

Symmetries in post-war operas based on psychoanalytical texts - Penderecki's *Devils of Loudun* and Ligeti's *Le Grand Macabre*

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Abstract: Most references converge in that the recognition of creativity via symmetry and asymmetry relation is essential for the comprehension of the dualism of psyche. Particularly in opera, considered as a world of complexity where music and drama combine imagination and exaggeration harmonically, symmetry and asymmetry constitute an exercise of the psyche. Psychopathological cases described by psychoanalysis influenced opera composers and librettists of the 20th century. Balance between motivation of the unconscious and the forces of destiny in old guard protagonists' like *Bluebeard*, *Elektra* and *Wozzeck*'s state of mind, comports with characters found in the operas of 60s and 70s like *Devils of Loudun* by Krzysztof Penderecki, *Nixon in China* by John Adams and *L' Histoire du loup* by Georges Aperghis. Expressions of symmetry like the Spiegelcanon in György Ligeti's *Le Grand Macabre*, the use of klang's cancer inversions in Karlheinz Stockhausen's *Licht* cycle, and general adoption of ideal analogies in melody, harmony, timbre and texture elaboration, awaken the subconscious need for symmetries found in nature, like axis symmetry, arithmetical progress and the golden mean.

Psychoanalysis, not as a treatment but in its theoretical aspect, does not associate directly with music composition – even less with symmetry, as psyche's dualism is not something measurable and it cannot be defined by symmetries. However, in the colorful world of opera, theories of psychoanalysis by Freud and his descendants can be traced in librettos since the beginning of the 20th century. It's challenging to understand how composers set into music the most common psychopathological situations found in a libretto. In that direction, music symmetries derive from composers' inner self, a personal way of perception of texts and the empathy between text and composers' personal experiences or even traumas. By the time Freud introduced the terms conscious (*bewusste*) and unconscious (*unbewussten*) in *The Interpretation of Dreams* (1900), librettists included conflicts of psyche and various psychological cases into different styles of opera. Later, Freud described 'The Unconscious' in 1915 (Wollheim 1991), 'Oedipus complex' (Freud 1919/2003) – an inspiration for librettists and composers to explore the 'family romances' (Buller 2003:64)¹, and the 'Uncanny' (*Das Unheimliche*) – the concept of unfamiliar and unnatural. Jungian concept of 'Shadow' – the important archetype for the unconscious – considered as the disembodied part that follows someone like a shadow, also stimulated composers and authors. Jung's perspective of human soul suggests a bilateral symmetry among matter and spirit, elevating the psyche to an undoubted superiority (Roth 2004).

Talking about conflicts, such as 'Ego vs. Id', or the pathological cases of 'Neurosis', 'Psychosis' and 'Hysteria', Freud described them as principal traumatic states of the psyche.² These psychopathological cases reflected in the 'Uncanny', 'Family romances', 'Pathology of revenge' and 'Shadow', inspired librettists and composers during the first half of the 20th century. Claude Debussy's *Pelleas et Melisande* (1902) and Béla Bartók's *Duke's Bluebeard Castle* (1911) were composed at the time of the beginning of psychoanalysis and psychodynamic

¹ Ruggero Leoncavallo's *Edipo Re* (1920) is considered as the first opera based on Freudian theories and the Oedipus complex. Subsequent works are Stravinsky's *Oedipus rex* (1927), *Oedipus der Tyrann* (1959) by Carl Orff and *Oedipus at Colonus* (1998) by the Greek composer Theodore Antoniou.

² 'Hysteria' and 'neurosis' are the keynotes of the following works by Freud: i) *A Seventeen-Century Demonological Neurosis* (1923:69-107), ii) *Neurosis and Phychosis* (1924:149-156) and iii) *The Loss of Reality in Neurosis and Psychosis* (1924:183-190), set in chapter XIX (1923-1925) of the Standard Edition, translated by James Strachey (The Hogarth Press, London 1961).

psychology, as the librettists and composers were up to date with Freud. Paul Dukas' *Ariane et Barbe-Bleue* (1907) went years before Bartok's play. Richard Strauss' *Elektra* (1909) focuses undoubtedly on the characters' perversion like Elektra's psycho-sexual behavior (Lockwood, 1998) bringing out the pathology of revenge. German operas like Alexander von Zemlinsky's *Der Zwerg* (1922) and Ferruccio Busoni's *Doktor Faust* (1925) are also influenced by Freud. Schoenberg's monodrama *Erwartung* (1909) is 'the seismographic recording of traumatic shocks!' (Adorno 1973:39), bearing a libretto by a medical student who was influenced by her cousin's psychoanalysis (Rea 2002, Street 2005:91). Berg's *Wozzeck* (1925) and *Lulu* (1937) associate composition with the Freudian aspect of depth, a way to express and illumine the subconscious.

