

Knowledge and Experience in Electroacoustic Music: where is the common ground?

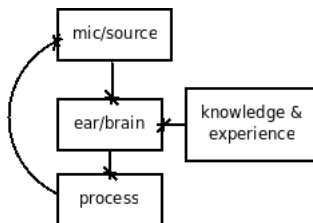
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Introduction

When we talk about electroacoustic music we often find conversation moving towards:

1. how we manipulate sound (techniques)
2. how we describe sound based upon how we hear it
3. why we manipulate it



basic image of composition flow

Point 1 is the scales and arpeggios of electroacoustic music. We learn some software and find out (often through experimentation) when and why, effect X works best. I do not want to dwell on this subject but clearly this palette of effects is rather like the painter's use of colour. However, having a multitude of colour can, at times make us see the trees and not the wood.

Point 2 requires some technical understanding of the physics of the ear, for example our response to loud sounds at particular frequencies and our understanding of localisation. It also requires us to consider the philosophical and psychological debates about segmentation, streaming, identification etc. However, there are equally interesting, possibly quite simple questions

concerning nature vs. nurture that we should consider. We have all been listening for a long time. It would be very odd for us not to be able to attribute some words to a sound.

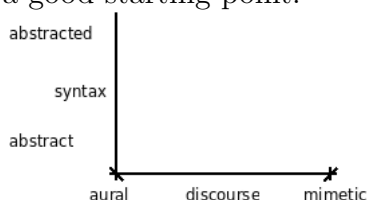
As a composer, point 3 fuses knowledge and experience as I search for something to say and wrestle with the question “how do I work with this sound?”. We are already motivated to *make something*; we are searching for coherence, structure and a finished product. This is, perhaps, an old world view but I’m going to stick with this as I am but a product of my experiences and I find alternate approaches deeply unsatisfying.

Keeping it simple

Here’s where it’s useful to be working in an academic institution, taking what you do creatively as research to students, who often arrive with little or no knowledge and experience in the area. Alongside a process of evangelism which is unfortunately self-sustaining we must educate and train but also empower students to develop their own thoughts. After playing a piece of electroacoustic music to first year students, I don’t talk about spectromorphology (Smalley, 1986) or Schaeffer’s theories. I feel that Schaeffer and Smalley are there as a justification for my simpler language, something that I can fall back on if more detail is required.

I need to find simpler terminology at the level of the piece, the section, the phrase, the sound object, the sound.

At the level of the piece, Simon Emmerson’s grid (Emmerson, 1986) gives us a good starting point.



relation of language to materials

At the level of the section/phrase/sound object I also use Jonty Harrison’s (1999) mention of the real, surreal and unreal. Rajmil Fischman has taken this further in the journal *Organised Sound* (Fischman, 2008). But this is an academic paper and its discussion is highly theoretical. Similarly Trevor Wishart’s use of the term landscape in both the *Language of Electroacoustic Music* (Wishart, 1986) and *On Sonic Art* (Wishart, 1996) demonstrates our visual translation of audio, especially when hearing space and spatial metaphors. Finally two simple words that define a very expressive continuum, words which I use at work and at home are:

- texture (metaphor to our sense of touch)
- gesture (metaphor to the body)

Metaphor

So we come to metaphor itself. Professor Bernard Hibbits (1994) gives us a very detailed description of how visual metaphor is used in American legal practice and how it is assumed to be stronger than any aural metaphor. He does however cite many instances where aural metaphor is used such as “speaking out, really listening, let the material tell you what to do”.

And here we have our *abstracted syntax*. The material tells us what to do with it. We have to listen to the material. For sure we have to look at it on the screen but it is rare that any visual information given to us will be useful. By contrast, in Western Classical Music, one will firstly look at notes on the page, try to hear them in your head then imagine a future scenario **or** use the abstract syntax and manipulate notes using a complimentary but separate system.

The really interesting thing about metaphor (and Scruton (1997) gives us a solid grounding here) is that it provides a creative link with the composer/listener and tells us as much about the subject (us) as about the object (the sound).

Roger Watt and Roisin Ash (1998) presented their ideas of *disclosure meaning* in music. Part of their experimental process was to force listeners into either/or categorisations of music. Their thesis was that music can lead to similar reactions to those we experience when encountering another person: that music can have specific traits and states.

Back in 2005 I spent some time thinking about the whole process of describing sound and came up with as many descriptors that I thought pertinent to use with sound. These were grouped into categories and organised into a Max/MSP patch creating a mini database allowing me to search for sounds with similar state/traits. Were this built in to all my applications, I would still try to use this but the whole process was too cumbersome and did not allow for an overview. I have on many occasions used descriptive (often onomatopoeic) filenames and a paper file-listing that I then shade according to a very vague grasp of synaesthesia. The issue here is, unless one rigorously edits files prior to categorisation, one finds a variety of different sound-types within the same file. It is all a question of organisation.

The categories were:

- sex (male female, adult child, boy girl, gentleman lady etc.)

- season
- reality (artificial natural, real, unreal, surreal)
- size (big little, heavy light etc.)
- colour
- appearance (clean dirty, clear cloudy, dry wet etc.)
- character (good bad, brave cowardly, enemy friend, exciting boring)
- scene (position such as near far)
- energy (cold hot, excited calm, extreme moderate)
- growth (departing arriving, ascending descending, forward backward, etc.)

Descriptors in real world situations

Not all of these work but I find myself using **some** of these descriptive metaphors all the time. However, the concrete relationship between an electroacoustic composer and the loudspeakers means that reflection is real-time, instantaneous and (critically) undocumented (except when formulating remarks to students or talking about the work of others). Here are two examples from our wiki where students and staff comment openly on sketches or sounds submitted anonymously leading to full works.

