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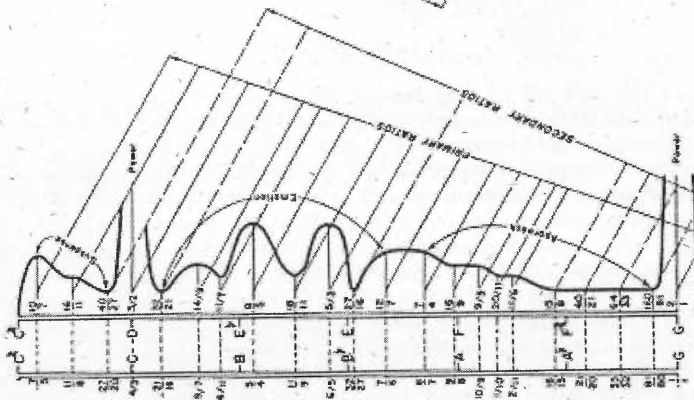
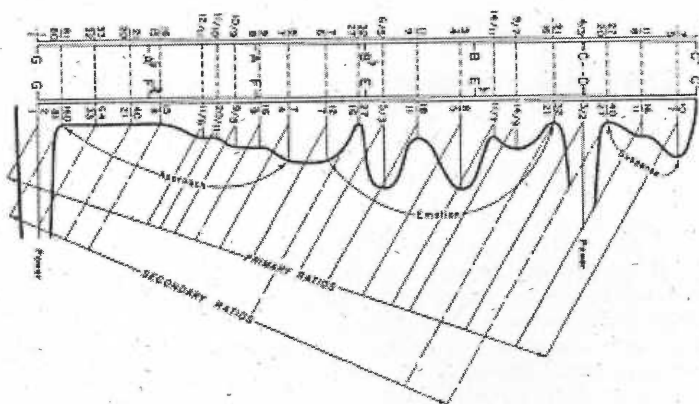
The EWU Department of Music presents

Ben Luca Robertson
Graduate Composition Recital

Friday, May 20, 2011

7:30 pm

Music Building Recital Hall



Presented in partial fulfillment of the requirements for
Master of Arts in Music, Composition
Studio of Dr. Jonathan Middleton

11 Limit Matrix

Ben L. Robertson
b. 1980

Ben L. Robertson, Interactive Software Environment
Luke Brockman, Trombone
Jane Ellsworth, Clarinet
Jordan Gilman, Alto Saxophone
Jessie Leek, Alto Saxophone

Isohyetal

Nicholas Bailey, Fork-Board
Davis Hill, Sinusoidal Waveform Generator

Lattice

Ben L. Robertson, Zither + Additive Synthesis Algorithm

11 Limit Matrix

Throughout the course of its two-year developmental evolution, the notion of composition as a generative process has informed every stage in the creation of *11 Limit Matrix*. This tenant reflects the composer's overarching desire to compose or, perhaps more accurately, initiate works that are capable of continuously generating new and innovative aural content. Simply stated, the composer does not wish to create a single piece of music, committed to print or otherwise. Instead, the culmination of his labor has been directed towards the construction of a semi-autonomous performance environment capable of translating variable harmonic and melodic preconditions, as defined by a user, into a multiplicity of distinctive musical incarnations.

To support this intent, the composer has developed (through object-based programming) a software-based application for the algorithmic generation of musical content and facilitation of intra-performer communication. As a viable alternative to the printed score, detailed instructions are presented to each musician in the form of dynamic visual projections. Through light, color, motion, and evolving imagery, microtonal variations in pitch are manifested in the form of continuously shifting tone clusters, whose contents are derived, in real-time, from a series of harmonic and melodic preconditions and thresholds. By combining standard notation and color-coded meters, each musician may compare his or her current, performed pitch with a "target pitch" derived from a predetermined microtonal scale structure. This constantly evolving score is projected before the musicians and a virtual system of "call-and-response" between software and performer is repeated as each unique performance emerges.

