'Local/field':
towards a typology of live electroacoustic music

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Abstract

Live and 'mixed' electroacoustic music has often been designated a 'problem' in tape diffusion systems. The stationary 'live' sound is strangely placed within the dynamic movements of any pre-recorded elements - only partly solved with 'real-time' processing. A dual but complementary system is suggested: no longer central control of the total soundscape but a delicate balance of local control by the instrumentalist (possessing clapper expressive potential), with control of an environment - a field. The author relates these relatively abstract (even aesthetic) notions with a clear research agenda including composer and performer training programmes. [In the presented paper these are related to recently composed works which suggest these new possibilities.]

1 Dislocation and causality (real and surmised)

In Emmerson (1994) I argued that we had lost an important relationship in replacing the word 'live' with 'real-time'. This was no friendship, however, as many actions (and interactions) conducted between people and machines on the concert platform in no way gave cues (or even clues) as to whether there is any essentially 'live' (human-produced) activity. We merely have to imagine the work recorded while abandoning our authors knowledge as to how it may have been produced. That paper went on to argue that a new generation of computer interaction software should be for strictly live performance, reassembling some of the 'cause/effect' chains which have been broken by recording and computer technology. This paper seeks a first step; to examine what types of transformation may help the composer in this task

It is not my aim to attempt to roll back history and undo the three great 'acoustic dislocations' established in the half century to 1970. These are (following Emmerson 1994): (1) Time (recording), (2) Space (telecommunications) (telephone, radio, recording) and (3) Mechanical causality (electronic synthesis, telecommunications, recording); the aim is to be clear that in abandoning any reference to these 'links of causality' the composer of electroacoustic music - especially that involving live resources - creates a confusion (even a contradiction) and loses an essential tool for perspective and engagement between the forces at work.

This paper seeks to set up a simple model for the composer, performer and teacher in this field. One which allows a clear set of aims and objectives to be established within a framework based on perception as the basis for judgement and a humanist belief in the central participation of the live individual.

2 The 'local/field' distinction

To this end I wish to make a primary distinction in terminology; one which has its roots in a simple model of the situation of the human performer (as sound source) in an environment. Local controls and functions seek to extend (but not to break) the perceived need relation of human performer action to sound production. While field functions place the results of this activity within a context, a landscape or an environment.

It is very important to emphasise that the field as defined above can contain other agencies i.e. it is not merely a 'reverberant field' in the crude sense but a stage on which the entire panoply of pre-composed and real-time electroacoustic music may be found. The essence of my argument is to separate out the truly live element as the 'local' in order to reform more coherently the relationship with this stage area (which may surround the
3 Articulations and attributes of ‘local’ and ‘field’ spaces

3.1 The composer/listener dichotomy: real and imaginary relationships

For the composer both local and field functions may have a real or an imaginary component (or both).

Real relationships are indeed also ‘real-time’; the performer retains influence over the result through physical gesture whether directly through the sound (acoustic processing) or via an abstraction sensed from some parameter of the sound, or through translocation of some other physical gesture.

Imaginary relationships, however, may have been prepared in advance (soundfiles, control files etc.) in such a way as to imply a causal link with the performer in the imagination of the listener.

But the listener only perceives the result of the two and may not be able to disentangle them.

3.2 ‘Local/field’ and ‘control intimacy’

In attempting to undo the ‘acoustic dislocations’ already referred to we have immediate need of the notion of control intimacy as well described by F. Richard Moore (1988). This is the domain of human expression: while research is in its infancy (and mostly concentrated in the area of expressive timing) we may rely on composers who rely on their senses. Our local systems will need to articulate nuances of timbre and level (which are not independent) cursorily distorted by intensive amplification systems which do not allow the performer sufficient self-knowledge to allow intimacy of control to be established. Simple subletties of our human presence such as directionality of the instrument are also only crudely mimicked in current systems.

But I wish to go one stage further than Moore when he states that “Control intimacy determines the match between the variety of musically desirable sounds produced and the psycho-physiological capabilities of a practiced performer” (21). There are two possible outcomes for the listener depending on the nature of the “musically desirable sounds”: Perceived as a direct result of a live performance gesture its rightful place is in the local domain; without this relation I stress this is the listener’s interpretation - it has more of a field function, a relation ‘with something other’.  

