

APPROACHES TO THE MUSICAL TIME IN LIGETI'S WORK THROUGH HIS PIANO ÉTUDES

ATTILA FODOR¹

SUMMARY. After developing his famous micro polyphony in the 60', conceived as an alternative to the declined tonal music and even the serialism, Ligeti was going to explore in the last decades of the 20th century the field of rhythm, as a consequence of his compositional evolution. Meanwhile, he came into contact with a series of new musical and scientific phenomena, which captivated his creative mind, urging him to undertake further experiments regarding the possibilities of a multidimensional and non-symmetrical articulation of musical time. The most fertile field of these explorations was probably the piano genre, abandoned by Ligeti from the early 60' for orchestral music. Alongside the Three Pieces for Two Pianos (1976) and the Piano Concerto (1985-88), his most significant series of piano pieces are the eighteen études composed between the years 1985-2011, published in three volumes. They represent in many respects a rhythm microcosm, challenging for interpreters, edifying for those interested in composition techniques, and fascinating for the audience.

Keywords: Ligeti, piano études, rhythm, polyrhythm, polymetre.

Ligeti is known among the 20th century composers as a pioneer, who conceived and elaborated new compositional devices and techniques as healthy alternatives to the traditional musical thinking. From this perspective his work permanently reflects on several problems, whether regarding to the nature of music, whether to particular issues arisen from the difficulty of implementing ideas to the sound medium. This creative attitude also has scientific connotations, in the sense of formulating certain dilemmas and developing solutions.

Due to his openness towards the most diverse fields of knowledge (for instance the exact sciences) and cultures, Ligeti found along his entire creative activity new perspectives, that helped him to avoid the enclosure in a self-developed compositional system. Obviously, his work also demonstrates some general style and aesthetic features, including certain periods and creative paths, possessing however the ability of transcending its limits.

¹ Senior Lecturer, Ph.D., Partium Christian University, Faculty of Arts, Department of Music, Primariei Str. 36, RO-410209 Oradea, Romania, email: musicalaesthetics@yahoo.com

Contrary to the traditional dichotomy of musical composition, that of the mutual relationship between idea and language, which generates from period to period, from artist to artist new musically intrinsic aspects up to the dissolution of a common language (epoch style), Ligeti rather cultivates an extra-musical attitude, either by adopting philosophical thoughts and getting inspiration from certain scientific structures, or by identifying particular musical phenomena, almost neglected by the mainstream authors.

In this sense, the composer appears as a sort of magician, who abstracts the materials of music into elements of construction, joined in the work partially free, partially controlled, according to certain more or less pre-established systems, models. A good deal of Ligeti's works offers new models of creative thinking, combining in this respect a pseudo-scientific attitude, that of posing problems and finding solutions, with the acoustic quality of music.

His innovative concerns related to the particular/manipulative use of the musical parameters go back to his first years of dissidence in the 60', shaped first in a couple of electronic works, and mostly in a series of orchestral pieces, that focused on the vertical parameter (space), namely on the relationship between tone colour, harmony and melody, which led to the development of a particular style element, based on the hyper-saturation of space with micro-fluctuations, technique defined by Ligeti as micropolyphony. Obviously, such emphasize of the vertical asked for a rethought of the horizontal parameter, which also received a particular treatment. The two compositional types of the late 60' and early 70' entitled by the composer as static and dynamic, signal a tendency of exploring the musical time in extremis, due to constructive and psycho-acoustical considerations, which also offer certain dichotomies of motion: continuous-discontinuous, mechanic-kaleidoscopic.

