

The Art of Fugue – a pinnacle of polyphony

Commentary by Christiaan Ingelse (English translation Patricia Wind-Smith)

Bach's masterpiece *The Art of Fugue* was written in a period when (musical) winds of change were blowing. The "old" style was characterised by rigorous polyphony (or counterpoint). That is, music consisting of independent horizontal melodic lines, which often leads to a very complex, but logical, musical construction. The musical philosophy behind this "Stile Antico" goes back to the Middle Ages, when composers saw themselves as in the service of God, the Creator. Music was a reflection of the cosmic order of the creation. In the "Stile Moderno", however, the emphasis switched from the divine to humankind. Music now had to be pleasing, agreeable, and uncomplicated. Listeners did not want challenging polyphony, but homophonic music with attractive melodies accompanied by chordal harmony.

During the first half of the 18th century, the opposing ideologies of the old and new styles were becoming more apparent. Bach was definitely a member of the old guard as regards musical composition (although he did not completely shun the new trends). He was even attacked in the music journal "Der Critische Musicus" by this publication's editor Johann Adolph Scheibe:

"This great man (Bach's name was not used, but the readers would have known which 'great man' was being referred to) would be admired by many a nation if only his work possessed more grace, if he did not destroy the spontaneity of his music with bombastic muddle, and if he did not obscure its beauty with excessive artifice."

Bach found an excellent advocate for this full-frontal attack in the person of Johann Abraham Birnbaum, lecturer in Rhetoric at the University of Leipzig. In his reply to Scheibe Birnbaum wrote:

"The greater the art ... the brighter its beauty dazzles. It is not possible for true art to obscure beauty. How should the esteemed Court Composer, even if he employed all the compositional means available to him, remove the *spontaneity* and *obscure the beauty*?"

Exactly in this period, between 1737 and 1750 (therefore, in the last years of his life), Bach created a musical monument to the art of polyphony with *The Art of Fugue*; a monument of unprecedented beauty and perfection. This composition could be viewed as Bach's reply to the accusations of Scheibe, and even as a counter-attack to the trends of the day!

In "The Art of Fugue" Bach gives us a complete catalogue of the possibilities of counterpoint in a series of fugues and canons, all derived from a single theme and in the same key: D minor.

Technically, this composition is dauntingly complicated, and the perfection of the musical architecture can arguably only be really appreciated by music theorists. However, the beauty and emotion dazzle through the music – this is so much more than a mere technical *tour de force*!

The Art of Fugue for organ?

The original score of *The Art of Fugue* is written in open score (that is, with each voice on a separate staff). No instruments are specified. However, Gustav Leonhardt has argued convincingly that the cycle of fugues was primarily intended for the harpsichord. His main argument is that virtually the entire score is possible with just two hands, on the keyboard. This is not the case with the scores of, for example, the Brandenburg Concertos or the Orchestral Suites.

I believe, however, that a performance on organ can also be justified. Firstly, because much music in Bach's day was played interchangeably on either instrument; today we are more used to a strict boundary between harpsichord and organ. In addition, almost all the fugues in *The Art of Fugue* fit within the range of the keyboard of the contemporary organ (C-c'''), as observed by Jan van Biezen in an article about this work. The bass lines of the fugues, likewise, almost all fit within the pedal range of organs of Bach's day (C-d'). A counter-argument could be that these bass lines are so complex as to be almost impossible to play on the pedals of those same organs. However in his biography of Bach, Forkel (who got his information from Bach's oldest sons, Wilhelm Friedemann and Carl Philipp Emanuel) claims that Bach possessed an astonishing pedal technique:

“With the pedals he did not only play the lowest notes of the harmony, or the notes which average organists covered with their left-hand little finger, but he played an actual bass melody with his feet – and played it with far more dexterity than most achieve with their fingers.”

