SPECIAL PUBLICATION

March 1990

Harmony

NAVEDTRA 12012

ACKNOWLEDGEMENT

The contents of this Special Publication were furnished by the courtesy of the United States Army.

PREFACE

Special Publications (SPs) are manuals or catalogs that provide information of general benefit and career development. SPs have **no** associated assignments or tests.

Harmony provides an overview of the basic principles of harmony, progression, and modulation. This SP is available ONLY in electronic Portable Document Format from the following web site: http://www.advancement.cnet.navy.mil

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Sailor's Creed

"I am a United States Sailor.

I will support and defend the Constitution of the United States of America and I will obey the orders of those appointed over me.

I represent the fighting spirit of the Navy and those who have gone before me to defend freedom and democracy around the world.

I proudly serve my country's Navy combat team with honor, courage and commitment.

I am committed to excellence and the fair treatment of all."

Training Circular
No. 12-42

*TC12-42
HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 5 November 1984

HARMONY

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*This TC supersedes DA Pam 350-42, 1 April 1969.

PURPOSE AND SCOPE

This training circular is the principal harmony reference for all Army bandsmen. It may be used, in conjunction with academic materials, as a text for courses of instruction at the US Army Element School of Music. It encompasses the basic aspects of harmony, progression and modulation.

INTRODUCTION

Users of this publication are encouraged to recommend changes and submit comments for its improvement. Comments should be keyed to the specific page, paragraph and line of the text in which the change is recommended. Reasons will be provided for each comment to ensure understanding and complete evaluation. Comments should be prepared using DA Form 2028 (Recommended Changes to Publications and Forms) and forwarded directly to the Commandant, US Army Element School of Music, ATTN: ATTG-SM-DT, US Naval Amphibious Base (Little Creek), Norfolk, Virginia 23521.

CHAPTER 1

Introduction

PRINCIPLES OF WRITING

The study of Harmony examines the structure and relationship between *vertical* combinations of musical tones and their succession. Counterpoint examines the structure and relationship between *horizontal* combinations of musical tones and their succession. When these successions center on a key they become *progressions* that establish a tonality.

Therefore:

harmonic progression establishes tonality vertically; melodic progression establishes tonality horizontally. In practice they are directly related.

SCALE DEGREE FUNCTION

In the major and minor key systems, the tonic, subdominant, and dominant scale degrees are primary tones or *tonal* notes because the ear perceives them as most effective in establishing a tonal center. The leading tone/subtonic, mediant and submediant are secondary tones and are also classed as *modal* notes because the ear perceives them as establishing the mode. The supertonic tends to be a secondary tone but can have the effect of a primary tone.

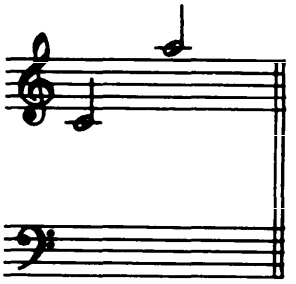
PRIMARY AND SECONDARY TRIADS

Primary triads occur on the tonic, subdominant, and dominant scale degrees. Secondary triads occur on the supertonic, mediant, submediant, and leading tone/subtonic.

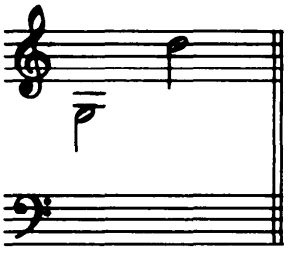
VOICES

There are four traditional *voices* (parts) used in the study of Harmony. They are Soprano, Alto, Tenor, and Bass, using the grand staff for notating parts.

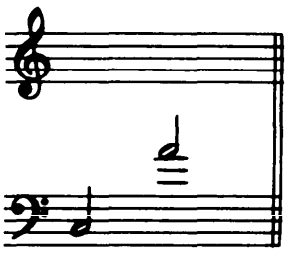
The Soprano part is written on the treble clef of the grand staff, stems up. Its range is c^1 to a^2.



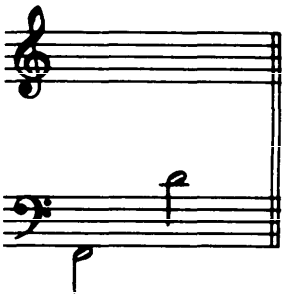
The Alto part is written on the treble clef of the grand staff, stems down. Its range is g to d^2.



The Tenor part is written on the bass clef of the grand staff, stems up. Its range is c to a^1.



The Bass part is written on the bass clef of the grand staff, stems down. Its range is F to d^1.



Although the full range of each voice may be used, it is advisable to confine the voices to the middle of their respective ranges. Range extremes should occur only for reasons of melodic line. Parts should not remain in those registers.

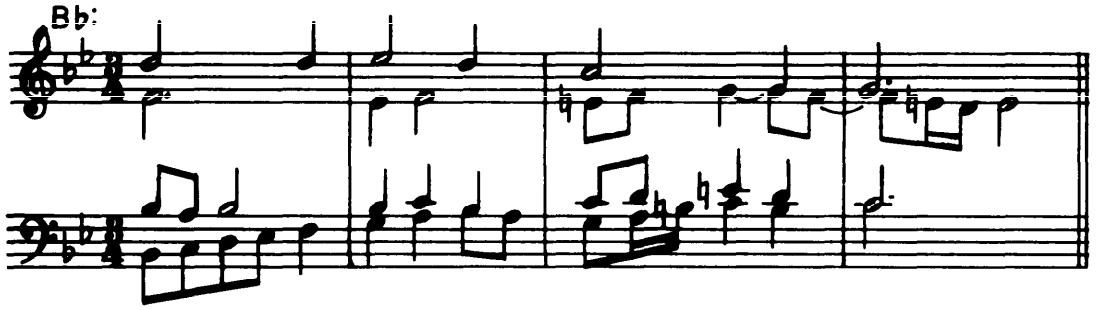


FIGURE 1.1: Example of Four Voice Notation

CHAPTER 2

MELODY WRITING

MELODY

The term *melody* is applied to all four voices. Each voice should stand alone as a melody rather than as a succession of chord tones. The Bass voice does not always follow melody guidelines as closely as the other voices because it supplies the harmonic foundation.

TYPES OF MOTION

Conjunct motion occurs when one pitch of a melody moves step-wise to another. *Disjunct motion* occurs when one pitch of a melody leaps to another. Conjunct motion occurs more often than disjunct motion.

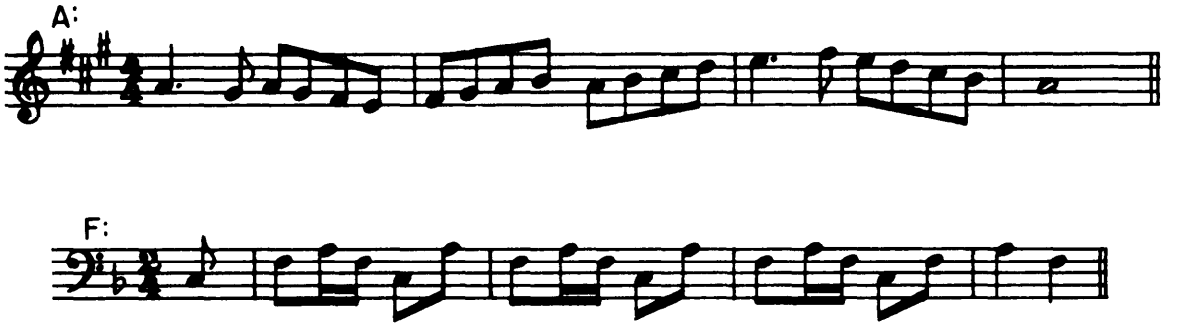


FIGURE 2.1: Examples of Conjunct and Disjunct Motion

MELODY GUIDELINES

Disjunct motion greater than a fifth may be followed by any of the following, listed in order of frequency:

(1) Conjunct motion in the opposite direction.

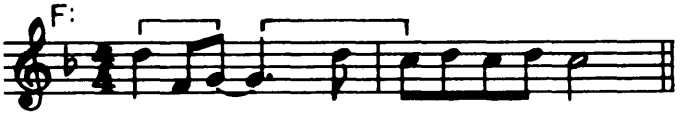


FIGURE 2.2: Disjunct motion followed by conjunct motion in the opposite direction

(2) Disjunct motion in the opposite direction.

FIGURE 2.3: Disjunct motion followed by disjunct motion in the opposite direction

(3) Conjunct motion in the same direction.

FIGURE 2.4: Disjunct motion followed by conjunct motion in the same direction

(4) Disjunct motion in the same direction.

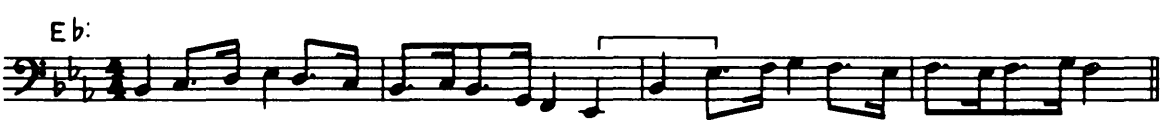


FIGURE 2.5: Disjunct motion followed by disjunct motion in the same direction

Two consecutive moves in the same direction which form a compound interval are forbidden. Generally, two or three consecutive moves in the same direction which form an octave or greater are rare. Melodies usually have a maximum range of an octave. This range may occasionally extend a step above or below. Some intervals in melodies require special considerations. They are as follows:

(1) Augmented intervals are forbidden.

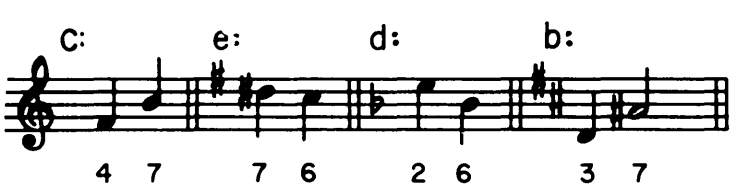


FIGURE 2.6: Examples of Augmented Intervals

(2) Compound intervals are forbidden.

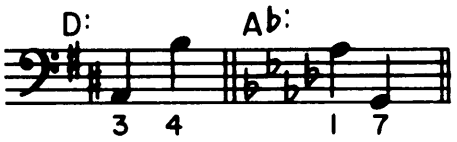


FIGURE 2.7: Examples of Compound Intervals

(3) Major sevenths are forbidden.

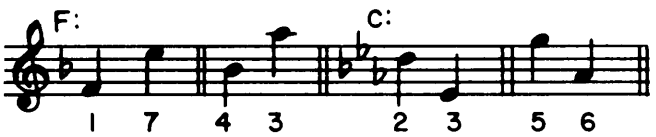


FIGURE 2.8: Examples of Major Sevenths

(4) Minor sevenths must be followed by conjunct motion in the opposite direction.

FIGURE 2.9: Use of Minor Seventh

(5) Diminished intervals should be followed by conjunct motion in the opposite direction.

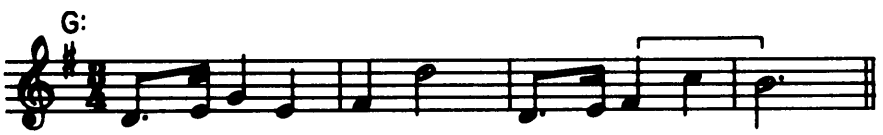


FIGURE 2.10: Use of Diminished Intervals

Scale degree activity is discussed in Basic Music (TC 12-41/NAVEDTRA 10244). Further explanation of those concepts is necessary for the proper construction of melodies.

Any number of stable tones may follow one another, but their overuse will emphasize the tonic triad.

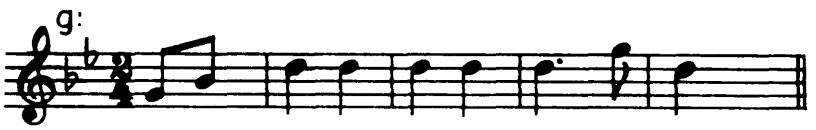


FIGURE 2.11: Succession of Stable Tones

No more than two tendency tones may occur in succession.

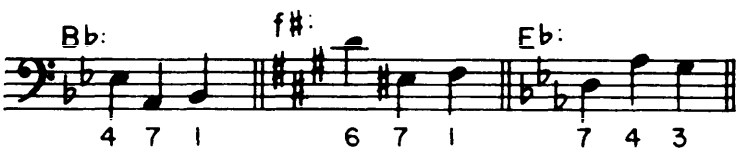


FIGURE 2.12: Succession of Tendency Tones

When one active tone is followed by another which is more than a third away, the first active tone is disregarded.

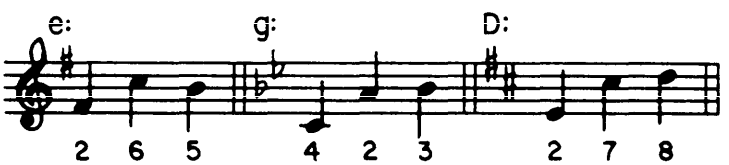


FIGURE 2.13: Two active tones separated by more than a third

When two active tones surround a stable tone:

that stable tone may then follow,

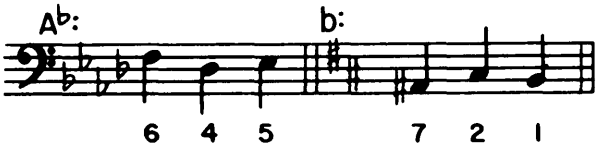


FIGURE 2.14.a: Two Active Tones Surrounding a Stable Tone

OR

the latter active tone may be considered for movement,

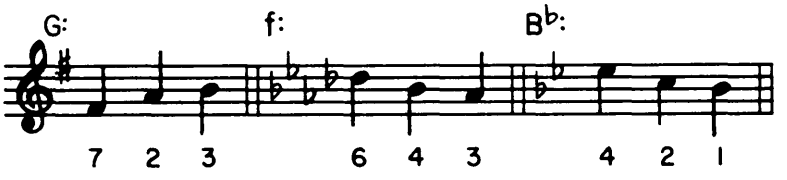


FIGURE 2.14.b: Two Active Tones Surrounding a Stable Tone

OR

another active tone may follow.

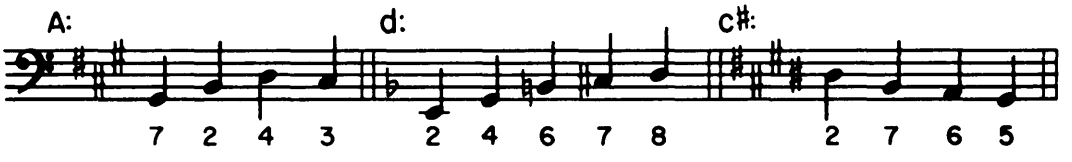


FIGURE 2.14.c: Two Active Tones Surrounding a Stable Tone

When employing broken chords, scale degree activity may not apply.

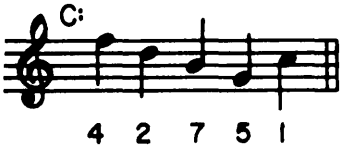


FIGURE 2.15: Broken Chord

FORM

A *phrase* in music is defined in Basic Music (TC 12-41/NAVEDTRA 10244). Additionally, a phrase should convey a definite feeling of beginning and ending (repose). Repose is accomplished by melodic and/or harmonic cessation (caesura), called a *cadence.* Two phrases form a *period;* the first called an *antecedent phrase,*the second called a *consequent phrase.* When there is similarity between the two phrases, they are *parallel.*

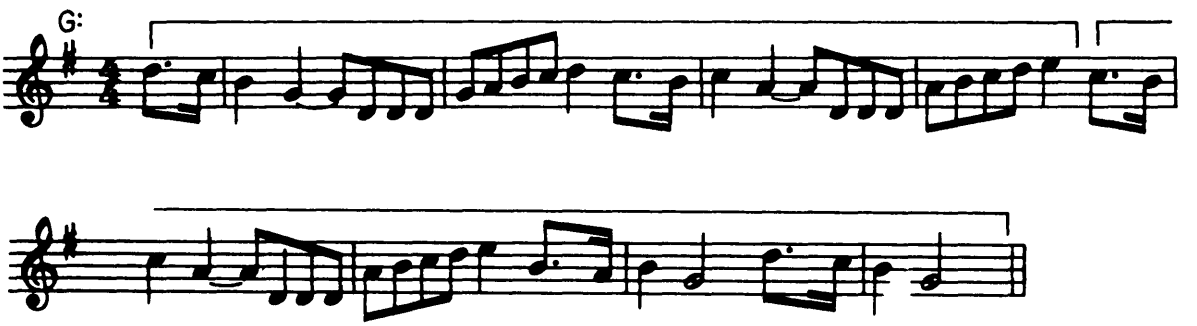


FIGURE 2.16: Parallel Phrases

When there is **no** similarity between the two phrases , they are *contrasting.*

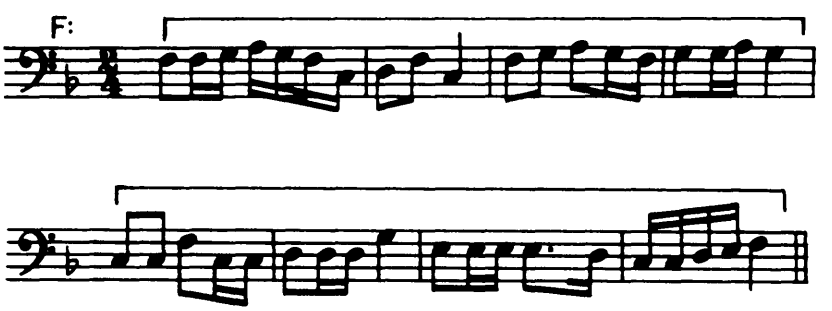


FIGURE 2.17: Contrasting Phrases

RHYTHM

Rhythms employed in the study of Harmony appear in the following order of frequency:

(1) Regular rhythm.

(2) Irregular rhythm.

(3) Uniform rhythm.

(4) Syncopation (used primarily with special melodic/harmonic devices).

CHAPTER 3

Vertical Structures

POSITION

Harmonic interval relationships between the four voices occur in specific arrangements. When the harmonic interval between the Soprano and Tenor voices is a simple interval, *close position* occurs.

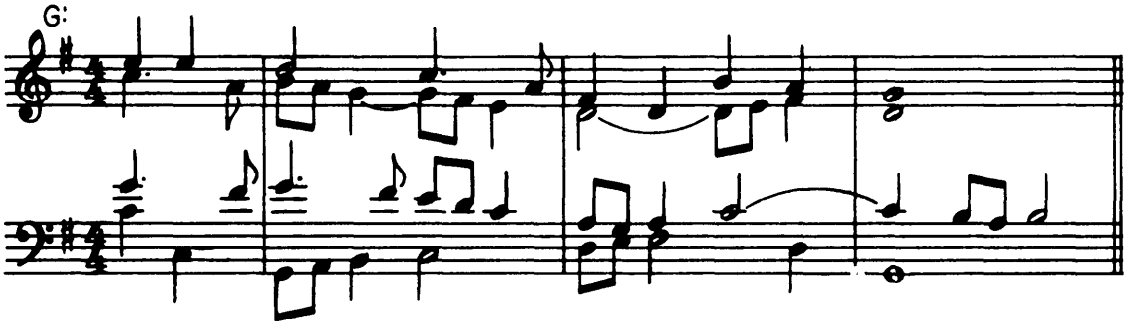


FIGURE 3.1: Close Position

When the harmonic interval between the Soprano and Tenor voices is a compound interval, *open position* occurs. The Bass voice is not considered in determining close or open position.

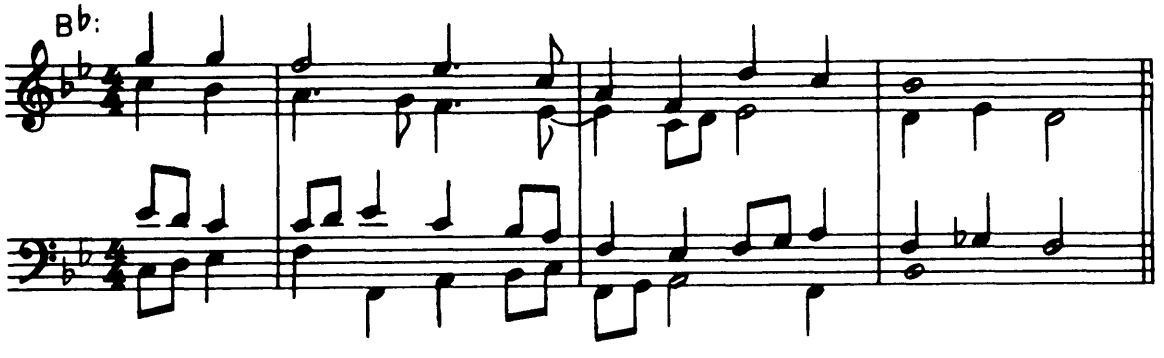


FIGURE 3.2: Open Position

ADJACENT VOICE SPACING

Harmonic intervals which occur between the Soprano and Alto or Alto and Tenor voices must be simple intervals. Compound intervals may occur between the Tenor and Bass voices.

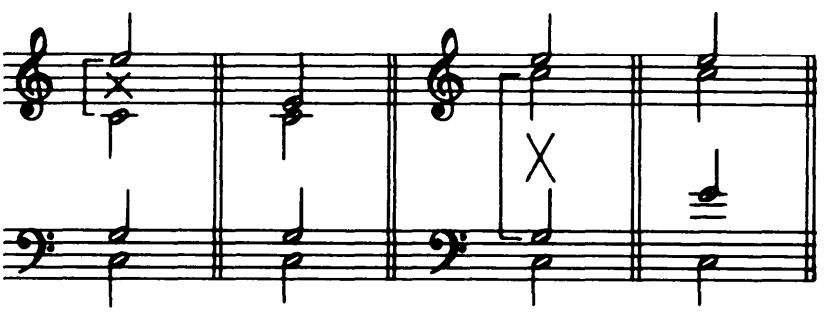


FIGURE 3.3: Adjacent Voice Spacing

LOW INTERVAL LIMITS

When simple harmonic intervals occur between the Bass and Tenor voices, limitations must be placed on how low they may occur. The lowest note the Bass voice may have for a:

minor sixth is G.

tritone is B.

third is c.

second is e.

There are no other restrictions for the Bass voice of any other intervals. When two voices form a perfect prime the voicing is called *unison.*

CHAPTER 4

Voice Motion

VOICING

Voice motion is generally described in terms of simple intervals.

INDIRECT MOTION

Indirect motion occurs when two parts move in dissimilar directions.

Contrary Motion

Contrary motion is indirect motion that occurs when two parts move in opposite directions.

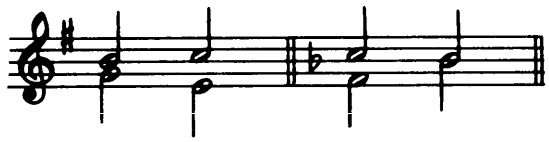


FIGURE 4.1: Contrary Motion

Oblique Motion

Oblique motion is indirect motion that occurs when one part moves and another sustains or repeats.

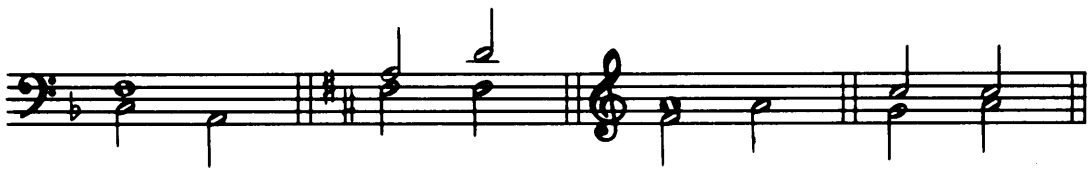


FIGURE 4.2: Oblique Motion

DIRECT MOTION

Direct motion occurs when two parts move in the same direction.

Similar Motion

Similar motion is direct motion that occurs when two parts move in the same direction producing different harmonic intervals.

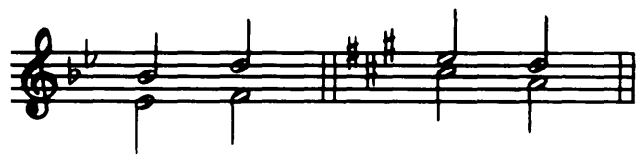


FIGURE 4.3: Similar Motion

Parallel Motion

Parallel motion is direct motion that occurs when two parts move in the same direction producing the same harmonic interval, without regard for quality; a major third to a minor third is parallel motion.

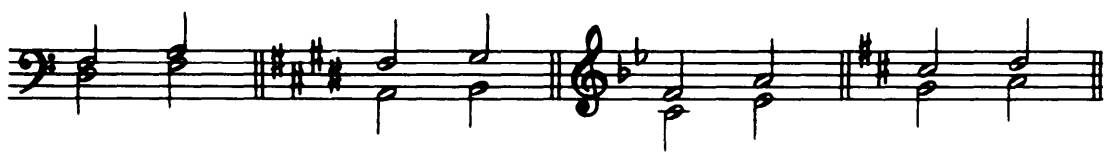


FIGURE 4.4: Parallel Motion

Indirect motion is generally preferred to direct motion.

OBJECTIONABLE MOTION

Some kinds of parallel motion must not occur except under appropriate harmonic circumstances because they destroy the four part texture: octaves, unisons, perfect fifths, and parallel dissonant intervals. Parallel perfect fourths are acceptable, but only in the upper three voices.

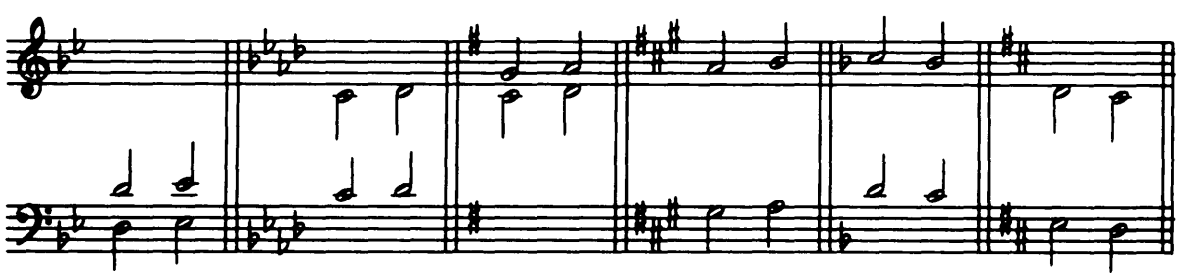


FIGURE 4.5: Objectionable Parallel Motion

When two parts move in similar motion to a unison, perfect fifth, or perfect octave, that movement is called *Hidden* or *Covered.* Hidden unisons are forbidden. Hidden perfect fifths and perfect octaves may occur at any time except between the Soprano and Bass voices at a change of chord with the Soprano moving by disjunct motion.

