

Aspects of Numerical Symbolism in the 8th Movement, *Nacht*, from Arnold Schoenberg's *Pierrot lunaire*

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ABSTRACT – In this article, I intend to discuss Arnold Schoenberg's ingenious compositional solution of using the numbers 3 and 7 as basic elements in the sonic construction of the 8th movement from *Pierrot lunaire*. Throughout the analysis, I will show how the structuring of the sound material, the dynamic or timbral parameter, and the compositional techniques used are in complete accord with the structure and atmosphere of Albert Giraud's poem, which served Schoenberg as a starting point. I will highlight the compositional strategies borrowed from the field of visual arts – such as the technique of focalization through contrast or the use of the light-dark relationship, given Schoenberg's well-known interest in painting, but also how compositional techniques used in past eras contribute to the renewal of the musical language – rhetorical figures of the Baroque that take on a new meaning. At the end of this article, I will try to answer the question: "Who could benefit from this analysis?"

Keywords: contrast, passacaglia, butterfly, gravity, fractal.

1. Introduction

If Igor Stravinsky, the composer who had few words of praise for Schoenberg's works, characterized *Pierrot lunaire* as "the solar plexus and mind of early 20th-century music,"¹ we can also take into consideration Remus Georgescu's statement that three works were composed that changed the course of 20th-century music, all written in the same period:

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¹ Whittall, *Schönberg Chamber Music*, 28.

Arnold Schoenberg's *Pierrot lunaire*, Igor Stravinsky's *Rite of Spring* and Claude Debussy's ballet *Jeux*.²

In a way, the innovative aspect of *Pierrot lunaire*, both in terms of choice of text and its framing within the genre of musical melodrama, is due to the person who commissioned the work, Albertine Zehme – a well-known actress of the time. The famous *Sprechstimme* technique, for which Schoenberg became known, is therefore a technique that was imposed on the Austrian composer. I want to express the idea that it is neither the technique nor the conception (in the course of the analysis I will highlight a completely unusual way of structuring) that gives the work such great significance, although both are very important, but rather other elements, which cannot so easily be caught in the net of reason. Although we cannot be sure exactly how many of the extraordinary fits in the *Nacht* puzzle are the fruit of premeditated thought, the sonic result reveals a very good balance between reason and feeling. The relevance of Schoenberg's work is not, I think, rooted only in the extremely ingenious structuring, but rather we could say that despite the numerical incisions in the musical text, the work retains its expressive pulse unaltered, the music being in complete accord with the atmosphere suggested by the poetic text. I think that highlighting the rich numerical symbology is important, as a way to create an extraordinary cohesion of the sound material, with very simple means.

2. Analysis

Pierrot lunaire is imbued with a rich numerical symbolism: written in 1912, opus 21 (reversal of the number 12) uses 21 poems by the symbolist poet Albert Giraud, translated into German by Otto Erich Hartleben. The entire cycle is divided into **three** large sections of **seven** movements each ($3 \times 7 = 21$) – the numbers **three** and **seven** becoming the bricks upon which the entire construction of the passacaglia is built. The 8th movement – *Nacht* – therefore represents the beginning of the middle section, and its importance is emphasized by the fact that it is structured in a popular musical form of the Baroque period: passacaglia. Schoenberg's connection with the musical past remains very strong, despite his need to renew the musical language. The specific techniques of polyphonic syntax that he uses in *Night*, later standardized in the dodecaphonic serial system, are taken from Renaissance polyphony, which brought Schoenberg much criticism: why does he resort to obsolete forms and techniques if he wants to renew the language?

Structurally, the influence of the numbers **three** and **seven** is omnipresent: the Prelude (3 measures), strophe A₁ (7 measures), strophe A₂ (6 measures = 3×2), strophe A₃

² Remus Georgescu often spoke to me about the importance of these three works during the composition classes held in his house, between 2001-2005.

(7 measures), the Postlude (3 measures), giving rise to a distorted palindromic form. The thematic material, exposed in its entirety for the first time by the bass clarinet in measure 4, has 10 notes (3 + 7) and is made up of **three** microstructures: the leaps of a **third**, the chromatic descent and the leap of a **seventh**. The extraordinary coherence of the work comes from the fact that all the material used is derived from the **three** fundamental musical ideas.