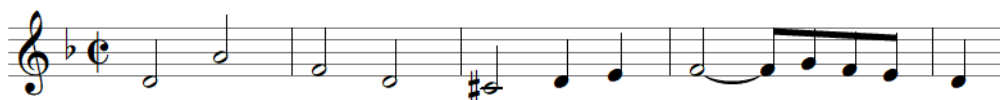
The above citation brings the possibility closer to home that Bach himself played fugues from *The Art of Fugue* on a pedal organ. The fact that the music is written in open score also does not exclude the possibility that this was a keyboard work. At that time this was often the convention with strict polyphonic works, even if they were specifically intended for organ. Finally, playing the work on organ gives the performer the opportunity to use the full range of registration colours on the instrument, to give their own personal interpretation to the canons and fugues.

Although I am familiar with Baroque registration conventions, I have not unduly worried myself with the matter of whether *my* interpretation of the registers is authentic. Most fugues were played in that time with different kinds of organo-pleno registrations, but that would be too limited a palette for such an extended work. The nature of the composition, in fact, invites the performer to use their own approach. And, the fact that *The Art of Fugue* does not specify an instrument only adds to the mystery. It is no wonder that there have been so many versions of this work, performed by every instrument or ensemble imaginable. Each one illuminates the masterpiece in its own way. So may the performance on this CD also be viewed; I have let the content and emotion of the music be the guide for my own personal interpretation. And that, after all, is also a type of “authenticity”.

The Art of Fugue can be subdivided in the following way:

- A. Fugues based on one subject.
- B. Counter-fugues.
- C. Fugues with two or three subjects (double or triple fugues).
- D. Mirror fugues.
- E. Canons.
- F. One unfinished fugue with four subjects (a quadruple fugue).

The subject of *The Art of Fugue*



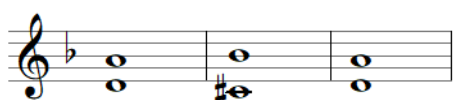
The basic theme (subject) of *The Art of Fugue* does not, at first sight, seem to have any particularly distinguishing features. It begins in half-notes, with an ascending interval of a perfect 5th, followed by two descending 3rds – in other words the tonic triad of D minor. Then comes the raised leading note followed by stepwise movement towards the 3rd, and a concluding small motif in eighth-notes leads back to the tonic. In spite of its simplicity the theme has an irresistible appeal. Almost everyone has the same experience: the theme gets under your skin!

Alongside the subject in its original form (the “*rectus*” form), the mirror (or “*inversus*”) form is also used. Here, all the intervals are inverted as follows:



Thus, all the rising intervals are now falling, and vice-versa.

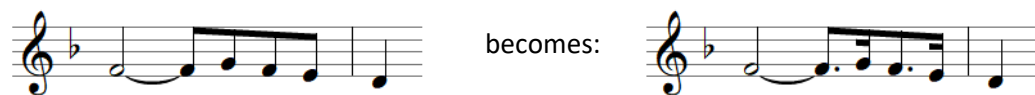
If the *rectus* and *inversus* versions are combined, the resulting harmonic tension is immediately apparent: perfect 5th (= rest, release) – diminished 7th (= tension) - perfect 5th (= release, rest).



In all likelihood, this harmonic tension contributes to the fact that the theme is so memorable. The masterful eye of Bach would immediately have seen the myriad possibilities that this theme offered him in terms of combination and development.

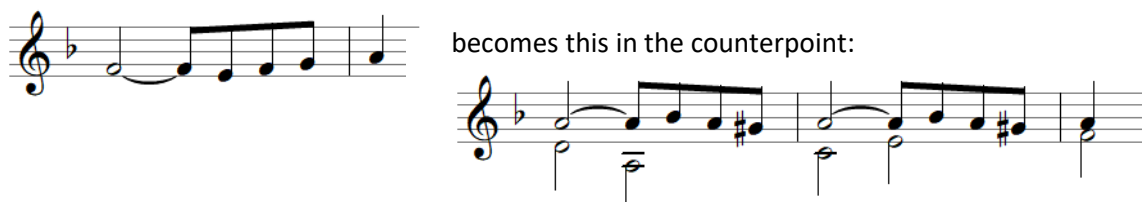
A. Fugues based on one subject: Contrapunctus I - IV

