Narrative Strategies and Sound Space in *Nau dos Insensatos* by Conrado Silva at the XXth São Paulo Art Biennial

Estratégias narrativas e espaço sonoro em Nau dos Insensatos de Conrado Silva na XXth Bienal de São Paulo

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Abstract: *Nau dos Insensatos* is an electroacoustic composition by Conrado Silva commissioned for the XXth São Paulo Art Biennial of 1989. The analysis of the piece reveals that an intrinsic narrative content can be deduced from the sequence of materials, topics, and formal organization used in the composition. The theoretical framework used to reach these conclusions considered the music narrative theory of Byron Almén, besides the classical semiotic interpretation of C. S. Peirce. Brief accounts of the principles of these theories were provided to subsidy the interpretation. As the creation of the piece had a direct relation with the space where it should be performed, the paper also reports the problems generated by the building's acoustics, besides some contextual information about the exhibition. Theoretical information about the relation between acoustic space and music, applied to music of three other Brazilian composers enhances the approach to Conrado Silva's music.

Keywords: Narrativity. Sound space. Electroacoustic music. Musical meaning. Brazilian composers.

1. Introduction

Once upon a time there was a sultan that returning from a hunt found out that his wife was cheating on him with a slave. He killed both, without remorse. He also lost confidence in all women, although not the lust for them. Well, you know the tale: he married as many times as he killed the bride to avoid the inevitable betrayal, until he married the brave Sheherazade who devised a strategy to cheat the destiny entertaining the sultan with miraculous stories that finished with a link to further developments in order to manipulate her husband's curiosity, keeping her alive.

Our Sheherazade, however, ran out of tales. In an act of despair, she thought that she might replace them with music, indeed musical narratives. Her first choice was Rimsky-Korsakov's *Sheherazade*. What a happy coincidence of names, isn't it?

It worked. The sultan recognized Sheherazade's seductive voice in the elaborate arabesques of the violin solo. He also recognized the sea tempest that threatened Simbad's ship and many other episodes. At the end of the piece, the violin solo promised further marvelous episodes and the sultan decided to spare Sheherazade's life.

Sheherazade believed she had found the formula for immortality. For the next night, she selected Bach's *Goldberg Variations*. The theme, a very ornamented aria, kept the sultan's interest for a while, but the following variations started to disperse his attention. Sheherazade had chosen this piece trusting the legend that it was designed to fill the night of a sleepless nobleman. Finding herself in trouble, she had to explain to the Sultan that the increasing complexity of the variations constituted an intrinsic narrative that portrayed a stretch of the limits of human imagination. The return of the initial Aria at the end cued a continuation. The sultan spared Sheherazade's life once more, but that call was close.

Poor Sheherazade, her choice for the next night was John Cage's *Music of Changes*. The sultan claimed that, that was a crazy piece of music, a perfect non-sense! Sheherazade tried to invent on the spot a plot to explain the music but, despite her efforts, the sultan soon fell asleep. The next day, he woke up convinced that Sheherazade had given him some medicine to sleep in order to meet a lover. Because she did not know the theories of musical narrative, she became, according to our plot, the last victim of the sultan's jealousy.

The example of Sheherazade tells us that, concerning narrativity, there are three kinds of music:

1) Music that may have a narrative level because it is able to tell an extramusical tale;

2) Music that has some kind of intrinsic narrative made only with musical elements;

3) Music that does not suggest any narrative level.

Another relevant point is to distinguish between narration and representation. A piece of music can represent something of the real world without really telling a story, or in other words, without being necessarily narrative. For instance, Mendelssohn's or Wagner's Wedding Marchs remind us of… weddings. Indeed, this music evokes the concept of weddings in general, not a particular wedding history, although constructing a narrative after listening to some piece of music remains a possibility for any creative person. On the other hand, what we call an intrinsic narrative depends on abstractions, signs that do not represent directly anything external, of what we call reality. Therefore, narrative meaning is one occasional level of general musical meaning that happens when we trigger our interpretation machinery kinetically over the temporal sequence of events, not just statically.

The interest in musical narratives reaches full visibility during the 19th century, when absolute music and program music divide the scene in two opposing trends. The latter valued music's narrative ability to translate literature into music and, the former, formal aspects that might disengage any level of narrativity. This does not mean that music from previous periods could not be narrative. Our Sheherazade's example mentioned Bach's music, suggesting that narrative could actually happen with Baroque music, for instance. Another example selected from the musicological literature is Klein's (2013) analysis of Mozart's *Piano Sonata* KV332, a piece of music that at first sight does not suggest any probable programmatic content.

Of course, in previous historical periods when music cultivated mostly vocal genres there was no reason to question the narrative potential of music insofar as the words associated with the music implicated automatically a universe of verbal contents. On the other hand, the 20th century witnessed a growth of prestige of absolute music in concert music, which reached a climax with the trend of serial composition. Paradoxically, at the same time, for the

movie industry, music became another fundamental tool to grant narrative content to films. The relevance of film music may explain the renewal of interest in studies of musical narrative that increased towards the end of the 20th century.