3.3 Local/field relationships

I am interpreting the term ‘field’ in a broader sense as any activity not localizable to the performer as source and which gives us a picture of what goes on around the instrument to establish a sense of location.

Trevor Wishart has distinguished landscapes based on the four combinations of real and unreal, objects and spaces (Wishart 1985, 1986). This has two components: it includes both other sounds (often but not always pre-conceived in the studio - pseudo agents created in advance) and also treatments (reverberation and other usually delay related effects) which create a sense of ‘being somewhere’. While these may both constitute elements of the field they will have to be controlled in very different ways.

We are not concerned here with the myriad types of electroacoustic sound objects and structures (of which there are many) but with the relation of these to our live performer. These we must begin to describe. As a preliminary sketch we may create a list which reflects no more than a simple delineation of the ‘concrete’ relationships of western music but reduced to show deeper universals of musical interaction: supportive/accompanying, antagonistic, alienated, contrasting, responsorial, developmental/extended.

4 Control of ‘local/field’ articulations

4.1 Reclaiming local control: needs and problems

Some obvious points follow from the above. The local control by the human instrumentalist demands local point sources of sound: in other words loudspeakers in the close vicinity of the source. There are two reasons for this both of which are consequences of the central mixing console being remote from the performer. First, the loss of a substantial degree of loudness control

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5 Possible interactions of 'local' and 'field'

Appearances can be deceptive. Emmerson 1994 sought to make clear that "interactive real-time" computations give no guarantee that the listener will perceive that a real human being has initiated or influenced a musical event. The fact that our local protagonist may trigger events or processes in the field is not our concern, only what appears to be true to the listener.

5.1 Overlapping, extension and interaction

The listener's perspective on the relationship of local field may vary significantly and sometimes a small amount of direct sound.

Thus local and field loudspeakers should ideally not be the same type or be in the same place. One aspect of local performer amplification and projection remains unsolved. The balance of self with other performers is often carried out through the summation of feedback - often inacurate, distracting and interfering. Loudspeakers, like acoustic instruments, are directional and a similar set of skills to those developed by members of a string quartet but adapted to local electroacoustic projection needs to be developed.

4.2 Field control and sound diffusion

This is the area of most conflict. For the originally French acoustic tradition comes the art of sound diffusion - the active direction of a (usually stereo) signal to an array of loudspeakers. The fixity of any additional live performers has often been a problem. A proper typology of live electroacoustic music will not play down this role, but add another dimension to it with redivision of labour. There are a number of these that need to be controlled and altered but probably not actively diffused in this sense. This probably involves other performers. In addition, the simple two channel format of this tradition may derive from multichannel formats - not determined by space (as in 'quadrophony') but by function: material related to local functions being possibly differentiated from that for field use and directed accordingly.

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with a welcome return to some sort of balance in recent years.

While Denis Smalley (1986, 1992) has argued for some sort of 'arrogancy and indicative fields with reference to our 'real' world in purely acoustic paper music, it is not the specific gestures of the real human being which are sought. I am arguing that a successful extension of a humanist aesthetic to live electronic music would usefully make a distinction between essentially human (local) and essentially essentially (field) narrative metaphors thus helping clarify the performance and composition space of this genre.

6 Conclusion: future research including composer and performer training programmes

We must be careful not to give primary research into new systems some elevated status over applied composition and pedagogical aspects. Too many often valuable systems have fallen by the wayside due to insufficiently wide availability and use.

6.1 Local

1. The need for efficient local loudspeakers.
2. Person/machine interfaces with control intimacy.
3. The need (given suitable technology) for performer awareness of timbral nuance, levelsensitivity and inter-performer balance.
4. Greater performer control over mobility and directionality of modified sound sources.

6.2 Field

Differentiation of the functions of sound diffusion:

1. Influence of the performer on the diffusion.
2. Additional field processing performer(s).
3. Possible differentiation of field material by function necessitating more controllable routing and mixing functions.

6.3 General

1. The mapping of performer gesture to control function: expression is multidimensional hence individual parameter choice and scale may need to be the result of a cluster of parameter controls, each following a different law: hence the creation of global control functions which 'decide' more detailed values.
2. Transformations: the need for transitional algorithm research: from simple cross-mixing to complex interpolation of values. The possibility of smooth transitions in real-time between treatments.

It must be said that many of the above suggestions for research are under way but much strictly for studio music rather than for the live performer; the need for further collaborative venture research remains as pressing as ever.

References