Samples III for computer processed orchestra sounds

What it is and what it is not

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I want to tell the story of how a piece of mine came to be written,mixing up technical details, aesthetics and anecdote much in the way they occur in life. To explain both the how and the why, the practicalities and the philosophies, roughly in the order that they happened, or that memory allows me to think they did. To show that for this composer, at least, working with technology and grappling with aesthetic concepts go hand in hand, indeed, are inseparable.

Since earliest childhood, I have been thrilled with the sounds of the recorded orchestra. For me, the primary reality of orchestral sounds has been that of the recording. Listening to a recording of an orchestral performance has been for me in no sense a simulacrum, but a strong and resonant reality with its own characteristics quite different from those of a concert hall performance. Both sonically and sociologically, I have come to prefer the intimate experience of hearing the orchestral recording to that of hearing 100 musicians performing in front of several thousand people. Indeed, during the recent visit of Olivier Messiaen to Australia, I stayed home and heard the broadcast of the Melbourne Symphony's performance of his *Turangalila* in my living room. I do not feel I "lost out" on anything by choosing to experience the work in this way, in fact, enjoyed it more as a radio piece than if I had been in one of my least favourite places, the Melbourne Concert Hall.

I have always wanted to write for orchestral sounds, and have done so three times in the past. *Drakula* (1969) for large orchestra was performed at a reading by the Buffalo Philharmonic Orchestra, and the more experimental *Face* (1973) was performed by the La Jolla Chamber Orchestra. However, with my moving to Australia in 1975, all chance to have access to the orchestra disappeared. Unless I was willing to write within the

limitations and expectations of orchestras here, it was quite clear that that resource would be closed to me. Further, since most of the work I was doing involved the investigation of new musical sociologies and performing situations, it was clear that those interests were incompatible with working with that most sociologically fossilised of musical organisations, the orchestra. So I was quite content working with other media.

I started working with sampling in 1980, on the Fairlight CMI, and quickly realised that many of the tape manipulation techniques we had been doing with cassette recorders, in both solo and Plastic Platypus group performances, were immediately possible with sampling. In 1982, I wrote *Dedication Canons* for string orchestra, and, having absolutely no access to an orchestra, realised it on the Fairlight. Sampling techniques then were not what they are today, however, and I remain less than satisfied with my realisation of this piece. It was not until I had a sampler of my own, in 1986, that I began toying with the idea of making polyphonic textures out of samples longer than a single note. With my first sampler, the toy Casio SK-1, one could have a single sample 1.4 seconds long in glorious lo-fi four voice polyphony. Just for a lark, I sampled a cassette of the Ravel *Piano Trio* that was handy. The first sample was of three ascending thirds on the piano. I quickly played the keyboard of the sampler, hearing, at various speeds, the recording of those three dyads each time I pressed a key. I pressed many keys quickly. Voila! Instant texture! Polyrhythms, polyharmonies and thematic unities galore! More orchestral material was sampled. Oboe and string textures from Delius. Flute and string ensembles from Glazounov. Piano textures from Debussy. All of these were recorded on a four track recorder and mixed. The resulting sound world was pretty close to the kind of orchestral writing, filled with simultaneities and juxtapositions of different textures, that I had always wanted, but which was clearly impossible in the Australian situation. I was delighted. While nothing I had done would have been impossible using classical tape techniques, the ease of doing it with the sampler made it much more immediate. This short piece, *Samples for Orchestra*, became the first movement of a longer piece, *Lo-Fi Proposals*, which explored a number of the possibilities of the Casio SK-1, and was performed at the Experimental Intermedia Foundation in New York on Oct. 21, 1986. However, I gave *Samples for Orchestra* the subtitle, *"neither a deconstruction nor an appropriation, neither bricollage nor post-modern,"* because I wanted to make it clear that in this case I was not playing any of the games with found material that were part of much contemporary art practice. I have played these games many times since the late 60s, and continue to enjoy playing them, but here, I was using found orchestral material only because I had no other access to the orchestra. Right from the outset of this project, my aim was to abstract the material into interesting polyrhythmic, polytonal, and polytimbral textures that would be impossible for live performers, avoiding, as much as I could, the sense of the material being pirated or quoted.

