

## **The Canvas and the Paint**

*J.S. Bach's Fugue in C Minor, BWV 871 (From The Well-Tempered Clavier Book II)*

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NOTE HEADS

- ◇ = subject
- ▼ = subject in inversion
- × = subject in augmentation

# Fugue in C Minor [BWV 871]

From *The Well-Tempered Clavier, Book II*

J.S. Bach (1685-1750)

## 1A [fugal exposition]

c minor:

## 1B

## 2B

cadence [g minor]

17 [or: b b - ed.]

[ST] [SA]

[or: b b b - ed.]

19

4 voices →

21

**2A**

cadence [c minor]

24

[SA] [SA] [SAT] [AT]

**CODA**

26

[TB]

5 voices →

## The Canvas and the Paint

### *J.S. Bach's Fugue in C Minor [BWV 871] from The Well-Tempered Clavier, Book II*

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Every musician – and every dedicated listener – understands that there are two broad ways in which composers express themselves. The first is *material* – the actual sounds employed in a work – which make a direct and instantaneous connection with the listener. The second is *form* – the structure of a piece, which in the common practice can be based on repetition of material, cadences, key areas, etc. Form gives the music directionality, and allows the listener to retain some sense of the listening experience even when the literal aural experience can no longer be recalled. These two aspects of composition have been characterized throughout history as *emotional* versus *intellectual*, *heart* versus *head*, and even *French* versus *German*. They are the yin and yang of the compositional process.

Although every musical work, by definition, has both content and form, it is very rare that a piece is fully successful on both fronts. Composers tend to be divided by listeners into “form guys” and “material guys,” based on their strengths and weaknesses. Of course, this is an absolutely unscientific and subjective culling. But certain agreements have arisen nonetheless. Debussy, for example, is generally thought to be a “material guy.” Ditto for Ravel, Ives, Berlioz, Chopin and Mozart. Webern, on the other hand, is considered a “form guy,” as are Schoenberg, Brahms, Boulez, Schumann, and so on.<sup>1</sup> Are these reductive, unfair labels? Absolutely. But they represent an unmistakably true aspect of the craft: for most composers, either form or material comes most naturally, and tends to form the strong backbone of their work.

If we wished to liken this duality to another medium, we could compare musical form to an artist's canvas – the sound architectural framework upon which the artwork is constructed. The musical

<sup>1</sup> Madonna, of course, is universally classified as a “material girl.” : D

material then, would be the paint, applied to the canvas in a way meant to engage a viewer sensually. Neither paint nor canvas can exist without the other. And if one is poorly done, the effectiveness of the whole will suffer. The best painters are those who can stretch a strong, sound canvas and create an arresting image on top of it. Likewise, the best composers are those who can design sound forms which reward analysis, then fill them with engaging musical material of the highest order. Everyone will have their own list of composers who succeed on this front – mine would include Beethoven, Wagner, Berg, Messiaen, Ligeti, and perhaps a few others – but I think we can agree that it is a noble aspiration.

But there is another level still. In certain instances, the form and material, besides being sound and engaging on their own, are so closely linked that they become indistinguishable, as if paint and canvas were melded into one seamless artwork. This can only be achieved by deriving the material in such a way that it reflects the form (or vice versa). Although it's impossible to *prove* that this conscious linking of the two compositional parameters makes music “better,” I have a strong personal suspicion that it does. And while Beethoven, Berg, et al. are fine composers, of course, I don't typically find this kind of close relatedness between their form and material while analyzing.<sup>2</sup> The only composer (to my knowledge) in whose music this can nearly always be found is J.S. Bach. In this article, I'll be analyzing the C Minor fugue from book II of *The Well-Tempered Clavier* from this particular perspective, on the theory that one reason the music is widely judged to be interesting and worthwhile is the relationship between the formal structure and the material used.

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<sup>2</sup> Although I live in hopes of being proven wrong. Haven't analyzed the entire Beethoven catalog yet.

## LARGE STRUCTURE OF THE FUGUE

This is, for my money, one of the strangest fugues in the *WTC*. One quick glance at the music demonstrates why. Although usually classified as a four-voice endeavor, the fourth voice of BWV 871 doesn't enter immediately after the third, as one would expect. In fact, the fourth voice doesn't enter until measure 19 – two thirds of the way through the piece!<sup>3</sup> Then, for the final two measures (mm. 27-28, which function as a coda), Bach adds yet another voice, bringing the total to five. So strictly in terms of voices present, things break down as follows:

<b>mm. 1-18 (18 mm.)</b>	<b>mm. 19-26 (8 mm.)</b>	<b>mm. 27-28 (2 mm.)</b>
3 vox	4 vox	5 vox

From a material point of view, this piling up of voices is extremely attractive. It makes the music incredibly directional, even dramatic, and ensures that the climax of the piece is withheld until its final moments. Formally, this textural device yields up (unexpectedly clear) formal proportions of 18:8:2, which can be reduced to 9:4:1.<sup>4</sup> Let's hold that ratio in the back of our minds.

