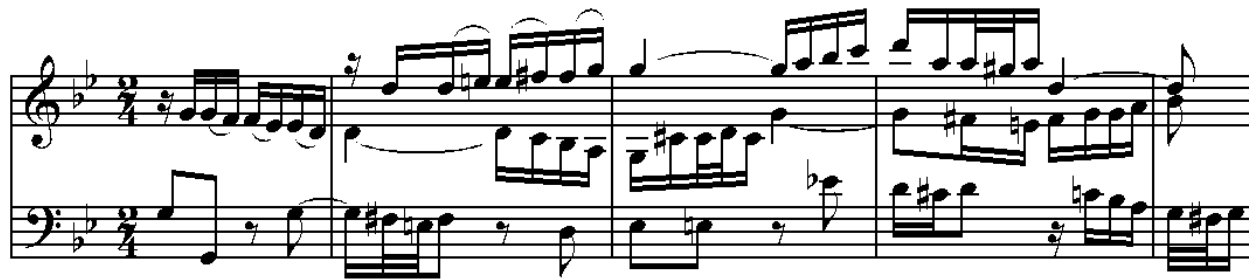


Ex. 8-5 Bach: *Goldberg Variations* “Variation No. 12 – Canone alla Quarta”



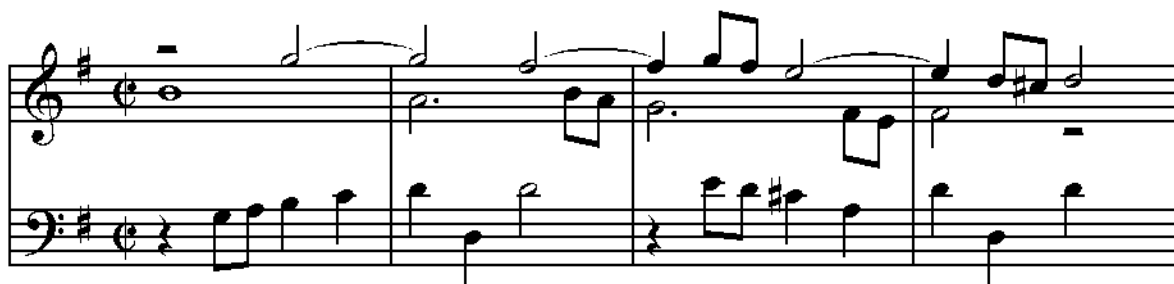
Variation 12 is a canon in *contrary motion*. This term means that the follower (the higher voice in the bass staff starting in bar 2) imitates the leader but the direction of each interval is the opposite from the leader, even though the interval is the same size. This type of canon is also called a *canon by inversion*.

Ex. 8-6 Bach: *Goldberg Variations* “Variation No. 15 – Canone alla Quinta”



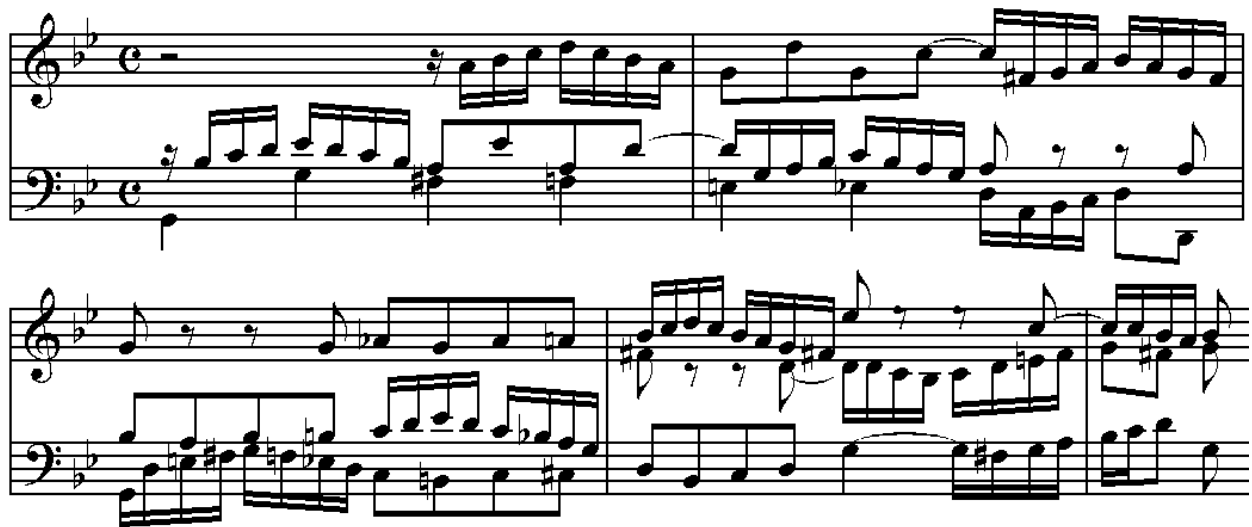
Variation 15 is another canon in contrary motion. This variation is also in the parallel minor key of G minor. As in a lot of Bach’s slow pieces in minor keys a number of chromatically inflected notes intensify the harmonies of the piece, as does the “sighing” quality of the opening phrase to which Bach carefully added slurs between pairs of notes.

