



School of Music Theory

Continuo..

The Figured Bass Handbook & Workbook



Introduction

Figured bass is a bass line annotated with numbers and symbols that indicate intervals above each bass note. It was developed in Baroque music (c. 1600-1750) as a compositional shorthand. Basso continuo keyboard players were expected to read the bass line in the left hand and fill in the harmonies in the right hand using figured bass.



Introduction



This painting is from c. 1755 and shows two continuo players. Both harpsichordist and cellist play the continuo part, but only the harpsichordist realizes the figured bass.



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Figured Bass

Allegro.

The musical score is in 3/4 time and consists of two staves: a treble staff for the flute and a bass staff for the keyboardist. The bass staff includes figured bass notation (numbers 1-7) indicating the harmonies to be played. The tempo is marked 'Allegro.'

Figured Bass notation (numbers 1-7) is provided below the bass staff:

6 6 6 6 9 6 4 (3) 6 6
5 4 5 4 4 2

This is from JS Bach's Flute Sonata in C Major, BWV 1033. The flute plays the treble staff, while the keyboardist plays the bass staff and is expected to voice the harmonies above the given bass line using the figured bass provided.



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Part 1: Realising Figured Bass



Realising Figured Bass

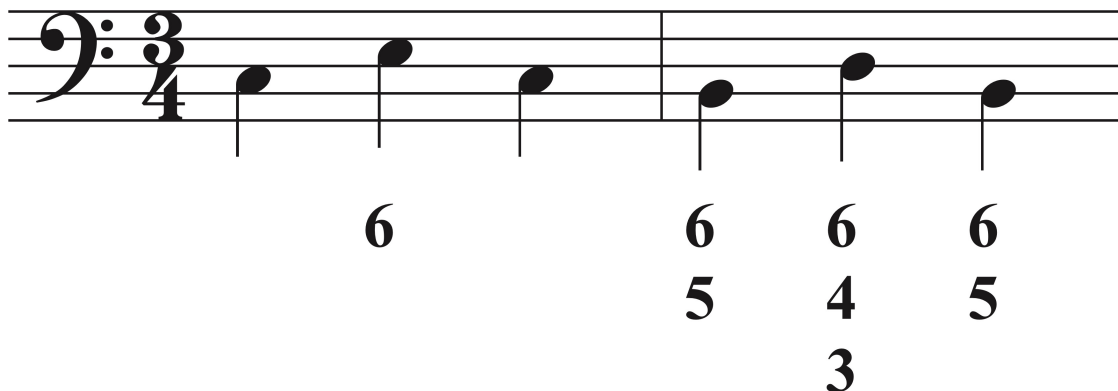
Allegro.

6 6 6 9 6 4 (3) 6 6

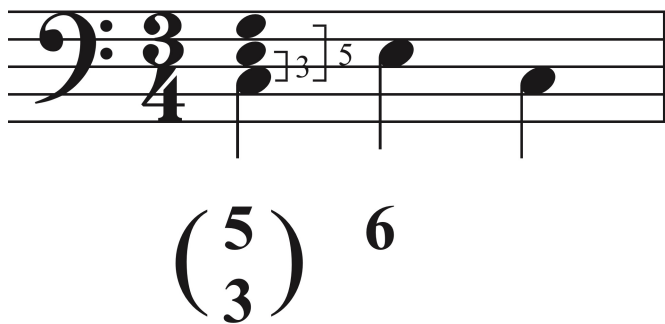
- Look again at this fragment of the Bach Flute Sonata, and notice that the continuo part includes some notes without figures. We will pay particular attention to the notes on beats 1, 2 and 3, and disregard the notes on the half beats as these function as a second part that provides rhythmic motion and a fuller texture.



Realising Figured Bass

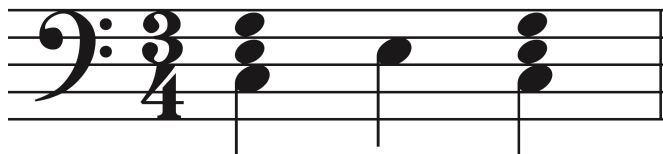


- The rhythm of the first two bars are reduced here, and we can see that the Cs on beats 1 and 3 of bar 1 are without figures.
- The default realisation of a bass note without figures is a 3rd and a 5th above the bass note:





Realising Figured Bass

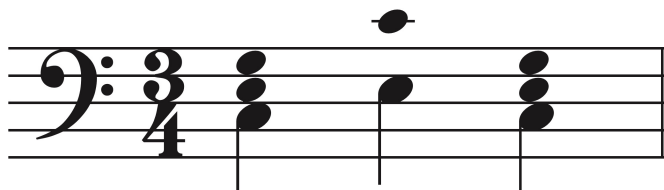


(5)
(3) 6

- Notice that the realisation of the two Cs produces a root position C major triad.
- Root position triads are often without figures, because it is assumed that there is a 3rd and a 5th above the bass unless otherwise indicated.
- When the intervals above the bass note are something other than a 3rd or a 5th, figures are used to show this.

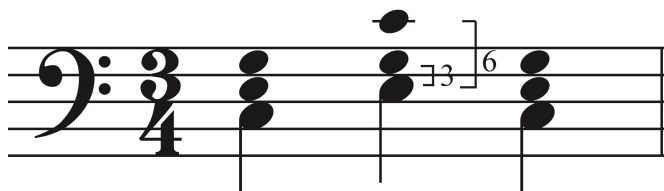


Realising Figured Bass



6

- The bass note changes on beat 2, and there is a figure indicating a 6th above the bass.
- In this case as well, a 3rd is implied.



6
(3)

- The 3rd and 6th above the bass note creates a C major chord in first inversion.



Realising Figured Bass

6

6 5

6 4 3

6 5

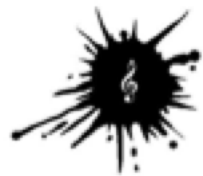
- In bar 2, beats 1 and 3, the 5th and 6th above the bass note are indicated, but once again, the 3rd is implied.



Realising Figured Bass

The image shows a musical staff in bass clef with a 3/4 time signature. The first bar contains three chords: a G major triad (G2, B2, D3), a G major triad with a 6th (G2, B2, D3, F4), and a G major triad (G2, B2, D3). The second bar contains three chords: a G7 chord in first inversion (B2, D3, F4, G2), a G7 chord in second inversion (D3, F4, G2, B2), and a G7 chord in first inversion (B2, D3, F4, G2). The figured bass numbers below the notes are: Bar 1: 6, 6, 6. Bar 2: 5, 4, 3.

- Beat 2 of bar 2 indicates all three notes above the bass note. There is a 3rd, 4th and 6th above the bass.
- Notice that the figured bass realisations in bar 2 create a G7 chord in first and second inversions.



Realising Figured Bass

6 6 6 6 6 6

5 4 3 5

- Figured bass is realised within the key signature of the piece.
- Notice the realisation above in Eb major produces the same patterns above the bass line as the C major flute sonata, but it is using the notes of the Eb major scale.
- This realisation is in closed position, but each note above the bass does not have to stay within an octave of the bass. In fact, a harpsichordist performing a basso continuo would find different ways to voice these harmonies in the right hand.



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Chromatic Alterations

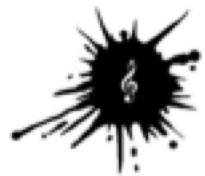


Chromatic Alterations

Figured bass notation for the melody:

Note	Figured Bass
B \flat	b
A	6
G	b
F	#6 5
E	6 #4 3
D	#6 5

- Figured bass is realised within the key signature of the piece.
- This means that any chromatic alterations to the harmonies are indicated in the figured bass.
- \sharp and \flat indicate alterations by a semitone. These alterations are made within the context of the existing key, so they don't always literally mean a sharp or flat note. Rather, \sharp indicates a note raised one semitone, and \flat indicates a note lowered by one semitone.



Chromatic Alterations

Below the staff, the following figures are indicated for the notes above the bass:

Figure	Figure	Figure	Figure	Figure	Figure
b	6	b	#6	6	#6
			5	#4	5
				3	

- Notice that the first and third beats of the first bar features a flat without a number. This means that the third above the bass should be lowered one semitone. (G → G \flat)
- The second beat features a chromatic bass note, but the figures above are within the key. No chromatic figure is required.
- In the second bar, the 6th above the bass is to be raised. This is done within the context of the existing key, so B \flat is raised to B \sharp . Notice that the sharp in the figure does not indicate a literal sharp in the realisation in this case.