From the late 70' Ligeti gradually proceeded to decrease the hyper-saturation of his vertical structures, which imminently led to the focus on the horizontal complexity. According to his recount: "Later, starting from the 60' I haven't followed this path: I would have involved myself in the repetition of clichés [...] I began to introduce gradually rhythmic and melodic sub-models into the iridescent surfaces. This led during the next three decades to extremely polyrhythm compositions, like the *Piano concerto* conceived in the second half of the 80'."²

In a lecture held in 1988, entitled *The paradigm shift from the 80'*, Ligeti recalls some of his major musical concerns, like the mensural music from the 14th century, or the the sub-Saharan African polyrhythm, both seen as new models of articulating the time. The novelty of these paradigms consists of the sense of multiple speeds within a single musical process, i. e. a stratified time, by the proper or virtual presence of a basic pulsation and a great complexity of simultaneous movements. This phenomenon is very similar to that of micropolyphony, applied

² Kerékfy Márton (ed.): *Ligeti György válogatott írásai (The Selected Writings of György Ligeti)*, Rózsavölgyi és Társa, Budapest, 2010, pp. 352-53.

to the temporal dimension. According to Ligeti: “[...] I gave up the micropolyphony in favor of a more geometrical, more outlined, more »multi-dimensional« polyphony from a rhythmical point of view. I don't mean under »multidimensional« polyphony something abstract, but that acoustic illusion, where with an objectively non-existent spatial density of a musical work appears in our perception like a stereoscopic image.”³

The most fertile field of these explorations was perhaps the piano genre, abandoned by Ligeti from the early 60' (his first and last major cycle up to the 80' was *Musica Ricercata* conceived in 1951-52) for orchestral music. Alongside the *Three Pieces for Two Pianos* (1976) and the already mentioned *Piano Concerto* (1985-88), the most significant series of piano pieces are the eighteen etudes composed between the years 1985-2011, published in three volumes. The period of their composition coincides with the last decades of Ligeti's work, offering perhaps his most complex and nuanced perspective on composition problems, focused in this last period, along with some micro-tonal experiments on the rhythm. In this latter respect, his option for the piano is natural, though he wasn't a player able to deal with the technical and rhythmical-musical difficulties of these pieces. The piano also appears here in a proper sense of the instrument, having a role of “feed-back [that] emerges between idea and tactile/motor execution.”⁴ From an interpretative point of view, these compositions entered into the main piano repertoire of the 20th century due to their complexity and high technical requirements, especially regarding the treatment of temporal simultaneities.

The central problem of the *Études* is that of identifying and encompassing the possibilities of multidimensional and non-symmetrical articulation of musical time, which imply more or less novel solutions regarding both the compositional and interpretative level, in order to obtain during the listening the effect called by Ligeti illusory rhythm. Taking a brief look on his sources of inspiration in the development of a proper view about rhythm, we may record, that in spite of their great variety of all points of view, each represents in fact, some key or at least clue in the functional implementation of the »multi-dimensional« polyphony (Ligeti's term) inside the trichotomy of musical art: creation-interpretation-listening. Among these we notice the already evoked synthesis of the sub-Saharan rhythms with the polyphony of the 14th century, the music of Conlon Nancarrow for Player Piano, jazz, or Mandelbrot's fractal geometry.

The sub-Saharan music that Ligeti was acquainted with by Simha Arom's recordings fascinated him due to the stratified character of the simultaneous movements.⁵ The basic element that guides this complex, collectively improvised

³ Kerékfy Márton (ed.), *op. cit.*, p. 353.

⁴ Richard Toop: *György Ligeti*, Phaidon Press Limited, 1999, p. 199.

⁵ “Having never before heard anything quite like it, I listened to it repeatedly and was then, as I still am, deeply impressed by this marvellous polyphonic, polyrhythmic music with its astonishing complexity.” Simha Arom: *African Polyphony and Polyrhythm: Music Structure and Methodology* (trans. Martin Thom, Barbara Tuckett and Raymond Boyd), Cambridge University Press, New York, 1991, xvii.

polyrhythmic process is a fast pulsation (fundamental layer), present only on a virtual level.⁶ Meanwhile, the proper polyrhythmic layer results from the articulation of several, mostly asymmetrical rhythm patterns, based on durations that are whole number multiples of the basic pulsation.

