Research > COMPOSING WITH PROCESS: PERSPECTIVES ON GENERATIVE AND SYSTEMS MUSIC #2.1. Transcript

Generative music is a term used to describe music which has been composed using a set of rules or system. This series of six episodes explores generative approaches (including algorithmic, systems-based, formalised and procedural) to composition and performance primarily in the context of experimental technologies and music practices of the latter part of the 20th Century and examines the use of determinacy and indeterminacy in music and how these relate to issues around control, automation and artistic intention.

Each episode in the series is accompanied by an additional programme featuring exclusive or unpublished sound pieces by leading sound artists and composers working in the field.

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COMPOSING WITH PROCESS: PERSPECTIVES ON GENERATIVE AND SYSTEMS MUSIC #2.1. Transcript

The second episode in the series looks at the use of formal systems in the composition and performance of musical works. It explains the diversity of approaches to musical systems using a range of technologies and processes. The episode asks how we might distinguish systems based procedures in music to other musical activities, and makes reference to technological development and implementation, structural complexity, and relationships to other musical traditions. We compare three tape-based approaches to composition that explore sound as a temporal and spatial phenomenon and refer to theoretical positions offered by notable artists working in this field.

01. Transcript

Welcome to the second episode of COMPOSING WITH PROCESS. In this episode we look at the role of formalised systems in music making. Such systems can take many forms, and composers working with these are often more concerned with the process and procedure itself rather than the music it might produce. Indeed for many the distinction between the music and the system by which it is made is problematic. The composers Tim Perkis and John Bischoff suggest: '...for us the distinction between composing a new piece of music and building a new instrument is not clear cut: composing a piece of music for us IS building a new instrument.'

Their 1989 CD *Artificial Horizons* documents their explorations in this field. Perkis and Bischoff believe that the computer is often thought of as a machine that performs tasks with extreme regularity and precision. This predictability might lend itself to certain types of music, allowing composers to create highly controlled complex structures. But they are keen to show how the computer can be used to build systems where the musical outcome is rather more unpredictable.

Perkis and Bischoff were members of The League of Automatic Music Composers, a Bay Area collective who developed generative systems connected over networks. These complex networked systems are designed to respond to human action, but the complex relationships between these systems gives rise to music which is dynamic and unpredictable – which Perkis and Bischoff describe as having 'the trace of human gesture, in addition to having a degree of autonomy.'

The following piece by Perkis and Bischoff called 'Dovetail' demonstrates this complex interaction between several generative operations.

Tim Perkis / John Bischoff 'Dovetail' (*Artificial Horizon*, Artifact Recordings, 1989)

We might think that an exploration of formal musical systems is inevitably tied to computational technologies. Indeed we could say Perkis and Bischoff's explorations are made possible by these technologies. However, we can identify several examples of musical systems that are not derived from new technologies. The following piece is a recording of an Inuit singing game. Although these vocalisations are not considered as music in Inuit culture, they are on formalised a system of rules that determine patterns of singing.

'Assalalaa' (*Inuit Games and Songs*, UNESCO, 1974)

The game is for two participants, usually female. One singer leads by setting a short rhythmic pattern, which she repeats leaving brief silent intervals between each repetition. The other singer fills in the gap with another rhythmic pattern. The first to run out of breath or laugh loses the game.


[Marcel Duchamp]

Broadly speaking we can think of a system as a set of rules, procedures, principles, methods, objects or elements, and their interaction. Given this rather broad definition we might assume that all music is systems based to some extent. The musical score, the piano, the orchestra, the auditorium, the repeating phrases of folk musics – these clearly all constitute systems of one sort or another. What then is different about the work we aim to explore in this programme.

Initially we might say that composers working in this field not only engage with the system – as is the case with all music to some extent – but more importantly they have a direct interest in exploring the features of a system. But isn't this precisely true of all music? Isn't a piano composition an exploration of the various elements – cultural, technological and aesthetic – that constitute the history and contemporary practice of piano music?

Perhaps we could say the artist working with musical systems and processes is concerned with developing, changing or undermining the system in a more proactive or focused manner. But again, isn't the composer of a piano piece contributing in some larger sense to the ongoing development of the genre? How would musical traditions evolve if this were not the case?

