The Sounding Distance Sensation and Its Signification of Artistic Representation

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Abstract

From the point of the feature of the sounding distance sensation and its expressive significance, the treatise expatiates on its cause of formation, the feasibility of the application in the music creation, sum-up the writer's cognition of the sound distance sensation and its expressive significance. To proposal the concept of the sounding distance sensation is for appreciation of the aesthetic distance in the electronic music from the new angle of view.

Introduction

In computer music, it is usually to put the different kinds of sound materials coequally, such as tone, musique concrete, and unnatural electronic sound together in one work. That the sound materials are different from ones before and their acoustics relationship is, of course, different from the past; and the new relation must create the individual music process. It is the subject of my treatise that how to deal with the process in creation and how to experience the process during appreciation.

In "sound-type" music works, both the harmonic tonality and the rhythmic beat, which attached to the relation of the pitch and time, lose their important position and the significance as usual, and their function will be in effect in a far-ranging definition. The other relations of the sound materials are not to be sneezed at the music expressive significance. In this treatise with a certain of relationships, I will discuss the "distance sensation" of sounding and its artistic representative significance.

The distance sensation of sounding here means sound distance to human's perception, or the degrees of the close or distant in one word.

1. The foundation of Distance sensation of Sounding

1. Various Sounding Body

Sounding body refers to the object that making the sound. The different sounding body can make different tone qualities. The sounding body can classify several kinds: human voice, musical instruments, nature sound and electronic timbre. The distinct timbre made by various sounding bodies can form the discrepant distance sensations.

2. Different Environments of Sounding Source

The environments of sounding source refer to the specific site in which the sound made. Person will usually feel kindliness to the sound made in the familiar environment and strangeness to the one made in the unfamiliar. So, that it builds up the diversity of sound distance.

3. Different Methods of Sounding

For instruments, generally, the method of sounding refers to the different playing ways. With various playing tools and selection the different playing position, it will sound various effects on the same body (instrument). On the same instrument, the regular performing way we feel the close sensation to while the modern one far away.

As a special instance, the sounding method shall include the various modulation ways. The main reason for that is in computer music a lot of sound made by electronic modulation. The various modulation ways will make various sounding effects, and the different sounding result will build up the different distance sensation.

Even there is multi-way to modify the sounding, but the main modulation is in three aspects: the pitch, timbre and
volume. With three aspects, each modulation way can make sounding either in common state or uncommon one, and they will discuss separately as follow:

1. Envelope

To the pitch, the envelope can make the pitch of sound source changing in the irregular way, so that to change the distance sensation.

To the timbre, the modulation of the envelope makes the sound color itself changing between the bright and the dark, so that to fulfil the purpose of changing the timbre distance sensation of the sound.

To the volume, the modulation of the envelope makes the sound changing between the loud and soft. The human’s ear will be familiar if the sound volume changing in the standard degrees. The cresendo and diminuendo that to be used frequently, for example, is made by changing volume in a certain degrees. This is the close-distance changing. If changing the volume of sound over the normal envelope degrees, it will make the sound in an irregular state, so that the distance sensation of the sound will come along.

2. Low-Frequency Oscillation

The low frequency oscillating is a periodical movement in low frequency. It can be used as a means to control the sound diversification and effect either simultaneously or separately on the pitch, color and volume. Through the oscillating frequency, it can make those three factors of the sound diversification periodical. Of cause, this kind of periodical diversification possesses the regular and irregular state, to make sounding in different distance sensation.

(Please listen a piece of the sound example)

Low frequency oscillating controls the pitch diversification

Low frequency oscillating controls the color diversification

(depth=38, delay=97, wave: triangle, rate=60)

It has to point out particularly that the various frequency and the amplitude of the low frequency oscillating can be simultaneously used to control the pitch, color and the volume separately, to changing the whole sounding more complicated.

3. Phase-Interference

The Phase-Interference is to make the sound with fantasy timbre diversification by mainly usage of the same sounding signal in the phases differential. There are two kinds of the phase interference: the static state and the dynamic state. Generally, the result of the sound by static state is in the range of human’s hearing habit, the distance sensation is not too far from us. But for dynamic state, since the phase differential not the same in each instant, and the velocity of the phase differential also variety, so the result of the sound is sensuously drifting, the distance sensation is relative far from us.

4. Reform the Sounding Waveform

All of the sound modulation method above is to shift the waveform from the regular state to the irregular one by the usage of the “outside force”. Undoubtedly, it can be done from inner to transform directly the waveform itself. The main ways include 1) clipping, 2) retrograde, 3) extension and compression.