This paper has started with a literary metaphor about the subject of musical narrative. That was intentional. The concept of narrative has a long and fertile history in literary studies. Narrative studies in music began as an extrapolation of those studies. To do that, it was necessary to assume that music had also the ability to elaborate symbolic meanings and convey contents equivalent to those of verbal language. Only part of the current musicological community accepts this premise. Indeed, the large tradition of formal analysis bluntly ignores any potential of musical narrative.

Monelle identifies the interest in recognizing the narrative potential of music as a characteristic attitude of the 19th century (Monelle 1992, p. 220). The temporal nature of musical discourses endorses this approach as intuitively acceptable, however it has faced strong conceptual resistances due to the difficulty in assigning precise semantic contents to most pieces of music. In other words, is it possible for a narrative to exist without clear semantic content or any reference to verbal language? Current musicology contents that yes, it is possible, proposing also a distinction between external narratives and internal narratives, as we tried to exemplify with the Sheherazade's music tale.

Speaking of musical narrative, therefore, ultimately means to discuss musical meaning. A very brief review of studies in this field shows us that during the last century there were two main currents of studies on musical meaning, one derived from Saussure's linguistics and other from Peirce's semiotics, both of which did not induce attempts of narrative analysis, although followers of Saussure's approach certainly are more akin to literary narrative studies than Peirce's. Later, a third school emerged, taking Greimas's semiotics as a new paradigm (for instance, see Tarasti 1994).

Douglass Seaton (2009), after dismissing the necessity of a program, explicit or hidden, in order to consider a piece of music as narrative, states that "to say that a piece of music is narrative means that it has two essential features: plot and voice. In other words, a musical work possesses the quality of narrativity in the same way that a work of literature does so" (p. 274).

Once again, we find ourselves digging theories of literature to ground a theory of musical narrative. Eero Tarasti is an author that found in the semiotics

of Greimas, which is mostly concerned with literary narrativity, a fertile theory to adapt to music. Seaton's traits of plot and voice have equivalent concepts well developed in Greimas's theory. He proposes the categories of *actorial* elements and *isotopies* as "passages rendered distinct by the employment of redundant semantic categories" (Almén 2008, p. 21), besides the dynamic role played by some *discursive categories* that organize the plot temporally.

One of Tarasti's premises is that the traditional narrative paradigm "initial situation-disruption-resolution" does not refer, in every case, to the reestablishment of the initial situation or a synthesis of opposites. Nevertheless, our analysis will demonstrate that Conrado's piece follows all the traditional steps of this narrative paradigm, finding a tragic resolution in a synthesis of the opposites presented at the initial situation.

Tarasti's narrative theory is complex and reaches into idiosyncratic details of Greimas's grammar. Although it proposes a segmentation of the piece in isotopies, it does not incorporate the achievements of the topical theory based on Peircean semiotics, besides other related categories as Hatten's expressive genres and Klein's intertextuality. However, I find in Byron Almén's writings an eclectic approach that incorporates all these theories, including Tarasti's, in a comprehensive analytical method.

One of Almén's valuable contributions is a detailed evaluation of the role of topical meanings in a musical narrative. His point of view of the concept of topic is very open minded, allowing us to extend the method to the electroacoustic realm. Table 1, featuring Almén's types of narrativity against topical analysis, presents a useful taxonomy to our purposes.

TYPE	NARRATIVE	TOPIC
I	NO	YES
II	YES	YES, but only one topic as frame
III	YES	YES, 2 topical fields as narrative poles
IV	YES	YES, but different topics from the fundamental narrative opposition poles
V	YES	YES, but only to define musical agents
VI	YES	YES, topics playing many roles
VII	YES	YES, but with topics that do not contribute significantly to the narrative
VIII	YES	NO
IX	NO	NO

Table 1: Byron Almén's types of narrativity in relation to topical meaning (adapted from Almén 2008, p. 79).

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The combinatorial method displayed in Table 1, considers all four basic possible combinations (NO-NO; NO-YES; YES-NO; YES-YES), but the richest one, that which presents six variants, happens when both topic and narrative levels perform some role in the musical discourse (the YES-YES alternative).

The proposal of extending topical theory to electroacoustic music may seem an exorbitant extrapolation because topical theory was developed for the Classical period, already extended partially to the Romantic era and a little for the Modern periods, but electroacoustic music might not be an appropriate realm to be reached by the theory insofar, at first sight, it appears to be very abstract, a No-No category: no topics, no narrative. Almén did not deepen this possibility, obviously, because he was interested only in narrative music. However, when we listen to electroacoustic music and a narrative interpretation comes to mind effortlessly, it probably means that it should fit in one of Almén's categories. Besides, this is not the first time we pursue this hypothesis, as the reader can be referred to Coelho de Souza (2012; 2013; and Oliveira; Coelho de Souza 2014).

One last remark: Schaeffer postulated for the *musique concrete* the principle of "reduced listening" that implied that processed recorded sounds should aim at being abstractions, avoiding any referential level. He was afraid of the danger of the episodic, that his music might become a cartoon soundtrack. Indeed, accepting the existence of a narrative level inevitably goes against Schaeffer's advice.

2. Inventing sound spaces

Music spatialization concerns more than just where to set loudspeakers and how to control the sound diffusion through them. This section intends to highlight that music space is a cognitive problem that has multiple aspects other than sound direction from a source. The analysis of musical spaces in Conrado Silva's piece, requires this perspective.