The issue of pirating, or quotation, that is implied by the very nature of the sampler would not go away, however. And so, when I acquired my AKAI S900 sampler in late 1986, one of the first things I set out to do was to make a live performance piece made exclusively of quotations from recordings of orchestral works. In contrast to the quotational promiscuity of *Samples*, I decided to use only one composer, Maurice Ravel, as my source, and to have the quotes sometimes very obvious, and sometimes quite abstracted. The piece was a live keyboard improvisation, using six different multisampled keyboard patches such that each keyboard patch was divided into five or six discrete areas with different samples on them. On any individual keyboard, I could play a variety of quotes at different transpositions and tempi, and by switching from keyboard patch to keyboard patch could have access to different combinations of quotes at different pitch levels. To continue the controversy over the nature of what I was doing, and knowing I would be performing this piece mainly in the visual arts context, I called this piece *Samples II for Orchestra: Ravel Hommage (that which is neither a deconstruction nor an appropriation, neither bricollage nor post-modern)*. In various talks before performing the piece, I explained that though I was quoting, I didn't feel I was deconstructing Ravel, because I was not pulling any work of his apart in order to make statements about it, and that though I was indeed violating all sorts of copyrights by using samples of recordings in this way, I didn't feel like I was appropriating anything from Ravel (Pierre Boulez and Columbia records definitely, but not Ravel), because, after long study and familiarity with his work, I had come to regard him almost as "family," if you will, and felt about using his work much as I would feel about using the work of any living colleague who had given me permission, or even invited me to use their material. Furthermore, mine was a very studied use of quotation, I did not regard myself as the innocent bricolleur, assembling new works out of whatever came to hand. I have done that many times in the past, but this was different, the quotes were very carefully selected, and the ways in which they were put together was also carefully considered. Finally, I wanted to call into question the whole use of the term "post-modern," which has been so overused in describing our activities. I maintained that all the techniques I was using in the piece, although made more accessible by technology, were already present in the work done by Charles Ives around the turn of the century, and that if he was considered post-modern, then we would have to consider our whole century as part of the post-modern, and have to hunt around for a time when modernism actually existed.

Samples II was quite a successful piece. In it, I was able to play live the kind of orchestral textures I could only dream about before. However, I wanted very badly to be able to do this kind of piece with orchestral sounds of my own devising, and not just with quotations. This clearly seemed like an impossibility given the reality of orchestras in Australia, and so I shelved the idea for possible future reference.

Then, in early 1987 , I was selected as one of the ABC's three composers-in-residence. As part of my application, I proposed that should one of the ABC orchestras become available for a day, due to

another project being cancelled, I would write a number of fragments for orchestra which could easily be sight read, have those recorded and then treat those with my sampler. I felt that the nature of the transformations the sampler could affect on the material meant that I did not need to have original material of great complexity. Here I could have the best of both worlds: I could work within the limits of the Australian orchestras, and thus get out of them what they could do best, and then use the technology to extend the sounds they made into textures that were well beyond the realm of any live performers anywhere. Thanks to the heroic efforts of ABC producer John Crawford, the Adelaide Symphony Orchestra became available for a single day's recording session on August 3rd, 1987. This was only confirmed on July 19, and thus I had two weeks to write and copy all the parts. When I pointed this out to John, he said to me, with a giggle in his voice, "You can do it. You're a hack." He was right, probably on both counts.

I immediately realised that this would probably be my only chance, for the forseeable future, to work with the orchestra, so I gave considerable thought as to the nature of the piece I wanted to write. My main (though not my only) desire as an artist is to create things for which there are no models, and then to use these things as vehicles for perceptual exploration, to find out what it is these new things are, how they work, and how we work, what we do, when presented with this new information. In this exploration, I wanted to work seriously with many of the issues that concerned me: the reality of radio and tape work as a medium in itself; the use of non-directional, constantly changing forms; the use of extreme duration; the use of many different random methods of composition, each involving interaction between various electronic music systems and physical activities; working with a body of material marked by its diversity, and not by any system of thematic unity; and the creation of material almost in real time, with no, or very little, second thoughts used in the creation of the work. This last was practically forced on me due to the extremely short time I had to compose the material, but I did not mind all that much, because I always wanted to work with, as Jack Kerouac says, "no fiction, no craft, no revising afterthoughts, the heartbreaking discipline of the veritable fire ordeal where you can't go back but have made the vow of "speak now or forever hold your tongue" and all of it innocent go-ahead confession, the discipline of making the mind the slave of the tongue with no chance to lie or re-elaborate" (*Desolation Angels*, 1960, p. 238). This project would give me, of necessity, the chance to do just that.

Because of my ABC residency, it was clear that the piece was to be a radio work, and I have long felt that radio composition is a distinct medium in itself, which does not need to dignify itself by comparisons with other mediums. As Kenneth Gaburo says about tape music in *Isit*, (and the same can apply to the closely related, but subtly different, medium of radio) "Tape compositions are as direct as one can get. There actually is nowhere else one can turn to which will do any "good", except literally to 'face' the music" (*I.S. Journal No. 2*, Los Angeles, 1986 p. 50). One of the main outputs of ABC-FM is recorded orchestral music. I decided that my tape/radio piece using orchestral sounds should play with this fact, and for most of the time, should sound orchestral. That is, very few of the modifications used should distort the sound in such a way that the sounds began to sound "electronic" or even transposed to such a degree that their essential "orchestral" timbral identity was lost. The piece should mostly sound as if it could be played by an orchestra, albeit a superhuman one.

