Composition as revelation[1]

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A "top-down" approach

In the traditional "bottom-up" approach to composing music, one starts with the detail and then brings processes of development into play; composition being by linear addition and restricted to a certain repertoire of generative and accompaniment figurations defined by a prevailing common practice–alberti bass, motivic transformations and heterophonic fluctuations, chord multiplications, for example.

Today, one may select almost any combination of human and/or environmental factors as a basis for independently establishing a compositional continuity. With the aid of computation, procedural methods can result in compositions of a relational complexity not physically possible using non-computational methods. The procedural construction approach to composing is different from past approaches in that it does not attempt to create the object the work directly, but by formulating procedures that describe the behaviour of an abstracted model, the resulting sonic constructions are formed and transformed conceptually. The reduced structural importance of directly controlling the work's sonic "objects" is fundamental to procedural making–and further extends conceptual art practice. Bearing in mind the nature of the sonic material with which one is working, one can establish an overall conception of a work and afterwards "massage" its elemental materials one against another until the dramatic contour becomes organised satisfactorily.

In addition, computer programming has opened up speculative horizons: from a broad range of possibilities, one can try out ideas that it was previously impractical or impossible to test. One can go beyond exploring the orderings and patterns of events using simple series, for example, to more general processes such as patterns of change (gradients and deviations), divergences (relative size of deviations), degrees of hierarchy (fractalisation) and networks of self-ordering systems. Issues of continuity and discreteness (in pitch, time, spectrum, place, etc) can be explored in a way never before possible, thus allowing the composer to become a sort of pilot, charting the waters and discovering "aesthetic instances".

Spontaneity

The spontaneity of this aesthetic is one of its most striking–and also most serious–features. The playfulness is not unlike that of a science that produces virtual particles, black holes and the uncertainty principle. It can have a youthful energy that makes order where it wants and having made it, is quite capable of demolishing it and beginning again, as might a child with a set of building blocks.

Yet individual style still comes through, independent of calculations, probably because any choice which presupposes some arbitrariness of choice is modulated by either being a human construction, which is always in some way not arbitrary, or being so pseudo-random as to be easily identified as such. Spontaneity can be had simply by relaxing conscious control as in the chance operations of Pollock, Ginsberg, Coltrane, Cage etc. or the building in of mutancy and other various degrees of disorder[2]. This is in contrast to decision-making in improvisation, where the inertia of subconsciously governed processes is not so easily disrupted; choosing intuitively, or "by taste" being a strategy which accesses a relatively limited range of forms and gestures that lie beneath the surface of conscious thought.

Relaxation of conscious controls

Procedural composition using computational modelling affords the opportunity to relax conscious controls even more. Indeed this is a common criticism of procedural composition: The composer gives up the ability to control his material intimately. Messiaen puts it this way [Xenakis, 1985]:

> I can't write out the millions and millions of permutations ... and yet I must write them out in order to know them and to love them (I insist on the verb *to love*!). In your case, a machine will give you the millions of permutations within a few minutes: its a cold and unexplicit list. How can and do you choose directly from within this immense world of possibilities without intimate knowledge or love?

Xenakis' reply is revealing:

> The question of having to love something in order to have to use it naturally implies an initial taming. ....When I look at a starry sky, I love it in a certain way because I know it in a certain way; but if I must know the successive stages of astrophysics, well that may happen without love. Love would here be surpassed by a kind of revelation which is beyond the epiphenomenon called love. Consequently I can handle the concepts of things themselves without being in direct possession of them, under the condition that I may conceive of them and feel them from within in some way. ... This is fundamental. ... Even if I am incapable of dominating a certain

1. The first version of this talk was delivered at First Iteration, A Conference on Generative Computational Processes in the Electronic Arts, Monash University, Melbourne December 1-3 1999. This preparation contains substantial editing and additional material.

2. Just as we can easily recognise many types of order, so too can we recognise many types of disorder. Differnet aleatoric processes, especially movements *between* different types and degrees of disorder, are readily apparent.

> phenomenon, I am capable of obtaining a truth which is inherent to the conceived or observed phenomenon, thanks to a kind of immediate revelation. Henceforth I can accept and use this in an as itself. When I tape-record a sound I don't know exactly what is in this sound. I perceive things which interest me and I use them. Therefore, I cannot love the things within this sound which are so refined that I cannot totally perceive them. I am not consciously or unconsciously capable naming them, but I accept the whole, in itself, since I am attracted by that. .... Man's two crutches are revelation and inference. In the artistic realm both are valid. In the scientific domain inference takes precedence.

For Messiaen it is a difficult problem to choose amongst a vast number of possibilities because of his requirement to know all the intimate details of all the material in order to understand how the materials can fit together, so that he can create causal sequences; construction then following in a bottom-up way.