Chromatic Alterations

3/4

b 6 b #6 6 #6

5 #4 5

3

- Try realising this chromatic figured bass in the original key of C major.
- Turn the page to compare your realisation with mine.



Chromatic Alterations

♭ 6 ♭ #6 6 #6
5 #4 5
3

- Recall that the ♭ sign on its own means that the 3rd above the bass should be lowered one semitone. E becomes E♭.
- In bar 2, the raised 6th above the bass turns G into G♯ on beats 1 and 3. Likewise, the raised 4th above the bass is a G♯. So in this key, the raised figure does lead to a literal ♯.
- Always remember to realise a figured bass, chromatic or not, within the context of the key of the piece.



Chromatic Alterations

6 6 6
5 4+ 5
3

- Raised figures can also be indicated with a slash through the number or a plus sign.



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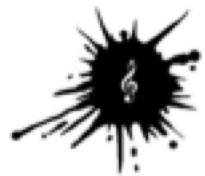
Basso Continuo Players



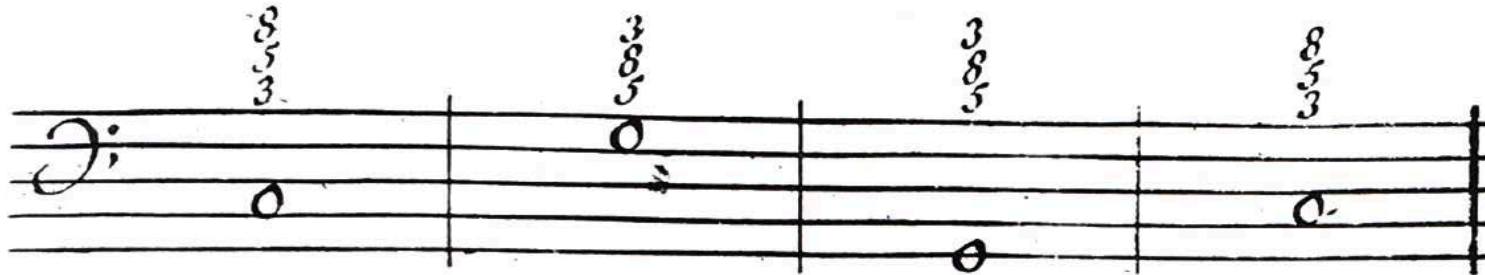
Basso Continuo Players

Learning to play continuo means learning to realise figured bass in tempo. This is a skill that requires repetition and memorisation of different voicings of figured bass.

- There are a number of treatises written to help continuo players rehearse this skill, and we're going to do one exercise from one of these, called *Principes de l'Acompagnement du Clavecin* (1718), by Jean-François Dandrieu. It provides voicings on one page followed by a page of the same continuo part with figured bass only (not the full voicings).
- Let's look at the first of these exercises and realise them at the keyboard.



Dandrieu Treatise



- The treatise begins in the key of C, with the bass moving from the tonic – up to the dominant – down to the dominant – and back up to the tonic.
- Notice the numbers for voicing are notated here above the staff. Figured bass notation below the staff eventually became standard practice, but this was written before that standard practice became the norm. These figures still indicate intervals to be played above the bass note.



Dandrieu Treatise



- In the right hand, suggested voicings are as follows:
 - bar 1 → a 3rd above the bass, a 5th above the bass, and an octave above the bass
 - bar 2 → a 5th above the bass, an octave above the bass, and a 3rd above the bass
 - bar 3 → same as bar 2
 - bar 4 → same as bar 1



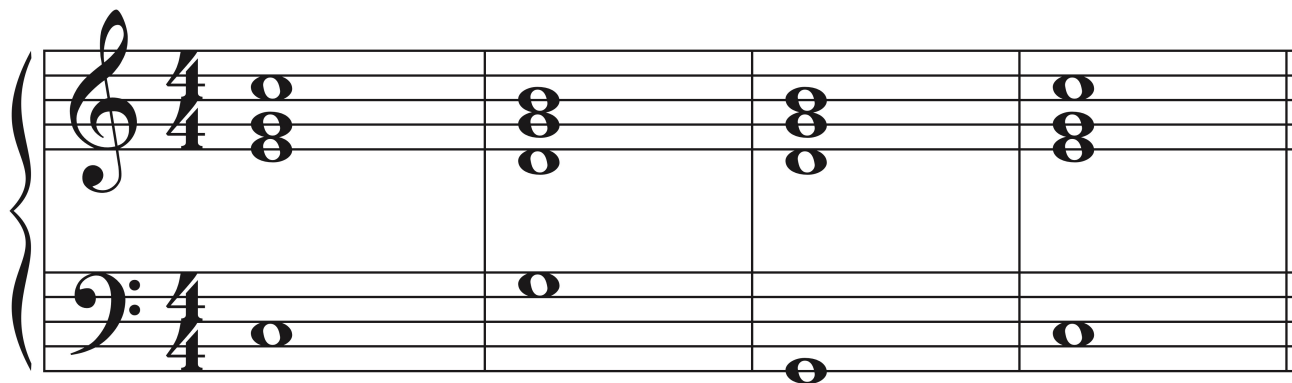
Dandrieu Treatise



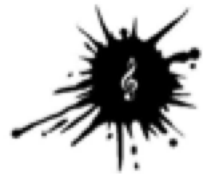
- Try realising these four bars at the keyboard.
- Turn the page to check your realisation against a fully notated version.



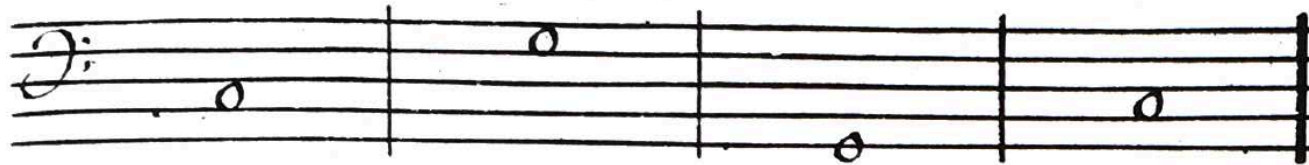
Dandrieu Treatise



- This is the realisation of the first Dandrieu basso continuo exercise.
- Notice that the intervals are played more than an octave above the bass. This is common. Figured bass intervals can be voiced in any octave above the bass.
- Working through the treatise, a continuo player would memorise these voicings and work towards playing them from memory using the rendition on the next page.



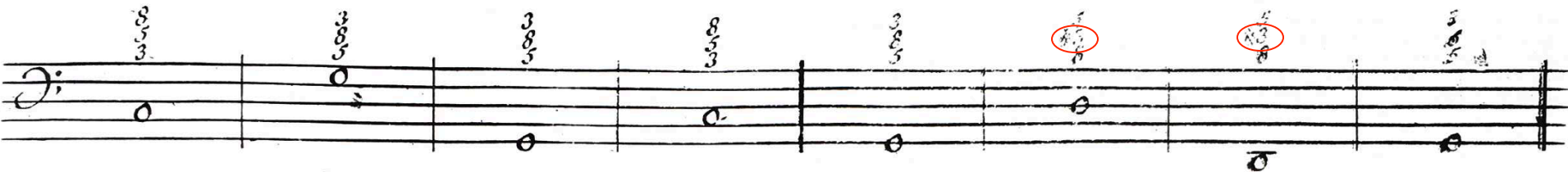
Dandrieu Treatise



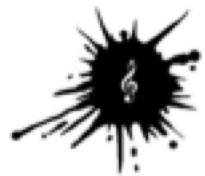
- This is the next page of the Dandrieu Treatise. Notice there are no figures, as is typical of root position triads. Remember that when there are no figures, the 3rd and the 5th are understood to be above the given bass note.
- A continuo player would memorise the Dandrieu voicings provided on the previous page and use muscle memory when playing this version of the basso continuo in tempo.