The first four fugues (Bach refers to them as “Contrapunctus”) are all based on a single subject. Contrapunctus I and II use the subject in its *rectus* form. Contrapunctus III and IV use the *inversus* form. What can be seen in these first four fugues is an increasing complexity – but this actually holds true for the entire *Art of Fugue*. The first fugue remains in the key of D minor, with the answer coming, as one would expect, in the dominant key of A minor. Despite the predictability of the key structure there is no question of monotony. In the 2nd fugue there is an added rhythmic intricacy: the eighth-notes at the end of the subject are now in dotted rhythm:



This dotted rhythm idea is continued throughout the fugue. Also here, the key structure remains conventional: chiefly D and A minors, with a few references to other keys.

In Contrapunctus III the subject appears in its *inversus* form. A *counter-subject*, characterised by chromatic movement, also makes its first appearance here, and is used throughout the fugue. Contrapunctus IV, also with the *inversus* subject, is already much grander in scale than the first three fugues. Of all the counter-themes in this fugue one stands out particularly – it is related to the concluding eighth-note motif of the subject and is repeated many times:

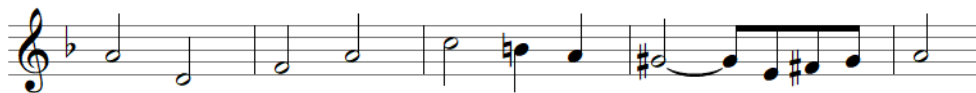


In fact this is an inversion of the eighth-note motif at the end of the original *Art of Fugue* (AoF) *rectus* subject, except that it rises to the last note instead of descending to it.

Chromaticism and repetition add to the extra expressive effect of this motif here.

Throughout the whole work this motif plays an important role, in both its original and inverted forms. Even when the main AoF subject is not heard in its entirety the motif often appears in the texture, or is used in ascending or descending sequences.

As we progress through the sequence of fugues, so the range of keys grows. Often, Bach transforms the subject just enough to achieve a particularly effective modulation:



Using this version of the AoF subject, Bach creates a striking sequence of modulations from F major, through G minor to D, A and E minors.

B. Counter-fugues: Contrapunctus V – VII

A “counter-fugue” construction is used in the next three fugues. That is, a construction where a *rectus* subject almost invariably has an *inversus* answer, and vice-versa. Moreover, in these fugues this construction is combined with *stretto* treatment, i.e. the overlapping of subjects and answers rather than waiting until the full statement has finished.

The intervals of a third at the beginning of the theme are filled in with stepwise notes, in dotted rhythm:



Contrapunctus VI is titled “In Stylo Francese”, due to the characteristic dotted rhythms which indicated a “French style” in Bach’s day. Here, both the *rectus* and *inversus* forms of the AoF subject also appear in diminution, with their note values halved.



In Contrapunctus VII we see both diminution and augmentation (double note values) of the subject.



This augmented version is employed throughout the fugue and appears consecutively in the bass, tenor, alto and soprano lines, alternating between *inversus* and *rectus*. The main subject trips along simultaneously, in both original and diminution versions. Despite its formal complexity, the music remains fresh and unaffected!

C. Fugues with two or three subjects: Contrapunctus VII – XI

Contrapunctus VIII and XI are *triple-fugues* (fugues with three subjects), while Contrapunctus IX and X are *double-fugues* (fugues with two subjects).

A comparison between two themes of Contrapunctus VIII and XI reveals that the first subject of no. VIII reappears in *inversus* as the second subject of no. XI:



The second subject of no VIII is a light-footed theme, comprising a sequence of motifs each consisting of descending 3rd followed by a rising 2nd. This note is repeated three times, the third of which is the beginning of the next motif. The overall direction of this subject is descending.

The third subject of no. XI is a similar sort of light-footed sequence: but the motif now begins with a descending 2nd followed by a rising 3rd, giving an overall rising direction.



In addition, this motif now outlines the composer's signature by using the notes B \flat , A, C and B \natural . (In German notation B \flat = B and B \natural = H; thus B \flat , A, C, B \natural = B,A,C,H.)