Prelude	Strophe A ₁	Strophe A ₂	Strophe A ₃	Postlude
measures 1-3	measures 4-10	measures 11-16	measures 17-23	measures 24-26

Table 1. *Nacht* – formal structure



Ex. 1. Thematic Material

Like the passacaglias of the past, it is written in a **triple** meter, a new way of incorporating the number **three** in the pages of the score (perhaps this is one of the reasons why Schoenberg chooses this form of structuring). Another way of implementing the number **three** is revealed if we observe the limits of the dynamic palette of the entire work, from the indication *ppp* to *fff*.

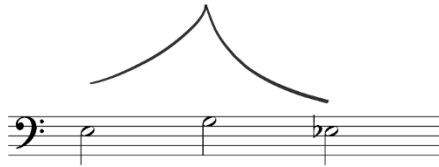
By using only **three** instruments, in the low register, from the ensemble that would later be standardized in what we call the “Pierrot ensemble” (flute, clarinet, violin, cello, and piano), Schoenberg adapts the timbral factor to the oppressive atmosphere of the poem *Nacht*; this part represents perhaps the gloomiest sound image of the cycle, the presence of the bass clarinet, the cello and the low register of the piano contributing decisively to the creation of this effect. The timbre is therefore invested with great significance, becoming, at times, more relevant than the melody, harmony (almost neglected) or rhythm, opening a door through which many composers will step in the second half of the 20th century.

Even though Schoenberg utilizes definite pitches in his piano writing, by using the low register in a soft nuance in the Prelude and Postlude, the pitches are difficult to distinguish, creating a dark, dense, oppressive texture. The timbral parameter is thus combined with the dynamic one to subordinate itself to the poetic text: the charged atmosphere and the fiery tension of the piece are also enhanced by the soft nuances that predominate. Knowing Schoenberg’s preoccupation with the visual arts, we can also identify a relationship with techniques found in painting, the light-dark relationship being implemented musically also through the distance at which the imitative entries of the

voices take place: more distant at the beginning, increasingly close up to measure 19, followed by a sparseness towards the end of the work.³ The multiple temporal layers created through the simultaneous presentation of the same material in augmented or diminished formulas (for example, in measure 11, the basic cell of the work appears under three guises: in the piano left hand – the initial formula, in the piano right hand – the rhythmically augmented formula, and in the clarinet – the rhythmically diminished formula) play the same role of creating ambiguity.

I believe it would not be too much of an abstraction to speak of the principle of fractals in the structuring of the work: **three** strophes make up the passacaglia, **three** microstructures make up the thematic material, of which the first cell has **three** notes, being based on leaps of a **third**. Also, the first 10 measures are divided into 3 (Prelude) + 7 measures (strophe A₁), the 10 notes of the thematic material being also structured as 3 + 7.

Among the three basic microstructures, the first one stands out and gains overwhelming importance throughout the work, being found in all the measures of the passacaglia: from singular occurrences in the opening part to 14 occurrences in measure 19. As in J. S. Bach's *Passacaglia* in C minor for organ, we detect a process in which the rhythmic activity is increasingly pronounced, the density of occurrences of the basic cell increasing as the piece progresses. The Latin term "*obstinātus*", translated as "stubborn", no doubt acquires meaning in the structural repetitions, suggesting an image that recurs obsessively in the poem, that of the black butterflies. In terms of imagery, Kathryn Puffett argues that there is a close connection between the contours of this cell and the shape of the butterfly, the central character of the poem.⁴



Ex. 2. The "butterfly" cell

The second thematic idea, the descending chromatic motif, represents a new connection to the Baroque period: the *passus duriusculus* figure, which in the rhetoric of the time signified death (symbolized here by the blotting out of the sun's glow). If we consider the starting note of the chromatic descent, *E flat*, up to the stop on the diminished

³ Puffett, "Structural Imagery: *Pierrot lunaire* Revisited", 13.