This point is well illustrated by the piece 'Flutter' by the English electronic music group Autechre.

Autechre 'Flutter' (*Anti EP*, Warp Records, 1994)

Here each bar is rhythmically developed from the previous. Ostensibly promoted as Autechre's response to the criminal justice bill – which outlawed the playing repetitive rhythmic structures common to the British free party scene of the early 1990s – this technique could be also understood as an aesthetic exercise – as an exploration of the inner persona of this particular musical framework... not merely a simple political point. Of course in making this point, Autechre were quite skillfully and knowingly ridiculing this somewhat unworkable policy. We particularly appreciate the sleeve note which recommends that a trained musicologist be onsite at the party during the playing of the piece.

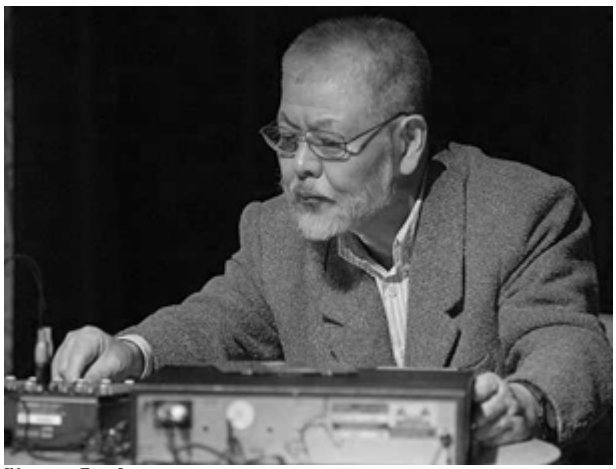
How then, and perhaps more importantly why, might we distinguish between 'systems' music and other, perhaps more traditional, musical activities? We could suggest that the artist working with systems starts from scratch as it were: they develop new and novel compositional or performative processes beyond those that already exist. According to this view their approach is categorically different to merely extending the formal systems which already exist in the many musical traditions and technologies around them. Perhaps this feature distinguishes their work from that of regular musical practices.

Clearly however development of such process could not take place outside the pre-existing technical environment and cultural traditions within which the artist exists. The composer cannot suddenly remove him or herself from his or her musical and technical environment.

Marcel Duchamp 'La Mariée Mise à Nu Par Ses Célibataires, Même' (Edition Block + Paula Cooper Gallery, 1991)

Here the French artist Marcel Duchamp uses a radical compositional method, yet it is evident from the outcome of this method that his procedure still refers to a pre-established western musical framework of pitch and timing intervals. In 'The Bride Stripped Bare By Her Batchelors, Even' from 1919, Duchamp devised a mechanical device consisting of a funnel, several open-ended cars and a set of numbered balls. Each number on a ball represents a note. The balls are dropped into the funnel into the cars passing underneath. When the funnel is empty, a musical period is completed. Rather than removing any trace of musical tradition from his process, Duchamp instead responds to that tradition in a rather novel manner.

A further assumption we might make is that many of the musical practices involving systems imply a level of complexity – whereby composers are concerned with complex computational and algorithmic principles. There are of course


[Yasunao Tone]

problems in how we might measure complexity in this context. But beyond such problems Yasunao Tone's 'Clapping Piece' clearly undermines the idea that systems music requires a level of complexity beyond that of regular musical practices.

The piece follows a set of rules described by the artist in eight bullet points. The piece consists of a graphic score and instructions for a conductor and any number of performers. Here performers are instructed to clap evenly and incessantly without attempting to make a rhythm. The conductor rotates his/her hand to measure time and the performers then follow the score in time with the conductor.

'Clapping Piece' demonstrates that from a simple set of rules, varying levels of musical complexity can arise.

Yasunao Tone 'Clapping Piece' (unreleased, 1963). Performed at Enjoy Artspace, Leeds, 2010

Our discussion so far seems to suggest that there is no clear line dividing what we might call 'regular' musical practices, and the 'systems-based' approaches employed by artists working in generative and algorithmic musics. But if all music is systems music, what meaning does the division have?