Composers of electroacoustic music are more aware of the relations between music and the sonic space around them than instrumental composers. Indeed, with the new available tools, composers have today many more resources to create illusions of sound spaces through electroacoustic media than the possibilities predecessors had. Nevertheless, space was for the music of the past probably a concept so important as it is for today's musical culture.

Concerning acoustic spaces, music plays many roles and it may be a surprise that composers of the past faced some problems that had the same nature of those that challenge contemporary composer. We approach the problem of music and space describing, besides the question of sound-source directionality, the influence of concepts like dynamic change, sign reference, and layered counterpoint for the invention of imaginary sound spaces and how they are manipulated by composers in their work.

The first important aspect to consider is that the perception of the sound in the natural world gives us a three-dimensional illusion. The skill of our brain to perceive variations of sound intensity and its harmonic properties, plus the ability of evaluating very tiny delays of time between sounds arriving on our two ears, is what allow us to create a spatial perception of sound source direction to build acoustic images of the environment.

We already mentioned some important features that take part in the phenomena of spatial perception of sound: variation of intensity, variation of harmonic spectrum, resonance, delays, and perception of simultaneous sound events. Let us try to review the contribution of each of them for the understanding of our problem.

A. Variations of intensity

The laws of physics teach us that the amount of sound energy that reaches our ears is proportional to the inverse of the distance to the source. This means that, when we approach a sound source, we perceive the sound louder. If the sound source is moving away, we hear the sound becoming softer and softer.

Supposing that the listener of a piece of music stays in a fixed position, the composer may create the illusion of movement of the sound source by varying the intensity of a given sound. Our experience of dealing with daily life environments has taught us that a sound becoming louder is a clue that the sound source is approaching us. This knowledge may have life or death value. When we cross a street, the sound of an engine becoming louder means that we should be careful because a car is getting closer to us.

That is a very general basic principle of perception and its application to music is so straightforward that it pervades music manifestations at all historical periods. Variations of loudness are so effortless to electroacoustic composers that they can apply this effect very often. However, this same psychoacoustic concept

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has been employed by composers of the past. For instance, by Wagner and Debussy in their descriptive music. When the orchestra makes a *crescendo* in the *Ride of Walkyrias*, we listen to horses approaching us. When the orchestra makes a *crescendo-decrescendo* in *La Mer,* we imagine waves, coming and going.

Although the variation of sound dynamic alone does not embrace all the phenomena that contribute to create the perception of a moving sound source, it certainly is one of the most effective for practical purposes in electroacoustic music. This is the case when we have more than one source of sound, for instance, two loudspeakers, and we are able to control the amount of sound flowing from each of these sources. With this simple device, we can create an imaginary position of the sound source in any middle position that results from the weight of the relative amplitudes. With at least three sources you have total control of the imaginary spatial positioning of sound, including the vertical axis. The classical experiences of Gary Kendall at Northwestern University in the 1980s set the foundation for that line of research (for instance, see Kendall, 1989).

We also know that variations of sound intensity are also closely related to expression and affect, besides space perception. This is true, but we might consider that, in the chain of significant-significations that builds a conceptual framework, very basic paradigms as the spatial perception should have a strong influence in forming other complex mind constructions, as is the case of expressive signs. In some sense, a *crescendo* that increases our emotional energy corresponds to an enlargement or movement of some imaginary mind space. It may be noticed that the word "moving", not by chance, means "in motion" but also "inspiring".

Another question to be asked is: where is the sound coming from? This was the central question on Kendall's research. Sound directionality is a vast field of research and a good account of its foundations was given by Blauert (1983). Inside a nutshell, our brain is able to locate the direction of a sound source, comparing the intensity and the phase of sounds arriving at delayed times in our two ears, and also interpreting information from the transfer function of our external auditory canals.

The perhaps unexpected problem of this knowledge is that it has very limited utility for our analysis of electroacoustic music performed for a collective audience because sound location depends on the individual's perception. Therefore, as the composer cannot control neither the position of the listener, nor

the amount of intensity and phase that will reach him at each ear, it is useless. This can be done when you use headphones or are seated in front of a home theatre. Our case study does not obey neither of these rules, as listeners are randomly moving while listening, at any position in the building.

B. Simultaneity of Sounds

Some of the most interesting aspects of the relation between sound and space, mainly for musical purposes, concern layers of simultaneous sounds. Probably, this is the richest tradition of western music: the creation of imaginary sound spaces through the superposition of chains of sounds, i.e., counterpoint.

Counterpoint deals with the very basic perception problem of hearing many different sounds at the same time in a physical environment. Since our childhood we train our brains to be able to distinguish different simultaneous sounds and to establish some hierarchy among them. This is the situation when there are many people talking at the same time in a room, noise of dishes, scratches of opening doors, soft music coming out from hidden loudspeakers. Despite all distractions, we are still able to focus our attention and maintain a conversation with our neighbor in a party. We are trained to establish hierarchical organization in the perception of simultaneous sounds. This is known in psychology as the cocktail party effect.

