

99% Perspiration

Module 3 of *Music: Under the Hood*

John Hooker

Carnegie Mellon University

Osher Course
September 2018

Outline

- Part writing
- Part writing – Bach
- Part writing – Beethoven

Part Writing

- Music is 1% inspiration...
 - ...and 99% perspiration
- Example: **Part-writing**
 - A seemingly simple chore.
 - Add harmony parts to a melody.
 - It's a complex combinatorial problem.
 - The “harmony” and the “melody” ideally become one.
 - Neither makes sense without the other.



Part Writing: Bach

- Chorale harmonizations
 - Governed by traditional rules since 18th century
- The chorale tune itself is of little interest.
 - The “harmony” brings it alive.
- Consider this famous chorale...



Part Writing: Bach

[Audio file – Melody](#)

[Audio file – Harmony](#)

Passion Chorale

From St Matthew Passion (1727)

J. S. Bach

$\text{♩} = 50$

SA
O Haupt voll Blut und Wunden, voll Schmerz und voller Hohn! O

TB

SA
Haupt zu Spott gebunden mit einer Dornenkrone! O

TB

Part Writing: Bach

SA

Haupt sonst schön ge - zie - ret mit höch - ster Ehr' und Zier, ——— jetzt

TB

SA

a - ber hoch schim - pfi - ret: ge - grü - sset sei'st du mir!

TB

rit.

Part Writing: Bach

Translation of Text

O sacred Head, now wounded,
with grief and shame weighed down,
Now scornfully surrounded with thorns,
Thine only crown;

O sacred Head, what glory,
what bliss till now was Thine!
Yet, though despised and gory,
I joy to call Thee mine.

Part Writing: Bach

[Audio file – Harmony](#)

Passion Chorale

From St Matthew Passion (1727)

J. S. Bach

$\text{♩} = 50$ **vi – D minor** - - - - -

SA

O Haupt voll Blut und Wun - den, voll Schmerz und vol - ler Hohn! — O

TB

vi – D minor - - - - -

SA

Haupt zu Spott ge - bun - den mit ein - er Dor - nen - kron! — O

TB

The image displays two systems of musical notation for a chorale by J.S. Bach. Each system consists of two staves: a Soprano Alto (SA) staff in treble clef and a Tenor Bass (TB) staff in bass clef. The music is in 4/4 time and D minor, as indicated by the red dashed line and the key signature of one flat. The tempo is marked as quarter note = 50. The lyrics are in German. The first system covers the first two lines of the chorale, and the second system covers the next two lines. The TB part includes a fermata and a final measure with a '8' time signature.

Part Writing: Bach

I – F major - - - - - IV – Bb major (G minor D major)

SA

Haupt sonst schön ge - zie - ret mit höch - ster Ehr' und Zier, ——— jetzt

TB

V – C major - - - - - I – F major - - - - -

SA

a - ber hoch schim - pfi - ret: ge - grü - sset sei'st du mir!

TB

rit.

Part Writing: Amateur

[Audio file](#)

Passion Chorale

with part-writing errors

Composition 101 student

The image shows a musical score for two voices: Soprano Alto (SA) and Tenor Bass (TB). The music is in 4/4 time with a key signature of one flat (B-flat). A tempo marking of ♩ = 50 is present. The lyrics are: "O Haupt voll Blut und Wunden, voll Schmerz und voller Hohn!". The score contains two instances of parallel octaves, highlighted with red lines: one between the SA and TB parts in the second measure, and another in the third measure. The SA part begins with a treble clef and a B-flat key signature, while the TB part begins with a bass clef and a B-flat key signature.

Parallel
octaves

Part Writing: Amateur

[Audio file](#)

Passion Chorale

with part-writing errors

Composition 101 student

The image shows a musical score for Soprano Alto (SA) and Tenor Bass (TB) parts. The score is in 4/4 time with a key signature of one flat (B-flat). The tempo is marked as quarter note = 50. The lyrics are: "O Haupt voll Blut und Wunden, voll Schmerz und voller Hohn!".

Two errors are highlighted with red annotations:

- Parallel octaves:** A red line connects the notes G4 and F4 in the SA part to the notes G3 and F3 in the TB part in the second measure, indicating parallel motion in octaves.
- Unresolved 2nd inversion:** A red box highlights the notes G4 and F4 in the SA part and G3 and F3 in the TB part in the third measure, which form a second inversion dyad that is not resolved.

Part Writing: Amateur

[Audio file](#)

Passion Chorale

with part-writing errors

Composition 101 student

The image shows a musical score for Soprano Alto (SA) and Tenor Bass (TB) parts of a chorale. The score is in 4/4 time with a key signature of one flat (B-flat). The tempo is marked as quarter note = 50. The lyrics are: "O Haupt voll Blut und Wunden, voll Schmerz und voller Hohn!". The score contains several part-writing errors highlighted in red:

- Parallel octaves:** Indicated by red lines between the SA and TB parts in the first and third measures.
- Unresolved 2nd inversion:** A red box highlights a chord in the fourth measure where the bass note is a second above the root, which is not resolved.
- Parallel fifths:** Indicated by red lines between the SA and TB parts in the fifth and sixth measures.