The implementation of such a polyvalent conception about duration and movement in a western music notation encounters certain difficulties, basically due to its particular predilection to the symmetrical articulation of time, amplified by the evolution of polyphony, that of dance and orchestral music, materialized among others in the measure bar, initially used to enhance the graphical synchronization of the parts, transformed later into a source of periodical accentuation. By investigating the anterior and posterior states of the metrical accent's dominancy, Ligeti identified in the 14th century polyphony as also in the work of certain composers of the 19th century (like Chopin, Schumann, Brahms) the significance of metrical ambiguity, known as the hemiola, principle extended by him from the traditional relation of 2:3 to those of 3:5, 5:7, even 3:4:5:7, generating this way complex polymetres, even poly-tempo. With this solution, the composer realizes the synthesis of African phenomenon with that of the European hemiola, inside a process, that implies however, a single interpreter.

By listening to the player-piano music of Nancarrow, of an astonishing rhythmic complexity, Ligeti moved forward, to seek solutions in order to realize a musical structure, respectively a particular, but traditional notation, which permits the simultaneous articulation of several movement layers within a live interpretation. Whereas the measure and bar lines maintain their former function of guidance, the impulse series of the African music (corresponding to the smallest time value), the articulation of different values, as the conscious placement of accents plays the role of producing an illusory rhythm. The composer explains the interpreter's graphic manipulation mechanism as it follows: "Though the arithmetical proportion of 5:3 is relatively a simple one, it's too difficult to our perception: we don't count the pulsations, but sense the different layers of the movement speeds. Neither the piano player counts during the interpretation. He puts the accents according to the notation, sensing in his fingers the time-patterns of the muscular tensions, perceiving though, on an acoustic level a different pattern – namely different speeds that he wouldn't be able to reproduce consciously, by his fingers."⁷

In developing of such a conception about musical time, Ligeti also profited by certain extra-musical impulses from the field of sciences and visual arts, such as the fractal geometry of Mandelbrot and its computerized graphical applications, or the art of Max Escher.

⁶ "A completely different metric ambiguity occurs in African music. Here there are no measures in the European sense, but instead two rhythmic levels: a ground layer of fast, even pulsations, which are not counted as such but rather felt, and a superimposed, upper layer of occasionally symmetrical, but more often asymmetrical patterns of varying length." Kerékfy Márton (ed.), *op. cit.*, p. 432.

⁷ Kerékfy Márton (ed.), *idem*, pp. 432-33.

The cycles' structure

Initially Ligeti intended to compose two cycles of six pieces each. This structure in two volumes suggests a certain affinity to some of Debussy's piano volumes, like *Préludes* or *Images*⁸, as to his evoking titles given later in the sense of a free, associative programme. There are several other links to the music of the French master, like the technique of resonances, the acoustical dissolution of some pieces, or the evocation of the gamelan sonority in his *Étude no. 7* entitled *Galamb borong*.⁹

The three cycles form some musical-interpretative unities in themselves, conceived on a general dramaturgy guided by the principle of alternance and variety. After finishing the first volume of six *Études* in the year 1985, Ligeti worked mostly on his *Piano concerto*, restarting the composition of a new series of *Études*, which lasted approximately 6 years (1988-1994). As a result, eight compositions were set, most of them by a great force, intensity and virtuosity, implicit in the sense of extremely accelerated tempos and emphasized dynamics, also continuing and nuancing the rhythm problems exposed in the first volume. Finally, in 1995 Ligeti began to conceive a third cycle, finishing up to 2001 only four pieces, relatively homogeneous, sensitively moderate vis-à-vis the music of the former two volumes.