No. VIII
Theme 3

NO. XI
Theme 1

Contrapunctus XI begins with the original AoF subject, *rectus*, punctuated by additional rests. This version appears, *inversus*, in Contrapunctus VIII as the third subject.

The character of Contrapunctus VIII is fleeting, chiefly because of the light-footed, motivic sequences. Although similar sequences also play a large role in Contrapunctus XI, the overall effect of this monumental fugue is much more dramatic due, in large part, to the chromaticism and daring harmonies.

Contrapunctus IX and X are both double-fugues, fugues with two themes. Before going further, a short explanation of the technique "invertible counterpoint" becomes necessary: In fugues with more than one subject it is important that all subjects can be placed both *above* and *below* each other and still sound logical, harmonically. (This "inversion" of two subjects should not be confused with the *inversus*, i.e. mirror-image version, of a subject!) Normally, the displacement of subjects in inversion happens in octave intervals. As seen below, in Contrapunctus IX the lively first subject can be transposed up two octaves and it sounds equally good both above and below the original AoF subject (which appears here in broad, augmented guise).

However, in Contrapunctus IX the actual indication is "A 4 alla Duodecima". This means that it is a four-part fugue where the subjects can appear not only at the interval of an octave but also at the 12th (a compound 5th):

At both an 8ve and a 12th the themes fit equally well (and sound equally good!)

In Contrapunctus X there is yet another different example of invertible counterpoint, with the themes being transposed by the interval of a 10th (a compound 3rd).

In the example above we can see the first subject of this fugue in the outside voices, the upper voice being a 10th higher than the lower one. In between these two voices is the original AoF subject, in *inversus* form, and with the intervals of a 3rd filled in by dotted notes – the version first used in Contrapunctus V.

The first subject here has a wonderful, slightly mysterious, but still poetic character. The first three notes (a motif) consist of a rising 2nd and falling 4th. After a rest, this motif is repeated in inverted form; a falling 2nd and a rising 4th. Particularly striking is when this subject appears alongside the original AoF subject, creating a series of delicate-sounding parallel 3rds.

D. Mirror fugues: Contrapunctus XII and XIII

In Contrapunctus XII and XIII Bach pulls off a very special compositional trick, the so-called mirror fugue. The entire fugue is flipped over so that all ascending lines in the first fugue become descending lines in the subsequent one, and vice-versa. In other words, the complete fugue is played in mirror symmetry!

Below is a fragment of the mirror fugues in Contrapunctus XII. Not only are the notes mirrored, but also the four *voices* of the fugue: the soprano voice in the first fugue becomes the bass voice in the second. Likewise, the bass voice in the first fugue becomes soprano in the second, and alto and tenor voices are similarly switched. Despite all this convolution, both fugues sound completely free and unrestrained.

Rectus

Inversus

Both the above fugues are notated in a 3/2 time signature which gives them the stately character of a Sarabande, with its accents on the first, and also second, beats of each bar. During the course of the fugue, the AoF subject is transformed by adding passing quarter- and eighth-notes to fill in the intervals of a 5th and 3rd. This has the effect of quickening and enlivening the theme:

In particular, the 8th-note passing notes give a pronounced rhythmic impulse where they are used in the counter melodies in this fugue.

Contrapunctus XIII is a three-part mirror fugue. The AoF subject is here transformed into a lively dance-like theme with the addition of triplets and dotted rhythms. The red notes in the example

below indicate how this lively theme has been derived from the original AoF theme. We are also looking at a *counter-fugue* here, so the subject is answered with an inversion of the same theme. To be exact, the subject is a derivation of the *inversus* of the AoF theme, so the answer is then the *rectus* version of the original theme.

E. Canons I – IV

Following on from the thirteen Contrapunctus are four strict canons, where a whole melody is imitated from beginning to end. The AoF theme, or a variant of it, is worked into the texture in all the canons.

Canon I is a canon at an octave below. The time signature here is 9/16, with the fast sixteenth-notes and the staccato notes in the third bar giving the canon a bright and playful character.