Taking the opposite point of view, flat spaces of monophonic sounds don't challenge our perception. We like to be confronted with intriguing polyphonic events, where we must establish hierarchical ordering, creating in our mind illusion of imaginary sound spaces.

This is a key for understanding the importance of counterpoint. Counterpoint is not a collection of rules for efficient voice-leading but the ability to build beautiful sound spaces using simultaneous sound events. In fact, the laws of counterpoint have been deduced afterwards when artists had already applied the cognitive principles of how we acknowledge and select layers of simultaneous sounds. Despite the aesthetic changes, cognitive principles remain immutable. For instance, parallel movements of voices (or indeed parallel sound events of any kind) are much less effective for the creation of imaginary sound spaces than movements in opposite directions. This explains why in Music History, composers wishing to create new sound spaces were led from the monophonic chant, through the *organum* with parallel voice movement in

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fourths, towards complex multivocal polyphony. In this context, we may say that the process of the successive appearance of voices at the beginning of a choral fugue may be described as an elementary compositional device for building a tridimensional sound space where the listener is invited to recognize and pay attention to the reappearance of the subject, enhancing a certain group of voices at that moment, assigned to a hierarchically distinguishable spatial position, be it real or imaginary.

The idiomatic electroacoustic technical strategy equivalent to the organization of choral or orchestral polyphony is the device of layered superposition of sounds. The endless richness of combination possibilities in electroacoustic music using the technical device of multilayer track recording increased the artistic resources of counterpoint. Nevertheless, the very general aesthetic rules of the old counterpoint still apply to this new world.

The movement in opposite directions (of voices or any other kind of sound) maybe is one of the most effective ways of managing the increase and decrease of imaginary sound space. Two simultaneous sounds, one changing to higher frequencies, the other to lower frequencies, and then both returning to their original positions can be perceived as a dilatation and contraction of some imaginary space. This phenomenon is very deeply rooted in the elementary principles of cognitive perception.

Brazilian electroacoustic music provides in José Augusto Mannis' *Duorganum II* a good example of the application of both principles of *variations in intensity* and *layer construction*, intended for the creation of an imaginary sound universe as a space in constant displacement. The composer's intention of promoting an expansion of counterpoint principles is explicit in the title that makes reference to the Middle Age style that marked the beginning of counterpoint. He defies the listener to notice that his musical construction, despite having many different sound events happening at the same time, at different layers, achieves remarkable unity. This is one of the main purposes of good counterpoint: to create an imaginary space, but keep the listener inside the constraints of some unified field. In other words, the piece is not a gathering of different things happening randomly, but a particular space, recognizable by its uniqueness, although it changes its shape in different ways through the displacement of elements in many directions, nevertheless remaining individually recognizable. We may guess that Mannis counterpoint journey may

embed a narrative strategy. Although being quite abstract, the task of describing it with words is difficult.

C. Filtering the Spectrum

In this context, the mention to a filter suggests some electronic device designed to change the harmonic spectrum of a sound. However, there are also physical ways for changing a spectrum. Every natural space imprints a natural filtering signature on any sound produced inside it. One reason is that besides listening to the sound coming directly from the original source, we also receive its delayed reflections on the surfaces of the space. When a surface reflects a sound, it absorbs part of its energy in a selective manner. Depending on the absorbing characteristics of the material—which includes its mass, thickness, voids, and other properties—some partials may not be reflected but absorbed. When you design a recording room, for instance, you wish that all sound components coming from the outside, including the fundamental, are absorbed by the surfaces of the room, creating a perfect insulation. Sometimes, for low frequencies, this is difficult to achieve because the energy involved would require that the absorbing material had a very large mass. However, higher frequencies may be easier to cancel. A room with carpet applied on the floor, ceiling, and walls will reflect very little sound. The higher frequencies of the spectrum disappear. That is why designers of concert halls usually like to use wood panels everywhere in the theater. Wood materials may have a good response for higher frequencies, reinforcing the aura of the harmonic spectrum of the instruments performed on stage.

Each room, large or small, has its signature of harmonic response. We may not be conscious of this response but our perception reacts to it. Notice what happens when you change from one room to another. You are in a small reception hall of a theatre, which was designed with low ceiling, carpet on the floor, and curtains. You are talking loudly while you walk. Suddenly you enter the theater large main hall. Immediately you will lower your voice. You have received a differently filtered response of the room and unconsciously you realize how improper was the volume of your speech for that space.

Therefore, by equivalent electroacoustic means, a composer is able to create the illusion of space changes and movement only by filtering a sound. The

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listener may interpret the filtering of a sound as the transportation of the sound source to another environment with a different spectrum response.

On the other hand, in open spaces, changes in spectra are interpreted differently. Sounds coming from distant sources have the higher spectrum attenuated and the lower frequencies are more preserved. When you approach the source, there is an overall increase in spectral frequencies, but the sound becomes brighter because the higher frequencies turn more noticeable. This is also a contributing defense to the life-or-death challenge of crossing a street. The sound of the car engine that approaches you is not only louder, its spectrum is fuller.

Rodolfo Caesar's *A Paisagem* (*The Landscape*) provides an amazing example of an intensive use of sound filters in order to create imaginary spaces. The idea of the piece is quite simple. The composer invites us to an imaginary travel through the groves of a damaged LP recording of the famous soprano Galina Vishnevskaya. For the composition, this old recording became a source of noise more than anything else.

