Interactive Performance Systems Conceptual interacting strategies in forming electroacoustic sound identities

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Abstract

This paper is a research study, concerning an effort to investigate the specific steps during the process of forming electroacoustic sound identities through the performer's interaction with degrees of noisy spectrums through the use of philosophical concepts like fragmentation and abstraction. Before starting, I think is useful to clarify some aspects of the main concepts that I am willing to approach in order to create some useful tools for our discussion. When experiencing music for instrumental live and electronics with signal processing, I have the feeling that the actual part, that means the act of instrumental performing is there to 'justify', to remind us in a way the existence of the human element with sonic hints of virtuosic, idiomatic gestural patterns, like flute trills or pompous percussive action, showing rather a guilt attitude towards the presence and involvement of electronic means to the creative process.

1. Introduction

The basic aim of this paper is to show how the philosophical concepts of fragmentation and abstraction are used to build a piece's internal and overall structure in a meaningful way, by describing the procedures followed in my work.[1]

The listening examples are going to provide a fruitful field for the discussion of the particularities in the process of rebuilding the performer-instrument relation, having the computer interacting in between them and making suggestions about how this interaction can assure unity. Thus, the main target is to clarify the way that the composer's conception becomes perception for the listener through the performer's interaction.

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2. Theoretical background

2.1 Identities

As a starting point, a reorientation in listening priorities by abstracting material through the exclusive use of noisy spectrums played by the performer, redefines the instrument's identity and works for me as a compositional challenge.

I am always fond of fitting philosophical concepts in the compositional process, so what I suggest is to forget for a while any conventional instrumental playing style going back in away to what Denis Smalley called the first order surrogacy, going back to the routes of sound producing from instruments, abstracting anything idiomatic from its vocabulary, producing only raw sound material or what they call extended techniques with inharmonic sounds, it is just a case study to see the results and the benefits we are earning from this abstraction. It would be interesting experiment to give let's say a clarinet to a cellist and record him while he's trying to produce sound.

As John Young quotes: 'The concept of identity is significant in music since it is through delineation of sound identities that we can grasp the relationship between thematic elements and the processes used by the composer to develop and shape them'[2].

The spectral transformation of timbres is targeting to the amalgamation of the resulting sound identities, merging the outcome of the computer processing with the performer actions and vice versa, in a creative way. The above technique also minimizes the processing material, keeping the performer away from the conventionally 'secure' playing techniques and virtuosic clichés, in order to make him/her react and interact with the computer, in a direct and less predictably expressive way.

The performer is no longer a virtuosic player but a sound vector. Fragmentation and discontinuity can be applied through rotating – often truncated though – functions by the constant use of recurring inharmonic timbral gestures exposed in a fragmented and continuously dislocated way.

The nature of the recording material as the primary source is a pack of sound information in signal processing open to a number of transformative possibilities.

Sound objects is a common term serving the desperate need to distinct sonic moments / identities in terms of their spectral characteristics by imposing new morphologies

Shaping sound materials is always about to connect and extend this idea of identity in larger scale of organization achieving multiple degrees of spectral transformation heading to novel possibilities on sculpting sounds.

2.2 Abstraction-Fragmentation

Abstraction as a term is always in the centre of discussion in electroacoustic music – being a mean of delocalize sound from its general source, – and results to the psychoacoustic deorientation of the listener from the process of recognition of a sound (acousmatic approach). According to Trevor Wishart 'The philosophy of composing which gradually

[2] John Young, "The Interaction of Sound identities in Electroacoustic Music", in *Proceedings ICMC 2002*. Göteborg, 2002, p. 343.

emerged particularly from Schaeffer's writings, centred on the notion of the acousmatic and the abstraction of the sound-object from any dependent relationship to its origins'.

I would like to have the chance here to shed a different light to the terminology concerning the abstractive approach to instrumental sound qualities through the exclusive use of extended techniques. The use of abstraction here creates the opportunity to re-establish new referential meaning in a new context closer to the open wide spectral realm of electronic music.

Let's see signal processing not as a machine process, let's see computer as a medium leading to sound creation, and let's begin this sound transformation from the instrumental playing producing complex sound morphologies. In a way this can lead us to a continuous flow of gestural energy of the sonic environment, leaving pure pitch aside for a while and creating a meta abstractive syntax.

I try to redefine the relation between performer, computer and audience by breaking and de-centering already settled subjectivities. Filtering not only spectrums but also fragments of sound objects, sound material appears to be not omitted but purposefully absent. It not about formalizing material, we all choose our compositional context in terms of material and content before starting to write a piece. So in a way here I suggest to reinvent instrumental sound potential IN ORDER to meet the high standards of electronic signal processing.

