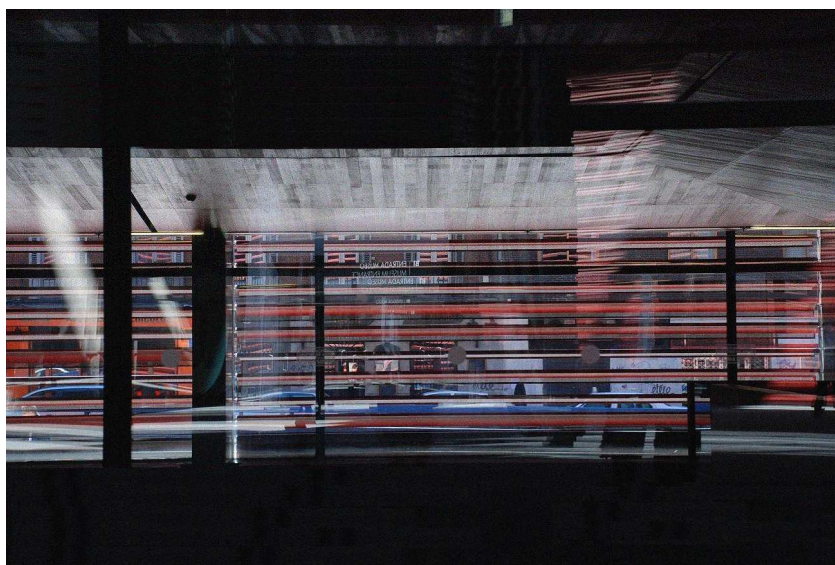


ESPACIOS SONOROS Y AUDIOVISUALES 2013: CREACIÓN, REPRESENTACIÓN Y DISEÑO



**Centro Superior de Investigación y Promoción de la Música,
y Departamento Interfacultativo de Música,
Universidad Autónoma de Madrid**



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Sonido y Espacio: Taxonomía pluridisciplinal/
Tratamiento del espacio
en la música electrónica en vivo

Sonido y Espacio: Taxonomía pluridisciplinal/ Tratamiento del espacio en la música electrónica en vivo

Tiago GATI¹: *Immersion, Presence and Drama in the Musical Space of Performance with Loudspeakers.*

Keywords: mixed electroacoustic music, anamorphosis, immersion, drama, performance.

Abstract

This paper shall investigate the domain of mixed electroacoustic works that count on a visual “scene”, planned *by the composer*, that can emphasize the ambiguities (anamorphosis), *illusions* between what is seen and heard in the performance. These ambiguities, a major issue concerning mixed pieces, can act in two different ways: 1) in the level of the musical material alone – fusion and contrast between instrumental and electroacoustic spheres –; 2) in the audiovisual realm of the performance – discontinuities in the causality of instrumental gesture, from the artificial segregation of source (the presence of a human performer) and sound in space; also, extra-musical elements that can further contribute to enhance these distortions or simply bring the poetic conception of the work to its full potential. Beyond investigating such ambiguities, we shall observe an immersive aspect brought up by surround sound experience in mixed music, as well as evaluate the *dramatic* factor related to the performance and to the formal outcome of the works mentioned throughout the paper.

1. The *illusion* of sound sources in the construction of audiovisual image

One of the essential transformations in the transition from the XIXth to the XXth century was “the end of mechanical causality in sound generation”². The telephone, gramophone, and radio also brought up this distancing of a sound source from its *visual* referent, the presence of a “body” that is associated with it. “Reports of situations in which children or people in their first contact with these machines searched for the sound source inside or behind the equipments show how deep must have been the

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² “O fim da causalidade mecânica na geração sonora” (FREIRE, 2008).

change caused by them” (FREIRE, 2008)³. Similarly, the presence and use of loudspeakers have changed the direct causal relationship with sound producing bodies in many ways and in many different artistic manifestations – cinema, art installations, dance, music, etc. –, motivating the emergence of poetics that emphasize the illusions, ambiguities, distortions that occur in the audiovisual domain. Visionary composer Edgar Varèse has remarkable arguments dating back to the early 1930s about the possibilities of transformation of the space with loudspeakers. “A 1930 article on [Arthur] Hoérée states that he « dwelled on the radical ideas of Edgar Varèse » (...) [Musicologist Richard S.] James avers that « the fact that Hoérée spoke, by 1934, of organized sounds, techniques of manipulating recorded sound and of «electro-acoustic» techniques may be seen as an indication of how seriously he took Varèse »”⁴.