In his paper *Unfamiliar Noises, Hesse and Davidson on Metaphor* the American philosopher Richard Rorty offers an analysis of literal and metaphorical uses of language. He argues that the primary difference between the literal and the metaphorical is one of familiarity: here the literal use of language is merely the familiar; the metaphorical on the other hand is the unfamiliar. Rorty suggests that new, unfamiliar, metaphorical uses of language are constantly being made, some of which 'harden' and become familiar and literalized. We could take this model to account for the differences between the new, radical, unfamiliar uses of systems in generative musics, and the systems present in more familiar and traditional musical activates. So in answer to our question 'if all music is systems music, what meaning does the division have?' we could say the division simply divides the familiar and unfamiliar uses of systems in musical practices. The difference, if any, is merely the emphasis on the unfamiliar as opposed to the familiar.

Lets now turn to three tape-based works that use different procedural approaches to recording as a way of exploring the temporal and spatial nature of sound. In the following piece 'Recorded Delivery', British artist Janek Schaeffer, placed a sound activated tape recorder in a parcel and then posted this to a room at a self-storage centre in london where it would be exhibited as part of an installation.

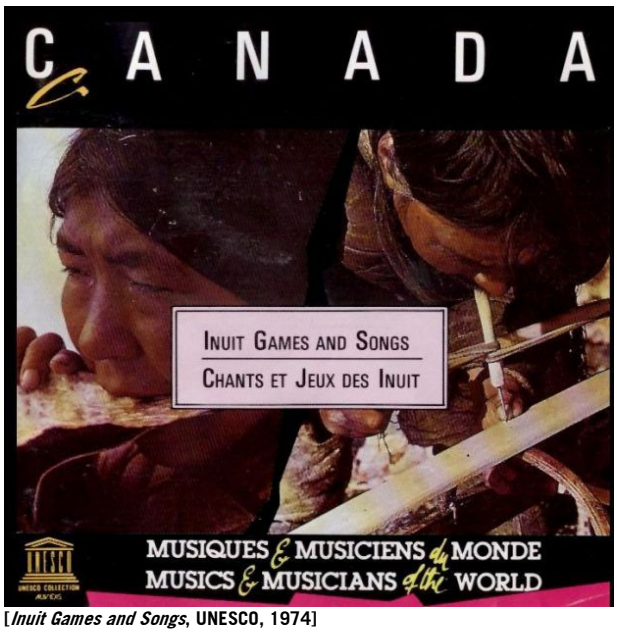
Janek Schaeffer 'Recorded Delivery' (*Hot Air*, 1999)

The tape recorder recorded sounds above a volume threshold for the duration of its journey, automatically editing the 15-hour trip through london into a 72 minute recording. Schaeffer describes how the device would capture 'only the most sonically interesting elements', how it would 'automatically edit the recording, allowing an *essential* selection ... a truncated *impression* of its trip rather than a perfect document.' Schaeffer explains: 'I imagined that these parcels had stories to tell us about their history. Stamps and addresses told only a fraction of this story. Being able to *record* it's journey I would then be creating an interesting level of information for the audience.'

The method employed here by Schaeffer produces a fragmented, yet fundamentally linear record of events. We can compare this recording-focused piece to 'Kuklos' by the Hafler trio.

The Hafler Trio 'Kuklos' (*Kuklos*, Touch, 1990)

In this piece sound recordings were made of the ambient sound at a touring exhibition of works by the graphic designer Neville Brody. The sleeve notes to the cassette release explain how. As the exhibition moves from place to place, a location recording of the installed sound is used as the basis for a new version, so that eventually every place will have a separate and specific version. The buyer of



[*Inuit Games and Songs*, UNESCO, 1974]

the cassette has no idea which part of the world it was recorded in, or where its component parts were drawn from. The title 'Kuklos' is from the Greek word ring or cycle. The term describes the division of the world into a number of cycles of varying sizes and durations. It is also connected to the idea of the cycle of necessity – the cycle of death and rebirth. Yet the sleeve notes to this release state 'repetition is impossible in an absolute sense.'

Here the Hafler Trio uses recording technology to actualize cyclic temporal structures that display a tension between repetition and change.

Next lets look at a piece by the American Composer Alvin lucier. 'I am Sitting in a Room' – a piece for voice and tape – was composed at the Electronic Music Studio at Brandeis University in 1969.