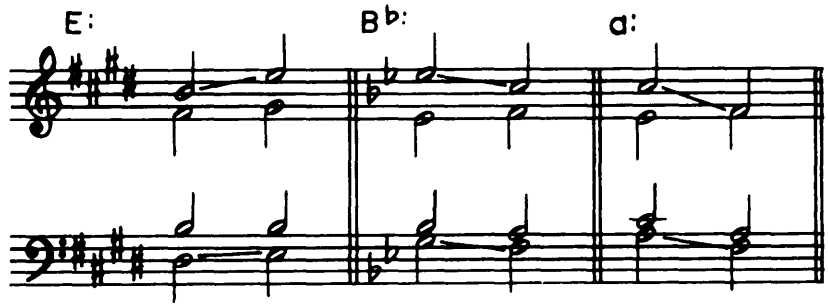


FIGURE 4.6: Objectionable Hidden Motion

Parallels by contrary motion occur when two voices move by contrary motion from one harmonic interval to the same harmonic interval. Parallel perfect octaves and parallel perfect fifths by contrary motion must not occur. An octave to a unison has the same effect.

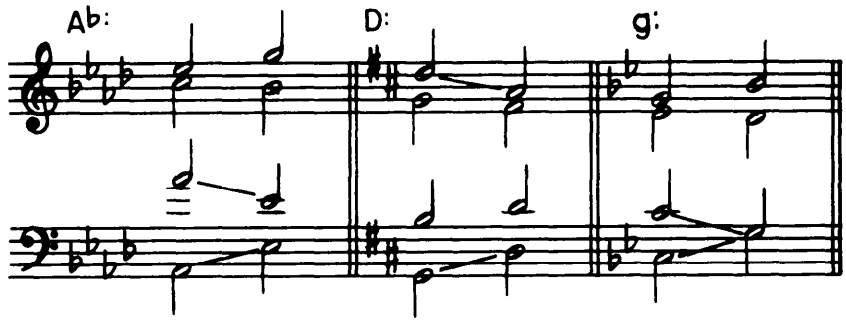


FIGURE 4.7: Parallels by Contrary Motion

Crossed voices occur between any two adjacent voices where the lower voice has a pitch higher than the upper voice. Crossed voices are not normally permitted.

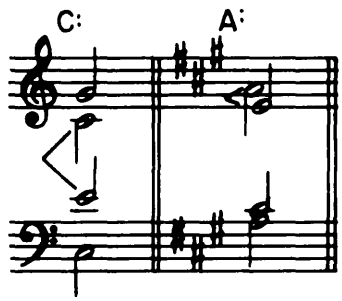


FIGURE 4.8: Crossed Voices

Overlapping voices occur in the movement of any two voices when: a lower voice moves to a pitch higher than the previous pitch in an upper voice, or an upper voice moves to a pitch lower than the previous pitch in a lower voice. Overlapping voices are not normally permitted.

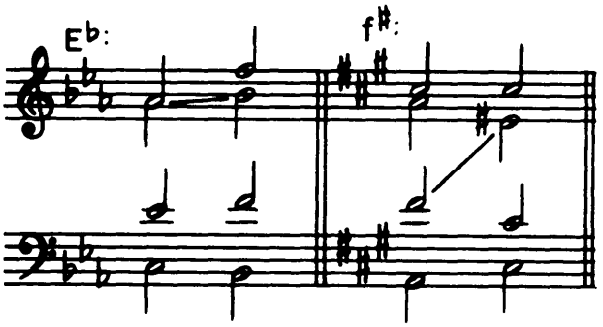


FIGURE 4.9: Overlapping Voices

CHAPTER 5

Root Position Primary Triads

CONNECTING PRIMARY TRIADS

Primary triads in root position can be connected with few errors using the following guidelines:

Place roots of triads in the Bass voice.

Keep the *common tone* in the same voice, then move the remaining two voices to the nearest chord tones by step (conjunct motion).

When there is conjunct root position movement, there is no common tone. In that case, move all upper voices contrary to the Bass to the nearest chord tones.

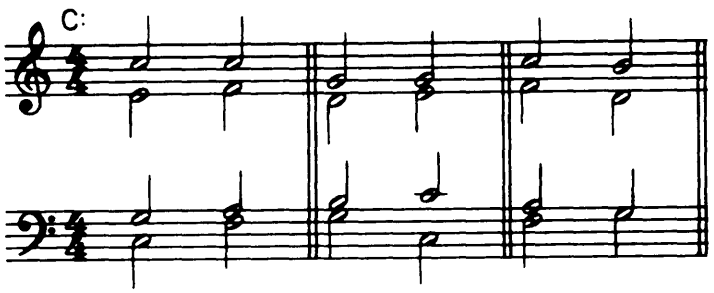


FIGURE 5.1: Connecting Primary Triads

DOUBLING

When writing triads in four parts, it is necessary to double one of the notes of the triad. Generally, double tonal notes. Modal notes may occasionally be doubled as a result of melodic line. In some instances it is necessary or desirable to triple the root and omit the fifth.

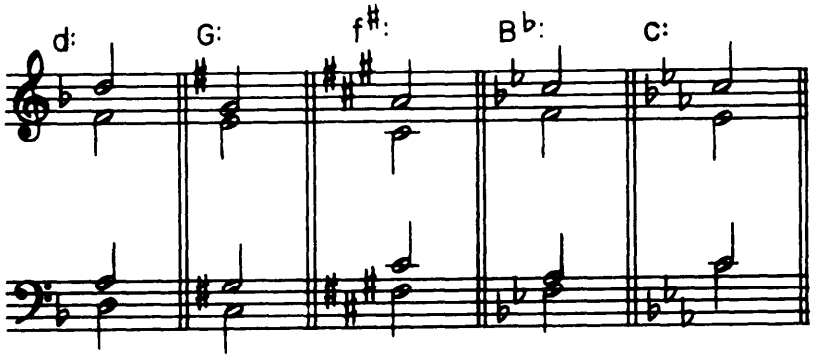


FIGURE 5.2: Doubling in Primary Triads

KEY ESTABLISHMENT

The primary means of establishing a key is to move from the major dominant triad to the tonic triad. The dominant triad in natural minor is minor. Therefore, the major form of the triad is borrowed from its parallel major key by raising the third with an accidental to create a leading tone and stronger resolution. This process creates the *harmonic minor scale.*

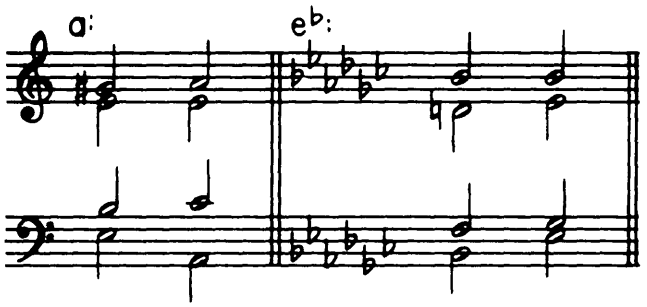


FIGURE 5.3: Major Dominant Triad in Minor

Use of the *ascending melodic minor* scale results in a major quality subdominant chord that may create a change of modality to major.

ANALYSIS AND FIGURED BASS

Roman and *Arabic* numerals are used to indicate chords and doublings. Roman numerals are used for analysis and to indicate chord roots. The Roman numeral will correspond to the scale degree on which the triad is built. An **upper case** Roman numeral indicates a major triad (unless qualified). A **lower case** Roman numeral indicates a minor triad (unless qualified). A plus sign (+) qualifies an upper case Roman numeral to indicate an augmented triad. A circle (o) qualifies a lower case Roman numeral to indicate a diminished triad. All other alterations or additions are indicated with chromatic signs and Arabic numerals.

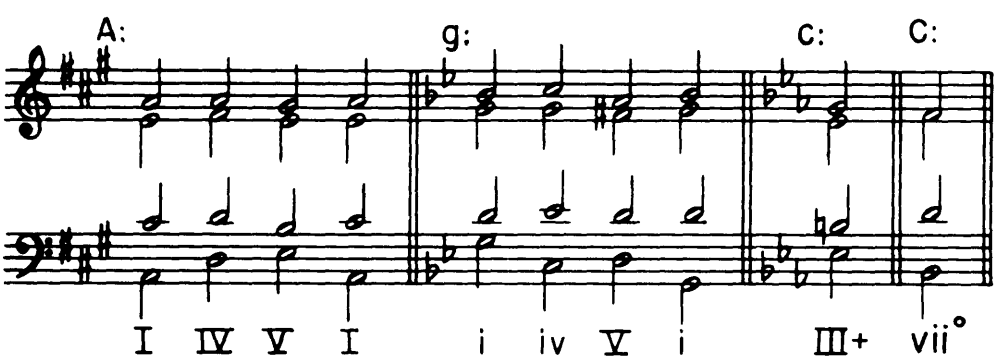


FIGURE 5.4: Analysis

Arabic numerals are used for *figured bass* or *figuring* and indicate notes above the **Bass voice,** primarily as simple intervals. The complete figuring for a root position triad with the:

root doubled is $\begin{matrix}8\\5\\3\end{matrix}$. This is often abbreviated $\begin{matrix}5\\3\end{matrix}$. When no Arabic numerals appear, a root position triad is intended.

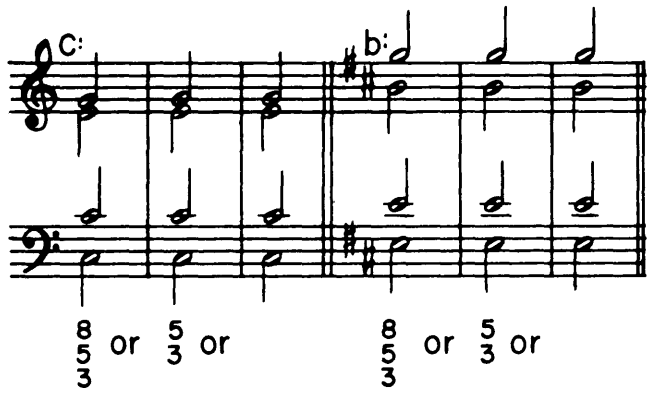


FIGURE 5.5: Doubled Root Figuring

fifth doubled is $\begin{matrix}5\\5\\3\end{matrix}$.

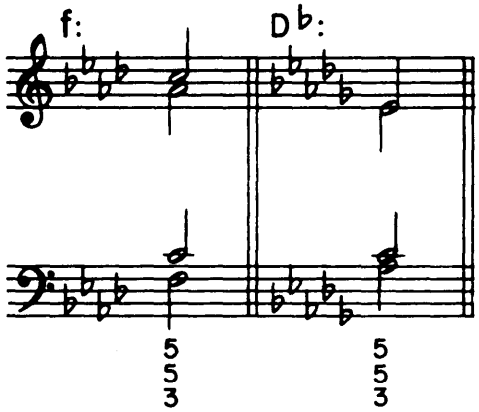


FIGURE 5.6: Double Fifth Figuring

third doubled is $\begin{matrix}5\\3\\3\end{matrix}$.

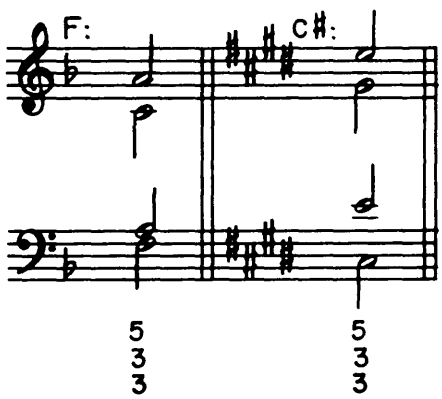


FIGURE 5.7: Doubled Third Figuring

root tripled and fifth omitted is $\begin{matrix}8\\8\\3\end{matrix}$

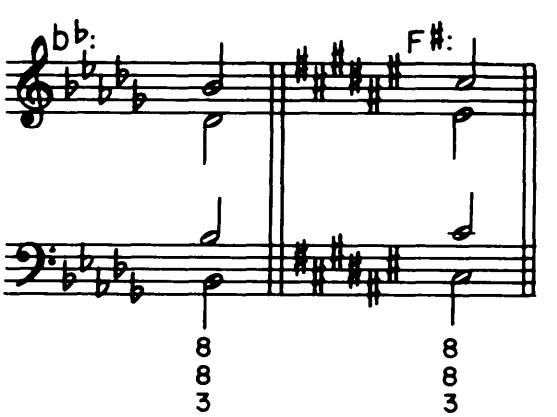
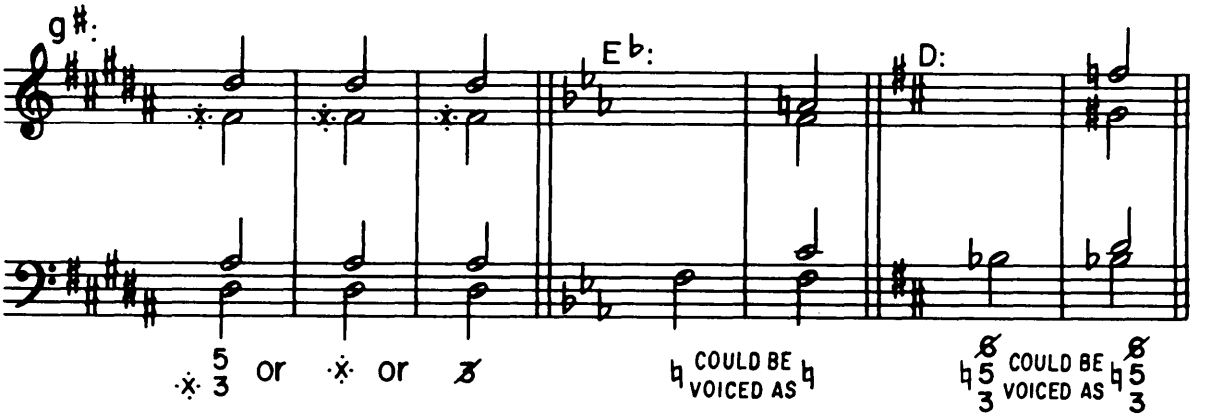


FIGURE 5.8: Tripled Root Figuring

The Arabic numerals of figured bass refer to diatonic intervals by name. A 5 indicates a diatonic fifth regardless of quality. When accidentals are used, such as with the dominant chord in minor, the **same** accidental must appear in the figured bass. This is done by writing the accidental to the left of the Arabic numeral. An accidental may be used without an Arabic numeral to indicate an alteration of the note a third above the Bass note. This applies regardless of chord position. A slash through a number indicates that the corresponding note is raised a half step. An accidental in the Bass voice is not normally indicated in figured bass.



FIGURES 5.9: Accidentals and Figured Bass

CADENCES

Primary triads in root position may be used to form three types of harmonic cadences:

AUTHENTIC.

PLAGAL.

HALF.

Authentic Cadence

An *authentic cadence* occurs when the dominant chord progresses to the tonic chord at a cadence point. In a *Perfect Authentic* cadence, both chords are in root position and the tonic scale degree appears in the Soprano voice over the tonic chord. The Perfect Authentic occurs most often as a final cadence.

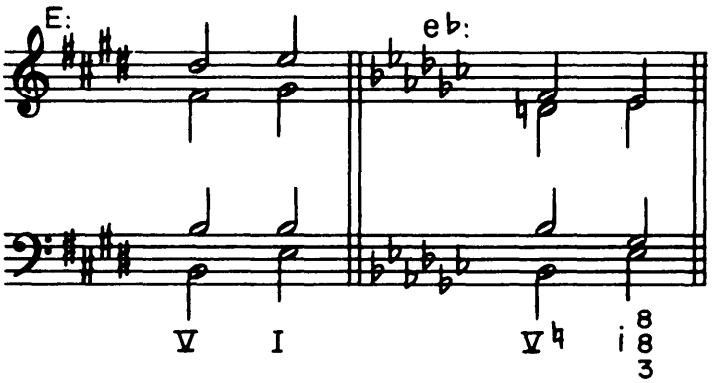


FIGURE 5.10: Perfect Authentic Cadences

In an *Imperfect Authentic* cadence, either chord is inverted, and/or the root is not in the Soprano on the tonic chord. The Imperfect Authentic cadence occurs most often at cadence points other than final.

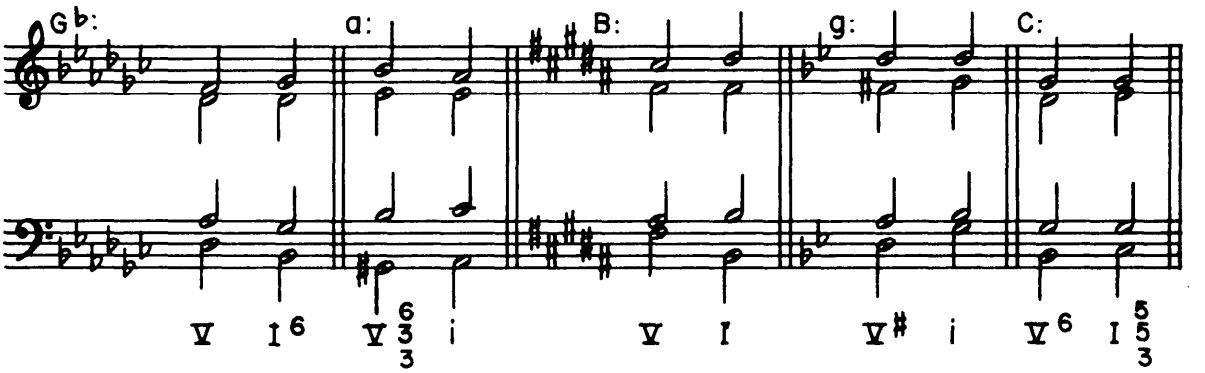


FIGURE 5.11: Imperfect Authentic Cadences

Occasionally, in a Perfect Authentic cadence, the leading tone may DROP to the fifth of the tonic chord when it is in the Alto or Tenor voices. This is usually a result of supertonic to

tonic voice leading in the Soprano voice. It is written this way to allow all notes of the chord to appear.

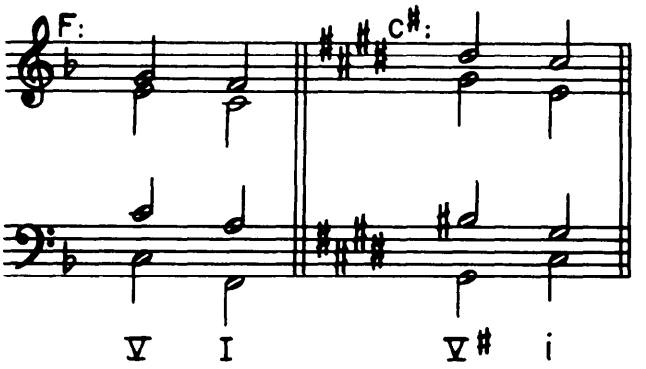


FIGURE 5.12: Leading Tone Dropping in a Perfect Authentic Cadence

Plagal Cadence

A *Plagal cadence* occurs when the subdominant chord progresses to the tonic chord at a cadence point. In a *Perfect Plagal* cadence, both chords are in root position and the tonic scale degree appears in the Soprano voice over both chords.

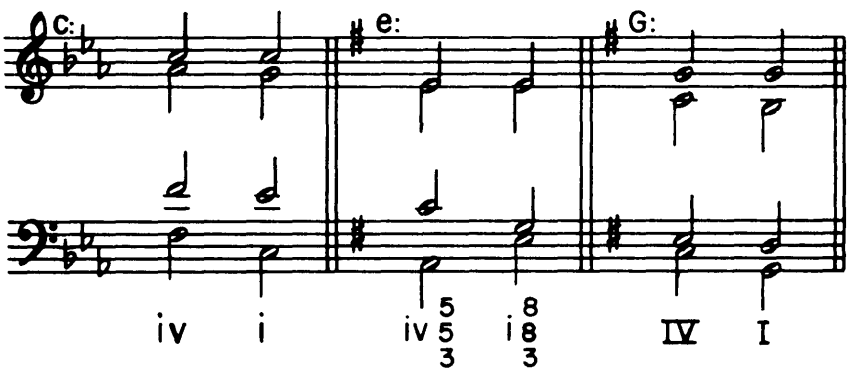


FIGURE 5.13: Perfect Plagal Cadence

In an *Imperfect Plagal* cadence, either chord is inverted, and/or the root is not in the Soprano on the tonic chord. Plagal cadences often follow final authentic cadences to emphasize finality.

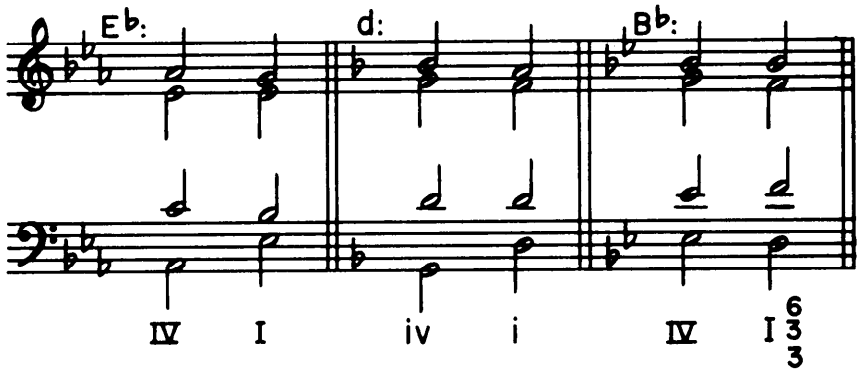


FIGURE 5.14: Imperfect Plagal Cadences

Half Cadence

A *Half cadence (Semi-cadence)* occurs when any chord, regardless of inversion, progresses to the dominant at a cadence point. Generally, the dominant chord will be in root position. A *Plagal Half* cadence occurs when any chord, regardless of inversion, progresses to the subdominant at a cadence point. Generally, the subdominant chord will be in root position. Half cadences are not used as final cadences.

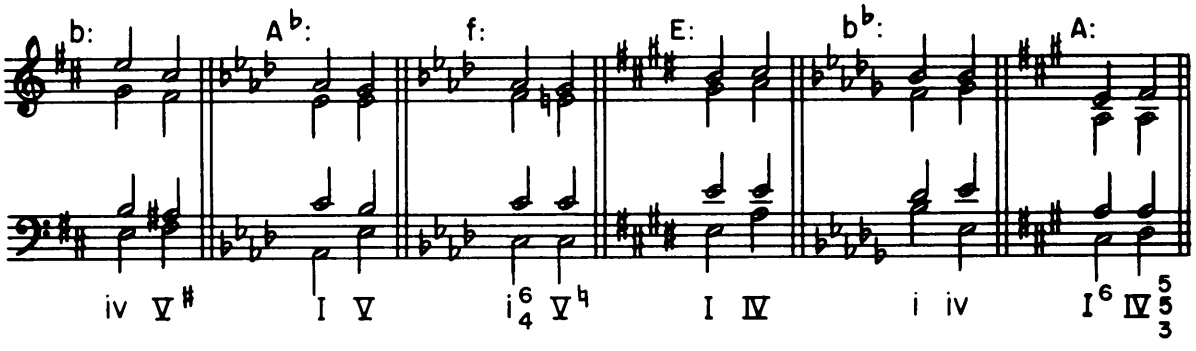


FIGURE 5.15: Half Cadences

Picardy Third (Tierce de Picardie)

Occasionally, the tonic triad in minor will be borrowed from its parallel major at an authentic cadence. This is known as a *Picardy Third (Tierce de Picardie)* and occurs at final

cadences. When figured bass is used, it must reflect the alteration that occurs.

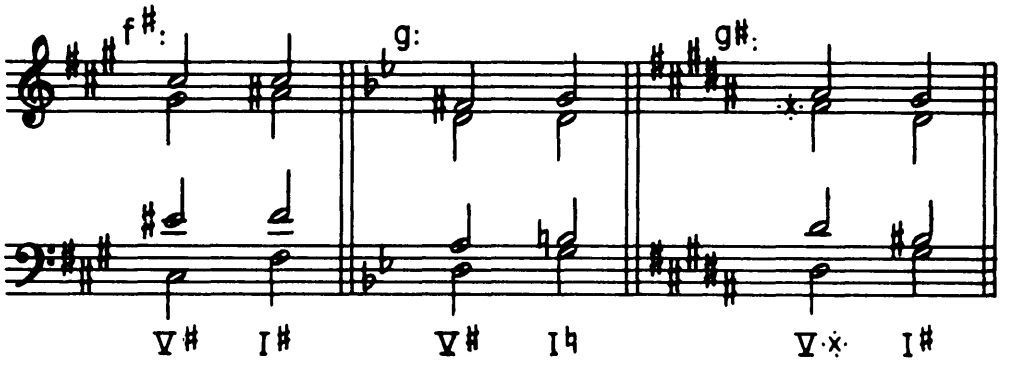


FIGURE 5.16: Picardy Third

CHORD SUCCESSION

Chordal movements used with primary triads in root position are:

I may progress to IV or V

IV may progress to V or I

V may progress to I

V may go to IV if IV immediately progresses to V

Any chord may follow itself. Chords generally progress across a bar line.

CHAPTER 6

Inversions of Primary Triads

Triad inversion is discussed in Basic Music (TC 12-41/NAVEDTRA 10244). Inversions are used to give the Bass voice smoothness and variety. Voice leading may differ from that described for root position primary triads; however, objectionable motion must still be avoided.

FIRST INVERSION

First inversion primary triads require no new doubling rules. Figured bass for triads in first inversion with the:

root doubled is $\begin{matrix}6\\6.\\3\end{matrix}$ This is often abbreviated $\begin{matrix}6\\3\end{matrix}$ or more commonly 6.

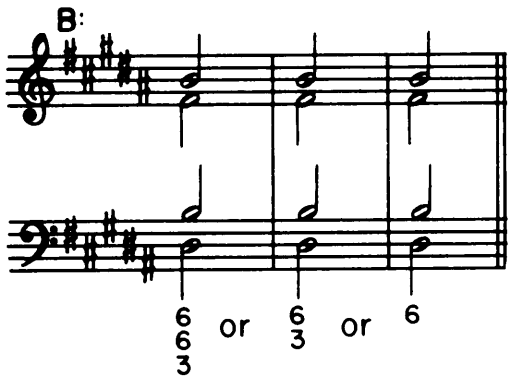


FIGURE 6.1: Doubled Root Figuring for First Inversion

fifth doubled is $\begin{matrix}6\\3.\\3\end{matrix}$

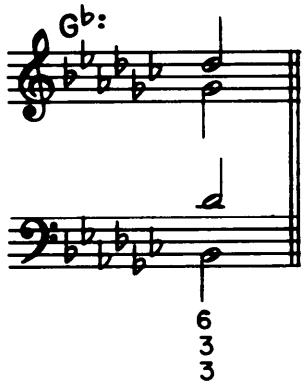


FIGURE 6.2: Doubled Fifth Figuring for First Inversion

third doubled is $\begin{matrix}8\\6\\3\end{matrix}$.

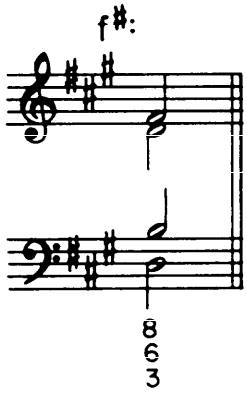


FIGURE 6.3: Doubled Third Figuring for First Inversion

root tripled and fifth omitted is $\begin{matrix}6\\6\\6\end{matrix}$ This voicing is rarely used and should be avoided

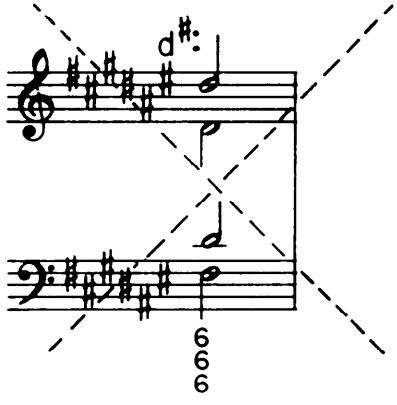


FIGURE 6.4 Tripled Root Figuring for First Inversion

CHORD SUCCESSION

Chord succession involving first inversion triads remains the same as that for root position. Although IV6 to V6 is now available in major key, it is not written in minor (iv6 to V6) as this results in an augmented second in the Bass voice.