Selection versus construction

Given the levels of noise to which each of us are daily subjected, selection (filtering) rather than construction is a more highly developed activity, and the found-object/procedural approach to a composition[3] enables this paradigm to be freely explored in music. This shift fundamentally challenges the idea of art as a message-bearing medium. Roger Reynolds [Reynolds, 1975] cites Ben Johnson:

> We have more use today for the ability to concentrate in the midst of distraction than for the intellectual ability to follow intricate patterns. Value accrues not to the production of detailed textures but to the human selective capacity. The computer is the first instrument to enable the presentation of a multitudinous amount of data effortlessly.

For composers, a fundamental change in social function follows. In providing the material for a listening experience, they move from being a messenger of the divine and devilish to being an expert navigator and who, having previously explored a territory, may also choose, or not, to provide a guiding commentary.

Abstraction and meaning

Nature cannot truly be observed but only abstracted, modelled and approximated. Because there is no purely objective reality, every "thing" we perceive is partly our own creation. If it were possible to perceive how things "actually are" it would be as useless as to watch the random dots on an untuned television screen. What is important, is being able to hear what things *sound like*, to see what they *look like*.

The very idea of an object involves making many assumptions such that it has substance and boundaries, that it existed before we perceived it, that it will remain afterward and that it will act like other objects. Though we never see every side of an object at once, we always assume that its unseen sides exist. Though we never hear all the sounds of a particular instrument, hearing a small selection and being aware of its principles of construction and use, we create object continuity in our mind. This is why, much to the dismay of the solipsists, our sensing mechanisms have special machinery for representing what we see or hear in terms of distinct "objects".

Sounds, organised or not, connote differently depending on suggestion, and on our history. So fluid has the movement of people around the world become, a composer can no longer rely on even a majority of their audience having similar cultural or religious backgrounds. There is no guarantee that the sound of a gong will affect all people in even a similar way, and whilst I can hear Varese's wailing sirens as a product of his study of Helmholtz' *Physiology of Sound,* I am sure that those who lived through the wars that Varése did, have an altogether different experience.

Like the filmmaker Robert Bresson, I reject dramatic structure as a necessity for the production of music, in fact for any artistic endeavour. It can create a terrible distraction for the listener. However, so addicted to it are we, that without it we feel something is missing. Having been seduced by the easy entertainment of the increasingly globalised media industry, we've stopped listening and looking, and deprived of this instant easy "fix," we feel cheated.

Ambiguity

Just as words and sounds are catalysts for starting mental processes, so too are real things: we can't sense what they really are, only of what they remind us. Unless we make assumptions, the world would simply make no sense. This was also Proust's insight:

> Each reader reads only what is already inside himself. A book is only a sort of optical instrument which the writer offers to let the reader discover in himself what he would not have found without the aid of the book.
> [Marcel Proust]

Language builds things in our minds, yet words themselves can't be the concretion of our thoughts because they have no intrinsic meanings by themselves. Except perhaps for onomatopoeic words, they are just marks or sounds. Words don't denote or represent, they control: each word makes various changes to our thoughts. Our thinking-in-words reveals only a fragment of the mind's activity and we do this with no conscious understanding of where and why those words originate or how they proceed to influence our flow of thoughts. The words seem to hover in some abstract void: we understand neither the origins of the signs and symbols nor the way they lead to thoughts. This is why words can seem magical: they work without our knowing how or why. At one moment a word can seem meaningful, at the next it can seem no more than a sequence of (imagined) sounds. It is precisely the underlying emptiness or at least ambiguity of words and other symbols (their abstractness) that gives them their potential versatility. The less direct, simple meaning

[3] Procedures can be thought of as found processes.

that there is associated with them, the more meaning can be attached to them.

The idea that languages do not have to mean is a paradox. What are languages if not a devices for communication meaning? As they shed meaning, languages begin to touch the universals of communication, and this universality is an aspect of their transparency. When languages are pushed by various strategies towards transparency, they seem to abandon their capacity to mean in the normal sense of the term. You might say their poetry becomes the poetry of nothing. This is the attraction of glossolalia (speaking in tongues), the writings of the mad and particularly the autistic: they allow participants to touch a more fundamental more ego-less Self.

We often find it hard to "express our thoughts"–to summarise our mental states or put our ideas into sounds, or images or words. It is tempting to blame this on the sounds, images or words, but the problem is deeper than that as Minsky [Minsky, 1985] points out,

> Thoughts themselves are ambiguous! … in order to "express" your present state of mind, you have to partially anticipate what some of your agencies are about to do. Inevitably, by the time you've managed to express yourself, you're no longer in the state you were before; your thoughts were ambiguous to begin with, and you never *did* succeed in expressing them but merely replaced them with other thoughts.
> ...It is an illusion to assume a clear and absolute distinction between "expressing" and "thinking," since expressing is itself an active process that involves simplifying and reconstituting a mental state by detaching it from the more diffuse and variable parts of its context.