2. Mixed electroacoustic pieces

Besides being surrounded by sounds from loudspeakers – what is generally the case in concerts of mixed electroacoustic music –, a constant state of *doubt* is presented before the audience through *anamorphosis*⁵. These pieces bear a very peculiar nature, since sounds produced directly by musical instruments through amplification coexist with other types of sonic materials, all of them diffused in the space by loudspeakers. The relatively static physical presence and action of musicians compared to the almost limitless spatial possibilities of the sounds diffused electronically dislocate, or even break completely, the visual and aural relationships of a sound source and its expected result; in other words, we might hear sounds in the performance space that might or might not have been produced by the body of instruments we see “onstage”. At this point, we can differentiate two levels of this distortion: a) the spectral quality of the sounds we *hear*, since, besides amplified sounds, we might be hearing their “live”

3 “Os relator de situações em que crianças ou de pessoas em um primeiro contato com aparelhos desse tipo buscavam a fonte sonora com o olhar (dentro do rádio ou atrás da TV) mostram qual deve ter sido a mudança causada por estes equipamentos” (FREIRE, 2008).

4 MATTIS, 1992, p.565.

5 Pierre Schaeffer used this term, borrowed from a visual reference – image distortions caused by convex mirrors –, in the *Solfège de l’Objet Sonore*, referring to temporal ambiguities in the structure of sounds manipulated on tape; already a visual “disconnection” is observed: for example, when he cuts on tape a portion of the attack of a extremely low piano note, no alteration is actually perceived in that sound. However, its physical space measured by tape length is different (see SCHAEFFER, 1996, p.35); also in this respect and extending the use of the term for general ambiguities in the performance with loudspeakers, see FREIRE (2004).

transformations and processing, reinsertions of passages previously recorded from the instruments and diffused afterwards, or even sounds totally outside the performance time span, sounds created previously in the studio; b) in the location of the sources we *see* compared to the movement of sounds we *hear* in space. But what is so peculiar in the types of performances mentioned in this paper from others that also make use of loudspeakers? In other words, why we expect a great potentiality of ambiguities when we use the term “electroacoustic” in these works presented with electronic means?

The existence of this process of technological mediation, that in interactive music generally occurs through computer-based processes between signal capture into the system and its returned digital processing, constitutes a significant difference compared to the conventional concert music. Since the dissemination of amplification and sound recording techniques, some level of technological mediation can exist in any given concert situation, whether it be through simple sound amplification or the use of effects like reverb, delay or distortion. But what essentially stands out in interactive electroacoustic music is precisely the intensity, manner, depth and quantity of elements with which this mediation occurs.⁶

Anamorphosis, as already mentioned, is an appropriate term to characterize the distortions created by the sonic images in a projected space when contrasted with the visual presence of a performer. And these situations can acquire a significant dramatic effect in the performance, since it might have different possible causes: does the projected sound come directly from what is being played by the performer? Is it pre-recorded, elaborated previously in the studio or is it being processed in real time?