Dandrieu Treatise

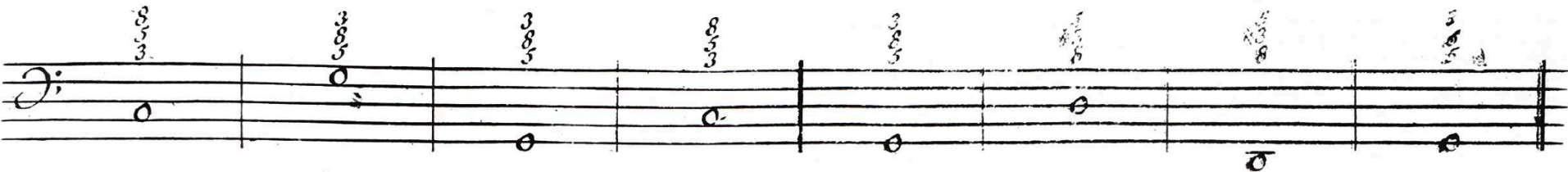


- The second half of the first line changes to the key of G but without changing the key signature. Notice that the 3rd in the sixth bar is raised ($\sharp 3$).
- In the right hand, suggested voicings are as follows:
 - bar 5 → a 5th above the bass, an octave above the bass, and a 3rd above the bass
 - bar 6 → an octave above the bass, a raised 3rd above the bass, and a 5th above the bass
 - bar 7 → same as bar 6
 - bar 8 → same as bar 5



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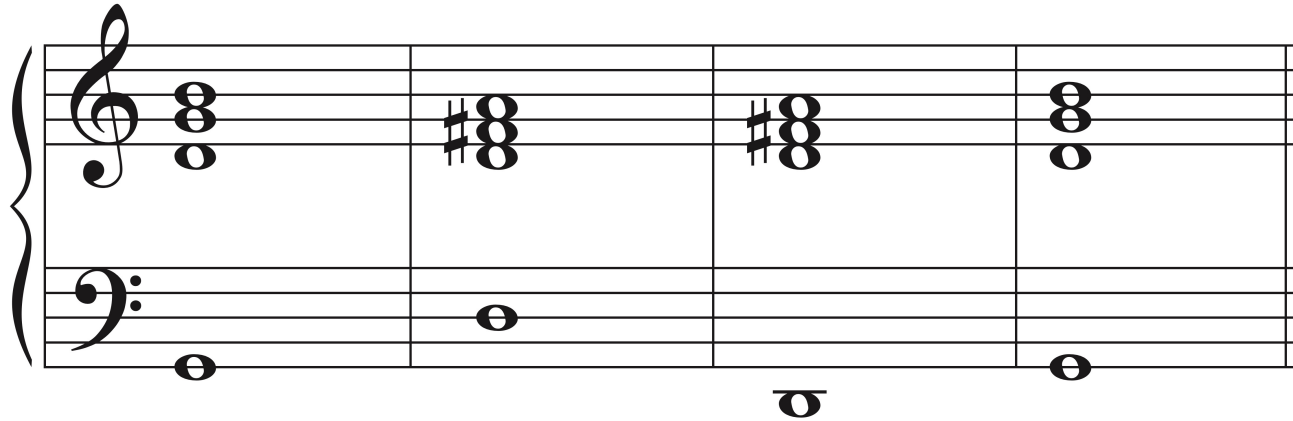
Dandrieu Treatise



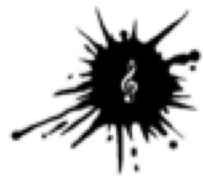
- Try realising these next four bars at the keyboard.
- Turn the page to check your realisation against a fully notated version.



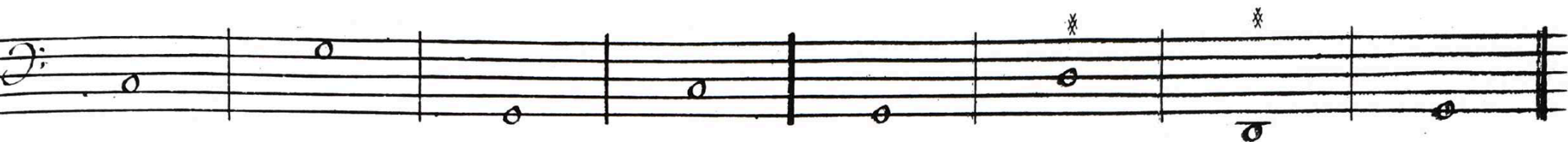
Dandrieu Treatise



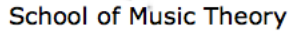
- This is the realisation of the second Dandrieu basso continuo exercise.
- Working through the treatise, a continuo player would memorise these voicings and work towards playing them from memory using the rendition on the next page.



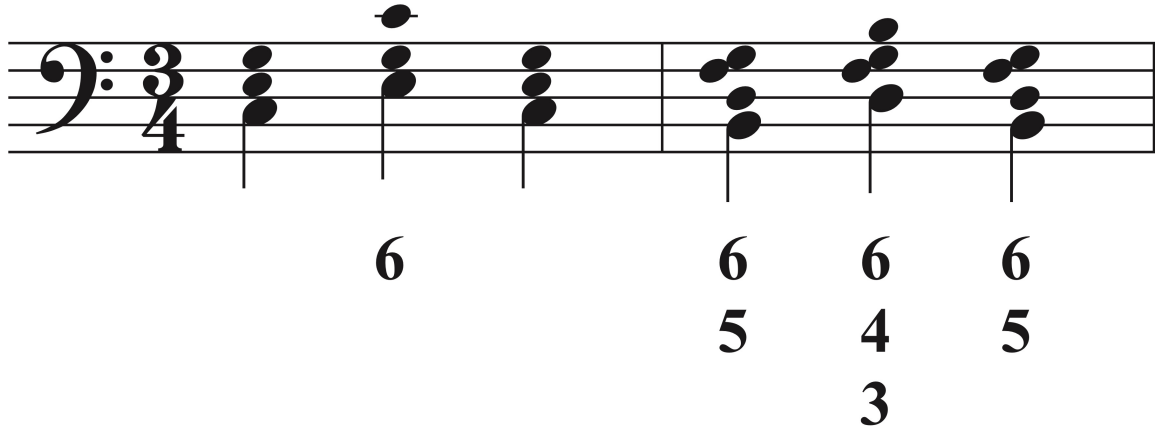
Dandrieu Treatise



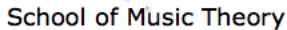
- Notice there are no figures in bars 5 and 8, as is typical of root position triads. Remember that when there are no figures, the 3rd and the 5th are understood to be above the given bass note.
- The only figures in bars 6 and 7 are \sharp s. These are understood to apply to the 3rd above the bass.
- A continuo player would memorise the Dandrieu voicings and use muscle memory when playing basso continuo in tempo.



Dandrieu Treatise



- Try using the Dandrieu voicings to realise the chords above the Bach bass line.



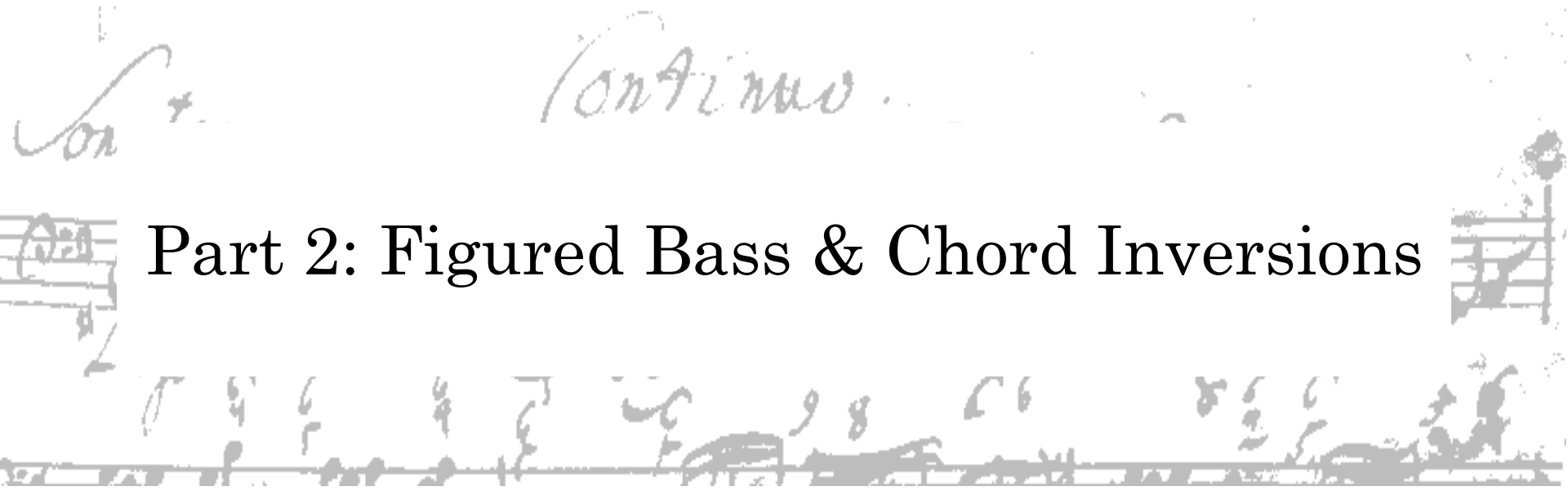
Dandrieu Treatise

[illegible]

