Musical Variations on the Ideas of Calder and Klee

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Abstract: The article presents a summary of the author's two studies on the connections between art and music: (1) parallels between Calder's mobiles and the musical "mobiles" of Ligeti and Lutoslawski and (2) Klee's insights about visual "forms in motion" viewed as a key to the secrets of twentieth-century musical forms, including the unique symphonic cycles by Mahler. In addition, Lutoslawski's graphic presentation of classic, romantic and his own symphonic cycle are analyzed as being close to Klee's idea of "forms in motion," visually illustrating the "musical plot" (Lutoslawski) of the entire composition.

Key words: Calder, mobiles, musical mobiles, Klee, forms in motion, musical plot

This essay explores the connection and the parallels between art and music in two case studies.

In the first case study, the parallels between the mobiles of Alexander Calder and the musical mobiles of György Ligeti and Witold Lutoslawski show the creative transformation of a sculptor's idea into musical images and their concrete musical realizations. The innovations in the manuscripts of Ligeti and Lutoslawski, which I observed during my two research stays at the Paul Sacher Foundation, Basel (1999 and 2001), drove me to search for a relevant image in the world of art. Calder was a natural choice, since both composers have commented on their understanding and interpretation of his discoveries.

In the second case study, Klee's creative and pedagogical insights are viewed as a possible key to the secrets of twentieth-century musical form. Since Klee's unique spiritual world was no less influenced by music than by the visual arts, his way of thinking and his analytical approach are highly instructive for artists and art critics, musicians and musicologists. I believe that Klee's definitions may illuminate our analysis of the symphonic cycles of twentieth-century composers, be they Mahler or Lutoslawski.

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"The least one can ask of a sculpture is that it stay still," said Salvador Dali.
"The *most* one can ask of a sculpture is that it move," amended Calder.[1]

It is well-known that the concept of the mobile is connected with that of kinetic art (the word *kinetic* comes from the Greek *kinesis*, "movement," or *kinetikos*, "mobile"). From the very beginning, the mobile seemed paradoxical—visual arts' objects were not intended to

[1] This dialogue is part of Calder's book (1971: 77).

move, in real space or in time (both types of movement were considered to be the privilege of other arts, including music).

Calder, in his mobiles, with their moving elements, aspired to incorporate movement into sculpture, i.e. to create a new type of phenomenon based on *contradictio in adjecto*. This contradiction proved very fruitful, and was a source of inspiration both for the visual arts and for music.

It is worth mentioning that Calder, one of the first artists to create mobiles, did not invent the word "mobile." The renowned artist Marcel Duchamp was the first to apply the term to Calder's work (in Paris in 1931), and the word "mobile" quickly became popular with Calder's colleagues and critics, and later, with composers as well.

A year later, in 1932, in his written statement for a catalogue of the Abstraction–Création Group, Calder described his conception of visual art as an interactive process between different objects that constantly change in time and space:

> How does art come into being?
> Out of volumes, motion, spaces carved out within the surrounding space, the universe.
> Out of different masses, tight, heavy, middling—achieved by variations of size or color.
> Out of directional line—vectors representing motion, velocity, acceleration, energy, etc.—lines which form significant angles and directions, making up one, or several, totalities.
> Spaces and volumes, created by the slightest opposition to their mass, or penetrated by vectors, traversed by momentum.
> None of this is fixed. Each element can move, shift, or sway back and forth in a changing relation to each of the other elements in this universe.
> Thus they reveal not only isolated moments, but a physical law of variation among the events of life.
> Not extractions, but abstractions:
> Abstractions which resemble no living thing, except by their manner of reacting.[2]

Quite obviously, for Calder, it is significant that a sculpture can "move"—and not "stay still," as Dali put it. His description may well be applied also to musical phenomena, since his metaphors sound as though they were depicting the avant-garde music of his time.

In this context, it is quite instructive to compare Calder's comment with Edgar Varèse's new musical vision (Varèse, a famous composer and a close friend of Calder, is considered to be a pioneer of sonoristic music—music characterized by timbres and the interactions of timbres):

> When new instruments will allow me to write music as I conceive it, the movements of sound masses, of shifting planes, will be clearly perceived in my work, taking the place of the linear counterpoint. When these sound masses collide, the phenomena of penetration or repulsion will seem to occur. Certain transmutations taking place on certain planes will seem to be projected onto other planes, moving at different speeds and at different angles. There will no longer be the old conception of melody or interplay of melodies. The entire work will flow as a river flows.
>
> We have actually three dimensions in music: horizontal, vertical, and dynamic swelling or decreasing. I shall add a fourth, sound projection—feeling akin to that aroused by beams of

[2] Alexander Calder called his manifesto, "Abstraction-Création, Art Non-Figuratif" (*Calder* 1971: 25).

> light sent forth by a powerful searchlight—for the ear as for the eye, that sense of projection, of a journey into space. […]
>
> The role of color or timbre would be completely changed from being incidental, anecdotal, sensual or picturesque; it would become an agent of delineation, like the different colors on a map separating different areas, and an integral part of the form […]. (Strunk: 70-71)[3]

Some similarities are quite evident in the statements of Calder and Varèse: "a journey into space" (Varèse) echoes "spaces and volumes […] traversed by momentum" (Calder); both Varèse and Calder are interested in working with "masses"—be they visual objects or sounds; the image of shifting planes or shifting elements is alive in both creators' minds and imaginations, etc.

During the 1960s, the music of timbres envisioned by Edgar Varèse was extremely influential in the avant-garde music world. It seems quite symbolic that at that precise time, i.e. in the early 1960s, two outstanding composers, György Ligeti and Witold Lutoslawski, were greatly impressed by Calder's mobiles. Both composers were seeking a new musical language of their own, especially for the new sonorities, and they referred explicitly to Calder's mobiles while speaking about the peculiarities of modern musical form.

