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"On the paradigmatic behaviour of sound-based music"

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Abstract Following François Delalande's description of 'an electroacoustic music paradigm' ("Le son des musiques", 2001), an alternative based on sound-based music (music based on sounds as opposed to notes) will be presented. It will be demonstrated that Delalande's notion focuses solely on production whereas the latter is related to both creative production and the listening experience. Furthermore, using a play-on-words, it will also be shown that sound-based music offers greater 'co-hear-ence' (*co-ouïr-ence en français*) than electroacoustic music does. Brief aural examples will be included to support the sound-based paradigm. Acknowledging sound-based music as a 'supergenre' would be beneficial to this broad musical corpus. Recognition would influence both questions of access related to this body of work as well as its field of studies. One of the most interesting results of the recognition of paradigmatic behaviour is the fact that certain established means of classification of music will be found to be largely irrelevant such as the German *E-* vs. *U-Musik* separation (art vs. popular music, *musique savante vs. musique pop*). This paper presents a summary of the research that led to my recent book, "La musique des sons/The Music of Sounds" (2007, Sorbonne MINT/OMF).[1]

This talk starts with an anecdote of symbolic importance in the form of a question: Where does one place an electroacoustic CD in a CD shop? Perhaps in the highly cultured city of Paris, this corpus of work has found its way into such shops and in a non-ambiguous place. However, in most places, with the possible exception of our mega-CD shops, it is 'hit or miss'. In fact it is more miss than hit; when such a CD is available, it might be hidden under classical music, electronica (under pop), an instrument being used or under the (possibly relatively unknown) composer's name in alphabetical order. In short, for someone wanting to browse through the repertoire, it is unlikely that this opportunity is on offer. Clearly, the Internet offers an alternative, but again, without previous knowledge, finding something of interest is probably non-trivial. This all boils down to the word combination: access to and the accessibility of electroacoustic music.

Terminology The state of terminology related to electroacoustic music is a subject I have had to return to often in recent years. To be honest, a bit of flexibility in terminology can be useful; however, the state of our key terms is awkward to put it mildly. I talked about this subject at length at EMS06 and need not repeat it here.[2]

Where does all of this particular state of confusion leave us? It takes little imagination to see how many terms relate to/overlap with one another. It may therefore seem odd to note that I am not particularly happy with any of our current terms. So what does one do? I have decided in my recent writings to be bold and reject all of these terms for the music I am involved with and choose a new one. This may come across as highly egotistical, but I see no other way. I believe that the definition, or something close to the definition related to sonic art needs to be used with a term that includes the word, music and because of this, I have come up with a new term, *Sound-based Music*[3] as it is clear. I have defined this word as follows: "the art form in which the sound, that is, not the musical note, is its basic unit"[4]. For clarity, I have suggested that, in English, *Sound-based Music Studies*[5] be used as the name for the scholarly field related to this diverse corpus of music.

Co-hear-ence Having found a name for the body of musical work in which I am interested, the following questions seem pertinent: how does one best formulate how the various types of music associated with sound-based music fit together? Similarly, how does the associated field of studies fit together? By finding means to answer these two questions, one may very well be taking two important steps towards understanding key relationships concerning this musical corpus.

The EARS site on which I have worked since its inception, given the fact that it has the word, electroacoustic, as part of its abbreviation and given the fact that some sound-based music goes beyond that which fits under electroacoustic music,

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[1] This is the second time I have offered a paper on this book. The first was given at a conference in 9/2007 at the University of Leipzig. I would like to thank my hostess in Leipzig Tatjana Böhme-Mehner for allowing this similar article to be published. The article based on the Leipzig paper can be found in T. Böhme-Mehner, K. Mehner & M. Wolf, ed. *Elektroakustische Musik: Technologie, Ästhetik und Theorie als Herausforderung an die Musikwissenschaft*. Essen: Die Blaue Eule, 2008: 11–22. Thanks are also due to Marc Battier for the invitation to write the Sorbonne book in the first place.

[2] The talk given at the EMS06 conference in Beijing was entitled "Electroacoustic Music Studies and Accepted Terminology: You can't have the one without the other". This talk can be found at: http://www.ems-network.org/article.php3?id_article=242 (visited 13.v.08).

[3] *La musique des sons* is a French translation which is actually nicer than its English equivalent.

[4] This definition first appeared in my book, *Understanding the Art of Sound Organization* (Cambridge, Mass.: MIT Press, 2007, page 17).