SA
TB

O Haupt voll Blut und Wunden, voll Schmerz und voller Hohn!

Parallel octaves Unresolved 2nd inversion Parallel fifths

Part Writing: Amateur

[Audio file](#)

Passion Chorale

with part-writing errors

No contrary motion

Composition 101 student

The image shows a musical score for Soprano Alto (SA) and Tenor Bass (TB) parts. The score is in 4/4 time with a key signature of one flat (B-flat). The tempo is marked as quarter note = 50. The lyrics are: "O Haupt voll Blut und Wunden, voll Schmerz und voller Hohn!". The score contains several part-writing errors highlighted with boxes and lines:

- Parallel octaves:** Indicated by red lines between the SA and TB parts in the first and third measures.
- Unresolved 2nd inversion:** A red box highlights a chord in the fourth measure where the bass note is a second above the root, which is not resolved.
- Parallel fifths:** A blue box highlights a chord in the fifth measure where the SA and TB parts move in parallel motion, creating a fifth interval.

Additional annotations include a blue arrow pointing to the fifth measure with the text "No contrary motion" and a blue box around the fifth measure.

Part Writing: Amateur

[Audio file](#)

Passion Chorale

with part-writing errors

No contrary motion

Composition 101 student

SA

TB

$\text{♩} = 50$

O Haupt voll Blut und Wun - den, voll Schmerz und vol - ler — Hohn!

Parallel octaves

Unresolved 2nd inversion

Parallel fifths

Dissonant cross-relation

No contrary motion

The image shows a musical score for Soprano Alto (SA) and Tenor Bass (TB) parts of a chorale. The score is in 4/4 time with a key signature of one flat (B-flat). The tempo is marked as quarter note = 50. The lyrics are: "O Haupt voll Blut und Wun - den, voll Schmerz und vol - ler — Hohn!". The score contains several part-writing errors highlighted with red boxes and lines: 1. Parallel octaves between the SA and TB parts in the first measure. 2. Unresolved 2nd inversion in the second measure, where the SA part has a G4 and the TB part has a G3, with a red box around the G4. 3. Parallel fifths between the SA and TB parts in the third measure, where the SA part has a G4 and the TB part has a D3, with a red box around the G4. 4. Dissonant cross-relation in the fourth measure, where the SA part has a G4 and the TB part has a G#4, with a red line connecting the two notes. 5. No contrary motion in the fifth measure, where the SA part has a G4 and the TB part has a G4, with a red line connecting the two notes. A blue box highlights the third measure, and a blue arrow points to the text "No contrary motion".

Part Writing: Bach

Passion Chorale

From St Matthew Passion (1727)

J. S. Bach

♩ = 50

SA

O Haupt voll Blut und Wun - den, voll Schmerz und vol - ler Hohn! — O

TB

Uh-oh. Dissonant cross-relation in Bach's harmonization?

Part Writing: Bach

Passion Chorale

From St Matthew Passion (1727)

J. S. Bach

♩ = 50

SA

O Haupt voll Blut und Wun - den, voll Schmerz und vol - ler Hohn! — O

TB

Uh-oh. Dissonant cross-relation in Bach's harmonization?
Technically no, because this starts a new phrase.

Part Writing: Bach

[Audio file](#)

Passion Chorale

From St Matthew Passion (1727)

J. S. Bach

♩ = 50

SA

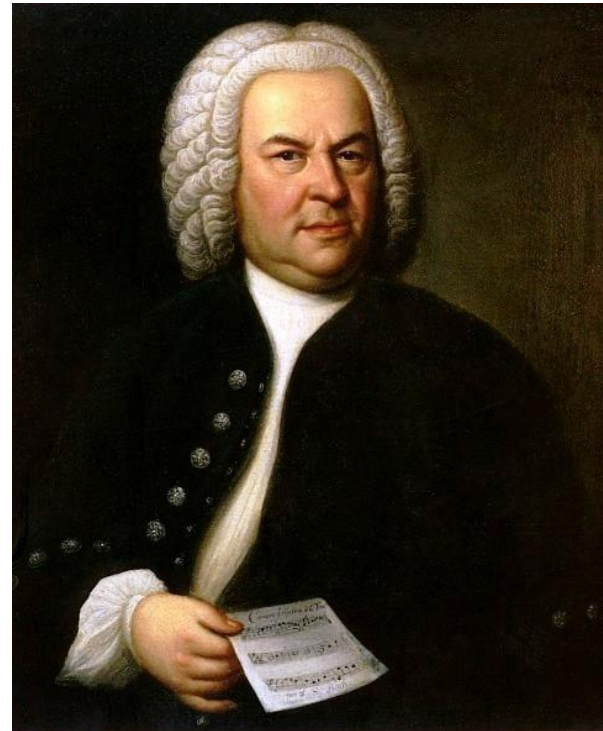
O Haupt voll Blut und Wun - den, voll Schmerz und vol - ler Hohn! — O

TB

Uh-oh. Dissonant cross-relation in Bach's harmonization?
Technically no, because this starts a new phrase.
Also C# picks up previous C

Part Writing: Bach

- Of course, following all the rules doesn't make a good chorale.
 - The technical details must serve a larger purpose.
 - Let's have a second look at the Passion Chorale...



