

Loop-interpolation-random&gesture déjà vu in computer-aided composition

Silvio Ferraz &
Leonardo Aldrovandi
Laboratório de Linguagem Sonora
Pontifícia Universidade Católica de São Paulo
Rua João Ramalho, 182 - 7º Andar. Perdizes - São Paulo - SP
sferraz@pucsp.br
leoaldrovandi@osite.com.br

Abstract

Departing from a distinction between music creation and sound or pre-established methods of form and sound manipulation, the paper discusses the use of some typical procedures in computer aided composition. Critique of common-sense procedures intend to show that musical creativity may be threatened and risked in the name of a community's immediate acceptance of a what is considered to be of musical value. Thought and practice of language crossings ground musical works and sorts of musical listening much earlier then the use of such accepted procedures.

Although it may seem easy to distinguish an eletroacoustic composition from a piece for acoustical instruments while listening to a concert, the same is not true when trying to distinguish a computer-aided composition from one that does not make use of a computer at all. Today almost every composer, working either in entertainment, concert music or research, has to face the computer at some stage of their creative process. However, the computer is not merely an audio processor, a calculator, a sequencer or a typewriter. If music notation and detailed meter definition nurtured the fast development of polyphony in the past, equivalent transformations may occur with the growing use of the computer in a compositional process. Furthermore, the use of the computer is frequently treated as a new and exclusive field of composition by itself.

To attribute the recent transformations in musical composition to the computer is just as misleading as considering notation the only reason for the spread and development of polyphony.¹ In both cases, various factors make a particular musical practice possible.

But what elements does the use of a computer emphasize? In order to answer this question, we will draw attention to the fact that to talk about aesthetic problems of computer-aided music composition is talk about problems of contemporary music. This music is not isolated with its own discoveries, inventions and problems.

Before addressing the central issue of this article concerning composition and déjà-vu in computer compositional resources, it is worthy thinking about what we consider as musical and not musical. Musical propositions and tendencies were not few in the twentieth century.² Our object of discussion, music, is not singular or unique but a

¹ About transformations in composition derived from the use of the computer, see McNabb's and Truax's articles in: Emmerson, Simon - "Language of Electroacoustic Music". NY: harwood acd. publishers, 1986; and "La composition assistée par ordinateur", in: Les Cahiers de l'Ircam n.3, 1993.

² What is meant by multiple is not to be taken as something totally unconditional, but more in the sense given by Gilles Deleuze and Felix Guattari in "Mille Plateaux"(Paris: Minuit). Any unity is at the same

diverse or multiple one. Talking about music nowadays requires an articulation of different ideas projected over qualitative and measurable air pressure disturbances taken as sound and musical impressions.

Music based in propositions such as the ones by Cage, Varèse, Schoenberg, Boulez, Takemitsu, goes beyond any scholastic view of music (namely, something to be heard). But when we penetrate this propositional domain, we may take the risk of accepting as music anything that we call music, and as so, shared and accepted by a community. It is relevant to say that being sonorous is not enough to establish something as musical, and vice-versa – just as an example, La Monte Yong's *Composition #7* doesn't have any reference to sound, and one can have any others examples in the music of the 70's like the idea of a "musik zu lesen" by Dieter Schneble. By the way, in a more common sense, to do sounds doesn't mean necessarily to do music.

So, we may first distinguish different modes of musical listening:

- 1) Textural listening: A kind of listening directed towards sensations not easily nameable, without bringing into play any sort of representation. Two distinctive poles are relevant here; expression and sound presence sensation. They exist without the need for representation.³ We only represent something if it finds resonance in language, (or in crossings of sign systems - semiotics - with language). In this case, both expression and sensation would leave the condition of being held as object of perception, giving it away to representation. This is why we do not represent an expression; we only map it to present it or repeat it. An expression does not exist in itself (let us remember a game proposed by Wittgenstein⁴). It only occurs if confronted with other semiotics or when reactivated along with something else.
- 2) Figural listening⁵: (Indexical net of relations; An unit of data relates structurally to another.) In this case, listening conducts to a point of view, now in a representational universe. What I represent here is not the object but relations among objects. Musical notation does not register sounds but presents systems of interrelations, allowing the transmission of some musical aspects. To note a sound is to present an understanding of a structural form (think of the

time multiple, not in the sense of a group of elements, but of a continuum crossed by others continuities. Multiplicity is a field of multiple entries. When considering music, we will be drawing latter three entries set in logical sense, which may hold their own articulations and cross each other. See also Ferraz, Silvio - "Música e Repetição" - São Paulo: Educ, 1999.

³ Cf. Ferraz, Silvio (1999). "Musique et semiotique: une approximation supplémentaire". in: *Semiotique Appliquée – revue électronique*: <http://www.arts.uwaterloo.ca/FREN/as-sa/index.html>. In that issue the categories of Firstness, Secondness and Thirdness was applied to musical listening. Concerning Texture, it is important to notice that when starting to describe texture we are already leading with representation in the second level of the semiotic chain.

