Sand

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for Electronic Virtual Ensemble

and Exploration Interface



Score Purpose: The score was written mainly to facilitate my entry of all notes into note-lists, with a minimum of errors and mistakes. Any given event is multi-dimensional (the dimensions including pitch-class, register, start-time, end-time, timbre/attack-mode, stereo position, loudness, noisiness, and whether-or-not-its-a-virtual-drone. these different ways of layering events in the music can be teased apart using the listener interface to the work, available on the website. The arrangement of the score helped me sort the notes into their proper categories. It should also aid score-readers in examining the structural logic of the piece.

Arrangement: The score is divided into 3 groups or instruments, each of which is further divided into 6 registers. A 4th group shows the onsets of *musique concrète* sounds, as well as numerical or textual descriptors of those sounds. A 5th group shows the Drone pitch (or chord) that is happening at a given time.

Tuning: Most of the work is tuned in 19-equal-divisions-of-the-octave (19-edo). The exceptions to this are the "drone" group, which usually consists of a pitch, harmonized with Just Intonation above it, or, a chord, or an inharmonic sound (as in the "Armageddon chord" sections 7-11, etc.). (In fact the sequence of drone pitches itself is a 19-edo row that slowly unfolds over the course of the whole piece.)

19-edo is written in standard diatonic notation, but unlike in 12-edo, the sharps and flats are (usually) *not* enharmonically equivalent. To wit, here are the pitch-classes of 19-edo:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
С	C#	Db	D	D#	Eb	Е	E#/ Fb	F	F#	Gb	G	G#	Ab	A	A#	Bb	В	B#/ Cb

Colored Ink: The astute reader will notice some notes in the score written in blue ink. These are "virtual drone" pitches. The idea here is that then Drone Tone(s) (in the 4th, drone group on the score), can contribute pitches from its overtone series (or inharmonic partials in the case of the "Armageddon chord"—see for example SEC 10 Measure 6 in the Wave group) to the counterpoint in the 3 main groups. These become analogous to quasi-pedaltones in, say, a solo violin piece by JS Bach.

Rhythm: The rhythm in the piece was composed using a fairly straightforward interpretation of Milton Babbitt's time-point system (as first described in his 1962 article "Twelve Tone Rhythmic Structure and the Electronic Medium", and as more fully described in Andrew Mead's book *The Music of Milton Babbitt*), albeit in 19-edo, not in 12-edo. Hence, every measure is a measure of 19/16. Since the score is not for human performance, I do not bother writing rests or even exact durations. You will see light vertical lines drawn down through some of the noteheads through the staves to the bottom of the score page, where you will see a series of numbers . . .these are the time-points that are being articulated. As with Babbitt's technique, frequently I have various tuplets strung between the time points. Also, each of these time-points is associated with a dynamic (loudness) level.

Temporal structure and sections: The piece is divided into 72 sections. You will see indications over the score, e.g. "SEC. 7", which indicate the section #. These correspond to sections in the listener interface. You will also see indications like "PART 15" or "P 15" at the top of the score —-this is an indicator of what partition the music is composing-out at that point. "Partition" refers to pitch structure similar to Babbitt's "all-partition array". Some of the sections, for example nos. 4, 14, 21, etc, are "drone-only sections" where the Drone Group takes over the texture in various ways. Thus they are frequently Just Intonation tuned sections, but not always (SEC 21 is a good example of an exception). You can find the partition-array for the piece on my website.

re-Realization: Composers or other interested parties are welcome to make their own realizations of the piece. The composer is happy to provide "note lists" of all of the \sim 18000 notes that make up the whole work. These are in a LISP list-based format, which can probably be converted to other formats fairly easily.

More information: More information about this piece can be found in my dissertation paper. It, and the listener-

exploration interface, can be found online on my website.
























































































































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