Title-program

Contrary to his most piano pieces, each of Ligeti's *Études* has evoking titles, which serve both as compositional self-proposal, as well as opportunities for free and extremely diversified associations: scientific (*Désordre*), technical (*Cordes à vide*, *Touche bloquée*, *Entrelacs*), expressive-poetic (*Vertige*, *En Suspens*, *Columna infinită* or *Coloana fără sfârșit*), politic (*Automne à Varsovie*), quasi-program (*Der Zauberlehrling*, *L'escalier du diable*), synesthetic (*Galamb borong*, *Fém*) etc. His sketches demonstrate a large number of provisory titles and changes occurred underway, reflecting his free attitude towards them. These may be seen frequently as some reference points for associations that guide the creative process, and, along with the pieces, may suffer to the end alterations, sometimes essential ones. We notice in this sense the representative title of the first *Étude*, entitled *Désordre*, which stands for the entire work, as a metaphor of the chaos theory, suggesting several states of the order and overall control with the variability and local indeterminism of the stratified process.

The parameters of time configuration

Though the *Études* show a particular complexity of rhythm configuration, Ligeti calls more or less paradoxical for a relatively traditional notation system. The conventional score graphics has here a well-determined function: that of

⁸ Cf. Richard Steinitz: *György Ligeti. Music of the Imagination*, Faber and Faber, 2003, p. 277.

⁹ Cf. Debussy: *Cloches a travers les feuilles (Images II)*.

enhancing for the interpreter the simultaneous articulation of several movement layers. Meanwhile, however, the traditional parameters of time notation suffer significant alterations, whether they became guide elements, whether they are used *in extremis*. Anyway, all these devices, either tempo, rhythmic indications, metre, measure, accents, rhythm values or sound structures are used in a strong interdependence.

Though the sound systems play a secondary role in the *Études*, they contribute consistently to the homogenization (for instance the fifth resonance structures in *Études* nos. 2, 5, 8), or contrary to the differentiation of movement layers through heterogeneous structures (in *Études* nos. 1, 7, 11, 12). The latter, however, are not incongruous as the bitonality for instance (excepting the end of *Étude* no. 4, *Fanfares*), but complementary ones, generating – with Richard Steinitz's term – a sort of “combinatorial tonality”.¹⁰ Ligeti also uses on large scale the chromatic structures, especially for linear evolutions (like in the *Étude* no. 13), or in order to confront them with diatonic or acoustic ones (like in the *Étude* no. 6).

Tempo and rhythm indications

Beyond the overall time dramaturgy of the pieces, which generally follow an alternative structure of fast-slow (or medium), the tempo of fast movements is frequently very animated, especially in the second volume (for instance: nos. 9, 10, 14). Though Ligeti notates in most cases metronome marks, or occasionally textual indications explained in the performance notes¹¹, they represent only a single parameter of time configuration. At the same time, there is a basic pulsation (or more) of very different values (from dotted whole note to semiquaver) that lay on the ground of these pieces, as a correspondent of that phenomenon pointed out by Ligeti in the sub-Saharan music. Thus, even in the case of apparently moderate pieces, such as no. 2, *Cordes à vide* (quaver = 96), the rhythm rush, as the progress of layers lead to a significant densification of the movement sensation.

The notation, apparently conventional, is completed for the most part with expressive indications regarding the rhythm. As a general feature, we notice the use of comparative and superlative adjectives, like *molto...*, *vivacissimo*, *prestissimo* etc., as the indications calling for emphasizing the vigorousness, precision, or in contrary the rhythm's flexibility. The former are characteristic of faster tempos, the latter for the moderate ones. We mention in this latter sense some examples that evoke a particular manner of jazz interpretation, like the

¹⁰ “The allocation of complementary scales creates what might be called »combinatorial tonality« (i.e. the illusion of a third or resultant tonality produced by the interaction of different modes)”. Richard Steinitz, *op. cit.*, p. 281.

¹¹ For instance in *Étude* no. 3, *Touches bloquées*: „Play the quaver (eight note) sequences as fast as possible »or even faster«.”

indication of *with swing* in *Études* nos. 5 and 11.