And I wanted the piece to be LONG. I conceived of the piece as one possible extension on the transcendental orchestral tradition of composers such as Ives and Scriabin, so I wanted to make a piece that stretched my durational capacities as well as those of my listeners. To experiment with musical enlightenment through endurance, if you will. To make a piece that in memory could not be recalled as a single, or even as a handful, of "images." Further, to make it long as a positive statement that there are alternative ways of thinking about our attention spans than that 10 second to 2 and 1/2 minute time span the media seems to impose on us. I wanted to show that long time spans of serious activity are still available to us, no matter what most people, in and out of the media, want us to think.

Formally, I wanted the piece to be non-directional, both in its small scale and large scale structures. I enjoy structures which seem "to set out in no direction and arrive not knowing where, to come and go without knowing where it will stop," as a follower of Chuang-Tzu wrote about 2200 years ago (*Chuang-Tzu*, tr A.C. Graham, Unwin Paperbacks, London, 1986, p 162). I find these structures more in line with my ideas of exploratory music, of investigating what the effect is on each person of structures for which no models have previously existed; and I find these structures more useful politically, in that they avoid the setups of expectation of reward and defeat of those expectations that tonality practices. I have always found this kind of manipulation particularly distasteful, and would rather make work where each item is valued for its own sake, and not its hints at what is or is not to come.

On the small scale, this kind of non-directional form would mean that I would use many different random processes to generate much of the musical material of the piece. These would not be used to merely "get beyond my own immediate tastes," but, more deeply, to explore the kinds of music that would result from these machine and physical processes, in order to create work I would have to learn to listen to, to experience. On the medium scale, a non-directional form played over this duration mandated, for me, a diverse range of surface styles, so that changes and juxtapositions could be clearly heard as such. And on the largest level, it meant that the overall form of the piece would also be determined by quasi-random means, so that the progression and juxtaposition of the various materials and their treatments was as non-directional, and "non-intentional," as not concerned with cause-and-effect, as I could make it. Again, I wanted the piece to be exploratory, to be one of those pieces that would be done only when I "came to hear what it is I had made" (Gaburo. p. 48), to be a piece with many unfamiliar and com-

plex kinds of juxtapostions one would have to grapple with, creating a complex sound object which would richly repay many listenings, providing something for those who would like to work on this kind of experience.

I decided that composing the piece would take place in three stages:

1) Composing many small fragments for orchestra using the full resources of my studio, using many man/machine (and some non-machine) random (and a few non-random) processes to generate the scores. Personal Composer software was used on my IBM clone, and information was fed into it through a Casio CZ-101 keyboard, or else through control voltage input from my JL Cooper control-voltage-to-MIDI converter. The control voltages were generated by my battery of electronic music equipment, including Aardvarks IV, my homemade random control voltage generation system, my large Serge analogue synthesiser, and a Gentle Electric pitch and envelope follower.

2) Taking the recordings of those fragments into my home studio, making samples of them on my AKAI S900 sampler, and using MIDI input, either from the keyboard or from the computer or electronic music systems to process the samples into recordings of orchestral textures.

3) Mixing those recordings into an overall structure such that different textures were juxtaposed both on top of each other (vertically) and following each other (horizontally). Since the recorded textures would already be fairly thick (eight layers maximum if only one pass through the Akai was used, more if the texture was made with a multitrack recorder), I decided that the final mix of the piece would consist of a maximum of three recordings at any one time. I was interested to see if we could learn to hear, and follow, even this many discrete complex textures as a simultaneity.

Fifty short fragments were written, for everything from full orchestra to various chamber combinations to solos for various instruments. The maximum length of any one fragment was about 22 seconds, with the majority being much shorter than that. This upper limit was determined by the longest sample I could get on the Akai at a sampling rate that I felt still gave me enough bandwidth for FM broadcasting. Longer samples were possible, given the Akai's infinitely variable sampling rate, but at a trade-off of frequency range I did not feel like making in this piece. Eight different kinds of material were written:

1) Six fragments for full orchestra, each of which was generated by a different interactive random process. In each of these, and in all cases of polyphonic textures made in this piece, each individual line was generated separately, without referring to the other lines, the juxtapositions resulting by chance.

2) A series of wind, string and brass chords, each of which was a different voicing of a D-F-A-C-E-G chord. The wind voicings favoured perfect fourths, the string voicings, fifths, and the brass voicings thirds. These were recorded as both staccato attacks and as sustained chords, and were used to make "single-note" samples to assemble "beds" of sound and other textures from.

3) A series of random chords where each member picked their own pitch for each new attack.

4) Eight polyphonic fragments for chamber groupings within the orchestra, derived, like the full orchestra fragments, by a variety of random processes.

5) Ten single line melodies doubled at the unison or at some interval of transpostion (i.e. the same notation given to a non-transposing and a transposing instrument results in a doubling at the interval of transposition). These melodies were generated by keyboard improvisation, serial methods and in two cases, just plain writing down what I heard in my head at the time. The choice of doublings (were there two or three instruments playing, what were they, what tempo were they playing at?) was made by referring to a chart of random numbers.