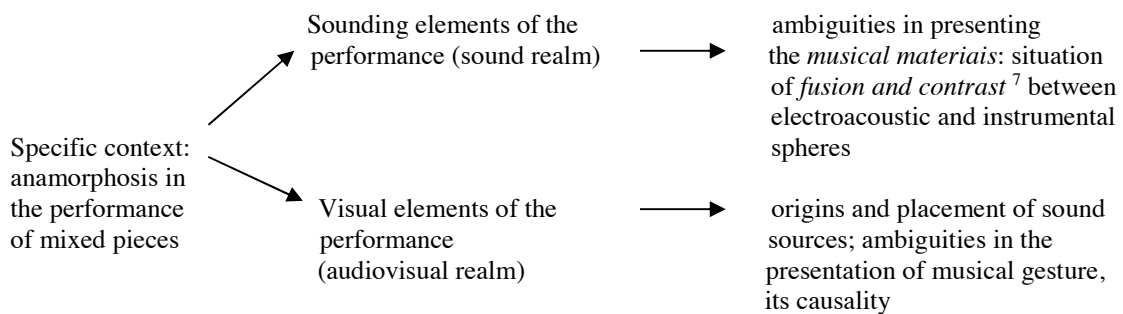


fig.1 the anamorphosis in the performance of mixed electroacoustic music

⁶ A existência deste processo de mediação tecnológica, que na música interativa geralmente ocorre pela mediação computacional entre a captação de sinais pelo sistema e o seu retorno do processamento digital, é um significativo elemento diferencial em relação à música de concerto tradicional. É certo que, desde a disseminação da tecnologia de captação e amplificação sonora, algum nível de mediação tecnológica pode existir em qualquer situação de concerto, seja através da simples amplificação do som ou do uso de efeitos como reverb, delay ou distorção. Mas o que basicamente diferencia a música eletroacústica interativa destas outras atividades musicais, como veremos no decorrer do trabalho, é justamente a intensidade, forma, profundidade e quantidade de elementos com que tal mediação acontece. (KISIL, 2011, p.5)

⁷ For a definition of the terms fusion and contrast in mixed pieces, see MENEZES, 2002.

In the audiovisual realm, it is also possible to observe works in which the dramatic element involved in a performance can add extra-musical elements as a means of bringing these ambiguities to their full potential, proposing a

formal outline that goes beyond articulating or transforming the musical material *per se*, but also counting on actual formal *situations*, adding further possibilities of signification in the complexity of the piece, underlining the duality between the *visible* and the *invisible* as an essential problem of mixed composition, turning into a metaphor of the confrontation between the presence of bodies and sonic images. (GATI, 2012, p.254).

Even though most mixed pieces bear, in one way or another, anamorphosis, there certainly are works that intentionally explore this element through the development of a “musical scene”, or, in other words, works that bring to the performance extra-musical elements – “theatrical” gestures by the musicians, lighting dynamics, visual objects (video, scenario disposition, etc.), and so forth. To what extent are these visual components part of the musical compositional process? Or, on the other hand, are they exclusively in the realm of the performance, usually involving artistic collaboration with visual artists, choreographers, set designers, etc.? The vast repertoire involving visual conception of mixed music indicates all kinds of pieces between these two possibilities; it is interesting to notice, however, the great amount of works whose scenic attributes have been foreseen and developed *by the composer*; in some cases, the scenic attributes might even become an important mark of a composer, as certainly can be said of Stockhausen. As an early example, the immensity of the scenic elements developed for *Monophonie*, unfinished work originally to be presented at Donaueschingen in 1960 – which even has a built maquette for the construction of the scenario –, greatly influenced the visual conception of *Trans* (Stockhausen, 1971, for orchestra and pre-elaborated sounds) – see TOOP, 1998, p.92. In *Trans*, Stockhausen uses these scenic elements (curtains concealing the conductor and veiling the orchestra, placement of certain groups of instruments in such a way that they hide other groups from the audience, among other things described in the score) in direct relationship with the uses of sound materials by the orchestra: the string section plays, from beginning to end, a variable cluster that acts as a metaphorical curtain that veils sounds from the instrumental groups located farther back on the stage (see WISHART, 1996, p.133).

The manifestation of the spacial element – basically not truly reproducible outside the performance realm in electroacoustic music –, which is certainly a crucial factor, as well as the manifestation of a *dramatic scene*, which can be more or less decisive to the constitution and realization of a work, make the performance a fertile terrain for experimentation in mixed works.

Outside and away from opera, a musical performance may become a nonspecific form of theatre. Watching the actions, gestures, efforts and acrobatics of musicians who are doing unusual, chaotic, even comical things, no doubt serves to assist and to round out our listening. (...) The need to coordinate the various modes and timings of visibility of strictly functional musical behaviors has been encouraged in part by past experiences of electronic music – heard through lonely loudspeakers – and by the need it created to make up in some way for the absence of visual referents. Performers interacting with prerecorded sounds – or sounds produced and controlled by a machine – and the spatialization of sound are examples of conventional ways, certainly open to new developments, of inhabiting and performing space, of stimulating a dialogue between what we hear and what we see, or could see or would like to see, given the fact that whenever we listen to any intentionally musical sound we have the irrepressible tendency to look for connections with some human action. (BERIO, 2006, p.115).

3. Immersion in illusionism and immersion in the illusion of mixed pieces

Another issue concerning the characterization of the space in the performance of mixed pieces is that surround sound experience has an interesting parallel in the idea of *immersion*: more than providing an audience with a frontal experience of the artistic object, it drags them to its space, brings them to its core: thus, turns them into “immersants” – term borrowed from Canadian artist Char Davies to designate the participants in her work *Osmose*, since they wear a HMD (head mounted display) to enter a virtual reality environment⁸. Even though the complete interaction – term used by Davies to indicate a necessary action of the “public”, not like an observer of a painting or the audience in a conventional music concert – is of the utmost importance in her description of the term, in the situation where sound surrounds the audience it puts them together in a conjunct space, so the borders between stage and audience become less clear.