⁴ For the first microstructure I will use the phrase "'butterfly' cell", taken from Kathryn Puffett.

fifth, *A*, we will have **seven** notes. The chromatic meanders, often in descending order, in free treatment, will often return in the reciter's part.

The third thematic microstructure, the leap of a **seventh**, will take on even less importance. It will be brought to light in measure 13, where the semitone shift in the piano right hand imitates the reciter's leap of an ascending major seventh. At times the **three** microstructures are superimposed, as in measure 12, but this third cell is not of great significance throughout the work (it is more prominent in strophe *A*₃, in measures 19-20, in the clarinet and cello, though maintaining a secondary thematic profile). We notice a double gradation in the use of the **three** generative ideas: on the one hand, a gradation of the importance, with the first cell winning the competition by a considerable margin, on the other hand, the leaps of a **third** of the "butterfly" cell are continued by the chromatic descent over the range of a diminished fifth, the last thematic cell being represented by the leap of a seventh, thus a gradation of the intervallic stretch ($3 \rightarrow 5 \rightarrow 7$).

No doubt the way in which the poetic text is structured also led Schoenberg to give so much importance to the number **three**, the line "*Finstre, schwarze Riesenfalter*" being repeated **three** times: in measure 4, in measure 14 and, finally, in measure 23. It is only the last presentation that brings the "butterfly" cell into the musical plane, on the notes of the gravitational centre, installed through numerous repetitions: *E – G – E flat*.

The **three**-measure Prelude, in which the basic cell occurs six times (3×2), is analysed in detail by Hans Peter Türk.⁵ As in the Prelude, the transposition of the "butterfly" cell to the interval of a **third** will be encountered frequently throughout the piece. I will not dwell on the ingenious ways in which the thematic idea is treated throughout the work, as they have been scrupulously emphasized by Hans Peter Türk, Kathryn Puffett⁶ and Jeffrey Gillespie.⁷

If we observe the frequency of repetitions of the basic cell in a single instrument, in a single measure we often identify multiples of the number **three**: in the clarinet, in measure 8 – **three times**; in the piano left hand, in measure 14 – **nine times**; in measure 19, in both hands of the piano – **twelve times**.

A technique that returns several times in the work in new guises is that of using singular elements to create a strong contrast, to sharpen the focus. We can identify this technique by following the trajectory of the musical structures. Throughout the work, we mainly observe a downward movement, a reinterpretation of the rhetorical figure *catabasis* specific to the Baroque period, in line with the oppressive theme of the poem. The only moment in which all the voices follow an ascending trajectory occurs in measure 17, meant to create a contrast that more clearly highlights the fall into the abyss of the piano's low register at the end of the work. In terms of dynamics, the soft nuance

⁵ Türk, "Fenomene armonice specifice în muzica secolului XX oglindite în passacaglia din *Pierrot lunaire* de Arnold Schönberg".

⁶ Puffett, "Structural Imagery: *Pierrot lunaire* Revisited", 2-23.

⁷ Gillespie, "Motivic Transformations and Networks in Schoenberg's *Nacht* from *Pierrot Lunaire*", 34-65.

that characterizes the work is more clearly emphasized by the culmination with the indication *fff*, in measure 16.

The technique of focalization through contrast is also used in the timbral domain: the only time when the *Sprechstimme* technique is forgotten occurs at the end of the first strophe of the work, in measure 10. We can speak of the use of the “*word-painting*” technique – the composer’s attempt to musically translate the meaning of a word: the word “*verschwiegen*”, translated as “secretly”, “discreetly”, finds its sonic expression in the basic cell of the work (*E – G – E flat*), in the softest nuance, followed by the only stop in the sound flow recorded throughout the entire movement – the fermata on the rest.⁸ The importance of the moment is emphasized by Schoenberg’s superimposition of the first two microstructures, isolated to be more easily perceived, the *sul ponticello* of the cello contributing to the creation of a distinct timbral identity; perhaps the most organic form of synthesis of the first two thematic microstructures is achieved in measure 12, in the cello, where the ubiquitous cell *E – G – E flat* is disguised by chromatic undulations reminiscent of the snake’s gait.