The piece begins with a sample of the original recording. Immediately after, the sound track merges into a dense web of noises. We feel as if rubbing ourselves on the LP's groove walls. Sometimes we seem to merge inside the material itself, so dense is the sound. Suddenly we float again on the surface and high harmonic frequencies are heard. At the end of the piece all noise is filtered out and a celestial voice, very soft and distant, as if coming from heavenly spaces, hangs above us.

Filtering is the main resource used in this piece to create a narrative which implies a sense of transcendence and sublimation. The narrative tells the story of a human voice, initially recorded at some ordinary space. After undergoing intense hardship in dark sound spaces, the voice emerges graciously rescued in some open space.

D. Reverberation

This topic probably is the easiest to be understood. At the same time that surfaces of a space change slightly the sound qualities when they reflect it, the reflection itself produces another phenomenon, i.e., the delay between the sound heard directly from the source and the reflected sound. This delay may range from a small reverberation to an echo. The amount of delay is not constant for

the entire room and varies depending on the position of the sound source and the listener. Nevertheless, for simplification, it is assumed that each room has a characteristic reverberation time. Therefore, we may identify the size and properties of different environments measuring their reverberation time (or echoes, sometimes).

Amateur singers can be called "bathroom singers", because bathrooms usually are built with tiled walls and ceramic floors, then the reverberation in that space tends to be large. Besides that, the low index of absorption on bathroom surfaces increases the sound volume artificially. Inside it, anyone can pretend to have a Pavarotti tenor voice.

An interesting example of the use of meaningful reverberation in electroacoustic music is found in Vania Dantas Leite's *Orfeu na Floresta* (*Orpheus in the Forest*), a piece of chamber opera or theater music for soprano and tape. It describes the mythic episode of Orpheus but substitutes the Forest for the original story's Hell, or actually the Brazilian Rain Forest.

The space of the forest in this piece was created by adding artificial reverberation to the recorded sound. Of course, this is an intentional fake effect, as no forest causes such large reverberation. The music ironically plays with the cultural paradigm induced by film sound tracks in which the sound of a forest should have a large reverberation time. Motion pictures applied this paradigm so often that the association became codified. Listening to this piece, we could expect a Tarzan scream to come up. Or better, I interpret that the composer actually displaced this expectation for the soprano voice that plays the role of Orpheus in this piece, although the appearance of main role is more subtle. She sings a bird and frog imitation litany, therefore frustrating the listener expectation to achieve a more interesting aesthetic result.

Besides that, the piece employs a sampler synthesizer to generate a variety of sounds of birds and other animals that are mixed with other synthesized effects and voice effects, plus the live vocal part, in such an elaborate way that only the attentive listener can distinguish one from the other. Dantas Leite was able to suggest an inventive sound space using only standard devices managed with sensible ability. This composition is a proof that creativity can be more important than expensive technological resources. The piece was created in the 1980s at a tiny electroacoustic studio of the Federal University of Rio de Janeiro,

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using an eight-bit sampler, two Revox tape recorders, one DX7 synthesizer, and a small analog mixer.

Finally, we may emphasize that the four sound properties described so far (changes of intensity, spectrum, and reverberation time, plus layering) are the analytical categories that we will use to develop our case study.

3. Sound perception that becomes sound signification

Underlying this discussion about perception and sound space there is something that we should not take for granted. How we conceptualize any auditory space does not depend just on some raw perception, insofar as it is organized as a cognitive construction. The reverberation of a sound is heard as a quality of the space where this sound was produced. It implies the cognitive operation of transforming perception in a sign.

The study of signs has been developed by philosophers and linguists, semioticists, and semiologists. Our approach follows some concepts of the Semiotics of Charles Sanders Pierce.

We propose that our cognition of sound spaces deals with sign operations of three Peircean categories:

A. *Iconic signification* – The iconic sign is a representation based on similarity. The sign and the referent should then keep some type of formal relation. Consider the example of a photo picture. The object of the picture has three dimensions and may have many colors, while its photo can be a black and white representation on a flat two-dimensional print. A photo, at the iconic level of a sign, is a representation that keeps a formal relation of shape and proportions, or in other words, some similarity, between the sign and the referent.

Sound properties can produce iconic meanings. Loudness variations, filtering effects or reverberation can suggest different spaces because we hear some change in the sound quality that has similar characteristics to experiences that we had in the past in other spaces. Without the knowledge of previous sound experiences, in other spaces, those qualities would not suggest us anything about some particular space.

B. *Indexical signification* – The indexical level of a sign depends on contiguity. The same photo of the previous example can also be interpreted as an

indexical sign because the photo testifies that the film where the image had been printed was close to the photographed object. The same can happen with some sound perception, for instance, when we associate a variation of pitch with a moving sound source, because of the Doppler Effect. Suppose that you had listened to the siren of an ambulance passing by and you registered the change of its pitch. Later you listen to a siren and you will recall the ambulance. If the pitch changes and the volume decreases, you may deduce: "the ambulance is moving away". Both experiences are connected by the presence in the same space of the siren, the ambulance, and the listener.