A *Phrygian cadence* is created with the use of inversions in a minor key. It is a form of Half cadence created by the progression iv6 to V# with subdominant to dominant voice leading in the Soprano. The semitone in the Bass voice resembles the lowered supertonic to tonic movement and the Soprano resembles the subtonic to tonic movement of a Phrygian mode.

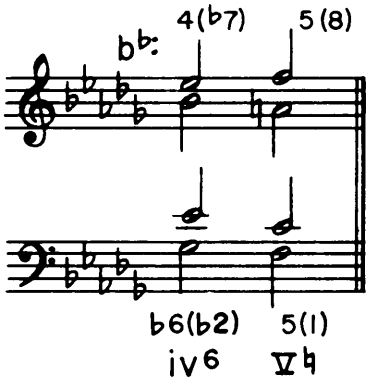


FIGURE 6.5: Phrygian Cadence

SECOND INVERSION

Second inversion chords generally do not take part in a progression but rather appear in a pattern in conjunction with other chords. Double the fifth of all second inversion chords. This results in a figured bass of $\begin{matrix}8\\6\\4\end{matrix}$, $\begin{matrix}6\\4\end{matrix}$ being the accepted abbreviation. Second inversion chords are commonly called *Six-Four Chords.*

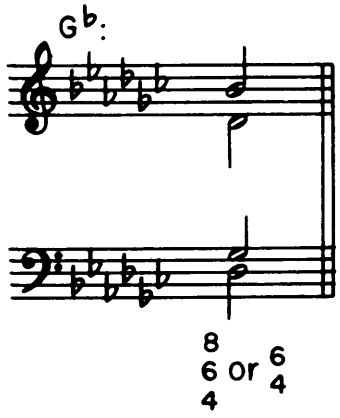


FIGURE 6.6: Second Inversion Figuring

TYPES OF SECOND INVERSIONS

Cadential

The most widely used of all second inversions is the *Cadential six-four,* a second inversion tonic chord which moves to the dominant chord at a cadence. Normally, the sixth and fourth above the Bass note resolve down by step to a fifth and third respectively. A cadential six-four and its resolution to the dominant usually appear in a strong-weak rhythmic relationship. A weak-strong relationship may occur at a Half cadence. In triple meter it is often found on the second beat with the final tonic triad occurring on the first

beat of the following measure.

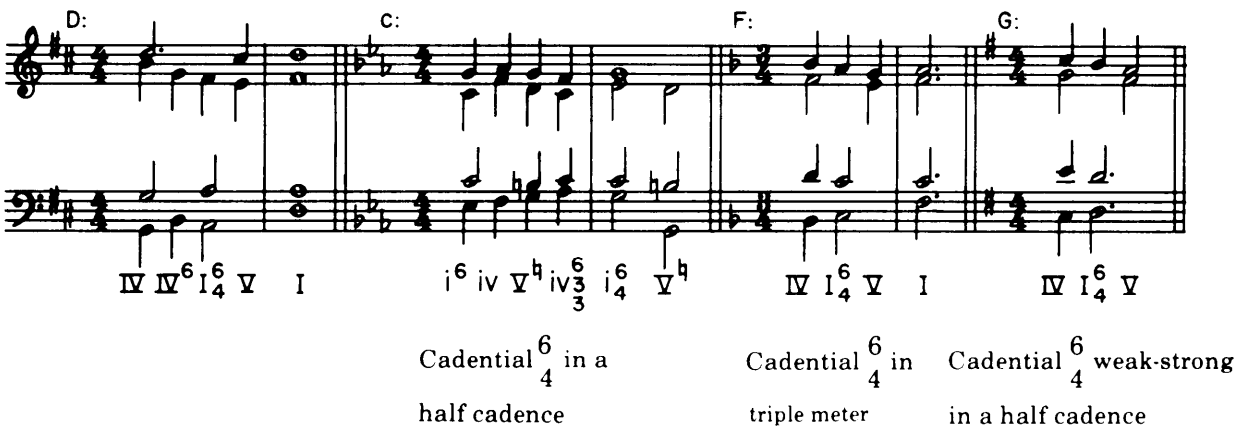


FIGURE 6.7: Cadential Six-Four

Passing

A *passing six-four* occurs when a second inversion chord appears between root position and first inversion of another chord. Therefore, a V $\frac{6}{4}$ may appear between a I and I6 or a I6 and I. A I $\frac{6}{4}$ may appear between a IV and IV6 or a IV6 and IV. Passing six-fours must appear in a weak rhythmic position.

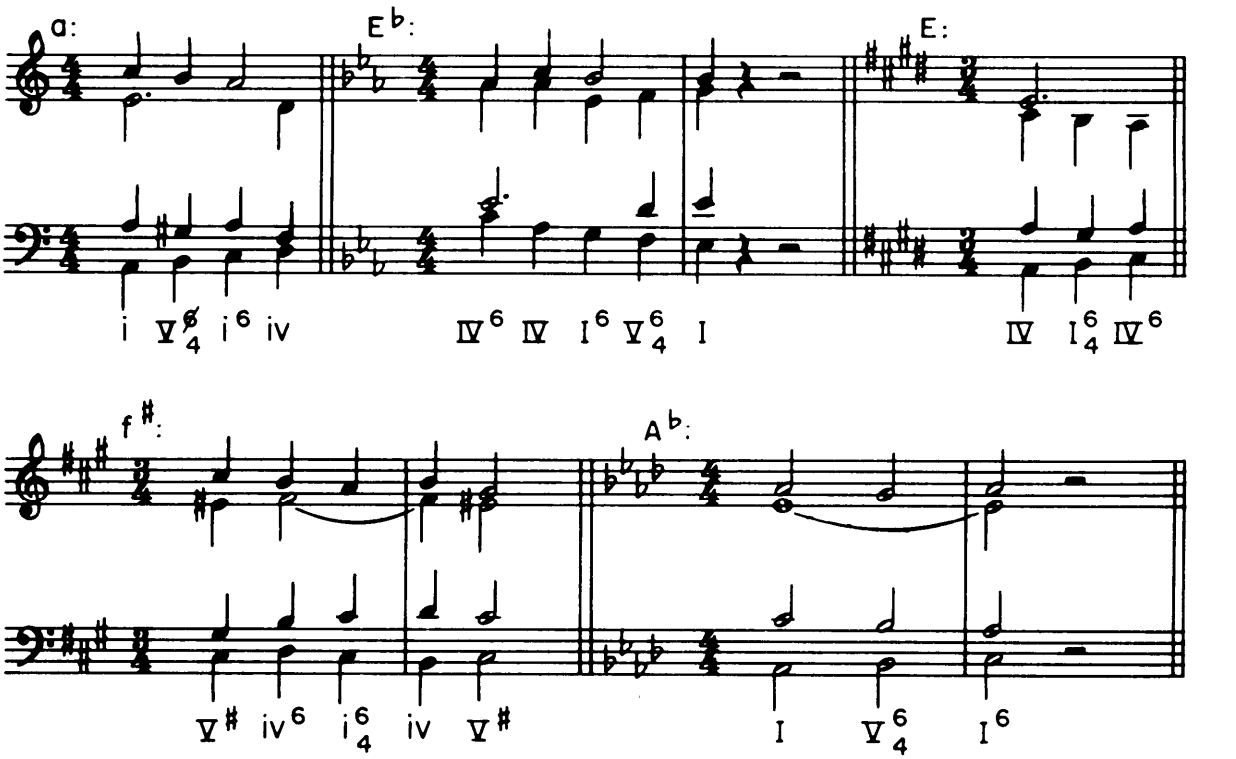


FIGURE 6.8: Passing Six-Four

Auxiliary

An *auxiliary six-four* (also called a *pedal six-four*) occurs between two root positions of the same chord where the fifth of the auxiliary six-four is the same note as the root of the root position chord. Expressed in terms of voice motion, an auxiliary six-four occurs when the third and fifth of a root position triad, with root doubled, ascend by step and return. Auxiliary six-fours must occur in a weak rhythmic position.

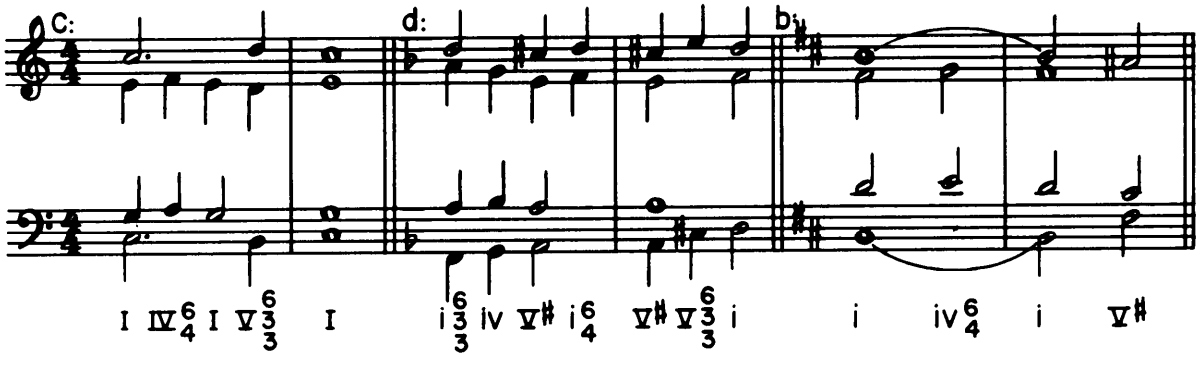


FIGURE 6.9: Auxiliary Six-Four

Arpeggiated

An *arpeggiated six-four* occurs when the second inversion of a chord is immediately preceded or followed by the same chord in root position and/or first inversion.

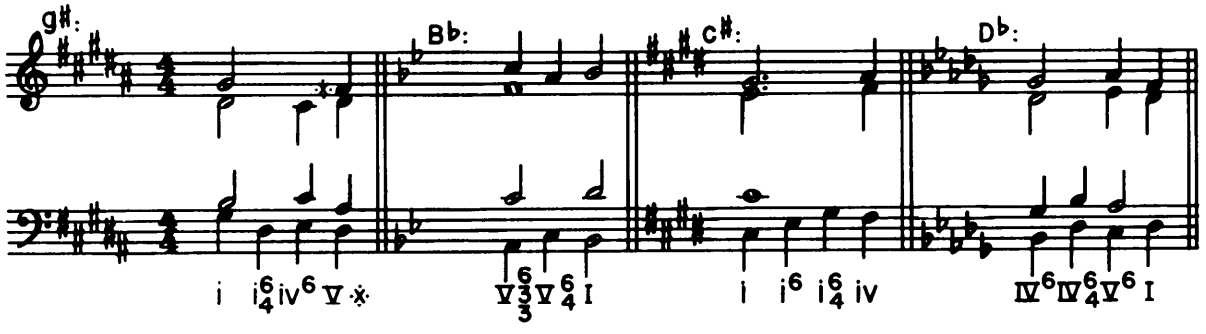


FIGURE 6.10: Arpeggiated Six-Four

CHAPTER 7

Dominant Seventh Chord

Basic Music (TC 12-41/NAVEDTRA 01244) describes the construction and interval relationships of a dominant seventh chord. In Harmony, the *dominant seventh chord* refers specifically to the diatonic chord which appears on the dominant scale degree. In minor the chord is borrowed from its parallel major just as is the dominant triad.

TRITONE RESOLUTION

An interval of a tritone appears between the third and seventh (leading tone and subdominant scale degrees) of the dominant seventh chord. Dissonant harmonic intervals such as the tritone of the dominant seventh chord require specific *resolution.* A regular resolution occurs when the third (leading tone) resolves up to the root of the tonic chord and the seventh (subdominant) resolves down to the third of the tonic chord. This is the most common resolution and satisfies the melody pull of the tendency tones.

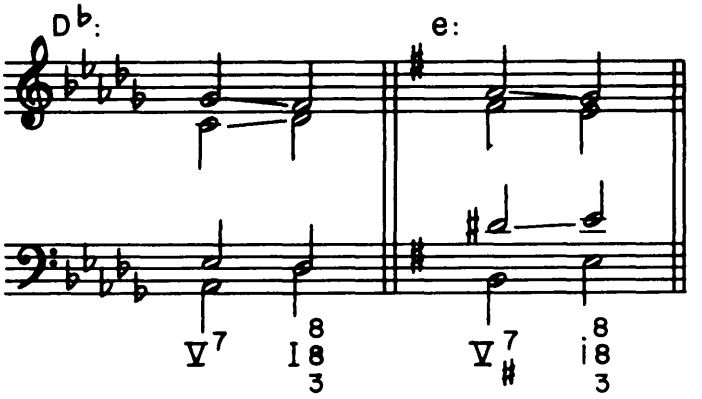


FIGURE 7.1: Regular Resolution

When the seventh of a dominant seventh chord appears in an upper voice and the chord progresses to a first inversion tonic chord, an *Irregular Resolution* must occur. The Bass voice has *taken* the note of resolution (third of the tonic chord) and the seventh in the upper voice will rise to the fifth of the tonic chord. This will often produce harmonic intervals of a diminished fifth followed by a perfect fifth. This is called *Unequal Fifths* and is acceptable under such circumstances.

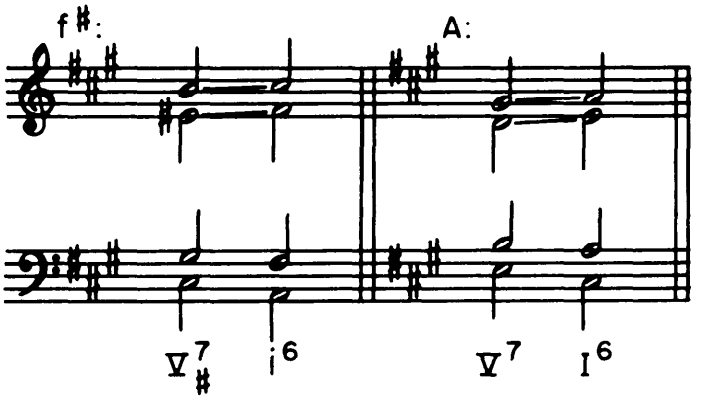


FIGURE 7.2: Irregular Resolution

APPROACHING THE SEVENTH

No new guidelines are required for approaching a dominant seventh chord except for the melodic approach to the seventh. The seventh of the dominant seventh chord is considered a dissonance and should **not** be approached by disjunct motion from above. This is a carry-over from 16th century contrapuntal technique, which required that no accented dissonance be approached in such a manner.

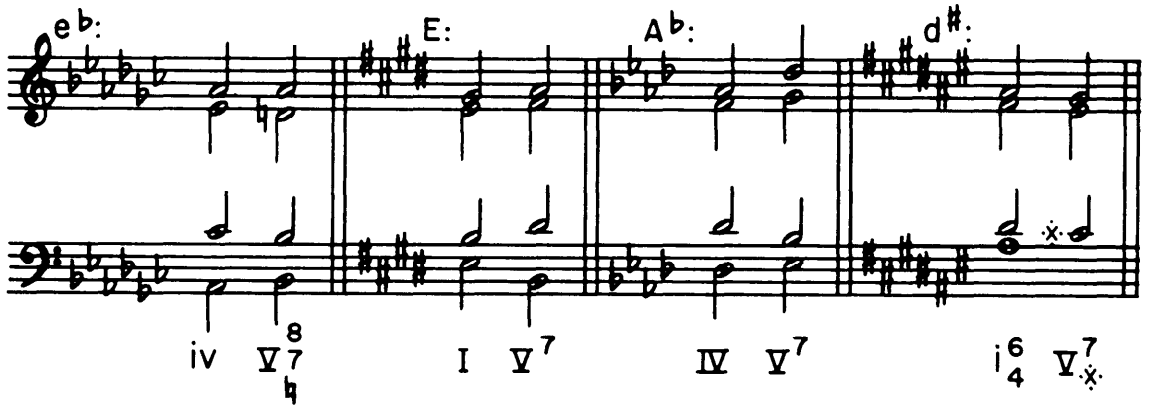


FIGURE 7.3: Approaching the Seventh

FIGURED BASS AND DOUBLING

Figured bass for a dominant seventh chord is $\frac{7}{5}$, $\frac{7}{5}$, or $\frac{7}{5}$ with the accepted abbreviation of 7 or $\frac{7}{\#}$. In root position, the root of the dominant seventh may be doubled and the fifth omitted with a figured bass of $\frac{8}{7}$, $\frac{8}{7}$, or $\frac{8}{7}$. The $\frac{7}{5}$ voicing is called *complete*; the $\frac{8}{7}$ voicing is called *incomplete*. When a complete root position dominant seventh resolves to a root position tonic chord, the tonic chord will be incomplete (fifth omitted). When an incomplete root position dominant seventh resolves to a tonic chord in root position, the tonic chord will be complete.

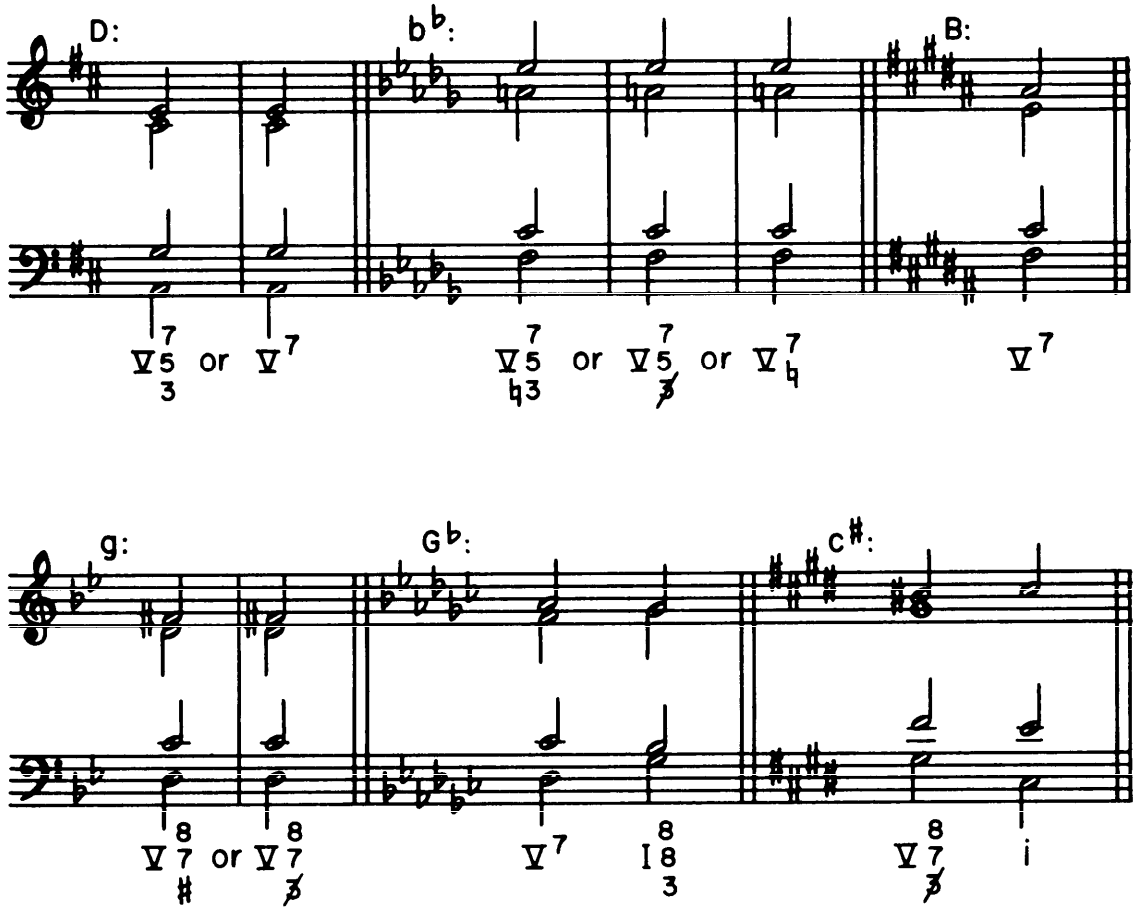


FIGURE 7.4: Complete and Incomplete Dominant Seventh Resolution

When the dominant seventh chord appears in inversion a complete spelling will be used. The figured bass for a first inversion dominant seventh is $\begin{matrix}6\\5\\3\end{matrix}$, abbreviated $\begin{matrix}6\\5\end{matrix}$. It resolves to a root position tonic chord.

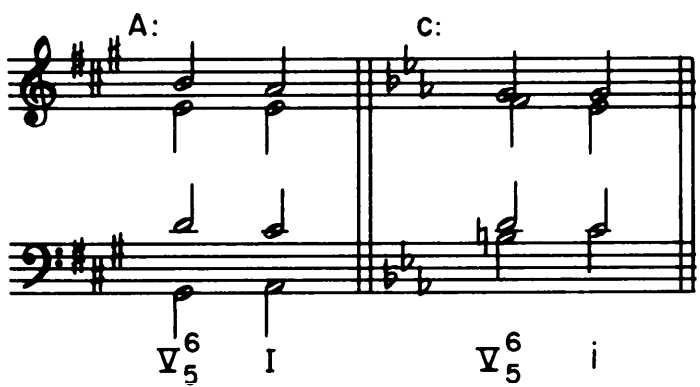


FIGURE 7.5: First Inversion Dominant Seventh and Resolution

When the dominant seventh chord appears in second inversion, it must pass between I and I6. This requires an irregular resolution. When it occurs between I6 and I, regular resolution is required. Figured bass for a second inversion dominant seventh is $\begin{matrix}6\\4\\3\end{matrix}$, $\begin{matrix}\#6\\4\\3\end{matrix}$ or $\begin{matrix}6\\4\\3\end{matrix}$, abbreviated $\begin{matrix}4\\3\end{matrix}$ in major keys.

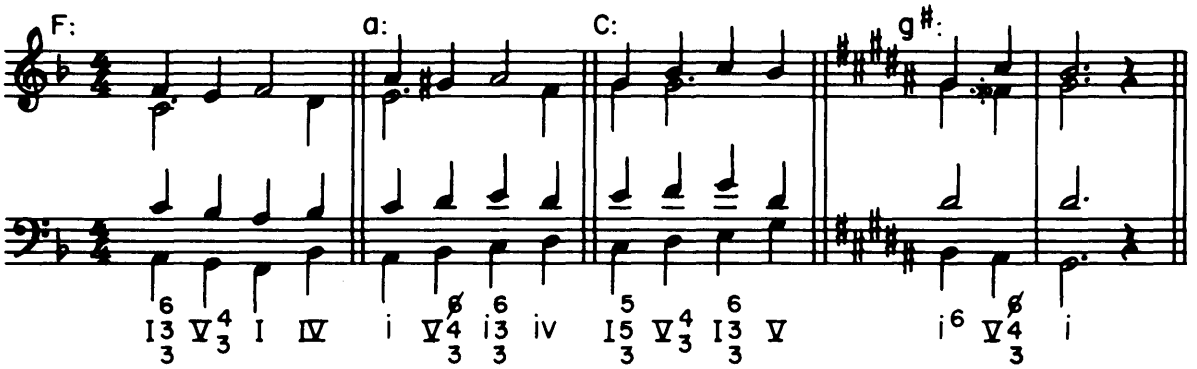


FIGURE 7.6: Second Inversion Dominant Seventh and Resolution

With the addition of a fourth note to a chord, *a third inversion* is possible. When the seventh of the dominant seventh is the lowest sounding note (Bass voice) the third inversion is created. Figured bass for a third inversion dominant seventh is $\begin{matrix}6\\4\\2\end{matrix}$, $\begin{matrix}6\\\#4\\2\end{matrix}$, or $\begin{matrix}6\\\not4\\2\end{matrix}$, abbreviated $\begin{matrix}4\\2\end{matrix}$, $\begin{matrix}\#4\\2\end{matrix}$, or $\begin{matrix}\not4\\2\end{matrix}$ (sometimes 2). This inversion will always resolve to a I6 but is **still** a *regular resolution* because the seventh in the Bass voice **does** resolve to the third of the tonic chord.

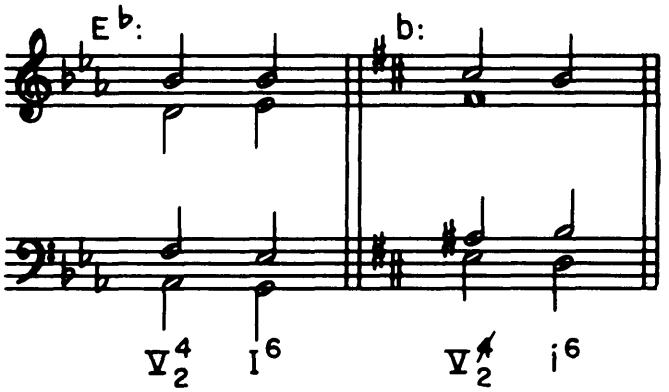


FIGURE 7.7: Third Inversion Dominant Seventh and Resolution

CHORD SUCCESSION

As indicated, the dominant seventh chord primarily progresses to the tonic chord. Occasionally, the dominant seventh chord may occur in a dominant seventh to subdominant to dominant seventh chord succession. When this occurs, the subdominant scale degree must be maintained as a common tone from chord to chord. This delays the resolution of the first seventh. The seventh ultimately resolves to the mediant scale degree.

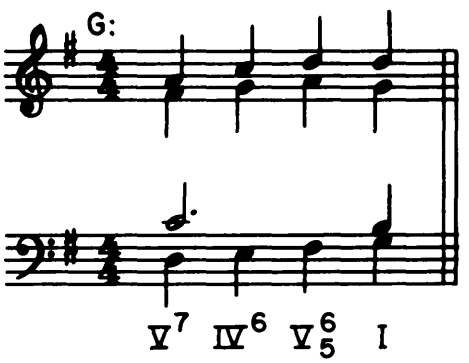


FIGURE 7.8: Dominant Seventh to Subdominant to Dominant Seventh Chord Succession

CHAPTER 8

Non-Harmonic Tones

Non-Harmonic tones (non-chord tones) occur with chords but are not chord members.

FIGURED BASS

Non-Harmonic tones are figured like chord tones. Non-Harmonic tones occurring after the initial attack of the chord are indicated with a change of numeral. When the Bass voice moves without movement in any upper voice, no additional figured bass is necessary. When one or more voices remain stable, a dash(-) is used to indicate the continuation of the same pitch. In root position triads with doubled root, only the voice that moves is figured. Figuring will be arranged from highest to lowest numeral.