The problem here is purely aesthetic and not structural. This is where we should look for unique ideas in the hidden spectrally inharmonic potential of instruments gradually transforming into electronically processed sonic events. Then we understand how intimate and close computer sound design and instrumental sounds are, we give thus a common ground leading to the nature of sound per se. We need for the listener to reinvent the sound source linked to its origin and the physical cause that created it, so electronics then can create organic structures somehow bonded to the instrument. SO thus the sound is unified.

SO why I present the use of extended techniques as a necessity and the replacement of notes AND OF absolute pitch with varying degrees of inharmonic spectra? Because I believe to the infinite number of timbral possibilities that a pure pitch cannot give you. Traditional instrumental referential archetypes are no longer useful as sound vectors, these symbols are not functional anymore, and it's like trying to compose something interesting in C major. We must admit that the spectral profile of a sound is highly linked to the morphological possibilities is giving you.

Borrowing the term and techniques of fragmentation and dislocation from the postmodern philosophical approach, I try to redefine the relation between performer, computer and audience by breaking and de-centering already settled subjectivities. I use the concept of abstraction functionally, to delineate compositional processes, maintaining coherence by the subtraction of material through filtering not only spectrums but also fragments of sound objects. Thus sound material appears to be not omitted but purposefully absent. A creative process is analytically suggested, by connecting the ideas of fragmentation and abstraction in a productive way, as they both refer to the minimization of material, each one from a different point of view.

2.3 History

I borrow the term and techniques of fragmentation and dislocation from the postmodern philosophical approach. In Fragmentation as a practice the objects are de-centered and work as a projection of our multicultural and fragmentary world view came from the complexity

and the confusion of our time, Albert Camus concept of the absurd, Beat generation, automatism, Beckett's experiments with disintegration of narration, paradox and chaos within metanarratives and magic realism, come into mind when speaking for the post modern condition, it's all about the idea of disjointed and fractured shadow of human being. Well, fragmentation relies on techniques of infraction of the traditional linear approach in music, art and literature that while exploring the inner states of consciousness through disintegration after the Modernity of 50's, at the same time works fine as an aesthetic mirror of aggression to the mass flux of information that we are experiencing now days. The concept of authentic-self is no longer present, living in a multi-dimensional world within constantly changing cultural contexts. The term multiphrenia of Walter Truett Anderson is what pretty much describes our time, and the issue of multiple identities. I mean we can see this fragmentation in culture at large. The more science grows the more fragments are created, that means unity is at a risk, it is a challenge to unity. Zaha Hadid the famous architect asks 'what if the architect designs a building that cannot possibly be built?' In the same way Wittgenstein refuses the paradigm of linearity with his 'broken text' practice indulging to the idea that the knowledge is mediated by language so language can't relate and reflect the truth.

I think though it is possible to stylise in a way fragmentary thought in electroacoustic composition. As John Young quotes 'a continuum can be implied also as a series of dislocated but perceptually related variants of a sound object over an extended time scale' (el.mus.st. network, Montreal 2005). Structurally speaking cutting and splicing audio samples, sonic events, sound objects and time in sonic momentum in general it is fragmentary thought but here there's a difference, creating fragments of time, of sound material can lead to linearity and be very inspirational actually. It's not like in linguistics where meaning is giving way to unconscious. Music is in a constant dialectic process with imaginery, and complex symbolic references are created during the listening experience. Fragmentation and discontinuity can be applied through rotating – often truncated though – functions by the constant use of recurring inharmonic timbral gestures exposed in a fragmented and continuously dislocated way.

According to Trevor Wishart 'The philosophy of composing which gradually emerged particularly from Schaeffer's writings, centred on the notion of the acousmatic and the abstraction of the sound-object from any dependent relationship to its origins'[3].

2.4 Suggestions

What I suggest though, is that the target may alternatively be, not to 'confuse' the listener concerning the origin of the sound source but to make him drastically broaden his/her origins of acoustic perception by abstracting conventional sounds and transforming only inharmonic sounds through extended playing techniques, using them as the exclusive material taken from the instrumental sound palette. There is a whole new world of creativity that can arise through the emancipation from the conservative biased instrumental approach.

When it comes to electroacoustic music, there are many advantages from taking the performers out of this old formalistic context and make them dissolve their 'instrumentalistic' identity and understand how much they can contribute to the wide range of possibilities that signal processing and sound engineering can give to the art of sounds today.

[3] Trevor Wishart, "Sound Symbols and Landscapes", in *The language of Electroacoustic Music*, Simon Emmerson (ed.), Basingstoke (UK), London, MacMillan Press, 1986, p. 43.

This idea goes far beyond 'abstract expressionism' where the sounds of the source are just not recognizable. I try to imply that there is nothing wrong with the recognition of the sound origins, – in this case the percussion instruments- but not with the conventional ones.

So why **noise**? Why inharmonic sounds, what is interesting in there?