- Starting with the chord voicing of C major in exercise 1 of the Dandrieu, the voicing in bar 2 of G7 keeps the G as a common tone from bar 1 and moves the rest of the chord down by step (C → B, G → F, E → D).
- This realisation provides smooth voice leading and easy shift in hand position.
- There are other possibilities for voicing these chords. The Dandrieu Treatise explores more of these possibilities.



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Part 2: Figured Bass & Chord Inversions



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Figured Bass & Chord Inversions

- Figured bass is sometimes used in Roman numeral analysis to indicate the inversion of a chord.

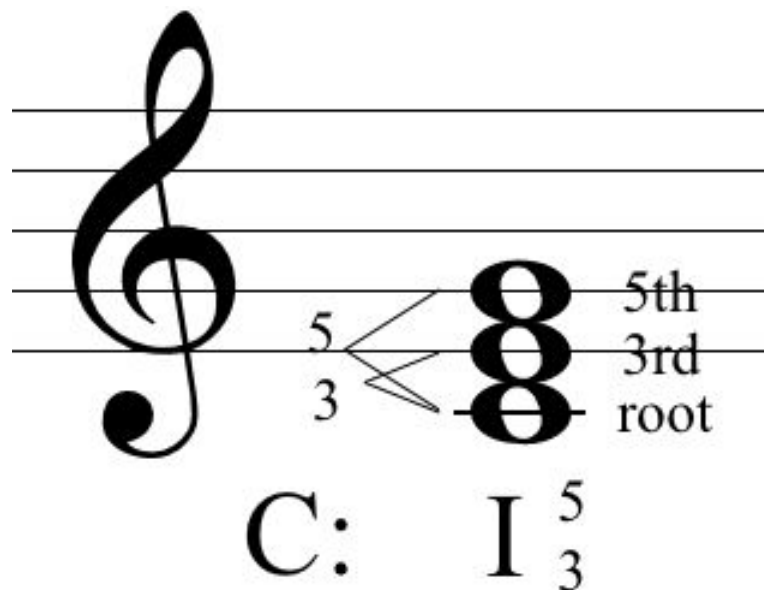


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Triads



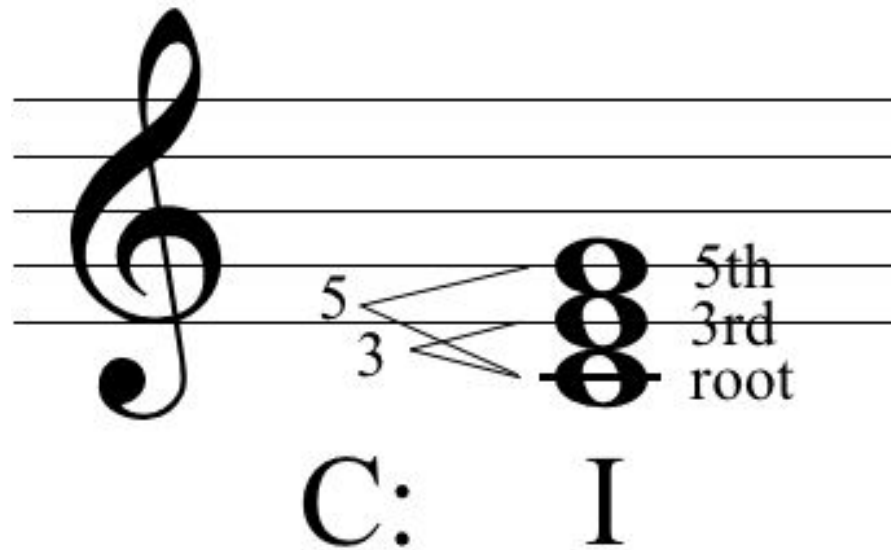
Root Position – Figured Bass



- Root position triads have a figured bass of 5-3, because there is a 3rd and a 5th above the bass.
- The bass note of a root position is the root of the chord.
- The C triad here is also labeled as the tonic triad (I) of C major.

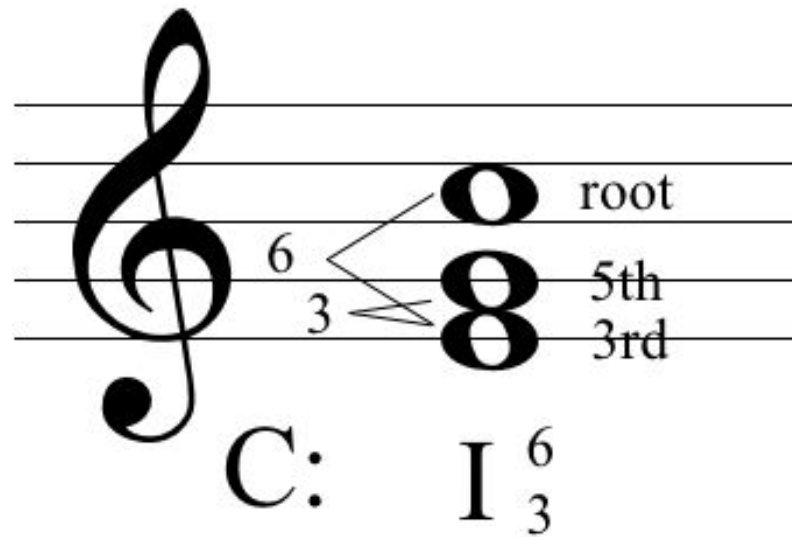


Root Position – Figured Bass



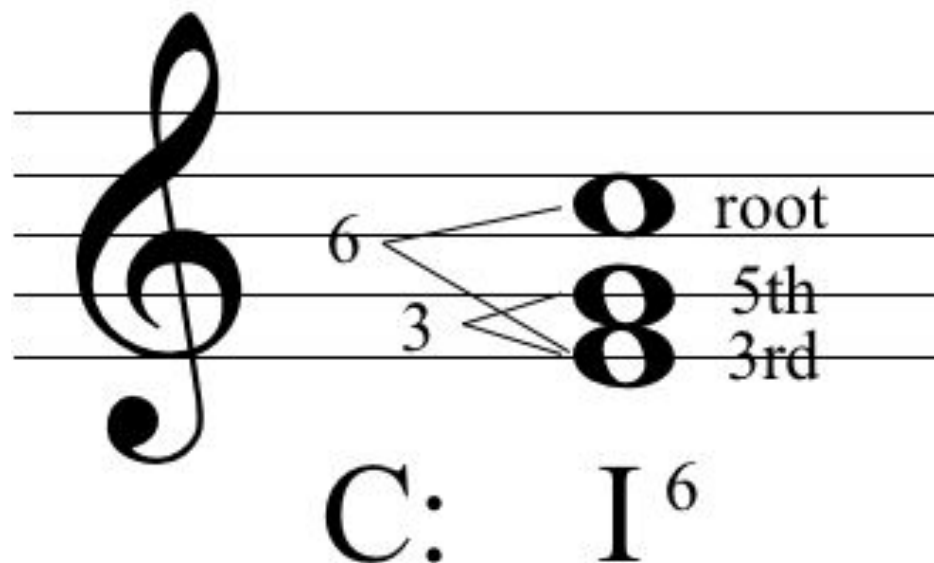
- While you can use 5-3 figured bass to express a root position triad, the convention is to leave that out. If you label a chord with a Roman numeral without any figured bass, it is assumed you mean a root position triad.
- This is because both a 3rd and a 5th above a bass note are stable and don't need to resolve. So if there is no indication otherwise, both are assumed.
- If the root of the chord you are analysing is in the bass, then that chord is in root (5-3) position.