C. *Symbolic signification* – It happens when the relation between a sign and its referent is a convention, some relation established by culture. The words, for instance, are symbols, because there is not any necessary relation between any word and its meaning. That becomes evident when we consider that different languages use different words to refer to the same things.

The universe of music can also be subjected, although in a more limited extent than verbal language, to some sort of vocabulary construction. The above-mentioned example of reverberation being used for depicting a forest in the scene of Orpheus may be considered an example of how the cinema builds a symbolic vocabulary applied to our perception of sound, insofar as the connection between reverberation and forest is artificial without a basis on reality.

Finally, the important point to keep from this discussion is that the creation of imaginary sound spaces is not an exclusive perceptive phenomenon but also a cognitive operation with sound signs. Earlier we gave the example of two wedding marches. This is a typical symbolic meaning. However, imagine that we have hundreds of wedding marches. Then the category of wedding marches becomes a *topic* because they are a common-place culturally codified as a type, and each individual piece is a token of that type. Topical interpretation is an important part of our analytical strategy.

4. Contextual information about Conrado Silva's composition

The next step is to apply these theories of musical narrative and cognition to a case study. The work we selected was *Nau dos Insensatos* (*Ship of Fools*), an electroacoustic piece of music composed by Conrado Silva de Marco. He was born in Uruguay, graduated as acoustical engineering in Germany, and spent most of his mature life in Brazil, working as a teacher, composer, and consulting sound engineer.

The piece was commissioned by the XXth São Paulo Art Biennial—considered the most important Brazilian exhibition of contemporary visual arts—to be presented during the 1989 venue. This space of the building where the event happens is huge, with a reverberation time larger than some cathedrals. Its average t60 reverberation time is around 6 seconds, reaching 10 seconds in certain central locations. The building was designed in 1951 by architect Oscar Niemeyer, already internationally acclaimed as a modernist architect, who later designed the main public buildings in Brasilia, Brazil's capital city. The huge dimensions of the Biennial building, designed as a regular prism, with an open plan inside, few internal divisions, and many reflecting surfaces of concrete and glass, justify the large reverberation. Its most interesting feature is a central court rising to the ceiling, with elegant curved parapets and beams around it, shaping a waving internal gallery that allows the three floors of the building to communicate visually and acoustically (see Figure 1). This empty curved hole in the core certainly adds to the reverberation of the building but at the same time turns the space more interesting to sound diffusion, and allows the listener to have a richer three-dimensional perception of the space.

The exhibition hosts international guest delegations of selected artists representing many countries, besides a selection of national artists. In the 1980s, following the example of the *Biennale di Venezia*, it started to present events dedicated to other forms of arts, that shared some common ground with visual arts. The trend of *Installation Art*, that often employs sound environments, led contemporary music to be invited to the party.
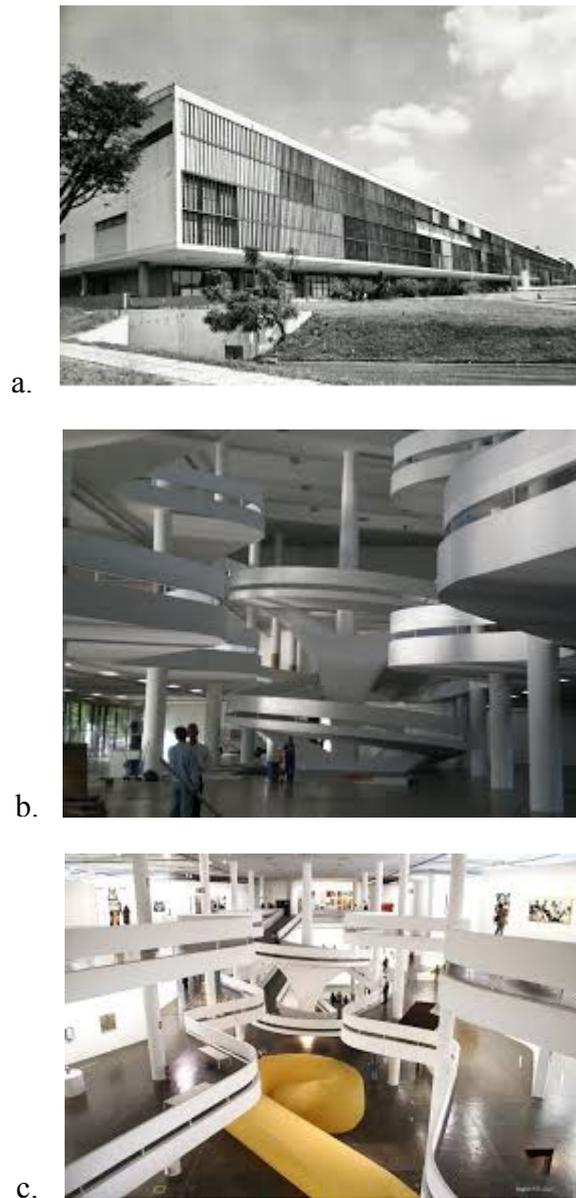
a.

b.

c.

