main reason why I did not explore a more contrapuntal texture. On the other hand, I found all the different rhythmic objects to be so rich and varied that perhaps they would only have been obscured. In the end I was satisfied with the result and I decided not to experiment further.

*El Guayabo* is a kind of resting place within the piece as a whole. It does not demand effort from the listener like the previous songs do. I felt that it would make a very appropriate ending for this set of three songs.

# 6. Concluding Thoughts

In the process of assembling together the pieces that I have submitted, I have had the chance to see them in a different light; some of them, depending on their composition date, seemed more familiar than others and this allowed a certain detachment that was useful in trying to look at them from a more analytical point of view. There is also a fair amount of music written during these last few years which has not been included in this submission. The idea in choosing the ones that comprise this folio was to represent as accurately as possible the compositional issues that I have encountered during these years.

To end my commentaries on the folio, I would like to consider briefly what those compositional issues were and how I dealt with them.

## 6.1 Composing and developing ideas without pencil and paper.

This is perhaps the first situation which is faced by the electroacoustic music composer, and I found it quite a liberating experience. Although I kept manuscript sketches of all the pieces as I was writing them, the difficulties in notating everything that was happening in the tape parts reduced these sketches to a general "cue sheet". A more important point than this one is learning to work on sound by ear, in other words, the classical development techniques of counterpoint, motivic imitation and harmony have to be re-thought in order to apply them to purely timbral materials.

## 6.2 The creative manipulation of timbre using synthesizers and samplers: developing a consistent approach towards sound creation, based on a knowledge of the instruments and the sonic possibilities of current technology.

All synthesizer/sampler systems available provide essentially similar *kinds* of control over timbre but to different degrees. When programming a new machine it is more a question of identifying where the different parameters are changed and stored, than it is learning a completely new system. I have tried to develop approaches that allow me to work efficiently as a sound programmer when writing a new piece, as exemplified in my discussion of envelope templates (see timbre creation). During my work on the pieces of this folio I have been exposed to a variety of instruments and I have been able to exercise the skill of sound design to the point of feeling comfortable in this medium: In *Sin Ti Por El Alma Adentro* I sampled all sounds from live flute recordings and tailored them on the Akai S900. I used only one synthetic pad sound from the Roland MKS-80; In *Salto Mortal* I recorded, sampled and tailored the metallic tape spool sounds on the Akai S900, as well as creating the Yamaha TX802 voices from scratch and modifying some existing presets; in this piece I did include one or two FM sounds that I did not design but I used them in the extremes of their range, rendering them mostly unrecognizable; In *Sin Medida*, I programmed all sounds on the TX802 and the Korg M1 , except the literal samples (see timbre creation); In *Viaje* I also programmed everything, this time, in addition to the TX802 and the M1, I had to deal with the Roland D110 synthesizer which was very useful in the variety of pre-sampled loops it contained; I used these as raw material for some of the voices. Writing

these pieces has left certain stylistic traits in my sound design, which I believe will always be in a process of development and refinement.

## 6.3 The establishing of notational conventions for the representation of tape parts.

In the earliest score of the folio, *Sin Ti Por El Alma Adentro* , my approach was to give a pictorial representation of the sounds on tape. I found the accuracy of this to be too subject to my drawing skills which are poor. Therefore I tried to include the minimum necessary for a performer to be able to follow the music. The tape part is ultimately its own notation and the score is only like the map of a jungle: boundaries and main geographical sites.

The problem with the use of midi is that a conventional pitch class is used to label the triggering of a sound. So therefore if one were to write out "middle C" on manuscript paper, this would tell nothing of the timbral aspects of the sound that is being triggered. In pieces like *Sin Medida* and *Viaje* , I used alternate noteheads to notate the triggering of semi-pitched sounds; these are explained in the score. I also used symbols to qualify these noteheads whenever their inherent timbral characteristics necessitated explanation. These symbols I call "note and staff expressions" , following the terminology of the notation software package, *Coda Finale*, precisely because they are attached or tied to the notes or staves they refer to in an otherwise conventional notation. I have also employed some of the most commonly used spatial notation devices as seen, for example, in the unmeasured parts of the vocal line in *Sin Medida* .

Finally there is the problem of notating rhythmic objects, since when they are transposed, unless time stretching algorithms have been

applied to the sample, the tempo of the inner loop changes. I have dealt with this by trying always to represent, where possible, what is heard.

