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Pierre Couprie

Institutions: De Montfort University

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(Re) Presenting electroacoustic music

PIERRE COUPRIE

OMF-MINT Université de Paris IV - Sorbonne (& MTI Research Centre, De Montfort University), 5 rue Crespin du Gast, 75011 Paris, France
E-mail: couprie.pierre@free.fr

Art always does more than subsist upon technical progress; for centuries its practice has merged with it, and we should never forget that the first meaning of the word art was *technê*. However, never before has the relationship between art and technology raised so many questions and provoked so much misunderstanding. As a matter of fact, at the same time as the frontiers of technique continue to recede, the frontiers of art seem more and more difficult to grasp. (Couchot and Hillaire 2003: 15)

1. FORWARD

Since 1977, my research on analysis and representation of electroacoustic music led me to publish different analyses, and to give a more substantial place to graphics as an ideal medium for publication. In this article I will extend my analysis to publication itself. Even if we can trace back the first multimedia publications to *Electronic Abstractions* by Ben Lapovsky in 1952, multimedia has become incorporated into musical research only very recently. Let us take just two examples to understand musicology and artistic renderings: in 1995 and 1998 *Les Musicographies* (Besson 1995) and *Promenades en Musique* (Aubert 1998) were published. Each of them proposed a graphic approach towards musical analysis: animations were used to provide a better understanding of the musical notions revealed by analysis. Even though Anne Aubert's CD-ROM offers more advanced musicology analyses, these two publications combine an uncontested musicological value with great readability, making them accessible documents for both neophyte and specialist. It is on this combination that most of the CD-ROMs, DVD-ROMs and Internet musical sites will be based.

2. SOME GENERAL REMARKS

In 2002, Jacques Perriault, researcher in computer and communication sciences, described the constraints and implications of digital publication in his work *L'accès au savoir en ligne* (Perriault 2002). In just a few words, he leads us to reflect upon the profound changes created by

digital media. One does not read an article in a journal in the same manner as on an Internet site. Furthermore, digital media make new forms of publication available which are incompatible with a paper format. From all the ideas he explores, I will concentrate on a dozen, divided into two categories: general ideas and constraints.

The birth of digital publication involves three motors: utopia, the norm, and conquering thought. First of all, the Internet and all that it has generated has a strong utopic power which holds the underlying belief that all the planet's ills will be cured! Unfortunately, this discussion is still too commonplace. Secondly, the new digital media requires the establishment of new norms (of presentation, classification, construction, etc.). It is essential that the musicologist is aware of these norms in order to be able to play with them and avoid producing a document poorly adapted to the medium. These new norms not only generate new objects, but also cause a split between the object as it is disseminated and the person receiving it: the simulacra of Pierre Schaeffer (1970). The third point, in conjunction with the first one, provides an explanation of a currently pervasive technocentric discourse which systematically relegates all that is not state of the art technology to obscurity. This discussion reveals an incapacity for self-criticism. Finally, along with these three motors comes a brake: the 'diligence effect'. The term 'diligence' originates from the fact that the first railroad wagons had the inappropriate shape of a coach. In other words, we are always trying to reproduce the old models using new technologies, even if those models are no longer appropriate and interfere with new artistic and scientific forms. It seems to me essential to be conscious of these four aspects of digital publication in order to be able to master its production.

In the thinking of M. Perriault, these four ideas are accompanied by a collection of technical constants, of which several are essential for musicological publications. First of all, the state of a digital document is fundamentally different from that of a paper one, and that brings up a certain number of comments: all knowledge cannot be digitalised (this is the reason why teaching on line will never replace the exchange between

master and student), the screen appears as a semiotic disconnect which increases the distance between the author and the reader, and the document can be infinitely duplicated (the author can never be rid of it, the reader can share it easily) (Benjamin 1935). In the second place, the document acquires new functions: it grants to the user a new symbolic dimension (the digital document seems more important than the other types of documents); its production requires new skills that are difficult to acquire and therefore rarely taught; and the digitalisation causes a piling up of information (vertically: inclusion in the case of a juxtaposition of very diversified elements, horizontally: as in the case of forums where everyone contributes to the establishment of knowledge). Finally, as hinted in the previous few lines: the digital document implies a notion of a technological marvel which really seems like a new religion whose goal would be not only to connect but also to conquer the entire corpus of world knowledge.

These last few lines may possibly appear out of context but they seem to me to be essential. As a matter of fact, this aspect is never considered in musicology. However, as soon as there is manipulation of a digital document, it should also be normal to ask ourselves about the status or the function of such a sketch or score.