Canon II is a canon at the tenth: that is, the second entry of the canon starts a tenth (compound 3rd) higher than the first entry. The AoF theme (*inversus* version) appears here in syncopated rhythm, with its concluding motif in dotted eighth-notes.

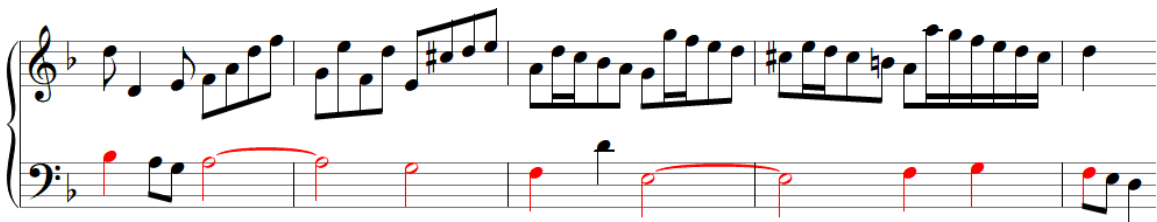
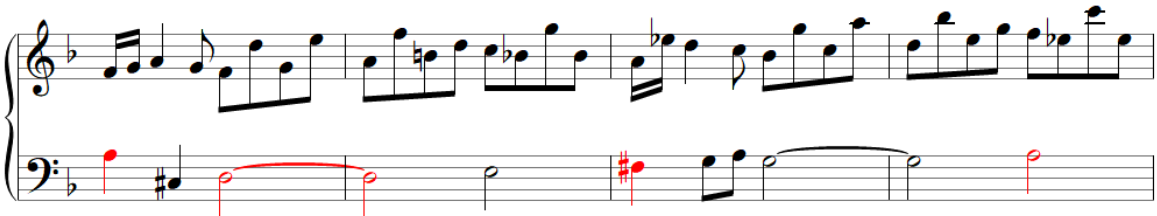
When the second voice begins its entry at the tenth, the first voice continues calmly with the running eighth-notes of the 12/8 time signature. Gradually, more and more sixteenth-notes appear, and the energy level is ramped up several notches. Further on, the same canon is repeated, but this time with the voices reversed: the upper voice initiates the syncopated AoF theme, but the second entry is now an *octave* below.

Canon III begins with the AoF subject (*rectus*) played in the lower voice. The theme has now been transformed with a filigree of eighth-notes.



The second entry imitates this a twelfth higher (compound 5th interval). Just as in Canon II, the whole process is later reversed with the canon beginning in the upper voice on the repeat and the second entry an octave lower.

Canon IV is a remarkable composition: Bach wrote this in 1739 as a response to the death of his 24-year-old son Johann Gottfried Bernhard. It is therefore a movement imbued with a deeply-felt melancholy. At the same time it is also a magnificent canon; the imitation of the subtly-altered AoF theme (*rectus*) appears not only in augmentation (with doubled note values), but also mirrored. The title of this canon explains all: *Canon per Augmutationem in Contrario Motu*.



F. An unfinished fugue with 4 subjects, a quadruple fugue: *Contrapunctus XIV*.

Many questions are raised by the monumental final fugue, which Bach left uncompleted due to his advancing eye disease towards the end of his life. Initially, people doubted whether this fugue even belonged in *The Art of Fugue*. In the first edition, printed soon after Bach's death, it appeared as a *Fuga a tre sogetti* (triple fugue), and it did not include the AoF theme. Bach's second son, Carl Philipp Emanuel, noted the following in the autograph score at bar 239, where the manuscript finishes: "The creator of this fugue died at this point, where the name B.A.C.H. is stated in the counter-subject". We probably must not take it literally that Bach died while at work, pen in hand, but it seems certain that the reason this fugue was not completed was that death intervened. Another theory is that Bach had deliberately not completed the fugue, thereby giving others the chance to do so.

In this case he was maybe thinking of his co-members of the *Societät der musikalischen Wissenschaften*, a society of eminent musicians whose ranks Bach had joined in 1747.

In 1880, musicologist Gustaf Nottebohm demonstrated convincingly that the three subjects of this fugue could be combined with the AoF subject, and that it had therefore been Bach's intention to crown *The Art of Fugue* with a quadruple fugue.