Ligeti, after his escape from Hungary in 1956, was seriously motivated to consider the processes of the new music development in the West—with which he was almost totally unfamiliar. Following his in-depth analysis, Ligeti wrote two pioneering research articles: "Metamorphoses of Musical Form" (1960),[4] and "Form in New Music" (1966).[5] As his involvement with the visual arts and their interaction and correlation with music was constant,[6] Ligeti mentions Calder, in both of his articles, as a representative figure and as a point of reference for discussing similarities and differences between music and the plastic arts:

> A sculpture is a primarily spatial configuration. A moving sculpture—for instance, a mobile of Calder—incorporates however the dimension of time into the primarily spatial configuration. The form of the mobile is thus not merely an abstraction of its spatial configuration but also embraces the changes of the spatial configuration in time. The situation in music is reversed: here, form is the product of an imaginary spatialization of the temporal process—with the mobile structure it is a product of "temporalization" of spatial objects. Music as a primarily temporal process is already, in itself, motion (completely static types of music are merely a borderline case). Thus, there is no analogy in music to a mobile sculpture; to reintroduce motion into motion doesn't signify a transformation: the result would again be motion. Since music contains mobility within, as something belonging primarily to the musical process itself and actually producing it, and since this mobility, as something spatialized, enters into musical form and determines it, musical form cannot be conceived as mobile: mobility is inherent to the form; the form *itself* is not mobile. Various

[3] Varese published several articles in the 1930s, predicting the future of music as he imagined it—among them, "The Liberation of Sound" quoted by Strunk.
[4] Ligeti's article was first published in German (Ligeti 1960), and then translated into English (Ligeti 1965).
[5] The article on form was also published first in German (Ligeti 1965), and later in English (Ligeti 1992).
[6] Between numerous publications on Ligeti's interaction with visual arts phenomena, the article by Bianca Ţiplea Temeş introduces a less known but highly significant aspect of Ligeti's work process, i.e. his visual associations at the preliminary work stage working as an initial impulse to composition. Her conclusions are based on Ligeti's sketches from the Paul Sacher Foundation, Basel (Ţiplea Temeş: 87–89).

> musical realizations of a polyvalent text, produced one after the other, relate to one another like different snapshots of a Calderian mobile. (Ligeti 1992: 795)

Ligeti comments on the forms of modern music in which the performers decide on the order of the musical events (and, sometimes, even their concrete sound realization). In Ligeti's view, the composer is the only one who can choose and determine the structure and sound of his work:

> These (free, or mobile-YK) works, supplied by the composer in component parts together with instructions for assembly, have to chalk up a deficit on the side of the detail-work for every credit they achieve as a whole; i.e. in giving the overall form the chance to be different each time it is heard, the separate parts have to be made interchangeable, which means that unequivocal direction of flow is lost, and entropy increases.[…] changes are manifested only indirectly, since each performance is merely a momentary incarnation of the manifold possibilities of the form. It seems to me it would be much more worthwhile to try and achieve a compositional design of the *process* of change. (Ligeti 1965: 19)

In accordance with his creative priorities, Ligeti did not use the mobile form in his own compositions and thus never compared any of his own musical pieces with Calder's mobiles. Lutoslawski, on the other hand, spoke about the mobiles only in the context of his own work. In Lutoslawski's view, his String Quartet (1965) "[…] consists of a sequence of mobiles which are to be played, one after another, without any pause if there is no other indication."[7] To his mind, the term "mobile" "refers to the variable length of sections in different instrumental parts, which is connected with group playing *ad libitum*" (Kaczyński 1984: 25).

Here, Lutoslawski meant the sections in which he used his own type of aleatory (chance) technique—limited aleatorism of texture. According to his composition principles, in such sections the vertical correlations change in each performance, since every musician is to play his part independently. In the composer's words, "… each particular player is supposed not to know what the others are doing, or, at least, to perform his part as if he were not to hear anything except that which he is playing himself" (25).

To provide performers with adequate instruction on how to play his String Quartet, the composer (together with his wife Danuta, an architect), invented an unusual type of notation for his *ad libitum* sections: he wrote the text for each of four players in a separate rectangle. In a letter to Walter Levin, Lutoslawski explained:

> […] if I did write a normal score, superimposing the parts mechanically, it would be false, misleading, and it would represent a different work. This would suggest, for example, that the notes placed at the same vertical line should always be played at the same moment, which is contrary to my intention.… This would deprive the piece of its "mobile" character, which is one of its most important features.

In such a case, every performance of the same piece of music sounds slightly different—like one of the changing positions of Calder's mobile. As mentioned above, Ligeti

[7] Witold Lutoslawski's letter to Walter Levin, leader of the La Salle Quartet (a lengthy extract of the full text of Lutoslawski's letter is given as a supplement to the score published by Chester).

comments on Calder's mobile in his article on "Form in New Music," as follows: "Various musical realizations of a polyvalent text, produced one after the other, relate to one another like different snapshots of a Calderian mobile" (Ligeti 1992: 795).

Ligeti and Lutoslawski experimented on their own, not knowing that there was someone else moving in a similar direction. Two of their most innovative works—Lutoslawski's *Venetian Games* and Ligeti's *Atmospheres*—were performed at almost the same time in 1961. Lutoslawski emphasized their independence, saying: "I have never borrowed any elements of Ligeti's technique of writing" (Nikolska 1994: 132). Ligeti emphasized the fact that: "Lutoslawski has developed his technique in an absolutely independent way," and he continued: "That is how it is, some techniques and ideas are simply present in the air" (Ligeti 1968: 453).

The last idea proves quite reasonable, as other composers were impressed with Calder's mobiles and wrote their compositions inspired by Calder quite independently of either Ligeti or Lutoslawski. In the spring of 1965, three pieces premiered at the same time: *String Quartet* by Lutoslawski, *Calder Piece* by Earle Brown, and *American Triptych: Three Studies in Texture* by Gunther Schuller. As Charles Bodman Rae, a distinguished biographer of Lutoslawski, wrote, this coincidence "rules out any question of cross-influence between the composers concerned, but it does demonstrate the general appeal of such ideas during the 1960s" (Rae: 91).

In the 1960s, as a matter of fact, both Ligeti and Lutoslawski focused their experiments on texture; their own types of texture—Ligeti's "micropolyphony" and Lutoslawski's "aleatory counterpoint"—were analyzed by many musicologists and commented upon by the composers themselves. Less attention was paid to the similarity of their intentions to create a new type of musical phenomenon. In my view, it is highly significant that, in the 1960s, both Ligeti and Lutoslawski compared music to the visual arts and referred to the same name: Alexander Calder.

Lutoslawski's description of music as "sculpting in non-solid, almost liquid material" (Kazyński 1984: 26) is very similar to Ligeti's. Ligeti describes the convergence of music and visual arts from two angles: one is the "spatialization" of the temporal process; the other is the "temporalization" of spatial objects, seen, for example, in mobile sculpture (Ligeti 1992: 795).