6) Improvisations based on limited timbral resources, such as the fragments for trombone glissandi, or the percussion duet fragments.

7) Solo line melodies, written either by performing on Aardvarks IV, my homemade random voltage generator, or by improvising on a keyboard with my eyes shut and the sound turned off, so that the resulting music would be as pure a result of my own physical gestures, without sound feedback of any kind, as possible.

8) Single notes for various instruments, designed to be used as single-note samples in the traditional sense, to be used in assembling microtonal textures.

Additionally, each fragment was recorded at at least two different tempi. All the fragments were in 4/4, with only quarter, eighth, and sixteenth notes used. Triplets and other divisions of the beat were not felt to be necessary, given the nature of the processing. Six tempi were used, and these were related by the proportions of a justly tuned D-F-A-C-E-G chord: 60, 72, 90, 108, 135, and 162 beats per minute. This meant that a fragment recorded at say, 72, could be played a minor third lower than recorded, and it would be playing at approximately 60. When juxtaposed with the original 60 beat per minute fragment, this would result in two fragments in rough rhythmic unison doubled at the minor third. Or conversely, if a fragment recorded at 60, and the same fragment recorded at 90 were played simultaneously, a rhythmic canon at the unison would occur, where the tempi of the two fragments would be related by 3/2. In the course of the piece, most kinds of rhythmic/pitch canonic relations occur.

To give an example of the kinds of processes used in composing some of the fragments, here is the procedure I followed in composing the polyphonic chamber music fragments, material type 4:

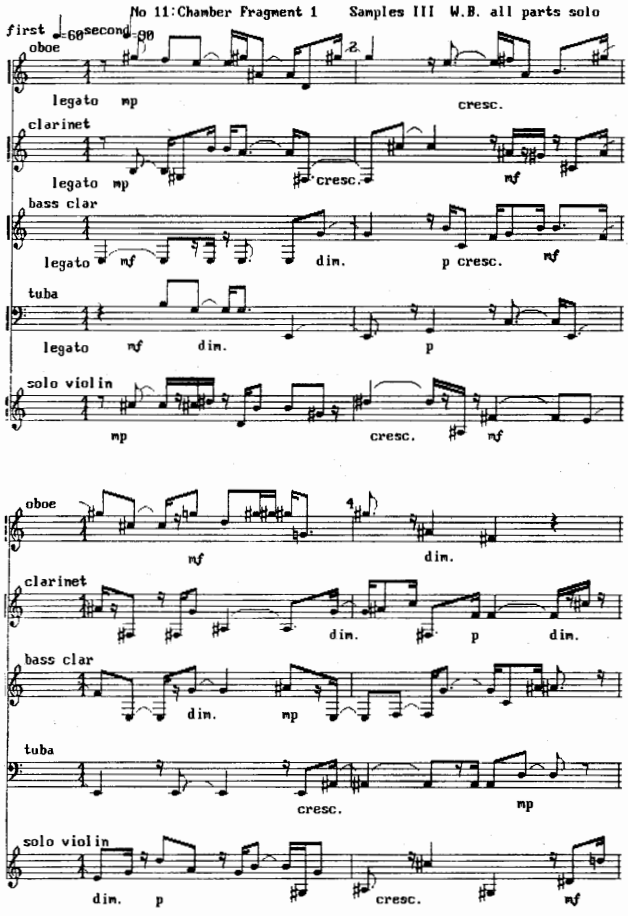
1) Is the fragment 2, 3, or 5 voiced? Pick a random number (from *A Million Random Digits* Rand Corp. 1955) to determine

2) Which instruments are used? Pick a random number from 1 to 20 for each voice, with each instrument type in the orchestra assigned one of these numbers.

3) Will it be played at two or three tempi?

4) Which of the six tempi will each of these be?

5) Which composing method will be used? There are six possibilities here (which were also the six methods used, one each, to create the six fragments for full orchestra). Random numbers will determine which of the six are used.



Ex 1. Fragment 11: Chamber Music 1 *heard from 2'23 2'41 as a solo, from 21'57 23'09 as a unison chord, and 22'12 25'02 as a polytemporal unison canon.*

a) Free improvisation on the MIDI keyboard, which feeds into the notation program. In this process, as in all the others, each individual line is made independently of the others (previous lines are not listened to), with the resulting juxtapositions left to chance.

b) Aardvarks IV generating random control voltages which are fed into a control voltage to MIDI converter and thence into the notation program. The notes will have varying durations and hold times. With this, and the following two processes, my performance controlled pitch range and tempo, but not the moment to moment details of note generation.

c) The Serge analogue synthesiser's Smooth and Stepped Function generators patched to generate a chaos like stream of voltages. These result in continuous notes (i.e. very few rests) when fed through the control voltage to MIDI converter and into the notation program.

d) Aardvarks IV with all short duration notes and each voice accelerating and decelerating independently.

e) A tape of Canter's Deli, Fairfax Avenue, West Hollywood, on a particularly busy Friday evening, fed through a Gentle Electric Pitch and Envelope follower and the result fed into the control voltage to MIDI converter and the notation program. For b, c, d, and e, the control voltages were patched through the Serge Control Voltage Processors, allowing me to specify the ranges of the control voltages so that notes out of range of that particular instrument would not be generated.

f) Random numbers chosen from *A Million Random Digits* played in via the MIDI keyboard input. These could be applied to both diatonic and chromatic pitch sets.

