One Modal Pattern, Three Compositional Entailments

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Abstract: - Frescos for solo violin (1976) draws a ‘boundary’ between my early years as a composer and everything that ensued until Seven Intersections of A Feeling and A Season (1988). Starting with the Frescos, I devised a coherent musical grammar which nourished, fully or partially, all my succeeding works. The grammar in question is represented by a non-octaval proportional intervalllic mode and its derivatives. The mode belongs to a family of modes (Miorita – The Ewe Lamb, the Fibonacci modes) which has become emblematic in the Romanian contemporary musical output due to its rigorous theoretical support, on the one hand, and to the remarkable creative applications provided by some very important composers (Anatol Vieru, Wilhelm Berger, Aurel Stroe and others), on the other hand.

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1 Introduction
The proportional intervalllic mode (MP) represents the intonational projection of the string of numbers [1, 2, 3, 5, 6, 7, 9, 10, 11] on which the semitone unit is applied in one direction (ascending or descending). In the structure of the string there are three triplets made up of consecutive numbers, between which there is an empty slot (the missing consecutive number):

1, 2, 3, (4), 5, 6, 7, (8), 9, 10, 11

If it went on using the same algorithm (…13, 14, 15, 17, 18, 19 etc.), the string would return to the original intervalllic structure by subtracting the module 12 (octave):

13-12 = 1, 14-12 = 2, 15-12 = 3, 17-12 = 5,

etc.

Consequently, we are dealing with a closed modal structure composed of nine intervals (ten sounds, actually eight – in absolute values – since two of them are repeated)

Fig. 1

This structure has some quite interesting properties:

- firstly, it is a symmetrical structure: the axis – tritone (augmented fourth – diminished fifth) divides the mode into two equal sections whose intervals are symmetrically complementary. The ambitus of the mode represents the equivalent of the axis interval. Fig. 2

- secondly: if we were to continue the modal structure according to the algorithm of the extended string of numbers, to which we would apply subtraction by 12 (octave), we would come up, on the one hand, with the transposition (translation) to semi-octave (augmented fourth or diminished fifth) and, on the other hand, with the reversed recurrence (reflection), by means of complementary intervals, of the initial modal structure (MP) namely its derivatives (MP, şi MP). Fig. 3
All these aforesaid render the MP structure palindromic and, at the same time, make it a mode of limited transposition (six transpositions);

- **thirdly**: the change of direction in mode construction – its inversion (reflection symmetry with axis – sound) – generates the derivative MPI whose formal properties stated above remain identical but whose ethos is 'reversed' by changing the direction of the intervals and the relations between them:

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\[\text{Fig. 4}\]

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- and, finally, **fourthly**, a striking coincidence: although radically opposed from an intonational viewpoint, the two modal instances (MP and its derivative MPI) possess **exactly the same sonorous material**, exactly the same ten sounds (actually eight, in absolute values, since the same two are repeated). Naturally, in order to confirm this identity it is necessary to resort to enharmony.

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\[\text{Fig. 5}\]

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The situation above proves once more that the musical structure is built fundamentally on relations and only formally on absolute values (sounds).

I mentioned earlier that between the basic mode (MP) and its reversed derivative (MPI) there is a 'reversal' of the intonational direction. It occurs both partially (on sections) as well as globally. The MP contains two major harmonic structures which can be extended to two corresponding spectral-acoustic polarities: one with the fundamental B (C flat), the other with the fundamental F. In the case of the MPI, the two structures are – through reflection – minor, with the fundamentals F sharp and C, respectively.

All the above-mentioned properties characteristic of the MP mode offer it and its derivatives specific qualities of an expressive nature, but also a remarkable structural unity, qualities that I have tried to exploit in almost all the works written since 1976.

### 2 The MPI – *Frescos*

The work *Frescos* for solo violin (1976) is the first consistent application of the MP structure through its 'minor' derivative MPI. The title offers a plastic suggestion en rapport with the two contrasting sonorous structures on whose alternation music is developed. The *A* structure, 'ascetic' from a rhythmic and intonational viewpoint, is meant to render the hieratic character of the old church frescos. The *B* structure cultivates a fickle and agile rhythmic-intonational pattern whose inner geometry suggests the mouldings and the decorative strips on the houses and the carpets from Bukovina.

The modal structure MPI is present in two transpository instances; the reason for their choice lies in the fact that the sounds G, D1, A1 şi E2 that they contain are found in the standard violin strings, which allows for the timbral exploitation of the free strings, but also of the natural flageolets.