Both composers' metaphors are reminiscent of Calder's description of his conception of form:

> What I mean is that the idea of detached bodies floating in space, of different sizes and densities, perhaps of different colors and temperatures, and surrounded and interlarded with wisps of gaseous condition, and some at rest, while others move in peculiar manners, seems to me the ideal source of form. (*Calder* 1971: 60)

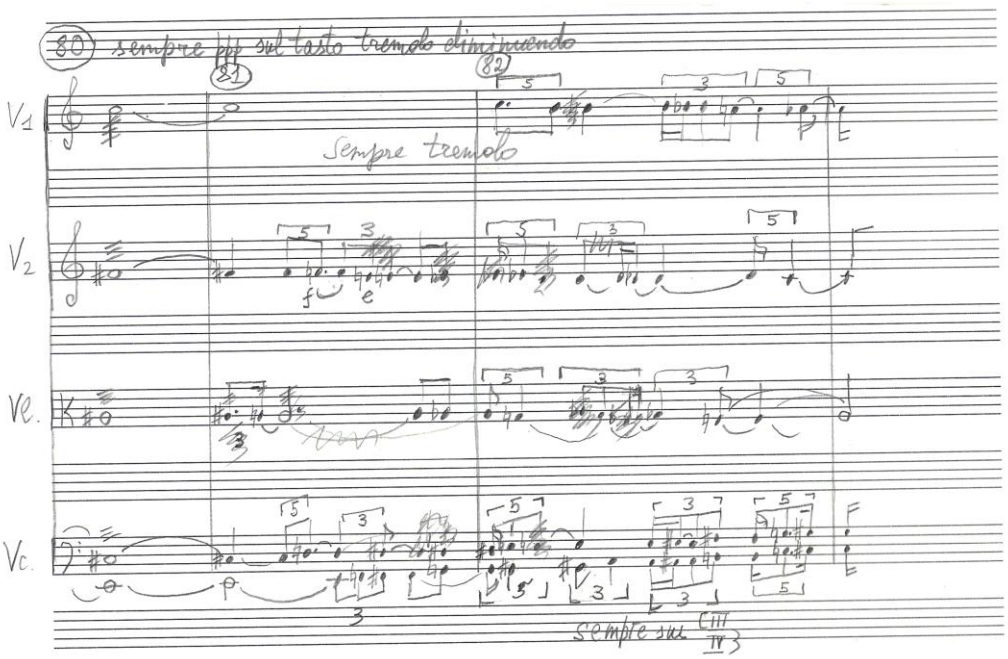
The "mobiles" of Ligeti and Lutoslawski, as well as Calder's mobiles, are primarily products of the imagination. In keeping with the specific character of musical art, musical mobiles had to be introduced to performers (and only through their interpretation to listeners) in the clearest way possible. Lutoslawski's idea of "loosen[ing] the time connections and […] achiev[ing] […] a 'fluid' texture," which he mentioned in his letter to Walter Levin, needed adequate notation. Ligeti also sought a solution to this problem. Both of them wanted to combine two seemingly incompatible principles: the exact notation

of their musical text and the impression of "moving sculpture," i.e. imperceptible transition from one sound to another.

This idea obviously contains an internal contradiction—one has to describe in precise terms something that is constantly moving and changing. Even the formulations of the two composers reflect this inner contradiction. Lutoslawski wanted "to achieve a continuous change of pitch in the most precise way … [and] to give the impression of the quarter-tone cluster moving in space" (Kaczyński 1995: 74–75). Ligeti formulated his idea in his own paradoxical way: "My aim was to arrest the process, to fix the supersaturation solution just at the moment before crystallization" (Ligeti 1983: 15). In both formulations, the idea seems to have been to produce a series of snapshots of the same mobile or, more precisely, a short film showing the process of gradual change.

Initially, Ligeti's and Lutoslawski's scores from the 1960s looked different—Ligeti used the usual bar notation, whereas Lutoslawski invented his collective *ad libitum* design without the standard division into bars. Nevertheless, when we look at their sketches, we see both composers working toward the same goal through various compositional devices.

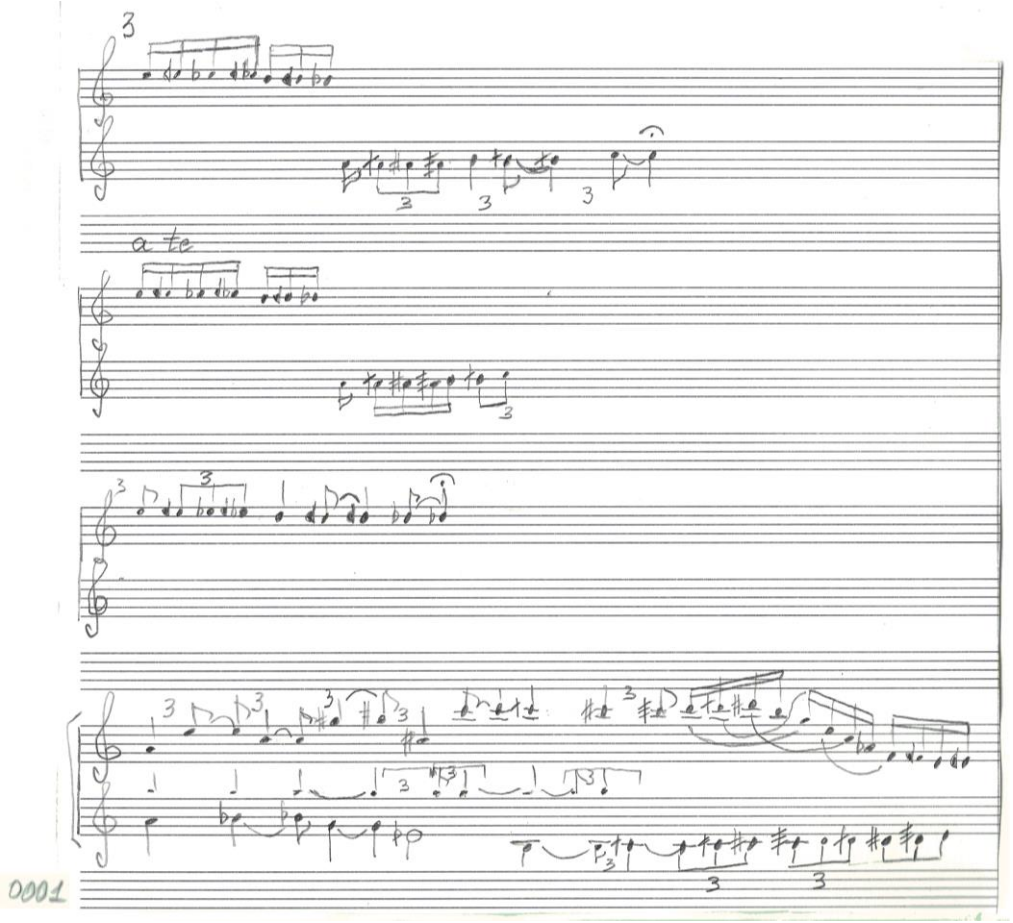
Ligeti defined his music of the 1960s as a "continuous flow, unbroken by bars" (Ligeti 1983: 14). In his sketches, we see his efforts to prevent the various instruments from coinciding; his corrections of the preliminary variant are meant to prevent the occurrence of simultaneous attacks in separate layers (see Example 1).



