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Sound image and organic form in Höller's "Regen-Kanon" (Sphären, IV).

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SOUND IMAGE AND ORGANIC FORM IN HÖLLER'S "REGEN-KANON" (*SPHÄREN,* IV)

By

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B.S., Pontificia Universidad Javeriana, 2003

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A Thesis Approved on

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By the following Thesis Committee:

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Thesis Director

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DEDICATION

This thesis is dedicated to my parents

Maria Doris Umaña

And

Hernan Guzmán Plested

Who have given me invaluable support and love.

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This thesis would not have been possible without the invaluable assistance, support, and guidance of my advisor professor Dr. Anne Marie de Zeeuw. I would like to express my sincere gratitude to her. Deepest gratitude is also due to the members of the supervisory committee, Dr. Jean Christensen and Dr. Marc Satterwhite for their comments and assistance. I want to thank also to my friends Lori Palamara, Leslie Clemens, and Jonathan Gardner, who dedicated precious time to help me with the edition of this paper.

ABSTRACT

SOUND IMAGE AND ORGANIC FORM IN HÖLLER'S "REGEN-KANON"

(*SPHÄREN*, IV)

Adriana Guzmán

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"Regen-Kanon" is the fourth of six pieces or "sound images" in the orchestral cycle *Sphären,* composed by York Höller between 2001 and 2006. The first four movements, namely "Wolkengesang" ("Song of the Clouds"), "Windspiel" ("Wind Chimes"), "Erdschichten" ("Layers of Earth"), and "Regen-Kanon" ("Rain Canon") are related to Höller's experiences of particular landscapes and consequently to associated impressions of nature, whereas the fifth and sixth movements, "Feuerwerk" ("Fireworks") and "Sphärentrauer" ("Sorrow of the Spheres") convey different kinds of images. Höller cites the influence of the philosophers Empedocles, Henri Bergson, and Peter Sloterdijk on his musical language and on *Sphären* in particular. Three ideas derived from their work are applied to the analysis of "Regen-Kanon": Empedocles' and Sloterdijk's idea of "sphaira," meaning a self-contained whole and all-encompassing totality; Bergson's idea of the "aggregate image"; and Höller's idea of the realization of the Gestalt as an organic form.

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INTRODUCTION

In November 2009 the University of Louisville announced the work *Sphären*, a cycle for orchestra and electronics by the German composer York Höller, as the 2010 winner of the Grawemeyer Award for Music Composition. York Höller, then Professor of Composition at the Cologne College of Music, has been recognized internationally due to the numerous performances of his music throughout Europe and the United States.

Early in the sixties, Höller studied composition with Bernd Alois Zimmermann and electronics with Herbert Eimert at the Cologne College of Music. Between 1971-1972 he continued his studies with Karlheinz Stockhausen in the electronic studio of the West German Radio (WDR). Later in the seventies he received support from Stockhausen and Pierre Boulez, who invited him to begin working at Boulez's IRCAM institute in Paris. While there he composed the opera *The Master and Margarita*, which premiered in Paris in 1989 and is one of the important works composed during this period. From 1990 to 1999 Höller succeeded Stockhausen as artistic director of the Studio for Electronic Music at the WDR.

Höller is the first German composer to be honored with a prize that has been granted to such important figures in the history of twentieth- and twenty-first century music as Witold Lutosławski (1985), György Ligeti (1986), Krzysztof Penderecki (1992), Toru Takemitsu (1994), Pierre Boulez (2001), Kaija Saariaho (2003), and Louis Andriessen (2011) among others. Although the Grawemeyer Award is dedicated to

honoring creative ideas rather than life-long personal achievement, the award undoubtedly represents a high point in York Höller's career.

Sphären, The Orchestral Cycle

Sphären is a composition for full orchestra. The instrumentation is:

3 Flutes (Alto flute, Piccolo)
2 Oboes
English Horn
2 Clarinets in Bb
Bass Clarinet in Bb
3 Bassoons
4 Horn in F
3 Trumpets in Bb
Trombones
Tuba
Timpani
Percussion ensemble
Harp
Piano
Sampler 9 (AKAI, Masterkeyboard)
Violins I
Violins II
Viola
Violoncello
Double bass

The work consists of six pieces:

I. Wolkengesang ("Song of the Clouds")

II. Windspiel ("Play of the Wind")

III. Erdschichten ("Layers of Earth")

IV. Regen-Kanon ("Rain Canon")

V. Feuerwerk ("Fireworks")

VI. Sphärentrauer ("Sorrow of the Spheres")

THE CONCEPT OF *SPHÄREN*

> "but it indeed is equal <to itself > on all sides and totally unbounded, a rounded sphere rejoicing in its surrounding solitude."[1]

"Sphere," from the Greek "sphaira," means globe or ball. The sphere is a perfectly round geometrical object, completely symmetrical around its center. This perfect symmetry has been the focus of philosophical reflection since ancient times.

In his book *Sphären II*,[2] Peter Sloterdijk presents *The Mosaic of the Philosophers*, discovered in Torre Annunziata at Pompeii.[3] The mosaic represents seven philosophers gathering around a sphere, on the outskirts of a Greek city. Sloterdijk points out the excitement and perplexed admiration of the philosophers as they ponder this blue ball, symbol of totality.

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[1] Empedocles, *The Poem of Empedocles: a Text and Translation with an Introduction*, trans. by B. Inwood (Toronto: University of Toronto press, 1992), fragment 28, 223.
[2] Peter Sloterdijk, *Sphären II (Makrosphärologie), Globen* (Frankfurt and Main: Suhrkamp Verlag, 1999)
[3] Peter Sloterdijk, *Esferas, globos, macroesferología II,* trans. I. Reguera. (Madrid: Ediciones Siruela. 2004), 14.

Figure 1 The Mosaic of the Philosophers (first century C.E.)[4]

For these ancient thinkers, the sphere was the symbol of the surrounding cosmos, of all existence. This sphere embraces all the physical and spiritual genres of existence and, because of this, it also involves the minds of those who, as depicted in the mosaic, contemplate it.

The study of *Sphären*, the orchestral cycle, also reveals a York Höller absorbed by the sphere as well as by the aesthetic and philosophical ideas that this perpetual form involves. In his notes about the piece Höller mentions that he has been influenced by the writings of Empedocles, Peter Sloterdijk, and Henri Bergson. Each of these philosophers addresses the subject of the sphere from a different perspective. The present analysis of

[4] Sloterdijk, *Esferas*, 14.

this orchestral cycle seeks to create a connection between the ideas involved in the philosophical concept of the sphere, the development of the musical discourse of *Sphären,* and Höller's concept of Gestalt composition, particularly in the fourth movement, "Regen-Kanon."

Empedocles: The Four Roots and the *Sphaira*

It is in the *Sphaira* that the organic world gives place to perfect union, the complete mingling of the everlasting four elements or "roots" described by Empedocles (495-425 B.C.E.) in his poem "On Nature." Through the power of Love, water, air, earth, and fire come together into an indivisible one. But the cosmic process is a cycle of change ever repeating itself. For Empedocles, just as Love comes to unify and give birth to the world, Strife will also come to dissolve the *Sphaira* again into the four elements. This alternation of control between Love and Strife lies in the fundamental nature of things (Smertenko, 1980).[5] The Sphere represents the moment of supreme consummation in the continuous cycle of construction and deconstruction of the universe.

The idea of a vital cycle is imbued everywhere in the conception of Höller's *Sphären.* The specific conceptual sources that York Höller found to nourish his ideas are the fragments of Empedocles' poem, whose title has been translated into English variously as "On Nature" and "The Physics."

> I shall tell a double tale. For at one time [they] grew to be one alone from many, and at another, again, [they] grew apart to many from one. And there is a double coming to be of mortals and double waning; for the coming together of [them] all gives birth to and destroys the one, while the other, as [they] again grow apart, was nurtured and flew away. And these things never cease from constantly alternating at one time all coming together by love into one, and at another time

[5] Clara Elizabeth Millerd Smertenko, *On the Interpretation of Empedocles* (New York: Garland Publishing, 1980), 28-29.

> again all being borne apart separately by the hostility of strife. Thus insofar as they have learned to grow as one from many and they finish up many as the one again grows apart, in this respect they come to be and have no constantly interchanging, in this respect they are always unchanged in a cycle. [6]

As Brad Inwood explains in his introduction to the *Poem of Empedocles,* "the birth of something new, whether a separate entity or a quality, and its death are explained in terms of the interactions of the six basic entities."[7] These six entities are the roots,[8] love, and strife. Human existence, like everything else, can be seen as a transient event in the lives of the six basic entities. For Empedocles the reference to birth and death is just an expression of the limited perception and limited understanding of reality by the human mind. The ideas of coming-to-be and passing away are the result of a natural human failing perception, since for Empedocles, what is really happening is the cosmic cycle of mixture and separation of basic entities. Empedocles' point is that there is not such a thing as birth coming from nothing and life going towards nothing through death. There is no such a thing as "nothing" as an original point of departure. For Empedocles we live in a world of change, the changing state of the six everlasting elements, but there is no absolute emergence or perishing. "The six permanent entities of Empedocles' world neither come to be neither pass away. Rather, in a proper Parmenidean sense 'these very things are, and running through each other / they become different at different times and are always perpetually alike.' "[9]

This kind of explanation of the world can be related also to Höller's application of the Gestalt concept where a musical material is manifested in several ways, but is

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[6] Empedocles, *The Poem of Empedocles*, fragment 25/17, 215, 217.
[7] Ibid., 31.
[8] Air, earth, fire, and water.
[9] Ibid., 33.

nevertheless the same material, originating from the same cell. The linear concept of development, represented as a continuous process of projection of a microstructure onto a macrostructure, in the end goes beyond linear time and explores the perpetual connection of the part with the whole, and the whole with the part, in a relation perfectly expressed by the sphere.

"REGEN-KANON": IMAGE AND PERCEPTION

Sound Image

York Höller presents the six movements of his orchestral cycle *Sphären* as "sound images" or "sound poems." In his notes on the composition he also explains that his personal experiences in the North Italian alpine lake landscape stimulated the composition of the first four movements of the cycle.

The fourth movement of *Sphären* represents water. As its title indicates, "Regen-Kanon" (Rain canon) is a movement in which the metaphor of rain is achieved through the realization of a canonic process combined with an ostinato. The beginning of "Regen- Kanon" easily suggests an image of the slow beginning of the rain. The first drop falls in the first note of the violas and second violins. Then other drops begin to fall, some alone, some in groups, creating an irregular rhythm that increases in density over time, filling the space in a process that gradually contributes to a more concrete and clear mental image of rain falling.

Is it this kind of pictorial depiction that Höller means when he refers to *Sphären* as a cycle of "sound images?" Actually, his concept of "sound image" is more complex. Thus, although some of the titles in the cycle reference the four everlasting elements in Empedocles' philosophy, and reflect Höller's impressions of these four elements, as he has perceived them in his experiences in nature, they do not indicate a simple programmatic conception of the cycle. Höller's conception of the representation of reality

through music (in the case of the fourth movement the phenomenon of rain) seems to contemplate more philosophical ideas. His idea of "image" embraces not only present perception but also memory: the understanding of reality is intimately connected to a series of recollections of past experiences. The following examination of the beginning of "Regen-Kanon" and its elements will elucidate.