[5] It should be noted briefly that this field of studies concerns the corpus of music and its related field of studies primarily and involves technology and technological application when discussed in terms of its serving musical goals.

contains genres and categories names that fit within either or both. What is of interest in terms of selection has been two things. Firstly, where does one draw the line defining what fits and what does not? Does one include items that employ electroacoustic or sound-based techniques but are not primarily either the one or the other? Thus far we have been cautious and chosen ca. eighty terms that we believe do fit within this broad area. The next question is even trickier: how do we fit these terms together? The EARS site traditionally employs a nesting approach for the presentation of its terms within the site's index. In 2006 it was decided to drop this nesting approach when discussing genres and category terms due to the fact that some terms were being nested under too many other ones. Furthermore, important well-known terms appeared at lower levels than less important terms that could only appear at the highest level. Currently EARS simply lists these terms alphabetically. However, new semantic web approaches, new thinking in the world of ontologies allows us to think in terms of clusters of musical genres and categories. It is our intention to introduce this approach of clustering in the near future to assist in creating what I call co-hear-ence, that is coherence from the point of view of the listening experience.

Similar to the terminology debate alluded to above, genres and category terminology also poses great problems. Looking at the terms listed in the EARS site, many fall under one or more of the following: means of formalisation, a technique, some form(s) of technology, sound generation, choice of venue or terms that are simply quite general. In almost all of these cases, the EARS terms represent categories, not genres. Few terms are related to the listening experience in any way. In fact sound-based music seems to have been responsible for the creation of very few genre terms, a curious state of affairs.

With this in mind, an alternative means of classifying works is needed alongside a discussion by interested parties to investigate how one may offer a more efficient, agreed vocabulary in the not too distant future. I shall offer a classification model for sound-based music later on in this paper.

As the concept of sound-based music studies is new, we also need to consider what this field's framework might look like. As I have often written, the term musicology seems not to be too popular amongst people involved with sound-based music, at least in Anglophone nations. This is due, at least in part, to the fact that musicology has had great difficulty in engaging with this radical musical addition. It is not that many of the musicological approaches are not *à propos* or that the associated fields of study are more pertinent to the music of notes than the music of sounds. It is simply a waiting game to see where this body of music will turn up on the map of the arts, I believe. It is for this reason that I have opted to use the term, sound-based music studies. That said, on the EARS site, the section called Musicology of Electroacoustic Music suggests that musicological areas be placed at the heart of electroacoustic and sound-based music studies. A great deal of work has been done on the EARS site to create a framework for sound-based music studies. A very brief summary is provided directly after the introduction of the system for classifying sound-based music below.

Given the fact that the organisation of genre terminology is a non-trivial operation and the realisation that the field of studies is, to a large extent, in its infancy, that is, much work has been done but too little work has been done to: a) create a solid foundation for this field, and b) tie the work that has been done into a coherent entity, this leads to the conclusion that it is no wonder that a great deal of sound-based music is relatively unknown in society today and thus deserves a better lot. The suggestion that a paradigm for sound-based music might exist and the consequences of its acceptance just might help a good deal of the music being lifted out of the margins.

The paradigm Having already used the word, access, above, a word that is accused of being trendy if not overused, I shall now introduce a second term that has been similarly been accused of overuse, paradigm. In preparing the book on which this talk is largely based, I found three citations related to paradigm. Let's start with the one that supports the above-mentioned accusation: "No word says 'phoney intellectual' as well as when you use paradigm"[6]. The man whose name is inseparable from the word, paradigm, Thomas Kuhn has described the word as the predominant worldview in the realm of human thought[7]. No one would contest this thought, but it does make our search concerning sound-based music seem too modest to qualify. Therefore, a more appropriate final statement has been chosen that is most useful for the current discussion: "An abstract structure, of some tenure, in which knowledge is related within a given realm"[8]. Although this last statement may sound a bit tautological, my assumption is that these knowledge relationships are significant.

I would also like to suggest that sound-based music equally be considered to be what I call a 'supergenre'. I define this word as follows: "A class bringing together a cluster of genres and categories often considered as being separate that have been converging in recent years due to their use of materials and the knowledge concerning the artistic use of these materials"[9]. This assumption allows me to pursue this corpus of music and its related field of studies as belonging to a paradigm. Now all that is left is for me to attempt to demonstrate this.

To do so I must now put on my intellectual boxing gloves and enter the ring with François Delalande who, in 2001[10], developed his notion of the *electroacoustic music paradigm*. Let us start with a brief description of his notion and then allow me to attempt to demonstrate why a sound-based music paradigm might make more sense. Delalande's view is basically that music has known three 'technological paradigms', namely, that of aural tradition, written notations and the studio-based electroacoustic paradigm. This final and most recent addition assumes that one is working in a non-real-time

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[6] www.microwaves101.com/encyclopedia/writingstyle.cfm (visited 13.v.08).

[7] *The Structure of Scientific Revolutions.* (Chicago: University of Chicago, 1996, originally published in English in 1962).

[8] www.geocities.com/CapitolHill/1284/glossdef.html (visited 13.v.08).