Charged with a humble recognition of the improvising performer's unmatched knowledge and intrinsic understanding of the tonal characteristics, potentials, and constraints of his or her respective instrument(s), the composer has also sought to integrate this experiential database into the performance environment by purposefully embracing elements of indeterminacy and improvisatory practices. Consequently, all processes applied are to be aimed at enhancing a performer's ability to contribute as an equal partner towards the successful cohesion of a given generative instance. An implicit goal of this process is to prevent the potentially stifling influence of the composer; particularly in relation to decisions regarding subtle elements of rhythm, dynamics, and tone color. Herein lies the composer's mantra against unnecessary intervention regarding decisions best left to the performer: "How dare I?"

Isohyetal

The development of techniques and contents associated with the composition of *Isobyetal* echo the composer's desire to integrate non-aural elements of the natural world into a compositional context. In examination of large-scale phenomenon related to landscape and climate, as well the quantum field of light and spectral wavelength, the composer has sought to re-purpose preexistent data to generate new sonic forms. As the title of the piece might suggest, geographical distribution of precipitation patterns and associated cartographical imagery represent the source of this data. In the field of cartography, isohyetal lines signify a visual place-holder or threshold, bounding a geographical region according to the measure of precipitation collected over a given period of time. The distribution and density of isohyetal lines across a region may convey detailed information about the variability of climatic conditions within a given landscape, as well as features of the landscape that contribute to these conditions.

Due to the inherently interpretive nature of *Isobyetal*, all subsequent performances are guaranteed to be distinct from one another. As the subjective nature of human perception, aesthetic reflections on natural phenomenon, indeterminate processes, and themes of egalitarianism run concurrent to the composer's sensibilities, it may come as little surprise that subject matter and procedures associated with the creation of this piece embody a manifestation of similar aims. Thus a tangible connection is made between the interpretation of climate and landscape, translation of these variables into the instantaneous experience of color, the synesthetic associations between color and sound, and the communication of individual intent through the malleable lens of improvisation.

Lattice

Through the application of auditory roughness models pioneered by Dr. Pantelis Vassilakis, the composer has developed an interactive software environment that transforms nuances of pitch and timbre (performed by the improvising musician) into a single, evolving sound-object. The frequency and intensity of each overtone (or partial) within this object represent a latticework of calculations and subsequent re-synthesis of its acoustic components. In practice, these calculations are informed by the degree of sensory dissonance, or *roughness*, existing between multiple timbres. While algorithmic processes secure a tangible sense of cohesion within the piece, its improvisatory character guarantees indeterminate structure and variety in each performance.

The foundation of aural structure within *Lattice* is derived from additive re-synthesis techniques. In essence, additive re-synthesis involves the construction of real or imaginary timbres via a composite of constituent partials. As to imitate the indivisible simplicity of naturally occurring overtones, these partials are represented by individual sinusoidal waveforms in most electroacoustic contexts. Not unlike the quantum particles that make up all matter, sine waves are the fundamental wave elements from which all acoustic objects are composed. In turn, the distinguishable acoustic traits of a given harmonic spectra are a function of the combined frequency and amplitude (volume) values of each sinusoidal component. Using a miniature zither and additive synthesis algorithm, the composer seeks to apply these principles in performance:

I would like to extend thanks to my mother, Laura Louise Luca. I owe everything to her hard work, humor, intelligence, numerous sacrifices, and infinite generosity. Mom, I will miss you.

Upcoming Events at EWU

- May 21 Recitals by Amanda Goede, Johnathan Weisgerber,
and Melody Fisher
- May 22 Nicholas Bailey Senior Composition Recital
- May 27 Art Corcoran Senior Guitar Recital
- June 1 Single Reed Solo Night
- June 4 Orchestra and Choral Concert featuring the premier
of Ben L. Robertson's *Forged in Smokeless Flame* for
orchestra & electronics (Showalter Hall)