Example 1: Győrgy Ligeti, String Quartet no. 2 (1968), sketch of the first movement[8]

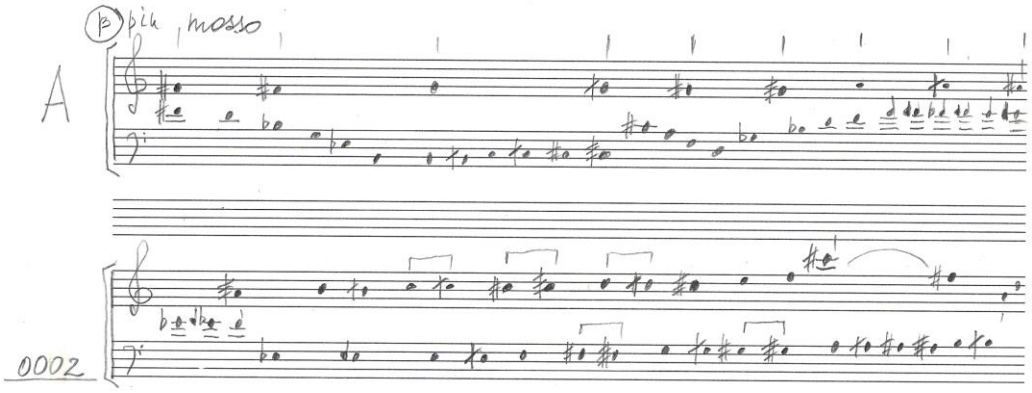
[8] Examples 1-3 are taken from the Gyögy Ligeti Collection and Witold Lutoslawski Collection at the Paul Sacher Foundation, Basel. I am grateful to the Director of the Foundation, Dr. Felix Meyer, for the permission to include them in my article.

At the same time (1968), Lutoslawski was experimenting with his own type of fluid texture. The sketch for the *Livre pour orchestre* shows a moving cluster with its most important points—the minor triad E–A–C—outlined (see Example 2).



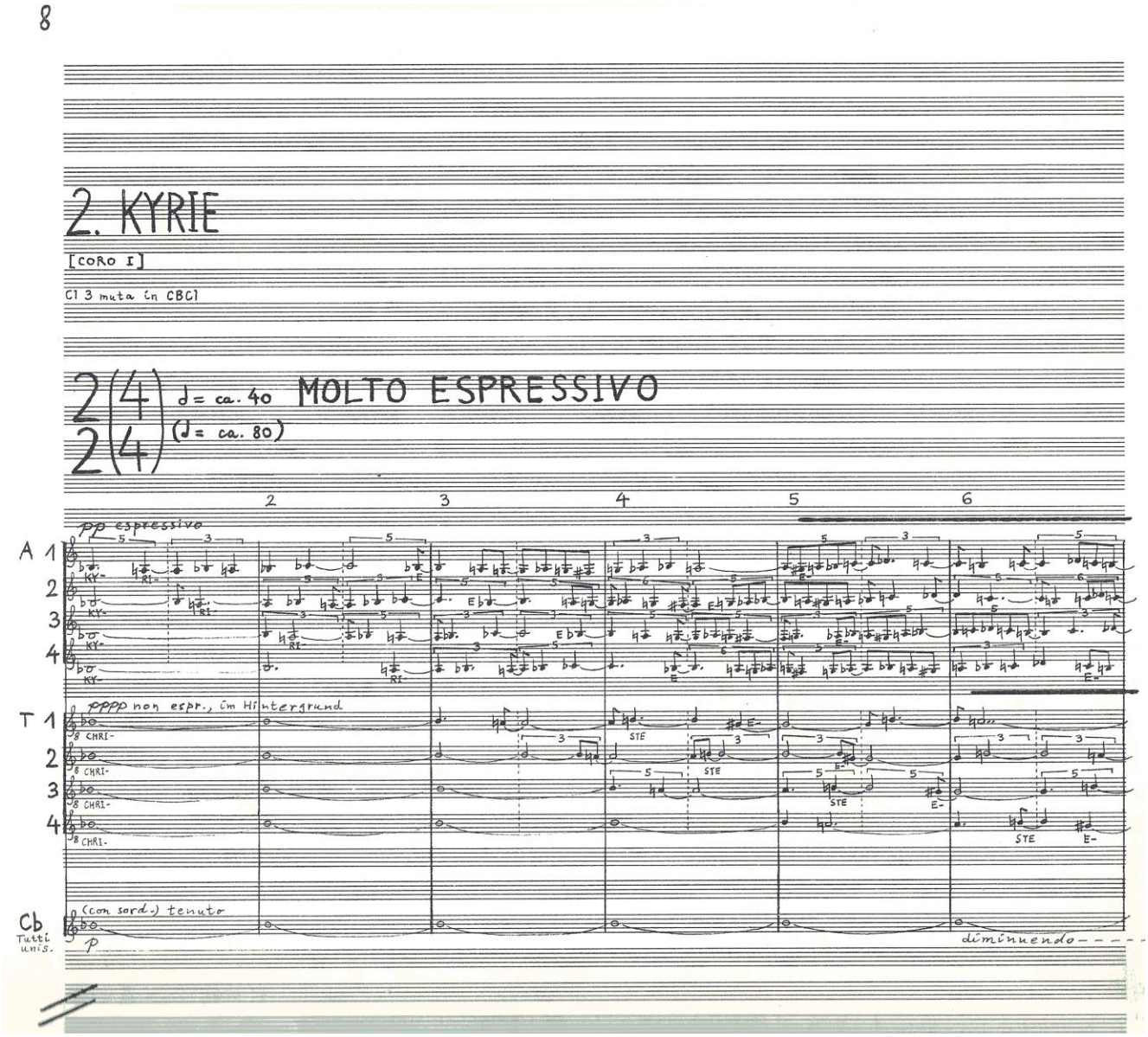
Example 2: Witold Lutoslawski, *Livre pour orchestre* (1968), sketch of the beginning

Lutoslawski continued to develop the initial motive of the *Livre* through imitation, obviously (like Ligeti) avoiding the simultaneous sounding of two lines (see Example 3).



Example 3: Witold Lutoslawski, *Livre pour orchestre*, sketch of the continuation

Why did both composers choose to write such detailed scores? They both realized that every performance would be slightly different from the others, because it would be impossible to comply with all of their directions precisely. In Lutoslawski's sections of aleatory counterpoint, the performer cannot play the rhythms exactly; in Ligeti's scores, even the exact pitch performance may be a problem. Ligeti himself was well aware of this problem and, in the score of his Requiem, even marked the mostly problematic excerpts with a bold black line (see Example 4).



Example 4: György Ligeti, Requiem (1965), the beginning of Kyrie[9]

[9] Reprint with kind permission of C.F. Peters Music Publishers (Leipzig–London–New York).

