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Metaphors of Sound

Cognitive Aspects in the Theories of

Pierre Schaeffer, R. Murray Schafer and Gérard Grisey

Ewa Schreiber

According to the advocates of a cognitive theory of metaphor, such as George Lakoff and Mark Johnson, metaphor is the basic figure of thought, which enables us to think of one object in terms of another. This ability manifests itself in various areas of human activity and finds its expression in numerous verbal statements. Since the 1980s, the cognitive theory of metaphor has strongly influenced many branches of the humanities. In recent decades, it has also been applied to various forms of discourse about music. Interdisciplinary research into metaphor seems to enrich and modify musicological research. It alters our convictions about the nature of theoretical discourse and musical analysis. It enables us to rethink such divisions as analysis and interpretation, structure and expression, musical and extramusical. The analysis of metaphors used in discourse about music reveals the different spheres which influence musical concepts, and also their hierarchical structure and cognitive content.

In the 20th century, many interesting and important musical ideas were conveyed by composers themselves. Consequently, the importance of such an interdisciplinary approach will be illustrated by analysis of the theoretical writings of selected twentieth-century composers (Pierre Schaeffer, R. Murray Schafer, Gérard Grisey) who, with the use of metaphorical language, express their different attitudes to the phenomenon of sound, treating it as an object, a living organism or part of an imaginary landscape. Each of these metaphors lies at the source of different musical currents; each of them has a different structure and different cognitive advantages.

»The locus of metaphor is not in language at all, but in the way we conceptualize one mental domain in terms of another«¹, writes George Lakoff. According to the followers of cognitive linguistics metaphor is the basic figure of thought, which makes it possible to think of one object in terms of another. The task of a new theory of metaphor is to characterize such cross-domain mappings within the conceptual system of the human mind and reveal their cognitive advantages.

The ability of cross-domain mapping manifests itself in various areas of human activity and finds its expression in numerous verbal statements. Since the 1980s, a cognitive theory of metaphor has strongly influenced many branches of the humanities. In recent decades, it has also been applied to diverse forms of discourse about music. Interdisciplinary research into metaphor seems to enrich and modify musicological research. It alters our convictions about the nature of theoretical discourse and music analysis. It enables us to rethink such divisions as analysis and

1 Lakoff, *The Contemporary Theory of Metaphor*, p. 203.

interpretation, structure and expression, musical and extramusical. The analysis of metaphors used in discourse about music reveals different domains that influence musical concepts along with their hierarchical structure and cognitive content.

In the 20th century, many inspiring and significant musical ideas were formulated by composers themselves. Thoroughly educated, aware of their place in society and music history, they tried to communicate their point of view as clearly as possible. Consequently, their discourse often combines analytical and historical terms with evocative, metaphorical language.

One of the central subjects of reflection among contemporary composers is sound and its properties. The increasing use of electroacoustic media radically changed the sonic content of musical works and brought about the emergence of new musical genres. As a result, the traditional parameters of sound description proved to be insufficient.

1. Pierre Schaeffer and the Sonic Object

In the middle of the 20th century, a significant attempt to describe and classify the whole range of new sounds was made by the French composer and radio engineer Pierre Schaeffer. Fascinated with the new possibilities for sound recording and sound manipulation, he wrote:

We should mention the special possibilities we have for intervening in the sound, [...] we can act on it, dissect it. We can also make different recordings of a single sonorous event, approaching the sound at the moment of its taping from various angles, just as one can film a scene using different shots. Assuming that we limit ourselves to a single recording, we can still read the latter more or less quickly, more or less loudly, or even cut it into pieces.²

Schaeffer initiated interdisciplinary research into *musique concrète*. This term refers to the new kind of music created with the use of recorded sounds, without any musical notation or performers. In this new context, the composer was responsible for abstracting the musical values from the concrete sonic material.

In 1966, Schaeffer published his most important work, *Traité des Objets Musicaux*, in which he took into account different levels of human experience and pursued philosophical, psychological and linguistic ideas. His reflection on listening is often considered as one of the most interesting parts of the treatise. Under the influence of phenomenology, Schaeffer tried to describe the content of experience without reference to its source or subjective model. Signal separated from source constitutes the proper object of »reduced listening« (*«écoute réduite»*). To reveal the advantages of such listening, Schaeffer refers to the ancient, Pythagorean term »acousmatic«. This denotes the experience of disciples listening to the voice of their master while he was hidden behind a curtain. Acousmatic, states Schaeffer:

marks the perceptive reality of sound as such, as distinguished from the modes of its production and transmission. The new phenomenon of telecommunication and the massive diffusion of

² Schaeffer, *Acousmatics*, pp. 78f.

messages exists only in relation to and as function of a fact that has been rooted in human experience from the beginning: natural, sonorous communication.³

Hugues Dufourt sees the Schaefferian approach as the opposite of the constructive theories typical of twentieth-century music: »Whereas all the musical production since Schönberg proceeds from concept to percept, Schaeffer reverses this dominant tendency, praising what is directly given and regarding the silent listening of the world as an inner path to contemplation.«⁴ Reduced listening discloses the new domain of sonic objects (»objets sonores«), some of which are potential musical objects that can be structured in an abstract manner. As Michel Chion points out, due to the concrete and complex nature of the sonic material, the composer of *musique concrète*, more than any other composer, constantly oscillates between composing and listening.⁵

According to Carlos Palombini, Schaeffer's activity should be considered within the context of contemporary advances in technology⁶. Palombini quotes Martin Heidegger to make it clear that nothing could be more misleading than the conviction of the »neutrality« of technology. At the same time, art seems to be the most appropriate domain in which to confront the problems related to technology. The essence of modern technology manifests itself in a new attitude towards nature:

The energy concealed in nature is unlocked, what is unlocked is transformed, what is transformed is stored up, what is stored up is, in turn, distributed, and what is distributed is switched about. [...] Everything is ordered to stand by, to be immediately at hand [...] so that it may be on call for a further ordering. [...] Whatever stands by in this sense no longer stands over against us as object.⁷

Schaeffer's attempts to grasp the sonic object remind us of the »thingliness of things«, the essential nature of things as they are: »Listening reducedly, we receive a sonic thing whose image starts forming in our consciousness. The flow of distanceless uniformity where all things are carried away and mixed up is halted.«⁸

Although the ideas of sonic object and reduced listening represent a new approach to sonic phenomena, Schaeffer introduces them with the use of familiar words. He chooses the metaphor of object, which in cognitive linguistics is also known as the ontological metaphor. Such metaphors are barely recognized, because they serve basic and rather limited purposes. The metaphor of an entity enables one to designate, quantify and recognize aspects of a phenomenon.⁹ Schaeffer is interested first of all in »grasping« and delimiting the object. His second main concern is to obtain and communicate knowledge about sound:

3 Ibid., p. 77.

4 »Alors que toute la production musicale depuis Schoenberg va du conçu au perçu, Schaeffer retournant cette tendance dominante, loue le donné et considère l'écoute silencieuse du monde comme la voie intérieure du recueillement.« (Dufourt, *Pierre Schaeffer*, p. 70; translated by the author.)

5 Chion, *Une ontologie*, p. 87.

6 Palombini, *Technology and Pierre Schaeffer*.

7 Heidegger, *Question Concerning Technology*, p. 41.

8 Palombini, *Musique Concrète Revisited*.

9 Lakoff / Johnson, *Ontological Metaphors*, in: *Metaphors we live by*, pp. 25–32.

Far from being subjective (in the sense of individuals), incommunicable, and practically ungraspable, sonorous objects, as we shall see, can be clearly described and analyzed. We can gain knowledge of them. We can, we hope, transmit this knowledge.¹⁰

The conceptual metaphor of the sonic object reveals its different aspects both in the procedures of analysis and in the descriptive vocabulary concerning sonic phenomena (Fig. 1). Three important steps in the analysis of the sonic object are reflected in the hierarchy of Schaeffer's typo-morphology: identification, classification and description. The divisions he presents often include pairs of notions. These are, however, not contradictory terms, but rather complementary aspects of the same phenomenon. The identificatory typology refers to the metaphor of language, as the flow of sonic objects resembles the energetic discontinuity of speech. A sonic object is marked by the moment of articulation and achieves a certain fixity through intonation. The physical existence of an object is evoked by the terms »matter« (»matière«) and »form« (»forme«). The former refers to the changing parameters of sound, the latter to its constant features that are likely to be grasped by the listener at a certain moment. The third term, »sustainment« (»entretien«), signifies the energetic process sustaining the duration of a sound.

TYOLOGY

A. Identification

ARTICULATION / INTONATION

FORM / MATTER

SUSTAINMENT

B. Classification

MASS / FACTURE

DURATION / VARIATION

BALANCE / ORIGINALITY

1. Well-balanced Objects
2. Redundant Objects
3. Eccentric Sound

MORPHOLOGY (Description)

MASS

HARMONIC TIMBRE

DYNAMICS

GRAIN

ALLURE

MELODIC PROFILE

MASS PROFILE

Figure 1: Pierre Schaeffer, Sound as an Object: Typo-morphology.

The classificatory typology introduces the concept of »mass« (»masse«), which is far more generalized than the traditional concept of pitch. Mass accounts for the harmonic structure of a sound, be it tonal or complex, harmonic or non-harmonic.

¹⁰ Schaeffer, *Acousmatics*, p. 81.

The classes of mass are particularly interesting in respect to the metaphors of physical consistency.¹¹ Masses of fixed pitch occupy the area between two extremes: pure sound and white noise. A »tonic sound« (»son tonique«) is characterized by a single defined pitch, whereas a »nodal sound« (»son nodal«) consists of pitch aggregates. These two categories can mingle and create a »striated sound« (»son cannelé«) consisting of tonic sounds or groups as well as nodal sounds or groups.

The complementary concept of »facture« (»facture«) accounts for the way in which the listener perceives different types of sustainment. As Michel Chion points out, the French word »facture« stems from »faire«, and so it indicates the way the sonic object is made.¹² Facture influences the degree of balance and originality of a sound. Well-formed facture corresponds to well-balanced objects, a lack of facture to redundant objects, and unpredictable facture to eccentric sounds.

Proper morphology consists of seven criteria: mass, harmonic timbre, dynamics, grain, allure, melodic profile, mass profile. Grain (*grain*) and allure (*allure*) are both criteria of sustainment and display particular metaphorical potential. Grain characterizes the microstructure of the sonic matter, the global perception of a large number of small details and irregularities. Allure reveals fluctuation which indicates a special kind of more or less predictable »agent«: the regular movement of mechanical objects, repeated human activity or irregular, unpredictable natural phenomena.

The choice of very basic, barely recognized metaphors draws attention to the qualities of a sonic object. On the other hand, the mere fact that several authors later questioned the word »object« shows that the adequacy of metaphor seems to be of particular importance.

The metaphor of object has been criticized, since it suggests limitation and reification.¹³ It does not reflect the temporal, dynamic nature of sonic flow and separates sound from its context. Some authors say that it no longer describes the content of experience but rather refers to some kind of utopian, technical reality. According to Jean Molino, to speak of a sound object is to make a »category mistake«.¹⁴

2. R. Murray Schafer and the Idea of *Soundscape*

Michel Chion noted that the advocates of the idea of *musique concrète* gradually changed their vocabulary, with the metaphor of object replaced by the more dynamic metaphor of energy.¹⁵ Another dynamic concept is that of a living organism.¹⁶ This alternative idea was introduced by composers representing different

11 According to Francesco Spampinato such metaphors are common in the interpretation of twentieth-century music and stem from the conceptual metaphor: PERCEPTION IS PHYSICAL CONTACT. Cf. Spampinato, *Les métamorphoses du son. Matérialité imaginative de l'écoute musicale*, p. 142.

12 Chion, *Guide des objets sonores*, p. 38.

13 Smalley, *Établissement de cadres relationnels pour l'analyse de la musique postschaefferienne*, pp. 193f.

14 Molino, *La musique et l'objet*, p. 124.

15 Chion, *Le son*, pp. 262–266.

16 Since the 18th century, the concept of a living organism has played a significant role in music theory and criticism. It is associated with influential composers (Ludwig van Beethoven, Richard Wagner, Jean Sibelius, Arnold Schönberg) and theorists (August Halm, Adolf Bernhard Marx, Rudolph Réti, Heinrich

currents of contemporary music. Contrary to the metaphor of object, the organic metaphor underlines the dynamic aspects of sound and its integral structure. It is associated with unity, growth, and the tension between a whole and its parts. It not only enables the complex and individual nature of sound to be revealed, but also takes into account its environment. That probably explains why the organic metaphor proved its usefulness in the case of soundscape compositions and spectral music.

According to George Lakoff, some metaphors appear in pairs and are therefore considered as dual. For example, the metaphor of the passing of time consists of two special cases: TIME PASSING IS THE MOTION OF AN OBJECT, TIME PASSING IS MOTION OVER A LANDSCAPE.¹⁷ The metaphor of musical time preserves this duality and consists of two forms: the metaphor of spatialization and the metaphor of motion.

Given that we typically conceptualize time either as »motion through space« [...] or as landscape through which we ourselves move [...], we can imagine music as either »moving« past us or as a structure we navigate (audiences prefer the former, letting the piece flow past; analysts choose the latter, moving »through« or »across« a score).¹⁸

The organic metaphor was used by both Gérard Grisey and Raymond Murray Schafer, and the dual character of the metaphor of sound is reflected in the respective systems proposed by these two composers. According to Grisey, sound grows and breathes in the atmosphere of time. According to Schafer, it inhabits an imaginary sonic landscape.

In the late 1960s, the Canadian composer Raymond Murray Schafer noted that society had seldom paid attention to the advantages and disadvantages of our acoustic environment. He began his intense research into environmental sound and postulated a radical »ear cleaning«, which would result in a more conscious and selective approach towards the sonic landscape of our everyday life.

When Schafer introduces new metaphors, he refers directly to Schaeffer's psychoacoustic research. The merit of Schaeffer's investigation, according to Schafer, was that he had »never surrendered his ears for his eyes«¹⁹ and tried to study sound as such. Schafer is ready to adopt the term of »sound object«, although he considers its scope as being rather limited: »We may call the sound object the smallest self-contained particle of a soundscape. Because it possesses a beginning, middle and end, it is analyzable in terms of its envelope.«²⁰

For the use of his own research, Schafer proposes the more convenient metaphor of the »sound event«. Firstly, because it implies the above-mentioned temporal dimension. Secondly, because an event must always be interpreted within its specific

Schenker, Ernst Kurth, Boris Assafjew). Cf. Solie, *The Living Work*, Tarasti, *Metaphors of Nature and Organicism in Music*.

17 The capital letters used by the followers of cognitive linguistics indicate that the metaphor is not only a linguistic expression but represents a conceptual metaphor and the network of correspondences within the conceptual system of the human mind.

18 Spitzer, *Metaphor and Musical Thought*, p. 63.

19 Schafer, *The Soundscape*, p. 129.

20 Ibid.

context. Contrary to Schaeffer, Schafer is interested in the referential aspects of sound, as well as its environmental interactions:

The soundscape is a field of interactions, even when particularized into its component sound events. To determine the way sounds affect and change one another (and us) in field situations is immeasurably more difficult a task than to chop up individual sounds in a laboratory.²¹

The temporal dimension of sound is described in acoustic terms of »attack«, »body« (stationary state) and »decay«. These terms, as Schafer points out, already imply the metaphor of the living organism. Sound has not only biological life, but also social life, as it appears in larger contexts: compositions. »Looking into compositions from the point of view of social systems«, Schafer remarks, »could be a fascinating exercise. A composition as a pageant of humanity. Each note as a human being, a breath of life.«²²

Each sound event can be seen from a broader perspective. That is why Schafer tries to establish the place a sound event occupies within the hierarchy of simple and more complex forms. Placing entities and their properties on a vertical scale is typical of a common cultural model in European thought called »The Great Chain of Being« (*scala naturae*) in medieval Christian philosophy.²³ According to George Lakoff and Mark Turner, such a hierarchy is itself a source of metaphors, combining the different levels of the Great Chain (higher beings with lower beings, inanimate objects with animate objects etc.). Schafer's interest in the hierarchy of being clearly manifests his cosmologic imagination (Fig. 2).²⁴ Each level of the hierarchy is associated with a musical concept.

GREAT CHAIN METAPHOR (The hierarchy of being)

GOD IS AN ACOUSTIC ENGINEER

THE UNIVERSE IS THE MUSIC OF THE SPHERES

THE SONIC ENVIRONMENT IS A MUSICAL COMPOSITION

MAN IS AN ACOUSTIC DESIGNER

SOUND IS A LIVING BEING

Figure 2: R. Murray Schafer: Sound as Organism – space-oriented metaphor (Scheme after Kapelański, *Śladami wyobraźni kosmologicznej*, p. 188).

The central place in Schafer's hierarchy is occupied by the soundscape:

The most vital »musical« composition of our time is being played on a world stage. If we could reverse the figure-ground relationship, the cloistered hour a week we call the music lesson would

21 Ibid., p. 131.

22 Schafer, *The New Soundscape*, p. 54.

23 Lakoff / Turner, *More than Cool Reason*, p. 166. According to Arthur Lovejoy the model of the Great Chain of Being stems from Platonic philosophy and underwent many changes until the 18th century. Cf. Lovejoy, *The Great Chain of Being*.

24 Kapelański, *Śladami wyobraźni kosmologicznej*, p. 189.

be quite displaced by a much bigger music lesson – the very cosmic symphony we have tried to shut ourselves away from.²⁵

Schafer notes that the analysis of soundscape requires new vocabulary. Our culture has been dominated thus far by visual terms and has not developed adequate words to describe sonic phenomena. Compared to visual perception, the psychology of aural perception has also been neglected.²⁶ In order to establish new words, Schafer introduces some coinages, resulting from direct metaphorical transfer from the visual to the aural domain. This procedure is based on Schafer's assumption that certain visual experiences can have their equivalent in aural perception. The main distinctions are derived from Gestalt psychology and cover the figure-ground relationship as well as the notion of field, understood as the area where observation takes place. The soundscape (equivalent to the landscape) accounts for the field of aural perception. The soundmark (equivalent to the landmark) is a unique sound, understood in a specific manner by people from a particular community. It attracts the listener's attention, just like any other sound signal, and thus plays the role of a figure. The term »keynote sound«, derived from the musical domain, describes a constantly perceived sound, such as the sound of the sea or a car engine, which becomes the background for other sounds. The quality of perception is measured by the noise-signal ratio. In lo-fi (low fidelity), soundscape signals are overcrowded or masked by noise. Hi-fi (high fidelity) characterizes an environment in which sounds can be heard clearly.

All the above-mentioned analogies make the coinages familiar and easy to adapt. On the other hand, the new words may seem questionable, because they are subordinated to visual paradigms, which, as Schafer remarks himself, »are themselves the product of a set of cultural and perceptual habits, one in which experience tends to be organized along perspective lines with foreground, background and distant horizon.«²⁷

Man plays versatile roles in the surrounding soundscape. »We are simultaneously its audience, its performers and its composers«²⁸, writes Schafer. Composers are architects of sound, but they are not yet ready to take care of their sonic environment. However, every educated man can become an acoustic designer who re-arranges a soundscape by preserving, encouraging or multiplying particular sounds. Such a role requires training in acoustics, psychology, music and sociology.

According to Stephen Adams, Schafer's attitude is typical of a »modern aesthete« who understands art in terms of the education of the senses. This can be clarified by a paraphrase of John Ruskin's words: »the musician is not the man who feels sounds most intensely but the one who perceives and conveys them most clearly.«²⁹ The basic measures of a friendly acoustic environment stem from our biological capa-

25 Schafer, *The New Soundscape*, p. 57.

26 In the 1980s and 1990s a growing interest in psychoacoustics appeared due to the development of cognitive sciences (research of Stephen McAdams, Albert Bregman, Stephen Handel). However, according to Barry Truax, psychoacoustic research is still mainly concerned with speech and music while environmental sounds are marginalized. Cf. Truax, *Soundscape, acoustic communication & environmental sound composition*.

27 Schafer, *The Soundscape*, pp. 152f.

28 *Ibid.*, p. 205.

29 Adams, *R. Murray Schafer*, p. 35.

cities. The human voice and the sounds produced by our bodies do not damage our ears. »God was a first-rate acoustical engineer«, comments Schafer. »The human anatomy, therefore, is the best machine we know and it ought to be our model in terms of engineering perfection.«³⁰

Due to the loss of energy typical of industrial noise and the increasing number of lo-fi soundscapes, contemporary man regards sound as a sign of life and activity. The organic metaphor of sound gains a new dimension, because silence is considered a threat to existence: »Man fears the absence of sound as he fears the absence of life. As the ultimate silence is death, it achieves its highest dignity in the memorial service.«³¹ Schafer contrasts the idea of »negative silence« with »positive silence«, which becomes a source of mental and spiritual calmness. This can be achieved by religious meditation or contemplative contact with nature. Positive silence is also embodied in the ancient concept of the music of the spheres.

The cosmologic hierarchy and vision of nature presented by the author can be associated, not only with the ancient concept of cosmic harmony, but also with Schafer's romantic inclinations. The notion of soundscape as »music of nature« refers to E. T. A. Hoffmann's ideas of nature as a respiring orchestral score.³²

Schafer's thought influenced many other composers, who started to record and gather sounds from various parts of the world. The participants of the *World Soundscape Project*³³, for instance, were often composers. Apart from their documentary activity, they soon began to process the recorded sounds with the use of electroacoustic techniques. The new genre which evolved from this activity is called soundscape composition. Soundscape compositions transform the recorded sound to varying degrees. However, according to Barry Truax, a distinctive feature of the new approach is that the original sounds remain recognizable and invoke the listener's contextual and symbolic associations.³⁴

3. Gérard Grisey and the Physiology of Sound

Psychoacoustic research, new recording techniques and the possibilities of sound manipulation have made composers more conscious and sensible to particular aspects of sound during the recent decades.

»In the 20th century numerous composers have made use of nature in its raw form, as musical material«, writes Pierre Albert Castanet. »However, in the early seventies a different aspect of nature – the organic, living, acoustic nature of sound – strongly influenced a few research-minded musicians.«³⁵ This statement refers to the group of French composers, including Gérard Grisey, who initiated a new approach, opposed to neo-serial techniques, according to which the musical construct should be derived from pre-existing parameters:

30 Schafer, *The Soundscape*, p. 207.

31 Ibid., p. 256.

32 Adams, *R. Murray Schafer*, p. 33.

33 Cf. <http://www.sfu.ca/~truax/wsp.html> (last access 23 July 2010).

34 Truax, *Soundscape Composition*.

35 Castanet, *Gérard Grisey*, p. 29.

From now on it is impossible to think of sounds as defined objects which are mutually interchangeable. They are alive like cells, with a birth, life and death, and above all tend towards a continual transformation of their own energy. There exists no sound which is static, immobile, any more than the rock strata of mountains are immobile.³⁶

The internal structure and internal development of a sound is revealed in the dynamic and complex model of the sound spectrum. This serves as the basis of a musical work, determining its temporal shape, harmony and orchestration. So-called »spectral music«³⁷ displays unstable, evolving acoustic forms which were earlier eliminated from European music. According to Hugues Dufourt, Grisey owes his interest in creative evolution to Henri Bergson: »Grisey values becoming, not forms. What counts, is the inner movement of the work. The forms are only places of passage, and what is important is the movement which traverses them.«³⁸

Philosophy was not the only inspiration for Grisey. He also was attached strongly to the old dream of art-science. Fascinated with scientific research, he made use of computer and electroacoustic tools. Angelo Orcalli notes that the new conception of sound material reflects the scientific conflict between mechanistic and organic visions of natural phenomena. Grisey's ideas are close to this kind of physics, which finds its terms

in the unitary global conception of the universe not as a machine but as a sort of invisible organism, and in the tendency to defer the explanation of the multiplicity of phenomena to a subjected spatial structure no longer a passive receptacle of corpuscles but pervaded by force fields.³⁹

However, the new kind of music cannot be limited to elaborated technical issues, as it is based on fundamental reflection on musical time and the limits of human perception. Consequently, the important manifestation of organic thought is evidently motion-oriented (Fig. 3).

»Real musical time is only a place of exchange and coincidence between an infinite number of different times.«⁴⁰ The idea of the multiplicity and exchange of times is clearly evoked in Grisey's carefully structured »anatomy of time«, consisting of three tissues. The *skeleton of time* (quantitative approach) covers the temporal divisions that the composer uses to organize sounds, the *flesh of time* (qualitative approach) includes phenomenological and psychological aspects of the musical work, the *skin of time* touches the private, unpredictable experience of the listener.

Temporal divisions have been of particular interest to contemporary composers. However, to quote Grisey's words, their speculative, mathematic divisions »became ridiculous when our elders ended up confusing the map with the lie of the land.«⁴¹

36 Grisey, *Tempus ex Machina*, p. 270.

37 For problems of terminology see: Lelong, *L'Œuvre*, p. 9–11.

38 »Grisey valorise le devenir, non les formes. Ce qui compte, c'est le mouvement intérieur de l'œuvre. Les formes ne sont que des lieux de passage et l'important est le mouvement qui les traverse.« (Dufourt, *Gérard Grisey*, p. 48, translated by the author.)

39 Orcalli, »*Durée Réelle*« and *Expansion of Tempo in Music*, p. 49.

40 Grisey, *Tempus ex Machina*, p. 274.

41 *Ibid.*, p. 240.

MACROPHONIC LEVEL
Anatomy
TIME IS AN ANIMAL
A SOUND IS A LIVING CELL

→ THE LEVEL OF PERCEPTION
Interaction
LISTENER'S ORGANISM
MUSIC IS AMNIOTIC FLUID /
MUSIC IS VACUUM



MICROPHONIC LEVEL
Physiology
SOUND IS AN ANIMAL
TIME IS ATMOSPHERE

Figure 3: Gérard Grisey: Sound as Organism – motion-oriented metaphor.

Grisey replaces arbitrary, dualistic categories with a scale of complexity. This reveals continuity and accounts for an important aspect of perception – predictability. The most ordered, predictable sonic phenomena are represented by periodic structures. The probabilistic distribution of durations placed at the opposite end of the scale makes any prediction impossible. Grisey also makes an important contribution to the notion of periodicity by introducing the concept of »fuzzy periodicity«, applied for the first time in *Périodes* (1974). This term describes periodic structures which are marked by slight fluctuations and resemble the rhythms of our heartbeat, breathing or footsteps.

Grisey is especially interested in the flesh of time, »where sounds, like living cells, will come to inhabit and envelop the temporal skeleton with their density and complexity«. ⁴² This qualitative approach is focussed on the *microphonic* structure of sound. It reminds one of the idea of temporal zoom, which reveals an important feature of our perception. The more attentively we listen, the more limited is our sense of time.⁴³ This also explains why, in Grisey's opinion, object and process are interchangeable: »The sound object is only a process which has been contracted, the process nothing more than a dilated sound object. Time is like the air that these two living organisms breathe at different altitudes.«⁴⁴ From the new temporal perspective, the small living cell becomes an animal and reveals all the details of its organism. Grisey, however, is more interested in »process« than »object«, and sound is therefore described in dynamic, physiological terms. Each sound, just like each living organism, is unique and can be adequately characterized only within the context of other sounds, in terms of their differences and similarities. That is why particular interest and research should be directed at the individual nature and diversity of sounds.

The temporal development of a single sound resembles birth, gradual growth and death. Such a single sound is also capable of reproduction. It can give birth to some

42 Ibid., p. 257.

43 Grisey, *Devenir du son*, p. 32.

44 Grisey, *Tempus ex Machina*, p. 271.

new forms derived from its internal structure. »It is sounds and their own materials which generate, through projections or inductions, new musical forms.«⁴⁵

The organic vision is marked by a particular tension when Grisey mentions the idea of musical form understood as a product of artificial transformations imposed on the nature of sound. Distorted, manipulated sound becomes the projection of our fantasies. Such procedures resemble vivisection or genetic manipulations which lead to terrifying, unexpected results. The conflict between »natural« and »artificial« can also be associated with the power of contemporary electroacoustic tools. However, this is neither clearly explained nor resolved. Grisey says only that the composer should respect the nature of sound and treat musical time as the atmosphere in which a sound breathes.

The skin of time is largely beyond the composer's control, as the listener always remains inaccessible and unpredictable. Grisey gives here only hints instead of any elaborated ideas. The listener's organism interacts with music due to its inner biological rhythms. As a result, music produces transfigured moments of time. In this interaction, a musical work can play different roles and provoke diverse responses, such as ecstasy, indifference or openness. Depending on our needs, music functions like amniotic fluid in which our inner emptiness finds its fulfilment. Or, when we are saturated and tired of our own physiological rhythms, it becomes a vacuum, the source of desired calm.

4. Conclusion

The metaphors used by Schaeffer, Schafer and Grisey appear as distinctive and essential elements of their theories. The concepts of object and organism, so common in everyday language, reveal their potential, evoke new expressions and describe new contexts.

Metaphors have the power to unite thought. As we can see, the above-mentioned concepts form carefully structured, multidimensional systems. These systems cover essential areas of the composers' reflection, such as the creative act, musical form and communication with the listener. Especially in the case of Schaeffer and Grisey, vivid images of a material object or a living being are intertwined with technical discourse. As a result, some of their sophisticated psychoacoustic ideas are easier to follow. The metaphors of sound shed new light on specific works and compositional procedures. They reveal an important part of the composers' creative imagination. Apart from manifesting individual preferences, these metaphors reflect the most important and current problems engendered by the musical culture of their times. They document changing attitudes to sound, to its environment and to technology.

45 Grisey, *Did You Say Spectral*, p. 2.

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