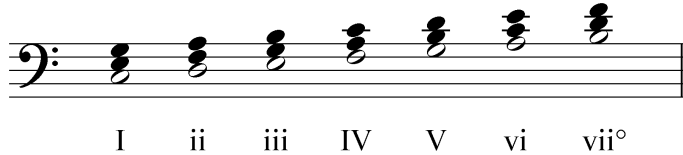


Lesson FFF – The vii° Chord

Introduction:

Six of the seven diatonic triads are consonant—that is, they are built of consonant intervals only. I, IV, and V are major triads; ii, iii, and vi are minor triads.

Example 1:



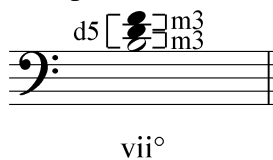
Activity 6.1 [multiple choice question]:

What makes the vii° chord unique?

- It is built entirely of diatonic pitches. [response: While the vii° chord *is* made entirely of diatonic pitches, it is not alone. All of the diatonic triads are built using only diatonic pitches. Try again...]
- It is dissonant. [response: Yes! The vii° chord constitutes the only dissonant member of the set of diatonic triads. All of the other triads are consonant; they are either major or minor.]
- It is a minor triad. [response: Incorrect. Although the symbol for the vii° chord is written with lowercase letters, it also has a small circle indicating that it is not minor, but rather diminished. Try again...]

The triad built on scale degree 7 (vii°) is dissonant. While all other triads are framed by a *perfect* fifth, the vii° is dissonant because it is framed by a *diminished* fifth:

Example 2:



Because of its construction, using it in three and four-part writing requires an exception to the practice observed so far about using only consonant intervals when adding a third part to a given two-voice framework. Further, in order to avoid a diminished fifth formed with the bass, which makes the dissonant interval sound too harsh, the vii° generally appears with its third in the bass (first inversion), as shown here.

Example 3:



Putting the triad in first inversion creates consonant intervals between the bass and all upper voices. In this case, the bass forms a sixth with the tenor, a third with the alto, and an octave with the soprano. The diminished fifth is hidden in the inner voices between the tenor and alto: it is a resultant interval formed by the avoidance of dissonance with the bass.

Activity 6.2:

This exercise will reinforce your understanding of the various intervals found in a $vii^{\circ 6}$ in SATB setting. In each of the following exercises, identify the tritone-forming pitches.

Exercise 6.2a:



D: $vii^{\circ 6}$

[answers:] C# and G

[follow-up question for each answer:] What interval does this pitch form with the bass?

[answers:] C# forms a M6 (major sixth) with the bass and G forms a m3 (minor third) with the bass.

[follow-up question:] What type of tritone is formed by C# and G in Exercise 6.2a?

[answer:] d5 (diminished fifth)

Identify the tritone-forming pitches.

Exercise 6.2b:



e: $vii^{\circ 6}$

[answers:] A and D#

[follow-up question for each answer:] What interval does this pitch form with the bass?

[answers:] A forms a m3 (minor third) with the bass and D# forms a M6 (major sixth) with the bass.

[follow-up question:] What type of tritone is formed by A and D# in Exercise 6.2b?

[answer:] A4 (augmented fourth)

Identify the tritone-forming pitches.

Exercise 6.2c:



Ab: $vii^{\circ 6}$

[answers:] G and Db

[follow-up question for each answer:] What interval does this pitch form with the bass?

[answers:] G forms a M6 (major sixth) with the bass and Db forms a m3 (minor third) with the bass.

[follow-up question:] What type of tritone is formed by G and Db in Exercise 6.2c?

[answer:] d5 (diminished fifth)

Identify the tritone-forming pitches.

Exercise 6.2d:



d: vii[°]6

[answers:] C# and G

[follow-up question for each answer:] What interval does this pitch form with the bass?

[answers:] C# forms a M6 (major sixth) with the bass and G forms a m3 (minor third) with the bass.

[follow-up question:] What type of tritone is formed by C# and G in Exercise 6.2d?