Alvin Lucier 'I Am Sitting in a Room' (Source - Music of the Avante Garde. Sacramento, CA: 1969)

Here Lucier recorded himself narrating a text and then played it back into the room whilst re-recording it. He then played this recording into the room and recorded it again. Lucier repeated this process 32 times. Since all rooms have different acoustic characteristics, certain frequencies are emphasised in each subsequent recording until all that remains are the resonant frequencies of the room. Throughout the piece the original temporal object is repeated, yet each repetition increases the presence of the space over the presence of the performer. Eventually the speakers voice becomes unintelligible, and we witness an inversion between the foreground, the voice, and the background, the space.

The spatial nature of sound has often been a secondary concern in western musical traditions – for example there is no indication of space and position of sound souces in a musical score. Lucier's piece reasserts the central importance of architectural space in our experience of sound and music.

Some years ago Mark Fell asked Yasunao Tone why he was interested in the development of systems in his art practice to which he replied – to get to new places, places beyond his imagination or intention. To demonstrate this position lets look at a piece made by Tone. At its first performance in Sheffield in 2007 '495.63' by Yasunao Tone lasted approximately two hours.

Yasunao Tone '495,63'. Performed in Sheffield City Library, 2007.

The performance used eight speakers and four projection screens controlled by a graphics tablet. During the performance the artist simply draws characters from the Chinese dictionary onto the screens. The sound was made up from several loops of different lengths and a live radio feed which are combined into a single channel. This single channel is then fed to all eight speakers each of which plays a specific frequency band. Each time Tone drew on the graphics tablet the sound was ring modulated and the volume in a single speaker was increased by a small amount.

Initially Tone had asked the technical developer to make a system whereby the duration of the stroke determined which speaker would increase in volume. However it was explained to Tone that this was impossible, and the duration of the line would not be known until it had ended. The developer suggested that the duration of the stroke could determine the following speaker position, thereby offsetting the position by one stroke. This simple offset proved to generate quite complex combinations of speaker position. Moreover Tone was pleased with this subtle yet fundamental disruption of his action.

Tone's approach challenges the idea of artist as controller or master of the system or work, yet he is also quick to reject the idea that there is some kind of 'tug of war' between the artist and the machine.

We might think that the prevalence the system therefore curtails the imagination or control of the artist. Where there is an opposition between the system and the artist. British artist, Ernest Edmonds, offers a different description of the relationship between artists and the systems they work with. According to Edmonds, when engaged with a system of whatever kind the artist is able to change their 'level of concern.' It is not so much a case of the artist


[Ernest Edmonds]

relinquishing control but instead a refocusing of artistic concern according to the parameters and characteristics of the system.

Here is what Edmonds has to say about this: 'Generative art, the use of computer technology and computation as a principle has enabled us – I mean us as a community not just you and I – to lift the levels of concern as it were in making work. You work at the level of these structures and the realisation of it is dealt with by these automatic systems that we've written of course. But then we work at this higher level, and you can work at many different levels. So when people like tweak a generative work they're sort of dropping down a level to the base level and doing something at that level, whereas normally there working higher up. What were talking about now in performance is really exploring those different levels in a performance context or in real time if you like. Making the exploration of those different levels not something you do in the back ground in a studio, as it were but some thing you were doing as part of the work it's self. So in that sense the idea of a performance in this context isn't like a different kind of thing in altogether from making generative art. It's another aspect of its exploring in a way these different, operating at these different levels, but making that exploration a work itself.'

In this context creativity is not curtailed by the implementation of formal systems, on the contrary, it is enabled by them.

We leave you with a piece which we hope demonstrates this view. 'Engagement' by Tim Perkis.

Tim Perkis 'Engagement' (*Artificial Horizon*, Artifact Recordings, 1989)

The piece consists of 30 simple repetitive players or agents. Each agent is programmed to carry out its own task such as triggering a note or changing its loudness or pitch. Each time an agent carries out its task it also changes the rate at which all the other agents repeat. Perkis states that "the system is much too complex to understand. As a performer I have controls which allow me to make very general changes in the statistical distribution of these rate changing influences, responding to the surprises the piece deals me."

02. Acknowledgements

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03. Copyright note