

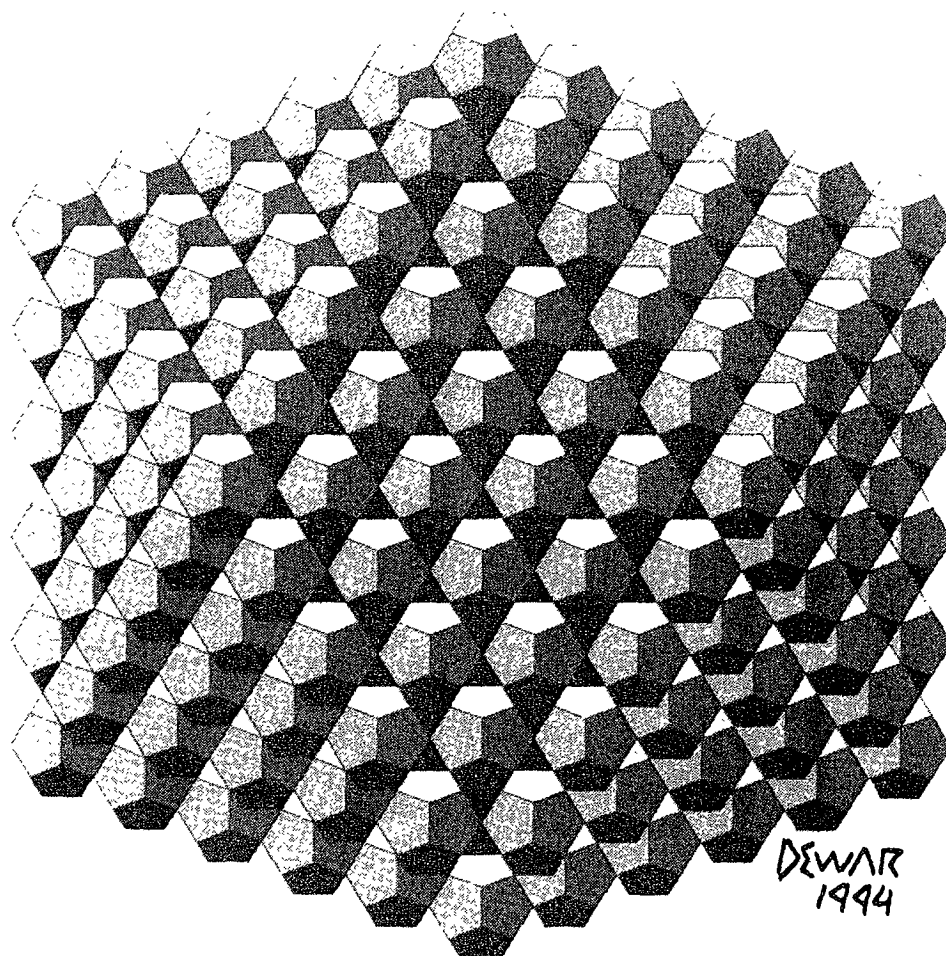
Symmetry: Culture and Science

Symmetry:
Natural and Artificial, 3

The Quarterly of the
International Society for the
Interdisciplinary Study of Symmetry
(ISIS-Symmetry)

Editors:
György Darvas and Dénes Nagy

Volume 6, Number 3, 1995



Third Interdisciplinary Symmetry Congress and Exhibition
Washington, D.C., U.S.A. August 14 - 20, 1995

SIMMETRY IN MUSIC AS PERSONAL EXPRESSION

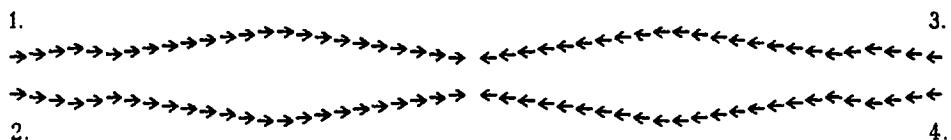
Vladimir Tošić

Faculty of music art, University in Belgrade
Srpskih vladara 50, 11000 Belgrade, Yugoslavia

It is not my intention to give in this essay a general systematization of music symmetry, but this is just an attempt to show, through this completely personal way of applying symmetry in music, that symmetry can be one significant constitutive element in the creation of music. As symmetry has been an extremely important method used in most of my compositions, almost a *conditio sine qua non*, I therefore believe that the way I use it in my music might be a useful illustration of how symmetry is used in one artistic context.

