TIN

For Zach Rowden

Instructions

The piece TIN is composed for solo bass and an electronic part written in SuperCollider. The electronic part is made up of between twenty and forty saw-wave oscillators divided between two and four clusters[1], where each saw wave is assigned a random frequency of between 40 and 3000 hz. These clusters are executed in a pseudo-randomized[2] time frame, where each instance entails a new frequency for each saw-wave oscillator.

The bass player is meant to listen to the chord[3], locate a frequency within said chord and mimic that frequency. When the clusters are re-evaluated and the chord changes the bass player is to remain on the pitch played until a new frequency is heard in the new chord, and then to slowly work its[4] way towards the new frequency before staying on it until the whole process is repeated when the chord changes again.

To further create a coherence between the electronic and acoustic part the performer is given its own set of pseudo-randomized values, namely the decision on how to move from frequency x to frequency y. For this to function as a pseudo-randomized character of the acoustic part the performer is presented with two values for said movement[5], being:

[1] Each cluster containing ten saw-wave oscillators.

[2] The duration of each cluster is randomized between x and y seconds, therefore making the duration of each cluster, but also *chord*, part and by extension the whole piece, randomized within a set range, or: pseudo-randomized. The same pseudo-randomization goes for the frequencies of each individual saw-wave oscillator.

[3] The sum of all audible clusters at one given time.

[4] The bass players'

[5] Meaning: the way in which the performer moves between frequency x and frequency y is not up to the performer, but which of the two allowed ways the performer decides to implement is up to the performer

TIN

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Instructions

TIN is a piece for solo bass and electronics. The electronic part is made up of clusters that form a bigger chord which changes throughout the piece.

The performer is meant to listen to the chord, locate a frequency within said chord and mimic that frequency. When the chord changes the performer should remain on the frequency until a new frequency is audible in the new chord, and then slowly work its way towards the new frequency. Rinse and repeat.

When moving from one frequency to another, the performer can choose between a glissandi or some version of a harmonic progression of one's choosing. Notated in the score I've are three different *gliss.* lines between three different pitches. These pitches do not mean anything, they're just there as a reminder to actually play any one pitch the performer can make out from the electronic part. In the same way, the glissandi lines are not meant as an instruction to *gliss.* but to remind the performer of the "working ones way to the new frequency" part of the performance.

To create a coherence between the electronic and acoustic parts timbre, the notation for the bass part uses three different notations: x, ◇ and ■, each one with an individual timbral character, listed below:

x represents bowing the bass beneath the bridge to produce unstable harmonics

◇ represents bowing the bass to produce more stable harmonics

■ represents bowing the bass regularly

In regard to amplitude nothing has been notated in the score, since each iteration of the piece TIN will have different randomized values for frequency and amplitude. Thus, the idea is for the bass to follow the amplitude of the electronic part at the best of its ability.

1. Glissandi
2. Any harmonic progression seemingly fit in the specific instance

In the notation the bass part has been written as a repeating chord[6] with arbitrary glissandi lines only meant[7] as a way to remind the performer that it's up to one self to locate the frequency that is to be played. Simply put, don't *gliss.* due to there being glissandi lines in the score, *gliss.* because you randomly decide to[8].

As for timing, half of the audible clusters crossfade into a new cluster at half the speed of the other cluster(s). This crossfade-time is the above-mentioned pseudo-randomization of the timeframe for the individual clusters, and it's constantly re-assigned a new value for each chord. For example: if there are two clusters playing with the randomized value ~time set between 5 and 10[9] and this random value equals to 8, the first cluster will have a fade time of 8 seconds and the second cluster will have a fade-in time of (~time * 2) = 16 seconds. At the same time, ~time decides the fade-out time of the previous clusters, resulting in a crossfade between the old and the new chord. The point of execution for each new chord[10] is decided by the same value ~time, but with the calculation (~time * 2.5), in this case = 20s[11]. See the code example below:

[6] Made up by the notes A, D & G
[7] Both the chords and the *gliss.* lines
[8] Or because you randomly decide not to use a harmonic progression.
[9] ~time = rrand(5,10);
[10] Which again also randomizes a new value for ~time.
[11] (8 * 2 = 16) + (8 * 0.5 = 4) = 20

```
~time = rrand(5,10); //assign ~time a random value between 5 and 10
x.set(\decay, ~time, \gate, 0); //fade out the previous instance of the cluster 'x' at the speed of ~time
y.set(\decay, ~time*2, \gate, 0); //fade out the previous instance of the cluster 'y' at half the speed of ~time
x = Synth.new(\tinSynth, [ //create a new cluster 'x'…
	\atk, ~time, //…with the fade-in time of ~time
]);
	y = Synth.new(\tinSynth, [ //create a new cluster 'y'…
	\atk, ~time*2, //…with the fade-in time of (~time * 2)
]);
~time*2.5; //repeat the whole process when (~time * 2.5) seconds has passed
```

The performer should aim towards an equal amplitude and dynamic expression as that of the electronic part, as well as choosing a matching timbre to further mimic the characteristics of the electronics. The latter has been implemented in the score by using different notations for different bowing-styles to affect the timbre produced by the instrument. There are therefore three different notations for the bass part: x, ◇ and ■.

x represents bowing the bass beneath the bridge to produce unstable harmonics

◇ represents bowing the bass to produce more stable harmonics

■ represents bowing the bass regularly

The question of amplitude and dynamic expression has however not been notated in the score[12], since each iteration of the piece will have different pseudo-randomized characteristics, including the volume for the pink

[12] With the exception of one movement in which *O.P* is implemented.

noise added during movement *D* and *E*. Thus, if the dynamics of the bass part were to be notated in the score the risk of incoherence between the bass and the electronic part would increase significantly[13]. There is a point in stressing the fact that the idea behind TIN is not just about trying to locate a pitch within the electronic part, but for the performer to try to actually mimic the whole of the electronic part, including dynamics, timbre, tempo *and* frequency. This is obviously impossible, since the double bass is not twenty to forty saw-wave oscillators, but some sort of interesting sounds should be able to form in the attempt.

Theodor Kentros, 2023

[13] Again, since the dynamics of the electronic part cannot be known for sure.