

SCRITTO – the search for a musical material 2007

In contrast to my recent work where I examined aesthetical questions with meta-musical thoughts and metaphor SCRITTO is an attempt to compose a “natural” work. Swedenborg blab la bla.

When I began to compose I had two goals:

- to write a work where every aspect in the work refers to itself
- to write a work that uses audible perceptive levels or categories

The first goal is of an analytical and structural kind. The second, and more important goal is to in itself supersede the first goal. This demands, as I see it, a search for a specific musical material that leads the ear from the structural frame and acquires a less palpable but a more all-embracing function. To allow a work to create its own rules obliges me to re-orientate myself to that which is “clearly musical”.

The work enumerates three perceptive categories:

Active line – Medial line – Passive line; linguistically these can be defined as:

I am felling – I am falling – I am being felled.

Material

Before we go deeper into these perception categories, it is necessary to define how the material is ordered, and furthermore how this ordering is applied structurally. To compose this self referring work the material is sourced from a singular *cell*. For the mathematically interested person this cell can be described as:

$$f_{n-1} = f_{n-1} + f_{n-2}$$

This recursion can form a closed formula:

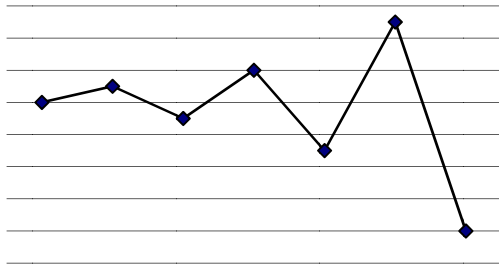
$$f(n) = \frac{1}{\sqrt{5}}(\phi^n - \phi'^n) \text{ where } \phi \text{ is the golden ratio.}$$

Note that:

$$\lim_{n \rightarrow \infty} \frac{f_{n+1}}{f_n} = \phi$$

This sequence can graphically be shown in the following way:

[figure 1]



[figure 2]



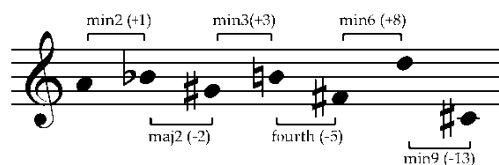
1. v_θ = figure 1 is called a *solenoid* $\nabla \cdot v = 0$

2. figure 2 is called a *vortex* $v_\theta = \frac{\Gamma}{2\pi r}$

Here, I want to make clear that this material is not in any way “mathematically generated” from a formula but that the equation is a *description* of the material that I consider feasible in a musical context. However, it is completely logical that an **ordered** material can be given a mathematical description.

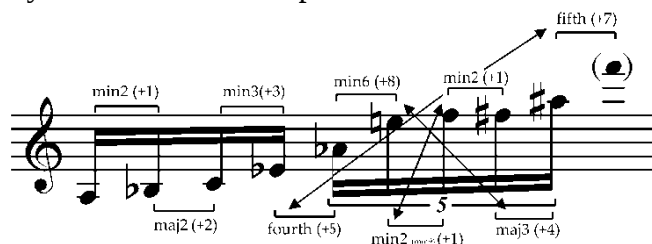
Let us now see how this cell has generated material for SCRITTO, specifically in its intervallic structure and creation of an active line.

In the order of the cell the proportions (0:1):1:2:3:5:8:13 (etc.) can be found. A solenoid applied on a ascending/descending chromatic scale with a central tone of A^{4*} we get the following tone series: $A^4 - B^{b4} - G^{\#4} - H^4 - F^{\#4} - D^5 - C^{\#4}$

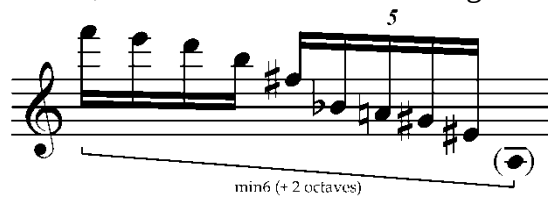


The intervals thus are ascending minor second – descending major second – ascending minor third – descending perfect fourth – ascending minor sixth – descending minor ninth.