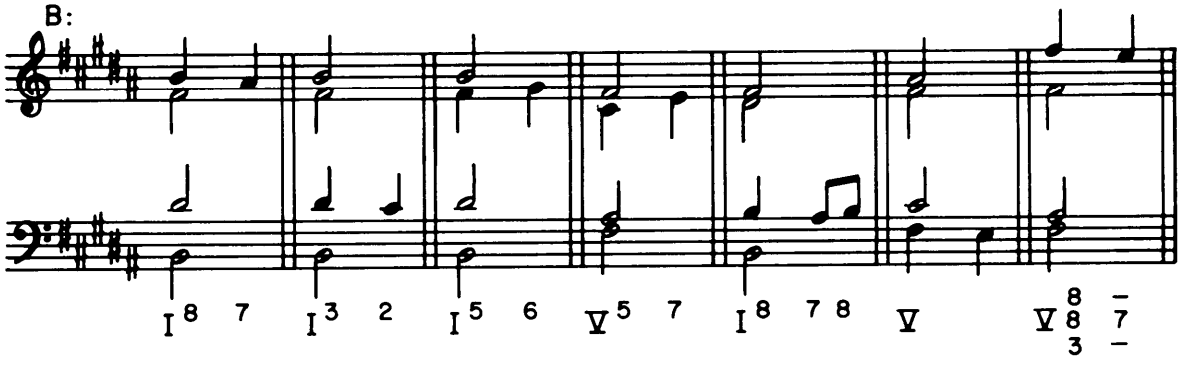


FIGURE 8.1: Figuring Non-Harmonic Tones

Figuring for non-harmonic tones occurring at the initial attack of a chord (suspensions, appoggiaturas, and accented passing tones), results in figured bass which does not represent the true position of the chord. Usually, a chord's position is represented with the resolution of the non-harmonic tone.

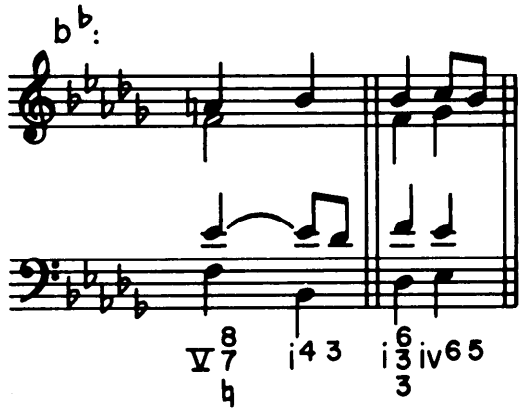


FIGURE 8.2: Figuring Non-Harmonic Tones at Initial Attack

DIATONIC PASSING TONE

A *diatonic passing tone* fills the interval between two chord tones a third apart and occurs in a weak rhythmic position.

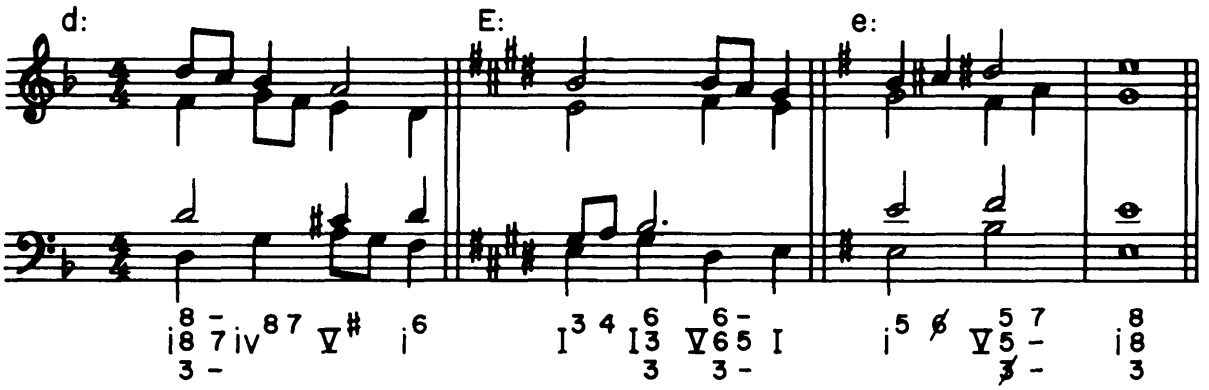


FIGURE 8.3: Diatonic Passing Tone

ACCENTED PASSING TONE

Occasionally the interval of a third is filled with a non-harmonic tone which occurs in a strong rhythmic position. This is called an *accented passing tone.*

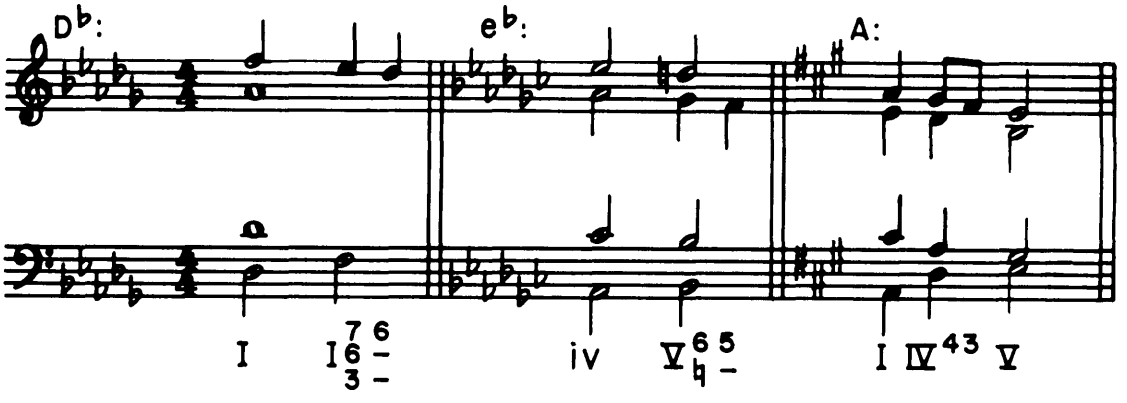


FIGURE 8.4: Accented Passing Tone

CHROMATIC PASSING TONE

A *chromatic passing tone* fills the interval between two chord tones a major second apart and occurs in a weak rhythmic position.

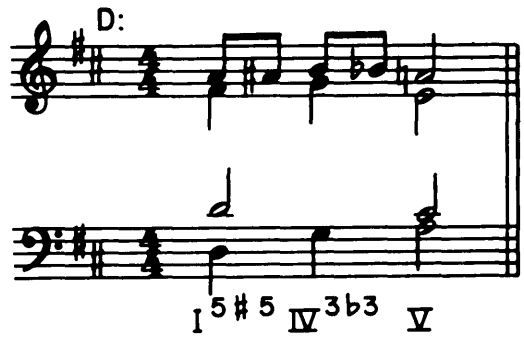


FIGURE 8.5: Chromatic Passing Tone

Cross Relation

Cross Relation occurs when a chromatically altered note in one voice is next to the same diatonic scale degree in a different voice. It should be avoided except when using the upper tetrachord of the melodic minor scale.

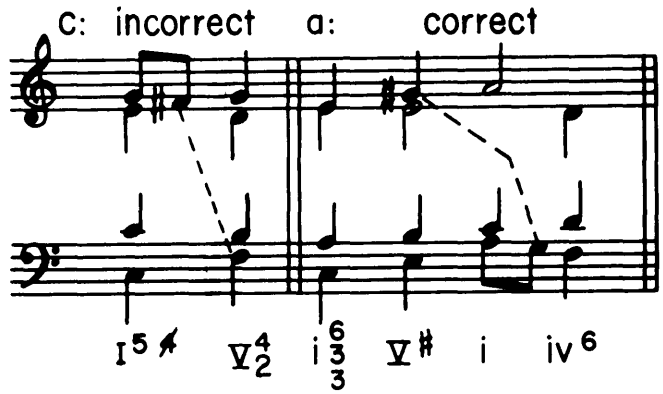


FIGURE 8.6: Cross Relation

DOUBLE PASSING TONE *(melodic)*

Double passing tones fill the interval of a perfect fourth between two chord tones and occur in a weak rhythmic position. In a minor key, the melodic minor scale is used for double passing tones over the tonic chord.

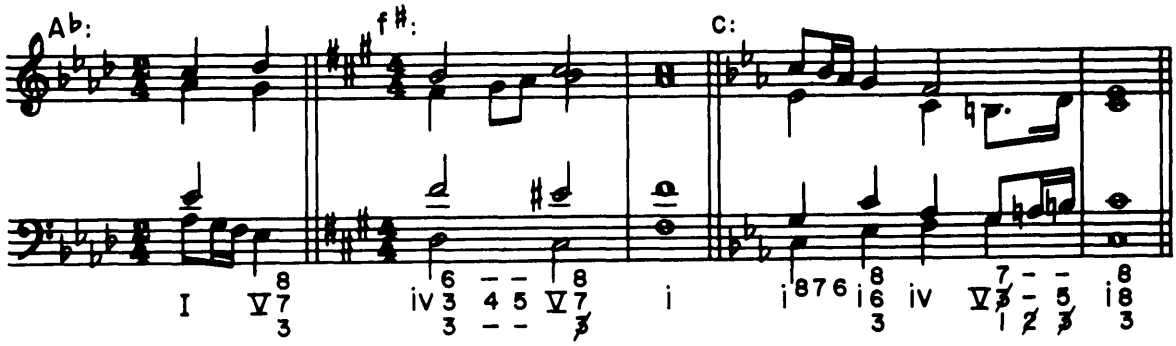


FIGURE 8.7: Double Passing Tone

CHROMATICALLY ALTERED PASSING TONE

A *chromatically altered passing tone* fills the interval of a third between two chord tones and uses an accidental. It appears in either a weak or strong rhythmic position. Chromatically altered passing tones occur most often in the ascending melodic minor over the dominant chord.

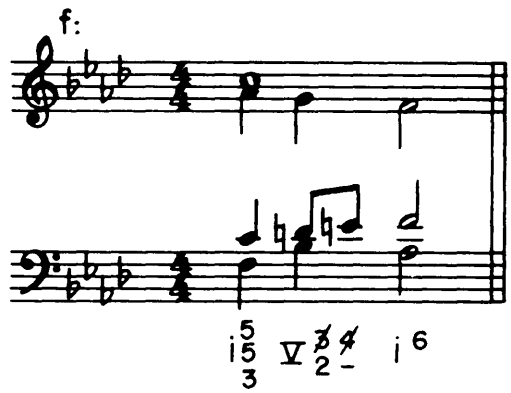


FIGURE 8.8: Chromatically Altered Passing Tone Over the Dominant Chord

In major keys, the subtonic scale degree, borrowed from the parallel minor, passes to the submediant scale degree.

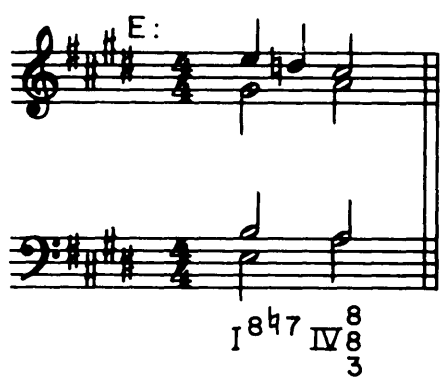


FIGURE 8.9: Subtonic as Chromatically Altered Passing Tone

UPPER AUXILIARY

An *upper auxiliary* is a non-harmonic tone a step above two chord tones of the same pitch and appears in a weak rhythmic position.

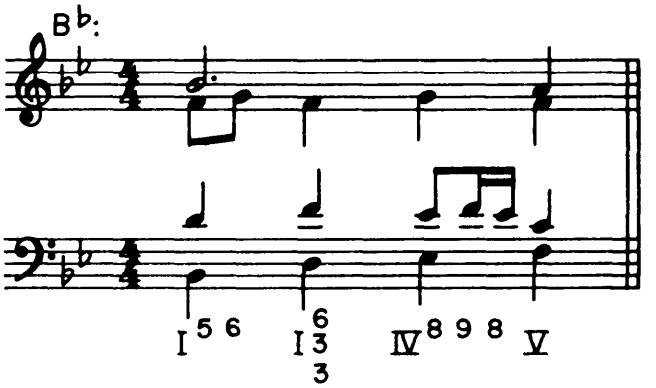


FIGURE 8.10: Upper Auxiliary

LOWER AUXILIARY

A *lower auxiliary* is a non-harmonic tone a step below two chord tones of the same pitch and appears in a weak rhythmic position. Lower auxiliaries may be chromatically altered to create a semitone when one does not appear diatonically.

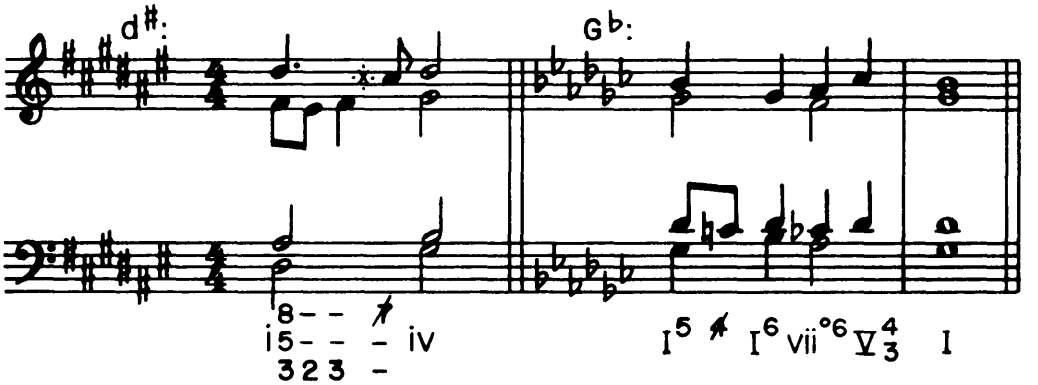


FIGURE 8.11: Lower Auxiliaries

CHANGING TONES

Changing tones are two non-harmonic tones approaching a chord tone, one above and one below. The first must occur in a weak rhythmic position. The second may be in a weak or strong rhythmic position.

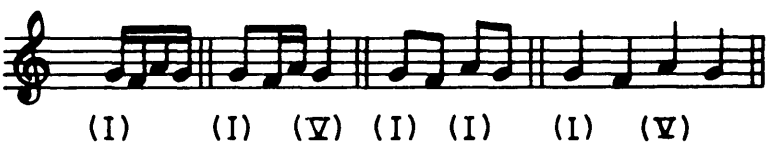


FIGURE 8.12: Rhythmic Position of Changing Tones

Changing tones may be preceded by the same pitch as the note of resolution,

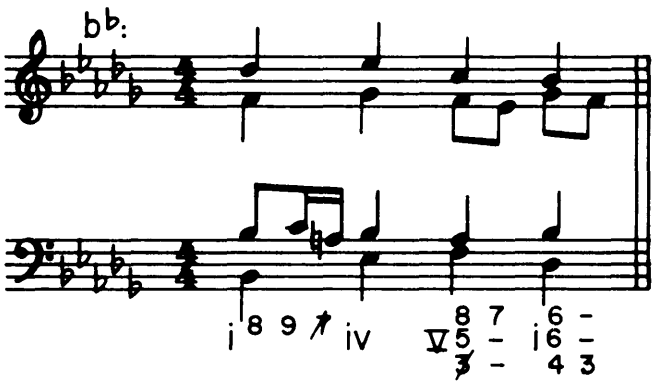


FIGURE 8.13: Changing Tones Preceded by the Same Note as the Note of Resolution

or by a chord tone a third removed from the following chord tone. The latter is frequently called *Nota Cambiata*. Similar melodic direction is used from the first chord tone through the changing tones.

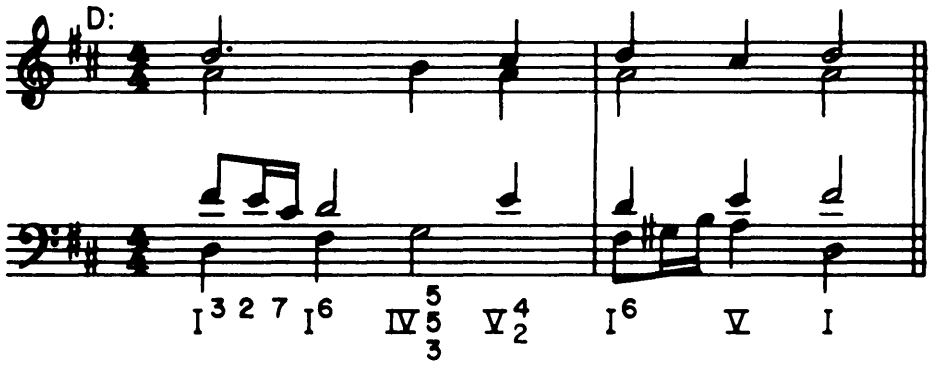


FIGURE 8.14: Nota Cambiata

The changing tone below the next chord tone may be chromatically altered to create semitone movement.

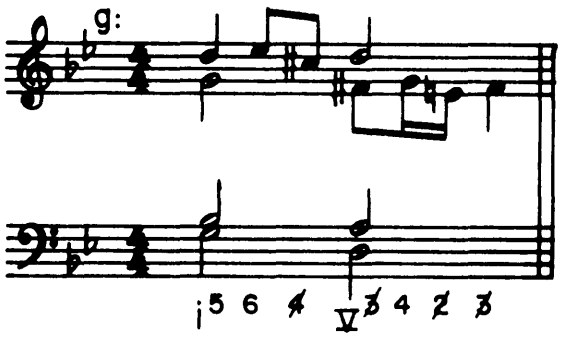


FIGURE 8.15: Changing Tones with Chromatic Alteration

CAMBIATA

A *cambiata* is a non-harmonic tone approached by disjunct motion in one direction and resolved by conjunct motion in the opposite direction. It occurs in a weak rhythmic position. When a cambiata resolves upward, it may be chromatically altered to create semitone movement.

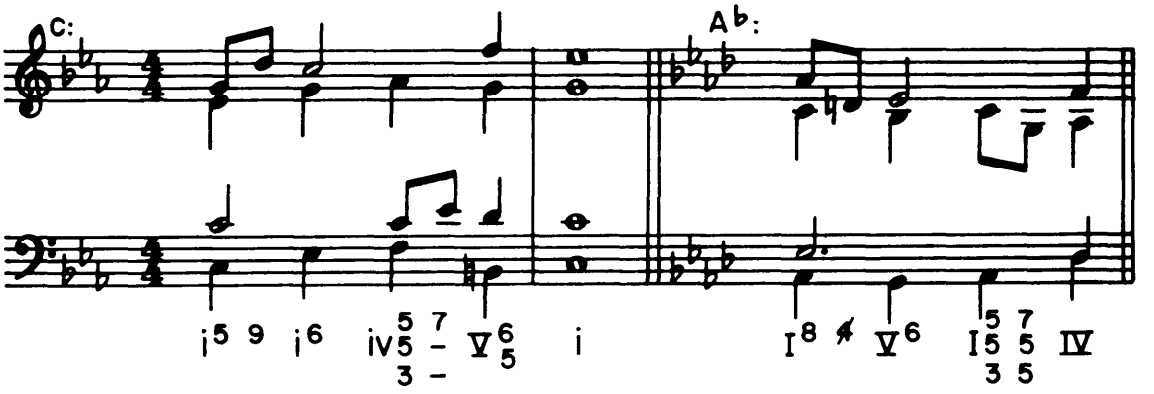


FIGURE 8.16: Cambiata

ÉCHAPPÉE

An échappée (escape tone) is non-harmonic tone approached by conjunct motion and left by disjunct motion in the opposite direction. It occurs in a weak rhythmic position.

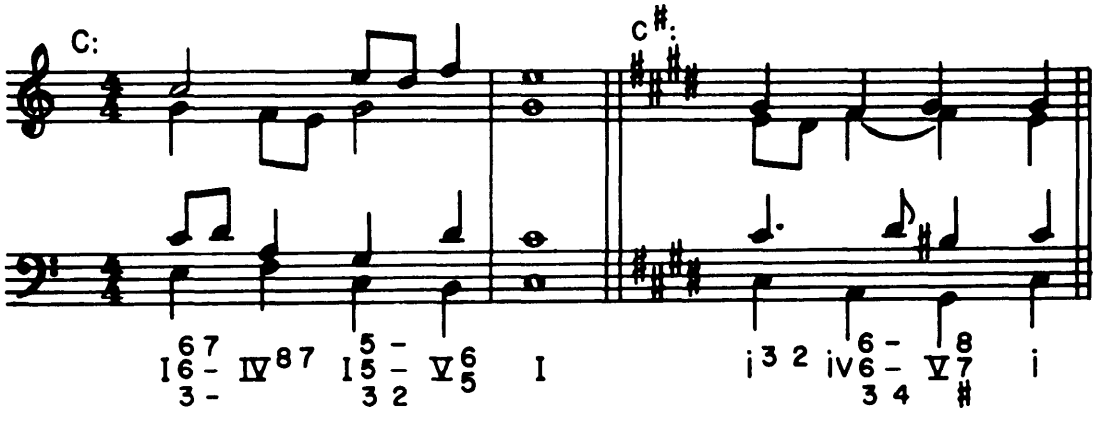


FIGURE 8.17: Échappée

SUSPENSION

A *suspension* is a non-harmonic tone occurring when a note's natural melodic progression is delayed. This requires two different chords. A suspension is a chord tone in the first chord sustained or repeated in the same voice as a non-harmonic tone of the second chord. There are three parts of a suspension: *preparation (P)*, *suspension (S)*, and *resolution (R)*. The preparation is a chord tone of the first chord. The suspension is non-harmonic and is the same pitch as the preparation continued to the second chord.

The resolution occurs when the suspension resolves by conjunct motion to a chord tone of the second chord. An upward resolution of a suspension is called a *retardation*. The note of resolution may be present if it is a compound interval below the suspension. Suspensions may be tied or dotted note values; however, when repeated, they are called *struck suspensions*. The suspension and resolution must be in a strong-weak rhythmic relationship. The preparation must be as long or longer than the suspension. Resolutions of suspensions may be decorated with other non-harmonic tones. Common suspensions are 9-8, 7-6, 6-5, and 4-3.

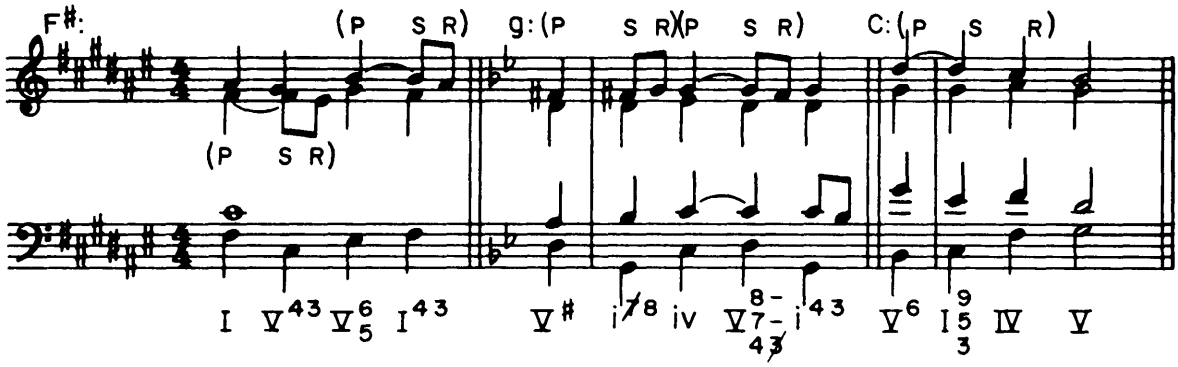


FIGURE 8.18: Suspension

APPOGGIATURA

An *appoggiatura* is a non-harmonic tone a step above or below a chord tone of a single chord. It resolves to the chord tone. An appoggiatura functions as a suspension without a preparation. Normally, appoggiaturas are approached by disjunct motion in the opposite direction of the resolution, or by conjunct motion from either direction. When an appoggiatura is approached by conjunct motion in the same direction as its resolution, it is also called an accented passing tone.

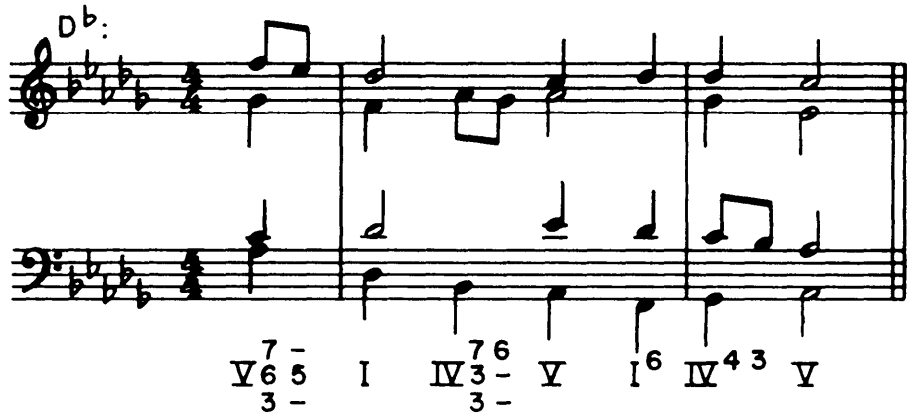


FIGURE 8.19: Appoggiatura

ANTICIPATION

An *anticipation* is a non-harmonic tone which becomes a chord tone in the following chord. Anticipations occur in a weak rhythmic position, frequently at the subdivided beat level. Generally, anticipations occur in the Soprano voice at cadence points.

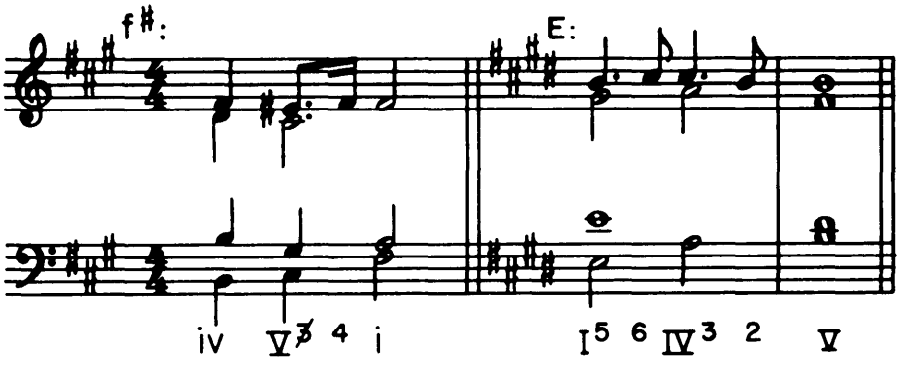


FIGURE 8.20: Anticipation

PEDAL

A *pedal* is a non-harmonic tone of long duration normally occurring in three or more chords. A pedal begins and ends as a chord tone of a harmony and must be non-harmonic in at least one chord between the first and last chords. Pedals occur primarily in the Bass voice with the Tenor voice used for analysis and figured bass. A pedal in the Soprano voice is called an *inverted pedal.* A pedal in the Tenor or Alto voices is called an *internal pedal.* Pedals occurring in two voices are called *double pedals.* The lowest moving voice is used for analysis and figured bass. The tonic and dominant scale degrees are the commonly used pedal notes.