Focusing on inharmonic spectromorphological characteristics of instrumental sounds and leaving conventional sounds aside as a case study could lead to a redefinition of the timbral instrumental palette.

Gestural surrogacy is a term that Denis Smalley used a lot to define the traditional audiovisual training concerning our experience of listening to instruments as a cultural process based on years of unconscious training. This is what I am trying here to create, actually, a new vocabulary built on new instrumental sounds leaving what Smalley suggests as second order surrogacy (registral articulatory play) – that means the idiomatic recognizable instrumental playing – out, or rather replacing it with a rather new sound syntax based on complex noisy spectra with vague pitch content. Here I should clarify that noise for me has a relevant sense, sound has gradual levels of inharmonicity and pitch is somewhat always blurred and melt in a way in noisy content. Inharmonic spectra flirts on the one side with pitch and the other with absolute noisy masses, and that is what creates a huge area of exploration, thus instrumental aesthetics has to embrace these possibilities and leaving the safety of clichés to the past.

The spectral transformation of timbres is targeting to the amalgamation of the resulting sound identities, merging the outcome of the computer processing with the performer actions and vice versa, in a creative way. The above technique also minimizes the processing material, keeping the performer away from the conventionally 'secure' playing techniques and virtuosic clichés, in order to make him / her react and interact with the computer, in a direct and less predictably expressive way. The performer is no longer a virtuosic player but a sound vector.

As Denis Smalley quotes in his famous theory of Spectromorphology:

> One might think that in more abstract instrumental music, source bondings do not exist, but they are there in force, revealed through gesture and other physical activity involved in sound making. The bonding of instrumental activity to human gesture is somewhat ignored not only because it invariably expected in music […], (1997, p. 110)
>
> […] we detect the humanity behind [spectromorphologies] by deducing gestural activity referring back through gesture to proprioceptive and psychological experience in general. (1997, p. 111)

It is exactly about this expansion and merging of the human/physical gesture, the spectral transformation of sound events begins from the performer by experimenting with complex spectra and interacting more with the main substance of signal processing, finding a common path and sharing acts of expression.

The traditional intervallic pitch heritage mixed with high levels of signal processing is what constitutes the post modern idea of anything goes, this what we have to get rid of in terms of move on to a new era in the electronic art of making sounds. We should get the performers out of the old formalistic context and make them dissolve their 'instrumentalistic' sound identity. It has nothing to do with 'abstract expressionism' where the sounds of the source are just not recognizable. I try here to imply that there is nothing wrong with the recognition of the sound origins, but not with the conventional ones.

2.5 Research

This research is part of my PhD thesis concerning electroacoustic composition based on the spectral analysis and signal processing of instrumental noisy sound spectrums. More specifically, this research includes the hierarchical taxonomy of spectrally rich sounds based on the nature of their inharmonic content.

This process leads to a series of spectro-morphological researching processes concerning the transformation of the acoustic signal (enveloping, *FFT, frequency shifting, time stretch, phasing, flanger, vocoder*, etc.) and the development of innovating ways to construct new sounds deriving from the initial sound material (noisy instrumental spectrums).

My main target here is the construction of an abstract syntax of sounds by spectrally decomposing the inner possibilities of instruments to produce noisy and inharmonic spectrums and building a bridge of perception between abstracted gestures and the instrumental composition context. Despite the effort to disconnect the instrument from its conventional identity, it is always charming to discover that for the performer and the careful listener, there is often a sound implication left that can trace him back to the initial recognizable sound symbols. The degree of the presence of this vague connection is what defines and links the abstracted material with the instrumental sounds.

3. Conclusion

Excluding the conventional sounds of instruments and depriving from the performer, the composer and the listener the benefit of identifying and splitting the action of playing the instrument from the action of sound processing, the greatest fusion of the roles of the performer and composer is achieved by the means of real-time sound transformation. What I suggest, is that the target may alternatively be, not to 'confuse' the listener concerning the origin of the sound source but to make him drastically broaden his/her origins of acoustic perception by abstracting conventional sounds and transforming only inharmonic sounds through extended playing techniques, using them as the exclusive material taken from the instrumental sound palette.

We can rebuild the computer-performer relation in a way that the listener is forced to totally forget the traditional instrumental source reconstructing a whole new contextual approach concerning the act of instrumental playing.

The result is the construction of a meta-abstract syntax of sounds by spectrally decomposing the inner possibilities of instruments to produce noisy and inharmonic spectrums and building a bridge of perception between abstracted gestures and the instrumental composition context. Despite the effort to disconnect the instrument from its conventional identity, it is always charming to discover that for the performer and the careful listener, there is often a sound implication left that can trace him back to the initial recognizable sound symbols. The degree of the presence of this vague connection is what defines and links the abstracted material with the instrumental sounds.

I connect the ideas of fragmentation and abstraction in a productive way, as they both refer to the minimization of material, each one from a different point of view.

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