⁸ As far as the surrounding sound is concerned, Grau states about *Osmose*: “in fact, sound in general plays a decisive role in generating the feeling of presence.” (GRAU, 2003, p.198).

It is noteworthy that the term *illusion* has been used in the analysis of immersive visual art works by Grau as well as theatre critics in a different sense, i.e., the “cathartic” or “hypnotic” nature of the classical theatre, in performances which already brought a ready-made plot; in these cases, the audience is engulfed, dragged by the immensity of the work, and therefore caught up in an illusion. Describing as immersive some works in the visual arts since the XVIth century, Grau selects the ones that have as a major effect dragging the observer into its space as a kind of illusionism. This was the case, for instance, of works based on the technique *trompe l'oeil* (literally, “deceiving the eye”) ⁹, in which more emphatic illusionism occurs and gives the actual impression of being dragged to the space of the image. But sound movement through space deceives the audience in any way? Is there an illusion of movement? In a mixed piece, there certainly is an illusion when we see a musician doing some action and, at the same time or right after, we hear a resulting sound moving in a completely different manner, especially if this sound is “timbristically” very close to our visual source. But isn't this illusion so changeable and intense that tends to go the other way from the hypnotism of the *trompe l'oeil*? It's not our main concern to judge whether the intention of an artist is to deceive the observers and drag them into the work ¹⁰, and, even more, to state that their experience keeps them away from themselves in a state of “catharsis”, a kind of hypnosis that privileges the emotional rather than the rational in the apprehension of the work. What interests us here is the general character of the immersion: that it tends to bring the audience into the same space as the work, reducing the distance between stage and audience, creating a unique space that emerges in the performance.

The illusion of the loudspeakers in mixed pieces¹¹, on the contrary, acquires a sense of “disconnection”, provokes gaps, cracks in the audiovisual reality, since the human action and presence keep concrete visual references before the potential

9 “Spaces of illusion enjoyed tremendous popularity in the sixteenth century (...) Andrea Mantegna's *Oculus in the Camera degli Sposi* was the first work to open up the ceiling as a space of illusion and paved the way for the development of the large-scale illusions of Baroque ceiling panoramas, which culminated in works such as the nave of Sant'Ignazio in Rome (1688-1694) by the Jesuit Andrea Pozzo”. (GRAU, 2003, p.46). Looking up from a central place on the floor, one has the impression that the fresco, on the ceiling, actually “explodes” its human figures and objects in three dimensions. To fully achieve this effect, one has to look up from the central round spot on the floor; a close similarity to the “hot spot” in acousmatic listening – to really perceive a circular trajectory of a sound in a regular room surrounded with loudspeakers, the closer to the center one sits, the better one perceives this circular trajectory.

10 Unless the artist himself makes his intentions clear, as in the case of Russian filmmaker Sergei Eisenstein for his *Stereokino*: see GRAU, 2003, p.154.

11 The designation of the term illusion for the distortions and ambiguities in mixed music is also seen in MENEZES, 1998.

complexity of the sound diffusion. Surround sound triggers an actual immersive situation – although not interactive for the public in the sense of Davies's virtual reality work, but certainly active in the space of the performance –, bringing this illusion (in the sense of an anamorphosis) into play; we can think of a dynamic space where environment and immersants challenge each other constantly: “A different use of the auditory element that exceeds natural projection of the spoken word by new techniques of acoustic diffusion aiming at its communicative efficiency, could cause precisely the scenic space to cancel the static characteristic of the visual element.” (NONO *apud* FENEYROU, 2003, p.282).

In the performance of *Outis* (Berio, 1996), premiered at La Scala in Milan, loudspeakers were placed outside the audience's visual field (behind curtains and above the audience) in order to widen sound perspective; more than transforming or processing instrumental sounds, the composer was concerned in this work with spatial perspectives in the room, bringing an interesting immersive nature to the performance.

In this work-where there is not, in effect, any 'real' live electronics, but there is a great respect for the musical acoustic substance of the work and also for space itself- the technologies tend to prolong certain aspects, to develop them interiorly in a way that might almost be called devious and concealed. (...) An acoustical dimension is created which no longer corresponds to that of the orchestra pit. There are loudspeakers concealed at the sides of the stage and above the stalls, of which the audience will be unaware, but which will serve to enlarge the sound perspective” (BERIO *apud* GIOMI, MEACCI and SCHWOON, 2003, p.41).