One answer might be that the question itself is a rhetorical one. Both composers were quite conscious of their unwillingness to use any other sort of notation for their images. Both of them also articulated their credo as clearly as possible.

> Witold Lutoslawski:
> The original intention in my works is always a very certain sound image, whose essential traits do not get touched—despite the differences between the individual performances, however, they arise from the insertion of the moment of chance.
> (Lutoslawski 1991: 78)

> György Ligeti:
> Thus I notate exactly and in the twelve-tone temperament; in addition, one should aim in one's studies to reach the prescribed intonation and rhythm as close as possible. When this is accomplished, a brim of uncertainty automatically remains; it is exactly this brim that creates hyperchromatics and rhythmic overlaps, with which one blurs mass and moving colors.
> (Ligeti 1969: 87)

But the two composers' statements also enable us to answer the above question: to some extent, Ligeti and Lutoslawski wished to control even chance itself (it suffices to mention Lutoslawski's term "limited aleatorism"). The common denominator of the two statements—the correlation between stability and mobility, between regularity and chance—seems to be one of the fundamental ideas of twentieth-century art.

I believe that it was Calder's mobiles that showed the two composers how to combine seemingly incompatible phenomena: control and chance. As Calder said, "Disparity in form, color, size, weight, motion, is what makes a composition…. It is the apparent accident to regularity which the artist actually controls by which he makes or mars a work" (Calder 1967: 114). Here, Calder describes the dialectic that makes the work of all three artists inexhaustible—and therefore so attractive—to recipients of art.

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Ingres is thought to have ordered the quietude,
I want, beyond the pathos, to order the motion.

(Paul Klee, September 1914[10])

As Hajo Düchting, one of Paul Klee's biographers, stated, "There is hardly a twentieth-century artist who dealt so intensively with music as did Paul Klee, making explicit reference to it in both his art and his writings" (Düchting: 7).[11] Summarizing Klee's permanent involvement in various musical activities, Brenda Leach concludes that "Klee's

[10] This is the epigraph to Klee's book *Das bildnerische Denken* (Schriften zur Form und Gestaltunglehre hereausgegeben und bearbeitet von Jürg Spiller.) (Basel/Stuttgart: Benno Schwabe &Co Verlag, 1956).
[11] The book by Hajo Düchting, *Painting Music*, was first published in paperback in 1997; in this article, the 2004 edition is cited.

passion for music, both as concertgoer and as violinist playing chamber music, was a driving force in his creative world" (Leach: 67).

As early as the 1910s, this trait of Klee's attracted much attention since "the celebrated 'musicality' of Klee's art is one of the qualities that has most captivated the imagination of his public; it is one of the earliest themes in the Klee literature and is mentioned by almost all of his biographers and critics" (Kagan: 21). The main foci were usually Klee's paintings, which reflected the interaction of both the musical and the visual. Two significant books on the subject, *Paul Klee: Art and Music* by Andrew Kagan (1983), and *Painting Music* by Hajo Düchting (1997), reflect this direction of research.

Less attention was given to the potential application of Klee's ideas to the problems of musical composition. This application seems worthwhile since Klee's attitude to the basic drawing elements—dot, line, combination of lines, or visual forms—was much influenced by his musical experience.

Accordingly, Klee's attention was consistently attracted to the aspects of painting that have tangible points of contact with music's form-building elements. At the beginning of his well-known *Pedagogical Sketchbook*, the painter already mentions, "An active line on a walk.… The mobility agent is a point, shifting its position forward" (Klee, 1968: 16).

Klee continues his instruction while commenting on different accompaniments (complementary forms) to the same line—the secondary lines moving around an imaginary main line, then active, medial, and passive lines, then different structures, etc. For a musician, this succession is perceived as the formation of a musical continuum, developing from an isolated sound to a line, to a combination of lines—and finally to a lasting, prolonged musical structure.

In another context, Klee's description of movement seems universal, i.e. quite appropriate for musical phenomena as well:

> Movement is the basis of all becoming. When a dot becomes movement and line, time is involved.… Scene of the action—time. Character—movement. Even in the universe movement is certain.… The genesis of writing provides a very good parallel for movement. A work of art is also first and foremost a genesis; it is never experienced ready-made.… The pictorial work, originated in movement, is in itself recorded movement and is received as a movement. (Hartmann: 93–94)

In addition, Klee's warning to his students, regarding their training with many different visual elements, may also be of great interest for students and researchers of musical composition: "Don't think of form but of forming. Stick to the main road, to preserving unbroken continuity with your original idea" (99). In fact, the distinction between *form* and *forming* (in German, *Form-ende* and *Formende*) was of paramount importance in Klee's conception of the art world; for him, "more important … than the culminating forms are the formative forces." (Klee, 2012:13)[12]

To evaluate these statements and instructions for students as they deserve, we have to remember that Klee does not speak about mobile structures moving in space (like Calder,

[12] The citation by Klee is taken from his 1924 "Jena lecture".

for example)—his instruction is directed to ordinary training with paper and pencil, unexpectedly involving such categories as time, space, and movement.[13]

I believe that Klee's formulations speak for themselves, for every musician. In this article, I cannot touch on all or even a few aspects of the methodological problems connected with the possible use of Klee's ideas in the analysis of music. My aim is to explore the possible application of only one of them to the analysis of twentieth-century musical structures.

To understand the reasons for my search for a new instrument of twentieth-century music analysis, we have to take into consideration the innovations of musical thinking at that time, and the first priority given to the dynamic attitude to a musical form, i.e. *to the forming and not to the form,* in Klee's formulation.

While speaking about the adherence of twentieth-century composers to the *unbroken continuity with the original idea*, as Klee put it, we cannot avoid a reference to the work of two composers at the beginning of the century—Debussy and Mahler. Both of them today are rightly appreciated as heralds of new music.

Each of them left behind an aphorism connected to their interpretation of musical form—two mottos that defined innovative musical thinking in the twentieth century.

The first belongs to Claude Debussy: "I am more and more convinced that music is not, in essence, a thing that can be cast into a traditional and fixed form."

In other words, Debussy accepted no traditional forms.

The second motto belongs to Gustav Mahler who, unlike Debussy, continued to adhere to the traditional symphonic cycle: "Exact repetition is a lie."

In other words, Mahler consciously used no exact repetitions.

Both mottos—no traditional forms and no exact repetitions—were of importance not only for Debussy and Mahler. As we know, both composers' musical thinking greatly influenced the generations that followed (for example, Mahler was a source of inspiration for such different composers as Shostakovich, a Russian; and Berio, an Italian; and Debussy—for Messiaen, a Frenchman; and Ligeti, a Hungarian, etc.). Therefore, their creative priorities—and we are speaking here about significant tendencies—became those of their successors as well.