[9] *Understanding the Art of Sound Organisation*, page xi.

[10] *Le son des musiques entre technologie et esthétique* (Paris: INA/Buchet-Chastel, 2001)

studio environment, something unknown in terms of earlier forms of music making. In *The Music of Sounds* I make a case against Delalande's logical concept based on three key arguments: 1) There is an issue concerning the content of electroacoustic music. Some electroacoustic works, although they are involved with the elaboration of timbre, are quite note-based. Think, for example of many early German electronic works and those of some of the composers associated with the Columbia-Princeton Electronic Music Center. There are composers today who work in a similar manner, making electroacoustic note-based works. I personally find that these works belong more to what one might called a *note-based music paradigm* than that of a *sound-based music paradigm.* I, for one, am certain that a note-based music paradigm exists based on our working definition. I, therefore, do not consider the means of production as sufficient for paradigmatic behaviour and, in fact, would suggest that the listening experience must also be included. If one is only interested in production, perhaps Delalande's argument deserves support. However, there is a related to be raised here. 2) As Delalande is looking at production as the foundation of his paradigm, I cannot understand why other new media that use similar protocols of montage and the like, such as video and today's digital equivalent are not also included. 3) The third objection concerns the focus on the studio and non-real time composition. Our latest digital systems allow users to create and manipulate sounds in real-time in ways that were impossible in the past. There are relatively few aspects of production and performance that cannot take place in real time. Many of our systems are highly portable, such as our laptops. Hence one of Delalande's key arguments for an electroacoustic music paradigm is being superseded by technological development.

I am of the view that a paradigm related to music works best when the means of production, the listening experience and the theoretical context are all integrated into it. I believe furthermore that this does not work for electroacoustic works, but that it indeed is entirely relevant to sound-based works whether acoustic or electroacoustic. One important consequence of this recognition is that certain established means of placing music categorically break down to a large extent for the sound-based musical repertoire, another reason for it to exist within its own paradigm. This brings us back to the original question where CDs might be placed in a CD shop. I personally believe that sound-based works deserve to be placed together ignoring traditional boundaries such as that between art/pop music. To illustrate this, I played short excerpts from the following works, mentioning related types of works during this section of my talk:

> *Acousmatic Music:* Åke Parmerud – "Les objets obscures" (and mentioned certain types of electronic music and soundscape composition)
> *Mixed Electronic Music (a 'negative' example):* Mario Davidovsky – "Synchronisms No. 9" (which belongs in my view to the note-based paradigm; not all mixed works do, however)
> *Roots in Popular Music:* Aphex Twin – "Vaz Deferenz" (with a beat) *and* Squarepusher – "Curve" (no beat present; also mentioned were ambient works and the odd case of plunderphonics which makes sound-based compositions from note-based recordings)
> *Electronica:* Ryoji Ikeda – "Check" from his work "C" (and mentioned glitch, noise, no-input mixer works, etc.)
> *Installations:* Andreas Oldörp – "Trost für Anfänger" ("Consolation for Beginners" and mentioned public art work and interactive sound installations as well as new forms of sound-based internet music making)
> *Turntablism:* Scratch Perverts – '99 DMC World Team Championships set (and mentioned hip-hop and recent experimental forms of turntablism)

I do not believe that one need to enjoy each of these examples equally. This can be said of classical music lovers or any other type of music for that matter. What I do believe is that the mode of production behind these works possess very clear relationships, as is the case in the listening experience. This is discussed at greater length in the book. What should be stressed here is that the music of sounds has taken on new challenges far greater than was the case in contemporary vocal/instrumental music in general. (A case can be made that a modest percentage of this repertoire is, in fact, sound-based music.) For example, not only are all aspects of sound ordering and structuring broken open in sound-based music; content in general has as well as has the potential use of space. This is, indeed, the radical departure that sound-based music signifies and it is these new relationships and means of creativity that tie the works together.

Clearly the acceptance of a sound-based music paradigm would offer several benefits, not least in terms of education, a subject that was not pursued in this talk. It would also benefit appreciation and participation, a subject returned to in this talk's conclusion. For the current discussion, the subjects of co-hear-ence and of sound-based music studies are two key areas that would benefit enormously from recognition. Let us now deal with them briefly one at a time.

As far as our subject of co-hear-ence is concerned, it has already been demonstrated that a more rigorous classification system is needed and, ideally, that one look more closely at whether we have created a sufficient number of clear genre terms. In *The Music of Sounds*[11] I presented a three-dimensional model for classifying sound-based works acknowledging that the means of presentation forms part of how a work is received. The three dimensions are:

> The *context* of the work
> Aspects related to a work's *creative practice*
> Aspects relevant to the *listening experience*

These can be elaborated as follows:

> i) *Context*
> • *Placement* by way of {traditional/new} {genres/categories}.