[answer:] d5 (diminished fifth)

Treatment of the vii[°] chord:

Dissonances are unstable and therefore require motion towards stability (resolution). In order to allow tritones to be used under these circumstances—as they routinely are in music—we must expand our catalog of interval progressions. There are four distinct interval progressions associated with the tritone: two with contrary motion and two with similar motion. The choice of interval progression depends on the movement of the bass, as we shall see. If the tritone appears as an augmented fourth, its voices may move by step in contrary motion, expanding to either a minor sixth in major keys or a major sixth in minor keys:

Example 4:

Major:

Minor:



Contrary motion, such as in the above example, is the preferred movement involving a tritone. Alternatively, the voices may move in similar motion to a perfect fourth (the same is true for major or minor keys):

Example 5:



If the tritone appears as a diminished fifth, the voices either contract to a third (a major third in major keys or a minor third in minor keys):

Example 6:

Major: Minor:

d5 M3 d5 m3

or may alternatively move in similar motion to a perfect fifth:

Example 7:

A4 P4

At first glance, Example 7 resembles forbidden parallel fifths. However, this is not the case. Recall that parallel perfect fifths are forbidden because they undermine the independence of the voices. Voices a perfect fifth apart blend together so well that they sound almost as though they are singing the same pitch. In the progression from a diminished to a perfect fifth, the voices sing two very different intervals. Each voice is clearly heard as the dissonance of the tritone resolves to the perfect fifth. Although this resolution of the tritone is less common than Examples 4-6, it does appear in the tonal repertoire. Examples 8 and 9 show two excerpts from Bach chorales where diminished fifths resolve to perfect fifths (the tritone occurs between the alto and soprano in both cases):

Example 8 (J.S. Bach, “Vater unser im Himmelreich,” BWV 416, m. 1):

d5 P5

Example 9 (J.S. Bach, “Herr Jesu Christ, mein’s Lebens Licht,” BWV 335, mm. 5-6):

d5 P5

These two similar-motion resolutions of the tritone (A4 to P4 and d5 to P5) may seem counterintuitive. Their validity is explained by the interval progressions formed with the bass. In both cases, one of the voices moves in parallel thirds with the bass while the other creates parallel sixths with the bass. Look again at example 8. The alto and soprano voices form a tritone on beat three which resolves to a perfect fifth on beat four. Now consider the intervals formed with the bass; the alto moves in parallel sixths with the bass while the soprano moves in parallel thirds with the bass. The same is true for Example 9. The interval progressions formed with the bass validate the similar motion in the upper voices. With permissible interval progressions occurring between the bass and each of the upper voices, the tritone in each case may be thought of as resultant intervals, and the similar-motion progression as a byproduct.

[Activity 6.3:

In each of the following examples you are presented with a tritone (consisting of the leading tone and scale degree $\hat{4}$) and the resolution of one of the voices. Complete each tritone resolution by providing the pitch for the second voice.

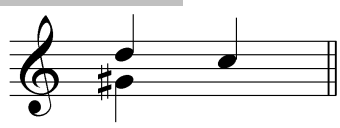
Exercise 6.3a:



[possible answers:]

- (E) Yes! This is a valid answer. If the lower voice ascends to E, the tritone resolves from an A4 (augmented fourth) to a P4 (perfect fourth).
- (C#) Yes! This is a valid answer. If the lower voice descends to C, the tritone resolves from an A4 (augmented fourth) to a m6 (minor sixth).
- (D) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The lower voice may not sustain D. Try again...
- (above E or below C#) This is not a valid answer. Both voices must move by step when resolving a tritone. Your answer, [X], creates disjunct motion in the lower voice. Try again...

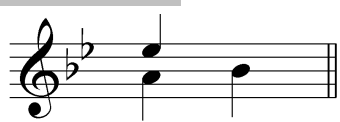
Exercise 6.3b:



[possible answers:]

- (A) Yes! This is the only valid answer. If the lower voice ascends to A, the tritone resolves from a d5 (diminished fifth) to a m3 (minor third).
- (G#) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The lower voice may not sustain G#. Try again...
- (F) This is not a valid answer. The tritone may only resolve from a d5 (diminished fifth) to a P5 (perfect fifth) if both voices are ascending by step. In this example, the lower voice may not descend because it is the leading tone and must resolve upwards to the tonic. Try again...
- (all other possibilities) This is not a valid answer. Both voices must move by step when resolving a tritone. [X] creates disjunct motion in the lower voice.

Exercise 6.3c:



[possible answers:]

- (F) Yes! This is a valid answer. If the upper voice ascends to F, the tritone resolves from an d5 (diminished fifth) to a P5 (perfect fifth).
- (Eb) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The upper voice may not sustain Eb. Try again...
- (D) Yes! This is a valid answer. If the upper voice descends to D, the tritone resolves from an d5 (diminished fifth) to a M3 (major third).