As a result of such creative priorities, we are able to observe two phenomena of musical structuring:

a) The first is the avoidance, or the lack, of typical structures, which is characteristic of Debussy (as well as of Ligeti).

b) The second is a fundamental transformation of the accepted forms, especially the sonata form, which is characteristic of Mahler (and later of Shostakovich, as well as of Mahler's antipodal Stravinsky).

Both phenomena—the unique structures as well as a fundamental transformation of the accepted forms—have some common traits (despite all the obvious differences between unique and transformed ones). One of these common traits can serve us as an additional point of departure.

As we know, one of the aspirations of many twentieth-century composers was, in one way or another, to "arrest the process" (Ligeti), i.e. to find a way to reflect permanent

[13] Klee even planned to publish a series of lectures named "Pictorial mechanics," intended as a part of the Bauhaus–Bücher series. However, the publication was never realized (*The Klee Universe*, 2009: 256).

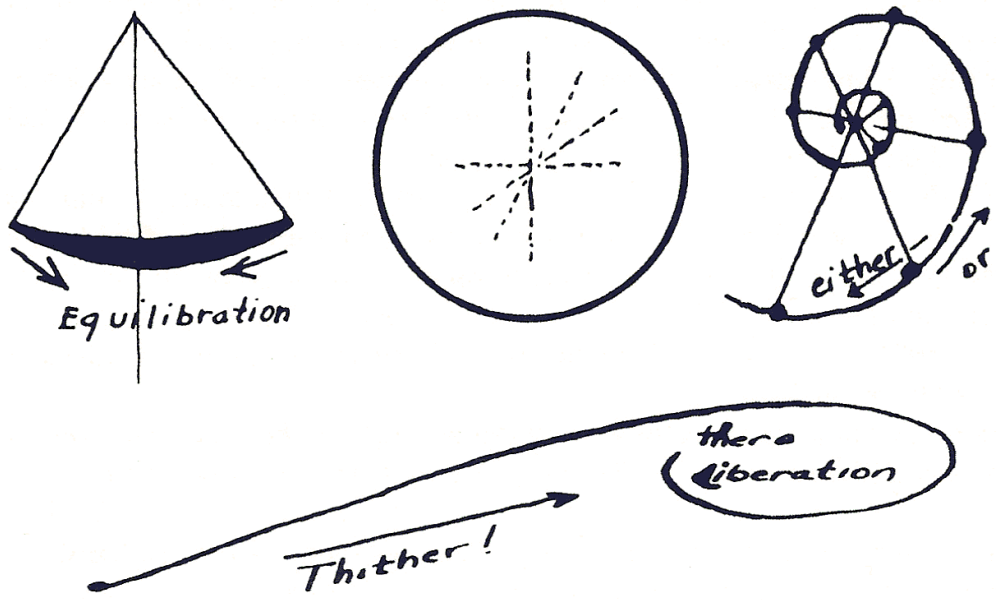
change (whether in the inner world of living creatures, or the outer world of nature). According to this aspiration, form was directed—in one way or another—to turning the world's inconstancy into a fixed structure.

However, especially in the twentieth century, the search for innovation was more intensive than ever. What became *typical* now was *the lack of the typical* and the *abundance of atypical* structures (those that were fundamentally transformed were quite far from any known prototype).

This situation causes methodological difficulties in analyzing twentieth-century music, which challenge the music analyst to seek possible solutions. The question is a satisfactory description of individual structures—for example, I often have to cope with students' protests about analyzing individual structures according to accepted form definitions.

It is quite obvious that we need another—new or additional—terminology to describe and explain the processes of change and/or transformation. It makes sense, therefore, to search for an additional analytical approach to adequately describe the phenomena of this period. In this context, one of Klee's insights might give us a key to broadening our understanding of musical form regularities.

In his *Pedagogical Sketchbook*, Klee (1968) suggested a brilliant idea that can help explain the processes occurring in musical form: he painted several "forms in motion"—Pendulum, Circle, Spiral, Arrow (See Example 5).



Example 5: Klee's "Forms in Motion"[14]

[14] As appears in Klee 1968: 53-54.

Klee's figures are both static (as outlined on the paper) and moving (as an image). In music, we observe the same components, but in the opposite correlation (form as a process that we perceive during listening, and form as a "crystal," i.e. as evaluated after listening).[15] Therefore, Klee's forms' duality is of special interest for the study of the musical form.

This duality also confirms once more, if such a confirmation were yet needed, that the application of Klee's ideas to the music form is not at all casual. The famous painter himself was quite conscious of what he felt to be the mutual traits of music and the visual arts. In his own words, "I am continually being made aware of parallels between music and the fine arts. As yet, they defy analysis. It is certain that both art forms are defined by time. That can easily be proved" (Düchting: 9).

The unfolding of music in time is—at least in Western music tradition—a natural premise of its dynamic process, i.e. of the duality of repetition and change. Therefore, at this time, I have chosen as one of the possible fields of observation the dynamic processes in the twentieth-century symphony, and, more specifically, the correlation between various movements of the symphonic cycle, especially the problem of the finale movement.

At first glance, this is not innovative territory, since the genre itself has a long tradition of almost three centuries. But it is only part of the truth: on the other side, the destiny of the genre in the twentieth century was far from unambiguous. The search for innovation, and especially the search for a qualitative change at the end, i.e. a dynamic attitude to form, quite clearly manifested itself in the genre of the symphony.

A possible case study, and one of the most complicated ones, is Mahler's symphonies. There is no unanimity among musicologists even today about their historical position—whether they are a conclusion of the nineteenth-century tradition, or begin that of the following century. As a golden mean, we can call Mahler the "herald of twentieth-century music." However, it does not help us decide what type of cycle structure each of the symphonies belongs to, or whether such a type exists at all. For Mahler, if we look not only at the quantity of movements, but also at the correlation between them, never returns to the same cycle structure—as if challenging the musical world.

In any case, Mahler's symphonies are undoubtedly *Finalsymphonien* (German)—symphonies, so to say, directed toward the finale, as Paul Bekker, one of the first Mahler scholars, put it.[16] This formulation, *Finalsymphonien*, captures the exceptional role of the finale, which functions as the denouement of the drama that unfolds during the entire work. This movement is the moment of the final insight, of revelation—each time of another type and significance.

[15] *Muzykal'naya forma kak protsess* [Musical Form as a Process] (Moscow–Leningrad, 1963) is the title of a well-known book by Boris Asafiev, a Russian musicologist who adhered to Ernst Kurth's concept of musical form.
[16] Paul Bekker's monograph was first published in 1921, ten years after Mahler's death.