Symmetry, the foundation of aesthetics through eras (Eco 2004) appears in Western music from the first organum and isorhythmic motet to the serial operations (Solomon 2002). Symmetry in form and pitch class elaboration was very common in the first half of the 20th century. Bartok, Berg and Webern developed multileveled symmetries to the 12tone series, pitch classes and how to group them, finding symmetries in structure and a way to define durations (Clifford 2002). Symmetries like the 'golden mean' and Fibonacci sequence were deliberately used by composers assigning ideal analogies to their compositions, representing the perfection of the biological and mental state of man (Honti 2006). Symmetry in music is a classic affair for composers of antiphony, parallel organum, isorhythmic motets, fauxbourdon, canons, rounds and invertible counterpoint, sequences, ostinati, chaconne, ternary forms, sonata-rondo, arch forms, alberti bass, symmetric scales and mirror chords. The significance of symmetry in music is as important in creation as in perception of a music piece.³ The simplest symmetries from counterpoint, mirroring and cancer to the complexity of an opera arise from the tendency of noesis for reversibility (Alexandra 2008).⁴ Maybe the change from symmetry to non symmetry is the way to creativity, the starting point to the transcendence of dissimilarity, the approach of rational and absurd, particularly in opera's world of complexity. According to Harvie Ferguson (1990:256), spontaneous symmetry, breaking the primordial undifferentiated flux was the way to comprehend the reality of Cosmos and Psyche. During the first half of the 20th century, symmetry in form and pitch elaboration remained a one way road for opera composers like Bartok and Berg. Symmetries involved timbre, rhythm, dynamics and texture (Antokoletz 1997), however the partitioning of a work into sections bearing an ideal balance was the principally expected goal.

Duke's Bluebeard Castle was the first opera to include symmetry in a psychological drama, organizing a multileveled contrast for a number of parameters of his musical language. Modality and diatonic elements for the Duke versus symmetric whole-tone models for the heroine are a dramatic symbolism as one world conflicts with the other (Antokoletz 1984:91). The 'centricity' was a vital factor in how Bartok created horizontal and vertical models, as he defined a symmetric pitch range of a tone cluster around an axis system. In other words, Bartok's tonal centre was a tonal 'anchor' or a tonal axis system (Shaffer 2004). In Puccini's *Turandot* diatonic symmetries were related to the opera's macro-structure, among 1st and 2nd

³ One of the most important studies about symmetry in music is the analysis based on Bartok's axis system by Ernő Lendvai and Elliot Antokoletz (1997). More recent studies about symmetry is David H. Porter's *Reflective Symmetry in Music and Literature* (1970), Larry Solomon's *Symmetry as a Compositional Determinant* (1973), Robert P. Morgan's *Symmetrical Form and Common-Practice Tonality* (1998) and Larry Stempel's Doctoral thesis *Diabolus-in-Symmetry: Rotational Uniformity in the Harmony of 19th and 20th century* (1979). Important references about symmetry are the writings by Ian Darbyshire about symmetries in works by Messiaen (1998), Edward Pearsall's article about symmetries in works by Bela Bartok and George Crumb (2004), as well as Siglind Bruhn's articles about symmetry in the 20th century.

⁴ The Romanian composer Liana Alexandra draws a parallel between symmetry in geometry and symmetry in music. Her article '*Musical composition – an ineffable act between fantasy and arithmetical and geometrical rigor*' (2008) refers to a common basis and common parameters, classifying four principal genres: i) simple symmetry of palindrome canons, ii) translational symmetry, rhythmic symmetry for recurrent music and cylindrical for sequences and cadences, iii) rotational symmetry for fugue and modulation, and iv) rotating symmetry in space for variations.