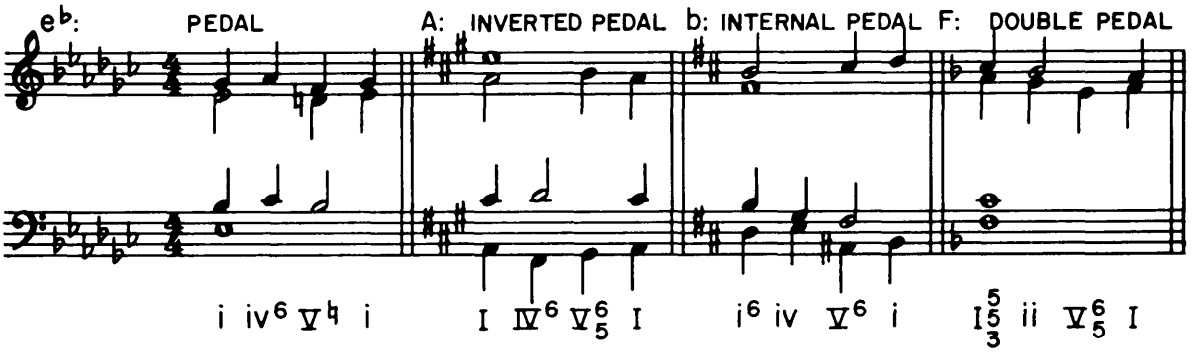


FIGURE 8.21: Pedal

SIMULTANEOUS NON-HARMONIC TONES

More than one non-harmonic tone may occur at a given point. Simultaneous non-harmonic tones normally form harmonic intervals of thirds, sixths, or octaves. The octave occurs when two passing tones move in contrary motion. This is called *passing through the octave.*

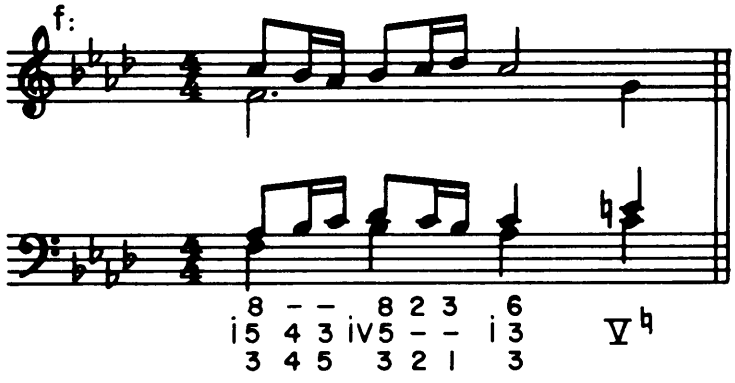


FIGURE 8.22: Passing Through the Octave

Simultaneous non-harmonic tones may be figured two ways. Vertical combinations are figured with the numerals arranged from highest to lowest, regardless of the voices in which the non-harmonic tones occur.

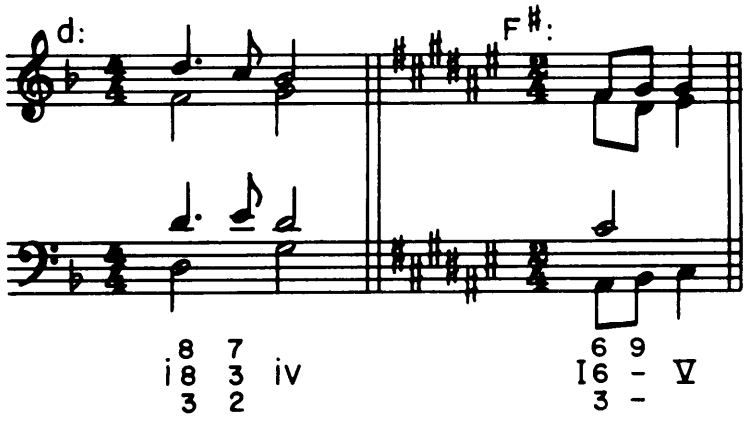


FIGURE 8.23: Vertical Figuring for Simultaneous Non-Harmonic Tones

Linear movement of individual voices is figured starting from the figuring of the chord's position.

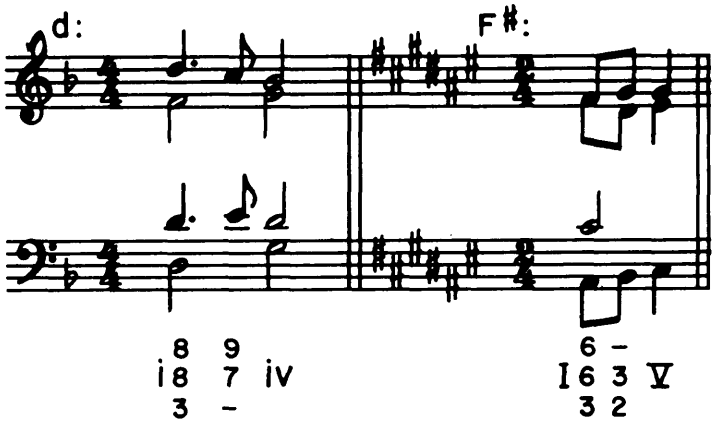


FIGURE 8.24: Linear Figuring for Simultaneous Non-Harmonic Tones

Non-harmonic tones of the same kind can occur simultaneously. The most common are passing tones or auxiliaries. Some have become so widely used that a change of chord analysis may occur (auxiliary $\frac{6}{4}$).

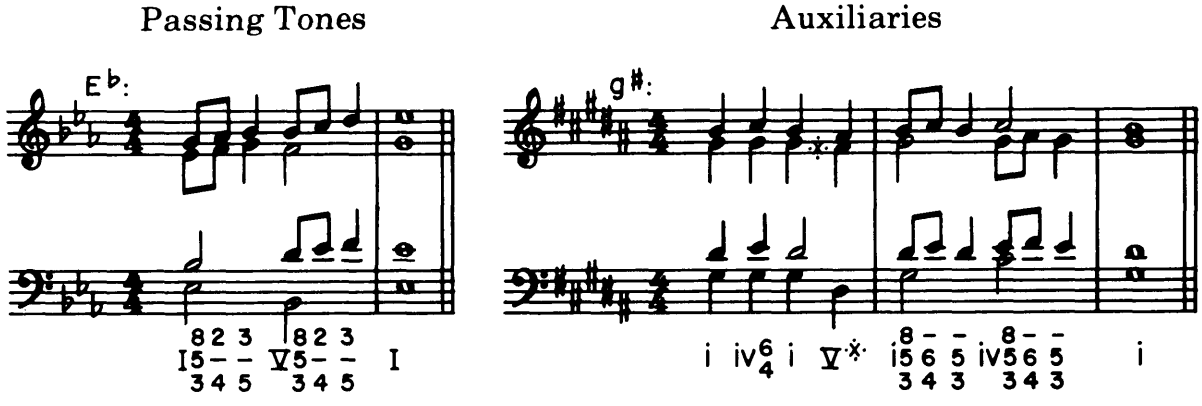


FIGURE 8.25: Passing Tones and Auxiliaries used Simultaneously

Another kind of simultaneous use is the *appoggiatura six-four.* It is similar to a cadential six-four. It uses the 6 to 5 and 4 to 3 voice leading and appears in a strong-weak rhythmic

relationship, but not at a cadence. The two uses of the appoggiatura six-four are the I $\frac{6}{4}$ to V or IV $\frac{6}{4}$ to I.

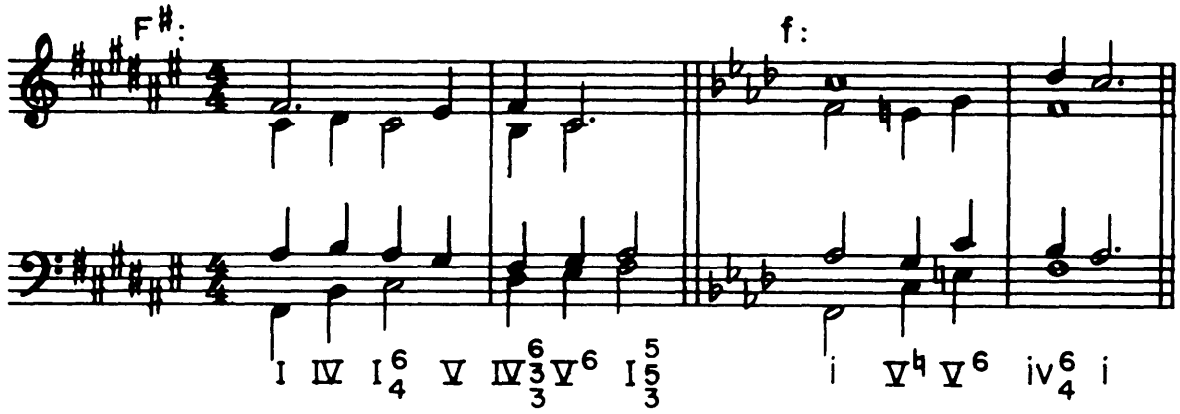


FIGURE 8.26: Appoggiatura Six-Four

Non-harmonic tones of different kinds also occur simultaneously. A passing six-four is an example of the use of passing tones, passing through the octave, combined with a lower auxiliary.

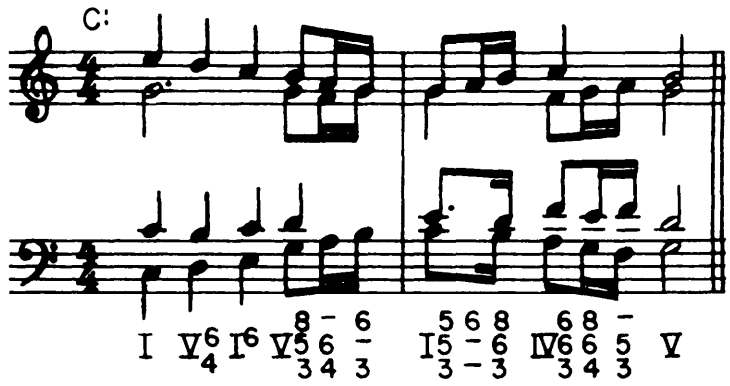


FIGURE 8.27: Comparison of Passing Six-Four and Simultaneous Use of Different Non-Harmonic Tones

CHORDAL SEVENTHS

Chapter 15, Basic Music (TC 12-41/NAVEDTRA 10244) defines chordal sevenths. Care should be taken when using a non-harmonic tone which would be a chordal seventh. Under most circumstances, the treatment of the seventh of the Dominant Seventh chord discussed in Chapter VII is an excellent guide.

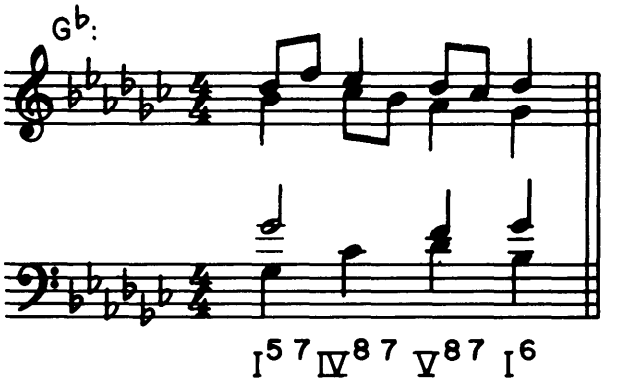


FIGURE 8.28: Chordal Sevenths

VOICING

Non-harmonic tones may occur in any voice. They occur less frequently in the Bass voice and are generally limited to unaccented passing tones, auxiliaries, and pedals.

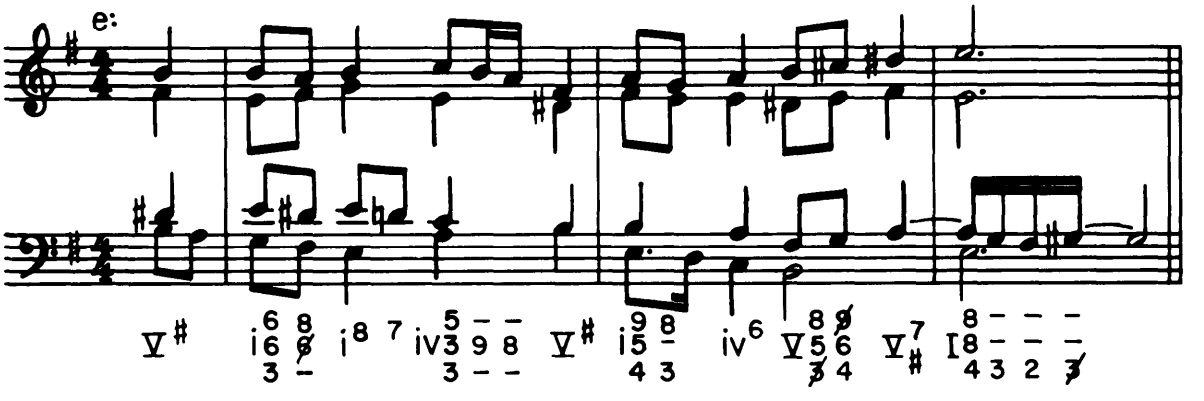


FIGURE 8.29: Voicing Non-Harmonic Tones

CHAPTER 9

Secondary Triads

Secondary triads reinforce modality. They do not occur as frequently as primary triads, which reinforce tonality. Secondary triads are used in harmonic progressions to create *variety.*

CHORD PROGRESSION

Principles of *chord progression* may be discussed with the addition of secondary triads to primary triads. The tonic chord is considered separately when describing chord progression because all chord progressions move toward the tonic. The remaining chords are assigned to *Groups (Classifications)* which relate generally to the function of the chords.

GROUP 1

Group 1 (First Classification) chords are the major dominant and diminished leading tone chords and have a *dominant function.* The first inversion augmented mediant triad found in harmonic and ascending melodic minor is in this group because of its similarity to the dominant chord.

GROUP 2

Group 2 (second Classification) chords are the subdominant and supertonic chords and have a *subdominant function.*

GROUP 3

The Group 3 (Third Classification) chord is the submediant and may have a *tonic function.*

GROUP 4

The Group 4 (Fourth Classification) chord is the mediant and may have a *tonic* or *dominant function.*

	GROUP 4	*GROUP 3*	*GROUP 2*	*GROUP 1*
Major Keys	iii	vi	IV ii	V-V7 vii° 6
Minor Keys	III	VI	iv ii°	V#-V$^{7}_{\#}$ vii° 6 III + 6 $^{\#}$

FIGURE 9.1: Chord Chart

Dominant relationship is the association of two chords whose roots are a perfect fifth apart. Dominant relationship prevails when the chord Groups are assembled from Group 4 through Group 1 and then the tonic.

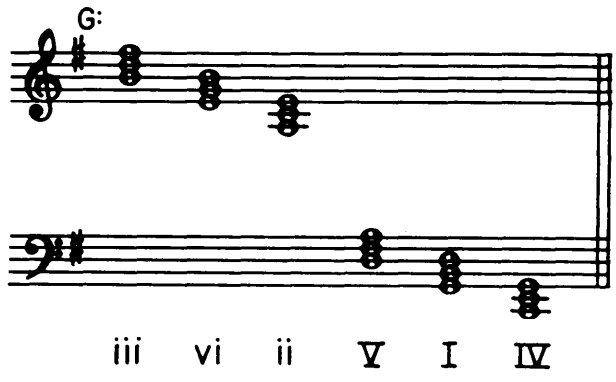


FIGURE 9.2: Dominant Relationship

An *established tonic chord* occurs whenever a dominant function chord progresses to the tonic chord. Any chord may follow an established tonic chord. Any chord may follow itself. Chords generally change from weak to strong rhythmic position unless they are of long duration.

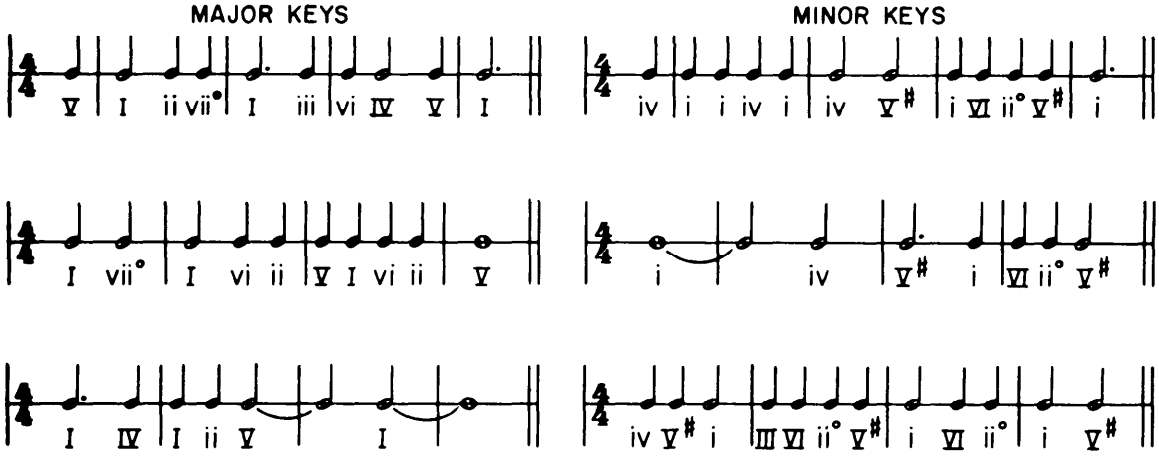


FIGURE 9.3: Chord Progression

Normal chord progression occurs after an established tonic chord, when chords progress from left to right through each successive group.

Major key: (V) (vii°) I iii vi ii IV V vii° (I)

Minor key: (V#) (vii°) i VI ii° iv V# vii° (i)

Major key: (V) (vii°) I ii IV (V) (vii°) (I)

Minor key: (V#) (vii°) i V# vii° (i)

FIGURE 9.4: Normal Chord Progression

Elision in a chord progression occurs when one chord group is skipped in left to right movement. Elision must be followed by normal chord progression. iii(III) to IV(iv) and vi(VI) to V(V#) are common examples of elision.

Major key: I iii IV V I Minor key: i VI V# i

Major Key: I iii ii V I Minor key: i VI vii° i

FIGURE 9.5: Elision

A *neutral tonic* chord occurs when a tonic chord appears between any two chords in a progression or between two positions of the same chord. Neutral tonic chords usually occur with normal progression.

Major key: I vi I ii V I Minor Key: i VI iv i V# i

Major key: I iii I vi ii vii° I Minor key: i VI i iv vii° i

FIGURE 9.6: Neutral Tonic Chord

Retrogression occurs when chords move from right to left on the chord chart. Retrogression is usually followed by normal movement.

Major key: I ii vi IV V I Minor key: i iv V# VI ii° vii° i

Major key: I vii° iii vi IV V I Minor key: i VI vii° i V# ii° V# i

Major key: I vi ii iii IV V I

FIGURE 9.7: Retrogression

The $III^{+6}_{\flat}$ chord in minor often has a dominant function because it is similar to the dominant chord. The chord may be described as a dominant chord with an unresolved non-harmonic tone.

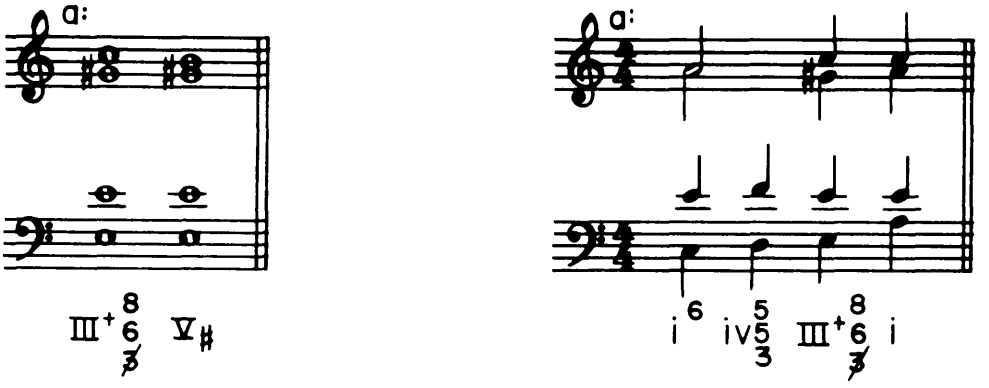


FIGURE 9.8: $III^{+6}_{\flat}$ in Minor

FIGURED BASS

The principles of figured bass remain the same with the addition of secondary triads.

LEADING TONE TRIAD

Basic Music (TC 12-41/NAVEDTRA 10244) describes the spelling and quality of the leading tone triad. This chord is often called a dominant seventh with root omitted. The third is normally doubled to avoid doubling a note of the tritone. The root and fifth of the chord ascend to the root and fifth of the tonic chord often producing unequal fifths. It is used exclusively in first inversion.

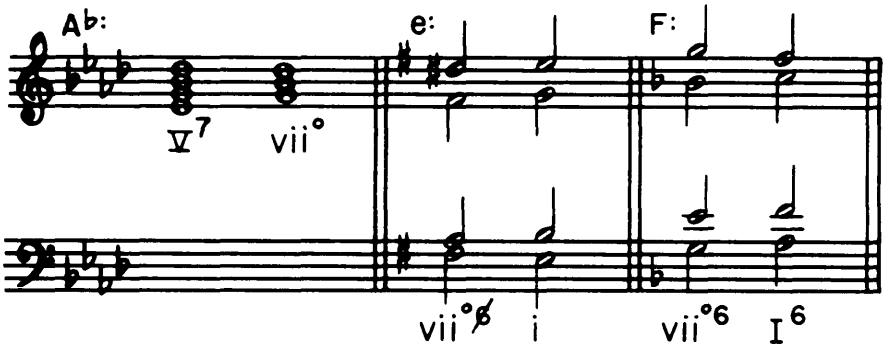


FIGURE 9.9: Leading Tone Triad

The fifth of the chord is doubled when it appears in the Soprano voice.

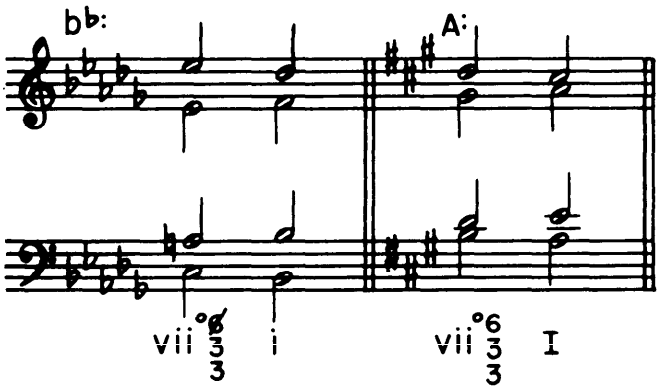


FIGURE 9.10: Doubled Fifth on Leading Tone Triad

An Intermediate Cadence occurs with a vii°6 to I(i) progression at a cadence point. It may appear at any cadence but final.

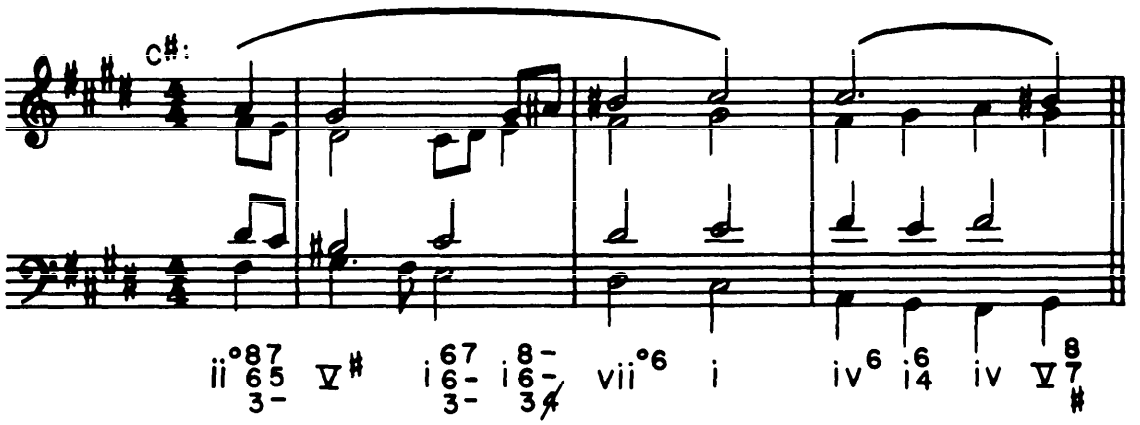


FIGURE 9.11: Intermediate Cadence

COMMON FUNCTION SUCCESSION

The vii°6 chord may *follow* a dominant triad within a progression. A vii°6 can be followed only by the dominant seventh (V7).

SUPERTONIC TRIAD

Basic Music (TC 12-41/NAVEDTRA 10244) describes the spelling and quality of the supertonic triad. It occurs primarily in first inversion with doubled third (tonal note). The chord may appear in root position with doubled root (modal note) or doubled third (tonal note).

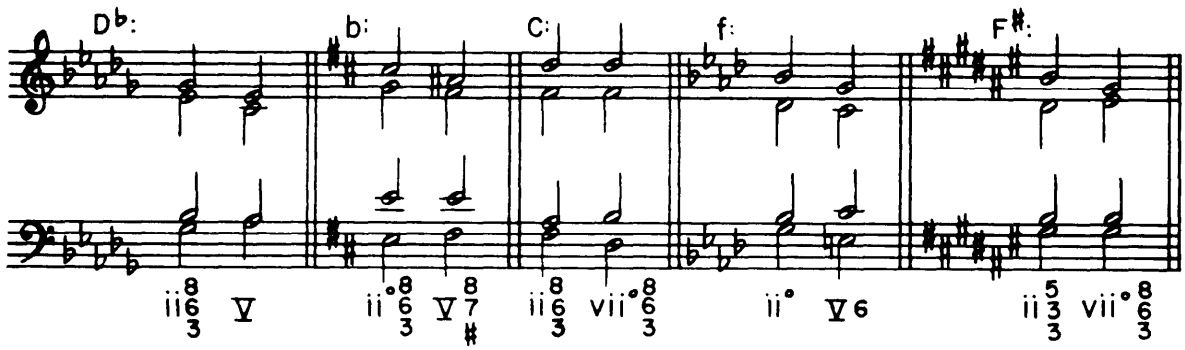


FIGURE 9.12: Supertonic Triad

In major keys, the supertonic chord may be used in second inversion as a passing six-four.

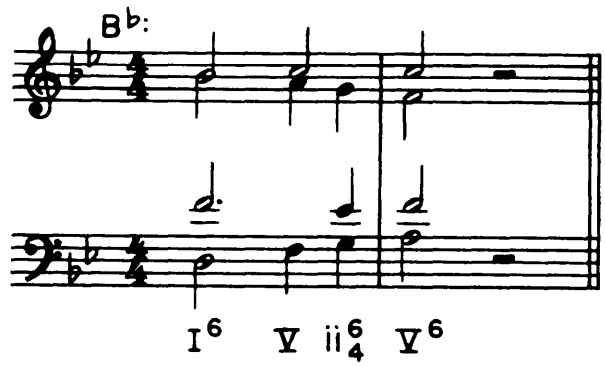


FIGURE 9.13: Second Inversion Supertonic Triad

The supertonic chord may be used to harmonize the raised sixth scale degree in ascending melodic minor. The leading tone may be harmonized with the V# or vii °6; it may also be a non-harmonic tone.