3. SIX METHODS FOR ANALYSING THE (RE)PRESENTATION OF ELECTROACOUSTIC MUSIC

On the strength of these theoretical reflections, we are now able to consider a classification of the (re)presentations of electroacoustic music which, for many reasons, is not simple. First of all, the examples are not so numerous, and each one of them appears, at first glance, more like an exception or as a separate category. Furthermore, the evolution of technology, which has been moving extremely fast these past ten years, implies a very strong historical categorisation. However, it seems to me important to avoid falling for this assumption. And finally, stemming from the previous point, it becomes more and more difficult to obtain multimedia publications which are considered old (more than five years!) and to have them work on our present-day computers. The digital medium is probably the most ephemeral that has ever been invented. By observing different examples in order to extract similarities or differences, we can arrive at a solution. Figure 1 represents consistencies and differences across six methods. Rather than being definitive, this observation reveals a deeply subjective vision. This subjectivity is essential, because it is impossible to discount it from the perception of a multimedia object which, on the one hand, frequently requires the receiver's participation, while on the other hand, it modifies part of its transmission due to the view of the perceiver.

3.1. Context/content

The first relationship that comes to mind is probably that of context and content. One of the constants of multimedia publications is in the importance given to the context. This is no longer just a way to present the content more or less logically but in itself contains information. As such, the way in which the author uses the interface to orient the user's exploration of the multimedia document reveals the extent to which s/he has mastered the multimedia tool.

Figure 2 is a good example, in my opinion, of what not to do. In this DVD-ROM (Aperghis and Szendy 2005), the user finds him/herself before a multitude of sources about a work by Georges Aperghis; sources which s/he can hear, see, read, but after a good hour of trying it out, s/he has no idea what the composer's work is. This is probably a performance technique, but the interface serves no useful purpose towards better understanding a work unless the object is to discourage the user!

3.2. Networks

The second most important method is that linked to the use of the Internet. For the past ten years, sites listing resources (Couprie 2004) or discussion forums (like that of the CEC) have proliferated. Those sites and forums are using the Net itself as a storage tool. The user has access and contributes to some data situated in different geographical sites and at different moments: a notion that has been theorised through noosphere (Teilhard de Chardin 1959) or cyberspace (Ascott 1990). It is probably the best answer given to the evanescence of data residing on the Internet.

3.3. Inclusion

The theory of inclusion, formulated by John Cage, developed rapidly as soon as the Internet was opened to the public at large: it consists in the juxtaposition of

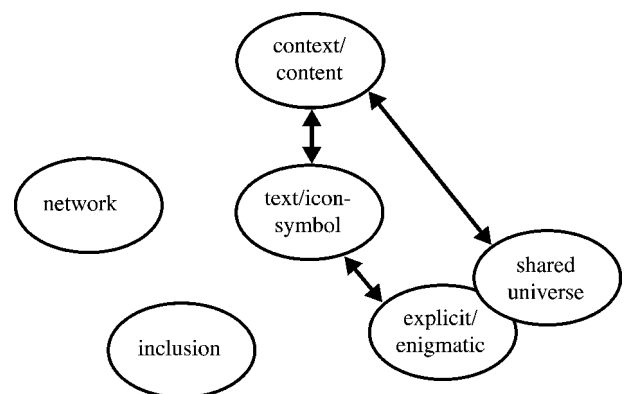


Figure 1. The six methods of analysis and the important links between them.

