

Lorenz

Scott Mc Laughlin

Concept:

Lorenz is a game piece modelled on the strange attractor concept first discovered by meteorologist Edward Lorenz in the 1960s. In this piece, the saxophone plays a sequence of long notes (in free time) derived from a multiphonic (and occasionally the multiphonic itself). The string players attempt to match pitch by ear (according to strict rules), vibraphone acts as breaker (only comes into play if the strings 'win'). The inharmonic pitches of the multiphonic are points on the attractor which the strings move towards.

Method:

Saxophone

- The saxophone must tease the strings, give them something to aim for but not let them get too close: be careful not to run out of notes.
- The saxophone is limited to a repertoire of one multiphonic, and must derive 18 single pitches from this to form the sequence of notes played through the piece.
 - Prepare by choosing a multiphonic, preferably one rich with inharmonic partials.
 - Choosing your pitch sequence:
 - List all the following:
 - All the stable single pitches which can be played with the multiphonic fingering: breathy or complex tones are acceptable, avoid those which cannot be controlled.
 - All the intonational variations on these pitches which use different fingerings. Intonational variants must be within a semitone of the pitch that they are variants of.
 - Include also the full multiphonic itself and any stable partial versions of the multiphonic.
 - Make this list into a sequence of 18 notes/multiphonics. Repeat some where necessary. This is the sequence of pitches which makes up the piece.
 - The player may organise the order of the pitch sequence before the performance or may improvise the order during performance (being careful to stick to the list). The player is only allowed 18 notes, the last of these is then reiterated 7 times without variation:
 - 25 notes is the whole piece, at an average of 20 seconds each plus silences this should last about 10mins.
 - Because the strings should not the the saxophone line in advance, the player is advised to make several versions of the pitch sequence. This is so that in rehearsals they can play different versions to avoid the string players becoming too familiar with it.
- Possible strategies for ordering series:
 - Random distribution, chosen beforehand.
 - Complete improvisation, with or without relation to strings' playing.
 - Order of maximal difference, where each note is as different as

- possible from its predecessor.
 - Order of maximal similarity, notes arranged in ascending/descending row.
 - Lumpy/life-like, variations on similarity and difference by alternating groups of similar notes with sections of greater difference.
- Play the pitch sequence in order, hold each note for as long as possible in a single breath, without it becoming unstable.
- Pauses between notes can be of any length up to 2mins: pauses of more than 20sec should be used very sparingly.
 - Sax can leave a hole in the piece at any time with a long pause, the strings must continue moving.
- Dynamic is always *p*, there may be a slight swell in middle of the note.

Strings

- The strings must attempt to match the saxophone's pitch by ear: matching may be at the unison, octave or the 4th/5th.
- Play notes of one bow length with a short pause between each. Occasional longer pauses may be taken to rest the arm.
- Strings should never change note mid-bow, always finish current bow then change on the next.
 - Dynamic always *p*; start and end note quietly and with a slight swell in middle of note.
- Strings must attempt to match the sax's current or most recent note by ear.
 - Do not test the note first, use intuition. The interest is in the journey not the destination.
 - Commit to whatever note you play, make no attempt to 'fix' it, allow it to sound and let the beatings and mistunings happen.
- String players are limited in that once they have a target note (the saxophone's current or most recent pitch), they may only move in broken octaves, no glissando or consecutive pitches.
 - Broken octaves: (like the move of a knight in chess) your next note must be less than a semitone away, but displaced by an octave up/down: i.e., G4 to G^{1/4}#5 to G#4
 - Strings may not stop moving, consecutive notes must always be different.
 - If you have nothing to aim for, then oscillate between two pitches (a broken octave).
- If the sax changes note (by more than a semitone), then strings may ignore the broken octave rule and choose a new note by ear to attempt to match the sax. While the target note stays the same then proceed as above.
 - Possible strategies:
 - chasing: choose a new note each time the sax changes by more than a semitone.
 - ambush: stay within a pitch area (including broken octaves) and wait for the sax to come close enough to move to it.
- Once you have matched with the sax note you must continue to move in broken octaves, oscillating between matching pitch and its broken octave (with the sax).

Percussion

- The percussion acts as a breaker, it only plays when the piece's rules have been fulfilled (i.e., when a string player matches the sax pitch)
 - Play only when at least one of the strings matches with the saxophone (unison/octave/4th/5th), stop playing if the saxophone changes note or the saxophone stops completely (the piece is over).
 - Play once per saxophone note (dynamic *pp*, let everything ring on).
 - Play a sequence of up to 7 different pitches which do not match the saxophone's pitch.
 - Play at speed roughly crotchet = 70-100, with rubato if needed.
 - Play with two sticks but without simultaneous notes.
 - aim for chromatic clusters, but each consecutive note must be in a different octave.

Finishing the Piece

- Finishing: The piece ends after all sax notes are done.
 - Saxophone should clearly signal that they are finished (step back, visual cue, etc.)
 - Strings continue to end of bow, with slight fade out.
 - Percussion lets notes ring out (use discretion, slight pedal fade if vibes are last to play).

Huddersfield, 21/07/08

Mock-up score

♩ = 40 (durations here are not rhythmically precise, approximate only)

Musical score for measures 1-7. The score is for Tenor Saxophone, Violin, Viola, Cello, and Vibraphone. The Tenor Saxophone part features a complex multiphonic texture in the first few measures, indicated by the note "(from multiphonic fingering)". Dynamics include *p* and *ppp*. The Violin and Viola parts have dynamics *pp*, *mp*, and *sim.*. The Cello part has dynamics *p*, *mp*, and *sim.*. The Vibraphone part is silent.

Musical score for measures 8-14. The score is for Tenor Saxophone, Violin, Viola, Cello, and Vibraphone. The Tenor Saxophone part starts with a dynamic of *mp* and then *p*. A note in measure 10 is marked "(alternate fingering to multiphonic)". The Violin, Viola, and Cello parts have various melodic lines with dynamics *mp* and *p*. The Vibraphone part is silent.

15

Ten. Sax.

Vln. *matching pitch*

Vc.

Cb.

Vib. *(loosely)*
pp
Lead.

Detailed description of the musical score: The score consists of five staves. The Tenor Saxophone staff (bass clef) has a long note in the first measure, slurred across measures 15-18. The Violin staff (treble clef) has a melodic line starting in measure 15, with a slur over measures 15-18. The Viola staff (bass clef) has a similar melodic line, also slurred. The Contrabass staff (bass clef) has a rhythmic accompaniment with slurs. The Vibraphone staff (treble clef) has a rhythmic accompaniment starting in measure 15, marked 'pp' and 'Lead.' with '(loosely)' above it. The score ends with a double bar line at the end of measure 18.