Part Writing: Bach

[Audio file – Harmony](#)

Passion Chorale

From St Matthew Passion (1727)

J. S. Bach

$\text{♩} = 50$ **Begins in dolorous minor key**

SA
O Haupt voll Blut und Wunden, voll Schmerz und voller Hohn! O

TB

SA
Haupt zu Spott gebunden mit einer Dornen-krone! O

TB

19

Part Writing: Bach

Recalls happier times in major keys

SA

Haupt sonst schön ge - zie - ret mit höch - ster Ehr' und Zier, ——— jetzt

TB

Note of hope by resolving into major tonic

SA

a - ber hoch schim - pfi - ret: ge - grü - sset sei'st du mir!

TB

rit.

Part Writing: Bach

[Audio file](#)

Passion Chorale

From St Matthew Passion (1727)

J. S. Bach

$\text{♩} = 50$ **Echoes in passing tones.**

SA
O Haupt voll Blut und Wunden, voll Schmerz und voller Hohn! O

TB

SA
Haupt zu Spott gebunden mit einer Dornen-krone! O

TB

21

Part Writing: Bach

[Audio file](#)

Passion Chorale

From St Matthew Passion (1727)

J. S. Bach

$\text{♩} = 50$ Echoes in passing tones.

Arc in baseline gives shape to phrase.

SA
O Haupt voll Blut und Wun - den, voll Schmerz und vol - ler Hohn! — O

TB

SA
Haupt zu Spott ge - bun - den mit ein - er Dor - nen - kron! — O

TB

22

The image displays a musical score for the Passion Chorale by J.S. Bach, from the St. Matthew Passion (1727). The score is in 4/4 time with a tempo marking of quarter note = 50. It features two systems of vocal parts: Soprano Alto (SA) and Tenor Bass (TB). The first system shows the SA part with two red ovals highlighting specific melodic phrases and a red arc connecting the TB part's baseline. The second system continues the SA and TB parts. The lyrics are in German. The page number 22 is visible at the bottom right.

Part Writing: Bach

[Audio file](#)

Passion Chorale

From St Matthew Passion (1727)

J. S. Bach

$\text{♩} = 50$

Echoes in passing tones.

Arc in baseline gives shape to phrase.

SA
TB

O Haupt voll Blut und Wun - den, voll Schmerz und vol - ler Hohn! — O

SA
TB

Dissonant suspension accentuates mood

Haupt zu Spott ge - bun - den mit ein - er Dor - nen - kron! — O

23

Part Writing: Bach

Major key suspensions change mood

SA

Haupt sonst schön ge - zie - ret mit höch - ster Ehr' und Zier, ——— jetzt

TB

SA

a - ber hoch schim - pfi - ret: ge - grü - sset sei'st du mir!

TB

rit.

Part Writing: Bach

Major key suspensions change mood

SA
Haupt sonst schön ge - zie - ret mit höch - ster Ehr' und Zier, ——— jetzt

TB

SA
a - ber hoch schim pfi - ret: ge - grü - sset sei'st du mir!

TB

Soaring tenor line enriches counterpoint

Double passing tone signals slowing to more pensive mood.

Part writing: Beethoven

Adagio Cantabile from Pathetique Sonata

L. van Beethoven (1798)

[Audio file
\(performance\)](#)

[Audio file
\(excerpt\)](#)

$\text{♩} = 60$ I. Ab major - - - - - Bb⁷ V. Eb major - -

Piano

- - - - - I. Ab - - - F⁷ ii. Bb - - - V. Eb - - - I. Ab major
(appoggiatura)

5

Pno.

Part writing: Beethoven

[Audio file
\(performance\)](#)

[Audio file
\(excerpt\)](#)

Leading tone to Eb
provides contrary motion

$\text{♩} = 60$ I. Ab major - - - - - Bb⁷ V. Eb major - -

Piano

- - - - - I. Ab - - - F⁷ ii. Bb - - - V. Eb - - - I. Ab major (appoggiatura)

Pno.

Part writing: Beethoven

[Audio file
\(performance\)](#)

[Audio file
\(excerpt\)](#)

Leading tone to Eb
provides contrary motion

$\text{♩} = 60$ I. Ab major - - - - - Bb⁷ V. Eb major - -

Piano

What's this?
Eb dominant 7-9

I. Ab - - - F⁷ ii. Bb - - - V. Eb - - - I. Ab major
(appoggiatura)

Pno.

Part writing: Beethoven

[Audio file \(performance\)](#)

[Audio file \(excerpt\)](#)

Leading tone to Eb provides contrary motion

$\text{♩} = 60$ I. Ab major - - - - - Bb⁷ V. Eb major - -

Piano

Delayed resolution of leading tone

What's this?
Eb dominant 7-9

I. Ab - - - F⁷ ii. Bb - - - V. Eb - - - I. Ab major (appoggiatura)

Pno.