While trying to classify the final parts of Mahler's symphonies, I thought about many possible criteria, while partially exploring the classification of Michael Talbot, a distinguished English musicologist. In his book, *The Finale in Western Instrumental Music*,[17] he singles out four types of finale movements:

1) relaxant
2) summative
3) valedictory
4) hybrid

The first two are supposed to be representative of a specific epoch: relaxant—for the eighteenth century; summative—for the nineteenth century

As for valedictory and hybrid finales, both types may be called "deviant," having quite atypical features topoi (valedictory) or a non-normative structure (hybrid) (Talbot: 106, 128).

Mahler is not analyzed at length in Talbot's monograph, and this is not accidental: while criticizing Paul Bekker for his *Finalsymphonie* conception, Talbot does not suggest another, more fruitful, approach. Therefore, besides the First Symphony's finale, which is interpreted as hybrid, and the Ninth Symphony's finale, which is labeled as valedictory, other works are mentioned but not classified. This is quite understandable because of the permanent process of structure change that is directed by an existential idea outside the musical structure itself.

In my view, Bekker's idea is still valid, since it captures the uniqueness of Mahler's ambitions: in the final movement, Mahler always sought to reach a new stage, i.e. to see the conflict anew, as if from the outside—and to achieve a new sight, a new vision!

According to this aspiration, the form of Mahler's finales is always "form in motion"—a permanent process, a form in the making, coming into being. To imagine the concrete "form in motion," to use Klee's definition, two comparisons are necessary:

1) between the beginning and the end of the symphony
2) between the beginning and the end of the finale itself.

Neither criterion will work in every symphony, but one of them is always present.

For Mahler, the most typical manifestation of the dynamic principle is a spiral—note the abundance of unachieved culminations, with the general culmination moved close to the very end; Inna Barsova, an internationally acclaimed Russian musicologist and a well-known Mahler scholar, defines this final culmination as apotheosis. (See Barsova 1975, 2010)[18] This type of development can be seen in the final movements of the First,[19] Second, Third, and Eighth symphonies.

In some cases, an arrow is "sent" by the composer from the very beginning of the symphony to the beginning of the finale: in the Fifth Symphony—from C sharp to D, in

[17] Michael Talbot, *The Finale in Western Instrumental Music* (New York: Oxford University Press, 2001).
[18] Barsova's detailed schematic diagrams show the development in the entire symphonic cycle.
[19] For an in-depth analysis of the finale movement of the First Symphony, see the article by James Buhler, "'Breakthrough' as Critique of Form: The Finale of Mahler's First Symphony," *Nineteenth Century Music*, 20/2: 125–43.

the Seventh Symphony—from B to C; in both cases, it is an ascending arrow (in musical terms, an ascending minor second both times). An example of a descending arrow is the correlation between the first movement and the finale of the Ninth Symphony: from D to D flat (in musical terms, a descending minor second).

A circle, the symbol of returning at the end to the very beginning, is very rare in Mahler's symphonies. The only example is the Sixth Symphony, usually called "Tragic," where three of the four movements are written in the same a-minor tonality. The tragic mood of the work is embodied in its leitmotif: its two triads, major and minor, sound in the first and last movements like the symbol of the verdict of a ruthless fate.

Two of the three figures mentioned, the spiral and the arrow, while connecting the beginning and the end of the cyclic form, are visual symbols of a highly significant semantic revelation: a spiral leads the listener to an apotheosis (sometimes with a clear theological connotation, as in the Second and Eighth, and sometimes with a pantheistic one, as in the First and the Third). The arrow is more likely to be a symbol of transfiguration, of the joy that comes as an expression of transfigured suffering, or the sorrow that comes after brightness.

Two composers who were profoundly influenced by Mahler, Dmitri Shostakovich and Alfred Schnittke, used—possibly in an instinctive way—both the spiral and the arrow in their works. We may observe the ascending arrow, in the Fourth Symphony by Schnittke, with a counterpoint of the music of various religious confessions at the end, as a symbol of the ecumenical Weltanschauung of the composer; and a descending arrow, in the Fourth Symphony of Shostakovich, that ends with a funeral march, with its gradually disappearing sound, or Shostakovich's vocal Fourteenth Symphony as well, with Rilke's line at the end, "Death is all-powerful."

If we turn now to the atypical, unique structures already mentioned above, we will see that in non-tonal music as well, including the sonoristic opuses, the idea of forms in motion may be highly relevant. For example, a convinced adherent of the symphonic genre like Witold Lutoslawki quite consciously aspired to the unity of the entire symphonic cycle (which could be built, he thought, as a one-movement structure with a wide range, or as a two-movement cycle). In his view, such a unity needs a conscious composer's planning, and his foreseeing of the listener's reception that has to be organized.

The organization of the listener's perception was one of his constant concerns, and he was searching here for individual solutions, based, however, on the experience of his predecessors. In speaking about his creative principles, he emphasized:

> I have always been preoccupied with problems of large-scale, closed form. [...] I based my quest on the forms employed by Beethoven and Haydn—first and foremost, of course, those of Beethoven. I was naturally interested not in the sonata scheme but in the techniques and methods used for constructing the musical process and musical action. As it turned out, the most innovative procedures were developed by Beethoven, and in this respect he stands alone, unsurpassed before or after his lifetime. And what intrigued me most of all in his music is the way in which he leads the listener through his compositions. The ability to create unanticipated, unpredictable situations and to break down deep-seated listening habits […] had a tremendous effect on me. (Nikolska 1995: 41–42)

While leading listeners through his compositions, Lutoslawski prefers to postpone the culmination until the very end, and thus keep the attention of the audience until the last moment. Lutoslawski calls his large-scale works, such as the Second and the Third symphonies, *Livre pour Orchestre* and Piano Concerto, "end-accented." In these works, "the centre of gravity of the cycle falls on the finale. Semantically. And in every other respect" (Nikolska 1994: 101).

Interestingly, in one of his interviews (1970),[20] Lutoslawski explained his perception of the classic and romantic, as well as his own symphonic cycle in visual images (see Example 6).

Example 6: The figure made by Lutoslawski

In the figure, we see three visual images of musical development in the symphonic cycle: the first image, of the classic Viennese symphony—mostly of Haydn and Mozart; the second, a typical example of nineteenth-century thought (Tchaikovsky and Brahms); the third, of Lutoslawski himself. In his view, the classical symphony was characterized by a lowering of tension in the final movement (relaxant finale, as Talbot put it), while in Brahms's symphonies, the conflict of opposed elements as well as the abundance of musical events in both movements were equal (resulting in too much tension, in Lutoslawski's conviction).