First Inversion – Figured Bass



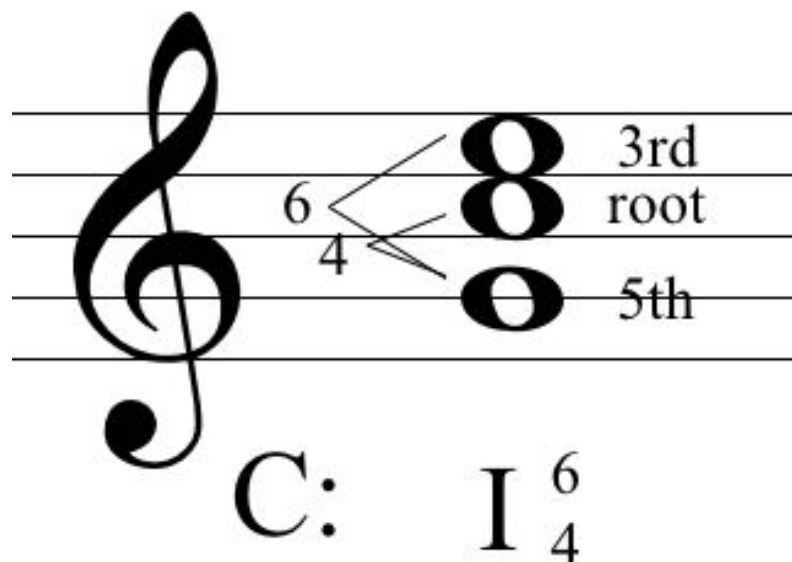
- The interval content of a first inversion triad in closed position, reading from the bottom note up, is a third and a sixth. Thus, the figured bass for first inversion is 6-3.
- If you are analysing a chord that is distributed over a wider span and the third of the chord is in the bass, then that chord is in first inversion (6-3).

First Inversion – Figured Bass

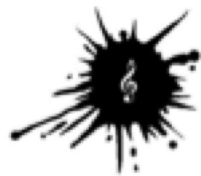


- While you can use 6-3 figured bass to express a first inversion triad, the convention is to leave out the 3. If you label a chord with a Roman numeral and a 6, it is assumed you mean a first inversion triad.
- The 3rd above the bass note is assumed if it is not labeled.
- If you are analysing a chord that is distributed over a wider span and the third of the chord is in the bass, then that chord is in first inversion (6).

Second Inversion – Figured Bass



- The interval content of the closed position second inversion triad, reading from the bottom note up, is a 4th and a 6th. Thus, the figured bass for second inversion is 6-4.
- If you are analysing a chord that is distributed over a wider span and the fifth of the chord is in the bass, then that chord is in second inversion (6-4).



Summary

<u>Position</u>	<u>Bass Note</u>	<u>Full FB</u>	<u>Abbreviated FB</u>
Root	Root	5 3	none
			
1 st Inversion	Third	6 3	6
			
2 nd Inversion	Fifth	6 4	6 4
			

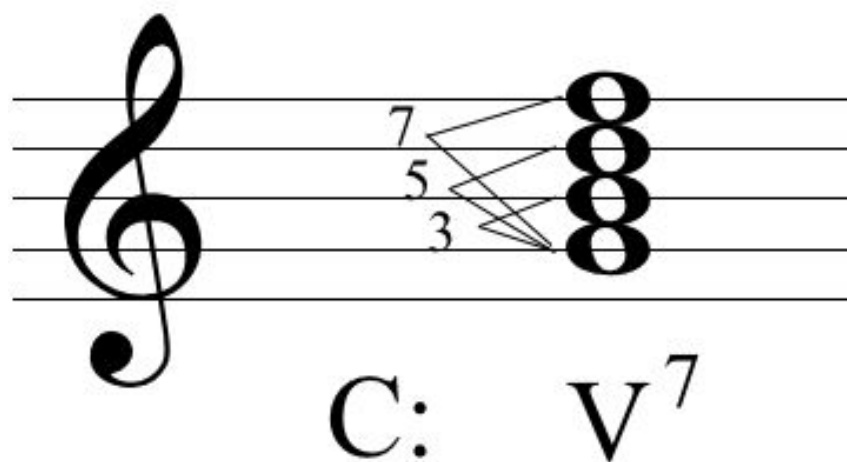


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Continuo

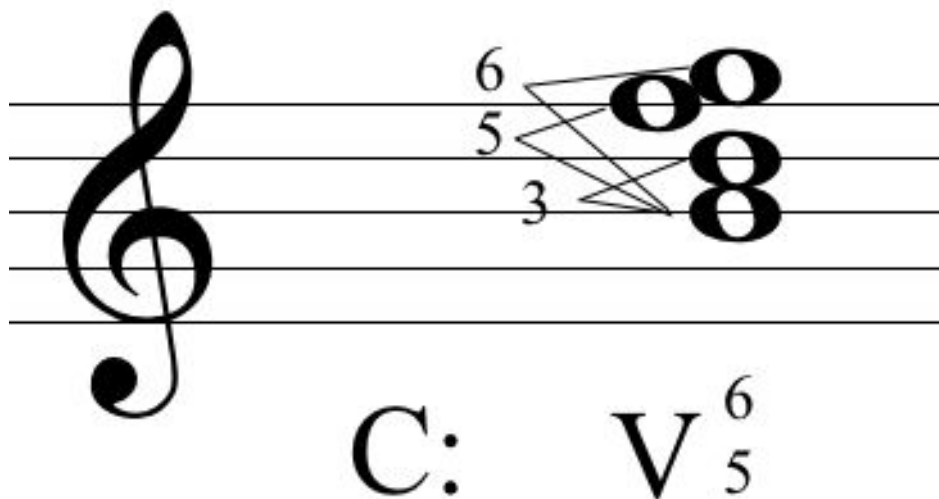
Seventh Chords

Root Position – Figured Bass



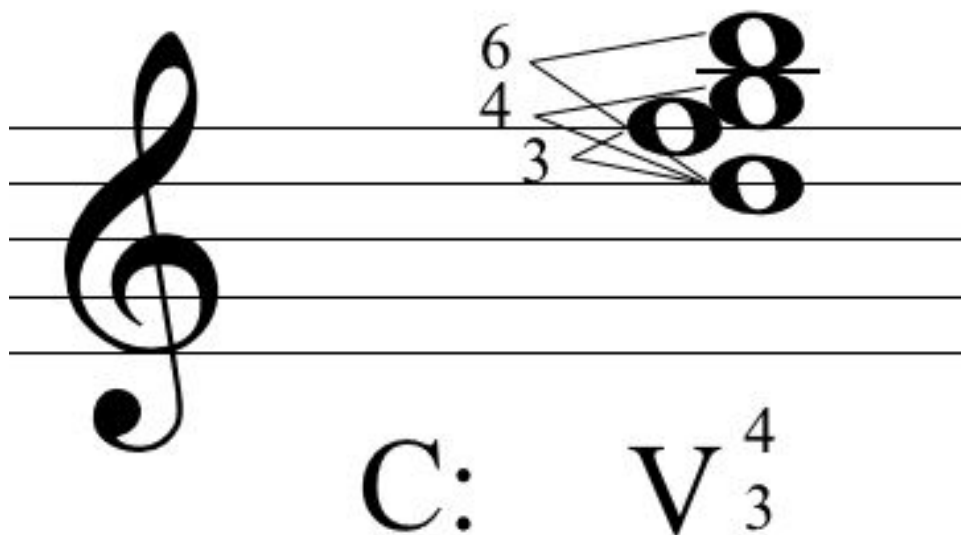
- Root position seventh chords have a figured bass of 7-5-3, but the convention is to reduce that to just 7.
- This chord is shown in a closed position, but often when you are doing score analysis, chords are voiced over a wider span. If the root of the seventh chord you are analysing is in the bass, then that chord is in root (7) position.