Leading Voice and Ostinato Materials

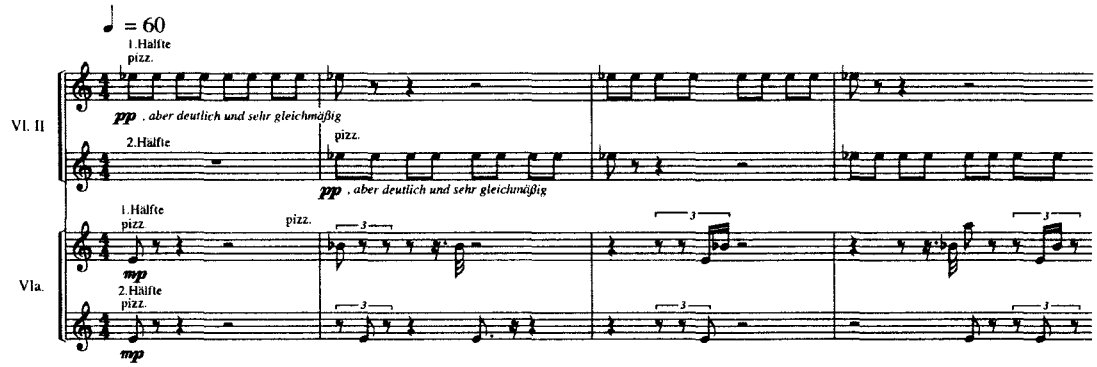
Four musical objects are identifiable as main materials in the structure and development of the musical discourse in "Regen-Kanon." These objects are an eighth-note ostinato, a rhythmic-motivic microstructure called *leading voice (dux),* a series of quasi-chromatic scales, and a cluster-like chord.

The quasi-chromatic scales and the cluster-like chord are materials heightening the growth process started and carried on by the treatment given to the ostinato and to the leading voice *(dux)* material during the entire piece. The image of rain builds up mainly from these two structural materials.

These two musical unities are presented at the beginning of the piece (Ex. 1). The very first sound of the movement is a simultaneity resulting from a unison on E4 played by the two groups of violas and an Eb5 in the second violins.[10] These three notes are eighth notes and are played with a pizzicato articulation. This might represent the first falling drop in the image of the rain.

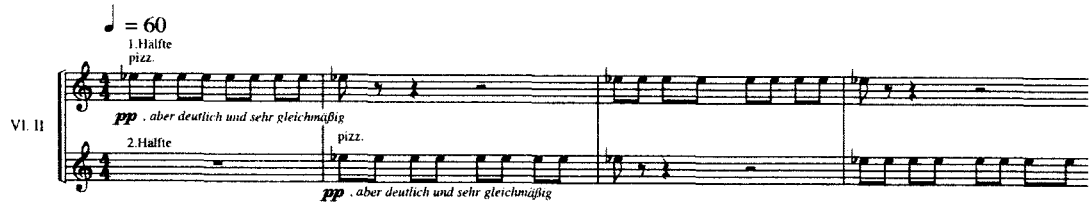
[10] C4 = middle C on the piano.

Example 1 "Regen-Kanon," mm. 1-4



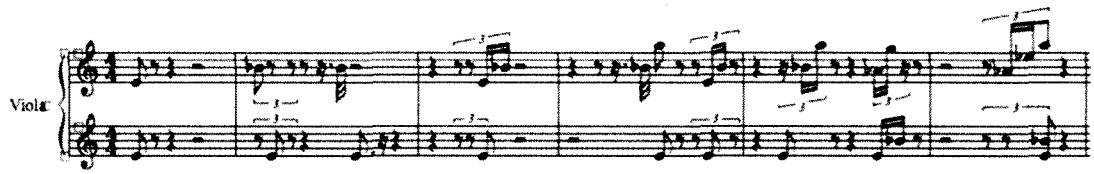
From this first sonority two nascent elements emerge. The Eb5 is from there repeated in eighth notes, creating an ostinato that will be present throughout the entire piece. The second violins are divided, so the performance of this ostinato figure alternates between the two groups (Ex. 2).

Example 2 Mm. 1-4, second violins (divisi), ostinato



The other element emerging from this initial drop is a rhythmic-motivic microstructure that is distributed between two voices, initially in the viola section, and presented in a quasi-hocket fashion (Ex. 3). The characteristics and development of this main material will be discussed in detail in the next chapter in relation to the idea of the cell and the Gestalt.

Example 3 Mm. 1-4, viola, rhythmic-motivic microstructure



These two elements, the *ostinato* and the *rhythmic-motivic microstructure* build in our mind a sound image that has two levels, like the perception of perspective on a canvas. The ostinato, in *pp* dynamic, is the rain in the background, in the background of our landscape; the rhythmic-motivic microstructure, with *mp* dynamics, is in the foreground. It is like seeing the rain from a building: we see a gray uniform mass of water falling in the far distance, but also we can hear the irregular drops falling from the roof with a stronger and usually irregular presence. Now, when I speak of these metaphorical relations–ostinato figure = rain falling in the distance, rhythmic-motivic microstructure = water falling from the roof–I am counting on the possibility of the reader's recalling similar experiences. I am counting on the fact that the image of rain is present in the mind of the reader and relates not only to one memory but to a series of memories in which the rain has been involved. In the same way, York Höller is counting on the "sound images" of the rain relating to experiences in the mind of the listener.

Aggregate of image

In his writings about *Sphären* Höller mentions his interest in the ideas of the French philosopher Henri Bergson (1859–1941). One of the central aspects of Bergson's philosophy relates to the understanding of the role of memory and perception in the configuration of what it is called reality. In addition, the concept of "image" is a central idea in Bergson's philosophy. Though it is not necessarily the point of departure for

Höller's concept of "sound image," the study of Bergson's idea can further our understanding of Höller's notion of the sound image.

In his book *Matter and Memory,* Bergson explains his idea, that what we perceive as matter, or in other words, what we consider reality, is finally an "aggregate of images."[11] For Bergson it is a mistake to reduce matter to the perception that we have of it, or to consider that matter is able to produce in us perceptions that are different from its own nature. What we perceive is the sum of multiplicity of images, images that are stored in our memory from past experiences, completing each other and joining the image of the object perceived in the present moment. Consequently, an image, in Bergson's words, is "a certain existence which is more than that which the idealist calls a representation, but less than which the realist calls a thing–an existence placed halfway between the 'thing' and the 'representation.' "[12] But this is a reflection that does not usually take place in our reasoning. We usually consider that what we perceive is precisely what it is, the paper that we are reading right now, is just that, a reality, "this" book, "this" thing, not a recollection of the actual perception plus all the other memories stored in our minds of other books we have perceived in the course of our existence. Bergson gives the example of the common man, who perceives the characteristics of things as having an existence beyond his senses, things that are independent of him. But, at the same time, what the man retains in his mind is a pictorial perception of the object, an image, although for the man it is a self-existent image, it is the thing itself. As Keith Ansell Pearson (2002)[13]

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[11] Henri Bergson, *Matter and Memory*, trans. N. M. Paul and S. Palmer (New York: Zone Books, 1988), 9.
[12] Ibid.
[13] Keith Ansell-Pearson, *Philosophy and the Adventure of the Virtual: Bergson and the Time of Life*, (London: Routledge, 2002), 1.

states, part of the importance of Bergson (and Deleuze[14]) in philosophy is that with these philosophers comes the attempt to show that virtual images are involved in both memory and perception.

The present analysis of the fourth movement of the cycle and its relation to the phenomenon of rain will rest on two perspectives, namely that of the composer and that of the listener. The first perspective refers to the way in which Höller perceives and later recalls an experience of reality in nature, the phenomenon of rain, and then how he represents this experience in the musical discourse of "Regen-Kanon." The second perspective arises from the audition of the movement and the way in which the music becomes a "sound image," an "image of rain," in the mind of the listener.

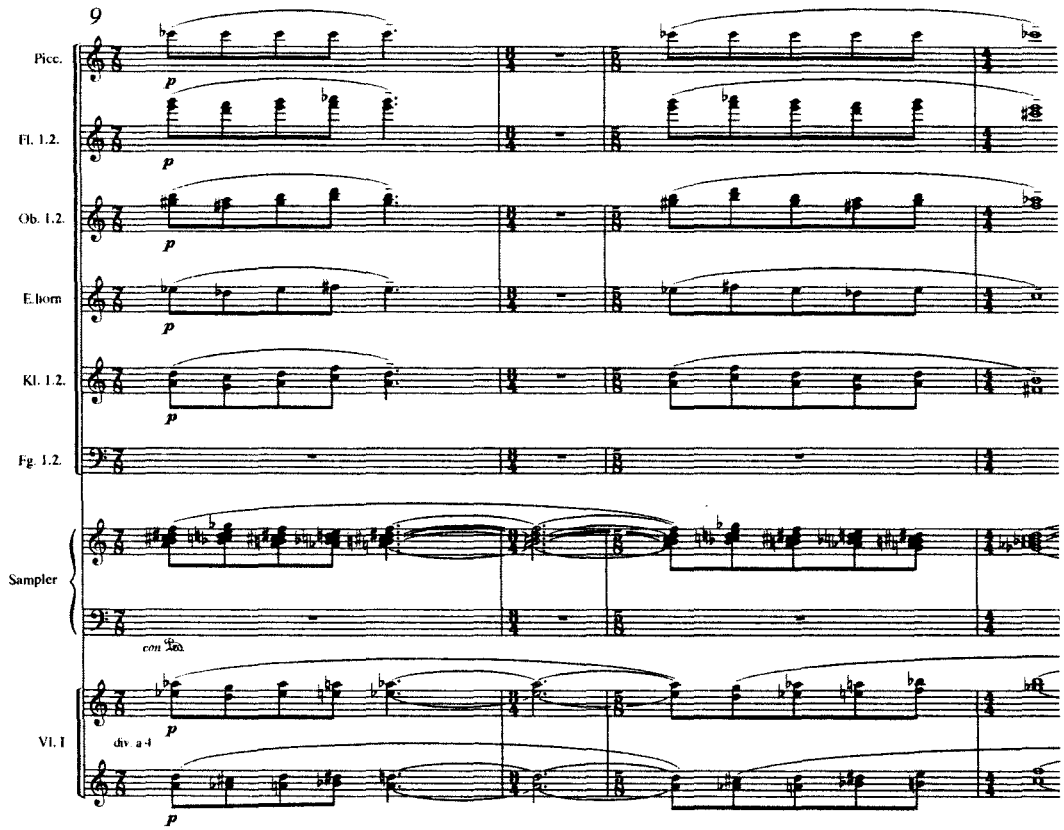
In this respect it is interesting to consider Bergson's discussion of the impossibility of reaching a perfect representation of any matter we perceive, such as, for example, the phenomenon of rain. Although every reality has a relation with an image or images in our consciousness, Bergson points out that "if we could assemble all the states of consciousness, past, present, and possible, of all conscious beings, we should still only have gathered a very small part of material reality."[15] This sentence takes us to one of the main points in Bergson's philosophy. No matter how realistic is our vision of the world, and how much we believe in science, it is not possible to apprehend reality completely. This is in part because our mind is usually completing every missed detail of the matter perceived, using the collection of images that we have stored in our memory. This consideration places on another level the discussion of music as an abstract expression, representation in music or other types of artistic expression, and even the idea of

[14] It was thanks to Gilles Deleuze's 1966 *Bergsonism* (New York: Zone Books) that Bergson's work began to be widely studied.
[15] Bergson, *Matter and Memory*, 229.

programmatic music. If we want to affirm that there is programmatic basis in "Regen-Kanon," namely the rain, what it is proposed with the idea of "image" is that this is not merely a simple representation of a phenomenon, but rather it is that this representation admits of a multiplicity of interpretations, depending of the "aggregate of sound images" related to rain that exists in the mind of every listener.