- (above F or below D) This is not a valid answer. Both voices must move by step when resolving a tritone. Your answer, [X], creates disjunct motion in the lower voice.

Exercise 6.3d:



[possible answers:]

- (F) Yes! This is the only valid answer. If the upper voice ascends to F, the tritone resolves from an A4 (augmented fourth) to a M6 (major sixth).
- (E) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The upper voice may not sustain E. Try again...
- (Db) This is not a valid answer. The tritone may only resolve from a A4 (augmented fourth) to a P4 (perfect fourth) if both voices are ascending by step. In this example, the upper voice may not descend because it is the leading tone and must resolve upwards to the tonic. Try again...
- (all other possibilities) This is not a valid answer. Both voices must move by step when resolving a tritone. [X] creates disjunct motion in the lower voice.

[Activity 6.4:

In each of the following exercises, you will be presented with a tritone (consisting of the leading tone and scale degree $\hat{4}$). Resolve the tritone according to the rules given in this lesson by first providing a pitch for the upper voice, then one for the lower voice.

Exercise 6.4a:



[possible answers for upper voice:]

- (E) Yes! This is the only valid answer. In this exercise, the upper voice has the leading tone and must resolve to the tonic (E).
- (D#) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The upper voice may not sustain E. Try again...
- (C) This is not a valid answer. In this case, the upper voice has the leading tone which must resolve to the tonic. Try again...
- (above E or below C) This is not a valid answer. Each voice must move by step when resolving a tritone. [X] creates disjunct motion in the upper voice. Try again...

[possible answers for lower voice with E as the upper voice:]

- (B) Yes! This is a valid answer. If the lower voice ascends to B, the tritone resolves from an A4 (augmented fourth) to a P4 (perfect fourth).
- (A) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The lower voice may not sustain A. Try again...
- (G) Yes! This is a valid answer. If the lower voice descends to G, the tritone resolves from an A4 (augmented fourth) to a M6 (major sixth).
- (above B or below G) This is not a valid answer. Both voices must move by step when resolving a tritone. Your answer, [X], creates disjunct motion in the lower voice. Try again...

Exercise 6.4b:



[possible answers for upper voice:]

- (C) Yes! This is the only valid answer. In this exercise, the upper voice has the leading tone and must resolve to the tonic (C).
- (B) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The upper voice may not sustain B. Try again...
- (A) This is not a valid answer. In this case, the upper voice has the leading tone which must resolve to the tonic. Try again...
- (above C or below A) This is not a valid answer. Each voice must move by step when resolving a tritone. [X] creates disjunct motion in the upper voice. Try again...

[possible answers for lower voice with C as the upper voice:]

- (G) Yes! This is a valid answer. If the lower voice ascends to G, the tritone resolves from an A4 (augmented fourth) to a P4 (perfect fourth).
- (F) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The lower voice may not sustain F. Try again...
- (E) Yes! This is a valid answer. If the lower voice descends to E, the tritone resolves from an A4 (augmented fourth) to a m6 (major sixth).
- (above G or below E) This is not a valid answer. Both voices must move by step when resolving a tritone. Your answer, [X], creates disjunct motion in the lower voice. Try again...

Exercise 6.4c:



[possible answers for upper voice:]

- (B) Yes! This is a valid answer.
- (A) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The upper voice may not sustain B. Try again...
- (G#) Yes! This is a valid answer.
- (above C or below A) This is not a valid answer. Each voice must move by step when resolving a tritone. [X] creates disjunct motion in the upper voice. Try again...

[possible answers for lower voice with B as the upper voice:]

- (E) Yes! This is the only valid answer. If the upper voice ascends out of a d5 (diminished fifth), the lower voice must also ascend. The tritone then resolves from a d5 to a P5 (perfect fifth). Furthermore, D# is the leading tone and must resolve to the tonic.
- (D#) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The lower voice may not sustain D#. Try again...
- (C#) This is not a valid answer. If the lower voice descends to C#, the resulting interval will be a m7 (minor seventh). This is also a dissonance and cannot be used as a resolution from a tritone. Furthermore, D# is the leading tone and must resolve to the tonic. Try again...
- (above E or below C#) This is not a valid answer. Both voices must move by step when resolving a tritone. Your answer, [X], creates disjunct motion in the lower voice. Try again...