As for his own works, he commented on his idea of form-building as the opposite of the classic principle, i.e. as an intentional increase of tension toward the end. It is quite obvious that his idea is very close to Mahler's *Finalsymphonie* cycle structure, and, in Klee's formulation, we observe, unambiguously, the principle of an ascending arrow.

It seems to me that the use of graphic symbols shows Lutoslawski's vision of the whole work as if from above, as well as his need for organization and unity. In such a case, a visual symbol may be a valid guiding line while trying to catch the main line of development, or the plot, as Lutoslawski liked to define it, of a monumental symphonic composition (Nikolska 1994: 97).[21]

[20] A conversation was held with the group of Soviet composers and musicologists during the "Warsaw Autumn" festival in 1970. The full text of the interview is included in my MA thesis, *Muzykal'no-teoreticheskie problemy tvorchestva Lutoslawskogo* [The Musical–Theoretical Problems of Lutoslawski's Work] (Moscow, 1971) (Moscow Conservatory, manuscript, in Russian). The transcript of the interview, including the scheme made by Lutoslawski, was provided to me by Yury Kholopov, my MA tutor, who visited the "Warsaw Autumn" festival in 1970. Mr. Marcin Boguslawski, the heir of Witold Lutoslawski's legacy, permitted me to include the figure in the article.

[21] In Lutoslawski's view, "the main thing is that it [a symphony—YK] must be properly shaped into a process with a perceptible *akcja* [i.e. action]. By 'action' I understand a purely musical 'plot'—not what is described as program music. A purely musical plot. That is to say, a chain of interrelated musical events. For the listener to follow the thread. From beginning to end" (Nikolska 1994: 97).

In my view, Klee's *Forms in Motion* can help us comment on the musical structures of twentieth-century composers, irrespective of the specifics of their musical language. For example, Circle and Pendulum, with their return to a starting point, are of interest in analyzing minimalist compositions in which the inertia of returning to the starting point is a basic foundation of the development process. One more example: the observations on the dynamic profile of a piece, summarized graphically, are often close to Klee's forms as well (in this case, I mean dynamics proper, which is very important in sonoristic pieces, and often defines the structure of the whole). However, there are quite a few other case studies whose dynamic processes are worth investigating through the prism of Klee's concepts of the visual arts.

However, while exploring the application of Klee's ideas to music, we need also to remember and be aware that our knowledge begins from an instinctive insight and, quite naturally, lacks completeness. As Klee put it,

> to lay bare the elements and group them into a whole simultaneously at various places, to create a visual polyphony and to bring about stillness by balancing movement, all these are aspects of form and are of great importance for the knowledge of form, but they are not art. In the uppermost circle, beyond ambiguity, there lies a final mystery, which the light of our meager intellect fails to penetrate.[22]

References

Barsova, Inna. *Simfonii Gustava Malera* [Gustav Mahler's Symphonies]. Moscow: Sovetsky Kompozitor, 1975; Saint-Petersburg: Novikov Publishing House, 2010.

Calder: *An Autobiography with Pictures*. London: A. Lane, 1967.

Calder, Alexander. Photographs and design by Ugo Mulas. Introduction by H. Harvard Aronson. With comments of Alexander Calder. London: Thames and Hudson Ltd., 1971.

Düchting, Hajo. *Painting Music.* Münich–Berlin–London–New York: Prestel Verlag, 2004 (first published 1997).

Hartmann, Werner. *The Mind and Work of Paul Klee*. London: Faber and Faber, 1967.

Kaczyński, Tadeusz. *Conversations with Witold Lutoslawski*, London: Chester, 1984. Revised edition: London: Chester Music, 1995.

Kagan, Andrew. *Paul Klee: Art and Music*. Ithaca and London: Cornell University Press, 1983.

Klee, Paul. *Pedagogical Sketchbook.* London: Faber and Faber, 1968.

The Klee Universe. Ed. Dieter Scholz, Christina Thomson. Ostfildern: Hatje Cantz, 2009.

Klee, Paul. On Modern Art. In *Paul Klee: Philosophical Vision: from Nature to Art*, ed. John Sallis. Chestnut Hill, MA: McMullen Museum of Art, Boston College: 2012, 9–14.

[22] Cited from *Painting Music* by Düchting (91–92), who refers to *Kunstlehre* (65) by Günther Regel (Ed.).

Leach, Brenda Lynn. *Looking and Listening: Conversations Between Modern Art and Music.* Lanham, MA: Rowman & Littlefield, 2015.

Ligeti, György. "Metamorphoses of Musical Form." *Die Reihe* 7 (1965): 5–19 (translated from the German original of 1960: "Wandlungen der musikalischen Form," *Die Reine* 7 [1960]: 5–17).

Ligeti, György. "Form." *Form in der Neuen Musik*, ed. E. Thomas, *Darmstädter Beitrage zur Neuen Musik* X, 23–35, Mainz, 1966). English translation in *Contemplating Music. Source Readings in the Aesthetics of Music*, selected and edited with introductions by Ruth Katz & Carl Dahlhaus, Vol. 3. Stuyvesant: Pendragon Press, 1992.

Ligeti über Lutoslawski, *Musica* (Kassel) 22 (1968).

Ligeti, György. "Auf dem Wege zu 'Lux Aeterna,'" *Österreichische Musikzeitschrift* 24 (1969).

Ligeti in Conversation with Peter Varnai, Josef Häusler, Claude Samuel and Himself. London: Eulenburg, 1983.

Lutoslawski, Witold, "Über Rhythmik und Tonhoheorganisation in der Kompositionstechnik unter Anwendung begrenzter Zufallswirkung," in *Witold Lutoslawski. Musik-Konzepte 71/72/73*, ed. Heinz-Klaus Metzger & Rainer Riehn. München: Text & Kritik, 1991.

Nikolska, Irina. *Conversations with Witold Lutoslawski* (1987–92). Stockholm: Melos, 1994.

Nikolska [Nikol'skaya], Irina. *Besedy Iriny Nikol'skoy s Witol'dom Lutoslawskim. Statyi. Vospominania* [Conversations between Irina Nikolskaya and Witold Lutoslawski. Articles. Reminiscences]. Moscow: Tantra, 1995 (in Russian).

Rae, Charles Bodman. *The Music of Lutoslawski*. London: Faber & Faber, 1994, expanded third edition London: Omnibus Press, 1999.

Strunk, Oliver (Ed.). *Source Readings in Music History: Twentieth Century.* New York: Norton, 1998.

Talbot, Michael. *The Finale in Western Instrumental Music*. Oxford University Press, 2001.

Ţiplea Temeş, Bianca. "Sounds, Lines and Colors: Synesthetic Codes in Ligeti's Music." *Lucrări de muzicologie* 28(2) (2013): 79–91. http://musicologypapers.ro/articole/MP-28-2-BIANCA%20TEMES-079-091.pdf

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