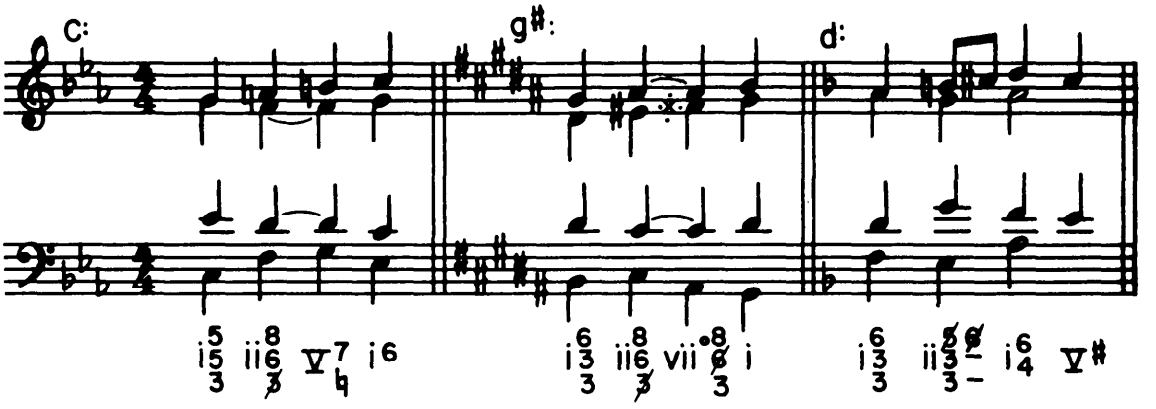


FIGURE 9.14: Harmonizing the Raised Sixth in Minor with Supertonic Chord

SUBMEDIANT TRIAD

Basic Music (TC 12-41/NAVEDTRA 10244) describes the spelling and quality of the submediant triad. It appears primarily in root position. In major keys the root (modal note) or third (tonal note) may be doubled. In minor keys the root is usually doubled because of the major quality of the triad.

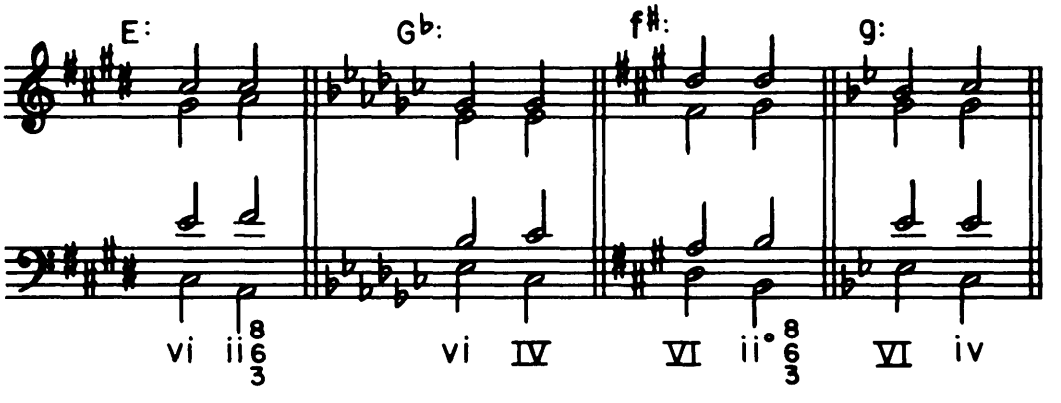


FIGURE 9.15: Submediant Triad

In minor, the third must be doubled when there is elision (VI to V#) or retrogression (V# to VI). Augmented melodic intervals, parallels, or large leaps occur if any other note is doubled.

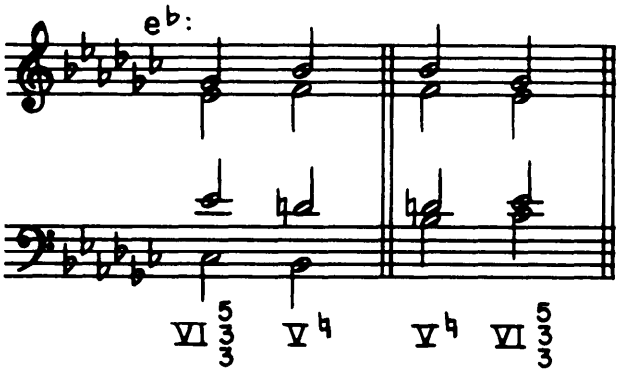


FIGURE 9.16: Submediant with Doubled Third in Minor

The *Deceptive Cadence* is a V to vi or V# to VI progression at a cadence point. It may occur at any cadence but final. The submediant triad replaces the tonic. The third of the submediant (tonic scale degree) is doubled. This cadence is followed by a chord that would normally follow the submediant.

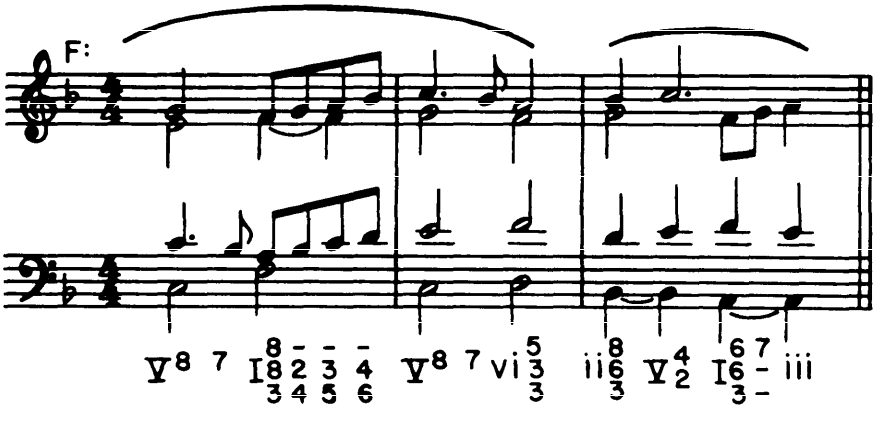


FIGURE 9.17: Deceptive Cadence

First inversion of the submediant triad occurs primarily as a tonic chord with resolved or unresolved appoggiatura.

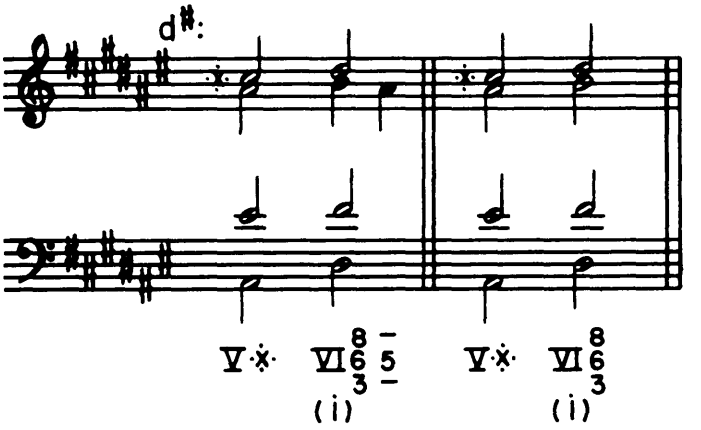


FIGURE 9.18: First Inversion Submediant as Appoggiatura

The chord may progress to a Group 2 chord from first inversion. It may also be used to create stepwise motion in the Bass Voice to a Group 1 chord (elision). The third is doubled in first inversion.

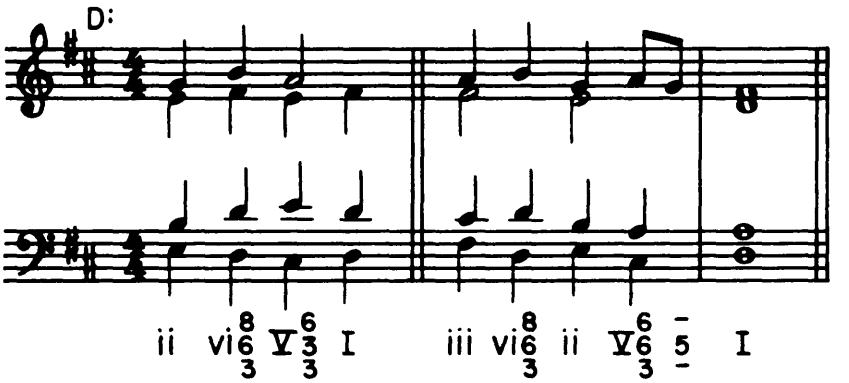


FIGURE 9.19: First Inversion Submediant

MEDIANT TRIAD

Basic Music (TC 12-41/NAVEDTRA 10244) describes the spelling and quality of the mediant triad. In major keys, it may appear in root position with doubled root (modal note) or occasional doubled third (tonal note). In first inversion the third is normally doubled.

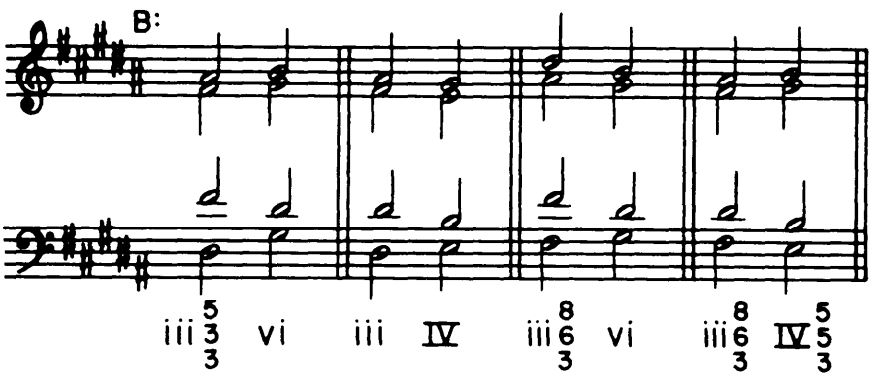


FIGURE 9.20: Mediant Triad

In minor keys, the major quality mediant triad may appear in root position or first inversion with doubled root. The fifth of the chord (subtonic scale degree) must descend to the submediant scale degree.

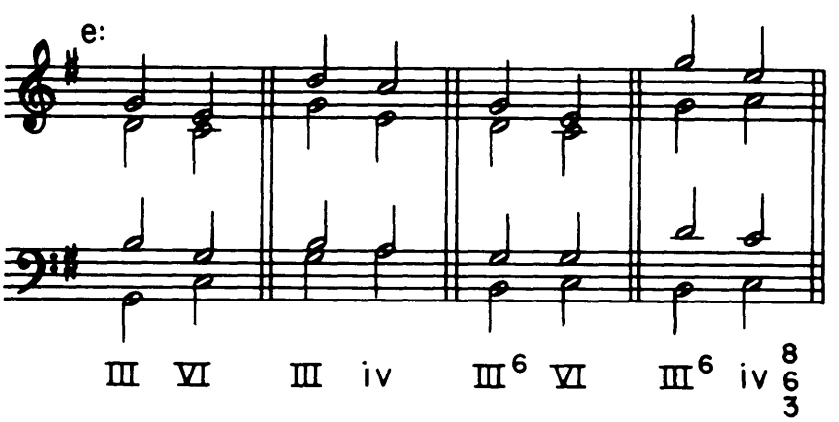


FIGURE 9.21: Mediant Chord in Minor

The Augmented quality mediant triad may appear in root position with doubled root, or in first inversion with doubled third.

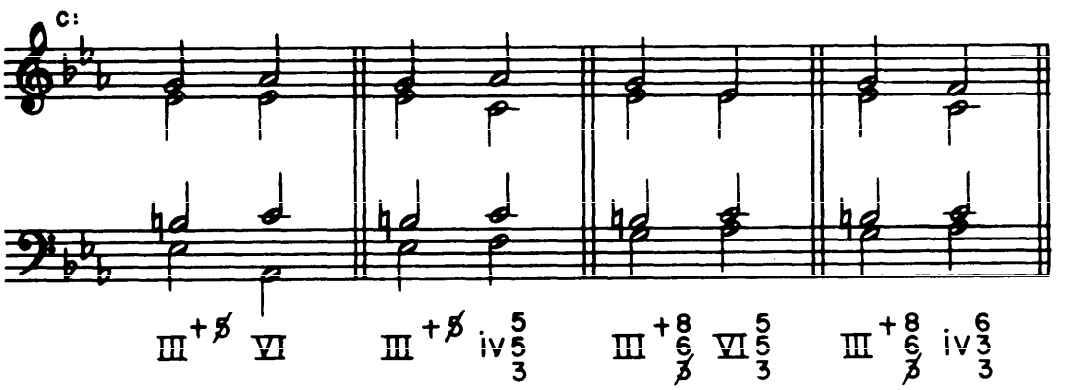


FIGURE 9.22: Augmented Mediant Triad

SUBTONIC TRIAD

Basic Music (TC 12-41/NAVEDTRA 10244) describes the spelling and quality of the subtonic triad. This chord is not considered in the chord chart because it only occurs in minor and has an unusual character. It occurs in root position or first inversion with doubled root progressing to the major quality mediant chord. The subtonic chord may be preceded by either i or iv.

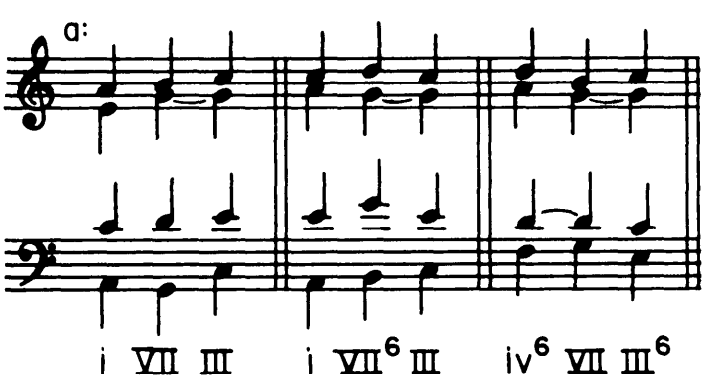


FIGURE 9.23: Subtonic Triad

SUBTONIC SCALE DEGREE

The subtonic scale degree may be harmonized with the subtonic or the minor quality dominant chords. The following chord will be the subdominant or submediant. The effect of such movement is that of passing chords without progression.

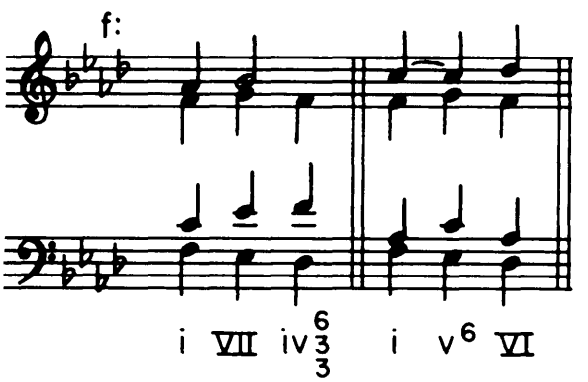


FIGURE 9.24: Subtonic Scale Degree

CHAPTER 10

Diatonic Sevenths

Diatonic sevenths are created by adding a seventh above the root of each diatonic triad. The approach to the seventh and its resolution is the same as that for the dominant seventh chord (Chapter 7). Acceptable chord progression must be maintained. The chord following the diatonic seventh chord normally contains the note of resolution. A *delayed resolution* of the seventh occurs when the seventh is sustained or repeated in the following chord. Ultimately it must resolve. Figured bass for diatonic sevenths is the same as that for the dominant seventh.

LEADING TONE SEVENTH

The leading tone seventh is a min7$^{(\flat 5)}$ in major keys and a dim7 in minor keys. It may occur in root position resolving to a root position tonic chord; in first inversion it may resolve either to a root position or first inversion tonic chord. In major, the vii$^{\circ}{}^{6}_{5}$ to I will result in parallel fifths. To avoid the parallel fifths, vii$^{\circ}{}^{6}_{\flat 5}$ should be borrowed from the parallel minor.

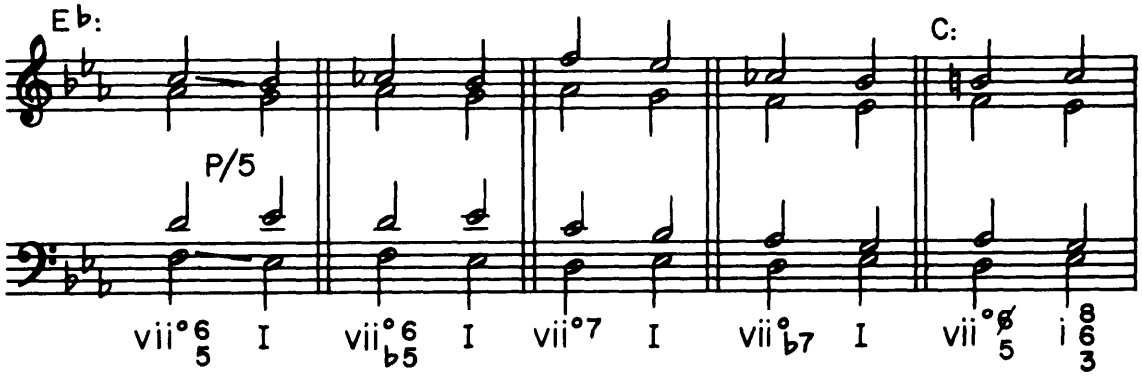


FIGURE 10.1. Leading Tone Seventh Chords

When chord roots are chromatically altered and the chord appears in root position, the analysis (Roman numeral) must reflect the alteration.

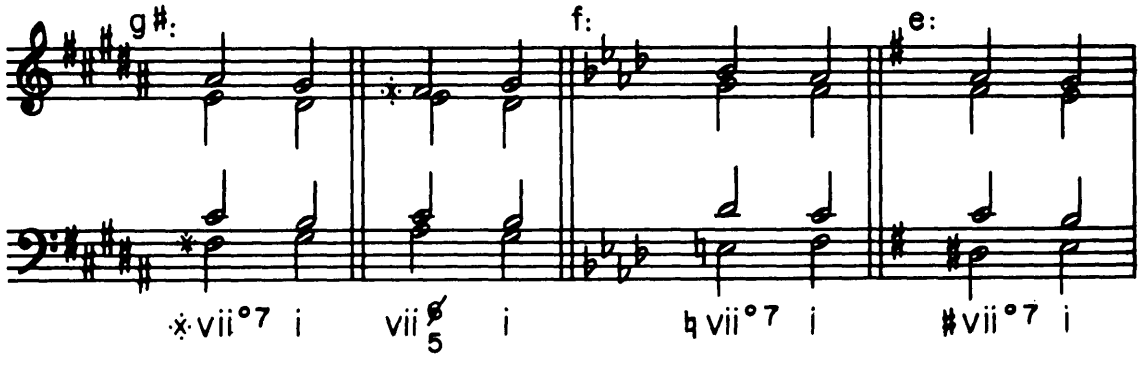


FIGURE 10.2. Analysis of Chromatically Altered Roots

SUPERTONIC SEVENTH

The supertonic seventh is a min7 in major keys and a min7($\flat$5) in minor keys. In major it appears in root position and all inversions; in minor it appears in root position, first, and third inversions. First inversion is used most frequently to approach a cadence.

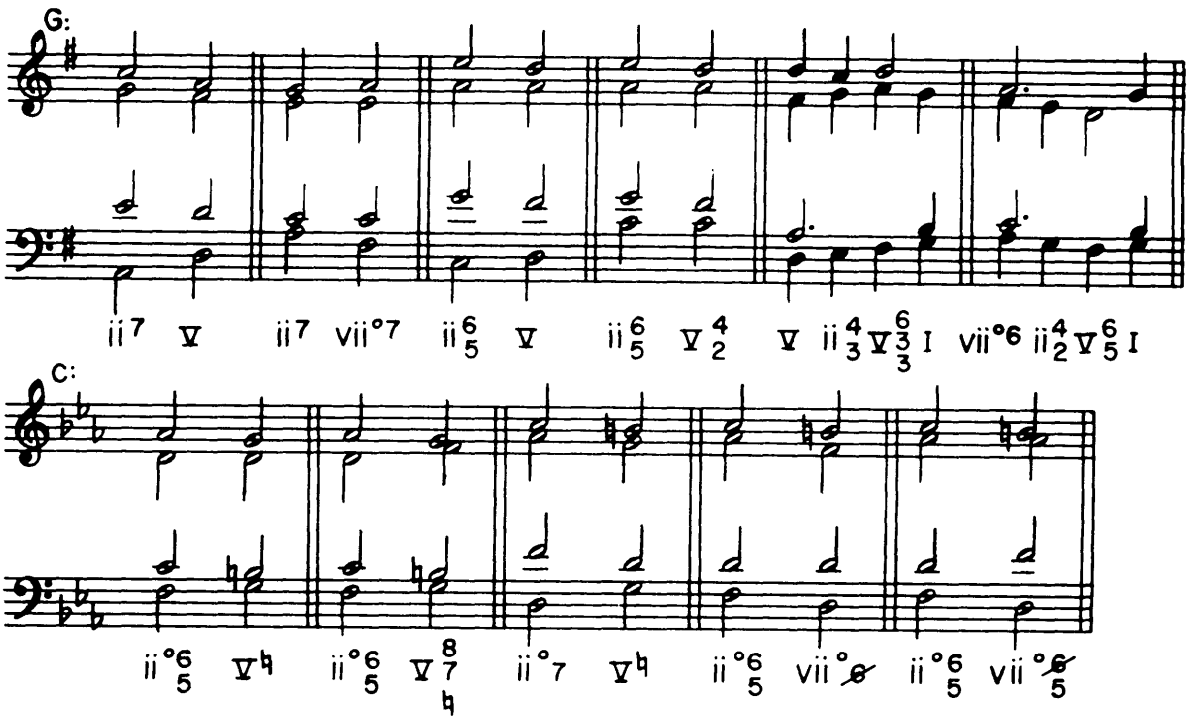


FIGURE 10.3. Supertonic Seventh Chords

Chords following the supertonic seventh are the dominant triad or dominant seventh, the leading tone triad or leading tone seventh, or the I $^{6}_{4}$ (i $^{6}_{4}$). The I $^{6}_{4}$ (i $^{6}_{4}$) delays the resolution of the seventh.

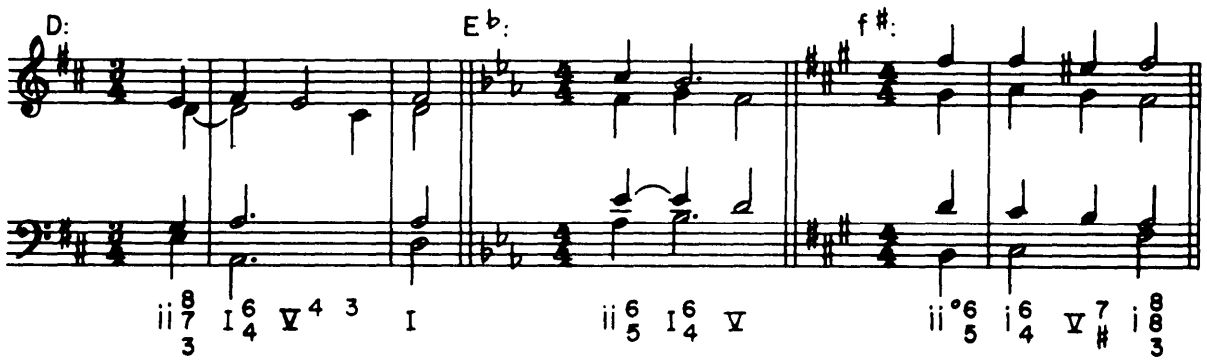


FIGURE 10.4. Supertonic Seventh Chord to I $^{6}_{4}$ (i $^{6}_{4}$)

SUBDOMINANT SEVENTH

The subdominant seventh is a Maj7 in major keys and a min7 in minor keys. Major sevenths are dissonant and occur infrequently. Inversions produce minor seconds or minor ninths; therefore, the IV7 in major occurs primarily in root position and occasionally in first inversion. In minor, the iv7 occurs only in root position. The IV7 (iv7) progresses either to a dominant triad (seventh) or leading tone triad (seventh). In minor it may also progress to the subtonic chord.

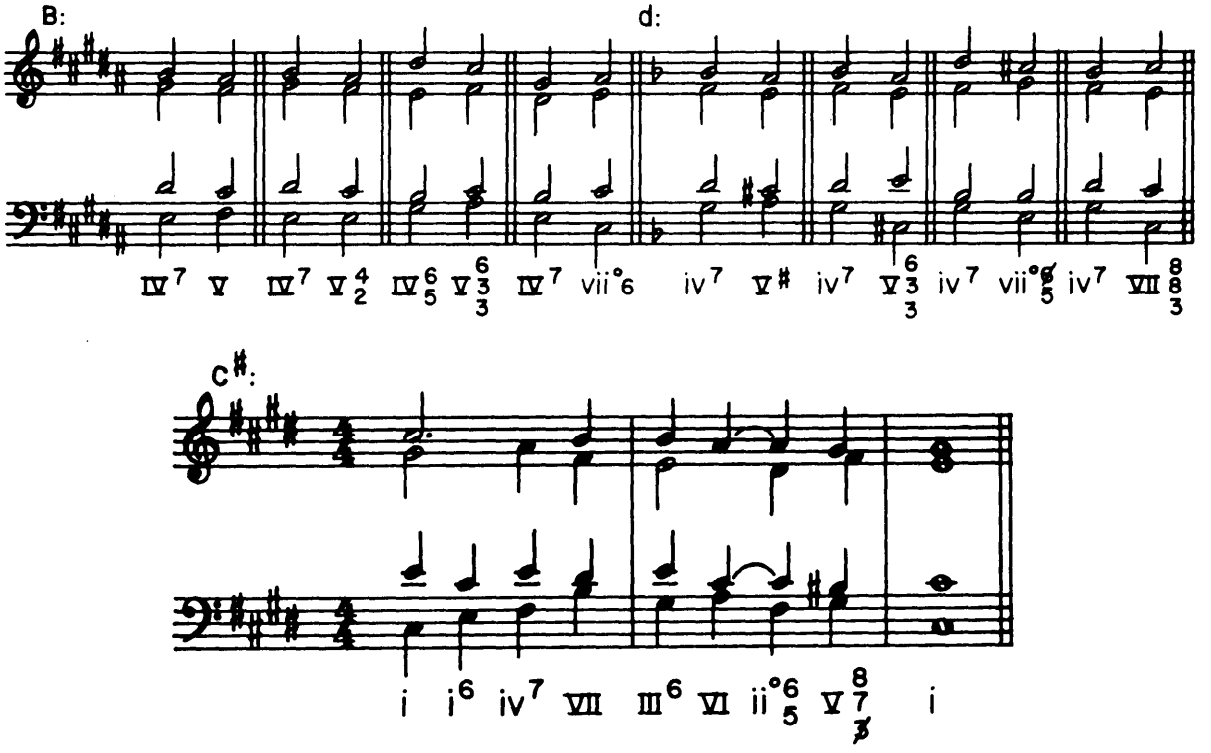


FIGURE 10.5. Subdominant Sevenths

The IV7 (iv7) frequently occurs before the supertonic seventh chord. Resolution of the seventh occurs while the remaining voices sustain. It can be figured as a supertonic seventh with appoggiatura.