Example 1, Chamber Fragment 1 shows an example of the type of output generated by this process. It is a 5 voiced fragment for oboe, clarinet, bass clarinet, tuba and solo violin, recorded at both 60 and 90, and was composed using the Serge patch described above in letter c. I was especially surprised at the "Schoenbergian" sound of this fragment, delighted to be reminded that when one is working with such a "stylistically saturated" medium as the orchestra, references are bound to continually occur, no matter what methods one uses in composing. This was one of several fragments generated randomly that sounded as if they were references to the "style" of another composer, and I happily accepted them as an innocently delightful reversal of the composing situation of the first *Samples* piece, where I had tried to make quotations sound as if they weren't. Here, there was no quotation whatever going on, but occasionally, things sounded like they might have been. As Ives was fond of saying, "What music sounds like may not be what it is."

The score and the parts were finished on time. Thank God for computer music notation systems. They may be funky, clumsy, limited, and have more bugs in them than a case of two year old flour, but in the end they made this piece possible.

The recording session was a total delight. The Adelaide Symphony, the conductor, James Ferguson, and the producer, John Crawford, were all wonderful. I've seldom had such polite, enthusiastic, co-operative, friendly working conditions with any group of musicians as I had on this occasion, and I am incredibly grateful for the wonderful time I had and the very good performances I got. We recorded almost all the fragments I had written (I was relying on the pressure of time to winnow out those few fragments I felt I really could live without- another form of chance technique for selection and winnowing of material- how much can we get recorded in the limited time we have?), and I left Adelaide with almost two hours of material on tape, which included several takes of each important fragment at a number of different tempi. I had discussed the process of the piece with the producer, the conductor, and the concertmaster, and they were all sympathetic to it. They knew knew how to get the accuracy as I desired out of the orchestra, and also when to stop trying to push for nuances that would not survive the processing. Strangely enough, though I prefer hearing orchestral sounds through loudspeakers, here I preferred being in the studio with the orchestra, being physically present with the players, making suggestions, etc. rather than sitting in the recording booth. It felt both friendlier and more intimate to be with the players while they worked, and also felt as if I was in more immediate contact with the sound as it was being generated. The session really was one of the most rewarding musical experiences in my life.

On my return to Melbourne, I set about experimenting with the material on the sampler. It was obvious that if I was treating one sample at a time in the sampler (a limitation of my own, not of

the sampler's) or samples of the same fragment played at different tempi, I was dealing with canons. These canons could be of a number of types, as outlined above. Other processes were also evolved. In all, five different kinds of processings were used:

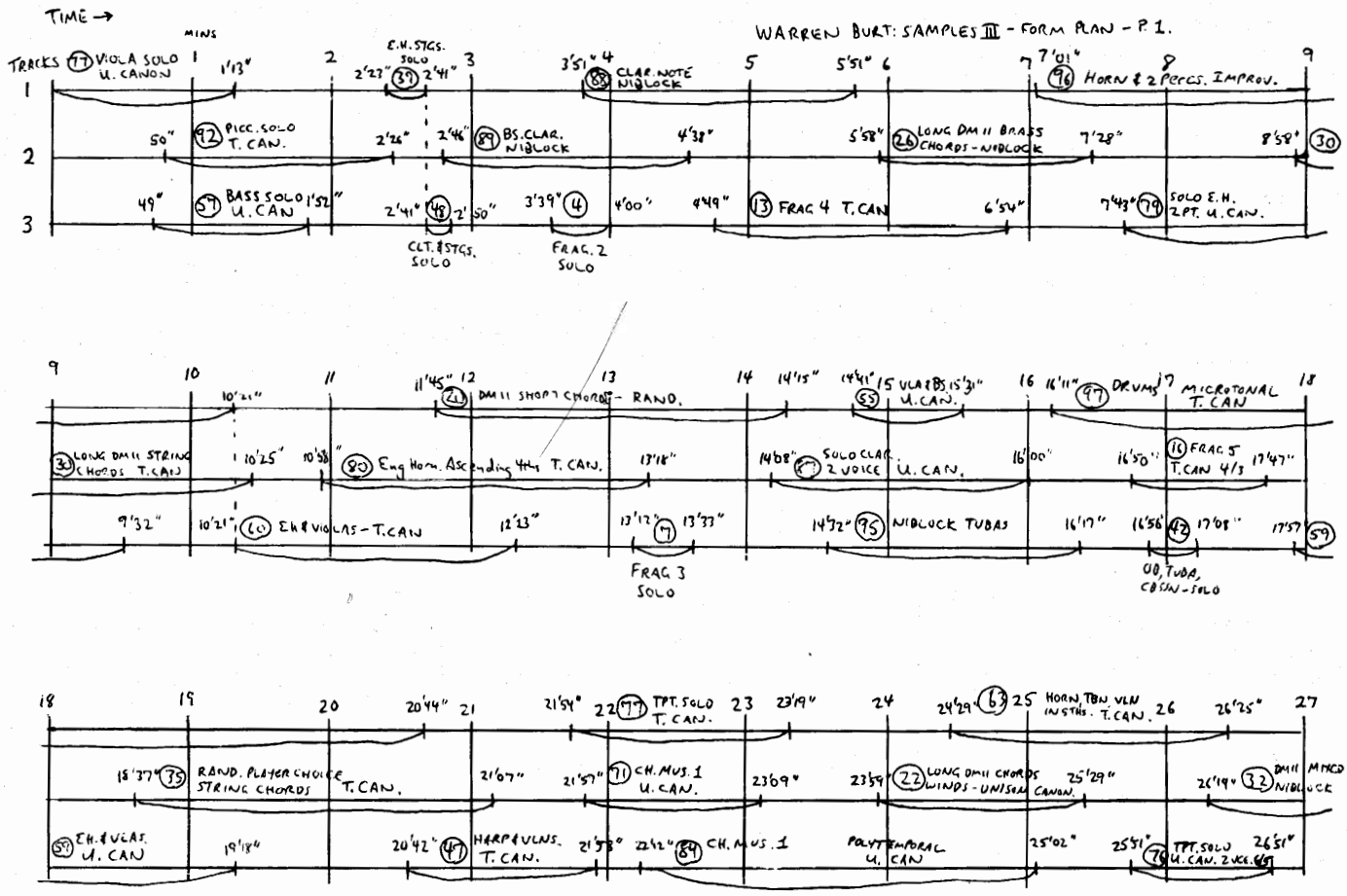
1) Canons of various kinds. These were of two types : untransposed canons and transposition canons.

a) Untransposed canons were made by taking a single fragment and sampling it, usually not making a loop out of it, and then setting the keyboard so that the same sample at the same pitch appeared under eight different keys. If any of the keys was pressed, that fragment would play. If one removed one's finger from the key, the fragment would stop playing at whatever point it was in it's playing. In this kind of canon I did not want to work with partial fragments, but with their whole length, so having the fragments without loops meant that I could simply leave my finger on the key for a duration longer than that of the fragment, and the fragment would simply stop sounding when it reached it's end, even if I left my finger on the key. This was quite handy when you consider that I could have up to eight identical samples playing at any one moment, and telling which fragment was under which key could get to be quite confusing. There were several different forms I used for the untransposed canons, but one of the ones I used the most (in fact, with hindsight, I feel I may have overused it just a little) was where I took the tempo of the fragment as a guide, and brought in each of the eight fragments at a distance of 4 beats from the start of the previous fragment, then at a distance of 2 beats, and finally at a distance of 1 beat. Since the fragments were usually 8 or 16 beats long, this gave a series of canons which got closer together, and denser, as they progressed. Also because of the small amount of material being used, the canons became highly repetitive, almost fugal in nature.

Another kind of untransposed canon was made when each of two or three recordings of a fragment made at different tempi was made into a sample. These were made into loops, and all of these were present simultaneously inside the sampler. Each was assigned to a different key on the keyboard. When these were pressed simultaneously, and held down, the samples would play simultaneously. If, for example, a solo clarinet line beginning of "C" were recorded at 90 and 108, and samples of both recordings were played simultaneously, both tuned so that they, too, began on "C," one would get a two part rhythmic canon at the unison, with the two voices in rhythmic relationship of 5:6. This two voice canon would eventually come full circle, and start repeating, after 6 repeats of the faster voice, and 5 repeats of the slower one. One complete cycle of this canon would be used as a recording in the final mix. If the samples were of a single line or a doubled line, the result would be a quite simple polyphonic texture. But if the samples were of a complex orchestral or chamber texture, the results could be quite thick and dazzling.