act and the way to 'recycle' harmonies (Petty-Tuttle 2001). In *Elektra*, Strauss creates tension on four symmetric chords – one for every character (Bridle 2000). In Berg's *Wozzeck*, 1st and 3rd act were shorter than the 2nd central act – and axis system, introducing structural parallelism to the edges, creating a temporal symmetry around an important centre. Symmetry was also affecting symmetric chords of additive whole-tones or minor and major thirds, creating an ambiguity as to their functionality and the establishment of a certain tonality. Atonality refers to subjective, *Wozzeck* existential perception of the world, the expression of illusions, psychosis and alienation. Insanity and paranoia are artfully amplified by the use of tritone as the evil element driving the audience to the 'Uncanny'. The concept of archetype is found in Karol Szymanowski's *King Roger*, the literary impersonation of God Panas, a character squashed by the repression of medieval church and a young pagan shepherd, the version of the Greek God. Bohuslav Martinu's *Julietta* (1937) presents the world of dreams.

The second world-war brought composers closer to the utopia, the self-destructive side of human psyche expressed by the cold war and the painful split of Europe. Unbalanced and unstable humanity of the 60s stimulated composers, particularly from the ex-eastern bloc, to depict the absurd and the apocalyptic. Although *Peter Primes* (1945) by Benjamin Britten and *War and Peace* (1945) by Serge Prokofiev were the transition to the post-war operas, *Rake's Progress* (1951) by Igor Stravinsky seems to evoke a hero from the deep subconscious. The concept of 'shadow' is introduced and incarnated by the Mephistophelian Nick Shadow (Lazere 2000). Also, in Britten's *The Turn of the Screw* (1954), the hysterical governess for Miles and Flora, is a world full of lost, cursed souls and ghosts derived from the subconscious (Anderson 2005). In the last opera by Britten *Death in Venice* (1973), symmetry is a fragile balance, according to Longobardi (2005) as the protagonist von Aschenbach – the great German novelist, lives nothing else but a vanity. He struggles with his problematic libido – his Bacchanalian side, against logic and control, moderation and symmetry – his Apollonian side, and he gradually experiences a creative free fall. Britten used staccato percussion sounds on woodwinds after every phrase of Aschenbach, giving the impression of inner thoughts of a man who hides his sexual depression behind his creative inhibitions (Shersten 2008). Christopher Wintle (2006:60) referring to Britten's musical language characterized 'uncanny' – a term directly by Freudian theories – the locrian-flavoured mode for the adolescent Tadzio.

Georges Aperghis, a composer working for a long time 'beyond the centers', introduced *Histoire du loup* in 1976, influenced by the wolf man paradigm by Freud's *History of an infantile neurosis* (1918). A dream with wolves is vital for patient Serge's psychoanalysis session. Aperghis is blending fairy-tails with wolves, recalling memories from childhood, attributing them to legends, folklore and history. According to the librettist Marie-Noël Rio (1977), the opera features four men besides the psychoanalyst, a symbolic reference to four Freud's apprentices – a few dissidents, or just an old choir or the audience. In *The Mask of Orpheus* (1986), Harrison Birtwistle explores different versions of the ancient Greek myth. He divides the stage in such a way that he trichotomizes the characters of Orpheus, Eurydice and Aristeus. In his work, singers stand for the human hypostasis, mimes for heroes, and puppets for legends. Previously, Birtwistle utilizes the Jungian archetype for the character of Punch in his opera *Punch and Judy* (1965-68). In the last scene from John Adams' *Nixon in China* (1987), the main characters recline in their beds dreaming of their own reflections. Adams worked on psyche's partition in addition to the hexatonic cycles – a characteristic of his harmonic language (Atkinson 2009:287). In Stockhausen's *Licht* (1978-2003), the archetypal character Luzifer and his counter-character Michael reflect the symmetry of good and evil. Especially on Dienstag, the day of war between Michael and Lucifer, Lucifer represents the negative as he repeatedly tries to stop time, while Michael puts it in motion again on every occasion (Albrecht 2007). Symmetries also derive by the division of the chromatic scale in symmetric groups using retrograde inversions of serial composition.

Operas based on psychopathologic cases can be found in a lighter repertoire like Stephen Sondheim's *Sweeney Todd* (1979). In the piece called by the composer a 'black operetta', the

main character represents the pathology of revenge. The melodic line of his song sounds the *Dies Irae* as the chorus rises to a climax, a theme which runs throughout the score as a leitmotiv and later it is heard in inversion (Brown 1982). *Blaubart* (1985) by Franz Hummel (-1939) is a chamber opera based on a play for puppets by Georg Trakl (1887-1914). It was the study of 'Hysteria' by Freud (1899) and the case of patient Dora K. the source of Takl's inspiration. According to van der Schoot (2005:78), the opera brings out the passing of neurosis to hysteria.