Ex. 8-7 Bach: *Goldberg Variations* “Variation No. 18 – Canone alla Sesta”



Variation 18 is a canon at the 6<sup>th</sup> with the leader in the lower voice of the treble staff and a free counterpoint in the bass. As before Bach takes advantage of the connection between the interval of a sixth and the 7-6 suspension. In ex. 8-7 it can be seen that every measure starts with a 7-6 suspension between the upper two voice parts. This is another good example of tonal imitation.

Ex. 8-8 Bach: *Goldberg Variations* “Variation No. 21 – Canone alla Settima”



Variation 21, a canon at the seventh, returns to the parallel minor key of G minor as before and as in so many minor mode compositions the chromaticism is increased. Notice in particular the chromatic descent in the opening two bars in the bass voice down to the dominant scale degree after which the bass becomes more active and freely imitates the canon in the upper two voices.

Ex. 8-9 Bach: *Goldberg Variations* “Variation No. 24 – Canone all’ Ottava”



Variation 24 is a rather straightforward canon at the octave back in G major, but the leader is longer than most. The follower doesn’t commence until measure 3 in the upper voice of the bass staff.

Ex. 8-10 Bach: *Goldberg Variations* “Variation No. 27 – Canone alla Nona”



This last canon in the *Goldberg Variations* is the only two voice canon in the entire work.

It may seem odd that Bach didn't compose a canon for the last variation of this set, since Variation 30 is also evenly divisible by 3. Instead Bach's Variation No. 30 is a quodlibet, which is a term meaning a piece of music in which various well-known melodies of the time were heard simultaneously. It is a humorous piece because the titles of the popular songs that he used: "I Have So Long Been Away From You" and "Cabbage and Turnips Have Driven Me Away".

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### Special Canonic Devices

In addition to canons at various intervals and canons in contrary motion there are other special canonic devices that Bach and others have employed. Among these are *augmentation* and *diminution*. A canon in augmentation is one in which the follower mimics the leader, but the durations of each note have been augmented, usually doubled in length, although sometimes even quadrupled in length. A canon in diminution is the opposite, in this type of canon the durational values of the follower is half as long as the leader. Ex. 8-11 is a canon in diminution and in the upper voice not only *diminution* but also *contrary motion*.

Ex. 8-11 Bach: *Art of the Fugue*, “Fugue No. 6”



The *Art of the Fugue* is a collection of fugues and canons which Bach was composing at the end of his life, and was left unfinished. Example 8-12 is another example from this monumental collection of 14 fugues and 4 canons, and is an example of a canon in *augmentation* and *contrary motion*.

Ex. 8-12 Bach: *Art of the Fugue*, “Canon No. 1”

The image displays three systems of musical notation for Canon No. 1. Each system consists of a treble clef staff and a bass clef staff. The first system shows the initial entry of the canon in the treble staff, with the bass staff providing a simple harmonic accompaniment. The second system, starting at measure 6, shows the canon in the bass staff, moving in contrary motion to the treble staff. The third system, starting at measure 10, shows the canon in the treble staff again, with the bass staff continuing its accompaniment. The notation includes various rhythmic values, accidentals, and phrasing slurs.

The *Musical Offering* is a multi-movement work Bach composed in which all of the movements are based on a theme supplied to him by King Frederick the Great. The theme can be seen in Ex. 8-13 in bars 1 – 9 in the treble staff. The *Musical Offering* contains ten canons which are notated as puzzle canons. This means that the leader is written out on a single staff and bizarre looking notational clues reveal how the piece should be performed to create various types of canons. Ex. 8-13 is one of the most odd. It is a *retrograde* canon, also known as a “crab” canon. In this type of canon the follower is the leader played backwards! If you look at measures 9 and 10 you will see that the barline between these two measures is the “mirror” point of the canon and that everything following bar 9 (of this 18 bar long piece) is the same, just backwards.