With a relative relationship, the changed waveform can be used with the original one to present the sounding distance sensation in a clear, logical way.

4. The Nature of Distance Sensation of Sounding

The nature of distance sensation refers to the real distance sense of the sound. Though in the computer music the
so-called “nature of distance sensation” is a dummy one through the electronic means, but it is indeed the simulation to the nature environment.

II. The Feasibility for Distance sensation of Sounding as the Music Element

I. The Forming of Thematic Distance Sensation

1. The continuation of the similar distance sensation

It refers to the different sounding materials of the theme with the similar sound distance sensation.

2. The contrast of the various distance sensation

That means the different sounding materials of the theme with the different sound distance sensation. It can be built up the contrast theme through the combination of the familiar violin sound and the singular prepared piano sound.

3. The graduated diversification of the distance sensation

It is a kind of process that the sound materials of the theme transformation gradually either from far to near or the contrariwise. Generally, these kind of thematic sound materials have a certain relative relationship, possess some common acoustic features, and the distance diversification is based on the connection.

These three methods of the Forming of Thematic Distance Sensation can be used together. For example, we can choose two sounding materials of far distance sensation to build up the contrast, and meanwhile, to make the graduated diversification of the distance sensation.

II. The Developing and Varying Feasibility of Distance Sensation During the Music Processing

1. Radial Type

This type is to use the method of the graduated diversification making the thematic sound materials to achieve another distance sensation either closer or far away. (from far to close)

2. Leap Type

That means the distance sensation of the thematic sound materials transformation suddenly either to the far or the close distance sensation. Undoubtedly, the precondition of the usage is that the sound materials on the beginning and the end of the leaping should have relative relationship, otherwise, no development in it at all.

3. Centrifugal Type

It is a graduated diversification process that from a point of the distance sensation, the thematic sound materials dilate to a pole either far or lose. It is a transformation process from the single distance sensation to the multi-pole one in the most cases.

4. Centripetal Type

A reversion of the centrifugal type that from the multi-pole sensation to a single one in general cases. It is a graduated diversification process of the shrinking distance sensation.

5. Surround Type

With one of the distance sensations as the base, the sound materials move surrounding it continuously in developing process.

6. Straight Type
It is a special instance of the distance sensation development that the sound materials keep on the same or approximate same distance sensation in the developing process.

These types can be used in commixing way, such as centrifugal-surround type, centripetal-surround type, leap-straight type, leap-centrifugal type, and etc. To use which one developing methods should meet the needs of composer’s contents of expression in music works.

III. The Artistic Represented Signification of the Sounding Distance Sensation

Since the other factors like pitch, beat, harmonica tonality weakened the distance sensation of the sound materials also has the artistic represented signification to a certain extent in “sound-type” music works.

1. The radial transformation of the sound distance sensation can be usually associated with a process that something either fade away or come close to us. So it fully represent the continuity of the timing-space.

2. The leap development of the sound distance sensation can express the features such as a big span of the timing-space, the multi-aspects of the thing and the pictures of the montage.

3. The artistic represented signification of the sounding distance sensation for both the centrifugal and the centripetal development is to show a process that single one gradually fission and evolvement to another multiple-state, or reversely, a process that multiplicity object keeps on cohesion and harmony to unify.

4. For the surround type of the sound distance sensation, the significance is embodied on the object’s essence unchangeable no matter how various developments going on.

5. The straight method of the sound distance sensation represents the stable state of the object.

6. The multi combination method of the development types build up the contrast complexity of the sound distance sensation. The different combination possesses the different expressive significance.

Thus it can be seen that the sounding distance sensation as one of the musical expression actors possesses a certain artistic expressive significance in some music works. Even to each apperceived individual, the sounding distance sensation is quite different, but its aesthetic idea will have general signification. Mr. James Cameron, a well-known director once made a comment about the music of the TITANIC, he said that “It deftly leaps from intimacy to grandeur, from joy to heart-wrenching sadness and across the full emotional spectrum of the film while maintaining a stylistic and thematic unity. The music spans time, making immediate the actions and feelings of 85 years ago with full emotional resonance...” From these words we can see that in the music of TITANIC, various ways to be used to build up the distance sensation. It is easy comprehension how the distance sensation forming if just to recall the composer’s usage of the Scottish bagpipe, the symphonic orchestra and the electronic synthesize sound.

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