Following brief analysis of the operas *The Devils of Loudun* (*Die Teufel von Loudun*, 1969) by Penderecki and György Ligeti' *Le Grand Macabre* (1974/rev.1996) brings out a common feature, the conflict within the human personality; a conflict expressed in various ways by religions and philosophies, like the power of light and darkness, God and devil, good and evil (Horney 1999:37). Both operas belong to the grotesque music theater, composed by two authors who put to the question the solidity of the sheer serialism.

Penderecki's *The Devils of Loudun* is the story of the prioress of a monastery in the provincial town Loudun, during the 17th century. The prioress asks the sensuous priest Grandier to be her confessor. When the priest rejects her, nun suffers from sexual hallucinations and eventually possessed by devil. Soon she affects the other nuns in her dreamy and evil world. The composer depicts a version of hell on earth, using a choir of 80 singers howling with spasmodic movements of a sensual delirium, singing Gregorian chants, whispering and grunting. An enormous orchestra comments with peaks the scene of exorcism and at the end Grandier burned to death. Penderecki's German libretto is based on John Whiting's play '*The Devils*' which came from the ultimate psychoanalytical text of Aldous Huxley (1894-1963). In scene 9 [27]-10 from act 2, nun Jeanne is already in hysteria. She avowed her situation trying to explain her erotic dream with Grandier. Hence, libretto involves two subjects of the Freudian theories, 'dream interpretation' and 'hysteria'. By using the expression 'hysteria, the cry from the womb', Jeanne connects directly her possession with sexuality. Hysteria's connection with feminine sexuality had been argued since 19th century by Jean-Martin Charcot, a pathology known as female hysteria - long before Freud - in his '*Lectures on the diseases of the nervous system*'. According to the introduction 'The psychic mechanism of hysterical phenomena' from the *Studies in Hysteria* by Breuer and Freud, 'splitting of consciousness in the classical cases of double consciousness exists rudimentarily in every case of hysteria.. Cause of this type of neurosis can be found in the abnormal states of consciousness comprised as "hypnoid" (Breuer-Freud 2007:8). Interpretation of dreams was used by Freud as a treatment for hysteria and neurosis in general, by approaching deeper to unconscious.

Penderecki imports symmetry in macro-structure level. In the first cyclic act, Jeanne is on her bed, dreaming (scene 1). Act ends with the same dream in variation. Bed represents both a psychopathological state of Jeanne and a symbolism of a Freudian psychoanalytic procedure. Scene 12 is a symmetry axis of the orchestral gestures from the brass (fig.1).

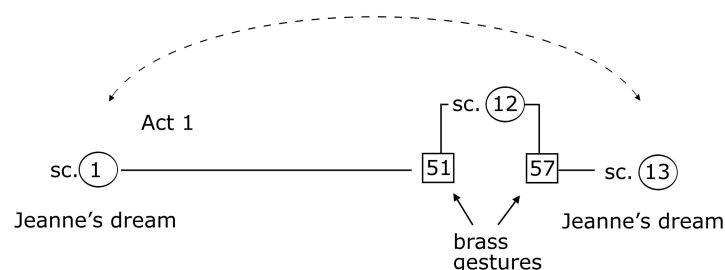


Figure 1. *The Devils of Loudun* - Symmetry in Act 1

Penderecki organizes his sonoristic landscapes for the hysteria, comparing the demonic possession of Jeanne to the division of the medieval society of Loudun, the 'spiritual' element represented by clergy and nuns, and the 'material' element represented by citizens of the small town. Not only the relation between Jeanne's conscious and unconscious becomes apparent, but also the conflict during the dramatization of her possession. Different instrumentation and textures – even different notations, were important for the creation of a medieval background. Solo instruments or ensembles function as shadows to vocals or recitations or prose. The style of instrumentation or texture chosen for a shadow comments Jeanne's behavior and adds horror to her dark side. It is a shadow that follows the principal line creating a type of counterpoint instead of simply doubling the voice.

Second scene is the transition to the secular element replacing static clusters with the pointillism of the electric bass or the pizzicato strings (fig.2). That dualism in texture is a well-known practice for the composer since 1960's success of *Threnody* (1960), *Polymorphia* (1961) and other works from the composer's style period 1960-1973 (Foy 1994:9). Electric bass is the permanent shadow for the laics Mannoury and Adam. In Grandier's love affairs, blending of el.bass and pizzicato strings symbolizes the mixture of sacred and secular environment. Its line is usually mirroring in an ironic manner with Grandier's laugh. Young Mignon has her own reflection at the G flute (fig.3).