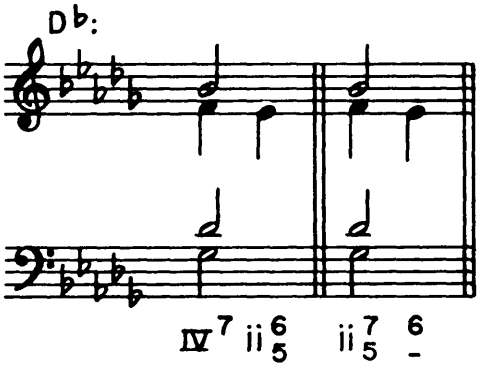


FIGURE 10.6. Progression of the Subdominant Seventh to Supertonic Seventh

SUBMEDIANT SEVENTH

The submediant seventh is a min7 in major keys and a Maj7 in minor keys. In major it occurs in root position, first inversion, or third inversion. In minor it occurs in root position or first inversion. It is used primarily as an approach to Group 2 chords. Regular resolution of the submediant seventh chord occurs when the subdominant scale degree is doubled on the supertonic chord.

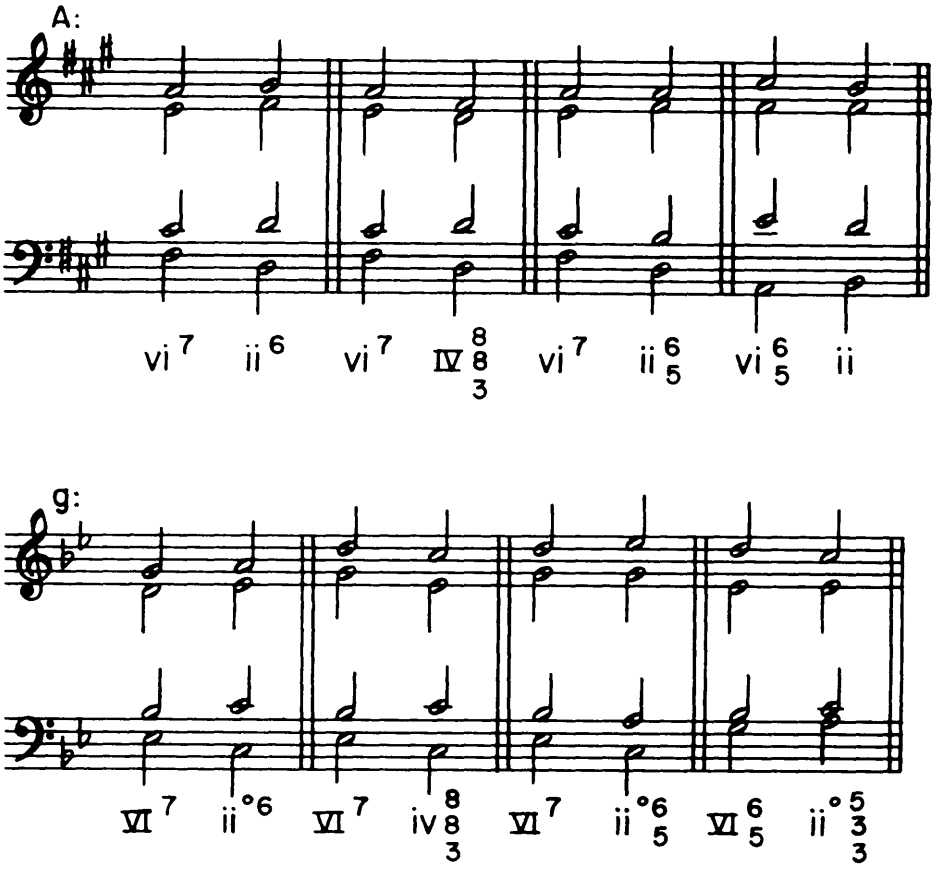


FIGURE 10.7. The Submediant Seventh

MEDIANT SEVENTH

The mediant seventh is a min7 in major keys and a Maj7 in minor keys. In major, it occurs in root position or first or third inversions. In minor, it occurs in root position or first inversion. It progresses to the submediant or subdominant chord. Descending root movement should be avoided. The III+7 in minor rarely occurs.

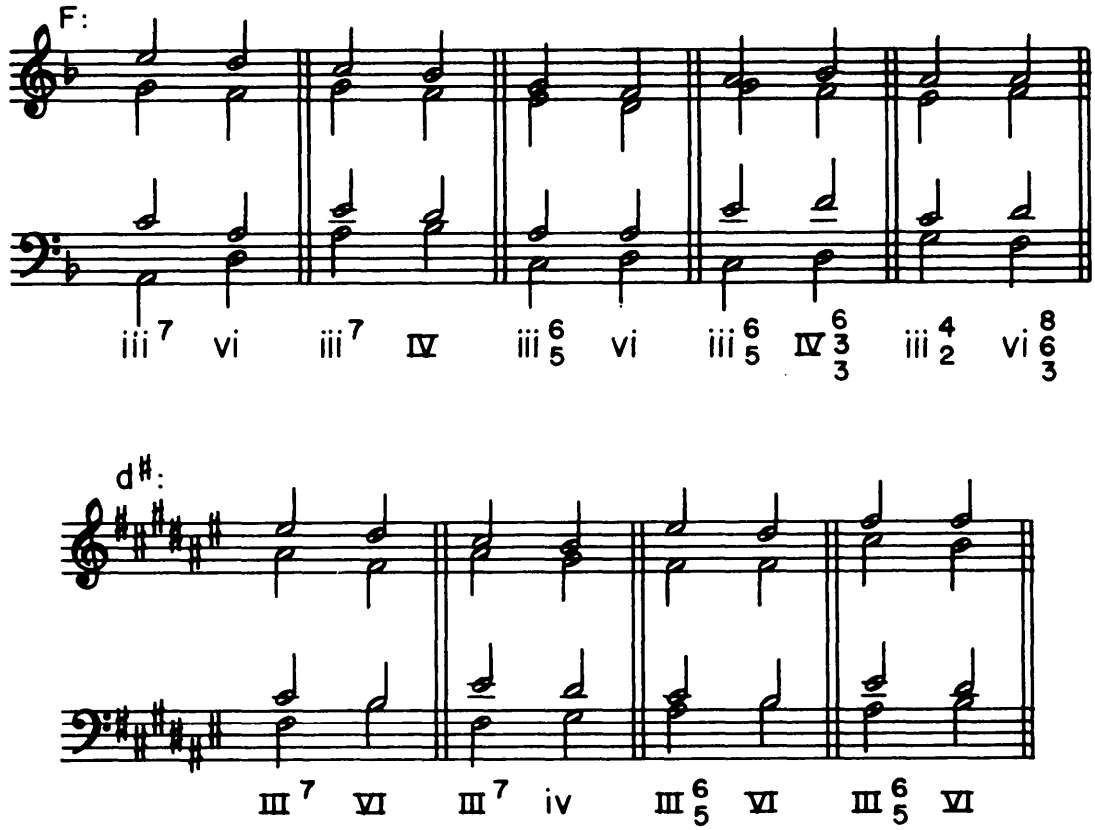


FIGURE 10.8. The Mediant Seventh

Occasionally the mediant seventh in minor will have a *lowered seventh.* This $III^{\flat 7}$ is normally followed by iv. It may also be followed by VI.

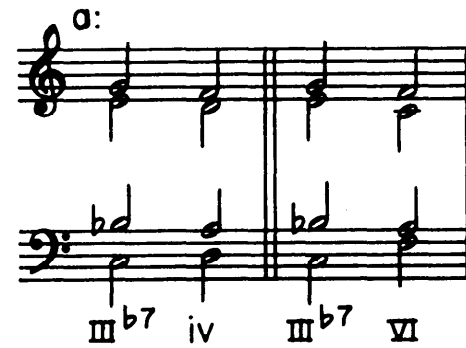


FIGURE 10.9. The Mediant Seventh with Lowered Seventh

TONIC SEVENTH

The tonic seventh is a Maj7 in major keys and a min7 in minor keys. A min/Maj7 (leading tone) in minor is never used. The tonic seventh rarely follows a dominant function chord. It usually follows an established tonic triad or occurs as a neutral I (i). In major, it occurs in root position or first inversion. In minor, it occurs in all positions. When required, an irregular resolution will be used. This will cause the subtonic in minor to ascend.

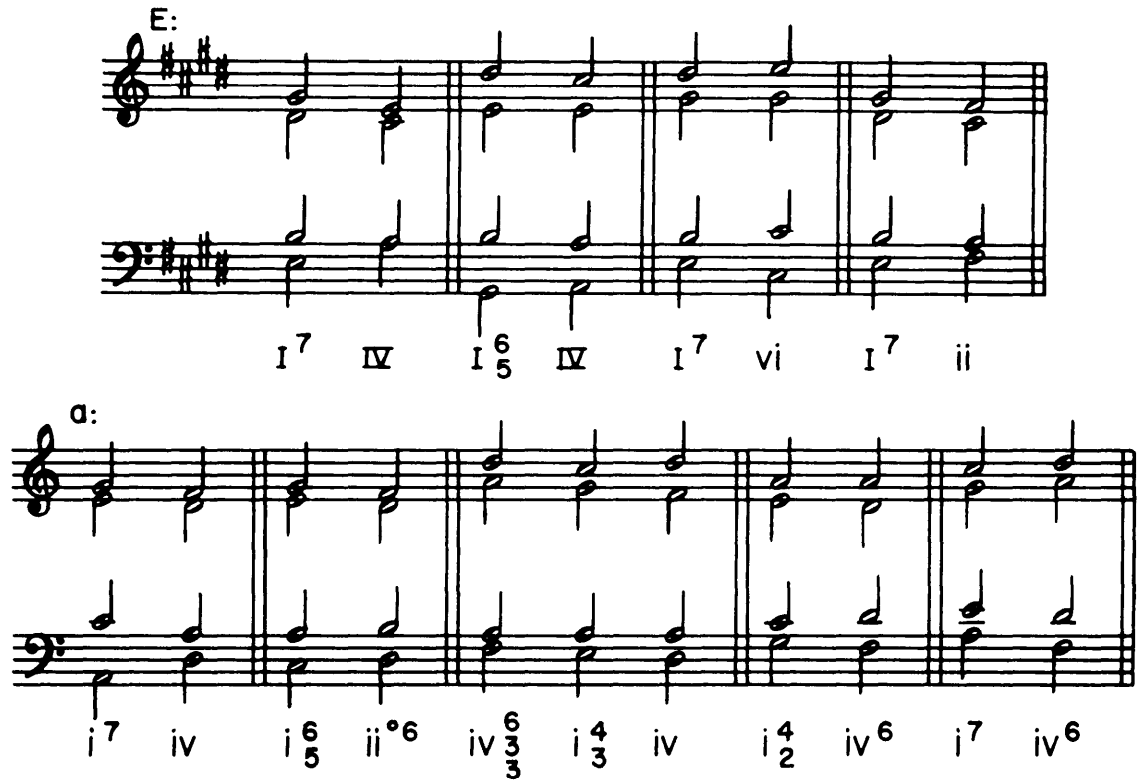


FIGURE 10.10. The Tonic Seventh

SUBTONIC SEVENTH

The subtonic seventh is a dom7 chord. It occurs in root position, first or third inversion. It must progress to the III chord.

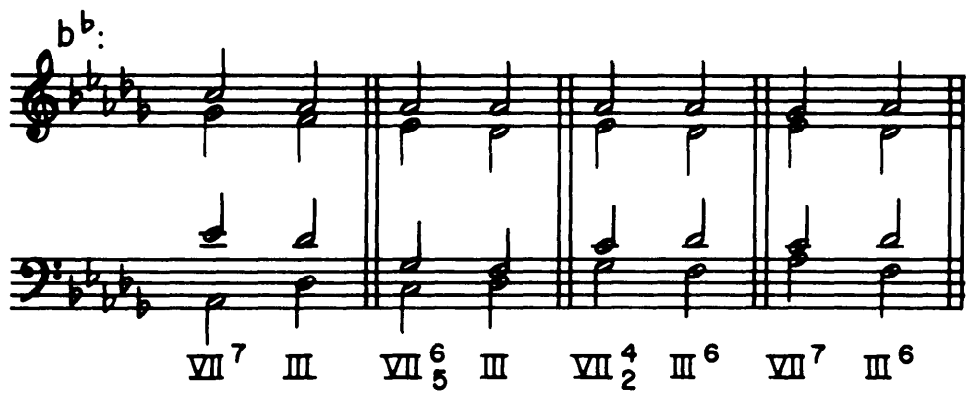


FIGURE 10.11. The Subtonic Seventh

DIATONIC SEVENTH SEQUENCE

When the seventh of a diatonic seventh chord resolves regularly with the remainder of the chord sustaining, a new diatonic seventh chord is created, forming a SEQUENCE.

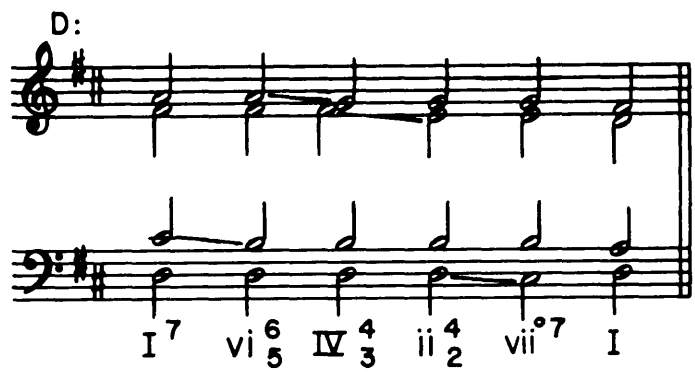


FIGURE 10.12. The Diatonic Seventh Sequence

CHAPTER 11

Extensions on Diatonic Chords

Extended Chords are discussed in Basic Music (TC 12-41/NAVEDTRA 10244). These chords contain five or more pitches, which requires a selection of notes for four parts. Chords with extensions appear primarily in root position. An extension may be analyzed as an essential harmonic tone or as an unessential non-harmonic tone (appoggiatura or accented passing tone). Extensions appear primarily in the soprano voice.

MAJOR NINTH

Major ninths appear in major keys on the dominant seventh or supertonic seventh chord. Normally, the fifth of the chord is omitted.

The major ninth on a dominant seventh resolves down by step to the root of the dominant seventh (appoggiatura) or to the fifth of the tonic at the change of chord. The third of the dominant seventh is occasionally omitted and the ninth functions as an upward resolving appoggiatura to the third. Figuring for chords in root position with a ninth is the single numeral 9.

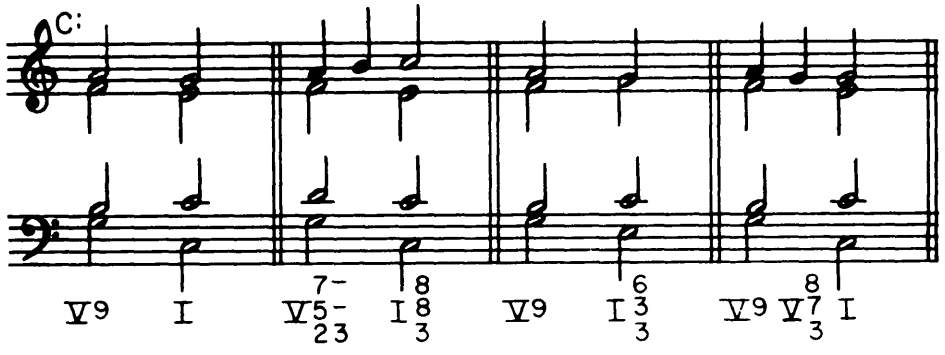


FIGURE 11.1. The Major Ninth in Root Position

The dominant ninth may appear in inversion. Figuring for inversion is:
7
6 for first inversion.
5

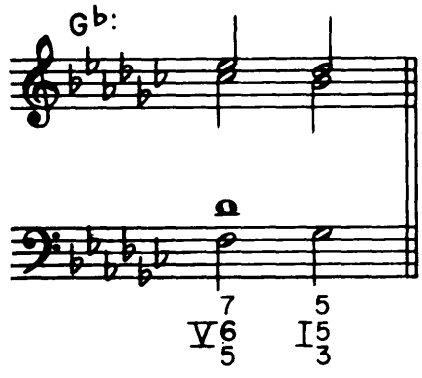


FIGURE 11.2. First Inversion of the Major Ninth

6
5 for second inversion. The second inversion of the dominant ninth chord is better analyzed
(4 omitted)
as vii $^{\circ 6}_{5}$.

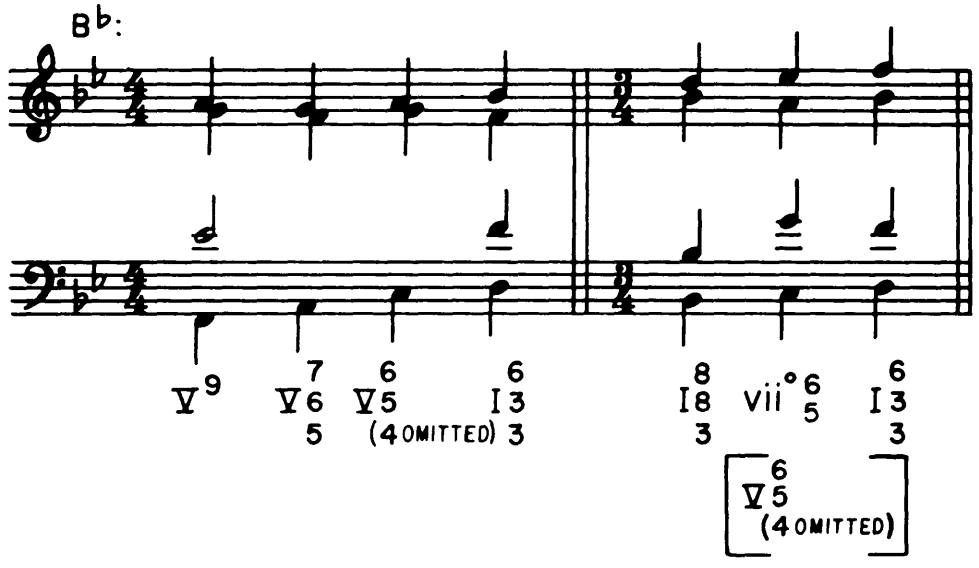


FIGURE 11.3. Second Inversion of the Major Ninth

4
3 for third inversion.
2

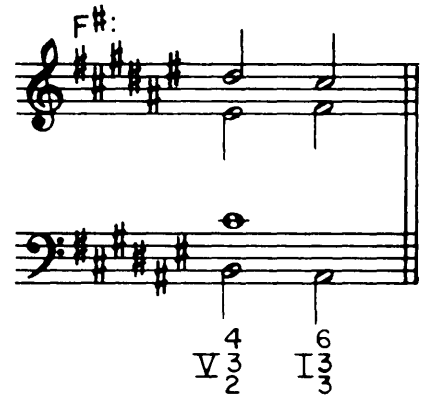


FIGURE 11.4. Third Inversion of the Major Ninth

$\begin{matrix}7\\6\\2\end{matrix}$ for fourth inversion (rare) resolving to a $I\,\begin{matrix}6\\4\end{matrix}$.

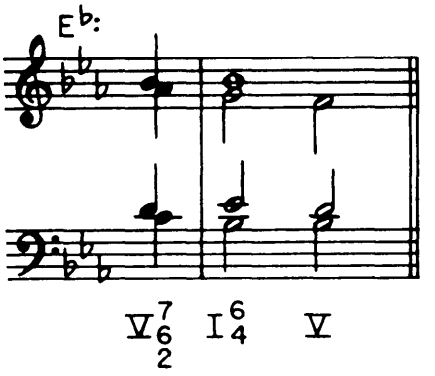


FIGURE 11.5. Fourth Inversion of the Major Ninth

The major ninth on a supertonic seventh resolves down by step: to the root of the supertonic chord (appoggiatura), to the fifth of the dominant chord (supertonic), or to the third of the leading tone chord (supertonic). An interval of a major seventh exists between the third and ninth of this chord. The third and ninth should not be voiced in adjacent voices when they form a minor second. The supertonic ninth may occasionally appear in the first inversion $\left(\begin{matrix}7\\6\\5\end{matrix}\right)$.

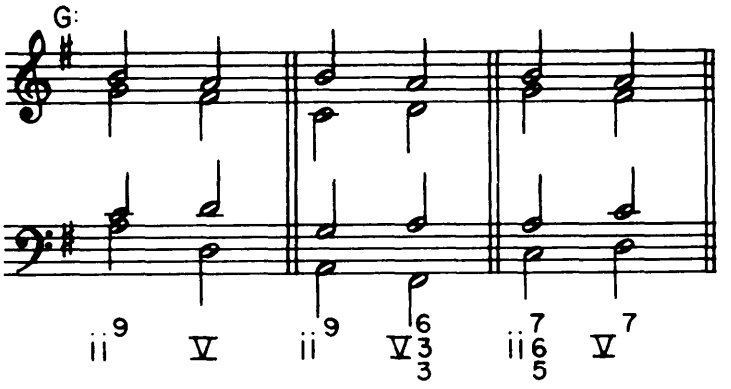


FIGURE 11.6. The Major Ninth on the Supertonic Seventh

MINOR NINTH

The minor ninth appears in minor keys on the dominant seventh chord. The minor ninth must resolve down by step. The minor ninth should never be reduced to a minor second. Inversions are rare. The fourth inversion is forbidden.

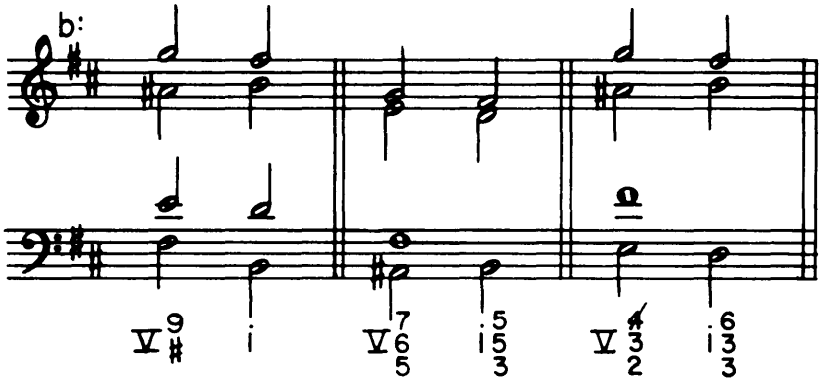


FIGURE 11.7. The Minor Ninth and Inversions

ELEVENTH

Major chords with an eleventh are referred to as sus4 chords in Basic Music (TC 12-41/NAVEDTRA 10244). The eleventh appears primarily over the dominant seventh chord. The seventh and ninth usually appear with an eleventh, omitting the third and fifth. Chords with elevenths are used exclusively in root position. The dominant eleventh chord may resolve in three ways:

(1) Directly to the tonic chord with the eleventh repeating to become the root of the tonic, the ninth and seventh resolving normally.

(2) The eleventh resolves down by step to the leading tone, forming a dominant ninth.

(3) The eleventh and ninth resolve simultaneously, forming a dominant seventh.

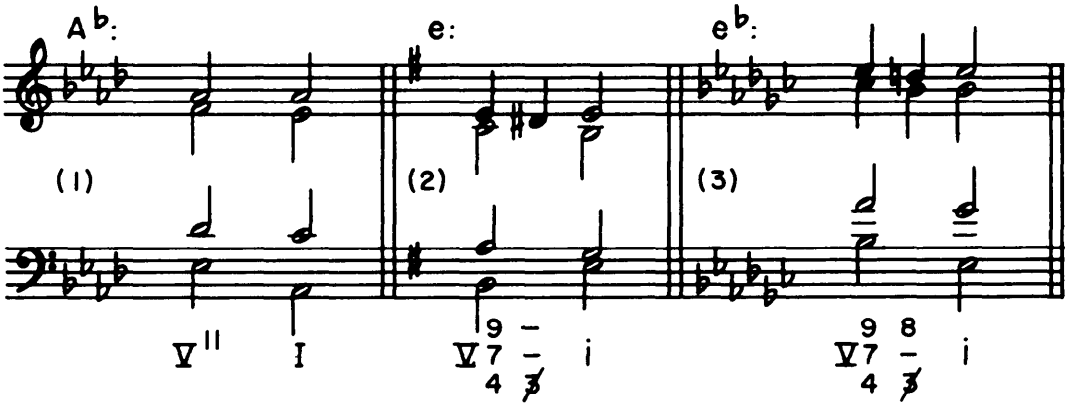


FIGURE 11.8. The Dominant Eleventh

THIRTEENTH

The thirteenth appears on the dominant seventh chord only. It appears exclusively in root position with the fifth, ninth, and eleventh omitted. The thirteenth may resolve down by step to the fifth of the dominant seventh (appoggiatura) or by leap to the root of the tonic chord. When the latter occurs, the Bass voice must ascend to avoid an objectionable hidden octave.

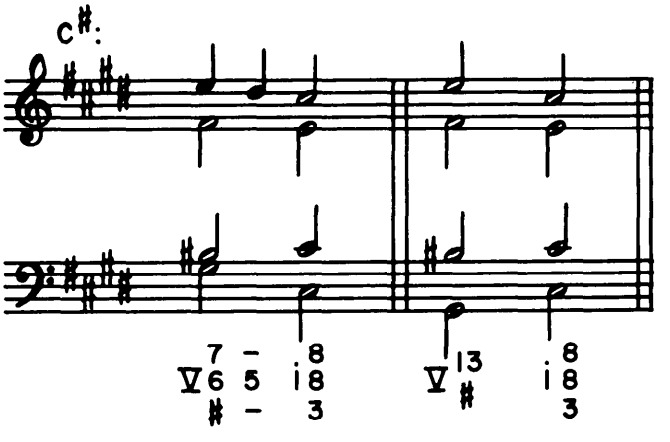


FIGURE 11.9. The Dominant Thirteenth

CHAPTER 12

Simple Modulation

Modulation is the process of moving from one tonality to another. *Simple modulation* is movement to a closely related key. *Closely related* keys are those adjacent to a key on the circle of fifths and their relative keys. Therefore, any one key has five closely related keys.

FIGURE 12.1. Closely Related Keys

KEYS

Terms applied to keys in modulation are original key, old key, and new key. The *original key* is the beginning key. Usually, music begins and ends in the original key. In a modulation, the music moves from the *old key* to the *new key* retaining the key signature of the original key. When a series of modulations has taken the music far from the original key, sufficient phrases must remain to work back to the original key.

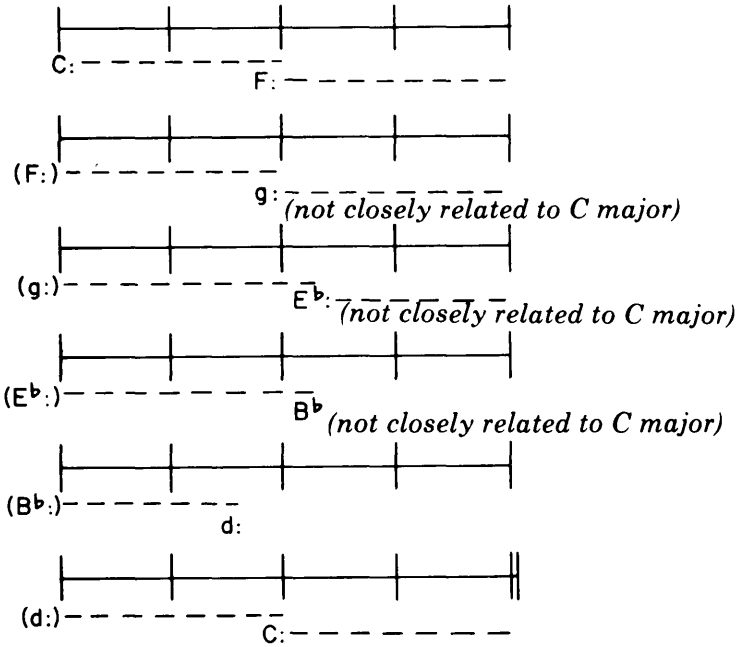


FIGURE 12.2. Modulation Series in a Composition

PIVOT CHORD

A *pivot chord* is used to effect a modulation. In simple modulation a *common chord* (diatonic in the old and new keys) is used as a pivot chord. For example, the tonic chord in C major could be used as the pivot chord to modulate to G major as the subdominant chord. Pivot chords are analyzed in both the old and new keys. The pivot chord should not be the dominant chord of the new key.