[possible answers for lower voice with G# as the upper voice:]

- (E) Yes! This is the only valid answer. If the lower voice ascends to E, the tritone resolves from a d5 (diminished fifth) to a M3 (major third).
- (D#) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The lower voice may not sustain D#. Try again...
- (C#) This is not a valid answer. The tritone may only resolve from a d5 (diminished fifth) to a P5 (perfect fifth) if both voices are ascending by step. In this example, the lower voice may not descend because it is the leading tone and must resolve upwards to the tonic. Try again...
- (above E or below C#) This is not a valid answer. Both voices must move by step when resolving a tritone. [X] creates disjunct motion in the lower voice.

Exercise 6.4d:



[possible answers for upper voice:]

- (D) Yes! This is a valid answer.
- (C) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The upper voice may not sustain B. Try again...
- (Bb) Yes! This is a valid answer.
- (above D or below Bb) This is not a valid answer. Each voice must move by step when resolving a tritone. [X] creates disjunct motion in the upper voice. Try again...

[possible answers for lower voice with D as the upper voice:]

- (G) Yes! This is the only valid answer. If the upper voice ascends out of a d5 (diminished fifth), the lower voice must also ascend. The tritone then resolves from a d5 to a P5 (perfect fifth). Furthermore, F# is the leading tone and must resolve to the tonic.
- (F#) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The lower voice may not sustain F#. Try again...
- (Eb) This is not a valid answer. If the lower voice descends to Eb, the resulting interval will be a m7 (minor seventh). This is also a dissonance and cannot be used as a resolution from a tritone. Furthermore, F# is the leading tone and must resolve to the tonic. Try again...
- (above G or below Eb) This is not a valid answer. Both voices must move by step when resolving a tritone. Your answer, [X], creates disjunct motion in the lower voice. Try again...

[possible answers for lower voice with Bb as the upper voice:]

- (G) Yes! This is the only valid answer. If the lower voice ascends to E, the tritone resolves from a d5 (diminished fifth) to a m3 (minor third).
- (F#) This is not a valid answer. Oblique motion is not permitted when resolving a tritone. The lower voice may not sustain D#. Try again...
- (Eb) This is not a valid answer. The tritone may only resolve from a d5 (diminished fifth) to a P5 (perfect fifth) if both voices are ascending by step. In this example, the lower voice may not descend because it is the leading tone and must resolve upwards to the tonic. Try again...
- (above G or below Eb) This is not a valid answer. Both voices must move by step when resolving a tritone. [X] creates disjunct motion in the lower voice.

We now turn to a progression involving the vii^o chord. In the following three-voice example, a vii^o chord resolves to I⁶:

Example 10:

Example 10 shows a progression from a $vii^{\circ 6}$ chord to an $I^{\circ 6}$ chord. The bass line moves from G2 to G2, and the soprano line moves from B4 to A4. The middle voice has a tritone interval between the two chords.

In this case the tritone of the $vii^{\circ 6}$ chord appears between the soprano and the middle voice. In the following example, the tritone is resolved normatively using a “d5 - P5” progression:

Example 11:

Example 11 shows a progression from a $vii^{\circ 6}$ chord to an $I^{\circ 6}$ chord. The bass line moves from G2 to G2, and the soprano line moves from B4 to G4. The middle voice has a tritone interval between the two chords.

More importantly, note that the bass forms familiar progressions with the soprano (“3 - 3”) and the middle voice (“6 - 6”). Because of these consonant interval progressions, we can think of the tritone as a resultant interval formed by pitches that are consonant with the bass. At this point, we can also add a fourth voice for a full SATB texture:

Example 12:

Example 12 shows a progression from a $vii^{\circ 6}$ chord to an $I^{\circ 6}$ chord with four voices. The bass line moves from G2 to G2, the soprano from B4 to G4, the alto from A4 to F4, and the tenor from E4 to D4.

[Activity 6.5:

In each of the following exercises, you will be presented with a short progression consisting of a vii° chord resolving to a I chord. In each case, you will be asked whether or not the voice leading is correct in every voice.

Exercise 6.5a:

Exercise 6.5a shows a progression from an $e: vii^{\circ 6}$ chord to an i chord. The bass line moves from G2 to G2, the soprano from B4 to G4, the alto from A4 to F4, and the tenor from E4 to D4.

[multiple choice question:] Is the voice-leading correct for the resolution of this vii° chord?

- Yes. [response: That is incorrect. Look again at the alto voice and try again.]
- No. [response: Correct!]

