CH _ LV discussing programming _ June 2011.

CH: I am interested in this idea of composers who do all their own programming, and composers who outsouce the programming. Describe the involvement of programming in your music.

LV: The whole process is quite integrated, that is concept, structure, notation, programming and coordination of the performers. I often start with a concept, usually in the form of a diagram, showing how the elements will flow together, how independent they are, how they might be interrupted or pushed in a certain direction and so on, how performers will manage to keep together (or apart). These ideas gradually sort of coalesce into a more and more specific framework. Ideas that are impractical get weeded out and a methodology for achieving the particular aims becomes gradually clearer. The process involves a sort of to and fro between drawings, spreadsheets (to work out the maths), the score and the software. There is often a period of tightening up where there are small changes made to all of the elements of the piece. Lately, the final format is usually software-based with a "screened-score" networked across a number of laptops and coordination of the performers and the audio processing all bundled together.

CH: So – does the 'maths' come out of come out of these frameworks, or does it inform them? I also use frameworks, and drawings, but get someone else to do the maths, and after that comes in, do my weeding out. So the maths informs my work too...

LV: The maths is almost always about durations. At one end of the scale I want to ensure that the pieces is going to fall within a particular range of durations and not be entirely unpredictable. I usually also need to nut out the proportions of subsections so that it doesn't get "stuck" somewhere for too long. At the other end, particularly with audio processing, it can be necessary to calculate the exact duration of note values for example to match a delay to the tempo. One thing I really like about computer control is the possibility of grabbing and manipulating very short durations. If *Night Fragments* (2011) chords of about 3 seconds in length played by the instruments are fed into an infinite reverb and then the notes are manipulated individually. In Hunting Pack a similar process happens for some notes of less than a second. Its a kind of coordination that would probably be impossible without the score, the click-track and the processing all centralised.

CH: I see. Well I have a very different approach to durations, I like to control them more than any other element of my notated music. But I am happy to give pitches away to a computer or performer. Do you believe in a 'musicality' to computer programming for composition?

LV: Well I think that its interesting how composers often program very differently from one another. I know some people worry that working with a particular piece of software forces you into writing a particular way, but that is true of any media you work with to an extent.

CH: I agree – I believe there is a process of personalisation that goes on with programming, especially in MaxMSP. You could also say music is a 'media' - you are not forced into writing a particular way. Surely a piece of software has 'characteristics' that you might use to make your own personal sound from, or hit a wall with.

LV: Yes I just don't see software as any more limiting than any other media. The boundaries of what is achievable are much wider than they are with a paper score for example. Perhaps because of the inherent openness of programming compared to a paper score. The style of thinking of each individual is, I think, much more apparent than with the score. That's particularly true of scores made on computer – it is possible to customise them – but many composers don't go to the trouble – so their scores all look the same.

CH: In pieces such as *Improbable Games* (2010*)* and *Ghosts of Departed Quantities* (2010) you compose musical segments, but let the computer decide the order of them, or which parts of them to show, with a large degree of random process. Can you describe the programming of this process in 'musical' terms?

LV: A composition is made up of many decisions. I felt somehow constrained by having to fix certain variables in a linear score, so many possibilities have to be ignored. What I have tried to do in those works and others, is to leave some pathways open, allowing each performance to explore a different trajectory. There is scored materials and the ways that performers interpret them and then audio processing of their performance and how that is distributed back into the space– my aim was to allow some of these components to unfold independently of one another. Each piece has structural features – the three "islands" on continuity that happen in "Improbable Games" or the increasingly frequent and smaller "holes" that are cut into "ghosts" – but they are not nailed down to a particular moment or context within the piece.

CH: And that ability to leave them free, not nailed down – does the programming process offer something particular to that? Because I can imagine you don't need a program to create them.

LV: So these random choices you mention you can think of as crossroads where the performance might take a number of directions. They are not always totally open, that is there is a choice of paths that are all going in the same direction (*Ghosts of Departed Quantities*) or paths can only be taken once (*Improbable Games*) or the available choice depend on what is happening in the other instrumental parts (*Transit of Venus,* 2009).

CH Many of your works have electronic processing. How do you go about 'conceptualising' this processing?

LV: The kind of processing I use at the moment is pretty closely related to the processes that generate the scored musical materials. There are a few times where a particular kind of processing has suggested a particular form or approach or vice versa. The particular kinds of processing I tend to use has been in ongoing development since I first got to sit down in front of an Ensoniq DP4 in 1995. In the piece I was working on then, *Dice Game* (1995) for solo clarinet, I had used particular groups of notes and rhythms and a lot of my approach was to use the DP4 to essentially add polyphony horizontally and vertically to the clarinet part almost as though I was writing for an ensemble. Several of the patches I wrote were more timbral, but again they were emulating ideas that I had from improvising, but didn't have enough fingers to do. At the same time I wrote my first MaxMSP piece which was for a wind controller and again it emulated and automated my compositional techniques. Those two pieces laid the foundation for a lot of things I've done since then – but updated from MIDI to DSP and so on.

CH: Do you think you can hear any difference in music made by people who program it themselves, and music made by those who use the services of a programmer? As someone who does not program, I wonder if you can tell.

LV: Perhaps people who program themselves are more aware of the limitations. This can be a good and a bad thing of course – perhaps that inhibits programmers from exploring areas that are difficult or unstable or unreliable.

CH: Do you think that 'non programmers' ask different questions of programmers, than programmers would ask themselves? Sometimes I feel like that lack of knowledge about what is possible or not can really bring something new to the programming, rather than getting kind of 'comfortable' with a programming approach.

LV: Yeah, that's what I was trying to say. Its pretty easy to keep using the same tools and therefore generating the same kind of piece. It makes sense of course to keep using things that work. A fresh concept and pair of ears can definitely drive things in interesting directions though. Sometimes the solutions for interesting new problems take a lot of thinking about, I know I've toyed with some ideas for weeks before the eureka moment arrives. I mean in an indirect, niggling kind of thinking that goes on intermittently night and day... I think that sort of obsession is pretty hard to inspire in someone else.

CH: Do you think of programming as a 'musical instrument' that you 'play' (craft, rehearse, refine, interpret)? If not, do you think its possible to do so?

LV: Yes I just see it as another tool – like a piano or some manuscript paper – its all part of the equation – or the environment of the piece of music. I don't often just play laptop by itself – I understand the appeal – and I find the fluidity of someone like Robin Fox on the laptop really amazing – but somehow when I get asked to play in something I don't naturally think "I'll leave the clarinet in the cupboard tonight". One of my students was shocked that I write completely new patches for each piece, and actually I was shocked that he didn't. But I suppose this shows I tend to make systems for a particular purpose, rather than systems that can adapt to any situation. More like scored music than improv. So maybe that's the next step.