In order to clarify this concept of the "aggregate of sound images," let us apply it to the analysis of another movement of *Sphären*. The first movement, "Wolkengesang," ("Song of the Clouds") after an opening constructed of cluster sonorities, introduces a recognizable melodic line that will return in other movements of the cycle. It sounds like a single melody though rich in timbral color (Ex. 4).

Example 4 "Wolkengesang," mm. 9-12, aggregate of melodic lines



But closer inspection of the material reveals that the "melodic line" that we hear is really the sum of several different lines performed by the wind ensemble, the first violins, and the sampler. Each of these lines presents a similar but not identical contour, and there is no one of them that can be selected as the "main melody." Consequently, the melodic line that we hear is actually a "sound image" formed by all the lines present in that moment of the piece, each of which carries a unique characteristic element or perspective of the same overall musical object, a characteristic that can not be excluded without impoverishing the total sonority. This interdependence between the whole and its parts is related to the idea of Gestalt, which will be discussed in the next chapter. Each of these lines contributes in a unique way to the overall structure, and each in its particularity possesses the essence of the main Gestalt.

This idea of an "aggregate image" is also fitting in light of the title object of the first movement, "Wolkengesang" ("Song of the Clouds"). A cloud is an aggregate of frozen ice crystals or water droplets forming a mass in the atmosphere. These crystals cannot be separated without losing the cloud itself, and, at the same time, the cloud is precisely the sum of all these crystals. Its essence lies in this sum of elements and mutual presence.

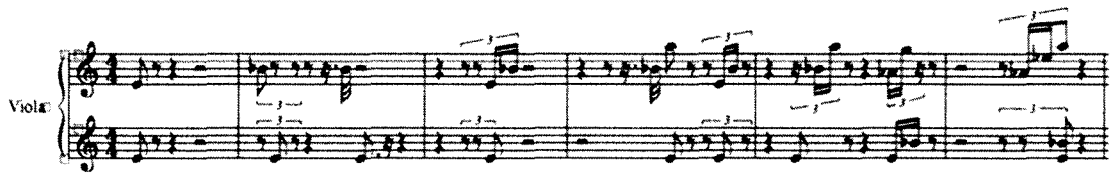
Since Höller states that observing clouds in the sky from his balcony was one of the first experiences leading to the composition of *Sphären*, let us examine further the first analytical perspective, the relation between the experience of a reality in nature and the composer's representation of it. For Höller, his music "tells above all of process and spheres of experiences."[16] In this statement, Höller appears to refer to the conglomerate of images gathered, in the case of *Sphären,* over the course of all his regular visits to the

[16] Boosey & Hawkes, Höller-York-Sphären, 4 December 2010, http://www.boosey.com

North Italian alpine lake landscape. Höller has stated that he is not interested in a portrayal of extra-musical phenomena in as realistic as possible a manner, but rather in the question of how his personal imagination or idea of such phenomena can be expressed in music without their immanent logic's being affected. "Regen-Kanon" is a good example of the realization of this concept. In the construction of the piece Höller succeeds in combining simple ideas to build a complex process that evolves to resemble the phenomenon of rain. On the other hand, a close examination of the main musical objects or themes used in *Sphären* reveals that these materials are not as defined rhythmically and melodically as might be expected.

Inspection of the initial measures of the rhythmic-motivic microstructure that unfolds in the two viola parts from measure 1 to measure 16 (Ex. 5) will show material that cannot be easily replicated with the voice, either melodically or rhythmically.

Example 5 Mm. 1-4, viola, rhythmic-motivic microstructure



The listener will find it difficult to sing this main material even after several hearings, but it will be easy for the listener to recall the "image" that remains in his or her mind after the audition. The way in which Höller presents his musical material invites comparison with the technique of the impressionist painters, which leads the observer to complete or integrate colored points on the canvas into a unified mental image.

This way of elaborating and conceiving the musical material leaves the door open for the listener to find various meanings in the music related to his or her own experiences with nature.

It is through repetition that the rhythmic-motivic microstructure defines its individuality. It is treated to a canonic process that unfolds over the entire piece. This canonic process becomes the "vital impetus" (to borrow a term from Bergson[17]) for the musical discourse in "Regen-Kanon." It allows the musical material to accumulate energy, which then flows through the unfolding of the piece. We will return to this point when discussing the overall canonic process involved in the movement.

Remembering that the purpose of this analysis is to present the piece in relation to Höller's philosophical influences, let us return to the analysis of the ostinato material, this time from the perspective of the listener.

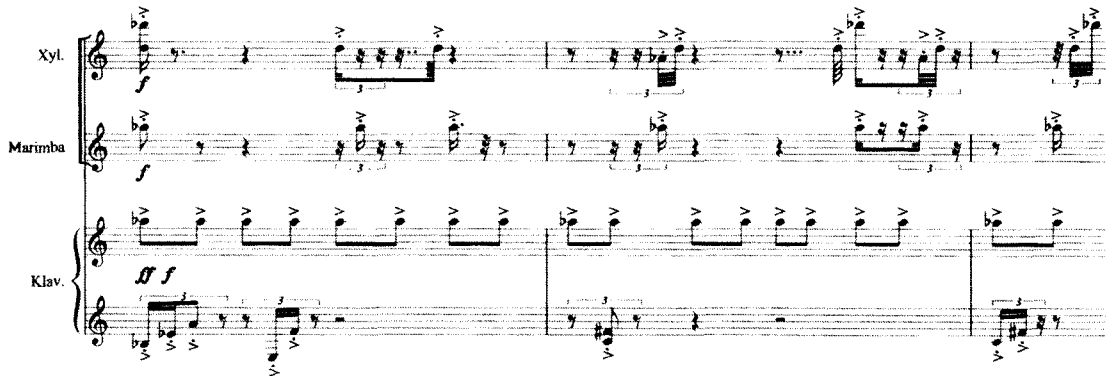
This ostinato, the repetition of an eighth note over the entire piece, has been compared to the overall perception of rain in the distance. But it is also evidence of a more essential element, namely the passage of time, since repetition and change are indispensable elements in perception for us to be conscious of time. As Bergson posits, from our first glimpse of the world, we distinguish *qualities.* "Color succeeds color, sound to sound, resistance to resistance."[18] With this sentence Bergson emphasizes movement as an immanent characteristic of reality.

> In the smallest discernible fraction of a second, in the almost instantaneous perception of a sensible quality, there may be trillions of oscillations, which repeat themselves. The permanence of a sensible quality consists in this repetition of movements, as the persistence of live consist in a series of palpitations.[19]

[17] Henry Bergson, *Creative Evolution*, trans. A. Mitchell (New York: Modern Library, 1944), 277.
[18] Ibid., 326.
[19] Ibid., 327.

Furthermore, "Palpitations" is a good metaphor for describing Höller's eighth-note ostinato, an element that persists throughout the entire movement, but that changes in pitch, thereby delineating a macro melodic contour over the course of the piece. The ostinato is therefore a point of reference to measure the gradual unfolding of the piece in time (Ex. 6).

Example 6 Mm 60-61, ostinato



With this perception of time comes also the perception of duration. Duration in Bergson's conceptual frame means "invention, the creation of forms, the continual elaboration of the absolutely new."[20] The ostinato is a thread over which the canonic theme and its subsequent imitations introduce the germs of change and development over the piece; it is through the ostinato that the movement establishes its own duration and sense of time.

If it is the ostinato that leads the listener to an awareness of time and duration in "Regen-Kanon," it is the canon that contributes to the experience of the work as a Gestalt and a process. The leading voice and its canonic treatment will now be examined in detail.

[20] Bergson, *Creative Evolution*, 14.

"REGEN-KANON": GESTALT AND PROCESS

> The work of art seems to me to be above all an organism, like an organic-energizing system, comparable to a living organism in nature. In such a system, all elements are linked by functional relations; they do not result from an arbitrary formulation, but from the evolution of a process.[21]

For Höller there exist two fundamental and opposing ways of conceiving a musical composition. The *inductive* method implies conceiving the work of art beginning with a global perception of the form. From this global view the details of the micro dimension of the piece emerge, according to certain grades of predetermination. The other is the *deductive* method in which the whole piece develops from an initial cell.

Now, in Höller's conception, the development of the piece from a cell may result in a piece that lacks clarity in form and is scattered in details. Nevertheless, this problem may be solved if the cell is conceived in such a way that it already contains all the necessary specific information in relation to the plan of the whole, as happens with the genetic information in a biological cell. In addition to this requirement, the projection of the whole through the unfolding of the cell cannot be a result of a mechanical process. In order for this unfolding to present a "persuasive coherence"[22] it must obey the behavior of an *organic* unfolding.

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[21] York Höller, "Composition of the Gestalt, or the Making of the Organism," trans. N. Osborne, *Contemporary Music Review*, no. 1 (1984): 35.
[22] Ibid., 36.

In Höller's words, "What may be called the abstract and general idea of the code will be revealed little by little in the specific, concrete appearance of the final Gestalt."[23] An examination of the leading voice of the canon will reveal how this process operates in "Regen-Kanon."