[follow-up multiple choice question:] Which voice needs to be adjusted?

- Soprano. [response: That is incorrect. Try again...]
- Alto. [response: Correct!]
- Tenor. [response: That is incorrect. Try again...]
- Bass. [response: That is incorrect. Try again...]

[follow-up question:] What pitch should the D# in the alto resolve to?

- (E) Yes! D# is the leading tone and must resolve to the tonic (E).
- (any other pitch) Incorrect. D# is the leading tone and must resolve to the tonic. Try again...

Exercise 6.5b:

The musical notation shows a piano accompaniment with two staves. The treble clef staff has a key signature of two sharps (F# and C#). The bass clef staff has a key signature of two sharps (F# and C#). The alto voice (represented by a single line) starts on D# and resolves to E. The piano accompaniment consists of two chords: a triad of D#-F#-A and a triad of E-G-A.

A: vii[°] I

[multiple choice question:] Is the voice-leading correct for the resolution of this vii[°] chord?

- Yes. [response: Correct! All of the voices resolve properly. There is no need to adjust any of the voices.]
- No. [response: That is incorrect.]

Exercise 6.5c:

The musical notation shows a piano accompaniment with two staves. The treble clef staff has a key signature of two flats (Bb and Eb). The bass clef staff has a key signature of two flats (Bb and Eb). The alto voice (represented by a single line) starts on Bb and resolves to C. The piano accompaniment consists of two chords: a triad of Bb-Eb-G and a triad of C-Eb-G.

c vii[°] i

[multiple choice question:] Is the voice-leading correct for the resolution of this vii[°] chord?

- Yes. [response: Correct! All of the voices resolve properly. There is no need to adjust any of the voices.]
- No. [response: That is incorrect.]

Exercise 6.5d:

The musical notation shows a piano accompaniment with two staves. The treble clef staff has a key signature of three flats (Bb, Eb, and Ab). The bass clef staff has a key signature of three flats (Bb, Eb, and Ab). The alto voice (represented by a single line) starts on D and resolves to E. The piano accompaniment consists of two chords: a triad of D-F-A and a triad of E-G-A.

E^b: vii[°] I

[multiple choice question:] Is the voice-leading correct for the resolution of this vii[°] chord?

- Yes. [response: That is incorrect. Look again at the soprano voice and try again.]
- No. [response: Correct!]

[follow-up multiple choice question:] Which voice needs to be adjusted?

- Soprano. [response: Correct!]
- Alto. [response: That is incorrect. Try again...]
- Tenor. [response: That is incorrect. Try again...]
- Bass. [response: That is incorrect. Try again...]

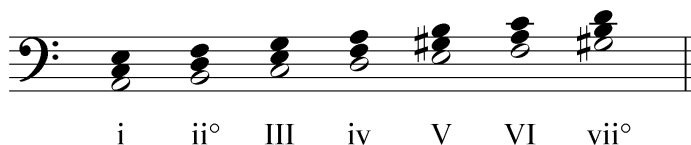
[follow-up question:] What pitch should the D in the soprano resolve to?

- (Eb) Yes! D is the leading tone and must resolve to the tonic (Eb).
- (any other pitch) Incorrect. D is the leading tone and must resolve to the tonic. Try again...

Other diminished triads:

For the sake of clarity, we have been looking at only one example of a diminished triad so far: vii° in a major key. Of course, this is not the only diminished triad you will encounter. Consider, for example, the triads of the minor scale (refer to Lesson CCC for more on the minor scale):

Example 13:



As you can see, there are two diminished triads in the minor mode, one on $\hat{2}$ and one on $\hat{7}$. (In minor, vii° is the result of the raised leading tone creating a diminished triad from a naturally major one.) In both cases, the tritone must be handled carefully according to the interval progressions outlined above.

Conclusion:

As the above examples show, an exception to the dissonance rule is required in order to accommodate the vii° chord. Tritones are permitted when they are part of this particular triad. (Later, we will explore other permissible uses of the tritone, such as in a V^7 chord.) However, because of this interval's dissonant quality, it must be treated delicately. First, the vii° chord appears in first inversion in order to avoid a dissonance with the bass. By inverting the triad, we hide the tritone within the inner voices, presenting it as a resultant interval. All of the upper voices are then consonant with the bass. Second, the tritone must also be resolved properly. This is to be done with both voices moving by step in either contrary or similar motion.