⁴ In a paragraph of *Philosophical Investigations* Ludwig Wittgenstein imagines the following situation: "Sing a song with expression!" Now, do not sing, but repeat the expression!" (332)

⁵ About the idea of figure, see Hjelmslev, L. T. *Prolegomena to a Theory of Language*. Madison: Wisconsin Univ. Press, 1963.

different sorts of representation in music: time domain, frequency domain, space domain, ...etc). Here we have a gamut of possibilities going from contrast-type of relationships to less direct ones, such as structures of repetition with clear variations or more complex structures not easily perceptible. In relation to textural listening, we point out that while choosing objects or relating elements in texture, we leave one listening field to enter another.

- 3) Symbolic listening (Net of symbolic relations) It is a result of a semiotic cross-over between a system of signs and another, or a system of signs and language (gestural, visual or verbal).⁶ The game of language is at play in such listening activity, not focused on sensation or relationships of proportion anymore.

It should be clear that these domains (textural, figural and symbolic) interpenetrate each other and that the process we call a musical one is dependent of language crossings. Such musicalities (the musical listening and performance that results from those three steps) may emerge from an unexpected territory and migrate to others, promoting attachments between languages. For example, the music of catholic masses migrated to concert rooms and to musical analysis classrooms. This particular path would go from ritual listening to structural listening, passing by dramatic listening, filled with verbal content. All of these territories potentially exist.

These sorts of listening are concentrated in a bundle of possible listening territories. Each time we meet a musical object we throw (or restrain) ourselves into a nomad voyage, swinging from one part of the bundle to another. Children sing to sleep and to avoid any fear of the dark. They cover themselves and run their memories, recreating sign chains (sensations, images and meanings) with more or less intensity. It is exactly this intensity that determines what we call expression. Expression is born from a clash; it is not a separate entity. Whenever different discourse or language territories collide or enhance each other there is expression.

Between a soup of sounds and music

From a such approach to a complex musical fact, we now get back to our initial-central questioning about the computer presence in composition. We will also try to demonstrate how computer practice permeates the idea of form and expression in music, either acoustical or eletroacoustic. Computer assisted music is not a lonely maiden up in a tower. Problems that seem to be restrained to it are actually applicable to all of contemporary musical practice.

⁶ The triadic game here follows in some sense Charles Sanders Pierce's model, e em parte as proposições de Pierre Schaeffer, and subsequently by François Bayle and Trevor Wishard. There are also other composers that distinguish three fields, such as Brian Ferneyhough (cf. Ferneyhough, Brian: Shattering The Vessel of Received wisdom" in: Perspectives of new Music, vol.28 no.2, summer 1990).

The foundations of instrumental musical practice structure a vast amount of today's music attached to the use of the computer, either in synthesis, sound transformations, sequencing of events, calculations and projections with serial or spectral basis.

When we mention form and expression we are concerned with a general problem in music, not restrained to the acousmatic situation or to the music made without being heard, such as those pieces rendered from numerical projections. It would be too little to think that the presence of performers or their gestures as sound movements are ultimate solutions to these problems. On the contrary, the way gesture has been treated in electroacoustic music only creates more problems, since it ignores alternatives for gesture and how it is linked to a musical discourse. In fact, it excludes what would be the potential of gesture to alter a sonic object into a musical one.⁷ Thus, the problem remains the same; gesture takes the credit as a solution for what turns a sequence of sounds into music.

Debates over these matters were very numerous in the seventies, specially in discussions about improvisation. Arguments by Vinko Globokar in a special issue of *Musique en Jeu* serve as an example.⁸ In the following years, so called New Simplicity and New Complexity composers sustained new considerations and criticism about it. The immediacy attributed to gesture by New Simplicity provoked a reconsideration of the term in Wolfgang Rhim's articles, in response to Brian Ferneyhough's critiques.⁹

Not only gesture, in a sense of corporeal-instrumental-sonorous movement, but a whole chain of musical significance permeates procedures and works produced with the aid of a computer. A series of 'guaranteed musical procedures', already framed by communities, are conventionally called upon, such as the most common examples of loops, interpolations and random games of permutation.¹⁰

As suggested above, there is no a priori musicality, activated during the contact with a classified object. A classified gesture does not ensure any musical creativity. The use of loops, interpolations or permutations as object descriptions do not ensure their music potential. Musical gesture does not exist apart from a game where it becomes relevant as such. What we call form, such as in a sonata, determines events and types of gestures, but the opposite is not true; form is not determined by a sequence of gestures. Just as form is not significant by itself, but in relation to ways of listening, gestures are not significant unless if they are related to specific modes of listening. Symbolic gesture

⁷ Note that the sonic object is outlined from a construed intention of an object, thus distinguished from an outline with an intention of musical construction, the latter being based on relations among sonic objects.

⁸ Globokar, Vinko (1971) "Ils improvisent...Improvisiez...Improvisons..." in: *Musique en Jeux* 6. Paris: Seuil.