Personally, given this last point above, I think it unlikely that Bach meant to leave behind an unfinished fugue. Why would Bach entrust the crowning glory of a quadruple fugue to another hand? In the musical example below we can see the combination of the four themes: in the bass is theme 1, a regal theme with mainly slow-moving whole- and half-notes; in the alto voice is theme 2, a flowing theme with mainly 8th-notes; in the tenor voice is theme 3 where Bach incorporates his

musical signature with the notes B.A.C.H. (as in Contrapunctus XI); and finally, in the soprano voice, there is theme 4, the AoF theme.

Like many before me, I have attempted the not insignificant challenge of completing this fascinating masterpiece. The sheet music of this completed version of the quadruple-fugue has been published by *Valeur Ajoutée*, and it appears here, alongside the CD. On the CD the final quadruple-fugue is played twice; first in its unfinished version, followed by a second playing with my own completion. After close study of Contrapunctus XIV, I concluded that my section of the composition should not be too grand in proportion. If we look at the structure of the fugue it soon becomes apparent that Bach makes extensive use of his calm and stately first subject. In the first section of the fugue the theme appears no less than 24 times, 16 times *rectus* and 8 times *inversus*. In the second section, however, the second subject, which is characterised by many eighth-notes, appears far fewer times. It appears once in each of the four voices, and then four more times, now combined with the first subject; thus, a mere 8 times in total. In the third section, where the third subject (the B.A.C.H. subject) is introduced, this subject is heard on its own 11 times, 2 of which are *inversus*. Just before the manuscript ends at bar 239, these three subjects are combined for the first time. I continued along these lines by combining the three subjects three more times; so this combination of themes is heard a total of 4 times. The second and third subjects were used by Bach fewer times than the first subject was, so I also did not want to emphasize them too much in my completion. I decided that the appearance of the AoF theme should represent the climax of the fugue. I repeated the combination of the three subjects plus the AoF subject three times. I introduced the AoF theme in the bass voice and subsequently in the alto. Before the final repetition I inserted a pedal point on the note A (the dominant), with the expressive eighth-note motif from Contrapunctus IV playing above it. The culmination of the four-part fugue is (literally!) the high point when the AoF subject is heard in the soprano voice, shining out above the other three subjects. I brought my version of Contrapunctus XIV to a close with a pedal point on the tonic of D, above which there is one final reiteration of the AoF theme, in the tenor voice, and without any of the other subjects to detract from it.

Chorale: Wenn wir in höchsten Nöthen sein or Vor deinen Thron tret ich hiermit

In the first edition of *The Art of Fugue* (1751) the following remark appears:

“The author of this work was prevented from completing the final fugue (the third theme of which is a reference to his own name) due to eye disease and his death which followed soon after. By way of compensation to the friends of his muse, the now blind composer dictated a four-part chorale to his friend, to be added at the end.”

In reality, this was a chorale which Bach had composed earlier. From the historical sources available, it's possible to partially reconstruct the sequence of events: When Bach realised the end of his life

was approaching, he asked his student Johann Christian Kittel to play one of his chorales to him – the strict motet-style *Wenn wir in höchsten Nöthen sein*. While listening, Bach dictated some changes that he wished to make. At the same time, he realised that he had also used the melody in his song *Vor deinen Thron tret ich hiermit* and gave instructions that this was the title to be used. This same title was used by an anonymous copyist at the end of the manuscript of *Achtzehn Choräle von verschiedener Art*.

When *The Art of Fugue* was published after Bach's death, the editors apparently did not know of the existence of the amended version of *Vor deinen Thron*, but they did know that he had been working on this piece on his deathbed. They therefore added the original version of the chorale at the end of *The Art of Fugue*.