## 6.4 The search for a compositional "voice" that would express my musical mind specifically in regards to integrating "non-classical" idioms and electroacoustic sounds.

To determine how much of my compositional idiom becomes an original utterance is too difficult for me to say objectively. I feel that I am closer than ever before to my own "voice". In varying degrees I find that I have been able to express what I wanted in the pieces that make up this folio. I believe that this is the work of a lifetime for any composer: assimilating his influences until they become undetectable. The only point I can stress here is that in working on my pieces I have tried always to say what I wanted in the most personal way possible without trying consciously to be original. I say this because a conscious quest for originality, in my view, usually results in a kind of forced musical eccentricity. The working methods of other composers, past and present, are of use to me for I feel that the problems we encounter today in musical composition are essentially the same as have been dealt with by composers in the past. I believe that craftsmanship must be acquired and exercised through intelligent imitation, in this way originality eventually arrives in a natural and effortless way.

Finally, in submitting a folio which comprises four electroacoustic pieces out of five, I am convinced more than ever before that technology does not facilitate the act of composition, but it does facilitate the realization of musical ideas and the trial and error in which we are all engaged. Even when my emphasis is clearly on the more intuitive and

euphonic approach to composition, this has not excluded the exercise of critical thought. The latter is what ensures the development of the Craft of Composition.

# PART II

## Recordings and Scores

**This part of the thesis may only be copied with the composer's explicit consent, unless it is only a partial reproduction for study purposes only**

**Two Digital Audio Tapes are enclosed with the following recordings:**

1) *Sin Ti Por El Alma Adentro* (Nancy Ruffer, flute)

2) *Son Del Seis* (City Lights, Agustín Fernández, conductor)

3) *Salto Mortal*

4) *Sin Medida* (Loré Lixenberg, mezzosoprano)

5) *Viaje* (Julio d'Escriván, electric guitar)

6) *Sin Ti Por El Alma Adentro* (tape portion only)

7) *Sin Medida* (tape portion only)

8) *Viaje* (tape portion only)

**The following scores are enclosed:**

1) *Sin Ti Por El Alma Adentro*

2) *Son Del Seis*

3) *Sin Medida*

4) *Viaje*

## Recording Details

**1)** ***Sin Ti Por El Alma Adentro***

**Completed:** May 1987.

**Duration:** ca.11 mins.

**Performer:** Nancy Ruffer, flute.

**Recording Date:** August 1987

**Notes:** This piece won the 1st prize in the Music for Performer and Tape category at the 15th Bourges International Electroacoustic Music Competition, 1987, France. It has been broadcast by BBC Radio 3, Music in Our Time, 8/12/90. It has also been broadcast and performed in Europe and America (North and South).

**2)** ***Son Del Seis***

**Completed:** February 1987.

**Duration:** ca. 12 mins.

**Performer:** City Lights, conducted by Agustín Fernández.

**Recording Date:** 23/6/1988

**Notes:** This piece was selected by the SPNM reading panel for a workshop with 'Gemini', conducted by Graham Treacher, at the Musica Nova festival in Glasgow, October 1987. Concert non-professional recording

**3)** ***Salto Mortal***

**Completed:** January 1989.

**Duration:** 8 mins. 4 secs.

**Recording Date:** January 1989.

**Notes:** This piece won the 2nd prize ex-aequo in the Electroacoustic Music category at the 15th Bourges International

Electroacoustic Music Competition, 1987, France. It has been broadcast on BBC Radio 3, Music In Our Time, on 23/2/1989.

**4)** ***Sin Medida***

**Completed:** September 1989.

**Duration:** 20 mins.

**Performer:** Lore Lixenberg, mezzosoprano.

**Recording Date:** June 1991.

**Notes:** This piece was originally recorded by V.P.R.O. radio, Amsterdam, in concert at Het Stedelijk Museum, for a broadcast on the program Audio Art, produced by Yolanda Mergler on 28/12/1989.