To get this active line to be as intended, I first let these intervals form an ascending line where the last three notes are the intervallic cell in retrograde inversion. The rhythm in this line comprises four 16th notes + one group of 16th quintuplets:



The descending line has exactly the same intervallic relationship with a starting point from F⁶, the last note of the ascending line. The rhythm is the same:



This gives us:



(sound ex. 1)

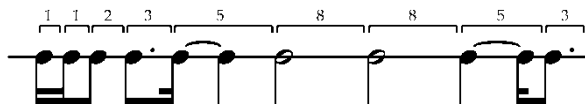
From here on I refer to this line as [1].

The line has a intervallic span of a minor sixth + 2 octaves.

Another compositional factor is how the cell can be applied to rhythm. The most direct way to do this is to let the proportions define rhythmical durations. The initial value is arbitrary and in this case a 16th note. We then get:



In order to follow the melody we must add three rhythms and these are, just as the melody, a retrograde. We now see how the rhythm and the melody get the same proportions.



Formal process

To show how the third parameter, the tempi, is influenced by the cell we must first look closely at the structure of the form in its whole. As previously mentioned, there are three basic perception categories. These are divided as $\frac{4}{19}$, $\frac{10}{19}$ and $\frac{5}{19}$ of the piece.

As I conceived the piece to be about 7 minutes long I decided that $\frac{1}{19}$ should be 22 seconds of music.

We then get the proportions:

- active line, 88 seconds
- medial line, 220 seconds
- passive line, 110 seconds

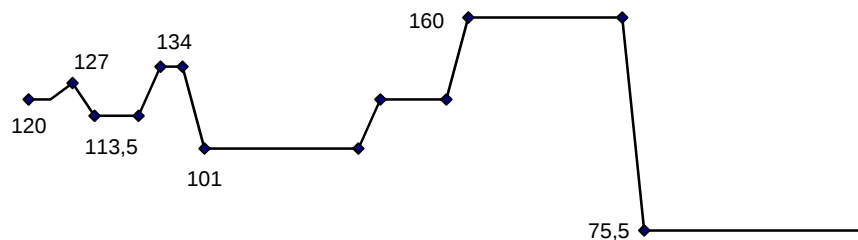
These are in turn divided in following way:

$$\text{Active: } \frac{1}{19} + \frac{1}{19} + \frac{1}{19} + \frac{1}{19} \quad \text{Medial: } \frac{4}{19} + \left(\frac{2}{19}\right) + \frac{4}{19} \quad \text{Passive: } \frac{5}{19}$$

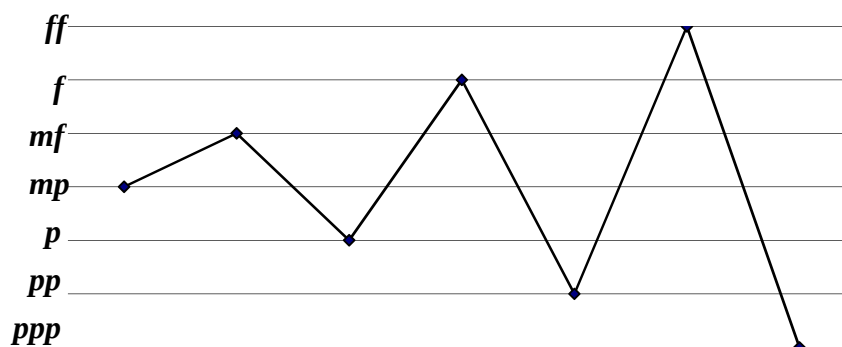
These are now given a tempo from the cell (with the exception of the part in parenthesis in the **medial** perception category, for reasons which will be explained later).