The fact the composer wants the loudspeakers to be “hidden” is not at all by chance. His intentions become clear to emphasize the “prolonged aspects” of instrumental sounds in processes that deal with the ambiguities brought by the use of such loudspeakers; and, here to, we find words like “devious”, “concealed”, to describe his intentions, revealing a direct concern and awareness of the states of anamorphosis characteristic of mixed pieces, the possibilities to veil or mask instrumental sounds – the *illusion* –, as well as to emphasize the artificial detachment of these sounds into the totality of the space – the *immersion*.

4. The drama in the space of the performance in mixed pieces

The 1960s mark a period, in western music, of the intensification of the so called “intuitive music”, improvisation and increasing openings for the interpreter to make crucial decisions in the realization of musical pieces (see DELIÈGE, p.379). The composer gives more room for indeterminism in openly conceptual works, or even the actual emergence of works that depend entirely on the action of the performer. Stockhausen has several pieces of the kind in the period: *Plus Minus* (1963), *Stop* (1965), *Prozession* (1967), *Kurzwellen* (1968), *Aus den Sieben Tagen* (1968) and *Spiral* (1968)¹². “In less than ten years, the position of the performer seemed to have changed deeply: the open forms demanded more and more their initiatives, the recent creations of Stockhausen forced them to freedom”¹³. This posture that began to be required for the performer changed a lot the relationship with composers and the notion of musical form itself – in cases where the performers need to come up with a strategy or even choose sound materials themselves, each presentation of the works results in something profoundly different. Also, it intensified the search for “theatrical” aspects to join the musical performance¹⁴. And this is certainly a fundamental acquisition for these “scenic” elements mentioned in this paper; the performance also gains an even more “auratic” character, is the space where the totality of the composition's conception can come to life, fully empowered with extra-musical elements and, especially in the case of electroacoustic music, bearing adequate conditions for the spatial trajectories, depth and spectral image to manifest their true potential.

The possibility of creating interesting musical structures in real time becomes a key point in these kinds of music whose aspects of indetermination or ambiguities between gestuality and expected sound result are elements of the composition process. Rarely can they make a fruitful recording through regular means, like the CD.¹⁵

12 The use of “open forms”, giving room for the performer to make important decisions in recreating a piece, can be found since the mid 1950s, as is the case of *Klavierstück XI* (1956), also by Stockhausen. See more in Deliège, 2003, pp.255-257; pp.379-388.

13 *En moins de dix ans, le statut de l'interprète semblait vraiment se modifier: les formes ouvertes sollicitaient de plus en plus ses initiatives, les conceptions récentes de Stockhausen tendaient à contraindre sa liberté*” (DELIÈGE, 2003, p.401).

14 Kagel was at the beginning of his experiences with theater and music at the early 1960s. See more in Deliège, 2003, p.401.

15 *A possibilidade de se criar estruturas musicais interessantes em tempo real transforma-se em um ponto-chave para esse tipo de música em que aspectos de indeterminação ou ambigüidades entre gestualidade e resultado sonoro são elaborados como elementos composicionais e raramente podem*

The opening regarding musical form specially from the 1950's onwards, as well as the proliferation of specific scenic elements required for musical performances – going away from the linearity of the opera –, can find interesting parallels and common terms in both music and theatre realms. Such is the case of the term *situation*, a complex philosophical concept found in aesthetics (some references can be found in HEGEL, 2001; SARTRE in ALVES, 2006), and used by some composers (TARASTI, 1998; MENEZES, 2011) to describe formal developments in composition that incorporate theatrical elements. What interests us here is the evolution and the study of the performance space according to this concept in the presentation of mixed works.

Another concept borrowed from the theater is the *distance* pursued by Brecht,¹⁶ aiming not only to separating person and character, object and scenario, reality and fiction, but also audience and stage. Luciano Berio, greatly influenced by Brecht's thought, makes this segregation not only in the characters of his musical actions – as in *La Vera Storia*, for example, in which the same text is completely recast and reset from the first to the second act –, but also in the segregation of the instrumental gesture from the theatrical gesture of the musical performer. “Berio's opera is a dramaturgy of brechtian distance. However (...), the composer doesn't seek, like Brecht, an emergence of political conscience, but rather an objective pursuit in the stravinskyan sense, refusing all psychologism and sentimentalism from a post-romantic era”¹⁷. In Brecht's epic theater, the role of the interpreter would be viewed so as to break a linear progression of things, and each element – scenario, music, characters, etc. – would acquire an *autonomy*, would stand up for itself.

ser registrados a contento em meios regularmente usados para a gravação de áudio, como o CD (Iazzetta, 2006, pp. 110-111).