Figure 1: Building of the São Paulo Art Biennial (a) external view of the pavilion; (b) ground view of the internal open space; (c) top floor view of the internal open space.

For the São Paulo Biennial of 1989, João Candido Galvão was the curator of special events who commissioned twelve composers to compose electroacoustic music for a performance that fulfilled the whole space of the building with sound during a week.[1] In previous exhibitions, John Cage was

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[1] List of the twelve composers invited to the São Paulo Art Biennial of 1989 and title of the commissioned works: Charles Dodge - *Imaginary Narration* (USA), François Bayle - *Mimaméta* (France), Jon Appleton - *Sudden Death* (USA), Juan Blanco - *Texturas Americanas* (Cuba), Ricardo dal Farra - *SP4* (Argentina), Wilhelm Zobl - *O Amor Brasileiro n.2* (Austria), and six Brazilians:

invited to promote a happening. Then the space was used as multiple stages for many simultaneous presentations of his works, according to a plan prepared by himself. For another event, Brian Eno was invited, however he presented a regular installation. Neither event had the idea of spreading the sound throughout the building, merging the whole exhibition in electroacoustic music during a week. The impact of this idea on the audience was measured by a logbook placed at the exit. Three thousand, from a total of forty thousand visitors during that period, left their comments. Less than 10% of the feedback wrote some negative remark.

The project set the standard that all pieces should be for stereo tapes because many of the chosen composers worked in simple private studios. Nevertheless, a more ambitious setting, for instance, pieces for eight-channel recordings, would generate an almost impossible problem to solve: how to perform an efficient sound diffusion in such a huge space for a long period of time. Besides that, the project was not dealing with a seated audience so that the placement of loudspeakers around it could be well planned. Most of the public would be walking during the performance, changing their position in relation to the sound sources. Moreover, the large reverberation would blur the perception of each loudspeaker as an individual sound source, turning the eight-channel *tour de force* into a waste of energy.

Nevertheless, the concept of spatial diffusion was still an essential part of the project. The placement of sound sources around the public was solved by a conventional spatial web of 2 rows of 8 loudspeakers, distant in average 16 meters from each other, distributed on the 3 floors, resulting in a total of 48 loudspeakers suspended at the inner columns (alternating left and right channels for any nearest loudspeaker at the three spatial axes), optimizing, for the point of view of the listener inside the web, the effects of sound movements eventually created by the composers on stereo tape. On the other hand, what made this project unusual was the idea that the listeners would be moving inside the space. The actual experience of walking inside this pervasive sound environment added many interesting features to the perception of an interaction between music, architectonic, and acoustic spaces and yet the visual art exhibition.

Conrado Silva - *Nau dos Insensatos*, José Augusto Mannis - *Duorganum II*, Vânia Dantas Leite - *Harmonia dos Espaços*, Rodolfo Caesar - *A Carne da Pedra*, Rodolfo Coelho de Souza - *Construção Eletrônica*.

5. The Narrative of *Nau dos Insensatos*

To design their creation, composers received in advance detailed information about the acoustics of the space, the sound system and a map of the loudspeaker's position distributed across the building.

The impressive waving architectural space and its very "wet" acoustics certainly influenced Conrado's imagination to come up with a title for the piece that implies the metaphor of a large vessel floating on a sea of sound.

Other contextual circumstances certainly were as well influential in provoking contents for external musical meanings. The venue was produced in a time when Brazil was just leaving behind the dreadful years of military dictatorship. In the final days of military rule, the country was led into an overwhelming hyperinflation. Brazil had been, indeed, for many years, a ship of fools drifting aimlessly.

Consider also the legend of the ship of fools that dates back to the Medieval Age. This original allegory implies a parody of the Church as an ark of salvation full of deranged sinners who do not know where they are heading to. This metaphor of the world was particularly sensitive to the people of the Age of Discovery. The journey to the New World, a voyage possibly without return, was a threat they certainly feared.

The project of a New World was certainly an ideal that resonated in Conrado's mind at that time. For many years, he had been involved with the direction of the Latin American Courses of Contemporary Music, a group of musicians that conceived an annual event (Conrado Silva, Graziela Parakevaides, Coriún Aharonian, and José Maria Neves) to be held yearly in a different Latin American country, intended to raise the consciousness of a Latin American identity in the minds of the youngest generation of composers and performers. If the title "ship of fools" lent to the piece some programmatic content that predated the composition itself, the particular intrinsic narrative of the music, as we will see, provides a particular outcome not found in the old allegory. In other words, Latin America might be, for Conrado, the portrayed ship of fools which had not yet realized its destiny.

Mainly because of the repeated return of the opening material, the formal design of the piece resembles a rondo with nine parts: A-B-A-C-A-D-A-E-A.

Therefore, there are five instances of the refrain with little variation between them insofar as the material used is always samples of water in movement. The first two refrains last around forty seconds. The third, just in the middle, is the longest, with seventy seconds, while the fourth and the fifth are shorter, with thirty seconds.

On the other hand, there are four contrasting sections designed with different materials, all of them based on synthesized sounds: horns, pulsing drones, and chords, sounds that resemble a church organ, choral music, and birdlike sounds. There is an acoustic link between them due to similar techniques of synthesis that were used, but the analysis of the composition does not reveal any principle of proper development. Besides that, the design of these four sections uses different small forms: binary, singular, binary, and ternary, respectively.