b) Transposition canons could be of many sorts. As discussed earlier, they could involve fragments at different tempi transposed to be in rhythmic unison, but doubled at various intervals, or they could involve one or more fragments played at different pitches than they were recorded at, making polytonal and polyrhythmic canons. For example, a recording of an orchestral fragment beginning on "C" is played simultaneously on two keys a major second apart. One is tuned to play the fragment beginning on "C," and the other beginning on "D." Since the ratio of a major second is 9:8, not only will the higher sample be playing a major second above the lower, it will be at a faster tempo, related to the tempo of the lower sample by the ratio of the pitch transposition, in this case 9:8. If the two keys are held down for, in this case, 9 loops of the higher pitched sample and 8 loops of the lower pitched sample, the canon will come back to it's beginning. Thus, a large variety of polytonal and polyrhythmic canonic relationships was available through playing samples at different pitches, and this gave me not only textures not available through human abilities, but also, on a more mundane level, timbral resources not available due to economic limitations, as in the canon for 5 piccolos heard near the start of the piece. The danger here, however, was that if one played the sample transposed by too great a degree, the sample would lose its "timbral identity," and begin to sound like a speeded up or slowed down tape, and not like an orchestra. Generally, I found that I could not transpose most textures by more than a perfect fourth before they began losing their identity. In a few cases, the margin of tolerance was much greater than this (with bass clarinet, for instance), but in other cases (some strings, some brass, english horn, etc.), it was actually much less. This limited the kinds of transpositions I used, as did my desire to keep the recording resulting from these samplings to generally under three minutes each. A doubling at the minor second, for example, or at some microtonal interval, might result in a complex rhythmic relationship of 15:16 or greater, but the time taken for a complete cycle of this relationship would usually be inordinately long. Simple relationships, such as those implied in the D-F-A-C-E-G chord, generally proved to be more useful for this piece.

2) Microtonal textures obtained through detuning samples by as little as 6.25 cents. I called these textures my "Niblocks," after New York composer and film-maker Phill Niblock, who has worked for many years with gorgeous micro-tonal drones made of recordings of instrumentalists playing single notes tuned with extreme precision. In some cases, a single note or chord would be sampled and made into a texture, and in other cases, it would be a melody or texture that would be so treated. This was the only case in which I departed from my rule that the sound output should sound "orchestral." Some of the phasings and beat patterns that result from these treatments sound quite "electronic." However, I justify the use of these in two ways- first, their "close but not quite orchestral" nature does make apparent the nature of the piece, one made with orchestral recordings, by flirting with the boundary between "orchestral" and "recording processed" sound, and second, I wonder how many of these effects we might have obtained if indeed we had spent weeks training players to play their instruments with that precision. That is, I'm not really sure how much phasing,



Ex 2. Structural outline of the first 27 minutes of SAMPLES III.

beating, etc. is really an artifact of the electronic process, and how much could be obtained under other acoustic situations, such as two or more instruments in a room playing notes tuned extremely close together.

3) Random textures obtained by having Aardvarks IV "play" the Akai, on which were loaded a number of short samples, each of which could be played only over a pitch range that did not disturb its "timbral identity."

4) Improvisations made with either single notes or longer samples to assemble complex textures, such as the trombone glissando sections or some of the percussion and gong textures. 5) Playing of single samples unmodified and unmixed into the final mixing process. This was mainly done with each of the full orchestral and some of the chamber textures.

All of this processing gave me 100 recordings, ranging in length from 8 seconds to just over 4 and 1/2 minutes. Harmonically, they covered four areas- diatonic harmonies of various types, chromatic and random harmonies using the full range of chromatic pitches, microtonal textures, and noisebands resulting from either extremely thick textures, or from non-pitched percussion. Needless to say, on some occasions, the boundaries between these categories were considerably blurred. This work was accomplished in September 87.

The 100 sections were then combined and mixed into the final 84 minute form of the piece. Again, the idea was to have sometimes one, sometimes two, and sometimes a maximum of three textures playing simultaneously. For convenience of tape lengths, it was decided to divide the piece into two sections of roughly 43 and 41 minutes each, though in radio broadcast or public performance, the two sections would follow each other with only a couple seconds silence between them. In keeping with the rest of the structure of the piece, the overall form was also determined with the aid of random processes. In this case, *A Million Random Digits* (a book chock-full of chuckles, I can assure you), was consulted to first determine the number of recordings that would be present in each track, and then to select which recordings those would be. The total durations of those recordings were added up, and the result subtracted from the total length of the section, and that duration (the amount of silence on that track) was divided by the number of silences between the recordings. This gave a duration by which the recordings were separated on that track in the first sketch of the overall form. This resulted in a three part texture with considerable silences, as I was aware it would. I now had the choice of leaving the silences as they were, or of modifying them in some way. As a sort of parody-homage to radio technicians' fears of "dead air" (silence), I decided to eliminate silence from the piece entirely. (The loving spirit of John Cage is hovering around enough of this piece already without also buying into that one!) So any silence that resulted from this structure was eliminated by sliding the locations of my fragments backwards and forwards until the entire texture had a "neat fit," either through overlappings, or several times, through simple successions of textures.