A.mp3 Gritty opening, quite dynamic and good frequency spectrum. The opening 15seconds are very coherent. From 20s on the granulation is perhaps a little in the foreground but it doesn't last long before the next idea enters. Some very forceful work here - really gutsy. You've set a tone of voice that you'll have to keep up for the duration of the work but that's not a bad thing and whilst the work can sound gritty, there's no reason why this can't be quiet or loud, low or high etc. (Adrian Moore 29.10.09)

C.mp3 Very dramatic opening statements and (every once in a while - I think you do this too often) one sound in just one loudspeaker works well. Nice timestretches just before 1.00 and good fusion of textures. 1.30 has your glitches in different speakers and they are somewhat high in the mix (they also end abruptly). You need to find a more hazy solution into your sustained pitched section. Try to duck the bass file out of the mix as it makes it feel stodgy. The last section is good: quite full on. Not sure what reverb you are using at the end there but it's a bit of a bathroom and could be

less roomlike in my view. Works well as a clip. I would concentrate on 1:30 onwards, trying to lighten the texture and let some of the sounds breathe a bit more.(Adrian Moore 09.11.09)

Not a critical analysis but the idea of the wiki is to keep a reasonably real-time flow of work. Take the use of the word gritty. Both aural and visual metaphors are at work here and clearly suggest the presence of high frequencies (possibly a broad spectrum). What it doesn't tell us is whether the sound world is discrete or continuous.

But the word gritty has definitely polarised the description. For further modification of this sound we'd be looking for something to make it *less* gritty. So it comes as no surprise that methods of sound transformation can have similar descriptors applied to them. **And no surprise that I choose transformations based upon the opposite of my sound descriptors.**

Choices

Very simply put, our potential list of sound against process might look like:

Working with single sounds

descriptor	process (per sound)
Gritty (implies broad spectrum)	filter (lessen), reverberation (dissipation)
Dull spectrum	stretch spectrum
High pitch	make low through pitch transposition
Low pitch	make high through pitch transposition
Short	make longer (reverberation, granulation, time stretching)
Discrete	make continuous through repetition and granulation
Continuous	make discrete through envelope shaping
Static (Mono)	Add motion either through panning or granulation
Spatially very dynamic	make mono

Working with more than one sound

descriptor	process (per multiple sounds)
Sound A works with Sound B	mix (vertical) or montage (horizontal)
Sound A is rich dynamic, Sound B is pitched	hybridise through convolution
Sound A is rich dynamic, Sound B is pitched	hybridise through filters (resonance or comb)
Sound A is sustained, Sound B is pulsed or angular	envelope follow

Spatialisation

descriptor	process (spatialisation)
Low bass	static position in the sub woofer
High frequency, wispy material	quick motion, above our heads
Thematic material	generally front and centre

Quite often we'll find that our reactions to a given set of actions are based upon our experience of the world around us. This list is by no means exhaustive, but it shows how a polarised starting point might help us begin to understand nuance. Who didn't make their initial experiments with sound manipulation programmes by first turning the dials fully right then fully left? We quickly found that this lead to cliché and also found that not only were static values useful but that the actual sweep itself gave the transformation momentum. All of these *decisions and conclusions* at a basic level look suspiciously like actions a computer could make.

Method

I'm not arguing for a composition wizard (though I'm sure one will arrive) but I am arguing that I process based upon opposites and that I could select processes not by the technique but by the quality of the sound (which is what I do instinctively but not at the level of my graphic front end). And all this is happening at a time when I am considering how I can create more neutrality in my practice (ie. deliver more than just a series of soundfiles and some scribbled notes). I am turning back to a computer program called

Csound under the control of a java program called Blue (Yi, 2008). Csound relies upon the classical musical paradigm of *orchestra* and *score*. Within the orchestra I can be selective as to what instrument I wish to use and I can select these instruments based upon descriptors of the sound itself. Clearly this is in addition to strict parameter control and random control. The advantage here is that I have a starting sound, a modified sound and a clear text based record of how the transformation was achieved. I'm never going to give up manipulating 'on the fly' (for example I use a Wacom tablet to scroll through and pan sounds: the bodily input used when reacting to sounds and the multiple processes in action at any one time are very liberating). However it would be interesting to see if I could compose with such limitations and keep an exact record of sound, process and result. My method would then be:

1. code in Blue a number of processes for manipulation and carefully notate what manipulation is used with what sound and with what parameters. *This I am doing now*
2. relate these functions to their opposites (my low pass filter becomes *bright*). *This I am doing instinctively*
3. *lighten* the interface to allow for generalisation (whilst keeping the interface flexible to afford randomness or complete precision where needed: probably just a matter of using defaults). *This is more than likely not going to work with any degree of sophistication but could generate interesting research*
4. use the new version on similar material to 1 and compare the results: which should sound simpler and without nuance.

2,3 and 4 could all be blind alley, but 1 has definite spin-off advantages, providing as it does a more neutral record and a free set of tools that others can use.

And this all leads to my understanding of the term *environment*.

Environment

A plausible sonic environment comprises instances of objects of different classes, constructed and then developed using associated methods (which can be seen as resistive).

This is a very object oriented view based upon descriptions of object oriented computer languages. Interestingly, I am beginning to use computer

software in an increasingly object oriented way and I really like the possibility of a fusion of theory and technique.

From a listener's point of view, the perception of this plausible environment is what can lead to a timeless impression: something which might remain after the work has finished; something we can re-imagine in our own time. Better still, with some evidence of a text beyond the finished fixed medium itself, some of the work can be reinterpreted, re-imagined, re-contextualised, edited, and possibly kept alive.

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