It seems clear that Bach did not originally intend the chorale to be included in his fugue-cycle at all. Despite this, I feel it is appropriate to include this work at the end of my CD. Firstly, the chorale can be seen as a sort of musical farewell, as Bach realised he was soon to appear before the throne of his Creator; "vor deinen Thron". It is especially appropriate, since Bach was working on *The Art of Fugue* right up to the end and, as explained, was unable to finish the quadruple-fugue. Secondly, this prelude is a perfect musical match to the content of *The Art of Fugue*; here also Bach uses a strict polyphonic style, whereby each line of the chorale is introduced by imitation, both *rectus* and *inversus*.



The chorale breathes an earnestness which fits with the text of "Vor deinen Thron tret ich hiermit". When you appear before the throne of God, all earthly attributes fall away and all that remains is yourself.

Bibliography:

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- Kees van Houten: Die Kunst der Fuge Johann Sebastian Bach
- Kees van Houten: Leipzig Orgelkorallen (van Taal tot Klank)
- Christoff Wolff: Johann Sebastian Bach, zijn leven, zijn muziek, zijn genie
- Jan van Biezen: Die Kunst der Fuge van Bach. In "Het Orgel" May 2020

Curriculum Vitae Christiaan Ingelse

Christiaan Ingelse began his organ studies with Piet van Egmond. He continued with Adriaan Engels and Wim van Beek at the Royal Conservatoire of Music in The Hague, where he received the Fock silver medal and the Nicolai prize for his final solo recital. After this, he specialised in Baroque music, studying under Gustav Leonhardt and under Herbert Tachezi at the Vienna University of Music and the Performing Arts. The culmination of these studies was achieving the Prix d'Excellence.

Christiaan Ingelse was chief organist at St. Janskerk in Gouda for over 30 years, and in his last year there he was also City Organist of Gouda. He has given numerous concerts at home in The Netherlands as well as abroad. He has made several CDs, one of which was a double CD containing a complete recording of J.S. Bach's "Dritter Theil der Clavier Übung" with a presentation of himself playing on the four organs in the St. Janskerk.

His latest recording is a double CD of Bach's last masterpiece *The Art of Fugue* on the Reil organ in Rosenheim (Germany). This recording contains his own completion of the last fugue in the cycle, which Bach left unfinished at the time of his death.

Christiaan Ingelse is an active composer of both choral and organ works. He composes in a variety of styles, from Baroque and Romantic through to (relatively) modern. Many of his works have been published, by Den Hertog, Willemsen, Boeijenga and Spiritoso, among others. There are also two CD recordings of his psalm compositions: *Canticum Novum* and *Psalmen, bron van inspiratie*.

Christiaan Ingelse is the author of a widely-used method for church organ, *Organo Pleno*. This six-part method (along with its three-part supplement, *Organo Pleno +*) is published by Willemsen. In 2019 he won two prizes in the international 10th jubilee composition competition of “Orgelkids” (“Orgelkids” is an organisation founded in The Netherlands to introduce children to the church organ. It now has branches in many countries world-wide.) He won the second prizes for both an original composition and for a Bach arrangement for the so-called “Doe-orgel” (a self-build organ kit for children).

Currently, Ingelse is busy with one of his largest composition projects: chorale preludes for all 150 Psalms. He has also worked as a writer and an editor on the “Nieuw Handboek voor de Kerkorganist” (published by Boekencentrum).

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The Reil organ in St. Nikolauskirche in Rosenheim (Germany)

The new organ, built by Reil BV in Heerde (NL), was inaugurated in 2009 in St. Nikolauskirche in Rosenheim. It replaced an organ built in 1958 by Carl Schuster. The Reil organ has 41 stops, divided over three manuals and pedal. The organ case has a modern design, but built with classical proportions appropriate to characteristic Baroque sound of the instrument. The organ case is made of oak, finished with a transparent white varnish. The organ therefore always looks different, according to how the light shines on it. Just like a pearl. Because of the acoustics in the church, the great was placed above the under-positive. The third manual operates the positive, in a sense like a separate organ, and it is chiefly intended as a continuo keyboard. However, this positive can also be used very effectively as a solo instrument. The church has a long reverberation time, and the organ has been constructed with this in mind; both as regards the materials and the design of the pipes and also with the intonation. The sound of the organ carries throughout the whole church and the timbre is rich and resonant with a singing quality.

