



## Hermeneutik zu Johann Sebastian Bach



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Sollten Ihnen Fehler auffallen, so sind wir für Hinweise dankbar.

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# Hermeneutics of Bach

## Research and research results by Christoph Bossert

### Feature 8

Musical perception: What numbers can *tell us*

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

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## 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 8

### Musical perception vs. musical narration

I come to Feature 8 in connection with examples of "*Hermeneutics on Bach*" and would like to title this feature 'Musical Perception'. Using the example of Bach's great first work, the *36 Chorales*, the immeasurable scope of the *Invisibilium* becomes apparent from the fact that each piece of this work unit is linked to at least one other piece, namely its symmetrical counterpart. But who knows this? What listener can realise this as a visitor to a church service, for example? Ergo: nothing exists that does not also *point beyond itself*.

The situation is very similar with the moment of number in relation to the word 'tell'. Interestingly, this word refers directly to the word 'count'. So what information does the word 'erzählen' provide? I would say that a 'narrative' succeeds when it is complete; when it is shown when, where and for what reason things have happened, when things interact with other things or circumstances or events; the sum of what is to be narrated is really achieved and given when the sum of the interactions that cause an event is completely 'narrated'. It is interesting to note that the word 'tell' is semantically related to the word 'number'. In this respect, the number is much closer than we actually think when it comes to numerical findings in music, for example. The question is often asked as to whether it makes sense to collect numerical findings at all, as the listener rarely actively perceives the number of bars. Or do they do perceive them ?<sup>1</sup>

I think that the following example, namely *ClavierÜbung IV*, the so-called *Goldberg Variations*, can contribute something to this. In each piece, periods of eight bars or four bars sound and join together to form  $8 + 8 + 8 + 8$  bars and their repetitions or  $4 + 4 + 4$  bars and their repetitions. But there is one exception: it is found in Variation 16, *Sectio 2* in repetition. What do I mean by *sectio*? Bach assigned a specific harmonic sequence to each progression of eight or - abbreviated - four bars, so that we can say:

- The first *sectio* remains in the key of G major,
- the second *sectio* goes from G major to D major,
- the third *sectio* goes from D major, the fifth degree, to E minor, the sixth degree,
- and in *section 4* you return from there to G major.

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<sup>1</sup> Cf. the words of Leibnitz: "Music is the hidden arithmetical activity of the soul, which is not aware that it is calculating." - from a letter dated 27 April 1712 to Christian Goldbach; original Latin quote: "*Musica est exercitium arithmeticae occultum nescientis se numerare animi.*"

Now in variation 16, *section 2*, which goes to D major, has only 7 bars in the repeat. How does this come about? The final bar, as bar 8 of *section 2*, coincides with the opening bar 1 of *section 3*. This happens in the piece, which is an overture, in such a way that the final cadence does not go into bar 8, but continues in bar 2 to bar 1 of the following 3/8 bar:

**NB 1:**



Thus, the end of one *sectio* overlaps with the beginning of the other *sectio*. Whether one is consciously aware of this or not, it is the only exception in the entire work, because only here in *Clavier-Übung IV* do a closing and opening bar coincide.

However, there is another anomaly: the following *sectio 3* has 16 bars, as does *sectio 4*, so that the following fugato has a total of 32 bars in one run. This increases the total number of bars in this variation 16 enormously. In variation 16 of all variations, the overture piece, i.e. the opening of the second half of 30 variations, the number of bars increases in this way. We first count a total of  $8 + 8 + 8 + 8 + 7$  bars in *sections 1* and *2*. This is followed by 32 bars each and these then go into the repetition with another 32 bars. So we count  $31 + 32 + 32 = 95$  bars. This finding prompts me to ask what this situation 'tells' us based on the numbers?

95 is the numerical value of the name *Maria Barbara Bach*. The total number of bars in the work unit is an odd number due to the unique coincidence of the final and opening bars at 1919 bars. Its numerical centre can be determined as the last bar, which precedes variation 16. This centre of a single bar as the last bar of variation 15 is surrounded by 959 bars on one side and 959 bars on the other. We therefore see a numerical image 9-5-9 based on the past 959 bars, then the single bar follows as the centre and with the beginning of variation 16 a further 959 bars are heard.

Is this a coincidence or is it a 'narrative' in that variation 16 of all things has these 95 bars and thus makes the whole cycle odd? The numerical image of 95 correlates with  $959 + 1 + 959$  bars. Let us leave it at that, but note that 95 is the name for *Maria Barbara Bach* and 59 is the numerical value for *God* or for *Agnus* (the Lamb) and equally for *Gloria*. The last finding, namely the numerical expression  $959 + 1 + 959 = 1919$  bars, now leads directly to the phenomenon of total bar numbers.

It is my

I have become firmly convinced that total cycle times play a role in Bach. About 20 years ago, I would never have wanted or been able to affirm this. Today, however, so many findings have emerged that I no longer have any doubts.

Now I would like to give an example that comes from Andrea Dubrauszky's research. The example level is the work: *Sei solo* for violin,<sup>2</sup> i.e. the solo sonatas and the solo *parts* for violin. What are the findings?

We have a total of 3453 bars. This number can be divided by three, so we end up with 1151 × 3 bars. I will come back to the number 1151 later. Andrea Dubrauszky has now made an enormously interesting discovery of a numerical finding: 1719 + 15 + 1719 [= 3453].

I am now 'telling' a story in the knowledge that 'telling' and 'number' have something to do with each other n.<sup>3</sup> The total bar 1719 is bar 15 of the *Allemanda* in D minor BWV 1004. This bar 15 is a very expressive bar and is clearly noticeable when listening.



In this bar, the first half of the bar contrasts with the second half by means of the triplet rhythm. Bar 1719 as bar 15 of the piece is now followed by bar 16 as bar 1720 of the whole work. There is nothing really unusual about this. But the extraordinary lies in the following finding, which Andrea Dubrauszky has established:

When this complete bar 1719 enters its repetition as bar 15 of the *Allemanda* in D minor, there are a further 1719 bars from this identical-sounding bar to the end of the work as a whole. The same bar is therefore numerically determined as bar 1719 - counted from the beginning - and in its repetition is the first of a further 1719 bars to the end of the work as a whole.

Now one could argue that the work is a 'patchwork'. Bach probably composed the sonatas first and then added the *partitas* or *parts* - as Bach wrote - at a later compositional stage. So how can such a total number come about? If Bach as a composer knows what he has so far, then he can control what he now inserts accordingly.

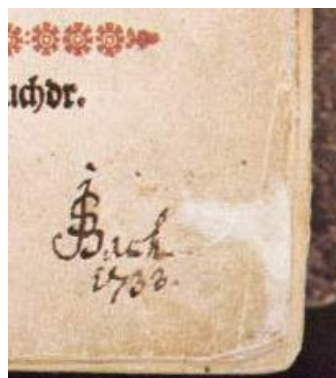
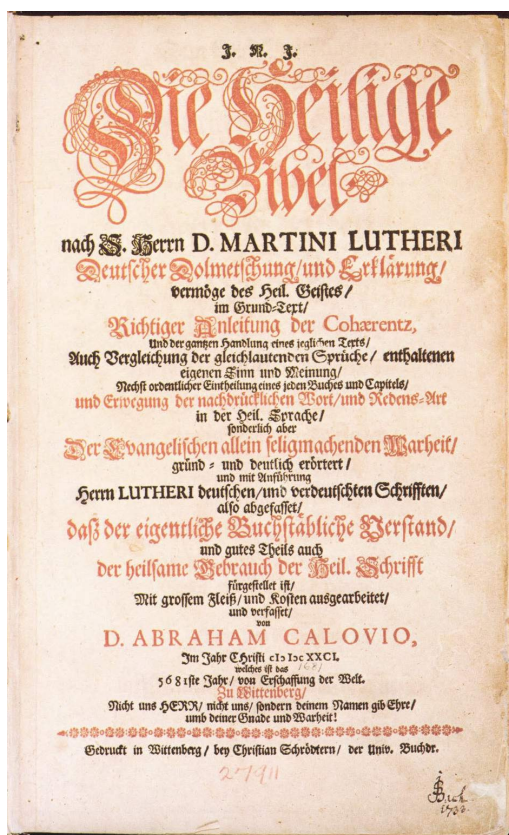
Further findings are now being added:

1. The total bar number 3453 is structured as follows: 1719 + 1 bar = 1720 bars precede; 1733 bars follow. The number 1733 must be very thought-provoking, because it is first and foremost

<sup>2</sup> Original title: *Sei solo ã Violino senza Basso accompagnato*

<sup>3</sup> See also: Andrea Dubrauszky, *Studie zur Wahrnehmbarkeit von Symmetrie und Proportion in den 'Sei Solo ã Violino senza Basso accompagnato' von Johann Sebastian Bach*, Masterthesis in Musikwissenschaft an der Universität Würzburg 2013; see also on the homepage: <<https://innovation-orgellehre.digital/publikationen>>.

is inscribed in Bach's working Bible. It is very unlikely that the number 1733 would mean that Bach bought his working Bible in 1733, but rather that the number 1733 carries a symbolic value - however it should be described - and that this content, the semantics of this number - whatever it is - gave Bach the reason to enter it first in his working Bible.



1720 + 1733 gives the total number 3453, which would not really be very moving, but the number 1719 now leads to the actual story: In 1719, a third child dies in the Bach family, namely *Leopold Augustus Bach*.<sup>4</sup> The number 1720 then stands for the following year and thus touches on the year of death of *Maria Barbara Bach*, Bach's wife and mother of three children who had already died, and other living children, including *Wilhelm Friedemann Bach* and *Carl Philipp Emanuel Bach*. The number 1733 is, as mentioned, the first entry in Bach's Calov Bible.

2. The *Partia in D minor* contains the aforementioned *Allemanda in D minor* as movement 1. *Partia in D minor* has 11 x 51 bars. Bar 15, *Allemanda in D minor*, is where the entire finding that I described earlier

I have already referred to. *Partia in D minor* is also the carrier of the *Ciac<sup>c</sup> cona* (



), which is quite recognisably a *memento mori*. This piece is a musical

tombeau on death

<sup>4</sup> Two deaths precede this on 23 February 1713 and 15 March 1713: on 23 February 1713, the twins *Johann Christoph* and *Maria Sophia* are born. The boy dies on the same day, the girl on 15 March 1713.

by *Maria Barbara Bach*. Helga Thoene has already established this<sup>5</sup> and Andrea Dubrauszky's and my research has confirmed this. The *Partia* in D minor has  $11 \times 51 = 561$  bars. From a numerical point of view, 1-1-5-1 points to the finding of the total number of bars 3453 as  $3453 = 1151 \times 3$ .

- Now the musical exegesis of total bar 1719 is still pending, in order to strengthen the thesis that the collection of total bar numbers in Bach's work is of great importance. The musical exegesis is quickly told and reads as follows:

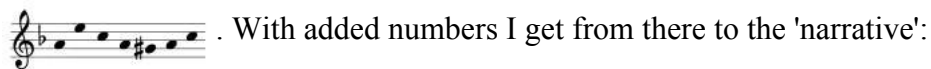


I play the theme I have just heard from the back and somewhat simplified.



If I lower the high notes, the theme of the *art of the fuga* becomes audible now - i.e. read in the crab - coincidence?

- Now comes the really far-reaching finding. It is not only the theme of the work *Art of the Fugue*, which was composed much later, but I approach it mentally as follows: I consider this tone sequence as the signature of the tone sequence:



The note names a-e-c-e-g(is)-a-c correspond to these numbers, but they also correspond to the sequence of root - fifth - third - root - seventh - root - third. Now I come to the decisive step: if I read this sequence of numbers 1-5-3-1-7-1-3 as a date, namely 15 March 1713, I arrive at the date of death of the child *Maria Sophia*, who died on this day.<sup>6</sup> Now the actual 'narrative' begins, namely the narrative about the birth of children in the Bach family and the death of children in the Bach family during Bach's lifetime. The narrative now goes very far. It first touches on 23 February 1713, when two children are born -

5 Helga Thoene, *Johann Sebastian Bach C I A C C O N A Dance or Tombeau?* Analytical study, published by [Dr Ziethen Verlag Oschersleben](#) 2003.

6 Cf. note 2.



*Johann Christoph* and *Maria Sophia* - one child, *Johann Christoph*, dies on 23 February 1713, the other three weeks later, on 15 March 1713. And this bar 15 of the *Allemanda* in D minor just quoted now touches on the renewed death in 1719 by means of the tone sequence a-e-c-a-g sharp-a-c-e and the number sequence 1-5-3-1-7-1-3 in relation back to 15 March 1713. 3.1713 touches on the renewed death in 1719, to which the total bar number 1719 now refers as the year of death of the third child *Leopold Augustus*, followed by the total bar 1720 as a metaphor for the year 1720 *anno domini*. The culturally customary term "*anno domini*" assigns a present-day event the reference back to Jesus' birth and Jesus' suffering and death. This is now a finding based on the observation that total bar numbers in Bach's work tell a story and have a meaning.

5. And the date 23.2.1713 - could be that also in sounds tell? Provided that the note *es* leads to the number 23 on the basis of  $e=5$  and  $s=18$ , we can say that the sequence 23-2-1-7-1-3 corresponds to the sequence e-flat-b-a-g-a-c. Transposed, one obtains b-f-e-d-e-g or f-c-h-a-h-d and thus arrives at the termination of the *art of the fugue*, which according to the autograph marks bars 238 and 239 of the fragment fugue. The first mention of the sequence e-flat-b-a-g-a-c can be found in bar 176 of this piece .<sup>7</sup>

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<sup>7</sup> This would then be a narrative about the last verse 176 in the longest psalm in the Bible - see Feature 9.

## Quoted music examples

Johann Sebastian Bach, *ClavierÜbung* IV <Goldberg Variations>. URL: [https://imslp.org/wiki/Goldberg-Variationen,\\_BWV\\_988\\_\(Bach,\\_Johann\\_Sebastian\)](https://imslp.org/wiki/Goldberg-Variationen,_BWV_988_(Bach,_Johann_Sebastian)) [Martin Straeten (ed.), IMSLP240148-WIMA.da55-BWV988.pdf].

Johann Sebastian Bach, Bible by Abraham Calov, title page; via wikimedia commons, user: Jean-Christophe Benoist. URL: <[https://commons.wikimedia.org/wiki/File:CalovBible\\_\(2\).jpg](https://commons.wikimedia.org/wiki/File:CalovBible_(2).jpg)>

Andrea Dubrauszky, *Studie zur Wahrnehmbarkeit von Symmetrie und Proportion in den 'Sei Solo ã Violino senza Basso accompagnato' von Johann Sebastian Bach*, Masterthesis 2013; see homepage under the button: *Publications*.

Gottfried Wilhelm Leibnitz: "Music is the hidden arithmetical activity of the soul, which is not aware that it is calculating." - from a letter dated 27 April 1712 to Christian Goldbach; original Latin quote: "*Musica est exercitium arithmeticae occultum nescientis se numerare animi.*"  
In: Gottschalk Eduard Guhrauer, *Nachträge zu der Biographie. Gottfried Wilhelm Freiherr von Leibnitz*, Ferdinand Hirt's Verlag, Breslau 1846, p. 66. URL: <Google [Books](#)>, <[https://de.wikiquote.org/wiki/Gottfried\\_Wilhelm\\_Leibniz](https://de.wikiquote.org/wiki/Gottfried_Wilhelm_Leibniz)>, accessed 05/02/2024).

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