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\[\text{Fig. 6}\]

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The occurrence of the two modal instances is reduced to partial structures (sections) of the basic mode. Occasionally, there is a sound 'attached' to the pitch of the mode, which comes from its straight form (the MP). The central section of the work (B var.1, bars 68-89) synthesizes the intonational material through the union of MPI and MPI.

The contrast between the *A* sections and the *B* sections occurs mainly because of the use of two reversed rhythmic operations.

**The former** – for the *A* sections – is a multiplying operation: the unit (the eighth) is multiplied alternatively by the items in the string \([1, 2, 3, 6, 7, 8]\) grouped into two triplets: the 'small' numbers \((1, 2, 3)\) and the 'big' numbers \((6, 7, 8)\). These last ones derive from the 'small' numbers to which 5 is added: \(1 + 5 = 6\), \(2 + 5 = 7\), \(3 + 5 = 8\).

It is obvious that I have resorted to the same string of numbers which generates the intonational grammar \([1, 2, 3, 5, 6, 7]\) as concerns the rhythical organisation as well. This results in a rhythmic
structure made up alternatively of 'short' durations and 'long' durations. The succession of the 'short' durations is determined by a symmetrical algorithm with period 6: \([1, 2, 3, 1, 3, 2\) etc.\], and the succession of the 'long' durations – by an equally symmetrical algorithm with period 4: \([7, 8, 6, 8\) etc.\].

**Fig. 7**

The latter operation – for the B sections – is, by contrast, de-multiplying: the unit (the crotchet) is divided alternatively by the items of the string of numbers \([2, 3, 5, 6, 7\) which is again grouped into two triplets: the small numbers \((2, 3, 5)\) and the 'big' numbers \((5, 6, 7\) – where 5 is now the conjunction. This results in a rhythmic structure made up alternatively of 'long' divisions \(\bigcirc\) and 'short' divisions \(\bigcirc\), where the value \(\bigcirc\) is the medium value \((the\ symmetry\ axis)\). The algorithm of this succession is again symmetrical: \([5, 6, 7, 5, 7, 6\) etc.\] (period 6) and \([3, 2, 5, 2\) etc.\] (period 4) respectively.

**Fig. 8**

The diagram of the work illustrated in Fig. 9 denotes the existence of symmetry as well as the filiation with the the ratios of the Golden Section.

**Fig. 9**

Frescos for solo violin is my first creative experience where the rigorousness and the constructivist spirit prevailed over intuition. The work was one of the seven pieces for solo violin to be selected as finalists in the composition section of **Henryk Wieniawski** International Competition in Poznan, Poland, 1977.

3 **The MP - Sinus**

**Sinus** – for solo clarinet (1982) is a 'case study', in fact an exercise of technical rigorousness in extremis. Hence its uniqueness in the present analytical context.

The exercise aims at assessing the motivity of a modal mechanism, none other than the MP – the proportional intervallic mode. The starting point is the trichord stage of the MP mode built on G1 (F1 effect for clarinet in B flat). The evolutionary process is based on the operation of adding successively one new interval to the already existing ones. The maximum extension attained is eight sounds (seven intervals) and an ambitus of double augmented octave (G1, G3 sharp).

The motivity of the modal sub-structures (sections) depicted above is activated by the operation of **circular permutation** – the double application of **translation** and **rotation**. The directions of the permutations can be ascending (sub-structures 1-7, 10, 15, 21), descending (sub-structures 11, 16 and 17) or, alternatively, ascending-descending (sub-structures 8, 9, 12-14, 18-20).

The figurative syntactic structure is constantly dissociated on two levels one octave apart, which provide it with the attributes of a latent polyphony.

**Fig. 10**

The composition of the permutational pattern remains stable as long as the elements of the modal sub-structure go in one direction only (either descending or ascending). Hence the continuity of the rhythmic-intonational periodicity of the melodic relief set in a constant pulsatory environment. However, once the directions start alternating (bar 9, the final time – modal section 8), the melodic arch enters a state of 'arrhythmia' stressed also by syncopations, which will occur more and more frequently on increasingly larger areas, culminating with bars 30-32 (modal section 20) – the climax of the work.

**Fig. 11**

In a constant unit value (the half note) to which a variable division is applied – depending on the number of sounds of the MP section – there results a pulsatory density \((\Delta^p)\) proportionally variable. However, the general direction of the pulsatory structure is progressive accelerando.
The peak of maximum density is reached in the segment corresponding to bars 30-32, a replica of section 20. Henceforth, the melodic continuum breaks up into fragments, the sonorous interventions become more and more sporadic, more disjoint, the rests grow stronger, the music fades.