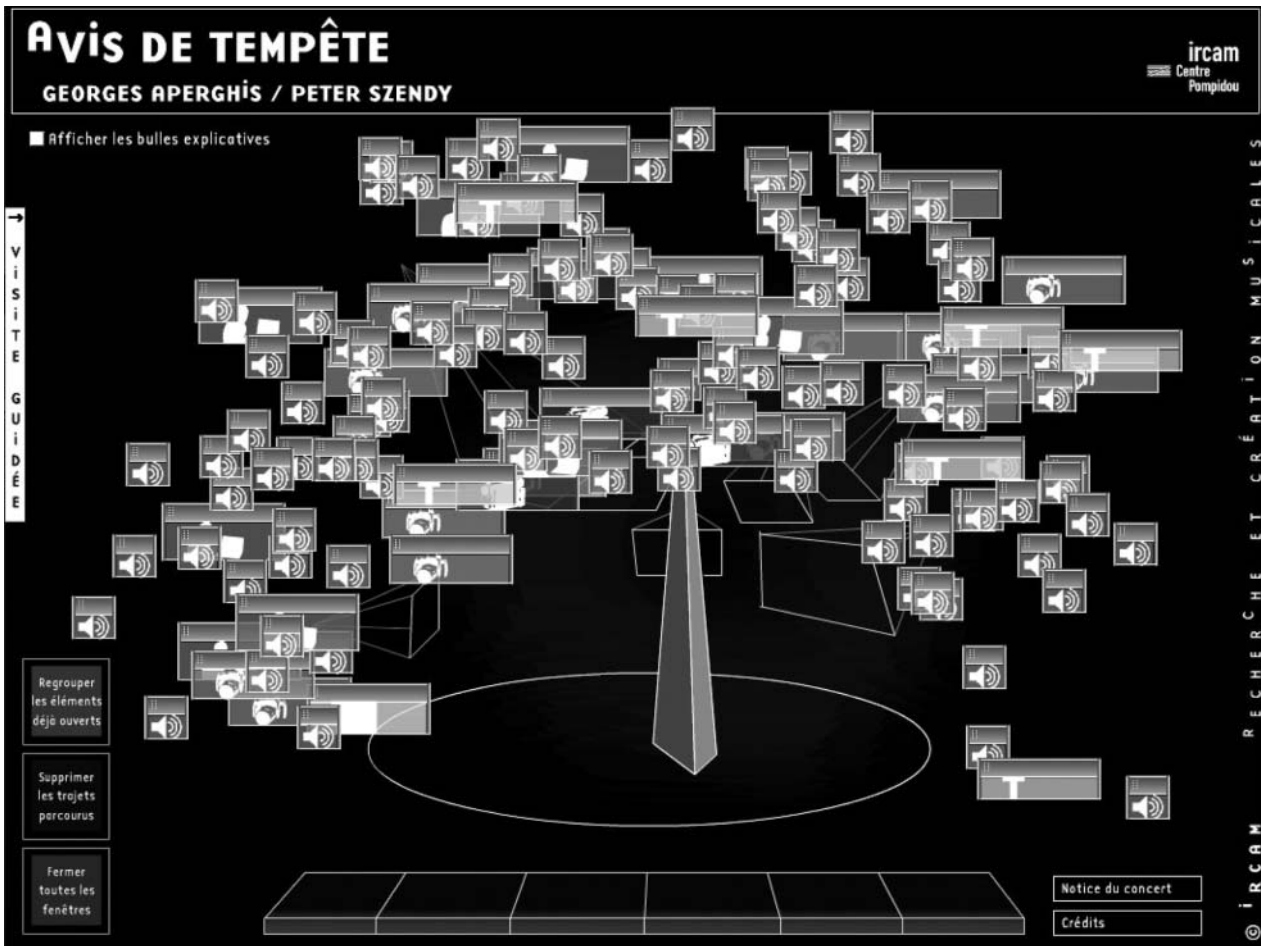


Figure 2. Excerpt from the DVD-ROM *Avis de tempête* (IRCAM/ Léo Scheer).

heterogeneous elements forming unusual collages. The authors of the CD-ROM *La musique electroacoustique* have played with this idea to propose some (often graphic) analyses of the same works by different

authors. Far from being identical or contradictory, these analyses collectively offer clarification, some revealing paths of research in the others that were not even imagined by the authors (figure 3).