Ex. 3. Synthesis of the first two thematic microstructures

The second thematic microstructure, the chromatic descent, takes centre stage in the second strophe of the work. The imitative process is initiated by the cello (measure 12), followed by the bass clarinet (measure 13) and the piano right hand (measure 14), totalling **three** occurrences of this material. The otherworldly image of the black butterflies covering the sun’s glare will find a less natural musical equivalent when the climax is reached in measure 16: the descent accompanied by a *crescendo*, guided by the piano left hand, reaches the maximum nuance in **three** measures (the indication *fff* – **three fortes**). By contrast, in the following measure, the musical discourse will follow an ascending trajectory, in *diminuendo*. The moment of culmination is individualized by Schoenberg through a new implementation of the number **three**: the “butterfly” cell, *E – G – E flat*, exposed as a **triple**t of quarter notes.

The beginning of the third strophe presents the basic cell in an ascending form, with the last note moved up an octave,

⁸ Puffett, “Structural Imagery: *Pierrot lunaire* Revisited”, 7.



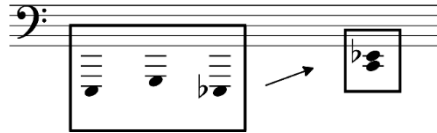
Ex. 4. Metamorphosis of the basic cell

while the beginning of strophe A_3 creates a strong contrast with the end of strophe A_2 . The “butterfly” cell appears **three** times in the cello, first on the gravitational centre E , then at an ascending **seventh** – D , and then a **seventh** higher – C (it also appears at the ascending **seventh** – B flat, but this fourth presentation does not appear in the bass clarinet imitation in measures 17-18). Is this diatonic ascent by sevenths $E - D - C - B$ flat in contrast to the so-frequent downward chromatic movement? It is more than possible. The double ascent, symbolized, on the one hand, by the variation of the initial cell, and, on the other, by the presentation of the motif at the ascending seventh, is in accord with the use of the text at the beginning of strophe A_3 (measure 18): “*Und vom Himmel erdenwärts*” (“And from heavens to the earth”). The law of grace governs the beginning of strophe A_3 (the rhetorical figure *anabasis*), in contrast to the end of strophe A_2 , governed by the law of gravity (the rhetorical figure *catabasis*). I believe that the ascending melodic formula accompanied by *diminuendo* is governed by the law of grace, as it occurs at the end of several religious vocal-symphonic works from various stylistic periods, symbolizing the opening of a new spiritual dimension. When I speak of the law of gravity, I think primarily of the finale of some of Beethoven’s symphonies, the connection to the telluric energies being symbolized by a downward melodic trajectory ending with chordal structures, in a loud nuance.⁹ I think this element is closely related to the use of the word “*Himmel*” (“heaven”) from Giraud’s poem. The drama of the moment is enhanced by the extreme dynamic contrast: *fff* at the end of strophe A_2 , *pp* at the beginning of strophe A_3 . A new form of embedding the number **three** appears at the beginning of the **third** strophe, in the piano right hand: the main generative cell appears in **three** registers, supporting the ascending trajectory of the cello and clarinet.

If the role of the first strophe was to present the thematic material in all the voices, that of the second strophe was to focus the listener’s consciousness towards reaching the climax, through the technique of sound agglomeration. The role of the third strophe seems to be that of creating a synthesis, which, nonetheless, is not short of new treatment techniques, applied mainly to the first thematic microstructure. We can also look from another perspective: strophe A_1 sets the stage for the first great descending sonic wave that culminates at the end of strophe A_2 , while the second sonic wave, of a higher amplitude, occurs in strophe A_3 .

⁹ I believe that the phrase law of gravity/grace, taken from thinkers and mystics from different cultures, has relevance in the musical field as well.

We notice a paradox: the **third**, the main interval underlying much of the work and the foundation of the tonal harmony, is used to create a musical discourse that departs substantially from any tonal influence, creating a form of free atonalism. Furthermore, the minor **third** is the interval that will clip the wings of the black butterflies abruptly: it is with a melodic minor **third** that the work starts, and with a harmonic minor **third** that it ends.