Despite a largely mechanical 'recipe' of construction, *Sinus* – for solo clarinet conveys to the audience quite a dramatic touch. Perhaps this also happens as a result of the title's association with the musical pattern and, even more, with the visualisation of this pattern, which offers an oscilloscopic image.

4 The MPO – Seven Intersections of A Feeling and A Season

*Seven Intersections of A Feeling and A Season* – trio for flute, oboe and bassoon (1988) open a new stage in the structuring of the intonational musical grammar. The starting point was the same string of numbers whose properties and sonorous consequences we spoke of earlier. The idea of re-composing the grammatical structure or, better still, of finding an alternative grammatical structure to the MP (and its derivatives) was given to me by Anatol Vieru's observations on the diatonic-chromatic relation in his *Book of Modes* [1].

Here is what Vieru writes when referring to diatony: “The process of formation of diatony takes place in the order of the fifths. (...) We call a perfectly diatonic modal structure any modal structure that can be arranged in a single continuous string of fifths. (...) To measure the diatony of a mode means to compare it with the string of perfect fifths.”

As concerns chromaticism, it is again Anatol Vieru who adds: “We shall proceed analogically: let us call chromaticism a connected string of semitones. (...) Let us call a perfectly chromatic structure any modal structure that can be positioned in a single string of semitones. (...) To measure the chromaticism of a modal structure is to compare this structure to the scale of semitones, in the same way that we tackled diatony and the scale of fifths.”

Vieru's observations and their developments in chapter 4 (*Transposition*) of the above-mentioned book, have made me go back to the MP structure. This time, though, the intervallic unit applied to the string of numbers [1, 2, 3, 5, 6, 7, 9, 10, 11] was no longer the semitone – the constant CRO (according to Vieru) – but its reciprocal, the perfect fifth – the constant DIA (ibid.).

Given the large intervals that resulted from the multiplication of the perfect fifth by the elements of the string of numbers, certain intervallic restrictions (of the octave and its multiples) and enharmonies were required. At the same time, I chose the 'small' intervals, up to and including the perfect fifth, which determined in some cases the operation of intervallic reversal (complementarity) as well. Under the new circumstances, it became obvious that, although the modal construction still went in one direction (ascending or descending), through the 'devices' and intervallic 'adjustments' that I resorted to, the intonational structure of the mode would adopt an oscillating conduct, sometimes upward, sometimes downward. In other words, although the new grammatical structure preserves essentially its scalar origin, the position of the elements in the sonorous environment fluctuates. From now on I will refer to the new grammatical structure as MPO, where the initials stand for 'Oscillating Proportional Mode'.

The properties of the new structure are congruous with those of the MP structure, as follows:
- the MPO is also a perfectly symmetrical structure. The axis – tritone (augmented fourth – diminished fifth) divides the mode into two equal, recurring sections whose intervals are bilaterally symmetrical. The ambitus of the extremes of the mode is the equivalent of the axis interval.

Fig. 13

- the recurrence of MPO generates again MPO, which render the structure palindromic, and, at the same time, qualify it as a mode of limited transposition (six transpositions):
just like in the case of the MP, the change of direction in the construction of the MPO – from ascending to descending – produces the reversed derivative MPOI whose formal properties stated above remain identical, despite the essential change of ethos:

- finally, the same coincidence in the case of the MP occurs in the case of the MPO: the reverse variant (MPOI) possesses exactly the same sonorous material present in the case of the straight variant:

- moreover, the same ten sounds (actually eight, in absolute values, since two are repeated) are present in the case of the MP (with its derivatives) as well as in the case of the MPO (with its derivatives):

Coming back to Vieru, it is confirmed that “diatony and chromaticism are compatible. They coexist in any mode; each mode has a certain number of connected components in fifths and semitones.” In our case, the compatibility between the two constructions – the former based on the constant CRO, the other on the constant DIA – extends until the identity of content. The formal differences which place the structures MP and MPO – as structures 'in time' – on quite distinct positions with regard to ethos, remain defining.

The title Seven Intersections of A Feeling and A Season represents a metaphorical extrapolation of the homonymous mathematical operation which, starting with this work, I have applied somewhat consistently on the MP and especially the MPO structures, either by making them interact with each other or with themselves, or by 'sifting' them through the sieve with a mesh of perfect fifths.