Section	Formal Function / Material	Timing	Type of Material / Topic
1	**A1** - Material 1	0' 00" – 0' 40"	**Water**
2A	**B1**- Transition	0' 40" – 0' 50"	Continuous pulse, low pitches **Water**
2B	**B2** - Material 2A	0' 50" – 1' 40"	Ship horns Continuous pulse, low pitches
3	**A2** – Return of Material 1	1' 40" – 2' 20"	**Water**
4	**C1** - Material 3	2' 20" – 3' 00"	Ironic March Synthesized continuous sounds
5	**A3** – Return of Material 1	3' 00" – 4' 10"	**Water**
6A	**D1** - Material 2B	4' 10" – 5' 10"	Chords and Birds
6B	**D2** – Material 2C	5' 10" – 6' 40"	Instrumental Choral Continuous synthesized sounds of Birds
7	**A4** - Return of Material 1	6' 40" – 7' 10"	**Water**
8A	**E1** – Material 2D	7' 10" – 8' 00"	Church Organ
8B	**E2** – Material 2C	8' 00" – 8' 15"	Instrumental Choral Lone chords, punctuation
8C	**E3** – Material 2D	8' 15" – 9' 40"	Church Organ
9	**A5** –Synthesis: Material 1-2	9'40"– 10' 10"	**Water** + Organ

Table 2: Analytical framework of Conrado Silva's *Nau dos Insensatos*.

The formal analysis and a taxonomy of employed materials cannot tell us much more than what we said before, and this is not enough to account for the expressive effect of the composition.

On the other hand, at least because of the title, the piece can be understood as a kind of symphonic poem, even though no detailed program has been provided. In such case, we must try to unveil an intrinsic narrative, besides the links to external meanings that we already mentioned. We will use Almén's method adapted from Liszka's model that recognizes a division in three levels: agential, actantial, and narrative.

At Liszka's *agential* level (1989) we find in Conrado's piece clear cut distinctions between materials that express relationships among cultural units:

1. Sounds of the Physical World: mostly sounds of water in movement
2. Sounds made by the Man: synthesized sounds resembling musical instruments
3. Sounds of Animals: birdlike sounds

At the *actantial* level, the third category "animal sounds" works as a bridge between the first two, because the bird sounds are clearly produced by the same techniques of synthesis used in category 2. However, as an iconic representation of sounds of the natural world, they might also belong to category 1.

Are there also topical references in the piece? For sure there are, and many.

Water music, the most conspicuous sound in the piece, represents a topic if we consider that many composers referred to it, since the word paintings in Schubert Lieder, through the contemporary *Water Concerto* by Tan Dun, besides many electroacoustic pieces that employed water sounds, like *Water Music* of Toru Takemitsu. Indeed, water depictions in electroacoustic music became a commonplace, what qualifies it as a topic. Of course, it seems odd to call a "topical sign" a recording of the sound object, but when the use of certain material becomes a common place, it fulfills the theoretical requirements for calling it topical.

Topics of Horn calls and Marches, in the different moods of heroic, ironic, or elegiac, appear often in the contrasting sections of the piece. Although the composer does not use traditional counterpoint techniques, but track overlaying and crossover, we may consider that both choral and organ timbres signify church music, therefore learned style or occasionally organ points. In fact,

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understanding how one topic transforms its material into another topic helps us
to unveil the development of the narrative. Among these topics, birdlike sounds
and marching rhythms play a special dynamic role because most of the other
materials display a slow pace of transformation and a predominant static
character. Main topics: water music, horn calls, birdcalls, church music, choral
music, organ point, and drones.

A	B	A	C	A	D	A	E	A
water	**drone** **horns**	water	**ironic** **march** drone	water	chords **birds** choral drone	water	organ choral interruption	**water** **organ**
Basic opposition		Main conflict		Key intervention		Preparation		Resolution

Table 3: Narrative framework of Conrado Silva's *Nau dos Insensatos.*

Nau dos Insensatos fits the narrative category of Tragedy, the second of the
four archetypes, besides Romance, Irony, and Comedy described by Northrop
Frye (1957). It is a narrative of the fall, insofar as it represents a movement from
innocence to experience. The basic opposition at the onset between the natural
and human universes goes through two stages of quest. The irony of the march
in section C tells us that something is wrong in this journey. The appearance of
bird sounds in section D calls for another mythological link: the biblical journey
of Noe's Ark that finds its destination when birds signal the approach of dry
land. Birdcalls mixed with drones, chords, and choral music, recalling the
salvation pledge of the church, make an intervention that promises to link the
universes of nature and humankind. Section E prepares for salvation but a
sudden interruption marks the fall to consciousness. The resolution nonetheless
is tragic, insofar as what follows does not portray a promised land of salvation
but of dissolution, as the organ sounds merge with water effects.

As we have seen, narrative analysis does not intend to dismiss the
findings of formal analysis nor replace them. It allows us to recognize, in some
musical discourses, another level of meanings that run in parallel with the formal
structure, conveying other features of coherence and purpose to the temporal
unfolding of the musical discourse.

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