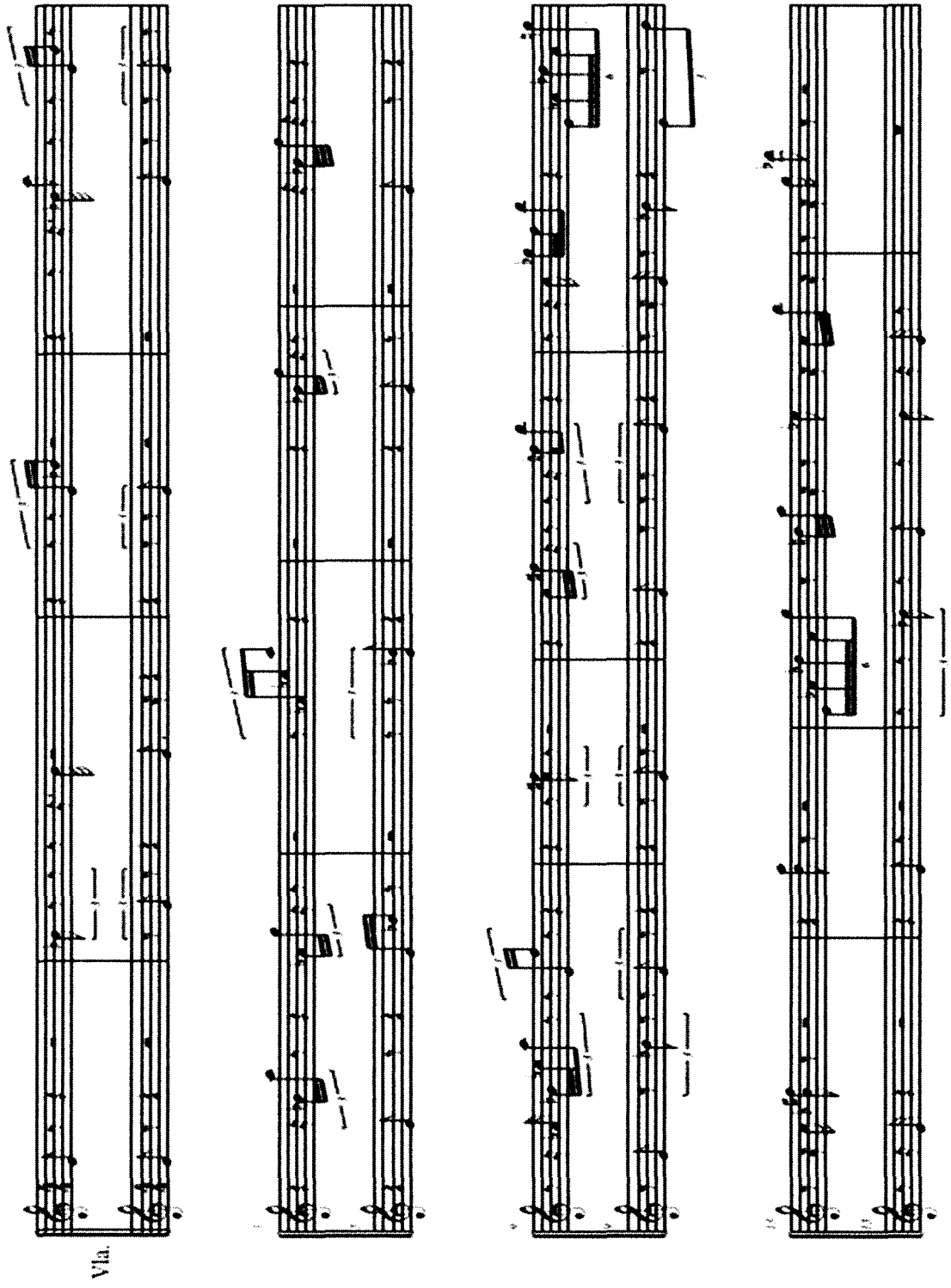
The structure of the leading voice or *dux* is the result of a small cell's unfolding over the span of sixteen bars. At the same time, this unit of sixteen bars becomes the structural cell that, through the application of canonic process, brings to life a greater form, the form of the movement itself.

Dux or Leading Voice

As has already been mentioned, the eighth-note ostinato is combined over the course of the movement with a rhythmic-motivic structure that is distributed between two voices, initially the violas, and later in other combinations of instruments. As a consequence, an important characteristic of this material is its presentation in a quasi-hocket fashion (Ex. 7).

[23] Höller, "Composition of the Gestalt," 36.

Example 7 Mm. 1-16, rhythmic-motivic microstructure or *dux*



This thematic structure begins with a unison E4 over steady eighth notes. This first sonority, associated with the first "image" of drops falling, represents also the embryo of the leading voice. From it other cells gradually unfold in a process of growth by which the rhythmic and pitch material increases over the sixteen measures that encompass the presentation of this main subject.

The opening E4 unison is succeeded by a tritone between the pitches E4 and Bb4. Since the leading voice is a musical structure resulting from the constant sum of materials presented in a pair of instruments,[24] it is important to emphasize that there is a distribution of functionalities between these two instruments. The lower voice is restricted to the presentation of the tritone interval structure. This tritone structure constitutes a sort of harmonic base that allows the identification of the pitch level at which each imitative entry is presented. In this way, the lower voice of the leading voice microstructure fulfills the role of accompaniment for the upper voice. The upper voice presents a more versatile melodic movement that gradually incorporates all the twelve tones of the chromatic scale.

In this upper voice it is easy to observe how the entire *dux* develops from a little cell into this sixteen-bar structure through a process of building up the initial cells. This is achieved through the use of motives consisting initially of two notes that gradually expand to embrace three, four and five notes. The increase in the number of notes coincides with the gradual opening of the range toward higher frequencies. The temporal placement of these motives, using a ternary division of the quarter-note beat and the alternating short notes with silence, against the constant eighth-note ostinato, results

[24] In the first section of the piece, the leading voice is usually presented in two homogeneous groups: violas, violoncellos, piano, etc. But towards the middle part there are presentations of the leading voice in different timbres, as in bar 66 where this material is presented between the piano and the sampler.

in a representation of rain falling, first in small spurts that gradually increase in number, filling the time space more and more densely. The frequency with which these motives sound against one other in the piece increases as new voices are added in imitation.

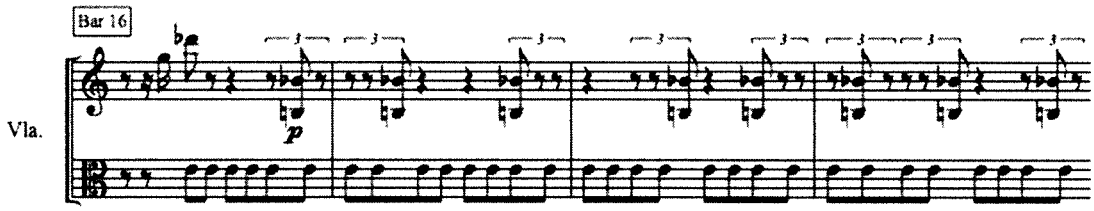
During the unfolding of the rhythmic-motivic structure, the twelve notes of the chromatic scale are presented and repeated always in the same register with exception of Db6, which occurs as both Db5 and Db6 (Ex. 8).

Example 8 Pitch collection in range of the rhythmic-motivic microstructure or *dux*

These two elements, the ostinato and the main rhythmic-motivic structure, are structures that continue to unfold throughout the entire movement, presenting some transformations along the way.

After the initial presentation of the leading voice or *dux*, the violas introduce new material against the canonic entries (*comes*) of this leading voice. This new material seems to complement or answer the musical line of the *dux*. Therefore, it will be referred to as the consequent of the leading voice (LV-consequent) (Ex. 9).

Example 9 Mm. 16-20, leading voice consequent



This leading voice consequent is presented for the first time in the violas in bar 16. Like the beginning of the *dux,* the LV-consequent encompasses more than one line. The lower voice actually is the continuation of the ostinato material. But at this point it moves from the initial Eb5 to a major seventh lower, on E4. It seems like the ostinato becomes a part of the new material for a while. The upper voice presents a B3/Bb4 dyad, a major seventh interval (ic[25] 1), which creates a new ostinato in which the pitches are fixed over an irregular rhythmic structure based on the triplet division of the pulse.

The LV-consequent does not occur every time that the leading voice completes its exposition in a particular instrument. However, the canonic imitation of the LV-consequent is continued in some instruments while others begin to present new material, some of which is derived from diminution of the *dux* and some of which consists of ascending and descending scalar structures.

With this we have explained how the leading voice evolves from little cells. In the same way, the complete movement evolves organically from the leading voice, which acts, in effect, as a larger cell in the canonic treatment that represents the "vital impulse" of the work. Let us return to the concept of Gestalt composition.

The Gestalt principle of organization refers to the rules of natural phenomena and complex systems, in which the different aspects or parts of a perceptual field are perceived as belonging together as an unit. As Höller states, "In accordance with the *principium individuationis*, the basic scheme of the general Gestalt will be projected in that of the special Gestalt."[26]

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[25] ic: Interval class.
[26] Höller, "Composition of the Gestalt," 36.

Bergson explains the relation between the part and the whole by using the example of bees in a hive.[27] The bee, itself a complete organism, belongs as a cell to a major unity that is a hive. Just as in the living body of the bee there are thousands of cells with different functions, all working together to keep the bee alive, in the same way bees gather together and divide tasks in order for the community, united in a hive, to feed, reproduce, respond to danger, and in general, survive as a unit. In this way the cell is a part of the bee, but the bee itself becomes a cell in the life of the hive, which it is a higher organic system, a Gestalt.

This concept may be applied also to the construction of an "artistic organism."[28] For Höller, in the compositional process the initial choice of material cannot be amorphous, resulting from a simple addition of elements or intuitive process of shaping. The choice of materials and the initial compositional decisions associated with a new piece should define and assume from the start the quality of a Gestalt. "for only material conceived in this way may produce a global form which is itself a Gestalt, when it is projected macroscopically."[29] In this way the force that animates the cell will sustain also the larger structure of which this cells forms a part. Furthermore, considering that music is an artistic expression manifested in the temporal dimension, and that music attains form only within time, the initial conception of the material must take into account not only its harmonic and melodic aspects but also its temporality and form, seeking to fulfill "the fundamental criteria of musical form, such as unity, multiplicity, repetition, division, coherence, clarity, etc."[30]

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[27] Bergson, *Creative evolution*, 183.
[28] Höller, "Composition of the Gestalt," 36.
[29] Ibid., 37.
[30] Ibid., 36.

"Regen-Kanon," the fourth movement or "sound image" of *Sphären,* presents a particularly clear example of the organic evolution of a compositional process. Like Bergson's bee in the hive, the leading voice of "Regen-Kanon," as a coherent unit itself, becomes part of a larger organism, thanks in part to the canonic process. The "vital impulse" or growth force of the leading voice is prolonged through the unfolding canonic treatment and becomes a generative impetus for the movement as a whole. Let us examine the canonic aspect of this movement in detail.

The canonic process begins with the presentation of the generative rhythmic-motivic idea or leading voice. After its initial presentation in the viola, accompanied by the ostinato in the second violins, each instrument of the string family, as well as the piano, is gradually introduced through this process of imitation. Table 1 shows each of these entries and summarizes their transpositional levels, as determined by the "essential tritone" of each entry.

Table 1 Entries of *Dux* and *Comes*

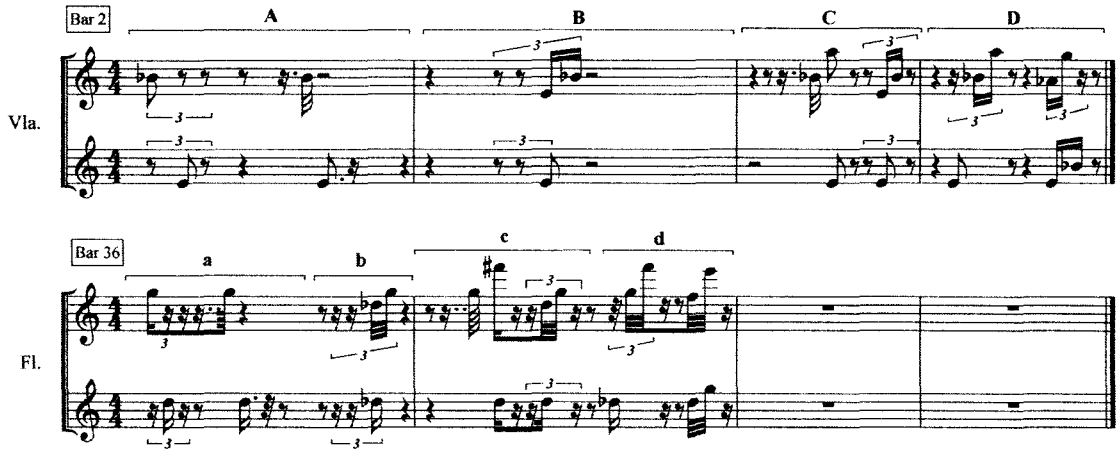
Viola	Bar 1	E4 – Bb4	T0[31]
Violin. I	Bar 6	E4 – Bb4	T0
Piano	Bar 10	E4 – Bb4	T0
Violoncello	Bar 16	F3 – B3	T1
Double-bass	Bar 20	F#2 –C3	T2
Violin I (Incomplete presentation)	Bar 22	Eb5 – A5	T11

[31] T0, T1, etc. indicated ordered pitch-class transpositions; that is, T2 refers to a transposition two semitones "up" from the original, even if the actual octave is displaced.