Figure 2. Clergy and laic, texture style and pointillism - Act 1, Sc.2 [14]

In 7th scene the symmetric melody (Eb,E,F,F#,G,A,Bb,B,C,C#) for violoncellos in [24]-2 is a subset of a 12tone series. The order is structured symmetrically using minor sevenths and minor seconds around an axis of a tritone (fig.4). Symmetry was always an alternative approach on generating twelve-tone series, not only at the beginning by partitioning in

supplementary series, but in case of using symmetry as an exit door from the system. Particularly in the 60's, the use of serialism for the creation of texture and ambiguity owed partly to the traumatic situations caused by political systems in the countries of Penderecki, Ligeti and Xenakis. Penderecki creates melodic lines using intervallic horizontal models, depending on the protagonist. For the line of Philippe, the young girl is charmed by Grandier, tritone is the dominant interval, ascending when she's referring to man, descending when she talks to Grandier – in her eyes he is a 'holy man' after all (fig.5ii). Jeanne is characterized by the interval of minor ninth. The person she is addressing to defines the direction of the interval. Referring to God the 9ths are descending, but when she talks about Grandier are ascending (fig.5i). However, Penderecki is called to accomplish something bigger, not only the double consciousness, the conflict among good and evil, but their concomitance as well, in the case of a possessed soul. The most interesting use of ninths is during Jeanne's possession by Leviathan. Her line is partitioned in two layers using two successive and 'factious' ninths, the 'holy conscious' and the 'evil subconscious' (fig.6).

Figure 3 displays musical score excerpts for several instruments, illustrating 'Shadow instruments'.

- Adam:** Features lyrics '- a - ted. - fin - det.' and '(He laughs) (Er lacht)'.
- Grandier:** Features lyrics 'A bargain, not bad at all / Ver-münf-tig. Ein gu-ter Handel.' and 'How true! / Wie wahr!'.
- cht b:** Features lyrics 'He al-ways speaks as / Er hat ge-spro-chen als'.
- Mannoury:** Features lyrics 'But con-si-d'ring where we are now... / a - her wie die Din - ge lie - gen...'.
- Ninon:** Features lyrics 'There's cer-tain-ly no lack / Es gibt so hüb-sche jun-'.
- VC 1-8:** Features lyrics 'pizz.' and 'arco'.
- VB 1-6:** Features lyrics 'pizz.' and 'arco'.
- VB solo:** Features lyrics 'pizz.' and 'arco'.

Figure 3. Shadow instruments

Figure 4 displays a symmetric melody for VC 1-8, Act 2, sc.7 [24]-2. The melody is written in bass clef and includes a diagram below it showing the intervallic structure: (10) - 1 - 5 - (10) - (1) - 1 - 5 - (10).

Figure 4. Symmetric melody - Act 2, sc.7 [24]-2

Mathematical symmetries derived from number 666⁵ – the Satan’s symbol – and the trigonometrical equation with golden mean ($\phi = -2 \sin [666^\circ]$) add a peculiar symbolism to the opera. Number 666 appears not only as a visual formation during Jeanne’s exorcism by the three priests in the first scene from act 2, but as a vertical model too. The three priests are chanting an antiphonic exorcism, cutting the recitation line of the pray in six symmetric segments. Number 666 also appears as a vertical model, the group of pitch sets from not accidentally chosen voices of sopranos, altos and tenors (SAT) (fig.7). These models can be the result of the gradual contraction and expansion during the construction or deconstruction of a cluster, a practice well-known from *Threnody*. Closing the 6th scene from act 2, an instruction is given for a rhythmically controlled laugh by priest Baree, following the gradual contraction of a chord in strings to a chromatic cluster. Cluster is formatted by diatonic transformations leading to a final goal, following the satanic laugh of Baree like a shadow (fig.8). Later, at the first scene of act 3, a cluster by choir is contracting gradually and anti-symmetrically. The two separate clusters diverge to opposite directions and fade away in a whisper (fig.9).

i)

Where are you? Be-lov-ed? Love oh, where are you?
Wo bist Du? Ge-lieb-ter? Lie-be? Wo bist Du?