Ex. 5. The beginning and the end of the work

3. Relevance

Who could benefit from the information in this article? I think mainly the performers, if they resonate with the way of identifying thematic ideas, so that their performance has the attribute of clarity. An awareness of some of the techniques used by Schoenberg, such as focalisation through contrast, could help them to establish certain dynamic ranges in line with the composer's ideas. Becoming aware of the light-dark polarity would help them in choosing an appropriate sound emission and finding the best timbral variant (sometimes individually, sometimes as a whole), aligned with the composer's thoughts. I think that the connection between text and music should be known by all performers, not just by the reciter, in order to get as close as possible to the poetic-sonic complex created by Giraud/Schoenberg. An awareness of what we have called the law of gravity/grace can provide performers with a starting point in creating their own vision of how to construct an important moment of the piece: the climax.

For composers, it may be useful to follow the numerological game proposed by Schoenberg, though bearing in mind that an attempt at an epigonic imitation would most likely be doomed to failure. On the other hand, it might also be constructive for a composer to observe how Albert Giraud's thoughts are transfigured musically, how the composer establishes his compositional technique in line with the ideas of the poem. Another factor of interest for the composer would also be the awareness of the following paradox: how to create the impression of an apparent sonic chaos by resorting precisely to the polar elements, i. e. an extreme economy of means and a hyper-thematization of the sound material. It may also be useful to observe how Schoenberg uses the traditional form of the passacaglia to create a sonic universe animated by the momentum of renewal,

and how the branches of newness in art have corresponding roots deep in the soil of the already-done things. An awareness of Schoenberg's use of certain techniques specific to Renaissance or Baroque polyphony in creating a new sound world may lead the composer to consider how other techniques/concepts from the past can become innovative ideas if placed in a fresh perspective.

Conclusions

After completing *Pierrot lunaire*, Schoenberg's creative drive was greatly diminished (probably also due to the First World War, but mainly to his dedication to finding a new form of sound organization). Over the next seven years, he would complete very few works, but at the end of this period of gestation, he would set a new direction for 20th-century music – the dodecaphonic serialism. Even the use of the dodecaphonic system can be linked to the circumstances of Schoenberg's life, given his well-known fear of the number 13 (*triskaidekaphobia*): he was born on September 13, and died on July 13, on a Friday, shortly before midnight.¹⁰ The anecdotal elements of Schoenberg's life are melted so naturally into the musical fabric he weaves...

A final thought: at the climactic moment, we identify the golden section of the passacaglia (26 measures x 0.618 = measure 16). Was it the result of premeditated thought, or did the randomness of numbers once again shape an organic solution? We cannot really give a categorical answer, but seeing how well the parts of the ensemble fit together, we cannot help but feel a sense of wonder. Whatever it was, it "turned out" well.

¹⁰ Stuckenschmidt, *Schönberg: His Life, World, and Work*, 520.

<i>Die Nacht</i> Albert Giraud, translated by Otto Erich Hartleben	Night Free translation of the text in English
<i>Finstre, schwarze Riesenfalter</i> <i>Töteten der Sonne Glanz.</i> <i>Ein geschlossnes Zauberbuch,</i> <i>Ruht der Horizont – verschwiegen.</i>	Giant black butterflies killed the bright sunlight. Like a closed book of charms The silent horizon stretches out.
<i>Aus dem Qualm verlornen Tiefen</i> <i>Steigt ein Duft, Erinnerung mordend!</i> <i>Finstre, schwarze Riesenfalter</i> <i>Töteten der Sonne Glanz.</i>	From the mist of lost depths a scent rises, destroying memory! Giant black butterflies killed the bright sunlight.
<i>Und vom Himmel erdenwärts</i> <i>Senken sich mit schweren Schwingen</i> <i>Unsichtbar die Ungetume</i> <i>Auf die Menschenherzen nieder...</i> <i>Finstre, schwarze Riesenfalter.</i>	Descending from the heavens with heavy wings invisible monsters sink upon the hearts of men. Giant black butterflies.

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