Organ disposition

<u>Hauptwerk</u> (I)	HW	<u>Unterpositiv</u> (II)	UP
Quintadena 16'	Q16	Baarpijp 8'	BP8
Prestant 8', treble double	P8	Gedekt 8'	G8
Roerfluit 8'	RF8	Quintadena 8'	Q8
Viola di Gamba 8'	VG8	Prestant 4'	P4
Octaaf 4'	O4	Fluit 4'	F4
Spitsfluit 4'	F4	Salicet 4'	S4
Quint 3'	Q3	Nasard 3'	N3
Octaaf 2'	O2	Octaaf 2'	O2
Mixtuur VI-VIII	M	Gemshoorn 2'	GH2
Cornet IV, from g	C	Terts 1 3/5'	T1 3/5
Trompet 8'	T8	Mixtuur III-IV	M
Hautbois d' amour 8'	Hb8	Fagot 16'	FA16
		Vox Humana 8'	VH8
<u>Ruckpositief</u> (III)	RP	<u>Pedal</u>	Ped
Gedekt 8', bass/treble	G8	Prestant 16'	P16
Fluit Travers 8', treble	FT 8	Subbas 16'	S16

Prestant 4', from f0 double	P4	Octaaf 8'	O8
Blokfluit 4'	F4	Gemshoorn 8'	GH8
Woudfluit 2'	F2	Octaaf 4'	O4
Flageolet 1'	F1	Bazuin 16'	B16
Sesquialter II, bass/treble	Sq	Trompet 8'	T8
Kromhoorn 8'	K8	Klaroen 4'	K4

Couplers: HW-OP, OP-RP, HW-Ped, OP-Ped.

Tremulant for the whole organ Tr

Tremulant for the RP TrR

Cymbalstar

Nightingale

Four wedge-shaped bellows

Windpressure: 67 mm.

Barnes' tunin

Registrations used

Contrapunctus I: HW: P8, Ped: P16, O8, GH8

Contrapunctus II: RP: G8, F4, K8

Contrapunctus III: RP: G8, F4

Contrapunctus IV: HW: P8, RF8, O4, Ped: P16, O8, O4

Contrapunctus V: HW: P8, O4, Q3, OP: Q8, G8, P4, O2, Ped: P16, S16, O8, O4, HW-OP, OP-Ped

Contrapunctus VI: OP: BP8, Q8, N3, VH8

Contrapunctus VII: HW: O4, Q3, T8, UP: BP8, Q8, P4, O2, M, Ped: T8, HW-Ped

Contrapunctus VIII: HW: VG8, Hb8, OP-Ped

Contrapunctus IX: RP: F4

Contrapunctus X: RP: G8, TrR

Contrapunctus XI: HW: Q16, P8, O4, Q3, O2, M, OP: Q8, G8, P4, O2, M, Ped: P16, O8, O4, B16, T8, HW-OP, OP-Ped

Contrapunctus XII

Rectus: HW: Q16, P8, F4, OP: BP8, Q8, Ped: P16, S16, O8, HW-OP, OP-Ped

Inversus: HW: VG8, RF8, OP: BP8, Q8, S4, Ped: S16, GH8, HW-OP, OP-Ped

Contrapunctus XIII

Rectus: OP: G8, GH2

Inversus: OP: G8, F4

Canon I: RH: OP: BP8, N3, T1 3/5, LH: RP: G8, Sq, K8

Canon II: RH: RP: FT8, G8, LH: HW: RF8

Canon III: RH: OP: BP8, F4, N3, LH: HW: Q16, P8, F4

Canon IV: RH: HW: VG8, Hb8, LH: OP: VH8, Tr

Contrapunctus XIV: HW: P8, RF8, O4, Q3, O2, M, T8, OP: BP8, Q8, P4, O2, M, T1 3/5, Ped: P16, S16, O8, O4, T8, HW-OP, OP-Ped

Wenn wir in höchsten Nöthen sein / Vor deinen Thron tret ich hiermit:

HW: V8, RP: P4 (octaaf lager) Ped: S16, HW-Ped