From this table of entries, it is clear that the violoncello entry begins the transposition of the main rhythmic-motivic structure by the interval of a major seventh below its original pitch. The last entry shown in the above table shows an incomplete presentation of the structure beginning for the second time in the first violins. This time, however, it is presented with the tritone transposed up a major seventh from the original pitch. These transpositions enclose the original tritone by a major seventh interval both above and below.

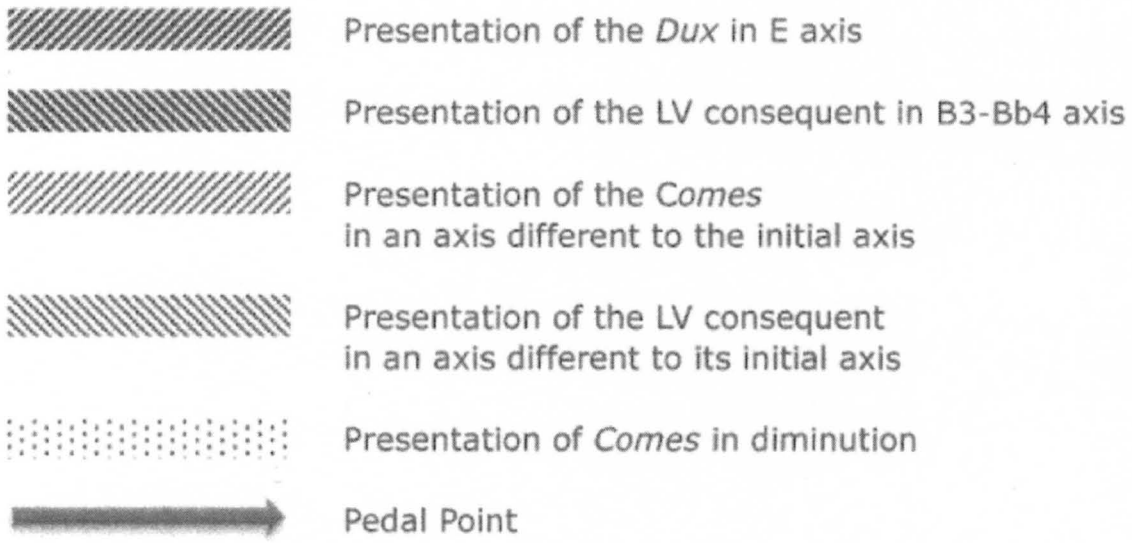
In bar 36, the flutes begin to present material from the leading voice in diminution through which the initial duration is reduced by half (Ex. 10).

Example 10 Comparison of the original leading voice, mm. 2-5, and the leading voice in diminution, mm. 36-37

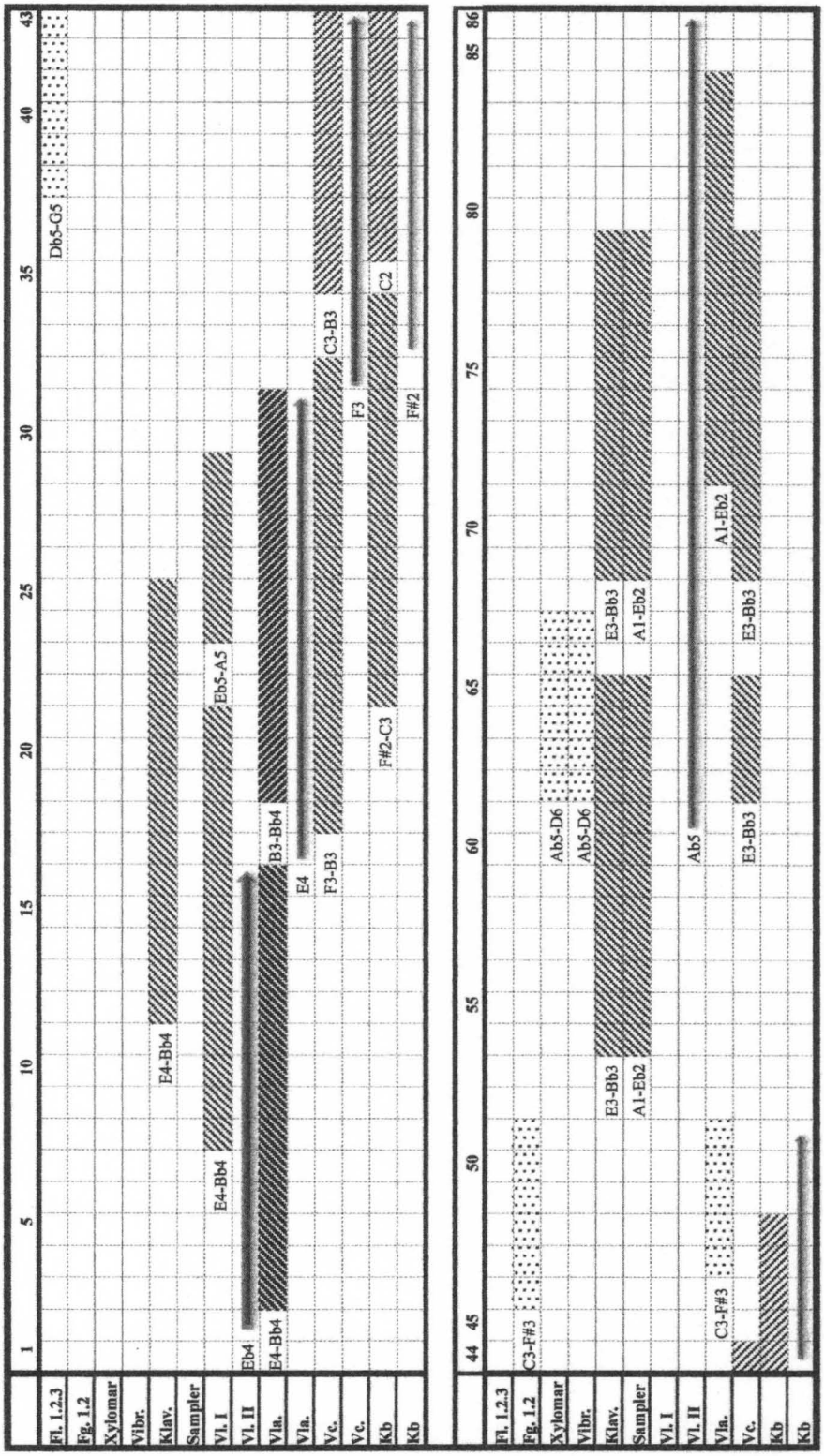


Example 11 shows the imitative entries of the canonic theme–the fundamental microstructure of the work–over the course of the movement, along with the various pedal points. Figure 2 shows the symbols identifying these elements in example 11.

Figure 2 Key to Example 11



Example 11 Entries of *dux* and *comes* with their consequents, as well as ostinato, over the course of the movement



This illustration shows how each presentation of the initiating and consequent portions of the *dux* is layered onto the others. As has been previously pointed out, this superposition of presentations of the main ideas in the piece is what recreates not only the "image" of the rain but the experience of the entire process of a rainfall. Thus Höller fulfills his commitment of expressing his own perception of the process of rain, but at the same time he reflects, as a result of his treatment of the musical material, the immanent logic of the phenomenon of rain. It is this reproduction of the rain's immanent logic that allows the listener to hear in the music the rain as matter experienced in time. The phenomenon of rain comes to life in the musical discourse.

All these ideas are intimately related to the conception of form and structure, especially to a contemporary view of the aspects of composition in which a functional rather than a mechanical relationship is established between the part and the whole. In his book *Wordless Rhetoric,* Mark Evan Bonds explains that the idea of the musical work as a biological organism was a new image that in the early nineteenth century gradually replaced the old rhetorical metaphor of the musical work as an oration. [32]

The following chapter will investigate the form of "Regen-Kanon" as design and organic form, discussing also how previous conceptions of form relate to the organic-generative perspective of form.

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[32] Mark Evan Bonds, *Wordless Rhetoric: Musical Form and the Metaphor of the Oration,* (Cambridge, Mass: Harvard University Press, 1991), 141-142.

FORM IN "REGEN-KANON": DESIGN AND ORGANICISM

Since form is one of the most ambiguous words in musical analysis and aesthetics in general, but certainly also one of the most widely used, this chapter will discuss form in "Regen-Kanon" from two points of view: form as design and form as process, the later concerning organic and spiral form.

The first, more descriptive, analysis will take as a central point of view the division of the piece by *design*. Design refers to changes in orchestration, rhythm, dynamics, and tone materials that in an overall view or audition of the piece lead to perception of certain sections. Following this model, a macro division of the movement will be proposed.

The second approach to formal analysis in the movement will focus on the canonic treatment of the leading voice and its relation with process. The unfolding of this imitation process will lead to a deeper discussion of Gestalt, the generative process, and the organic form. To conclude this chapter, the movement will be considered in light of the metaphor of a sphere.

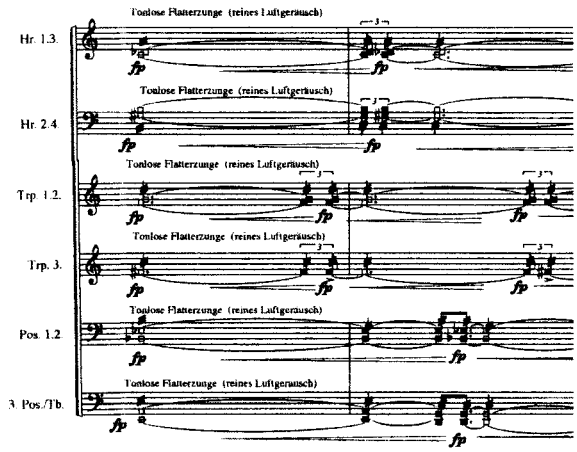
Form as Design

"Regen-Kanon" can be divided by *design* into two major sections, namely section A, bars 1 to 59, and section B, bars 60 to 86.

There are several events involved in this articulation at bar 60. The most striking event articulating the piece into two sections is the entry of the first clear verticality presented in the piece. In a piece characterized by contrapuntal treatment, this chord seizes the attention of the listener, not only because of its vertical nature, but also because of its duration. In addition to this, the chord is played with a tremolo articulation in the strings. These two features, length and timbre, have been foreshadowed previously in the piece in the material presented in the clarinets beginning at bar 38, with trills in an almost half-note duration. Apart from this material, however, the strings never play tremolo and the durations of the notes never exceed the eighth-note value.

