

## RESURRECTED SYMMETRIES OF J. S. BACH'S LAST FUGUE

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The Permutational Matrix in J. S. Bach's Art of Fugue, *Studia Musicologica* 33, 109–119. 1991.

A fuga művészete zárócontrapunctusának rekonstrukciója, *Bach Tanulmányok* 2, 1993.

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J. S. Bach: *Contrapunctus 14* from The Art of Fugue BWV 1080:19 (reconstructed by Z. Göncz) – Zsigmond Szathmáry plays J. S. Bach's organ works, Compact Disk, RCA: VCC-31076. 2004.

J. S. Bach: *Fugue in C minor* BWV 562:2 (completed by Z. Göncz)

– score, notes and graphic chart: <http://www.bachorgan.com>

– performed by James Pressler: <http://www.virtuallybaroque.com/track710.htm>

**Abstract:** *Written in Bach's last years, The Art of Fugue trails off unfinished in the closing quadruple fugue, which would have crowned the work as well as his career. The Bachian fugue is nothing else but the many-sided and at the same time economic, concentrated elaboration of the contrapuntal combinations of the subjects and counter-subjects. In the case of the final Contrapunctus the possibilities are so determined, that the development and consummation of the musical material can take place in almost one way only and the process evolves almost automatically, "on its own". Considering the final Contrapunctus in the context of the whole cycle, it turns out that it contains almost all contrapuntal procedures applied in the earlier movements and thus sums up the cycle in a very concentrated form. From the completion, there unfold several phenomena of symmetry of both time and space, of which the permutational matrix is undoubtedly the most striking one. The highly organized musical material shows an exceptional arrangement in almost every aspect. Its crystallike construction develops organically and creates time, space and universe on its own.*

## 1 THE RECONSTRUCTION

During 1990–1992 I tried to reconstruct in full the fragmentary surviving final fugue of J. S. Bach's *The Art of Fugue* (Contrapunctus 14, BWV 1080:19).



Figure 1: The manuscript of the unfinished fugue (P 200, Beilage 3).

I aimed at keeping the reconstruction as close to the composer's original concept as possible. The most essential condition to achieve, that the work could come near to the original form planned by Bach, lay in the final item itself. From a certain point of the fugue onwards (the statement of the fourth subject), several theoretically equivalent and correct solutions could have been conceivable, considering the solutions of the other movements of the cycle. Owing to a strange stroke of luck, there appears a construction in this place of insecure formal branching off which has been unique in the history of music ever since, i.e. the permutational matrix which, apart from originating authentically with Bach, can be proved to have been ready at the time of the genesis of the work (that is, earlier than the surviving section).

In the course of continuation it meant considerable help that the fugue bears the extremely strict archaising features of *stile antico*, excluding thereby almost all non-thematic, non-organic elements and bringing the contrapuntal treatment into the focus, which appears in the movement more concentrated and complex than the oeuvre in general.

(The form of the multiple fugues / The form design of modulation / Interchanges of voices / The spacing)

## 1.1 Symmetries of the survived sections

Axial symmetry is a rare morphological feature of the lapidary first subject of the fugue. From the central fourth note onwards the melody consisting of seven notes repeats the first three notes in retrograde motion.



Figure 2: The first subject.

It is characteristic of all fugues of the cycle, thus also of the final Contrapunctus, that the entries of subjects are announced in the main key (D minor) and the key of the upper (A minor) and lower (G minor) fifth, respectively, and of the mediant keys (F major and B flat major). It is interesting to note that C major is the only one of these parallel major keys (i.e. the parallel key of A minor) not present, which is probably due to the prevalence of the principle of key symmetry.

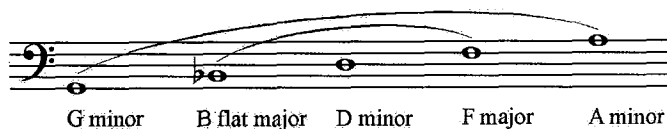


Figure 3: Key symmetry of the cycle.

## 1.2 The reconstructed sections

(The stretti of the subjects / The permutational matrix / The inversion matrix)

## 2 ANALYSIS OF THE RECONSTRUCTED FUGUE

### 2.1 Symmetries of the reconstructed fugue

In connection with the phenomena of symmetry of the reconstructed fugue it is important to emphasize that they have not been sought for during the course of reconstruction and that they were discovered as such by-products, "by chance". It is, of

course, out of place to speak of chance with such highly organized musical material. Much rather we should speak of some kind of specific organization or system which the musical material displays from almost every aspect.

In the relationship of the permutational matrix and inversion matrix, a complicated achievement of the inversion symmetry can be seen.

A symmetry of a different kind comes into being by the peculiar role the first subject plays. The symmetry inherent “on the level of atoms” in the subject that starts the fugue extends its effect over ever larger units of the movement until it embraces the complete universe of the composition from beginning to end. The beginning and the end, the alpha and omega, merge into one.

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