Although I present here my personal artistic attitude, it is certainly not without its roots. Quite contrary, it is a certain continuation of a number of previous applications of symmetry in music and thus it represents an uninterrupted flow of that kind of musical thought throughout a long period of time.

Theoretically, the melodic line, having been an essential constitutive element in music for a long time, can appear in its four symmetrical aspects: basic, inverse (reflection towards the horizontal axis), retrograde (reflection towards the vertical axis) and retrograde-inverse (reflection towards both axes). In addition to that, the basic aspect of melody itself sometimes can be symmetrical.



The proof that this is not only a theory but a kind of artistic necessity is a tendency to use symmetry in music which has lasted, in greater or lesser degree, for centuries. In the Renaissance period the basic melody (*floridus*) was developed in terms of a symmetrical arc and also its inversion and retrogradation were often used.

These techniques, adapted to tonality, were also used in the Baroque period.

In the Classical period symmetry appeared, mostly on its macro-level, that of the form. The examples of these are the forms of a sonata, rondo, three-part song *aba* and *ABA* etc.

In harmonic-tonal respect there is symmetry in scales—the relation between lower and upper tetrachord, chords—diminished, augmented..., in the relations of scale chords towards the tonic ones—dominant and subdominant, lower and upper mediant... etc. It is therefore to remember that tritone, the interval which is crucial for the kinetics of tonality, divides the octave into two symmetrical parts.

As for newer music, dodecaphony is based almost exclusively on the use of all four symmetrical aspects of the series, towards both the horizontal and vertical axes, which are at the same time the whole material used for the creation of music.

As we can see the use of symmetry in art music is not in any way accidental but it has existed for centuries as one significant element in the creation of inner basis as well as the overt layout of compositions.

* * *

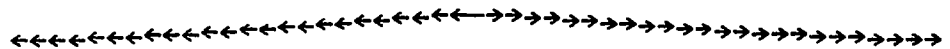
As a composer I have used symmetry as one very important artistic treatment since the very beginning of my composing, at first spontaneously and later on quite intentionally. Thus I have gradually developed several typical methods for using symmetry in music making:

1. Total symmetry towards the vertical time axis

In this case the composition has an arc created by the gradual increase of tension up to the centre and then by symmetrical falling back to the initial core. This is achieved by different means: diminution of note values, gradual adding of new melodic tones, thickening of harmony, laying out of new materials, colours etc. This is the time symmetry because we experience it retrospectively. Naturally, it is totally visual in the notation, but it is experienced retrospectively because music is so called time art.

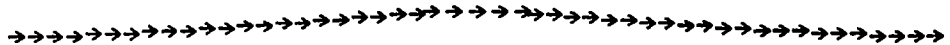
Such compositions can be symmetrical in every detail:

symmetric music cisum cirtemmys



Or they can be symmetrical in regard to the sequence of form elements:

symmetric music music symmetric



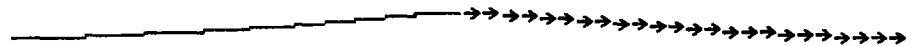
The group of symmetrical compositions composed in this way includes *DURATION* for string orchestra, the piece completely symmetrical-retrograde, in the arrangement of all notes as well as in the reverse relation of intensities-crescendo of certain notes in the first part corresponds with decrescendo in the second. Other pieces are *DIFI FUSION* for two pianos, *DIFI FUSION* for guitar and *CHROMOSERIES* for four keyboards consisting of eight melodic models each, that are played in the reverse order from the centre (the direction of playing still being the same, always from the left to the right). For example, if we indicate the models with numbers, we will have the symmetrical relation of the segments as follows:

1 2 3 4 5 6 7 8 7 6 5 4 3 2 1

2. Altered symmetry towards the vertical time axis

In this case the composition sounds symmetrical globally, only that from its centre the formal decrescendo is achieved by slightly altered models of the first part, or by new models, during which, just as in the first case we experience this symmetry retrospectively:

symetric music *music symetric*



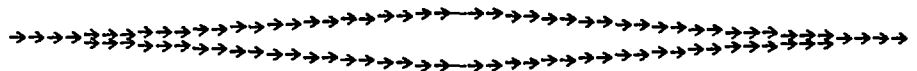
This group includes two compositions: *ARIOS*, for choir or strings, and *ALLUDIUM* for piano; both can be illustrated like this:

1 2 3 4 5 6 7 8 7 6 5 4 3 2 1

3. Symmetry towards the horizontal axis

In this kind of symmetry there is a tone (which is the axis of reflection) in relation to which the bass and discant structures are symmetrical-inverse, and at the same time at that. That is why this kind of symmetry, unlike the first two, is experienced while listening, instantaneously.

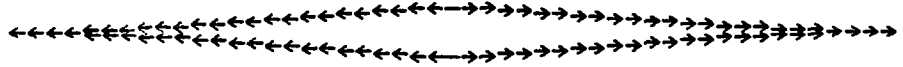
FISSION for piano is an example of such a composition in which the left and right hand parts, the bass and discant lines are symmetrical to the tone c_1 .



4. Symmetry towards the horizontal and vertical axes

This is in fact the combination of the first and third group having symmetry towards both horizontal and vertical axes.

An example for this kind of symmetry is the piece *MELANGE* consisting of four parts that are symmetrical towards the horizontal axis—i.e. simultaneously, as well as towards the vertical axis—i.e. retrospectively, so that it can virtually be played in a retrograde manner from the end towards its beginning.

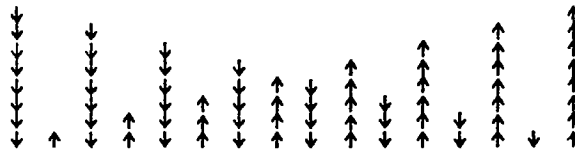


5. Black-white symmetry

In this case the composition is asymmetrical as regards the sound, for it has an one-way tension crescendo from beginning to the end. There is, however, a reverse process in the sequence and duration of pauses and notes, silence and sound, so that symmetry is reflected in the relation of sound and silence. At the beginning, in the model, there are eight notes without any pause, then seven notes with one pause and in the end quite opposite, seven pauses with one note:

8-0 7-1 6-2 5-3 4-4 3-5 2-6 1-7 (0-8)

The examples of this kind of symmetry are the compositions *FUSION* for chamber ensemble, *FUSION* for eight gongs or cymbals, *FUSION* for eight walkers and *FUSION* for flute.



All these above-mentioned symmetries could be combined to create rather more complex compositions.

Thus, apart from these clearly symmetrical aspects noticeable at first sight, the opus of my works includes a number of pieces which are not overtly symmetrical, but symmetry appears within the form so that certain sections are symmetrical in one of the above-mentioned ways. For example, *INIDIPENDENCE* for piano as a whole contains altered symmetry but the central section is totally symmetrical. The composition *VARIAL* and *RETUDE* for piano, as well as some others, are asymmetrical when taken globally but still there appear some smaller or bigger symmetrical sections in them.

Given all this, it is quite obvious that symmetry can be a very significant element in music creation, It certainly is in my musical opus which contains almost no composition that is not symmetrical in greater or lesser degree.