Another event, the introduction of the new timbral colors of brass and percussion, articulates the form in a less prominent and immediate way. The timbre of the brass group, contrary to what might be expected, is not striking to the ear since this powerful instrumental family is played with a particular instrumental extended technique, *Tonlose Flatterzunge* (Ex. 12).

Example 12 Mm. 60-61, *tonlose flatterzunge* in the Brass

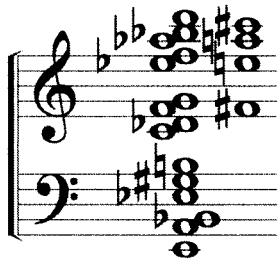


Specific notes are written down in the score, but they must be played without tone, just passing air through the instrument, creating the "sound image" of wind. On the

other hand, although the timbre of the mallet instruments is very characteristic, and they do support the entry of the chord articulating the first beat of bar 60, their material is more closely related to the imitation of the canonic theme than to the chord itself.

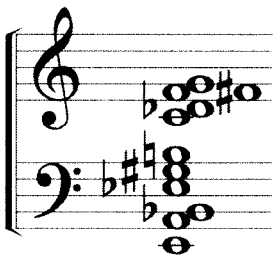
The brass and string groups present the chord shown in example 13. This chord contains all of the pitches of the chromatic scale and may be divided by range into four groups, the two upper groups creating clusters.

Example 13 M. 60, orchestral cluster



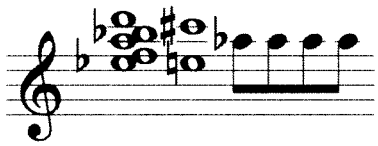
Examples 14 and 15 show how the chord is divided between the brass ensemble and the string ensemble, the brass instruments taking the lower part in relation to the string instruments. As has already been mentioned, Höller has instructed the brass to use toneless flutter-tongue, a technique that obscures the intended pitches and creates a sheet of sound, like a reminiscent of a heavy wind blowing.

Example 14 M. 60, orchestral cluster: pitch collection in the brass



Example 15 shows not only the portion of the chord played by the strings but also the beginning of a statement of the eighth-note ostinato on Ab5. This note, played by the second violins, represents the highest statement of the ostinato material.

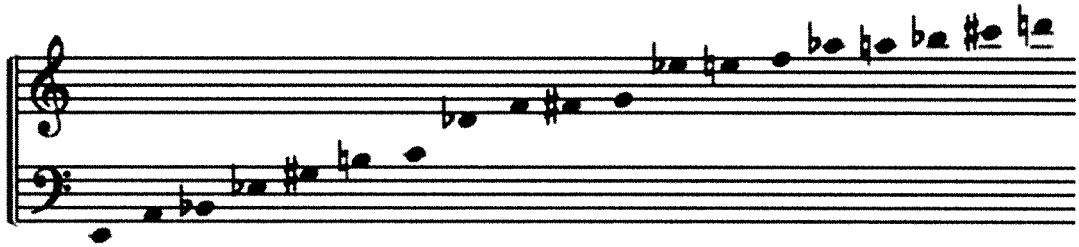
Example 15 M. 60, orchestral cluster: pitch collection in the strings and ostinato on Ab5



This sudden change of range in the eighth-note ostinato movement is another event supporting the division of the piece in bar 60.

The chord in the brass ensemble presents almost the totality of the notes in the chromatic scale. The excluded pitch is D, which is present in the strings in the top voice of the cluster. Example 16 shows the pitch collection of the chord. The strings present a subset of the chromatic scale formed by the notes Eb, E, F, Ab, A, Bb, C# and D. These notes are also played in a lower range by the brass family and doubled in the strings.

Example 16 M. 60, orchestral cluster: pitch collection



In the second section of the movement it is the orchestral chord that takes the foreground position in the musical discourse, although the canonic process is still present.

In summary, "Regen-Kanon" presents a binary form due to its design. Figure 3 illustrates.

Figure 3 Principal sections of "Regen-Kanon"

A	**B**
[mm. 1 -59]	[mm. 60 – 86]

These two parts of the movement may be further divided by design into subsections. These subsections differ in length, but they can be considered as equally important in reference to their function since they add energy to the vital impulse already brought about by the canonic treatment prevalent in the piece. Taking this into account, the subsections of the piece may be defined as shown in Figure 4.

Figure 4 Subsections of "Regen-Kanon"

A				**B**	
[mm. 1-59]				[mm. 60-86]	
A1	**A2**	**A3**	**A4**	**B1**	**B2**
[mm. 1-25]	[mm. 26-43]	[mm. 44-51]	[mm. 52-59]	[mm. 60-69]	[mm. 70-86]

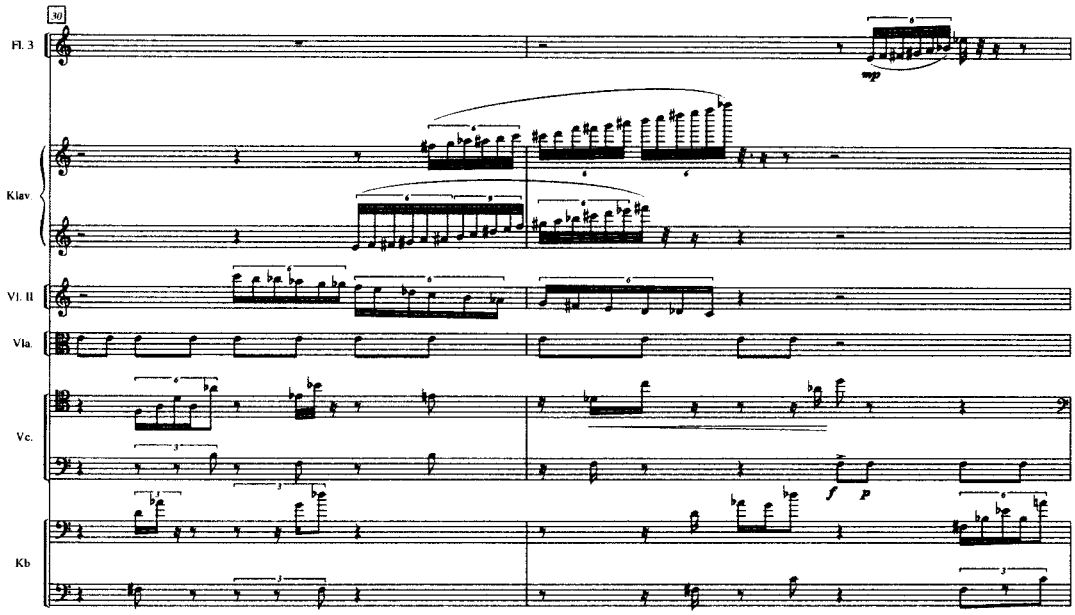
Section A

The main structural element in the entire movement is the unfolding of the canonic treatment of the *dux*. Its presence is most prominent in the section A of the movement.

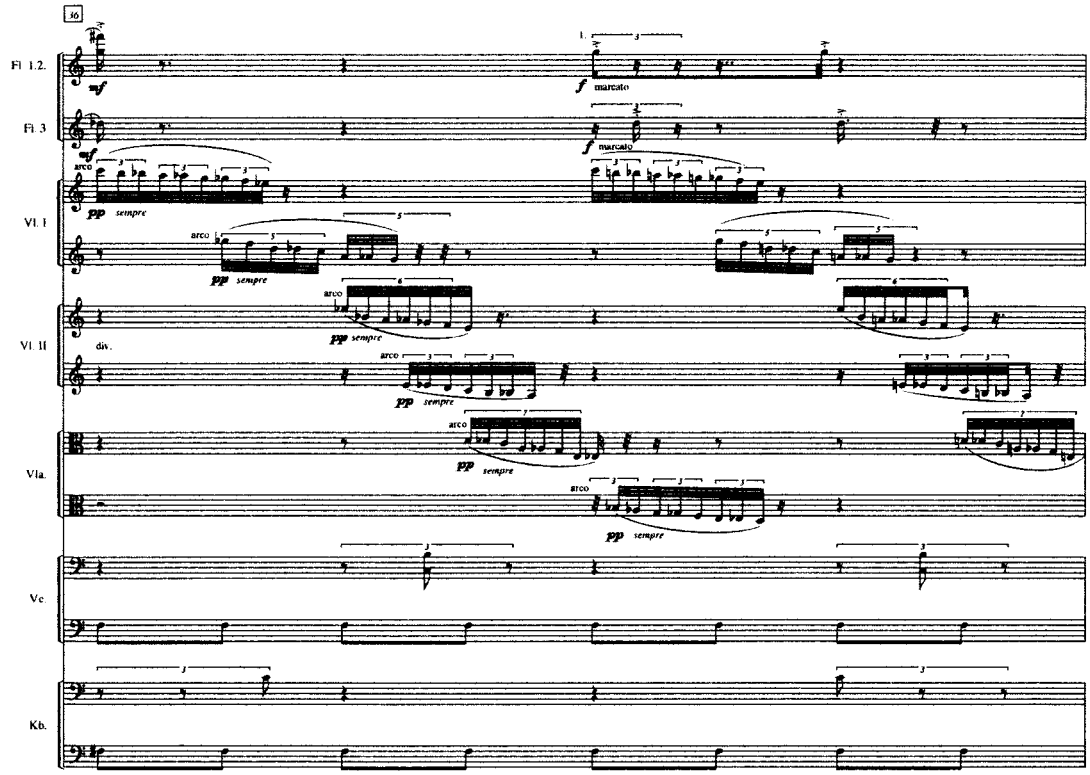
Subsection A1 (mm. 1-25) consists mainly of the presentation of the ostinato and *dux*, and of the first imitative entries at the unison and new pitch levels. These imitative entries gradually introduce the complete string section and the piano.

Subsection A2 (mm. 26-43) presents new and contrasting material characterized by the introduction and gradually-increasing presence of quasi-chromatic descending and ascending lines. These lines continue to increase not only in length but also in number until bar 43. To the piano and strings are added the newly-introduced instruments of the woodwind family.

Example 17 Mm. 30-31, subsection A2

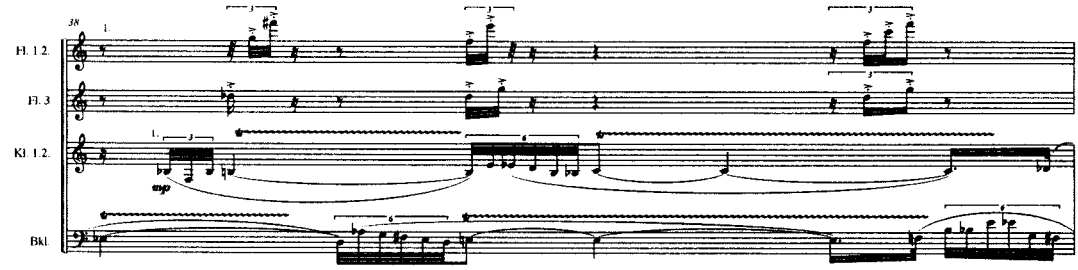


Example 18 "Regen-Kanon," m. 36, textural increment



This growth process behaves similarly to the force of the tide in the sea. Every set of ascending and descending chromatic lines adds impulse to the overall unfolding of the piece, creating incremental tension and propelling the piece forward. In bar 38 this tension is fed and developed by the introduction in the Bb clarinet and bass clarinet of individual lines turning around axis notes, which are ornamented with trills.

Example 19 "Regen-Kanon," m. 38, clarinet trills and turn figures

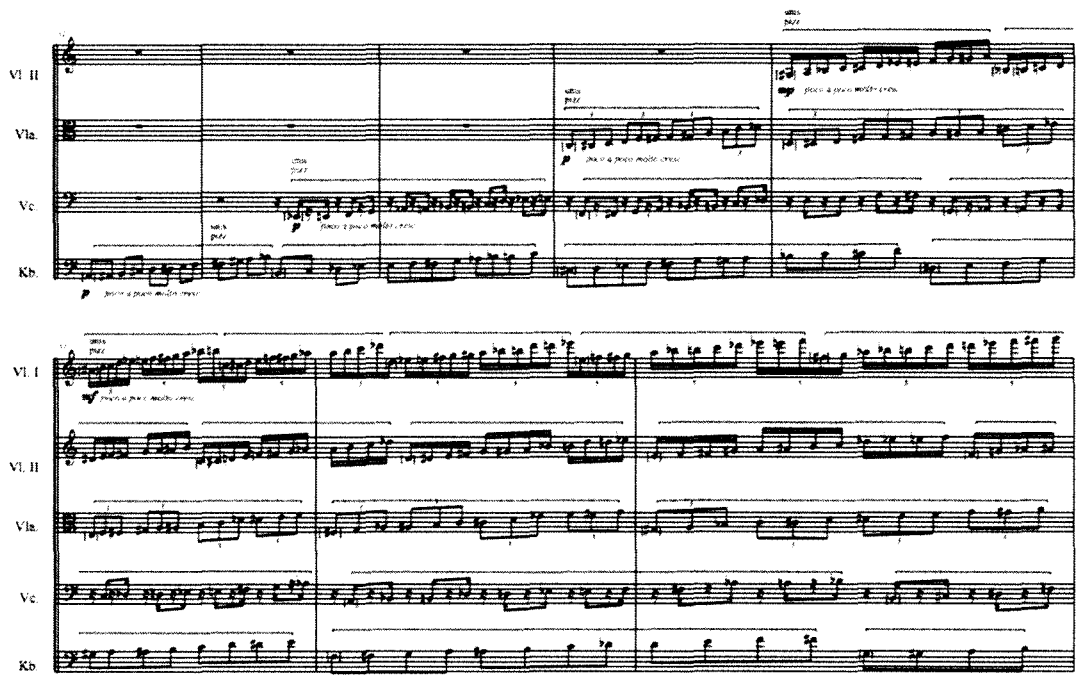


Subsection A3 (mm. 44-51) comprises a very effective area of repose in the organic growth of the movement. The orchestration is reduced, leaving just the newly-introduced bassoons with the support of the strings and piano. The bassoons, which enrich the piece with their color, have imitative entries in a rhythmically diminished version of the canonic theme with its axis on the tritone C3/F#3. This imitation plays in counterpoint with the viola section, which presents the canonic theme out of phase with the bassoons, but at the same tonal level.

This moment of breathing in the growth process of Section A creates a sensation of repose, albeit incomplete one, that leads to the last subsection of A.

Subsection A4 (mm. 52-59) begins with a contrasting ascending scale that transforms the immanent eighth-note pulse of the piece into an increasing sensation of forward motion thanks to the sequential presentations of ascending quasi-chromatic scales. This sequential motion begins on A2 in the double bass and gradually moves up through each of the instruments in the string family. Höller achieves this sensation of forward motion through two means. First, he increases the division of the beat in some instruments, creating a polyrhythmic texture consisting of eighth-note, triplet, sixteenth-note, and quintuplet divisions. Second, he divides the ascending scales into fragments whose first notes themselves form a macro ascending line. Example 20 shows the grouping of notes into twelve-note ascending scales, each of which is followed by a downward leap of a seventh to reach the beginning of a new ascending line. Each initial note of the scales replicates a macro version of the fragment.

Example 20 Mm. 52-59, string section, macro line



In addition to these ascending scalar passages and their diverse division of the beat, a crucial element begins to be introduced for the first time in the movement: the electronic timbre of the sampler. The sampler, an AKAI keyboard controller, presents material derived from the lower voice of the canonic theme structure. This material is related to the characteristic tritone axis. The more melodic material from the upper voice and of the *dux* is presented in the piano. This is the first time in the piece in which this microstructure is performance into two instrumental timbres.

The use of electronics is a subtle characteristic of the orchestral cycle *Sphären* but an important one in Höller's overall compositional language. Höller gives a special treatment to the timbre by reserving contrasting sound effects for major moments in the piece. In this case the subtle introduction of the sampler in bar 52 enriches the content of the bridge passage and serves to open the listener's ear to the second section of the work,

where the climax of the piece will be reached and where the sampler will play an important role as an equal timbral member of the orchestra.

Section B

The beginning of the B section signifies the turning point of the movement. Every event in the piece builds to it and from there the piece begins to fall back on itself. The most important element in subsection B1 is the chord discussed above and shown in Example 13. As already mentioned, this chord is presented for the first time in bar 60, creating a sharp contrast in the discourse. With great economy of means, the same chord is prolonged until bar 69. No other large simultaneous pitch combination is presented in the entire movement. The prolongation of this chord is achieved mainly by the strings, which sustain it with a tremolo. At times, the low strings drop out temporarily while the notes in the high strings are sustained. In bar 61, the woodwind group answers the initial chord formed by the brass and the string group with other chord. In this chord the pitch collection and range are exactly the same as in the chord presented by the strings in bar 60. In the woodwinds, however, the chord alternates with clear silence, clarifying its antiphonal relation with the other groups. In the brass ensemble, the chord is held throughout the entire section, with a rhythmic distribution of breathing breaks. Since the brasses are performing a toneless flutter-tongue, its presentation does not break up the flow of the piece as the interrupted woodwind chord does.

This section represents the climax of the piece. This climax is achieved mainly through the presentation of the chord, which is the main force of contrast in a piece that otherwise utilizes a primarily contrapuntal texture. The internal climax of section B1

comes in bar 67, where the pitches already present in the main chord are shifted to a higher register. Another interesting event leads up to this internal climatic point. Bar 67 is preceded by an unusual change to 3/4, disrupting the regular 4/4 meter of the movement. By bar 67 the 4/4 meter is reestablished. This change creates a sort of syncopation or tempo stress that further accentuates the climactic change of disposition of the chord. Even though the metric nature of the material presented over the course of the movement does not really allow a clear perception of a strong–weak–strong–weak beat pattern, the meter change still creates a subtle subliminal effect.

After bar 70 the piece fades away. Not only does the vertical material of the chord disappear but also the brass and woodwind ensemble, and the mallet instruments withdraw, leaving the orchestration as it was in the beginning, with only strings and piano. The only instrument introduced in the second section that is retained is the sampler. The pedal on Ab5 (originally Eb in the first section) is also preserved from the second section and will be the last element abandoned in the piece. In the viola a final complete presentation of this canonic theme is initiated. This time, however, only the upper voice of the rhythmic-motivic microstructure is presented. This material accompanies the Ab5 pedal until the end of the piece. This ostinato on Ab5, differing only in pitch from the beginning of the piece, seems like a promise of a new beginning of the process, a perfect fourth higher. This resemblance opens the door for the piece to begin a cyclic process. In fact, due to the pitch difference, it suggests a spiral form moving in fourths, which finally would return to Eb after twelve cycles.

Organic Form in "Regen-Kanon"

As the title of the work indicates, there is a canonic treatment involved in "Regen-Kanon." In this movement the musical discourse grows in time mainly as the result of the unfolding of the canonic process applied to the *dux* or leading voice (Ex. 7). This process of imitation unfolds in subsection A1, where the instruments are gradually introduced into the texture by imitating the leading voice. This imitation is initially at the unison but then moves to other pitch levels. Since this process of imitation permeates the entire movement, it is possible to characterize the form of the movement as a canon.

Nevertheless, simply to define the form as a canon ignores many other factors contributing to the shape of the movement. In fact, in order to talk about form in York Höller's music it is necessary to take into account his own perception of the subject. In his published articles Höller explains his idea of the work of art as an organic-energizing system in which all elements not only are linked by functional relations but also are the result of the evolution of a process.[33]

Höller regards the development of a musical discourse as comparable to that of a living organism. This result in a concept of form that goes beyond the division of the discourse into sections; it embraces a more holistic approach to form that is best framed in terms of the Gestalt.

The following discussion will examine briefly how scholars have approached the concept of form in the last two centuries and how the idea of organic form has emerged. After establishing this conceptual framework, I shall analyze the structure of "Regen-Kanon" as one resembling a living organism.

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[33] Höller, "Composition of the Gestalt," 35.

Canon as a Form

A canon is a polyphonic work in which the contrapuntal voices are derived from the original melody by the application of a rule, the most common rule being the imitation of the *dux* or leading voice at a specified temporal and tonal interval. Whether a canon may be properly characterized as a *form*, however, is debatable.

It may be illuminating to consider a discussion of this question as it bears on the topic, since fugue and canon both rest on imitative counterpoint as a fundamental compositional principle. In Chapter 15 of *Counterpoint*, Kent Kennan argues the question of whether fugue is an actual form or is, instead, more aptly characterized as a style or texture. Kennan explains that until the late nineteenth century it was widely accepted that a fugue was a three-part form, but later this idea was supplanted by the concept of fugue as a "way of writing" or a "particular contrapuntal approach to musical composition."[34] It would be equally accurate to characterize canon as an approach or procedure.

Kennan's concern for this subject stems at least in part from the abovementioned ambiguity of the term *form.* Simply dividing a fugue into sections does not say much about the structural essence of this kind of musical discourse. Kennan's questioning, in fact, reveals a paradox between "outer form" and "inner form."

The Paradox of Form

The paradox of form is what Mark Evan Bonds express as the "seemingly irreconcilable dichotomy between the conformational and generative perspectives" of form.[35] By a "conformational" approach to form, Bonds means the kind of analysis that

[34] Kent Wheeler Kennan, *Counterpoint,* 4th ed. (New Jersey: Prentice Hall, 1999), 202.
[35] Bonds, 141-142.

looks for the lowest common denominators, comparing an individual work to an abstract, ideal type. On the other hand, the generative perspective "considers how each individual work grows from within and how the various elements of a work coordinate to make a coherent whole."[36] The first perspective relates the idea of form to that of a stereotypical pattern, whereas the second regards form as the product of a generative process. Coinciding with the decline of the rhetorical concept of form, this paradoxical view of form emerged during the first half of the nineteenth century.

As Bonds explains, the rhetorical concept of form is based on the metaphor of the musical work as a language. This is not so much an explicit attempt to draw parallels between the form of a musical movement and the structure of an oration as a search, but one that looks for conventional patterns that provide listeners with points of reference and predictability that allow them to discern the content of the piece. In the rhetorical perspective, "form is the manner in which a work's content is made intelligible to its audience."[37]

Although philosophers of classical antiquity mentioned it, and it continued to be present throughout the Middle Ages and the Renaissance, it was in the sixteenth and early seventeenth centuries that this idea of music as a rhetorical art took on a new importance with the concept of *musica poetica*. As Bonds says, "In describing how the composer, the *musicus poeticus,* could create a work of music, theorists . . . drew upon the analogy of the orator manipulating verbal language in order to create a persuasive presentation of ideas."[38]

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[36]Bonds, 14.
[37]Ibid., 5.
[38]Ibid., 61.

In fact, the impact of this metaphor has been strong. It played an important role in the elevation of instrumental music as a form of wordless rhetoric and as an autonomous art,[39] and, it is present everywhere in theory. In musical analysis it is established practice not only to talk about the "language" of the composer, but also to describe music in terms of such rhetorical terms as "musical phrase" and "thematic elaboration." Even "composition" derives from grammar and rhetoric.

According to Bonds, with the decline of the rhetorical metaphor musical analysis lost a decisive element, since "the metaphor of the musical work as an oration . . . provides a means by which internal, generative forces may be reconciled with external conventions."[40] Elsewhere Bonds states, "Only with the decline of rhetoric does the conceptual basis of large-scale form become fragmented."[41] In the nineteenth century, with the rise of certain formal conventions in instrumental music, and in the absence of the metaphor of the oration, form begins to be seen from a more "spatial and synoptic perspective,"[42] and the first actual diagrams of form begin to appear in Reicha's treatise.[43] In Reicha's conception, form is like a mold; he represents the idea of the *coupe*, which is basically a container for musical thought.

Confronting this model is the organic-generative concept of form. This approach, which arises parallel to the mechanistic-conformational approach represented by Reicha, will be examined next.

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[39] Bonds, 5.
[40] Ibid.
[41] Ibid., 142.
[42] Ibid., 147.
[43] Anton Reicha, *Traité de haute compositione musicale,* Vol. 2, (Paris: Zetter, 1824-26), quoted in Mark Evan Bonds, *Wordless Rhetoric* (Cambridge, Mass: Harvard University Press, 1991), 152.

"Regen-Kanon" and the Organic-Generative Concept of Form

As Bonds maintains, according to the organic-generative concept of form,

> the component elements of every successful work of art must articulated in a manner analogous to the constituent parts of a living organism. The process of growth within a work, moreover, must be internally motivated. The shape of an organic whole is often held to be inherent in its germinal unit, with the whole existing in the part just as the part exists in the whole.[44]

If Höller's "Regen-Kanon" is an organic form, the leading voice or *dux* is this germinal unit or microstructure, which projects itself continuously onto the macrostructure of the entire movement, just as in Bergson's metaphor of the relationship of the bee to the hive. In this way, the leading voice is a unit belonging to a collective organism. This projection is achieved through the application of the canonic treatment to the leading voice.

The movement as a Gestalt resembles the cycle of birth, growth, and death of an organism. This is achieved through the introduction, gathering and exiting of the instruments as a result of the canonic process. In this way, the canonic treatment shapes the form through the distribution of the orchestration, and at the same time defines its content. The gradually-attained aggregate of imitations of the canonic theme becomes the body of the organism. As the instruments finish the imitations of the canonic theme and begin to retire, the organism dies, completing the cycle of life. The passing of time becomes evident through the constant and repetitive eighth-note movement in the ostinato material, which energizes it and resembles the pulsation of life.

Another important feature of organic form is the relationship established between different materials. In this respect there are some interesting points to observe in the piece.

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[44] Bonds, 142.

To continue the discussion of the ostinato, it is significant that this material, which does not receive any canonic treatment, changes its pitch axis in correspondence with some important changes in the intervallic imitation of the leading voice. The first change comes in measure 15 where the canonic theme, after its initial presentation and two imitative entries on the same pitch axis (E5/Bb5), is first imitated on a new pitch axis (F3/B3). In the same beat where this third imitative entry begins with an octave F3/F4, the ostinato changes from the initial Eb5 to E4. As in the beginning of the piece, where the pitch elements of the ostinato and the leading voice form an enharmonic major seventh interval (E4/Eb5), in measure 15 these two elements likewise form a major seventh interval (F3/E4).

Another interesting point at this moment of the movement is the close relation between the LV-consequent and the ostinato. After bar 16, the ostinato begins to take part in the structure of the LV-consequent in a relation that is maintained until bar 48, where the ostinato returns to being an individual element. Between bars 16 and 48, the consequent and the ostinato establish a cooperative relationship.

Another expression of organic function and transformation in the piece can be found in subsection A4 (mm. 52-59). This is the only section of the entire movement where the ostinato undergoes a radical transformation. Höller takes advantage of the immanent eighth-note impulse of the ostinato, transmitting its energy to several voices in order to build a powerful scalar passage. This passage accumulates forward momentum by increasing the division of the beat, the number of voices implied, and the range, until this wave of energy finally breaks over the big chord that divides the movement into two parts in measure 60. The transformation of the ostinato creates a strong musical impulse

leading towards the climax of the piece. After measure 60, the ostinato returns to its normal repeated eighth notes, this time in the high register on Ab5.

Another event that impels the overall growth process of the piece is the passage made up of the ascending and descending scales in subsection A2 (mm. 26- 43). This passage works as a sort of tide that increases the length and number of its implied voices over time, carrying a different type of impulse to feed the unfolding of the canonic treatment. This alternative growth process also creates directionality in the discourse. The energy of this passage dissipates in measure 44, leaving a sensation of absence that creates an expectation, which is finally fulfilled with the arrival of the climactic point.

These observations provide evidence to support the argument that there is a clear distribution of functions among the different materials and events presented in the piece. In this way the movement works as a living body in which, as described by Bergson, the cells (in this case, the different materials) work together to a common end, "dividing the task between them, living each for itself at the same time as for the others."[45]

Höller expresses the opinion that the process of projecting a form should not be schematic or mechanical. "It should be both rigorous and flexible to accord with the conditions of an *organic* unfolding."[46] The canonic treatment in "Regen-Kanon" brings these characteristics into the musical discourse. It is rigorous with respect to the strict imitation of the rhythmic and melodic characteristics of the leading voice. On the other hand, the canonic treatment is flexible with respect to the span of time between the

[45] Bergson, *Creative Evolution*, 183.
[46] Höller, "Composition of the Gestalt," 36.

beginning of the leading voice and the beginning of the imitation. It is also flexible in the intervallic relation between entries. Furthermore, the canonic treatment unfolds in time in a flexible way. Unlike the symmetrical forms of the classical period, where a binary sense of time becomes predictable because of the prevalence of regular phrase rhythm, it is not possible to know how much time the unfolding of a canonical treatment will take until it is complete.

The paradox of the "outer" and the "inner" form is a conflict that can be resolved if we apply Bergson's philosophy of reality as an aggregate of images to the understanding of form in music. We may compare Bergson's theory of the "aggregate of images" with the concept of cubism in painting. What we see in a Picasso canvas is the sum of several perspectives of the same model, as his "Tete de Femme (Dora Maar)" (Fig. 5) illustrates.

Figure 5 Picasso, "Tete de Femme (Dora Maar)"

On the left side of the canvas, we can recognize a vision of the woman from the front, while on the right side of the canvas we see her from the side. Also, if we imagine being closer to or farther from the woman, we can understand why some parts look small and others bigger. We can also imagine that the woman portrayed on the canvas might

not, in a moment of vanity, feel completely identified with the painting. But certainly there is no other object represented in the canvas. In that sense, every image mixed in the final configuration of the paint is a true representation of the woman.

In the same way, there is no conflict between the "outer" and "inner" understanding of form in the musical discourse. Both perspectives reveal important characteristics of the piece, convey its vital essence in equally valuable ways, and create in the mind of the listener an intelligible "sound image." It is the same process by which we perceive a physical object: what we perceive, for example, as a table, is not a "single" table. Really, as Bergson explains, the table is the sum of all the images of tables recollected by our memory plus the new image that we see in that precise moment. Consequently, musical analysis cannot center on just one image of the piece, in the same way in which "form is too broad and subtle a concept to be explained by any one approach."[47] Rather, musical analysis should be the sum, the result of an "aggregate of formal images," of the piece.

Spiral canon

It is not possible to talk about a true cadential ending in "Regen-Kanon." The main characteristic of subsection B2 (mm. 70-86) is the gradual retirement of instruments and musical materials. The texture and dynamics are reduced until bar 85 where only the eighth-note ostinato on Ab5 remains. The last measure consists of the last Ab5 eighth note at a *ppp* dynamic level. If we compare these two measures (85-85) with the first two measures of the movement, there are two main differences, namely the absence of the viola, and the transposition of the ostinato up a perfect fourth, from the Eb5 of the

[47] Bonds, 3.

opening to Ab5. Apart from these two differences, the end of the movement suggests a circling back to the beginning that might allow for the repetition of the process in a perpetual or eternal movement related to the formal properties of the sphere. The ending on Ab5, however, proposes a more complex return, suggesting a spiral rather than a circle. Kennan explains the spiral canon, in the context of eighteenth-century counterpoint, as "a very rare type," in which "the melody ends in a different key from the one in which it began."[48] (In the case of an atonal piece such as "Regen-Kanon" the idea of key center is replaced by pitch level.)

These similarities in design between the beginning and ending of the piece not only lead to the perception of the movement as an open form, since it dissolves into silence rather than presenting a strong cadence, but also leaves open the door for virtual repetitions of the process.

Extrapolating from the suggested spiral progression in "Regen-Kanon," one can imagine its continuation perhaps even through the twelve repetitions needed to complete a return to the point of origin (Eb-Ab, Ab-Db, Db-Gb, Gb-Cb, B-E, E-A, A-D, D-G, G-C, C-F, F-Bb, Bb-Eb). If this idea is accepted, it can be posited that this hypothetical pathway and return may represent an expression of the Sphere itself.

[48] Kennan, 114.

CONCLUSION

"Regen-Kanon" embraces several levels of perception, meaning, and representation. It presents a canonic procedure and, through the unfolding of this procedure, an organic generative form. "Regen-Kanon" also sets up a "sound image" resembling the phenomenon of rain.

As the rain is a process of drops of water falling and, more importantly, gradually gathering together in a mass that increases and decreases in intensity, so the structure of "Regen-Kanon" evolves from the canonic treatment of the leading voice or *dux.*

The leading voice is a large unit embracing sixteen measures. It is built up of short rhythmic and melodic cells suggesting raindrops falling. These little cells show an evolving process in which the rhythmic density, the pitch collection, and the range increase over the course of the sixteen measures, creating a microstructure that embodies the characteristic Gestalt of the movement.

The canonic treatment of the leading voice gives the movement its generative force. It allows its germinal unit to grow, bloom, and become a major structure, as the different instruments of the orchestra are introduced gradually through the imitation of the leading voice. As a result of this process it is difficult to define an essential distinction between the form and content of the musical discourse. "Regen-Kanon" thus unfolds as an organic-generative form.

The ostinato, in contrast to the leading voice, represents the minimum musical expression possible, since its material is in fact just a singularity, a constantly repeated eighth note. Nevertheless, the ostinato, which begins and ends the movement, becomes a promise of continuation of the discourse in time, implying a spiral canon, which, after several cycles, will return to its initial point of departure. It is the future tied to the past, it is time represented as a sphere. Through it, "Regen-Kanon" properly claims membership in the cycle "Sphären."

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