Meanwhile, there is a natural correlation of tempo, reference value, rhythm indications and structure or character. Whether the faster tempos mostly bias linear (diatonic or chromatic) sound structures, the medium ones led frequently to the emphasizing of vertical events, offering on a psychoacoustic level extremely varied impressions about the general rhythm. Starting from the idea of a stratified movement, namely a latent, implicit pulsation and one or more moving layers taking shape as several explicit metrical-rhythmical articulations, we may notice that while the fast movements emphasize mostly the explicit aspect of the time simultaneities, frequently suggesting a sense of tumult and apparent disorganization (ex. nr. 1 *Désordre*), the moderate ones offer rich impressions about the implicit rhythm events. Naturally, these may be used in combination, like in one of the most complex *Étude*, no. 6, *Automne à Varsovie*.

This – so to say – extreme view about the articulation of time has been formulated and applied by Ligeti several decades former, strictly related to the psychoacoustic threshold in the listening process. The extremely fast movements, which exceed 16-20 units per second (like *Continuum* for harpsichord) correspond in this sense to the extremely slow movements, which exceed 8 seconds (for instance *Lux Aeterna*), both producing the impression of dissolution. Regarding the *Piano études*, Ligeti broadens this principle to the use of several rhythm layers, which indifferent to the tempo indications or reference values produce a sense of impressive or expressive saturation, implicit or explicit, cold or strongly emotional.

Measure, metre, accents, articulations

As a conventional parameter of the musical notation, Ligeti maintains in most of the situations the measure bar, which – as it results from the indications that forewords certain études (nos. 7-9) – has only a guide function, that of enhancing the visual synchronization of the movement layers. As the composer confessed himself: „One of the characteristics of my music starting approximately from the *Apparitions* up to the present (1958-59) is the lack of the bar-metre metric – the meters and measure bars are used only with the function of enhancing the deciphering of notation.”¹²

Regarding the measure indications, these are missing mostly in the situations when the musical structure or the articulations suggest a clear graphic (*Études* nos. 1, 3, 9).

In the context of developing a special view about rhythm, mostly inspired by African music, applied and codified in the spirit of European notation tradition, Ligeti opts for a rich exploration of the accents which, similar to the modal structures foregoing the consolidation of tonal-functional system, represented before the dominance of metric accent an exhaustless source of

¹² Kerékfy Márton (ed.), *idem*, p. 432.

differentiating and nuancing the articulations of time. It's not an accident that the composer emphasizes his affinity towards the mensural system of the so called *ars subtilior* style of the late 14th century: „The technique of mensural notation enabled the thinking in symmetrical and asymmetrical divisions of time units independent to the measure. That facilitated the production of polyphonic structures of such a complexity, which create the illusion of parts moving simultaneously with different speeds.”¹³

According to this style, where the rhythm accent (i.e. one of the longer value) prevailed over the metric one (i.e. that of the measure), Ligeti explores on a large scale the emphasizing of certain rhythm moments and movement layers through long values. At the same time, however, he uses a great number of elements, which contribute to the differentiation of the movements: arbitrary accentuation, dynamic contrasts, density of structures, registers, simultaneous tonal systems etc. According to Steinitz: „Polymetre and cross-accentuation are combined to produce secondary-level accents – ‘supersignals’ he [Ligeti] calls them – like holographic images projected three-dimensionally above a two-dimensional plane.”¹⁴

Rhythm strategies, polyrhythm, polymetre

Most of the *Études* combine the two basic time strategies formulated by Ligeti as the static-dynamic dichotomy, in the sense that on the basis of a continuous flux (whether it sets or not an explicit pulsation) several movement layers are evolving according to progressive, regressive or even quasi-stationary strategies, producing virtually several combinations of motoric and kaleidoscopic states.