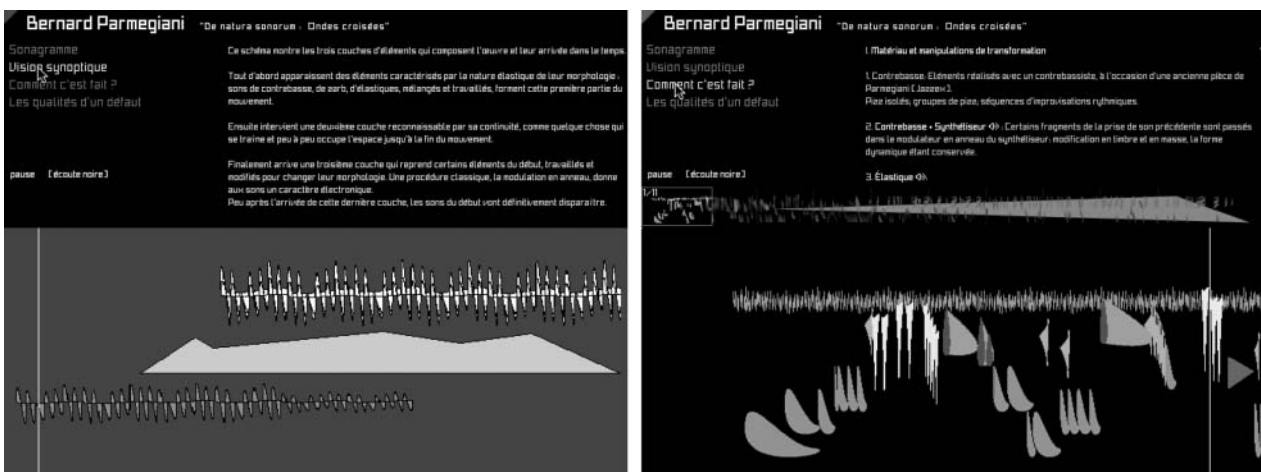


Figure 3. Two graphic representations of the same music (D. Teruggi and P. Couprie) on the CD-ROM *La musique electroacoustique* (INA-GRM/Hyptique).

3.4. Explicit/enigmatic – shared universe

I decided to reunite these two methods, as they never seem to exclude each other. The universe of game theory is seldom represented in multimedia musicology publications, even though the question is very often asked: Wouldn't the best way for the public to understand a work be to make them recreate it? Will the 'Doing', so dear to P. Schaeffer (Schaeffer 1966) come to be back in vogue? It is possible that this is only a trend, but it is very likely that from now on, multimedia allows some techniques borrowed from game theory to transpose didactics in a very efficient way (figure 4). The user must search (enigmatic) trying to locate already known elements (explicit) to rediscover, through manipulation, the sounds or structures used by the composer. From that perspective, it seems obvious that the interface takes a predominant role, from which one can understand the links of figure 1 between this modality and the first one.

3.5. Text/icon, symbol

The last element is probably the simplest to theorise. As a matter of fact, multimedia publications permit the

creation of a continuity of examples from the text object (Thomas 2001) to the graphic object (Couprie 2005), from the textual explanation to the representation. The analytic graphic representation of electroacoustic music acquires its full value with multimedia: the image converses directly with the sound without the support of the text. Does a new form of writing seem to be appearing? Figure 5 represents an animation which permits us to follow the work of the composer in a multi-track space of eight loudspeakers. The entire analytic discourse is rendered here by the graphics. In figure 1, this method was linked to the first and to the preceding one. In reality, those links appear progressively as we move away from the text and towards the image.

4. CONCLUSION

I hope that these few ideas will allow future authors of digital publications to see a little more clearly within the maze which multimedia seems to have created. As a matter of fact, the variety of steps and the very fast evolution of technology often makes it difficult to find

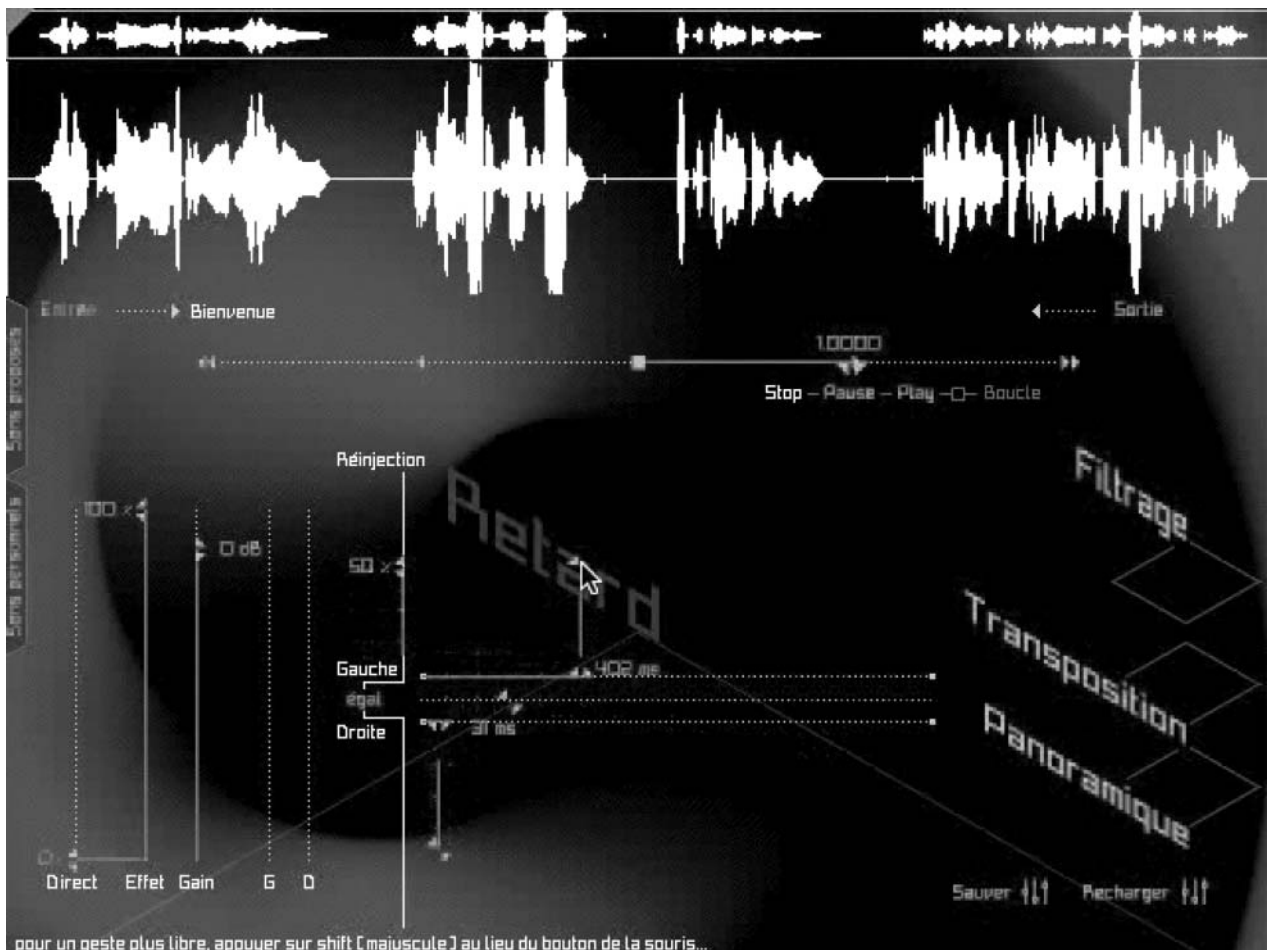


Figure 4. The game interface of the electroacoustic studio on the CD-ROM *La musique electroacoustique* (INA-GRM/Hyptique).

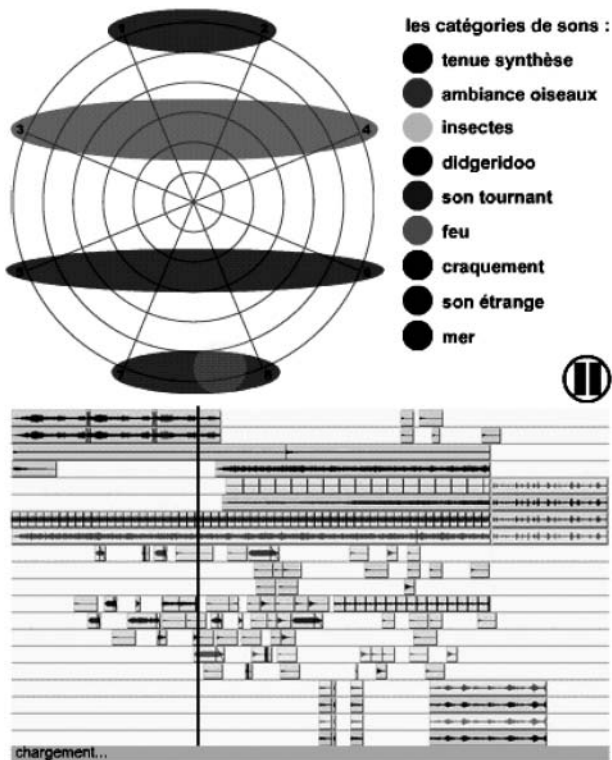


Figure 5. Graphic analysis of the space in *Jukurrpa* by Pierre Couprie made by the composer (Couprie 2005).

transposable models and to master the set of techniques necessary to design a multimedia publication. What seems to me more and more obvious is that, as stated by Couchot and Hillaire (Couchot and Hillaire 2003) at the beginning of this article about the relation between art and technique, in the framework of multimedia publications about electroacoustic music, art has never been so close to scientific research. In many cases – it suffices to look at those produced by the author (Couprie and Teruggi 2001) or by the graphic artist Samuel Rousselier (Rousselier 2002) – one can see how the interface and

the graphic representation are at the same time works of art and paths of research.

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