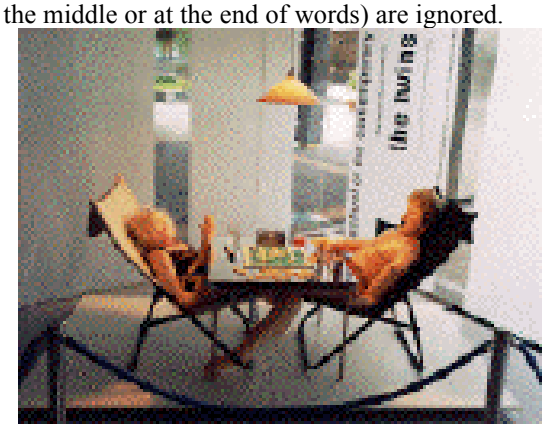
Composing with abstractions

Composing with the use of abstract languages is an essential part of composing procedurally. It affects the very essence of the creative process as the aesthetics are bound up with complexity as ambiguity and with "removing control". Also, the use of abstract languages and processes tends to lessen the still powerful bourgeois link between art and ego: to encourage the surrender of the self to the half-seen, gliding beautiful things glimpsed in a moment of reverie. Revelation!

A recent example: *The Twins*

In my recent installation work *The Twins*, two partially clad sex-dolls are happened upon playing scrabble. The dolls have loudspeakers embedded in their mouths.
They "talk" a kind of ambiguous English-like speech. The dialogue both separates and links them together, giving them each an identity that their "biology" could never do.

The Twins "speech" is generated continuously, in realtime, using the Macintosh speech synthesiser whose phoneme generators are controlled by my own software, written in Python. The phoneme streams are composed of valid English phoneme sequences. However rules invoking in-word phoneme placement (which dictate that certain phonemes can only occur at the beginning, in the middle or at the end of words) are ignored.



The Twins - (1999)

Each listener hears different words according to their own partitioning of the phoneme streams, which is, in turn, directly affected by their personal background and experience. In this sense the work speaks universally, though what it "says" will be different for each individual.

Concluding remarks

A fundamental issue today is how to make work, which, in and of itself, creates a space separate from mass-media entertainments, and into which our perceptive spirits can return.

I don't see procedural processes as just another technique to generate material from which one chooses according to what one happens to like, pasting them together is a sort of whimsical fancy, but as mechanisms which reveal the inner nature of the materials, and encourage audiences to explore an inner world not dependent upon dramatic stereotypes or market-driven norms. Negotiating procedurally-mediated variables, can reveal domains of aesthetic experience that are simply absent from the more traditional transmitted-message aesthetics. When a listener is able to shift the perceptual balance between what information is *sent* and how it is *sought* in favour of the latter, a different, more active, more engaged, aesthetic experience occurs. For those not satisfied with the substitution of superficially engaging entertainment for richer aesthetic experiences, works which are open enough to permit active listening can beckon us inwards, to the inner Self, where the suffering of being human can be transcended.

So for example, whilst my cultural heritage and education is European, whilst in Europe, I am constantly reminded that my sensibility is not. For me to consciously search out and use these roots, any roots, would be to indulge in a romantic historicism which would be as uncomfortable as it is fake. How extraordinary it is to see footage of the Australian bush, with ever-so-brief snippets of a currawong chorus, overlaid with Vivaldi's *Four seasons*. Yet this very "package" is used to sell Australian performers playing old European music as a cultural pinnacle.

Even as the globalised media entertains us all with generic "product", from its real-life *My-girlfriend-sleeps-*

with-a-tom-cat dramas to its *Air-on-a-G-string* albatross documentaries–all packaged, using escapist sensationalism and heroic histrionics. These "documentaries," all wrapped up in cotton wool and "FX", insulate us from our own perceptions, our own feelings. Or perhaps worse, by scratching at our resonant memes, they dictate feelings, reminding us that we are safe and having a good time.

I feel dissociated from any roots I might have had. Buffeted by the frenetic emptiness of Glass and the naïveté of Adams, this postmodern malaise is I am not alone in being alone. This is not an abrogation of responsibility. Sound, organised or not, connotes. The process of manipulating the sound or image procedurally encourages a kind of creativity that would not be present if the problem were approached in a different way: Invention does not happen in a dispassionate, cerebral way, it happens during the process of solving real problems.

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