First Inversion



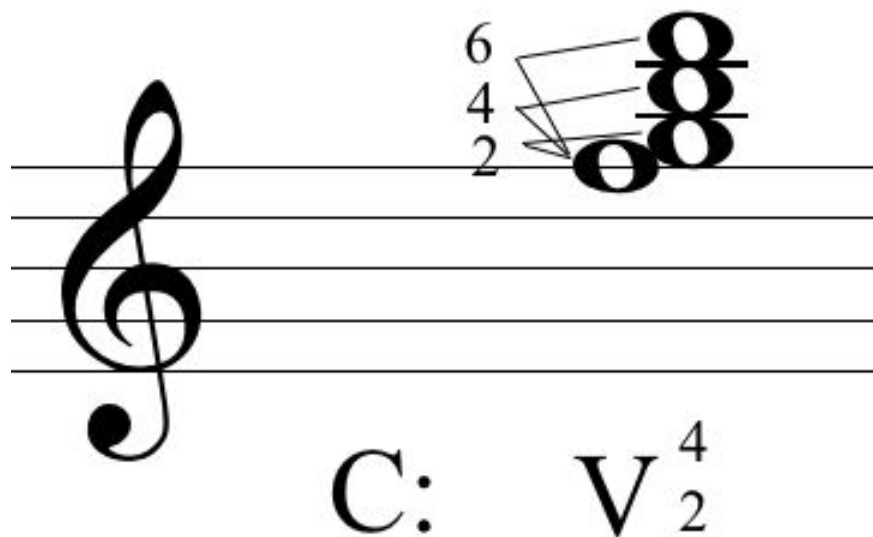
- First inversion seventh chords have a figured bass of 6-5-3, but the convention is to reduce that to 6-5.
- If you are analysing a chord that is distributed over a wider span and the third of the seventh chord is in the bass, then that chord is in first inversion (6-5).

Second Inversion



- Second inversion seventh chords have a figured bass of 6-4-3, but the convention is to reduce that to 4-3.
- Notice that you don't reduce a second inversion 7th chord to 6-4, because 6-4 denotes a second inversion triad.
- If you are analysing a seventh chord that is distributed over a wider span and the fifth of the chord is in the bass, then that chord is in second inversion (4-3).

Third Inversion




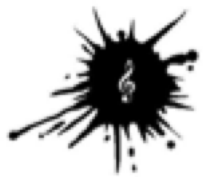
- Third inversion seventh chords have a figured bass of 6-4-2, but the convention is to reduce that to 4-2.
- If you are analysing a seventh chord that is distributed over a wider span and the seventh of the chord is in the bass, then that chord is in third inversion (4-2).



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Summary

<u>Position</u>	<u>Bass Note</u>	<u>Full FB</u>	<u>Abbreviated FB</u>
Root 	Root	7 5 3	7
1 st Inversion 	Third	6 5 3	6 5
2 nd Inversion 	Fifth	6 4 3	4 3
3 rd Inversion 	Seventh	6 4 2	4 2



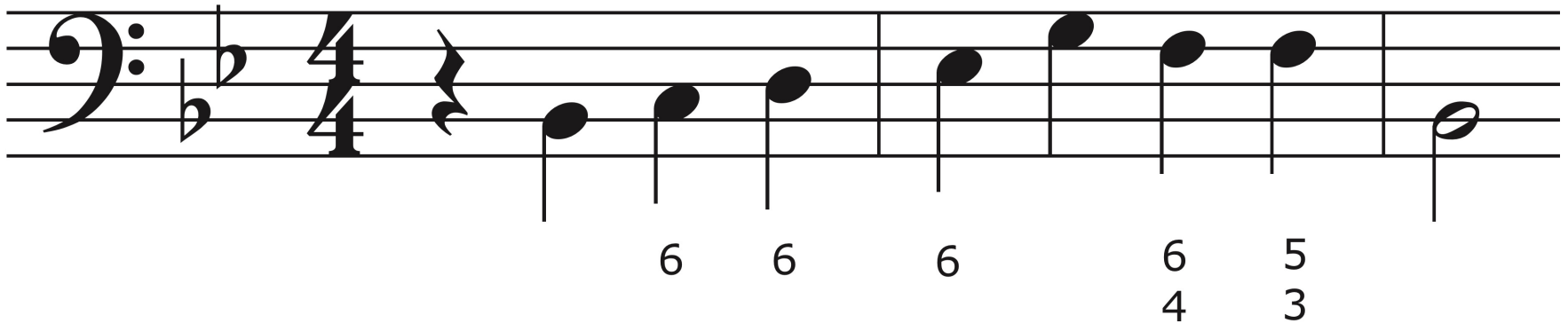
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Part 3: Workbook

Realising Figured Bass

For each bass line, realise the figured bass; Then identify chords and inversions.

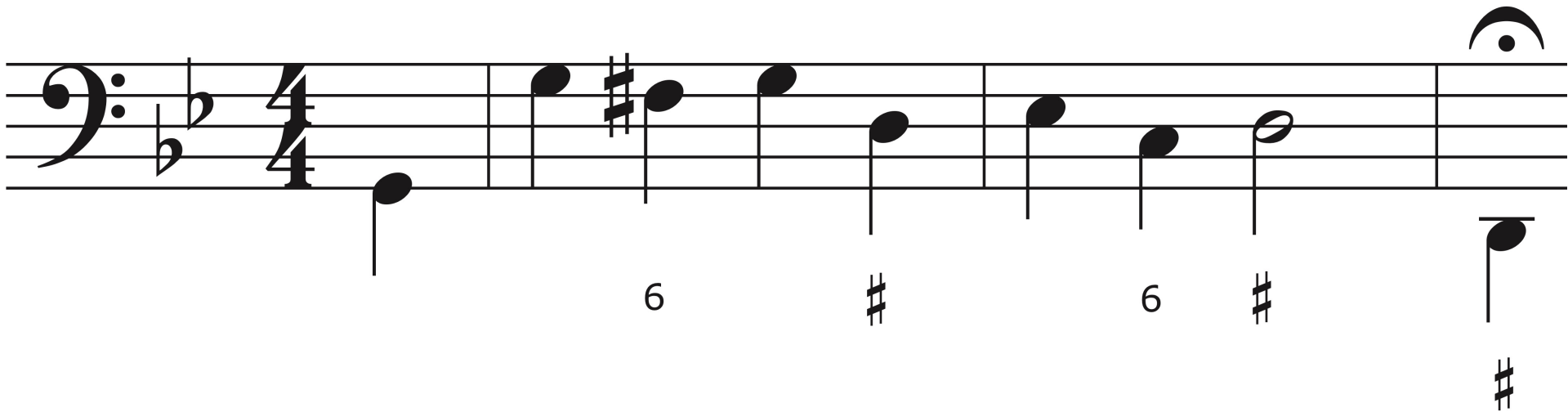
Handel, "Wenn mein Stundlein vorhanden ist"



The musical notation is written on a five-line staff in bass clef. The key signature has one flat (B-flat). The time signature is 4/4. The notation begins with a whole rest in the first measure. The second measure contains a half note on the second line (F2) with a '6' below it. The third measure contains a half note on the second space (G2) with a '6' below it. The fourth measure contains a half note on the third line (A2) with a '6' below it. The fifth measure contains a half note on the third space (B2) with a '6' below it. The sixth measure contains a half note on the fourth line (C3) with a '6' below it. The seventh measure contains a half note on the fourth space (D3) with a '4' below it. The eighth measure contains a half note on the fifth line (E3) with a '5' above it and a '3' below it. The ninth measure contains a half note on the first line (F2) with no figure below it.