The fugue can also be divided another way. There are four clear textural/tonal markers in the piece:

**Downbeat of m. 5** – Conclusion of the fugal exposition (all three voices have entered and stated the subject once)

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<sup>3</sup> I have seen open score representations of this fugue which suggest that the fourth [bass] voice enters in measure 7, and dividing up the material in the lowest voice between mm. 7-18 between the tenor and bass staves. This is a completely misguided attempt to create a four-voice texture out of a three-voice texture. Also, if the subject statement in measure 7 was intended to be the entrance of the fourth voice, the key would be G Minor and not C Minor. So there.

<sup>4</sup> It is well-documented that Bach's favorite number was 14 (the logic being that B was the second letter of the alphabet, A the first, C the third, and H the eighth, and 2+1+3+8 = 14). The numbers in our proportion also add up to 14 (9+4+1 = 14). Of course, this could be a coincidence. But with Bach you never know.

**Downbeat of m. 14** – Cadence in G Minor

**Beat three of m. 23** – Cadence in C Minor

**Downbeat of m. 27** – Severe textural change (beginning of coda)

If we divide the fugue according to these markers (disregarding the two measure coda), we are left with proportions which reveal a symmetrical (or rather, near-symmetrical) structure:

$$13 [4 + 9] : 13 [9.5 + 3.5]$$

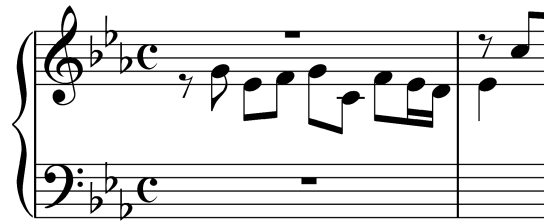
1A    1B    2B    2A

In other words, the body of the fugue (coda not included) seems to fall into two 13-measure chunks. The first chunk (which I've labeled "1") subdivides into smaller blocks of 4 measures and 9 measures ("1A" and "1B") – a proportion which matches the one we found in the assignation of voices, above! The second thirteen-measure chunk ("2") subdivides into small blocks of 9.5 measures and 3.5 measures ("2B" and "2A"), a small elaboration on our expected ratio of 9:4. Sections 1 and 2 together make up what would, in the music of Bartok, be called an "arch form" - that is, section 2 is an *inversion* (reflection) of section 1.

The relationship between our two methods of formally dividing the piece (first based on number of voices, second based on textural/tonal markers) is now clear. The proportion of 18:8 we found by comparing measures of 3-voice texture to measures of 4-voice texture is an *augmentation* (doubling) of the 9:4 / 4:9 proportion we found in both section 1 and section 2 by observing textural/tonal markers. Commensurately speaking, both methods yielded the same result. But the first was twice the size of the second.

## 9:4:1 IN THE FUGUE SUBJECT

The proportion 9:4:1 is apparently important to the structure of the fugue. 4:9 was the natural division of both 13-measure halves of the fugue body, and 9:4:1 is the reduction of the ratio of measures of 3-voice : 4-voice : 5-voice textures. But these figures are also important to the construction of the fugue's subject itself, a relationship which begins to build the paint/canvas synthesis mentioned in the introduction.



*mm. 1-2*

As can be seen above, the fugue subject contains a total of nine notes. It is four beats in length (the subject must be considered to be over when the second voice enters on the second eighth note of m. 2). And given the meter, the subject occupies the space of exactly one measure.<sup>5</sup> 9:4:1. The numbers which emerged as being important in our inspection of the form of the fugue also seem to be important to the melody on which the fugue is constructed.

Whether these numbers have a deeper extramusical meaning is a matter of conjecture. It is certainly worth noting that 9, 4, and 1 are perfect squares of consecutive integers (3, 2, and 1), a coincidence which seems extraordinary. The fact that the three numbers added together equal 14 –

<sup>5</sup> This is especially compelling because, given the large amount of rhythmic displacement which occurs later in the fugue, a meter signature of 2/4 might have been more appropriate for the piece.



Bach's numerical representation of his own name – has been pointed out in a footnote, above. In the Bible (always worth checking with Bach), 1 John 4:9<sup>6</sup> is a well-known and well-loved passage.

However, I can't say for certain – however tantalizing the possibilities – that these numbers have any significance outside of the music.

### CONTRAPUNTAL OPERATIONS

The notion of “contrapuntal operations” in Bach is more often taught than found in the music. The techniques of augmentation, diminution and inversion can be seen in only a handful of the 48 fugues comprising the two volumes. In BWV 871, however, Bach employs augmentation (Alto, m. 14 and Bass, m. 19) and inversion (Tenor, m. 15 and Bass, m. 21) to great effect. All of these instances are notated on the analytical score preceding this article.