16 This distance would be “between author and fable, play and event, room and scene, actor and character” (GRAU, 2003, pp.89-90). It is also noteworthy that Jean-Paul Sartre, in his *Théâtre de situations*, seeks for theater that, in a similar manner, focuses on the action itself, the consequences of the ways the character chooses to pursue, instead of a desired goal, “a classic ending”. Sartre, on the other hand, did not believe in the interruption of the imaginary wall built between public and audience. For him, the audience belongs outside the scenic action (see more in ALVES, 2006).

17 *L'opéra de Berio est donc une 'dramaturgie de la distanciation brechtienne' (...) Mais l'auteur ne vise pas, comme Brecht, à une prise de conscience politique mais à une objectivisation au sens stravinskyen, à un refus de l'implication psychologique et du sentimentalisme post-romantique* (BOSSIS, 2002, P.297).

Although the current concept of engagement is not necessarily anymore related to the ideas of macro-political transformations in the time of Brecht, nor are the theatrical and musical experiences easily compared, it's worthy to mention some evident common aspects between epic theater and the electroacoustic concert production: the search for the use of high-end technology, the non-complete transformation of actor in dramatic characters, (or musicians that simply play their instruments).¹⁸

This distance that deviates the instrumental gesture is, in mixed music, an important area for composers to introduce the theatrical gesture as an emphasis of the anamorphosis into play, asking for formal outlines that go beyond the articulation of sonic materials. In an interview with composer Flo Menezes¹⁹ in november, 2011, the issue of formal articulations in his work came up related to the emergence of an aspect already present in earlier works like *Parcours de l'Entité* (1994, for flutes, percussion, and tape), and that would be properly elaborated further during the composition of *LabORAtório* (1991; 1995; 2003, for soprano, five-voice choir, orchestra and electronics) and *Traces* (2007, for string quartet and *live-electronics*): the *situations*, an actual conduct of musical action foreseen for the performer, planning and incorporating in the performance spatial and scenic aspects that *emphasize* the formal articulations and characterizations. For the composition of *Traces*, he states:

My intention was to 'explode' the string quartet in time and space, exploring the traces between notes and their resonances, between a singular harmonic entity and its metamorphosis, between sounds and their projections throughout space, between innovation and inevitable classical references to the genre [the quartet]. The form of the work is structured in Situations, in which the musicians are dislocated throughout the total space of the theater.²⁰

18 *Embora o conceito atual de engajamento não esteja mais necessariamente ligado às idéias de transformação macropolítica da época de Brecht, e nem as experiências teatral e musical sejam facilmente comparáveis, vale a pena notar algumas semelhanças evidentes entre o teatro épico e a produção eletroacústica de concerto: a busca pela utilização ao vivo das maisnovas tecnologias disponíveis, a não transformação completa de seus intérpretes nas personagens dramáticas (ou em músicos que simplesmente tocam seus instrumentos).* FREIRE, 2004, p. 187.

19 Interview with the author. Many aspects of scenic developments in compositions of Menezes are specially influenced by the thoughts of Berio and Stockhausen, with whom the Brazilian composer had the chance to work with on various occasions.

20 *Minha intenção foi a de 'explodir' o quarteto no espaço e no tempo, explorando os traços que se perfazem entre notas e suas ressonâncias, entre uma mesma entidade harmônica e suas metamorfoses, entre os sons e suas projeções no espaço, entre a inovação e inevitáveis referências clássicas do gênero [o quarteto]. A forma da obra estrutura-se em Situações, em que os músicos do quarteto se deslocam pelo espaço total do teatro* (MENEZES, 2011, p.54).

There is an enormous potentiality in the use of extra-musical elements, emphasizing the ambiguities (anamorphosis) already present as an essential problematic of mixed pieces, collaborating, as in the case of Brecht's epic theater – in which elements like music, scenario, lighting, etc., although autonomous and bearing each their own characterizations, serving a greater goal, that is, fragmentation –, to further increase the work's poetic conception to its full potential.

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