



Hermeneutics of Bach

Research and research results by Christoph Bossert

Feature 12

Identical numerical findings in a comparison of WK I and *Kunst der Fuge*

Hermeneutics
instructional video in 12
features
with
Prof. Dr h. c. Christoph Bossert
on the Klais organ (2016) in the Great Hall of the
Würzburg University of Music

A production of the third-party funded project *Digitalisation, Networking and Mediation in the Teaching of International Organ Art* (DVVLIO) at the Würzburg University of Music 2021-2024.

The project is funded by the Foundation for *Innovation in University Teaching*. Project objective: Development of a digital organ teaching library

©Christoph Bossert 2024

Table of contents

Feature 1

Introductory thoughts
Pièce d'Orgue BWV 572

Feature 2

The question of authorship: Are the 36 chorales attributed to Bach in the Neumeister collection actually by Bach?
Response: *The Well-Tempered Clavier* I, Praeludium in B flat major BWV 866 and the chorale prelude No. 32 *Alle Menschen müssen sterben* BWV 1117 of the 36 chorales

Feature 3

Indications of a symmetrical construction of the 36 chorales - Indication
1 No. 1 *Der Tag, der ist so freudenreich* BWV 719
No. 26 *Nun lasst uns den Leib begraben* BWV 1111
No. 11 *Aus tiefer Not schrei ich zu dir* BWV 1099
No. 36 *Christ, der du bist der helle Tag* 1120

Feature 4

The symmetrical construction of the 36 chorales - indication 2

Feature 5

Transition from end to new beginning -- Beginning and end of a piece - Indications
3-4 Indication 3 (a): Chorales Nos. 1, 2 and 34
Indication 3 (b): The chorales no. 3, 35 and 36
Indication 4: The chorales no. 4 and no. 33
Conclusio and definitions of terms

Feature 6

My concept of 'work unit' using the example of *Das Wohltemperirte Clavier* I, Fuga in A minor and its 118th bar half in the course of the 22nd theme performance as a *great challenge*

Feature 7

The path of hermeneutics as a path of enlightenment - 10 examples of the "*step beyond*"

Feature 8

Musical perception: What numbers can *tell us*

Feature 9

The biblical foundation: Psalm 119 as an acrostic of the 22 letters of the Hebrew alphabet

Feature 10

Personal figures

Feature 11

Further discussion on numbers -- the biblical number 153 compared to $351 = \sum_{n=1}^{26} 1+2+n+26$;
26 as the numerical value of the tetragrammaton YHWH

Feature 12

Identical numerical findings in a comparison of WK I and *Kunst der Fuge*

Feature 12

Identical numerical findings in a comparison of WK I and "The Art of Fugue"¹

Moving on to Feature 12, I would like to point out, based on the numbers 153 and 119, that there is the same numerical finding both in the *Well-Tempered Clavier* I and in the *Art of Fugue*. The numerical facts that I would now like to present are as follows:

The *Wohltemperirte Clavier I* has a total number of 2135 bars, which can be divided into 153×8 bars plus 911 bars; this is exactly the same finding in the *Art of Fugue*: The undeniably completed pieces of the *Art of Fugue* count exactly as many bars as the *Wohltemperirte Clavier I*, namely 2135 bars. The division into 153×8 bars on the one hand and 911 bars on the other is also absolutely evident in the *Art of Fugue*: *Contrapuncti* 1-11 count 153×8 bars, all subsequent pieces up to the unfinished final fugue count 911 bars. Excluded from this calculation - with a question mark - is piece 14 "Contrap."

Thus, for the *Art of Fugue*, the finding $153 \times 8 + 911 = 2135$ is completely open and clear. Before I explain how I arrive at the same numerical finding for Bach's *Wohltemperirte Clavier I*, I would like to ask: What characterises the pieces that come after *Contrapuncti* 1-11? They all have to do eminently with inversion. For the mirror fugues *Contrapunctus 12 a, b* and *Contrapunctus 13 a, b*, this is absolutely evident. The whole movement is reversed, so to speak, into its mirror image. This also applies to the four-part elaboration of *Contrapuncti 13 a, b* as *Contrapuncti 13 c, d*. In the canons in between, which are framed by *Contrapuncti 13 a* and *b* and *Contrapuncti 13 c* and *d*, it is the mode in *Canon I, In contrario Motu per Augmentationem*, in *Canon II* as well. There the *Soggetto* appears in the *Rectus* and also in the *Inversus*. However, *Canon III* and *IV* do not make use of the reversal of the theme.