Jeanne

The girl is so hea-vy in your arms, Gran-dier.
Das Mäd-chen ist schwer in Dei-nen Ar-men.

Philippes

A-bout a Man.
An ei-nen Mann.

Fa-ther... my bo-dy...
Va-ter... mein Kör-per...

I wish, I wish to be touched.
Ich wün-sche, be-rührt zu wer-den.

my God,
mein Gott,

ppp p

mf f p pp

ii)

Figure 5. i) Use of 9th - Act 1, sc.1 [12], ii) Use of tritone - Act 1, sc.8 [42]

Jeanne (Leviathan)

In the fore-head of this la-dy.
In der Stir-ne die-ser Da-me.

Yes, there is! Oh. Yes, there is!
Doch, das gibt es. Das gibt es.

Figure 6. Melody bipartition i) Act 2, sc.9 [29]-7, ii) act 2, sc.10 [45]-3

⁵ 1) $666 = 1^3 + 2^3 + 3^3 + 4^3 + 5^3 + 6^3 + 5^3 + 4^3 + 3^3 + 2^3 + 1^3$, 2) $666 = 2 \times (3 \times 37 \times 3)$

S. *b. ch.* [1,5] 6

A. [1,5] 6

T. [5,1] 6

B. [3,2]

Figure 7. Possessed choir - Act 1, sc.1 [9]

In Ligeti's *Le Grand Macabre*, the Death-angel Nekrotsar is about to bring the 'end of the world' to the corrupted community of Breugeland. Instead, at the end Nekrotsar is rejected by the community, absorbed in degeneration, and finally disappears. The main idea of the opera was the way we can overcome our fears. Ridiculing fear of death during the cold war era, Ligeti sneers the sexual freedom and hedonism in the 1960 decade. Ligeti's music costumes the opera in a surrealistic style; he resorts to absurd, apocryphal and ironic, a concept described by Hegel's philosophy and the Freudian psychoanalysis as the 'work of the negative' (Delaplace 2007). The opera blends the comic and tragic, the absurd and demonic. As a consequence, it is a grotesque music theater, a romp theater of the world and the Grand Macabre becomes a toy (Floros 1997). In fact, it was the composer's intention to describe the end of the world 'colorful but also bizarre' (Griffiths 2006), or in terms of psychoanalysis 'uncanny'.