Example 2 shows the structure of thie piece for

its first 27 minutes. *U. Can.* means the texture is an untransposed canon of some sort. *T. Can.* refers to a transposition canon. *Niblock* means a microtonal texture of some sort. *Solo* refers to an unmodified fragment mixed in. *Improv.* refers to a section made by improvising with samples at the keyboard. *Rand.* means a section made with Aardvarks IV controlling the Akai. Numbers in circles refer to the numbering system used to select the 100 fragments. It will be seen from this how the random process resulted in a form which juxtaposes various kinds of textures. For the mix, levels on the three tracks were kept about as equal as possible. Occasionally, if a texture was completely obscured by another, some adjustment would be made. Overall, the aim was to get as transparent a mix as possible, so that various textures could be "heard through" each other when they were juxtaposed. Domination of one sound by another was not usually desired. Rather, a sense of being able to appreciate the coexistence of very different sonic worlds was what was usually aimed at. All three tracks were mixed to stereo, with track one being slightly to the left, track two centered, and track three being mixed slightly to the right of the spread.

The piece was broadcast on 17 November, 1987 as part of ABC-FM's late lamented *Audio Spectrum* program. The media greeted the appearance of a new work for radio with its usual complete silence. Slowly, however, various friends reported hearing the piece, and others listened to it on tape, so that response to the piece began to slowly filter through. Generally, this response has been favourable. I would like to hope that this long, thick and difficult piece would be one which people would want to come back to time and again, to explore the many levels contained within it, to use as a means of exploring their response to sound, to media, to the orchestra, to orchestral recording, to extreme duration, to various kinds of "difficult" textures and juxtapositions, to explore both as a "thing in itself" and as an element in a rich and complex web of reference and interplay.

However, I would like to reaffirm, that for me, this piece is a radio piece and a tape piece with its own distinct identity as such. It is not a piece where the orchestra has been "appropriated," nor is it simply a piece for electronic sounds. Rather it is one which uses sounds I like in a way which fascinates me. That is, it explores a timbral world which interests me with a physical medium of sound production (notice I did not say reproduction) I find particularly intimate and appealing. This point might be expanded a little. In much contemporary visual arts criticism, one finds easel painting referred to as the "signifier of cultural authority" which artists are now "reappropriating" after years of other kinds of activity. It might be viewed that my use of the orchestra in this piece constitutes just one such kind of "reappropriation" of a sound-world of "cultural authority." But I don't feel that this is at all the case in this work. First of all, "cultural authorities" exist not in societies, but in the minds of them what gives authority to them. If after all the work we have done over the last 20-30 years establishing a variety of media each with their own unique qualities, we still feel that any one form has more "authority" than another, then I think we've done a lousy job of establishing the uniqueness and dignity of these many new forms. Further, I feel that it might be time to call into question the dominant metaphor behind much contemporary critical language. Look at the words that are used again and again by contemporary critics: "appropriation," "incisions," "violations of codes," "complicities," etc. To anyone with half an ear for language, this will clearly seem like a language, and a particularly romantic language at that, of war, subversion, and violence. The military metaphor is the dominant one used in critical discourse today, with critics romantically viewing the artist as either a subversive or a compliant force within a repressive society. Well, society IS as repressive as our critics say. There's no arguing with that. However, if we want to build a non-violent society, one based on peace, co-operation and trust, perhaps its time we started working on ourselves, and developed critical metaphors that were not related to war, spying, and violence. To use a non violent language that is fully reflective of our desires for non-violence- to use a language which does not participate in the heirarchical structures that the art it is describing attempts to provide an alternative to. For example, my broadcasting of this 84 minute piece on ABC-FM could be described as "appropriating media space to deconstruct the codes of duration!" This description, though acknowledging that most media structures impose on us a very short attention spans, ignores the fact that classical music radio stations are used to broadcasting works of long duration. Mahler, Bruckner, Glass and Ashley's longer works are semi-regular features on ABC-FM. Furthermore, my presence on that station was as part of an officially sanctioned project. If there is anything revolutionary about the work and its placement (and I feel there is), it will be realised as a result of people dealing with it seriously, seeing what is implied by both its unique nature, and by the structures it embodies, rather than by simply describing its being broadcast in facile and overly romantic terms.

And this kind of implication of theft and violence exists right throughout our language. "Synthesiser" has come to imply that somehow, the sounds made by electronic waveforms are "fake," and "unreal." "Sampler" has come to imply theft or "shoddy goods," as in the peddler with his "samples." As anyone who has heard a square wave at 130 decibels can assure you, there is nothing "fake" or "unreal" about simple waveforms. And there is no inherent theft in making a recording, digital or otherwise, unless one chooses to use it in that way. That these instruments have the potential of changing their identities in a way other instruments don't is true, but to think of them as somehow "bogus" or "thieving," and to think of works on tape as being somehow "unreal," strikes me as illogical, a little like referring to a computer as the "thief of mathematics."

I prefer another implication of "sampler," one derived from the non-violent, traditionally female art of quilting. Like those "samplers"- made from many small bits of cloth, some found, and some specially made- I would hope my "Samples" would serve a similar function- as useful, honest, and homely objects for people to engage, to work with, and to enjoy.