But the meaning is reversed: in *Canon III*, shortly before the end, there is an elementary break from triple time to quadruple time and the behaviour of the bars that follow is completely different. The cut is between bars 78 and 79 - an elementary upheaval occurs. In the following bar 80, we experience the subject's crab form: the subject itself shrinks to the length of a half-note, however, and then the *cadenza* is located in bar 81.

NB 1



1 This work is commonly known as the "Art of the Fugue". The title "The Art of the Fugue" is documented by the signature #D-B Mus.ms. Bach P 200 [scribe: J. S. Bach, endpapers and the title: J. C. Altnickol]. The following numerical finding is noteworthy: *Die* (4+9+5=18) + *Kunst* (10+20+13+18+19=80) + *der* (4+5+17=26) + *Fuga* (6+20+7+1=34), i.e. 18+80+26+34 = 158; 158 is the numerical value of the signature "Johann Sebastian Bach".

In this *cadenza*, everything that was previously set is reversed: previously, everything was laid down by the composer in a contrapuntal manner. Now, however, the performer is supposed to fantasise in some way in the *cadenza*. Thus, various upheavals and points of reversal on a spiritual level characterise the conclusion of *Canon III*.

What is the moment of upheaval or reversal in *Canon IV*?

In order to be able to make a statement on this, one must be very deeply immersed in the material. It can be observed that in the *art of the fugue there are* very specific occurrences of the inversion form of the main oggee, which are initially characterised as a regular inversion that sounds on the fifth degree - i.e. from D minor to A minor. It does not correspond to the rule when such an inversion of the main oggetto begins as a comas figure but does not end in comas form, but in dux form. We find this special form of subject inversion in 14 places in the course of the *Art of Fugue*.² The first such figure is heard in *Contrapunctus 3* in bars 29 ff. in the tenor:

NB 2



Now, in *Canon IV*, we also experience that the theme has precisely these characteristics, but not as an inversion but as a *rectus*. And that means: *instead of* the inversion figure, which is subject to these special conditions, we now experience the same conditions in the *rectus* from bar 9 onwards.

NB 3



Further explanations would be necessary here, as what I have to say about this leads to the core of my actual theory of Bach.

2 This special kind of inversion as a comma with a dux ending produces the following forms on the basis of the melodic inversion points on the notes a, f', c' - b and e' followed by the new note a:

a) Re - Fa - Fa Mi - La - Re in the comparison of a - f - c h - e - a and a - c - c h - e - a, so that the reference to Frescobaldi's enigmatic *ricercar* results from this;

b) a - f - c - h - e - a leads to 1 - 6 - 3 - 8 - 5 - 1 [16 × 3851 = 61616; but that's another big story ...]

It is now largely evident that the 911 bars, which begin from *Contrapunctus 12a* and extend up to the unfinished final fugue, are characterised by inversion. This is exactly what the findings in the *Well-Tempered Clavier I* reveal:


So if its 2135 bars are divided into 153×8 plus 911 bars, then these 911 bars are dedicated to the inversion of 'something'.

Firstly, the figures:

- 153 The number 153 itself is characterised by reversal, as it is the mirror number of 351, which is the sum of the numbers 1-26, i.e. $1 + 2 + 3 + \dots + 26$. In the Hebrew alphabet, the number 26 is the numerical value of the name of God YHWH ($5 + 6 + 5 + 10$). The name of God is therefore reflected in 153.
- 8 The number 8 is in itself the mirror number par excellence. It is invariant in itself. As a horizontal eight, it symbolises infinity (see: 153×8).
- 911 is therefore the reflection of the number 119: 911 becomes 119. The number 119 is the reference of the longest psalm in the Bible. This psalm stands for the Word of God in the fullness of the 22 Hebrew letters, as explained in detail in Feature 9.³

Now follows a challenging endeavour to prove the number 911 in the *Well-Tempered Clavier I*. I arrive at the number 911 bars if I consider all the fugues that are connected with inversion and if I relate the symmetrical counterparts to them. This gives a total of 911 bars. Which fugues are in inversion?

These are the fugues in D minor, D sharp minor, F sharp minor, G major, G sharp minor, A minor, B flat major, B flat major and C sharp minor, i.e. a

Construct from the following process: 

It makes no particular sense to me - at first! - no particular sense. Why do I include Fuga in C sharp minor?

The reason for this is bars 41 to 44, where, and only there, the Soggetto II is reversed. Soggetto II, which consists of an incessantly descending sequence, reads:

NB 4a [Soggetto II] 

Let us listen to this from bar 41 alone and in unison with all the voices:

NB 4b 

This is followed by further appearances of Soggetto I and Soggetto II. These bars contain the only inversion that is completed in Fuga in C sharp minor, which is why it occupies an exceptional position. However, the process of a path upwards in the chromaticism, starting from bar 41, is very thought-provoking: the number

³ Psalm 119 is divided into $22 \times 8 = 176$ verses. By stating "*I am like a stray and lost sheep*" in verse 176, this is the antithesis = reversal of everything that the 175 preceding verses say.

41 is the number that leaves the number 40 behind. From there, the number 41 is understood as the breakthrough towards resurrection. And it is precisely in this sense that the *passage duriusculus*⁴ which symbolises Jesus' path of suffering, is now reversed. I would like to understand this as the *sign of the resurrection*. Thus Fuga in C sharp minor is included in this group of nine fugues in inversion.

How can I explain the other fundamental tones? The explanatory model arises - and this is now cause for amazement - from Fuga G sharp minor:

NB 5a

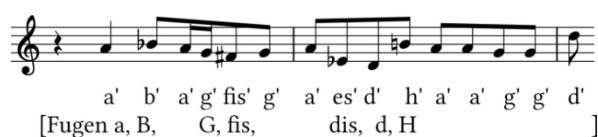


If we look at all the notes of this theme that we have just heard, we can see that - with the one exception of the Fuga in C sharp minor - all the inversion fugues and their root notes are part of this fugue theme of the Fuga in G sharp minor. And Fuga g sharp minor is itself an inversion fugue.

We have the fugues in G sharp minor, G major, B flat major and B major, the fugues in D minor and D sharp minor and the fuga in F sharp minor as inversion fugues. And it is precisely these notes *g sharp*, *g = f sharp*, *b = a sharp*, *d = d sharp*, *d sharp* and *f sharp* that are heard one after the other in the Soggetto of the Fuga in G sharp minor. BUT: Only perhaps the most important inversion fugue of the *Well-Tempered Clavier* I, namely Fuga in A minor, is not part of the construct!

Now follows an adventurous next step. Starting from the note *a*, I now perform the inversion of the theme of the fugue in G sharp minor. It reads:

NB 5b



Now I compare this model, which begins on the note *A*, with the basic notes of the inversion fugues: A minor is present, as are B flat major, G major, F sharp minor, D sharp minor, D minor and B major. The inverted fugue from which we derive the model, namely the fugue in G sharp minor, is now not part of the construct.

Conclusio:

We will leave out the Fuga in C sharp minor; there is only one inversion of the Soggetto II. All other inversion fugues - apart from one, namely the Fuga in A minor - can be lined up according to their root notes using the Soggetto of the Fuga in G sharp minor. As I said, the eighth inversion fugue is missing: Fuga A minor.

If we then start with the missing fuga in A minor and its root note *A* and now string the notes together in inversion mode, we realise that we again see all the root notes of inverted fugues integrated - except for the root note of the fuga in G sharp minor. In one case the *rectus* fuga excludes A minor, in the other case the *inversus* fuga excludes G sharp minor.

⁴ *Passus duriusculus* is one of the musical-rhetorical figures and literally means "the hard passage". It consists of a descending fourth that is passed through chromatically.

Now I come to the total number of bars:

This construct, together with the symmetrical counterparts including Fuga in C sharp minor with its symmetrical counterpart, Praeludium in B flat major, results in 911 bars. Symmetry means mirror form; 911 means mirror number. The finding that all the inversion fugues are woven into this game in their basic tones and result in 911 bars now leads to the *art of the fugue* and its 911 bars, beginning with the mirror fugue *Contrapunctus 12 a/b* and ending with the mirror fugue *Contrapunctus 13 c* and *d*.

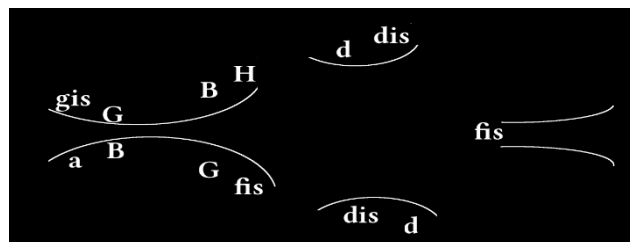
Thus, *Das Wohltemperirte Clavier I* and the *Art of Fugue* - correctly: *The Art of Fugue* - become siblings.

This is a finding of great weight. The numerical heading is now, as it were: $153 \times 8 + 911$, combined with the comprehensive symbolism of FISH and WORD. This also means that the name of God YHWH in its unfolding based on the sum $1 + 2 + 3 + 4 + n + 26 = 351$ is reflected in our reality and leads to the number 153; the sum 153×8 says: The number 8 is the sign of infinity. It is the reflection *per se*, it is invariant in itself.

Now a reference back to the longest psalm in the Bible: this psalm contains the 22 letters of the Hebrew alphabet. This is Psalm 119 - Bach works intensively with the number 176 as the sum of his verses. Psalm 119 is the basis for *The Word of God* in the World. Now we experience this number 119 in the mirror:

We now see through a mirror in a dark word, but then face to face

(1Co 12:12).



FISH

The

notes f-f-

sharp-c-b

are the basis of the mirroring system in both WK I and II as

well as in "*The Art of Fuga*":

In WK I and II, C major and B minor form the

frame, F minor and F sharp major the centre

[see also: Proof of the symmetry system in WK I and II,

Hermeneutics on Bach, Maria Limbach].

In the KdFg, all reflections refer to the axis f-fis, resulting in:

c-h.

Sheet music examples (Retrieved: 22/02/2024)

Tobi's sheet music archive

Johann Sebastian Bach: *The Well-Tempered Clavier I*,
Fugues: C sharp minor BWV 849, G sharp minor BWV
863

URL: <<https://tobis-notenarchiv.de/wp/bach-archiv/instrumentalwerke/werke-fuer-klavier/das-Wohltemperirte-klavier-teil-1/>>

IMSLP

Johann Sebastian Bach: *The Art of Fugue*, edited by Werner Icking, Publisher: Werner Icking Estate,
Private Library No. 27 via Wikimedia Commons 3.0

URL: <<https://s9.imslp.org/files/imglnks/usimg/5/5a/IMSLP121927-WIMA.c9c3-kfur.pdf>> and

Johann Sebastian Bach: *Die Kunst der Fuge*, ed. by Klaus Hofmann (b. 1939), NBA, Series VIII, vol. 2.1 (pp.
1-198), Verlag Bärenreiter, Kassel 1995, Plate BA 5082. URL:

<<https://imslp.eu/files/imglnks/euimg/3/33/IMSLP724688-PMLP5843-bachNBAVIII.2.1diekunstderfugeBWV1080anhangInr.1-18and21inmodernerklaviernotation.pdf>>

Concept
Prof. Dr h. c. Christoph Bossert

Coordination
Thilo Frank

Camera
Dr Jürgen Schöpf

Sound and
editing
Alexander Hainz

Writing and music examples Andrea
Dubrauszky

Digitalisation, networking and mediation in
the teaching of international organ art
DVVLIO

Third-party funded project at the
Würzburg University of Music
Supported by the Foundation for
Innovation in University
Teaching