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[11] Pages 144–146.

- *How a work is performed:* e.g., multichannel, diffused, {solo/group} live performance, interactive, {sound sculpture/installation}, on the Internet, etc.
- *Where it is performed/presented/heard:* e.g., {specialist/non-specialist} concert hall, {gallery/museum}, community space, specific site, anywhere on a CD, etc.

ii) *Creative practice*
- *How a work has been constructed:* e.g., choice and use of materials, formalisation, place(s) on the language grid, all aspects found on the Sound Production and Manipulation and Musical Structure sections on the EARS site.
- *Compositional intention:* {presence of a dramaturgy/art for art's sake}, {abstract/real world}, expected listening strategies, audibility of materials and/or structure.

iii) *The listening experience*
- *Things to hold on to:* Prominent characteristics including dramaturgy, relationship with the context of {performed/diffused} presentation, audibility of {sources/sound manipulations/discourse/structure/technological aspects/other elements of construction} or none.
- *Listening strategies:* {heightened, reduced, referential, contextual, technological} listening and all points in between; when each occurs whilst listening to a work.
- *Participation or reception only:* e.g., interactive work, audience participation, dance, Internet music participation or listening only.

Using a system like this one would be, in my view, much more straightforward than the ambiguous and messy situation we currently possess. The system does offer a few problems for which improvements might be sought. Some of the items listed under 'context' are admittedly problematic as, for example, the circumstances of performance can vary between one listening to another leading to two different descriptions. Furthermore, there is an enormous difference, of course, between participating in an interactive installation, viewing someone else performing the installation, viewing a documentary of someone performing the installation and, finally, listening to a recording of the installation with – at most – a still photo as the only visual information.

This leads me to the view that this means of classification may at times require consciously ignoring lower-level parts of its model, given the circumstances of its usage. For example, they might not be considered when a prospective listener is choosing what to purchase from a CD shop, or online when s/he is looking for a genre/category/type of sound-based music. In such a case, the performance context may not be especially relevant. For anyone merely wanting to browse, most of the other information would be extremely useful.

This model is at least a starting point for the desired goal of achieving greater co-hear-ence in sound-based music. As far as the field of sound-based music studies is concerned, the EARS site was constructed to create the field's framework. For the purposes of this talk, an introduction to the site's six main headers and some of the main sub-headers of two of the six will have to suffice. The site is divided as follows: Disciplines of Study, Genres and Categories, Musicology of Electroacoustic Music, Performance Practice and Presentation, Sound Production and Manipulation and Structure, Musical.

We have already presented the second category to some extent. The final three might all appear pertinent to those interested in the second word of music technology. They are crucial to the site and to the field of sound-based music studies when musical application is a focus, whether it is related to a form of spatialisation, a new means of structuring sounds or a means of creating new sounds.

The Disciplines of Study section illustrates clearly how interdisciplinary this field really is. Many of the twenty-one current entries represent clusters, such as Complex Systems and Interdisciplinary Studies. The subject areas range from science to philosophy. More predictable entries include Acoustic Communication, Acoustics, Audio Engineering, Cognitive Science, Computing, Music Education and Psychoacoustics. Musicology is treated separately (see below). Less predictable, but extremely pertinent entries nevertheless, include Archiving, Critical and Cultural Theory, Linguistics and Media Theory. Areas such as Gender Studies and Semiotics appear at the third level.

The Musicology header includes some areas that are identical to the musicology of note-based music, such as Aesthetics, Analysis, History, Criticism, Theory, Philosophy and Socio-cultural Aspects. Even the sub-header, Listening Experience, could form part of traditional musicology, although I, for one, was never introduced to it. It is when one moves to the content of this section of EARS that particular items, such as Sound Classification, Sound-based Musical Discourse, Schaefferian Theory or Spectromorphology come to the fore.

This framework offers a representation of the architecture for the field of sound-based studies, a field that contributes significantly to the sound-based music paradigm. Although there are excellent examples of work that have been undertaken within many of these areas as the EARS bibliography demonstrates, there are unresolved cohesion issues to be dealt within sound-based music scholarship not to mention a good deal of groundbreaking work at its foundation. We are overwhelmed with history books, be they mainly art or pop music biased. We are equally overwhelmed with 'how to' books and articles in terms of the technology we use. What we are missing are foundational texts in terms of the music's content, its place in society, its theoretical foundations, its classification and so on. Achieving this would be a great benefit of the recognition of the sound-based music paradigm.

Achieving this would also make it easier for educators, broadcasters, others in the relevant areas of culture and the communications media to support this important and highly dynamic body of creative work. When better supported, access will increase. When access is increased, appreciation and participation by people of all ages will increase similarly. It is for this very reason that I consider the recognition of the sound-based music paradigm vital for the future of this fascinating

form of artistic endeavour.