By applying the operation of intersection, the common elements of the (modal) sets are kept, whereas the separate elements are removed. This results in a different structure each time, partial by comparison with the original structure, and in a new time placing as well. Each intersected structure can be converted into a simpler or more complex morphological phrase (cell, motif, figure, etc.), fit to its size and expressiveness. All of them, either together or selected – according to one's imagination or liking – can be moulded into syntactic structures (monody, homophony, monody accompanied chordally or figuratively, polyphony or heterophony) having varied densities – from pointillism to texture.

The work consists of two parts, the former having five structures, the latter – three. The two parts are played in attacca, and the element which joins and divides them at the same time is the fifth structure flanked by two general rests. Each structure has its own distinctly-shaped personality that make it interact even beyond the relations of successiveness.

The first structure, Rubato, having an introductory role, denotes a bucolic character; mode fragments (MPO) alternate in the flute and the oboe. The rhythmics in proportional notation (controlled randomness) is attached to a circular permutational process (translation, rotation).

The second structure, Ruvido, (letter A in the score sheet), is a heterophony obtained by dephasing the three 'voices' of the whole. Each element of the MPO mode built on B becomes the unison of the heterophony through successive addition. The
sonorous density rises progressively with the completion of the mode (the area coincides with the Golden Section of the structure) and then slowly falls again, through the dissolution of the mode.

The third structure (letter B in the score sheet) is a cadenza reserved for the bassoon, conceived on three contrasting levels: the first – hymnic, with Byzantine resonances (una corda, uguale), the second – giusto (marcato) and the third – melismatic (quasi vibrato lento e ampio).

The three levels face each other in an improbable alternation; toward the end of the cadence, the hymnic level yields in favour of the other two; the last occurrence, that of the second level, is progressively distorted from giusto to rubato and invested with the role of transition to

The fourth structure (letter C in the score sheet). This structure comes to continue the cadential ending of the bassoon which it transforms into a figurative accompaniment for an ample monody that will pass from the oboe to the flute and from the rubato rhythmic conduct to the misurato. Both the monody (flute) as well as the accompaniment (oboe, bassoon) gain density, progressively, toward the end of the structure. To this is added the use of repetition and sequencing (translation), apparently in a free and uneven manner; their rhetoric sharpens the sonorous tension that will be released at the end of the structure through the four overtones in forte (ruvido) of the flute. The four structure is also the amallest of the eight, and the symmetry axis of the work is located at the passage between the rubato and the misurato (uguale) – letter D in the score sheet, approximately 5'30". The general rest that precedes the fifth structure is where the Golden Section of the work lies (approximate ratio 6'50"/ 4'10") – letter E in the score sheet.

The fifth structure plays a transitive part. It resumes the technical-constructive elements of the introduction (the first structure), which it amplifies and strengthens in all three instruments. After the unisonal climax (ff, marcato) located according to the symmetry axis of the structure, there occurs a process of dissolution of the second section of the MPO, achieved by its descending sequencing, more and more fragmented, simultaneously with the rhythmic rarefaction, in proportional notation.

The sixth structure, Giocoso, (letter F in the score sheet), is circumscribed syntactically to the accompanied monody. The accompaniment of a figurative nature is attributed to the flute and the oboe. Each of the two figures possesses a symmetrical pattern repeated obstinately under the circumstances of an inner intonational variability, has a monochronic rhythmic conduct (sextolet semiquavers), and evolve in the instrument's acute register. In contrast with the quasi-continuous figurative level, the bassoon's monody is a recitativo structured in a discontinuous, apparently improvisational manner, whose components originate – as a result of a transformational process – from the giusto level of the cadenza (the third structure of the work). Characterologically speaking, they interpolate among the aesthetic categories of the comic, the tragic and the grotesque; it is a Till Eulenspiegelish anamorphosis.

The seventh structure, l'istesso tempo (letter G in the score sheet) is in the same register of expression. This time, however, the polarity is reversed. The monody distributed to the flute has a quasi-continuous conduct, and the figurative accompaniment assigned to the oboe and the bassoon is achieved in a pointillist fashion.

The eighth structure, the final one, in the form of a coda (letter H in the score sheet), resumes the 'hymnic' and 'melismatic' levels of the bassoon's cadenza (third structure of the work), this time assigned to the flute and the oboe, respectively.

The diagram of the work:

Fig. 20

Seven Intersections of A Feeling and A Season – trio for flute, oboe and bassoon, was first 'introduced' to the audience at the tenth edition of the Romanian Music Festival of Iasi, May 1998, performed by Trio Syrinx. That same year, the work was awarded the Prize of the Romanian Composers and Musicologists' Union, under the plain title Trio for flute, oboe and bassoon.

References: