TOWARDS A HOLOPHONIC MUSICAL TEXTURE

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ABSTRACT

Since the Middle Ages to the present, the nature of musical texture in western music has developed from Monophony through Polyphony to Homophony. It has been continuously modified as a reaction to the need to redefine the structural formation of the overall sound of the music of each period. In the last century, musical texture looks as if it has no clear direction. For example, music today often can exhibit more than one type of texture at the same time; this is called mixed texture or open texture. A more recently introduced type of texture, first used by Ligeti in the 1960s, is micropolyphony. This paper will present recent theories and ideas about the layering of sounds and their relationships from eminent electroacoustic music composers whose work covers a wide range of different aesthetics, styles and directions. The concept of the sound object in Schaefferian theory will be considered, and Smalley's spectromorphological approach, as well as ideas of Risset and Xenakis. In addition, ideas on theoretical models on the fusion of sound objects and perceptual processes by McAdams and Bergman will be examined. A theoretical background to musical texture and its main types will also be presented. The aim of this paper is to introduce and define the terms Holophony and Holophonic musical texture as a possible type of musical texture of our time following the paradigms of Monophony, Polyphony and Homophony. The explanation of compositional methodologies and techniques, as well as the analysis of compositional examples that fall under the type of Holophonic texture, are beyond the scope of this paper.

1. INTRODUCTION

1.1. Definition of musical texture

The term *musical texture* is frequently used as analogous to visual and tactile texture
in a rather vague way in reference to the overall sound of a piece of music. Texture is, however, one of the basic elements of music. A search in a dictionary for the term 'texture' in music produces the simplest and most traditional definition, describing musical texture as determined by how many layers of sound there are in the composition and what the relationships of those sounds to each other are. According to D. Mitchell and J. Logan [2], texture in music describes two areas of musical phenomena:
1) melodic and harmonic relationships and,

2) the density of the simultaneous layering of different musical components.

1.2. Types of musical textures

Along with the general definitions of musical texture described in the previous paragraph, there are more precise terms that describe the number of melodic lines and the relationships between them. Western musical development has produced three principal types of musical texture'):
- *Monophonic texture*, music with just one voice;
- *Polyphonic texture*, music whose texture is formed by the interweaving of several melodic lines which lines are independent but sound together harmonically; and
- *Homophonic texture*, music which comprises a melodic line with chordal accompaniment [10].

1.3. Etymology

All these terms of musical texture have very straightforward literal meanings. The etymology for each type is derived from the combination of the root, *phonic* which means sound and the prefixes, *mono*, *poly* or *homo*, which have a precise quantitative meaning, denoting *single*, *multiple* or *matching*.

In electroacoustic music, *texture* is a highly useful term, particularly in describing the character of a sound or a group of sounds and their various structural levels, as well as their overall behaviour and their internal details and patternings.

A brief presentation of theoretical models and formulations of electroacoustic music and research over the last 50 years shows evidences that the language of electroacoustic music contains unified and generalised formal elements of sound morphology and structure regardless of style, genre, time and place.

2. OVERVIEW

During recent years, the language of electroacoustic music, developed by means of music technology along with research in the fields of music perception and cognition, has made a significant contribution to the further refinement of the musical elements. With the emphasis on the musical element of *texture*, several theoretical and analytical approaches to electroacoustic music and psychoacoustics will be presented. These approaches reflect the need to define a new lexicon for describing simultaneous sonic phenomena.

2.1. The composer

Pierre Schaeffer, in his book *Traitè des Objects Musicaux* on 1966, built up a theoretical framework within which he discussed fundamental methodological and terminological issues of electroacoustic music composition. In Schaefferian theory, the definition of *sound object* refers to any sound phenomenon and event perceived as a whole, as a coherent entity [7]. Twenty years later, Denis Smalley's examination of the same issue proposed a systematic re-formulation and enlargement of Schaeffer's affirmations, preserving some of their original characteristics and conferring generality on many aspects. Smalley introduced the term *integration* which, from a theoretical point of view, possesses a spectral and a morphological dimension. He defined the term *integration* as a sonic physiognomy within which the distribution of spectral components or subgroups of components in spectral space, and their behaviour over time, should not be perceived as independent entities [9]. To that extent Jean-Claude Risset uses the term *spectral fusion* to describe the quality of sound consisting of a number of integrated components into a single sonic entity that is attributed to a single real or imagined source [6]. In the programme notes for *Pithoprakta* (1955-56), Iannis Xenakis wrote that the individual sounds lose their individual importance to the benefit of the whole and are perceived as a block, in its totality [11].

2.2. The scientist

In the field of psychoacoustics, music perception and cognition, Stephen McAdams formulated the concepts of *fusion* and *fission*, and provided theoretical models of perceptual and aesthetical processes. According to McAdams, a sonic event can be at one moment the focal point for a listener, while at another moment it can become part of a compound sound in which the initial sonic qualities lose their individual identity and contribute to the creation of a more embracing sound image [4]. Albert Bergman, in his *auditory stream formation* theory concerning simultaneous sonic events, has suggested that different sounds are extracted by the listener according to various perceptual and cognitive organisational mechanisms from the superimposed acoustic vibrations [1].

3. DEFINITION

In order to put the above notions under an umbrella term that determines a general aesthetical and musical approach, I propose the new term of *Holophony*.[1] This is considered as the next stage in the evolution of musical texture following the paradigms of Monophony, Polyphony and Homophony.

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[1] Holophony as a musical texture is not related to holophony as an acoustic equivalent of holography, which reproduces a sound field in space from a surface recording [5].

The word Holophony is derived from the Greek word *holos*, which means 'whole/ entire', and the word *phone*, which means 'sound/ voice'. In other words, each independent *phone* (sound) contributes to the synthesis of the *holos* (whole).

Thus, Holophonic musical texture is best perceived as the synthesis of simultaneous sound streams into a coherent whole with internal components and focal points. The *Homophonic music* is music whose texture is formed by the fusion of several sound entities which lose their identity and independence in order to contribute to the synthesis of a whole. This musical texture aims to create a musical context with various morphoplastic qualities through the process of morphopoiesis.[2]

Period	Graphic representation	Type of Texture
400 - 1450		Monophonic Texture
1450-1750		Polyphonic Texture
1750-1950		Homophonic Texture
1950-		Holophonic Texture

Figure 1. The evolution of musical texture from Middle Ages to the present

4. FURTHER REMARKS

4.1. Graphic representation

The graphic representations shown as Figure 1 could be seen as a part of an electroacoustic score, and this is not accidental. Electroacoustic scores usually show information about the texture and its changes over time. Alternatively, the middle column in Figure 1 illustrates how the different textures are traditionally constructed, but also shows the continuous accumulation of layers over the succession of periods. This is a continuous reformation which, with each development, requires different ways of listening to and understanding music. In each period the focus of attention, not only for the composer but also for the performer and for the listener, differs. In monophony, with only one voice, the listener's attention is focused solely on a single melodic line. In polyphony, the listener follows the melodic activity from one voice to another and, later, in homophony, which has a melody with chordal

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[2] Biological self-assembly, here the term implies the intention to see the development of musical/ sonic structures as they are formed.

accompaniment, the listener focuses on the melody in the predominant voice. According to my proposal, in the next stage, termed *holophony*, the listener focuses on the synthesis of the simultaneously-layered sound streams and their morphopoiesis over time.

The focus of the listener shifts in and out from one layer to another or from one group of layers to another. However, overloading the structure with too many layers could produce chaos, whereas too few or too contrasting layers could move the perceptual interest away from the intrinsic elements of the sound, or could limit the potential for further development.

4.2. Date

The year 1950 (Figure 1) is proposed as the symbolic start of the holophonic texture in music. After the Second World War and around 1950, the Darmstadt school started to play a prominent role on the international avant-garde music scene, and a period of great experimentalism in the USA began to break the previously unchallenged traditions and to determine new musical values. It was the time of premières of pieces of 'musique concrète' and 'Elektronische Musik' in Paris and in Cologne respectively, as well as of the appearance of theoretical writings such as *A la Recherche d'une Musique Concrète* by P. Schaeffer [8]. At the end of the decade came the invention of the transistor, which opened new possibilities for electroacoustic music and for the manipulation of sound itself.

However, the year 1950 doesn't imply a sudden turn in the evolution of musical texture. This is a moment which *Holophonic* musical thought begins to be identifiable and certainly it coexists along with previous textures as mixtures, hybrids or independently. Moreover, within the continuous evolution of musical texture there are certain periods or even compositions where there is not a clearly identifiable musical texture. Composers like Igor Stravinsky or Charles Ives could belong to this case although they are both of the most original and independent figures if the 20th century.

5. CONCLUSION

The fine balance and the crystallisation of holophonic writing are still under development and research both by composers and by theorists. With about 50 years behind, perhaps the type of Holophonic texture is still in its infancy, yet enough to be recognized and understood. The contribution of music technology, with its developing compositional applications, will continue to play a catalytic role in the further development of holophonic strategies in musical composition. In addition, the research field of psychoacoustics will study further areas in the perception and cognition of music and sound.

I believe that the proposition of the term *Holophony*, as a new type of musical texture, embraces a broad spectrum of musical directions of today's electroacoustic music as well as instrumental music. It provides a new concept for describing, analysing, understanding, experiencing and making music.

6. REFERENCES

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