With [figure 1] applied to this and a basic tempo of ♩ = 120 we get:

Tempi: (♩)



The fourth and last parameter that is affected by the cell is the dynamics. It follows the formula of the solenoid curve in the same way as the previous parameters. With an initial value of **mp** we get:



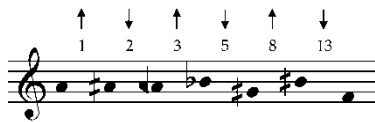
(Note that the middle part in the medial perception category is not a part of this schematic)

We can now make a schematic conclusion of the form:

Part:	A	B	C	D	E	F	G	H
Time:	22"	11"	33"	22"	88"	44"	88"	110"
Tempo:	♩=120	♩=127	♩=113,5	♩=134	♩=101	[zenith]	♩=80	♩=120
Dynamic:	mp <	mf >	p <	f >	pp	<> <>	ff >	ppp ^{sf} >

Transformations of the melody

In examining the different transformations of the melody, it must be mentioned that besides the basic active line we've seen, there is also a second basic line, based on quarter tone steps instead of a chromatic scale. The cell will then appear as:

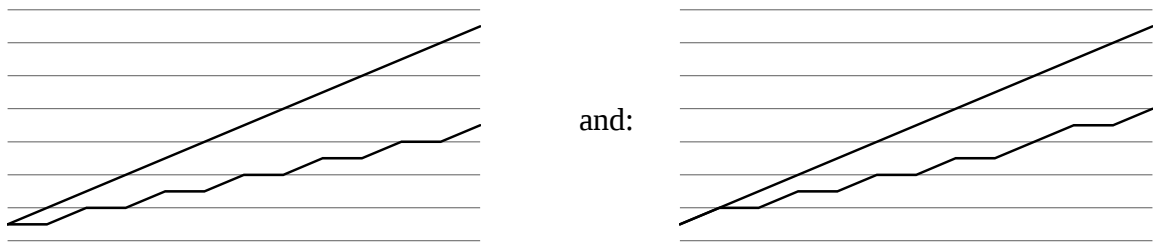


And the second active line generated from this:



From here on I will refer to this line as [2].

Transformations in the y axis occur according to the following diagram:



These transformations are now applied to both of the active lines, [1] and [2]. According to the first diagram, the transformation of [1] will appear as follows:



and corresponds to the second diagram as thus:



Line [2] according to the first diagram:



a second transformation in accordance to diagram one is applied on this line:



Line [2] corresponds to the second diagram as thus:



a second transformation according to diagram 2 is applied as follows:



Application of the material in SCRITTO

This section will address how this material is used both melodically and harmonically. The first example is from the very beginning of the piece. If we first look at the function of the clarinet, it is clear that it is playing line [1] in the first bar. This line has the propensity to stimulate an *active* response for the listener. After its exposition, it is directly modified *rhythmically* in bar two to avoid an exact repetition and to gain forward momentum. The variations are that the quintuplet on the second beat becomes an 8th note triplet with 16th notes on the last 8th note (see example in figure below). This forces the A^{#5} in the first quintuplet to the third beat of the second bar, which is now altered to a quintuplet instead of a quadruplet grouping. The 5 notes in the last beat becomes an 8th note triplet with four 16th notes plus one 8th note. In the first beat of the third bar, we get a glimpse of the first three notes of the cell, followed by another rhythmical variation of [1]. This time tremolos, grace notes and trills are introduced. According to the schematic part A should have a general dynamic of *mp*. This is reflected in the clarinet part, but also includes small changes that follow the natural composition of the line. The exception of this are the three notes from the cell that are played *p subito*.

A

$\text{♩} = 120$

Clarinet (in B $\flat$)

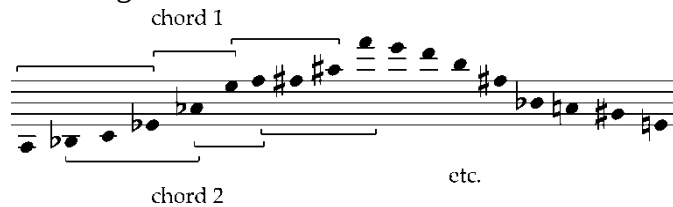
mp *poco* *poco* *mp*

p *mp* *mf* *mp*

(sound ex. 9) (1time in
tempo120, 1 time in
tempo 70)

The function of the three other instruments are mostly for harmonic purposes. The strings play a rhythmically augmented version with free values of line [1]. The violin is confined to the *ascending* part and the cello to the *descending* part with both using different kinds of ornaments.

The piano plays a 4 note chord created through a selection from [1] according to the following:



which gives us:



Together the three instruments creates a *contrapuntal* background to the active line of the clarinet.

Clarinet (in B)

Piano

Violin

Violoncello

(sound ex.11)