Realising Figured Bass

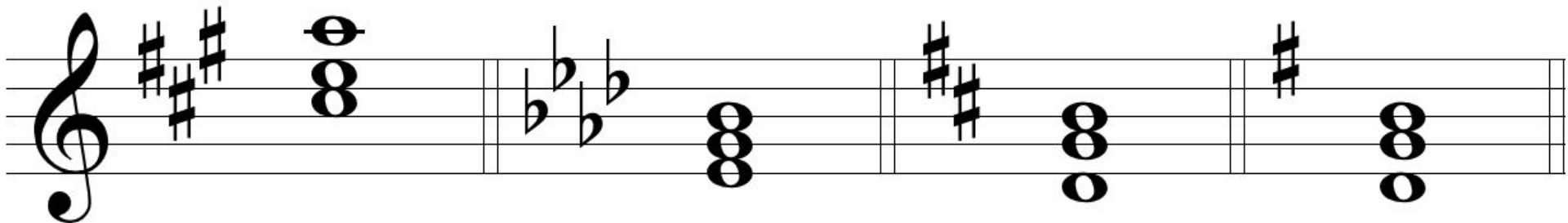
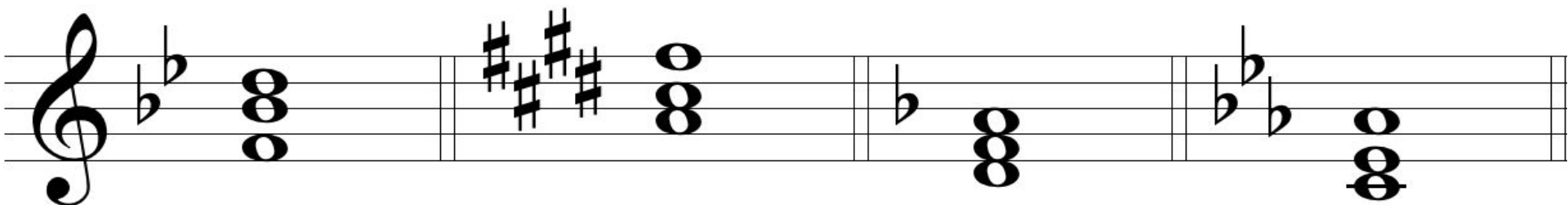
Bach, "Wer weiss, wie nahe mir mein Ende"



The image shows a single staff of music in bass clef, 4/4 time, with a key signature of one flat (B-flat). The notation consists of a series of notes with stems pointing downwards, representing a figured bass. The notes are: a whole note on the second line (F), a half note on the second space (A) with a sharp sign (#) above it, a half note on the second space (A), a half note on the first space (G) with a sharp sign (#) below it, a half note on the first space (G), a half note on the first space (G), a half note on the first space (G) with a sharp sign (#) below it, and a half note on the first space (G) with a sharp sign (#) below it. The staff ends with a fermata over a whole note on the first space (G) with a sharp sign (#) below it.

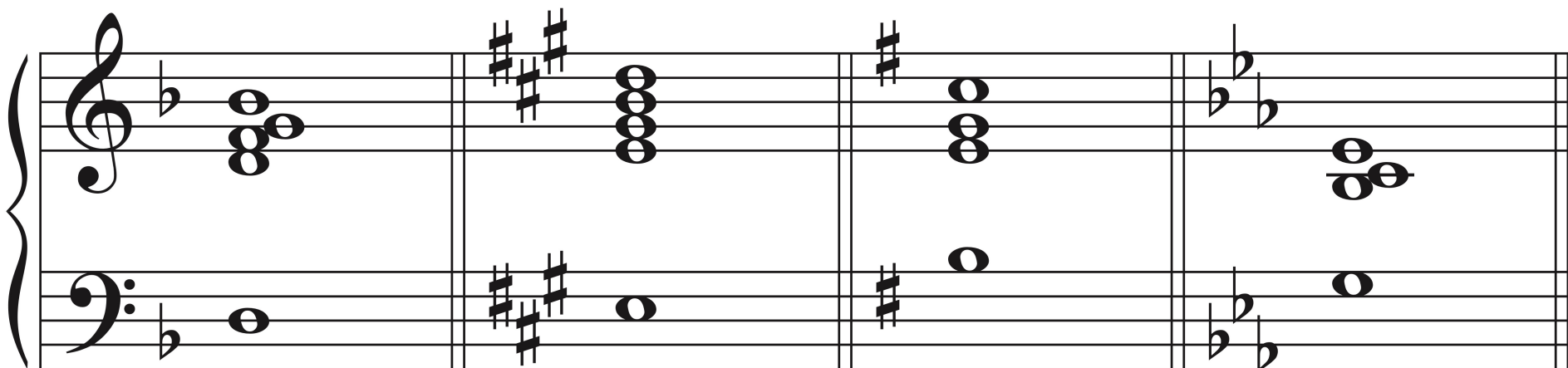
Chord Inversion & Figured Bass

Identify the following triads by root and type, and indicate their inversions using figured bass. Be sure to take the key signature into account for each.



Chord Inversion & Figured Bass

Identify the root of each seventh chord below. Indicate which chord member is in the bass, and label with the appropriate figured bass. Be sure to take the key signature into account for each.



The image displays four measures of music, each containing a seventh chord in G major (one sharp, F#). The chords are presented in different inversions across the treble and bass staves:

- Measure 1:** Treble staff has notes G4, A4, B4, C#5; Bass staff has note G3. This is a G major triad with a C#5 extension (G7).
- Measure 2:** Treble staff has notes A4, B4, C#5, D5; Bass staff has notes G#3, A#3, B#3. This is an A major triad with a C#5 extension (A7).
- Measure 3:** Treble staff has notes B4, C#5, D5, E5; Bass staff has notes G#3, A#3. This is a B major triad with a C#5 extension (B7).
- Measure 4:** Treble staff has notes C#5, D5, E5, F#5; Bass staff has notes G3, A3, B3. This is a C# major triad with a D5 extension (C#7).

Chord Inversion & Figured Bass

Identify the root of each seventh chord below. Indicate which chord member is in the bass, and label with the appropriate figured bass. Be sure to take the key signature into account for each.



The image displays four measures of music, each containing a seventh chord. The first measure shows a C major triad (C, E, G) with a Bb in the bass, forming a C major 7th chord in first inversion. The second measure shows a Bb major triad (Bb, D, F) with a Bb in the bass, forming a Bb major 7th chord in first inversion. The third measure shows a D major triad (D, F#, A) with a D in the bass, forming a D major 7th chord in first inversion. The fourth measure shows a Bb major triad (Bb, D, F) with a Bb in the bass, forming a Bb major 7th chord in first inversion.



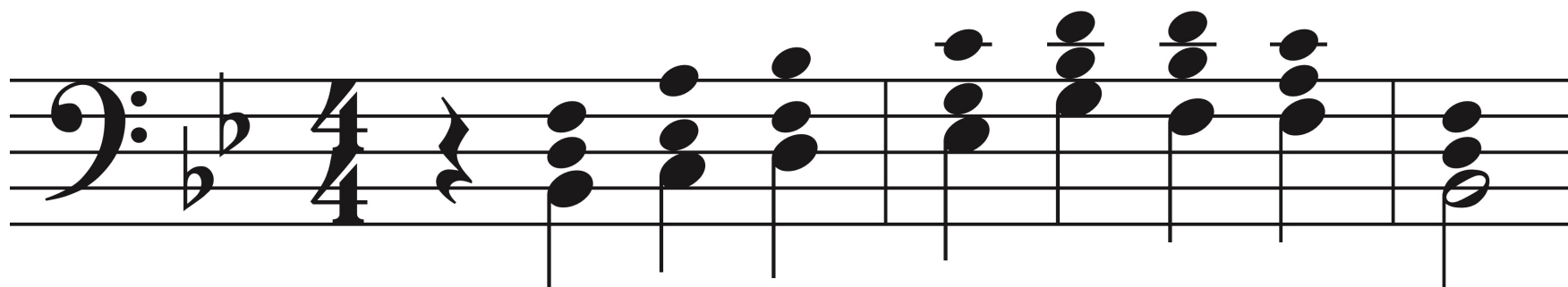
School of Music Theory

Answer Key

Realising Figured Bass

For each bass line, realise the figured bass; Then identify chords and inversions.