⁹ About the subject see "Musique et Tradition", Contrechamps, 3. Apart from the articles written by Ferneyhough and Rhim, Dalhaus and Décarsin focus on what is usually taken as public rejection problems in contemporary music. Ferneyhough considers that gesture is not a immediate way to acces to music but a result of a symbolic chain. So, when talking about gesture we are poring on such a symbolic, figural and textural musical practices. And, concerning to a logical signic chain, gesture is in the abstract extreme of the listening experience, and under the dependence of figural and textural conception.

¹⁰ About the false primacy of gesture in listening, see Ferneyhough, B. "Forme, figure, style - une évaluation intermédiaire", in : Contrechamps, n. 3, Paris: l'Age d'Homme, 1984. There are also those who take mathematical representations of nature as the power to transform sounds into music.

is significant in a conventional domain of signifieds, of meaning. On the other hand, dynamic gesture, one that describes something as movement, is significant only if contained in a figural game emphasizing or sustaining the idea of movement and stillness as a prerogative.

There are gestures and gestures

When we examine composition or sound sequence-generating softwares, drawn in systems such as MAX/MSP and Patchwork/Open Music¹¹, it is common to find loop, interpolation and permutation operators. They reflect tradition in some sense; serial music and its permutation games, minimal music, in which a looped groove may be vital, or electroacoustic and spectral music, when interpolations of rhythms, chords, melodic structures are developed, gradually transforming sound or figural processes.

A doubt still remains: what tells me that these procedures guarantee that what I do is music? The answer, in a way, may be found in the intensive presence of these procedures, which we can now call traditional procedures. Traditional since there are no more people challenging them without confronting those who defend them; they are common sense in composition. Composing with such accepted procedures, specially young composers or those distant from great production centers, is working over a mere aspect of what turns a sound event into a musical one. For example, loop grooves operate by continuity, creating a specific idea of gesture. The same is true for permutation games and gradual transformations of interpolation between distinct objet-gestures. Thus, at the tip of these conventional procedures we find a specific gesture, if gesture is captured at its surface. One cannot resist superficial developments according to historically classified patterns. To avoid it, it would be necessary to focus and treat gesture as figure, resetting the figure's power to produce gestures.¹²

It is even more interesting to notice that tools such as computers increase the composer's work potential and accelerate the elaboration of their compositional material. From the choice of material and treatment to the first results there is a direct, almost immediate jump, and there is the possibility of listening to every step of the way.¹³ The interpenetrations among transformational stages from texture to figure, and finally to gesture, are cut off. In this manner, composers create gestures from catalogued gestures, figures from pre-conceived figures, and textures from typical sonorities. Think for

¹¹ To evaluate these programs, various patches offered to IRCAM associates were analysed, along with MAX user homepages (<http://cnmat.CNMAT.Berkeley.EDU/Max/nightsschool99/>)

¹² We may consider, for example, serial procedures; more than just a matter of form and unity, they allowed the appearance of gestures not found in the catalogues of tonal dramatic discourse.

¹³ To listen here is quite ordinary and passive. We point to those innumerable works in electroacoustic music that undertake a groove or long low-frequency drones. Sometimes they are enhanced by shiny high frequency sounds spinning around the concert room.

example about long drones or non-stopping shifts of objects in space. Even the process of the composer's conception of music is left aside, replaced by the assurance of a pre-established idea of music, imposed by software design or by modes of programming. Even if the composer is not in agreement with it, music is guaranteed by these pre-fixed ideas. Fast passages from sound matter or compositional procedures to compositional material have been discussed by composers such as Tristan Murail and Barry Truax¹⁴ since the eighties. Up to now, we are still pointing to the limits of this form of work.

As shown earlier, what we call music happens with the crossing of different languages and not only on an emission of sounds (instrumental or from speakers, elaborated by accepted procedures or not). Such consideration is not restricted to one sort of compositional practice, but to all of contemporary music. Music and potential musicalities are invented and not pre-established.

Problems with electroacoustic music, computer music, computed-aided composition and so on, are the very problems of contemporary creativity. While suppressing construction stages of sonic-objects or musical objects, and ascribing to software designers the assurance of musical acceptance, composers receive the key to enter a specific community and risk their creative spirit.

Probably the path we took in this paper seemingly pointed out problems, but that is the matter: to formulate a question is, in effect, to create the path for a productif answer. So, in a not pre-established situation it is important to notice that the path may be these where gestures are not defined; where gestures will be not an imitation of "gesture", but a product of computer-composer-music new ways of interaction.

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¹⁴ see Cohen-Levinas, Daniel. "Entretien avec Tristan Murail". *Les Cahiers de l'IRCAM*, n.3. Paris: IRCAM, 1992. and Truax, Barry. "Computer Music Langage Design and Composing Process" in: Emerson, Simon. *Langage of Electroacoustic Music*. NY: Hardwood Academic Press. 1986.

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