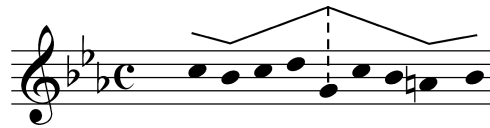
What makes this interesting – besides its being an exciting demonstration of Bach's contrapuntal wizardry – is that these two operations in particular are paralleled in the design of the form of the piece. Recall that the form of the fugue emphasizes the proportion 9:4 in one respect, and its doubling (or its *augmentation*), 18:8, in another. Recall also that the construction of the piece in two halves with the proportions 4+9 : 9+4 represent a mirror form, where the second half is an *inversion* of the first. This coexistence of contrapuntal operations with their formal expression is another instance of the close relationship between material and form in Bach's music.

### GOING A LITTLE FURTHER

The principle of inversion is not just utilized as an operation in the last half of the fugue. It is, in fact, present in the makeup of the fugue subject itself. Particularly when it is presented in its form as

<sup>6</sup> “In this the love of God was made manifest among us, that God sent his only Son into the world, so that we might live through him.” [ESV]

a tonal answer, the symmetrical construction of the subject is easy to see. The first four notes and last four notes form stepwise contours (related by inversion) around a central axis pitch which is approached and left by large leap:



*soprano, mm. 2-3, rhythm removed*

When rhythm is taken into account, the symmetry of the fugue subject is revealed to be imperfect. The first four notes are all eighth notes, while the final four consist of two eighths and two sixteenths. The imprecision of this small rhythmic change is reflected formally by the fact that the proportions of section 2 (9.5 + 3.5) are two beats removed from perfectly mirroring the 4:9 proportions of section 1. Thus, by its very imperfection, the subject is a perfect melodic analog for the form of the body of the piece.



One further instance of inversion in the piece seems worth noticing. To an extent matched by only a few other fugues in the *WTC*, BWV 871 is saturated with its subject. Discounting the coda, only once does a space of two measures go by without the subject being stated (mm. 5-6). Bach draws further attention to this already noteworthy spot by creating a linear passage which appears in the tenor voice (m. 5) and then, inverted, in the soprano voice (m. 6). This melody never returns – it is just one more clue that the material of the piece is drawn from, or based on, its symmetrical structure:

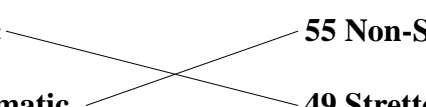
The image shows two staves of music. The top staff is the soprano voice, starting at measure 5 with a melodic line that is an inversion of the subject. The bottom staff is the tenor voice, starting at measure 5 with the subject. A vertical line labeled 'inversion' is drawn between the two staves, indicating the relationship between the two passages. The key signature is G minor and the time signature is common time.

## A QUICK NOTE ABOUT STRETTO IN BWV 871

One very noticeable aspect of this fugue is the disparity in complexity between its first half (section 1, mm. 1-13) and its second (section 2, mm. 14-26). In section 1, the subject appears seven times, and there are no instances of inversion, augmentation, or stretto.<sup>78</sup> In section 2, the subject appears 17 times (including twice in inversion and twice in augmentation), and stretto is common. This unevenness of the distribution of material appears to belie the underlying symmetry of the architecture of the fugue.

However, the disguise is a thin one. As is shown below, the proportion of thematic : non-thematic material in section 1 is nearly identical to that of non-stretto : stretto material in section 2. While it would seem better at first that the thematic and stretto passages should be proportional, and likewise the non-thematic and non-stretto, it must be remembered that the second half of the fugue is a mirror of the first. This is yet another example of Bach's use of inversion.

SECTION 1 (in  )	SECTION 2 (in  )
58 Thematic	55 Non-Stretto
46 Non-Thematic	49 Stretto



### CONCLUSION

What makes a piece of music “good?” In 2014, it's probably harder than at any point since the invention of notation to answer this. Perhaps the problem is that it's kind of a dumb question – you

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<sup>7</sup> *Stretto*, in case anyone doesn't know, is the contrapuntal technique wherein a subject statement beg

<sup>8</sup> ins before the previous statement is finished. This creates a layering effect.

like what you like, and you dislike what you dislike, and there are your own personal valuations for “good” vs. “bad.” But this kind of subjective – even anarchical – approach to music evaluation seems, in the end, to be unsatisfying, because if there is no such thing as an objective “good,” then every new work must to be considered equally good... Which I think all artists and art lovers know is not the case.

The remarkable relationships Bach develops between his formal structures and his contrapuntal materials – not just in this piece, but in many that I've examined – is an objective way of demonstrating, if not merit, then at least thoughtfulness. Whether planned (probably) or intuited (unlikely), these sorts of connections bind a piece together on the page. And I suspect – though again, I cannot prove – that works composed with this degree of integration are similarly bound together in the mind of the listener, in some sort of primal, barely-understood way. Even though this is old music, I think there's a lesson in it for new composers. You want to be “good?” Strive for a total synthesis between form and content. Bach can show you how.