We mention here some instances:

1. Asymmetrical continuities

In fast movements that pretend a rhythmic interpretation, frequently occur the sensation of *aksak*, both in explicit and implicit forms. An explicit *aksak* appear in *Étude* no. 4, *Fanfares*, a sort of hidden *homage à Bartók*.¹⁵ Ligeti brilliantly equilibrates the strong asymmetry of the ostinato material by adding another, more relaxed layer, consisting of a series of relatively consonant interval chains, rich in acoustic resonances. Among the implicit presence of the *aksak*, understood as a sense of constitutive asymmetry we mention *Étude* no. 1 (which explores relatively free the asymmetrical relations of 2, 3 and 5 units, implicitly in vertically shifted structures), no. 9 (where the combinations of 2

¹³ *idem*, p. 344.

¹⁴ Richard Steinitz, *op. cit.*, p. 278.

¹⁵ According to Steinitz there is a preliminary sketch of the piece with the title *Bartoque*. Steinitz. In: Richard Steinitz, *op. cit.*, p. 288.

and 3 in 6/4 beat are superposed with a layer of 12/8), no. 13 (which integrates in structures of 7, 9 and 11 units of 2 and 3), or nos. 14 and 14A (by the contrasting simultaneity of a continuous movement and a rhythm of 3-2-2 units in the last section of the work).

A special technique initiated by Ligeti in a former piece called *Three Pieces for Two Pianos* that of the blocked keys, is developed in *Étude* no. 3 with the same title. The basic idea of this technique consists of the blocking of several notes in one hand by holding them and the addition of a fast melodic movement in the other that includes some held notes, producing an impression of asymmetrical, hoquet-like discourse.

Another instance of the asymmetrical continuity occurs in *Étude* no. 8, where Ligeti uses two different metre layers (talea), with interposed rests. Since the two patterns have different global values (18 quavers repeated 8 times, respectively 16 quavers repeated 9 times), their systematic repetition lead to a permanently changing asymmetry of the layers, also generating the sense of continuity by their complementary nature. The basis of this type of polyrhythm is already present in the rhythm theory and music of Messiaen.

2. Articulations of the continuities

The impression of continuity is frequently a result of large scale linear structures, motoric repetitions or vertical (harmonic) crossings in slower or moderate tempos.

Linear structures are continuous rhythm flows mostly progressing in chromatic motion on wide movement surfaces. These evolve either by densification, spatial exploration, or by their superposition with other planes. This technique is characteristic to *Études* no. 9, respectively 14 and 14A.

The motoric states of the movement appear either as a sort of perpetuum mobile (*Étude* no. 10), or as a continuous rhythm layers wherein other structures are evolving in longer values. We mention in this sense two rather similar *Études*, nos. 7 and 12. The quasi-mechanical continuity is specific – with small exceptions – to each *Étude* of the third volume.

The vertical crossing technique consists of one or more simultaneous arpeggios that blur the sense of rhythmic vigorousness. Thus *Études* nos. 2 and 5 of a moderate tempo suggests even in the context of asymmetrical structures the impression of continuity, floating, with harmonic resonances in the music of Liszt and Scriabin.

Finally, we mention no. 6, *Automne à Varsovie* as one of the most complex work of the eighteen études, which synthesize essentially both the premises of Ligeti's experiments (the African music, Bach's polyphonic techniques, the mensural canon of the 15th century, the music of Conlon Nancarrow or the graphics of Max Escher), as well as the different states of the already mentioned dichotomies of movement, asymmetrical progresses, motoric layers and extremely

complex polymetres, that are unfolding sometimes in four different speeds. Along with these rhythm characteristics, there is an expressive layer exposed by a lamento motif, repeated almost obsessively through the entire piece.

Conclusions

Though the Piano Études have entered recently to the international piano repertoire, they certainly possess a great potential for further explorations. Thus, they represent in many respects a rhythm microcosm, challenging for interpreters, edifying for those interested in composition techniques, and fascinating for the audience. After his famous micropolyphony, conceived as a fruitful alternative to the declined tonal music, or even the serialism, Ligeti brings by these remarkable pieces another significant contribution to the development of another essential, if not the most essential parameter of music, the rhythm that remained through centuries in the shadow of vertical structures as a matter of primary interest.

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