Handel, "Wenn mein Stundlein vorhanden ist"



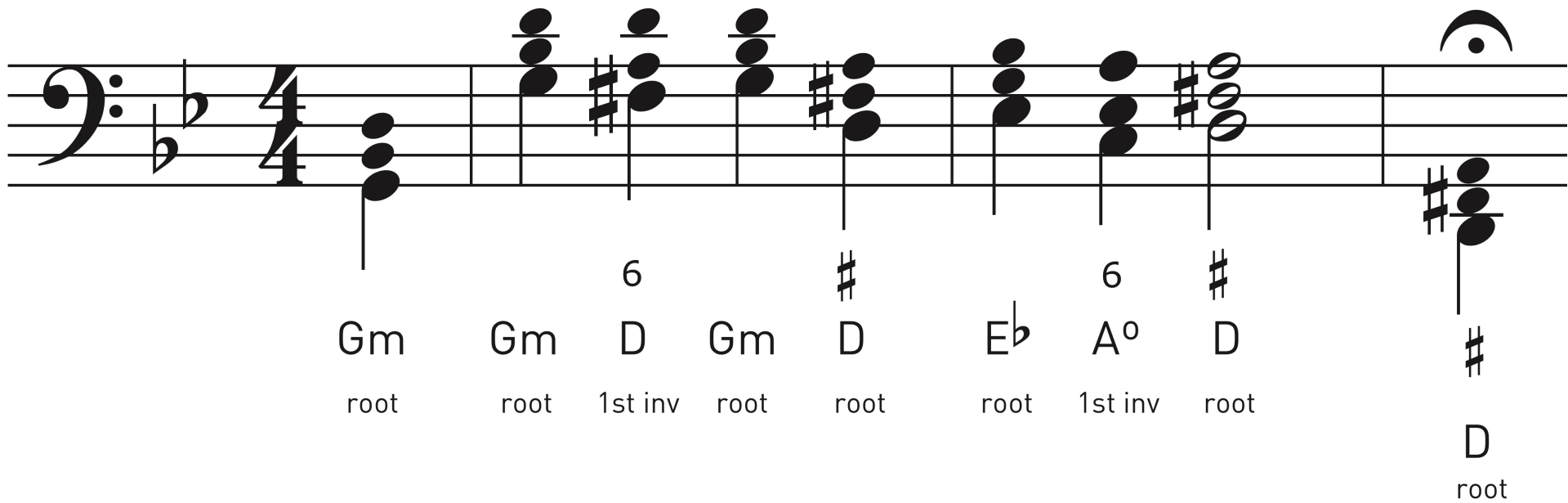
6 6 6 6 4 5 3 6

B \flat A 0 B \flat C m G m B \flat F B \flat

root 1st inv 1st inv 1st inv root 2nd inv root root

Realising Figured Bass

Bach, "Wer weiss, wie nahe mir mein Ende"

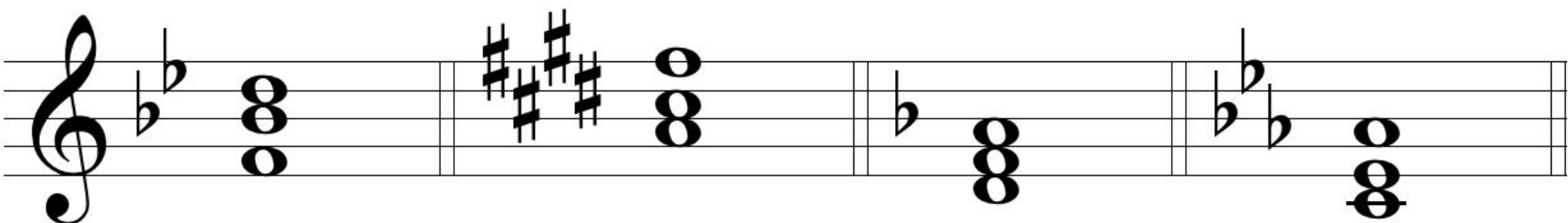


Chord progression and figured bass notation:

Figured Bass	Chord	Root	Inversion
Gm	Gm	G	root
Gm	Gm	G	root
6	D	D	1st inv
Gm	Gm	G	root
#	D	D	root
E ^b	E ^b	E ^b	root
6	A ^o	A	1st inv
#	D	D	root
#	D	D	root

Chord Inversion & Figured Bass

Identify the following triads by root and type, and indicate their inversions using figured bass. Be sure to take the key signature into account for each.

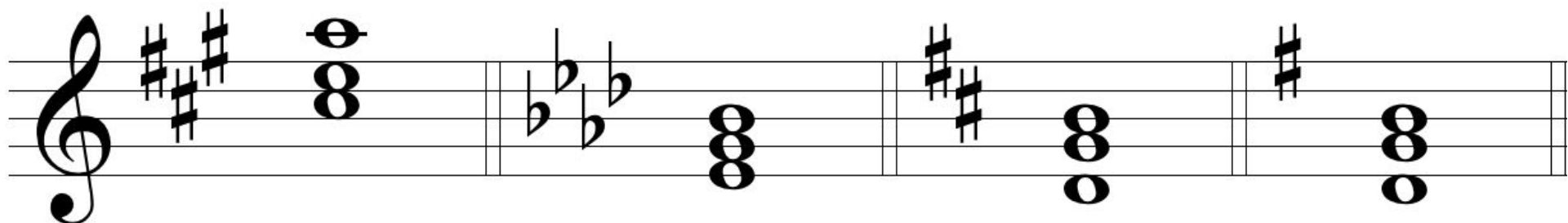


B \flat $\frac{6}{4}$

F \sharp min 6

Dmin

A \flat 6



A 6

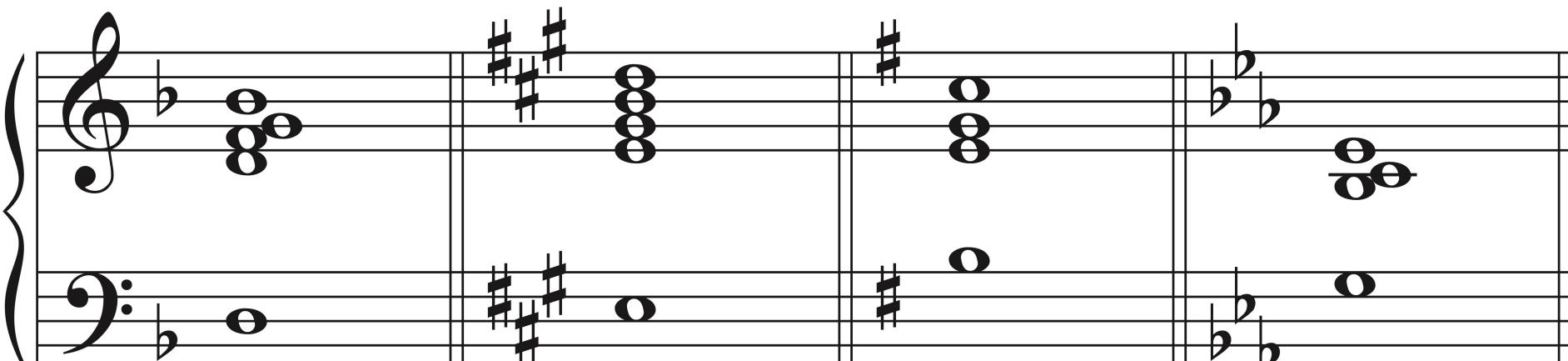
E \flat

G $\frac{6}{4}$

G $\frac{6}{4}$

Chord Inversion & Figured Bass


Identify the root of each seventh chord below. Indicate which chord member is in the bass, and label with the appropriate figured bass. Be sure to take the key signature into account for each.



root - G	root - E	root - C	root - C
bass - 5th	bass - root	bass - 7th	bass - 5th
f.b. - $\frac{4}{3}$	f.b. - 7	f.b. - $\frac{4}{2}$	f.b. - $\frac{4}{3}$

Chord Inversion & Figured Bass

Identify the root of each seventh chord below. Indicate which chord member is in the bass, and label with the appropriate figured bass. Be sure to take the key signature into account for each.



root - B	root - G \flat	root - F \sharp	root - F
bass - 3rd	bass - 5th	bass - 7th	bass - 3rd
f.b. - $\begin{smallmatrix} 6 \\ 5 \end{smallmatrix}$	f.b. - $\begin{smallmatrix} 4 \\ 3 \end{smallmatrix}$	f.b. - $\begin{smallmatrix} 4 \\ 2 \end{smallmatrix}$	f.b. - $\begin{smallmatrix} 6 \\ 5 \end{smallmatrix}$