arco

1-5

6-10

11-15

16-20

vn

1-4

5-8

vl

1-3

4-6

vc

1-2

3-4

vb

5-6

ff

p

G3

C#1

Figure 8. Chromatic cluster construction - Act 2, sc.6 [23]-18

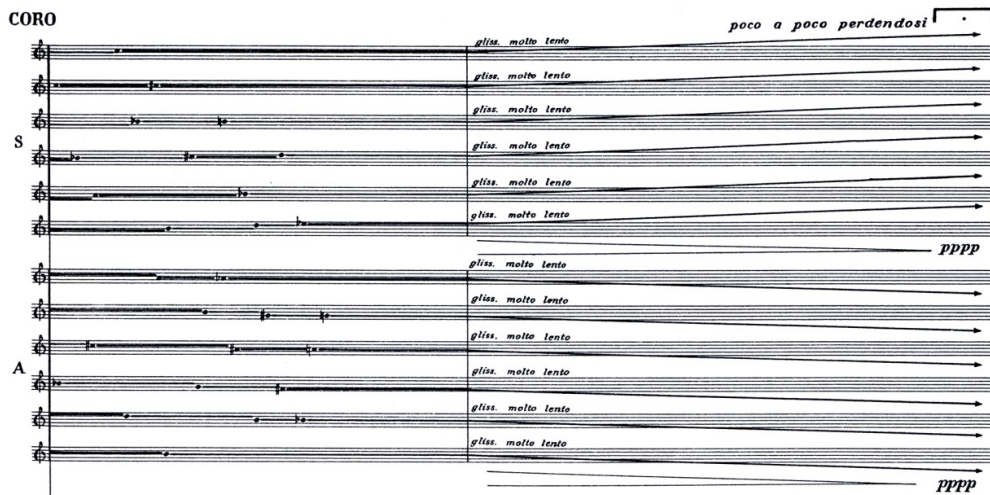


Figure 9. Cluster diversion - Act 3, sc.1

In *Macabre*, Ligeti employs numbers for symmetry. Use of arithmetical sequences and Fibonacci numbers is obvious, not only for the melody elaboration and the polyphony of canons, but for the proportional modifications in various levels, including the macro-structure of the opera. *Macabre* consists of three scenes which in a similar way they progressively get to a peak (stollen), with a short final scene of subversion. Every scene has an indecency, containing great crescendos and a climax at the endings, following the original text by Michel de Ghelderode (1898-1962). A progressive climax in the crescendos leads to the 'end of the world'. Every scene consists of short forms in a brilliant combination by Ligeti, in a high level of integration (Cope 2000). The end of the world in static texture – or a time freeze, is the axis of symmetry from the third scene to the last scene in passacaglia-rondo form. First scene starts and ends with a prelude and an intermezzo by car-horns. Third scene also starts with a prelude of door-bells (fig.10).

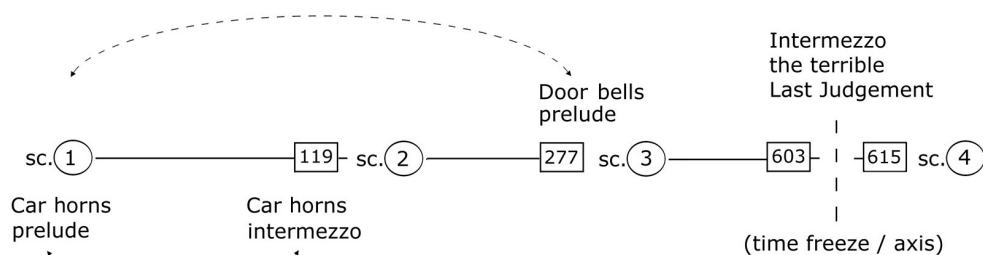


Figure 10. Macro-structure symmetries in *Le Grand Macabre*

Relation between rhythm and text is grounded on the beginning of counting and the naivety of the alphabet, and expands on the incorporation of the fundamental relations of number one (1), two (2) and three (3) for the rhythm in general. The idea of arithmetical progress enforces libretto and drama. Second scene [121] begins with masochist Mescalina counting 1, 2, 3 and 5, the beginning of the Fibonacci numbers and calling the demons in alphabetic order. Similar sequences are found in the aria and recitativo of the inspector-birdlike Gepopo [339-340], also

in the alphabet games of the two bird-like ministers (fig.12). Time signature 7 ♩ in Gepopo's aria is initially divided in the ordinary 3+2+2, later on is substituted for the rarest, however symmetric 2+3+2. Earlier [278], in the two ministers' duet-valse, a game is played with numbers and the alphabetic sequence. The time signature 3 ♩ alters to 2 ♩ and vice versa while they shout obscenities at each other beginning with A, B and C and so on.

It is interesting Ligeti's manipulation on psychodynamic changes of the crowd, as the people of Breugeland are driven to hysteria [377-381]. Gradual changes of that passage involve symmetrically four elements: Dynamics – *ff* to *ffff*, tempo – from ♩=112 to ♩=288, vertical models – from unison to tritone, and gradual modification of the rhythmic model with inner micro-shifts (fig.12). These modifications of density produce the phenomenon of contraction and expansion, a technique too obvious at the prelude with car-horns. The fluctuations are in fact short temporal additives from the arithmetic progress 1,2,3.. (fig.13). It is the same rhythmic and melodic drifts that detune the two lovers' duet [29].

Ligeti used number 666 as a critical point. At the rehearsal mark "666" he inserted the 12tone mirror-inversion canon in unison (Spiegelcanon) combining inversion with supplementary 12tone series (fig.14). At that point, Nekrotsar begins to shrivel up and collapse. The canon consists of the first segment 'a' of a 12tone series (Po) which sounds with segment 'b' of the inverted I5. Then, the first segment of Po is heard in retrograde Ro, which sounds with the inverted IR5. Segment aR sounds supplementary with the corresponding bR. Canon moves on with new additive voices in unison to a peak of ten (5+5) voices in addition to a gradual disintegration with a long diminuendo (Valette 2006).

Figure 11 displays musical notation examples illustrating arithmetical progress, Fibonacci sequence, and alphabet. The examples include vocal lines with lyrics in German and English, such as "One! Two! Three! Five!" and "Ash - ta - roth! Be - he - moth!".

Figure 11. Arithmetical progress, Fibonacci sequence and alphabet

Figure 12 displays musical notation examples showing modification of the rhythmic model with inner micro-shifts. The examples include vocal lines with lyrics in German and English, such as "Call 'e gua! Call 'e gua!" and "A - da! A - da! A - da!".