**5)** ***Viaje***

**Completed:** June 1991.

**Duration:** 10 mins.

**Performer:** Julio d'Escriván, electric guitar.

**Recording Date:** 31/7/91.

**Notes:** This piece has not yet received its first public performance.

# Appendix

## A Neo-Thomistic notion of Art

The following is an brief summary of some of the basic philosophical considerations of Jacques Maritain regarding the notion of art, based on the teachings of St. Thomas Aquinas, the scholastic philosophers and Aristotle. The writings of Maritain have been very important to me as a composer for they have legitimated within a philosophical sphere an intuitive approach to musical composition which I consider to be of the greatest common sense. I have summarized these ideas from the book *Art and Scholasticism* , published by Louis Rouart et Fils, Editeurs-Paris and translated by the Club de Lectores, Buenos Aires, 1972. I have also consulted *Creative Intuition in Art and Poetry* , from Maritain's A.W. Mellon Lectures in the fine arts, National Gallery of Arts, Washignton 1952, published in 1954 by The Harvill Press, London. Needless to say that these books are far too extense for me to summarize properly, and this being outside the scope of this thesis I have just tried to give a general idea of Maritain's approach. Maritain's work is far better known in the continent than it is in Britain, I hope that the recent revival of Aquinas within the theological sphere will bring more people to read the neo-thomist authors.

Art belongs to the intellectual order, its action consists in impressing an idea upon matter ( sound, in the case of the composer ); it resides in the intelligence of the *artifex*, it is a quality of that intelligence.

In ancient times the word *habitus* was used to describe certain qualities that are essentially stable dispositions which perfect, in the line of their nature, the subject in which they reside. Health and Beauty are

*habiti* of the body[59]; other *habiti* have as their subject the faculties or potencies of the soul and because the nature of these faculties or potencies tends towards action, then these *habiti* perfect them in their proper dynamism. This is to say that they perfect them in the line of their action. These *habiti* are called operative: of this kind are the intellectual and moral virtues.

Operative *habiti* are acquired by practice, repetition of acts. They are not simply the outcome of routine repetition, as the term "habit" is understood in its modern sense. The latter refers precisely to the sense of the daily "grind", to "habituation", the familiarisation with a particular action which then becomes, as it were, second nature.

The term *habitus* as understood by the ancient philosophers[60] resides in the intelligence or the will, faculties of the spirit. The operative *habiti* is evidence of spiritual activity; in the case of the *habitus* of science, the intelligence is applied to the demonstration of a truth, precisely because the application of science effects this demonstration, and this demonstration leads the intelligence towards truth, then science perfects the intelligence in regard to its acquisition of scientific knowledge.

Art, therefore is a habitus of the practical intellect, because it belongs to the intellectual order and its effect is to enable the *artifex* to produce beauty as a consequence of impressing his idea upon matter; the habitus of art perfects the artifex in the line of making things. Furthermore, for the work of art to be done well, there must exist in the soul of the artist a disposition elicited by the work, which creates between the artist and his work a sort of correspondence or intimate

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59 For those of a Christian background, we could add that *Sanctifying Grace* is a supernatural *habitus* of the soul.

60 *Habitus* being the Latin translation of the original Greek word, which is said to have a more expressive meaning.

proportion, which the ancients denominated *connaturality* . The artist must be thus related to his work in order to create it.

In musical composition this relation between the work and the artist elicits in the latter the sense of Harmony[61]. It is also important to note that within this philosophical context we can say that art is a virtue, for it always tends to perfect the activity of the intellectual faculty in respect to the production of the work of art.

If art is a virtue of the practical intellect and all virtues tend to the good, then Art as such, is never wrong. The artist may err, or go against his art, but art itself always tends to the good. Art is infallible. This view was always supported by the schoolmen by differentiating between the truth of the speculative intellect, which consists in knowing in accordance to what things are, and the truth of the practical intellect, which consists in directing in accordance to what should be, in terms of the rules and measure of the thing to be made.

This infallibility of art is only concerned with the regulation of the work to be done by the spirit (by the practical intellect as one of its faculties). Therefore, even if the artist's technique is imperfect, he still possesses the virtue of art. A parallel may be drawn here with morality when a certain act fails in practice, yet according to the rules of prudence the act itself was right; like one man trying to save another from drowning but failing to pull him out of the water in time due to fatigue or another physical cause.

It may be concluded that manual ability does not form part of the work of art, it is only a material condition of art and extrinsic to it. The musician who exercises his fingers does not develop a special art, an art

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61 Understood in the most general sense, the sense of proportion and balance between sounds with musical intent.

of speed and agility, he rather removes a physical obstacle to the exercise of his art. Art resides totally in the spirit.

The scholastic philosophers, in the light of Aristotle's work, defined art as the *undeviating determination of the work to be made*,, science as the *undeviating determination of the objects of speculation* and prudence the *undeviating determination of the acts to be performed.*

The act of musical composition can be therefore defined as a result of possessing the virtue of music.

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