Ex. 8-13 Bach: *The Musical Offering*, Retrograde Canon

One final type of canon is the *double* canon. This is two different canons sounding at the same time, with two separate leaders and followers. Ex. 8-14 is from a chorale prelude for organ by Bach called *In Dulci Jubilo*. The outer voices have one canon, which is actually the melody from the chorale. The middle voices, in triplets, state another canon.

Ex. 8-14 Bach: *In Dulci Jubilo*

The image displays three systems of musical notation for Ex. 8-14, Bach's *In Dulci Jubilo*. Each system consists of three staves: a treble clef staff at the top, a bass clef staff in the middle, and another bass clef staff at the bottom. The key signature is three sharps (F#, C#, G#) and the time signature is 3/4. The first system shows the initial entry of the canon in the treble and bass staves, with the middle bass staff providing harmonic support. The second system continues the canon, with the treble and middle bass staves featuring triplet patterns. The third system concludes the canon, with the treble and middle bass staves showing the final notes and the bottom bass staff providing a steady accompaniment.

## Rounds and Catches

Most of us are familiar with rounds such as “Row, Row, Row your Boat.” These are actually canons at the unisons and were very popular in the Renaissance era. Example 8-15 is a round from the 16<sup>th</sup> century called “Great Tom is Cast” the subject of which is a huge bell at Oxford University. “Tom” is the name of the great bell of Christ Church, Oxford and the bell tower in which it is hung is known as “Tom Tower”. The numbers above the music in example 8-15 indicate where each singer should begin the tune for it to overlap properly.

Ex. 8-15a “Great Tom is Cast”

1. Great Tom is cast, and Christ Church bells ring

2.

3. 1, 2, 3, 4, 5, 6 and Tom comes last.

To compose a round the trick is to notate each segment of the tune above one another to make it easier to see how the different segments will combine harmonically and rhythmically. Unlike other types of canons all the segments should have more or less the same range, since each singer will have to sing each segment. Also, care has to be taken to make sure that the last note of each segment connects to the first note of the next one in a reasonable manner. Ex. 8-15b shows this “stacked” form of notation for the same round.

Ex. 8-15b

1. Great Tom is cast, and

2. Christ Church bells ring 1, 2, 3, 4, 5,

3. 6 and Tom comes last.

# Invertible Counterpoint

Counterpoint in which either voice can serve as the bass or the treble part is called *invertible* or *double counterpoint*. This device, like canons, has been used for centuries and there are many examples from Renaissance polyphony. Ex 8-16 is the first eight measures of Bach's Two-part invention No. 9. The treble part in the first four measures returns as the bass part in bars 5-8 and conversely the bass part in the first four measures returns as the treble voice in the next four bars.

Ex. 8-16 Bach: Two-Part Invention No. 9

In fact there is one note that isn't simply "copied and pasted" to the other part. The first note in the treble staff of bar 5 (marked with an 'x') is not the F that the bass had as its first note of bar 1. Had the F reappeared in bar 5 it would have created an unacceptable harmonic interval of a perfect fourth with the bass, so Bach simply altered this one note. Ex. 8-16 is an example of invertible counterpoint at the octave, the most common variety. Composing invertible counterpoint at the octave is not problematic with one exception. The one interval that should be avoided when writing invertible counterpoint is the perfect fifth. When a perfect fifth is inverted it becomes a dissonant perfect fourth. The other consonant intervals of thirds, sixths, and octaves invert to consonant intervals except for the fifth. This simple fact is the reason that the first note of bar 5 in ex. 8-16 had to be adjusted, its correspondent in bar 1 was a perfect fifth.

Invertible counterpoint is a wonderful time saver for composers. In this example four measures are extended to eight without composing any new music. Example 6-10 in an earlier chapter from Bach's fourth two-part invention began with four measures of music being flipped and extended to eight. These two examples are rather straightforward but invertible counterpoint can also be transposed, and this can be used to excellent effect. Example 8-17 is from the development of the first movement of Mozart's *Symphony No. 40*. This exciting passage combines the first four bars of the main theme of the movement with a Bach-like counterpoint in eighth notes. In bar 115 the main theme is heard in the low strings in the key of E minor, a remote key relationship to the initial key of the movement, G minor. In measure 119 these two voices switch positions, the eighth-note counterpoint moves to the low strings and the theme moves to the high strings, but it is also transposed down a whole step to the key of D minor.