Figure 12. Modification of the rhythmic model with inner micro-shifts



Figure 13. Car-horn prelude and changes in density – sc.1

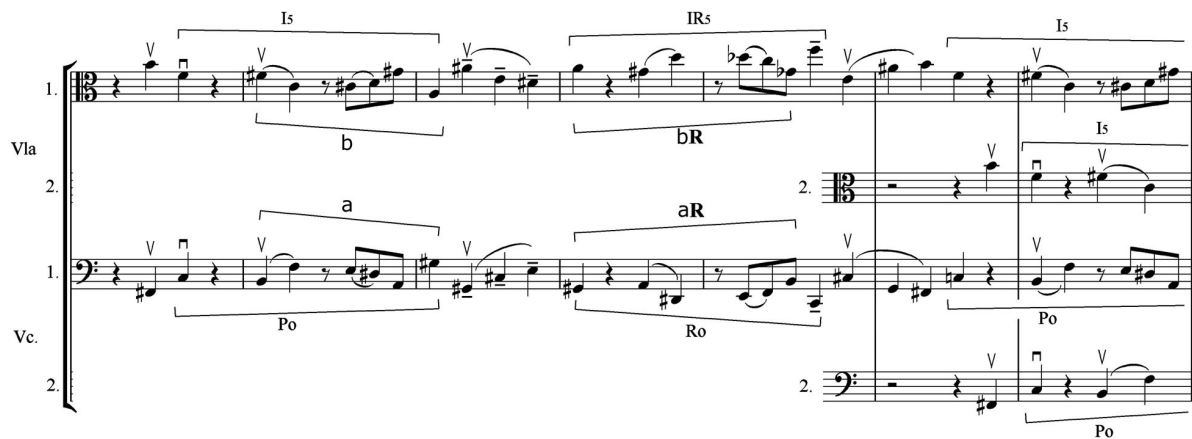


Figure 14. Spiegelcanon - sc.4 [666]

Simple dissonances, poly-chords and clusters can be described as vertical models in *Le Grand Macabre*. These dissonant dyads or triads can be extended by additive quartal or quintal harmony. As a result poly-chords are produced with symmetric edges. Chord A,D \sharp ,E,B \flat at scene 1 [11], is a perfect fifth (A-E) with every pitch having an additive extension of a tritone (A+D \sharp -E+B \flat) (fig.15). Symmetry can be expressed as 6-1-6 by the semitones' aggregate. From another perspective, the chord can be expressed as a ninth with additive extensions of perfect fifths, producing the symmetry 7+6+7. The 6tone cluster F \sharp ,G \sharp ,A,B,C \sharp ,D can be expressed the triad F \sharp ,G \sharp ,A with additives of fourths, producing the symmetry 5+[9]+5+[8]+5. Following similar procedure, the bi-tonal chord in [11] from the first scene is produced by major chord additive extensions to a semitone.

Monteverdian couple Amando and Amanda represents the Freudian 'uncanny'. Symmetries can be found in horizontal models at [9] when two lines by the singers move with a remarkable intervallic consistency (fig.16); Amando in half steps (1,1,1) and Amanda in full steps (2,2,2) in a similar way to the duet of the other bizarre couple of the opera, Astradamors and Mescalina in [173].



Figure 15. Symmetrically extended chords – sc.1 [11]

Amanda

pp tenuto poco cresc. p poco cresc. mf

O. my dar ling!
O. mein Lie - - ster!

Amando

pp tenuto poco cresc. p poco cresc. mf

O. my dear dar ling!
O. mei - ne Lieb - - ste!

Figure 16. Intervallic consistency – sc.1 [9]

It seems likely that opera composers of the post war era tried to reanimate the absurd not only following psychological librettos, but also developing forms and analogies directly from nature. Psychoanalysis prescribed symmetries already known defining them once again in a way that composers were able to embody them to their compositional process. Balanced state of ego stands for the ideal proportions of the form, vertical and horizontal models using mathematical facts like the arithmetical progress and the golden mean, man and his shadow stands for the instrumental doublings and fearful atmospheres, conflicts of consciousness stand for the contrasting styles in texture, timbre and notation. It's obvious that symmetry and asymmetry relations will always guide us either to depressed regularities or to the uncanny – but surprising unexpected.

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