

accidentals outside of the key is said to be *chromatic*. The subject of this fugue is highly chromatic. It plays upon our sense of wonder in the ambiguity of not being always certain of the key.

Problem of Chromaticism

Toward the beginning of Bach's career musicians tuned the *clavier* family of instruments (keyboards) to pure intervals. This was known as the *meantone* system of intonation. When Bach wrote this fugue meantone was in the process of becoming as old-fashioned as a monochromatic monitor is today. Like an out-of-date monitor, meantone could not properly [dis]play *chroma* that are, in music, analogous to semitones outside the key.

This fugue seems to have been planned to demonstrate the problem of playing chromatic music in meantone. When so "tuned," this subject would have sounded painfully out of tune. The discordant half steps would have been tuned with conflicting tonal centers (tonics) in mind. So in meantone not every pitch on the keyboard (black and white) could function as the tonic.

As Bach's career advanced a solution known as *wohltemperirt* emerged. This tuning system was promulgated by Andreas Werckmeister and had the strong support of Johann Sebastian. The *Well-Tempered Clavier*, twice cycling as it does through the 12 major and 12 minor keys, demonstrated the feasibility of allowing any pitch to function as the tonal center.

Meaning of Chromaticism

The chromaticism of this fugue has an obvious didactic meaning; the twelfth fugue employs all twelve tones of the chromatic scale. As we have noted, Bach reiterates the symbol twelve fugues later by composing an even more highly chromatic subject (fugue No. 24).

But the chromaticism of this fugue proved more than an acoustical point. Bach and his contemporaries believed that there was a rational correspondence between the spiritual realm, music, math, and the universe. These topics were linked to each other in tangible ways and it was thought that an understanding of one would inform the others. While their theories of proportion and intonation, cloaked as they were in the technical language of mathematics, may appear to have had Cartesian roots, they were actually the dying embers of something older, something more like alchemy than science.

Werckmeister especially was committed to the neo-Platonist belief in a heavenly harmony, composed by God, governing everything from the movement of planets to musical tones. Werckmeister's intellectual father Athanasius Kircher girded his theories with liberal quotations from Biblical passages like that of Job 38:4-7. In such a context the chromaticism of this fugue can be heard as mystical and spiritual, not scientific.

Role of Triple Counterpoint

In general, fugues where the subject is heard in dialogue with itself (in *stretto*) do not have countersubjects. Conversely, fugues with countersubjects tend to avoid stretto. This fugue is in the second category. Its essence is contained in a

contrapuntal block, what Laurence Dreyfus calls the *fugal complex*, repeated in various keys, modes, and textural permutations.

The fugal complex of this work is found in mm. 7-9, the first occasion where the subject (red) "converses" with both of its countersubjects (green and blue). The rest of the fugue consists of six statements of the complex united by a series of modulating sequences.

Modal variation is achieved by stating the subject twice in the major mode: A-flat in mm. 34-36 and E-flat in mm. 40-43. The subdominant minor-mode statements in mm. 19-21 and mm. 47-48 provide additional tonal variation.

Textural variation is achieved by means of triple counterpoint. There are six possible textural permutations, three rotations of the prime form and three rotations of its inversion. Taking mm. 7-9 to be prime (first statement of the fugal complex) there are no rotations of this form. Instead Bach has used all three rotations of its inverted form for a total of four (out of six possible) permutations.

Bach repeatedly demonstrates that he has no use for unthinking iteration of every possible combination in triple counterpoint. This fugue illustrates how each texture must make musical sense. The logic is inescapable; each subject is allowed to take its place in the highest and lowest voices. Following m. 10 the subject and 1st countersubject are each heard twice in the highest and lowest voices with the 2nd countersubject being heard once in each of these registers. The effect is one of pleasing variation within the constraints of balance, fitting proportions, and control.

Fugue as Dialogue

If the pitches of this subject are chromatic, its rhythms are quite the opposite. With the exception of one half note every tone is a quarter note in length. The subject's deliberate lack of rhythmic variation heightens the vividness of its richly chromatic intervals. It seems like Bach is trying to say something about semitones and the directions by which they proceed.

By now you have heard the subject several times. Had you noticed that it contains five pairs of semitones, the first four alternately rising and falling: #1, #2, #3, #4, and #5? Do these sighing motives sound to you like speech? I'll not demean this work by attempting to reveal what its subject says. But I can assure you that it says something.

One of Bach's students, Kirnberger, described melodies moving by semitones as despairing and full of doubt. In Kirnberger's conception the alternating ups and downs of this fugue might express its doubt, and the semitones continually clouding its tonal center, despair.

At least one contemporary interpreter of the baroque would not rule such a reading at all far-fetched. A recurrent theme in Nikolaus Harnoncourt's writing is that baroque music is a dialogue. He has expressed this view in two books: *Baroque Music Today: Music as Speech* (1995), and *The Musical Dialogue: Thoughts on Monteverdi, Bach, and Mozart* (1997). This fugue wonderfully illustrates the discursive effect of which Herr Harnoncourt wrote.

If the topic of this fugue is heard in the doubt and despair of its subject, the dialogue is heard in its musical counter-arguments: the 1st countersubject (low

voice) agreeing with its ups and the 2nd countersubject (middle voice) agreeing with its downs. Admittedly this is difficult to hear, especially inasmuch as the 2nd countersubject has a habit of crossing other voices.

Simply put, a melody in long notes progressing alternately up and down by semitones is the voice of the subject. Melodies in short values are the countersubjects. The tendency of the 1st countersubject is to ascend, while the tendency of the 2nd countersubject is to descend. In dialogue these two "counter" the tonally indecisive subject. So the countersubjects are like Job's friends, one reinforcing the subject's ups and the other its downs.

The discursive character of this fugue is not limited to its recurrent fugal complex (colored portions of the timeline). The conversation intensifies during its many sequential episodes (portions marked by grey stair steps). Structurally the steps indicate how many times a pattern repeats and whether the repetition is at a higher or lower level. Affectively the character of these episodes is determined by the fact that they are developed entirely from motives in the countersubjects.

Recall that the 1st countersubject (green) ascends. This direction is consistently applied to each iteration of the fugal complex. But in the sequential episodes the 1st countersubject often moves in contrary motion. The reversal of direction contributes to its doubt, but it also leaves the impression that the topic has been fully explored. Like extended soliloquies, these episodes provide the dialogue, and the fugue, with some of its most convincing arguments, pro and con.