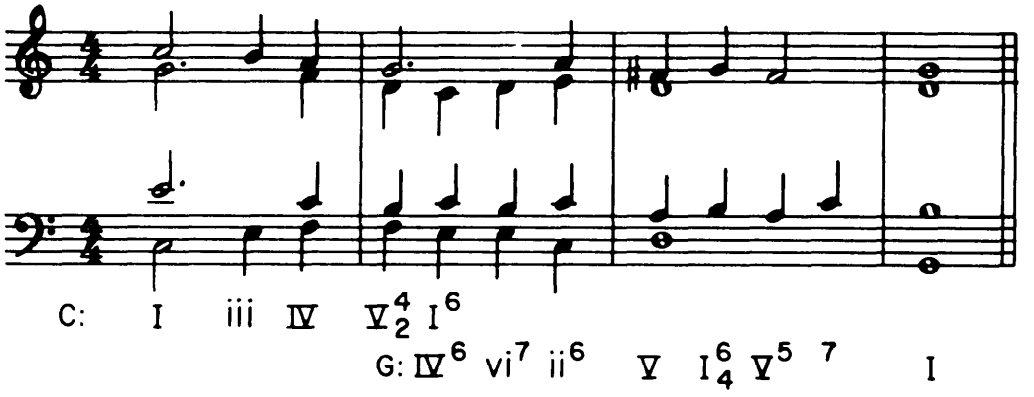


FIGURE 12.3. Pivot Chord Modulation

Accidentals used to create notes in a new key need not be indicated in figured bass when accompanied with analysis.

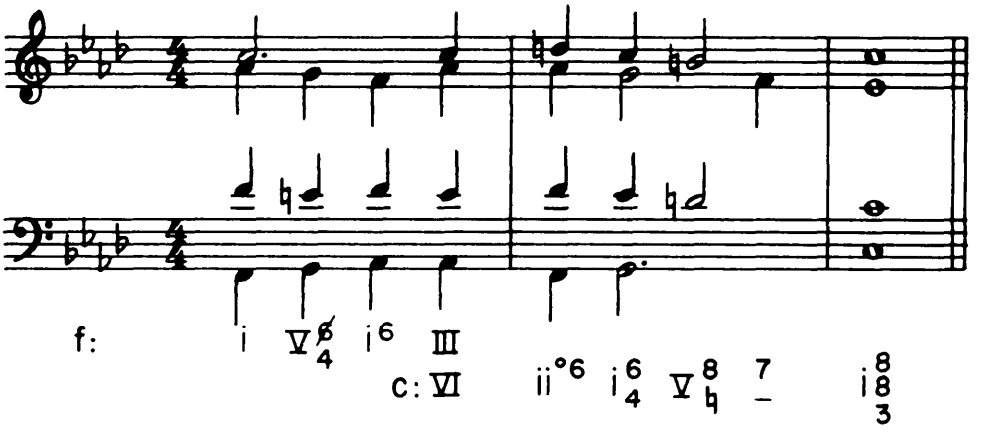


FIGURE 12.4. Figuring of Accidentals in a Modulation

ESTABLISHING KEYS

Chords on each side of a pivot chord must establish the tonality and modality of each key. The new key must be established by the end of the phrase in which the pivot chord appears.

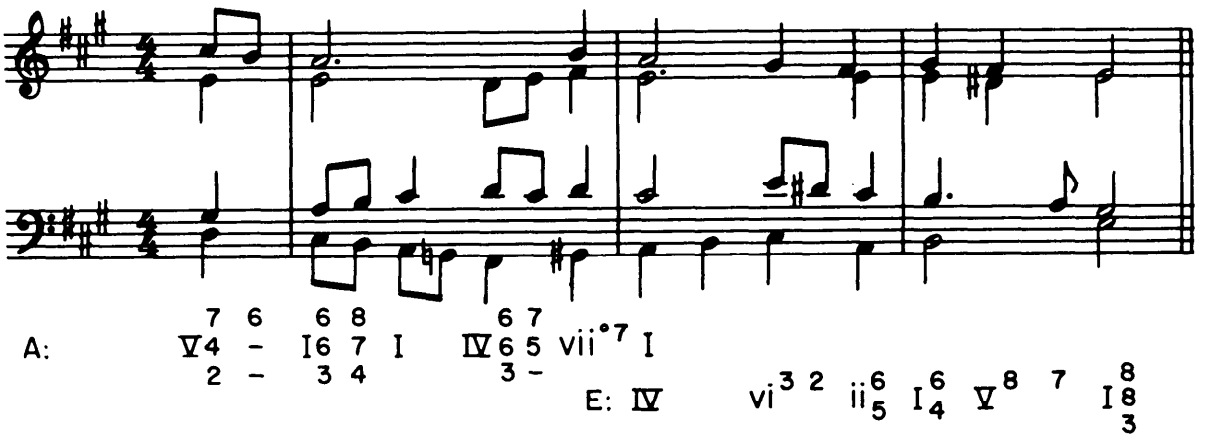


FIGURE 12.5. Establishment of Old and New Key in a Modulation

CHAPTER 13

Secondary Chords

Secondary chords relate to the key of the chord which follows (key of the moment) but do not effect a modulation. For example, the secondary chords to the supertonic chord in C major come from the key of d minor. A secondary chord contains at least one chromatically altered note; the chromatically altered note is never doubled. Secondary chords usually have dominant function. Chords must be major or minor in quality to be preceded by secondary chords.

ANALYSIS

Two Roman numerals separated by a slash are used to analyze secondary chords. The first numeral shows the function and quality of the secondary chord in relation to the following chord; the second numeral shows the following chord.

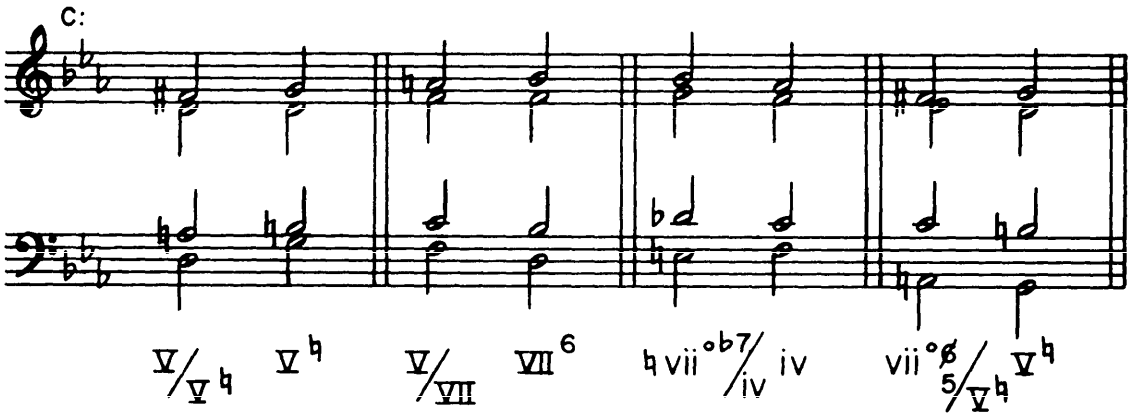


FIGURE 13.1. Analysis of Secondary Chords

SECONDARY DOMINANTS

Secondary dominants may be triads, dominant sevenths, or dominant sevenths with extensions (elevenths are rare). When a secondary dominant progresses to a diatonic seventh chord, the momentary leading tone (third of the chord) may descend by a half step to become the seventh.

V/V- V^{7}/V

The V/V or V ^{7}/V occurs in major or minor as a chromatically altered supertonic chord. It is used in any position in major. In minor it is used in any position except second inversion.

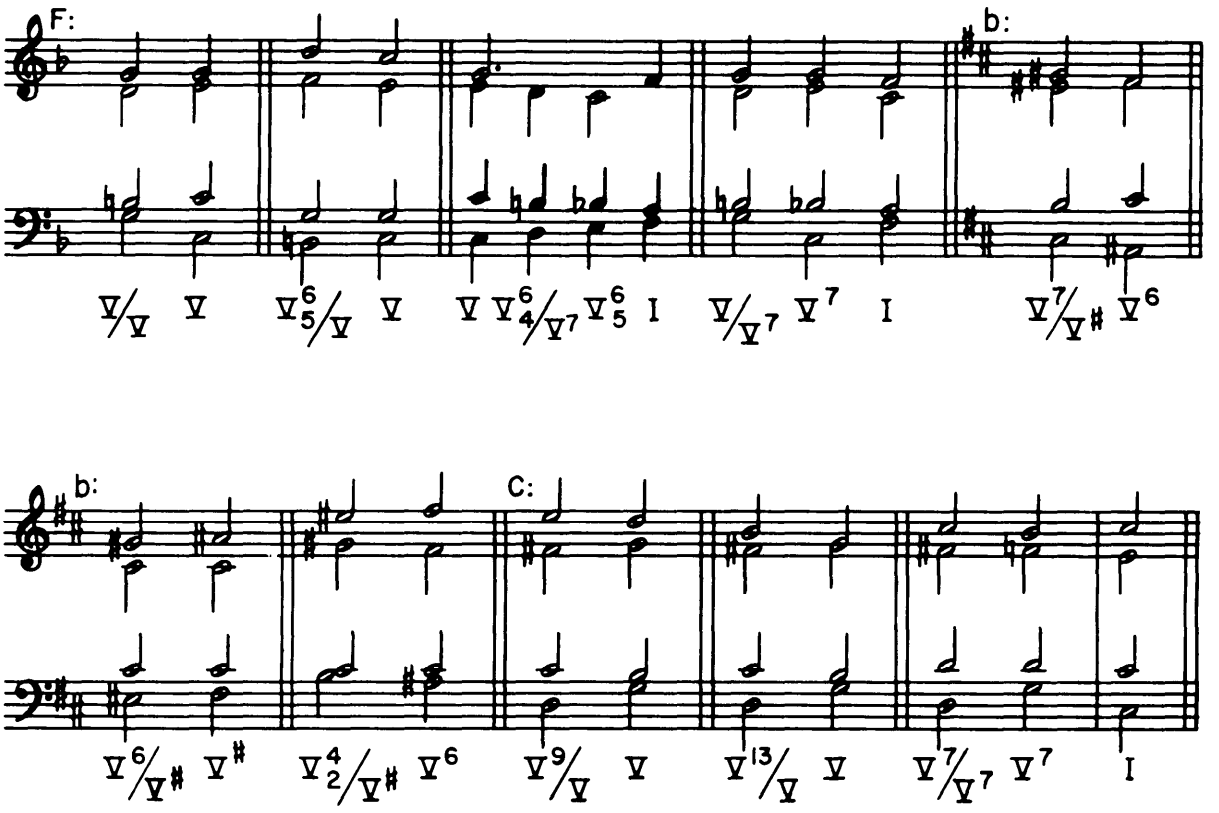


FIGURE 13.2. Secondary Dominants of the Dominant

V^{7}/IV- V/iv- V^{7}/iv

Because the V/IV is the tonic chord, the V ^{7}/IV must be used in major to have a chromatic alteration in the tonic chord. In minor, the secondary dominant triad or dominant seventh may be used because both are altered tonic chords. These secondary dominants may be used in all positions.

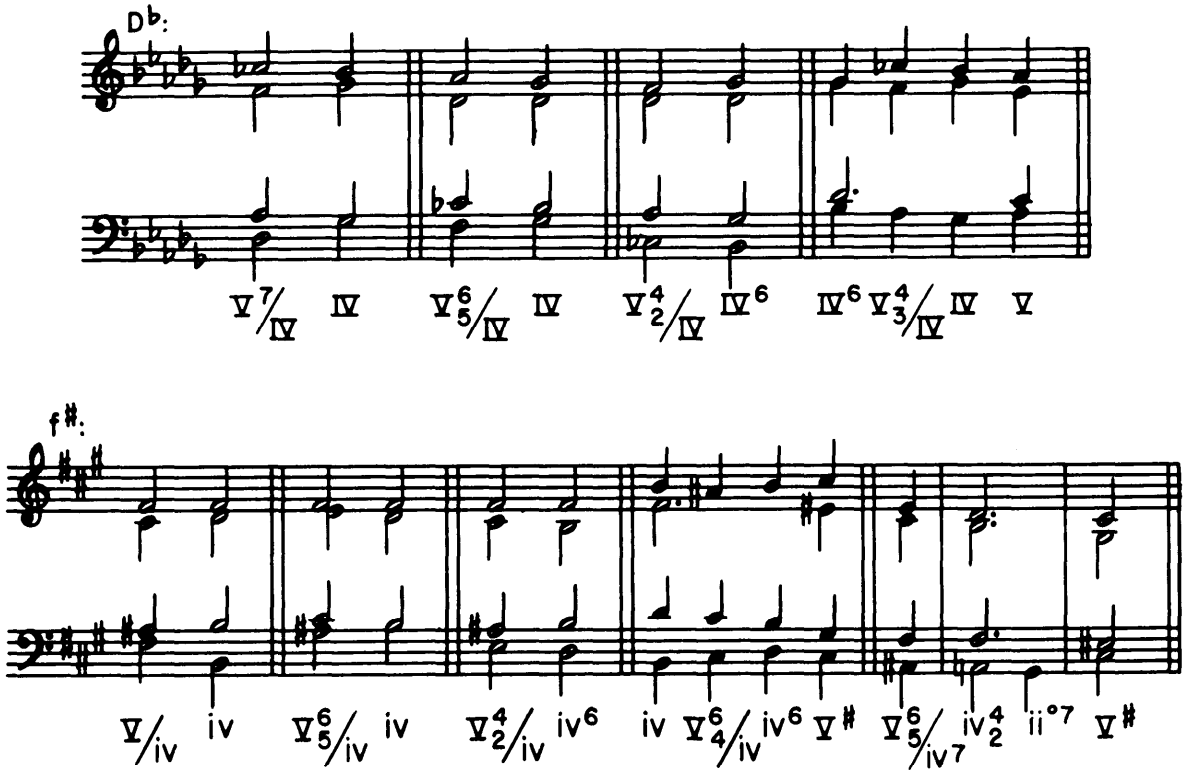


FIGURE 13.3. Secondary Dominants of the Subdominant

V/ii- V^{7}/ii

The V/ii or V^{7}/ii occurs in major as a chromatically altered submediant chord. It is used in all positions except second inversion.

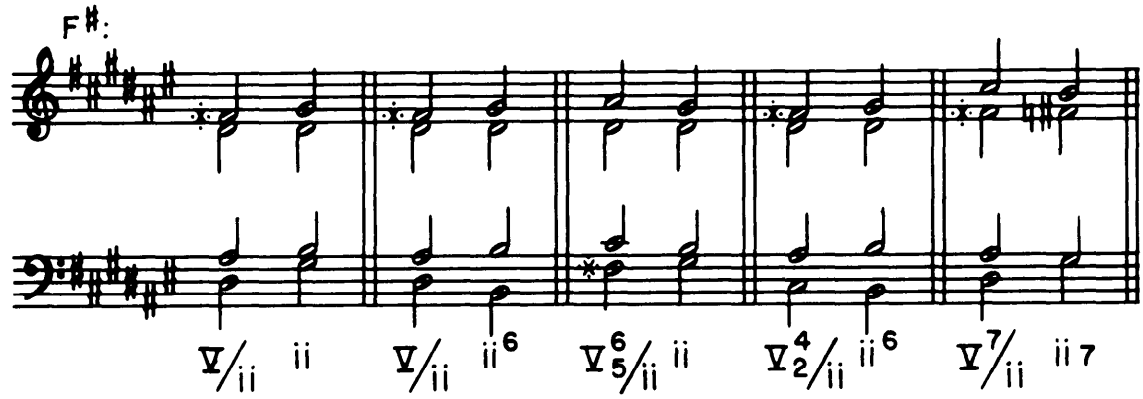


FIGURE 13.4. Secondary Dominants of the Supertonic

V/vi- V ^{7}/vi- V ^{7}/VI

The V/vi or V ^{7}/vi occurs in major as a chromatically altered mediant chord. It is used in all positions except second inversion. In minor, the secondary dominant seventh must be used so that a chromatic alteration occurs on the mediant chord (V ^{7}/VI). V ^{7}/VI is usable in all positions; second inversion occurs only in a descending line because it involves the subtonic scale degree.

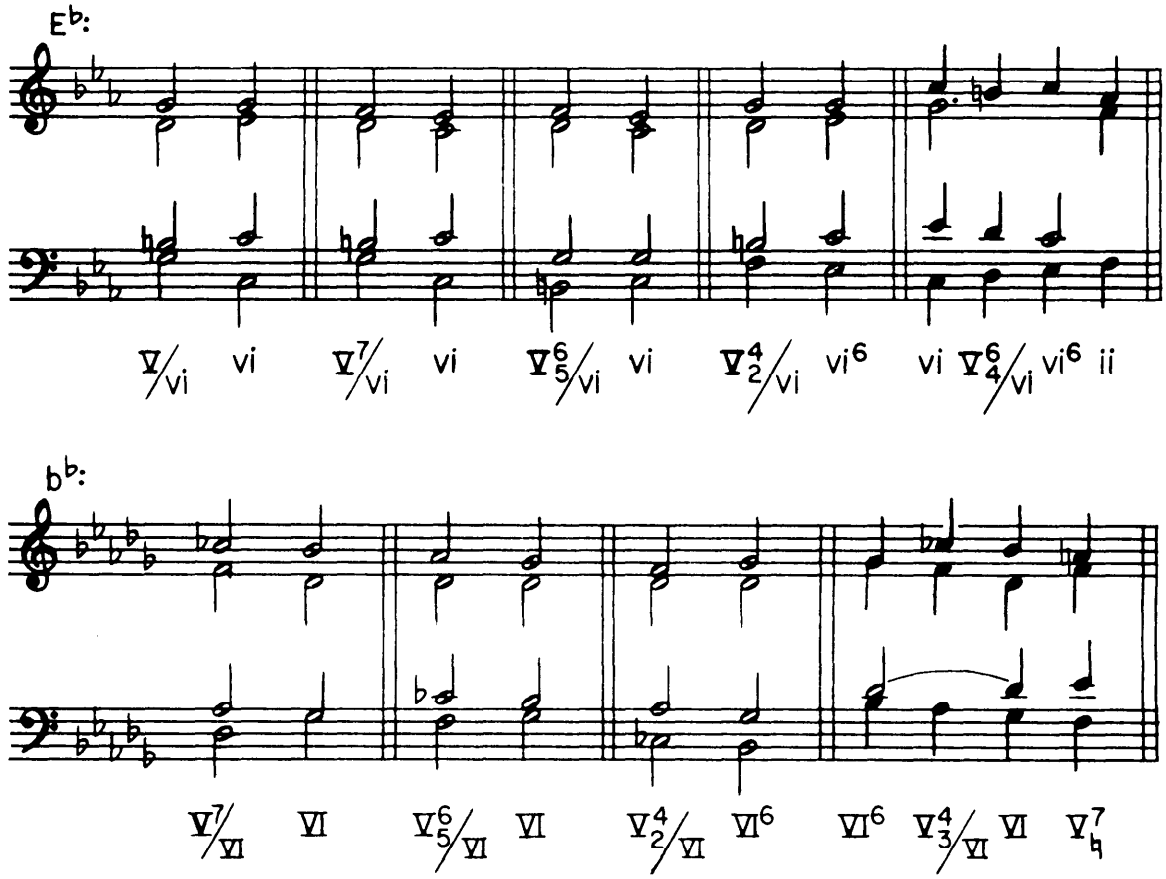


FIGURE 13.5. Secondary Dominants of the Submediant

V/iii- V ^{7}/iii- V/III- V ^{7}/III

The V/iii occurs in major as a chromatically altered leading tone chord and is used in all positions except second inversion. In a minor key the V/III and V ^{7}/III are the subtonic triad and subtonic seventh chord. Although no alteration occurs, these chords could be analyzed as secondary dominants.

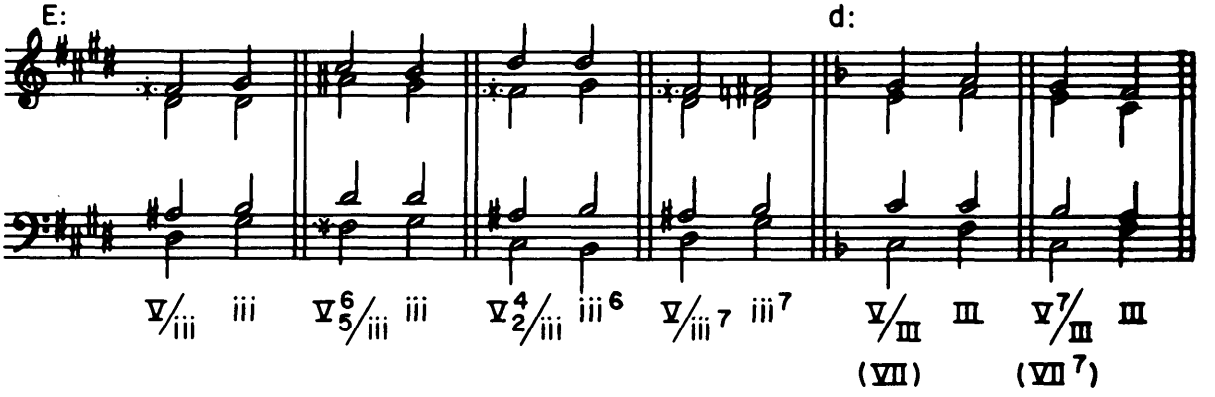


FIGURE 13.6. Secondary Dominants of the Mediant

V/VII- V ^{7}/VII

The V/VII or V ^{7}/VII occurs in minor as a chromatically altered subdominant chord. It is used in all positions except second inversion.

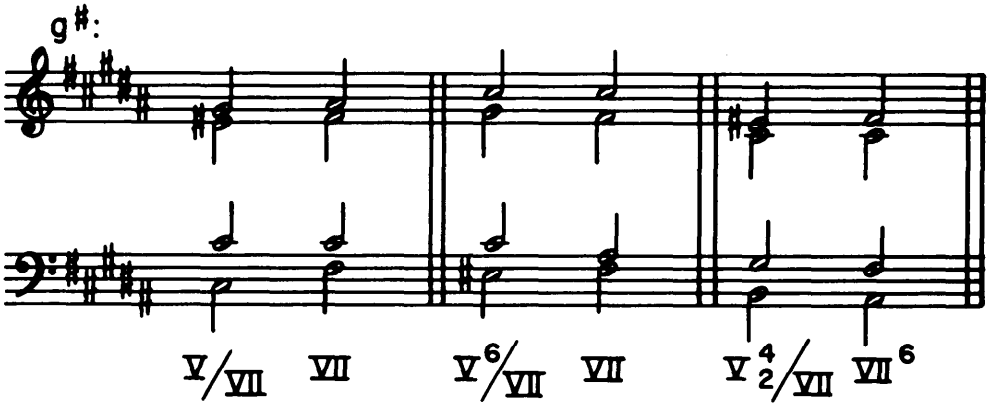


FIGURE 13.7. Secondary Dominants of the Subtonic

SECONDARY LEADING TONE CHORDS

Secondary Leading Tone chords are constructed using the key of the moment.

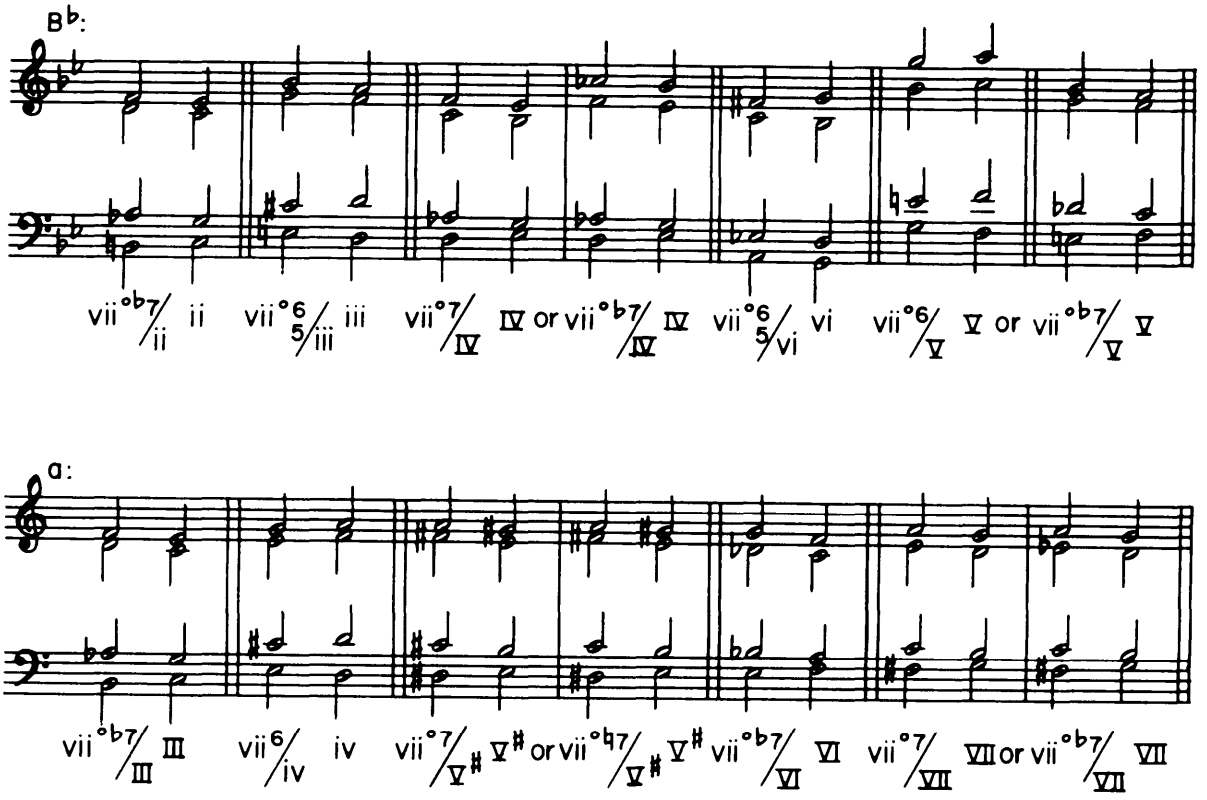


FIGURE 13.8. Secondary Leading Tone Chords

CHAPTER 14

Borrowed Chords

BORROWED CHORDS

Chords in a major key may be borrowed from the parallel minor and chords in a minor key may be borrowed from the parallel major. Continuous use of borrowed chords may effect a modulation to the parallel key.

BORROWED FROM MINOR

When writing in a major key, the following chords may be borrowed from the parallel minor:

Supertonic ($min^{7(\flat 5)}$)

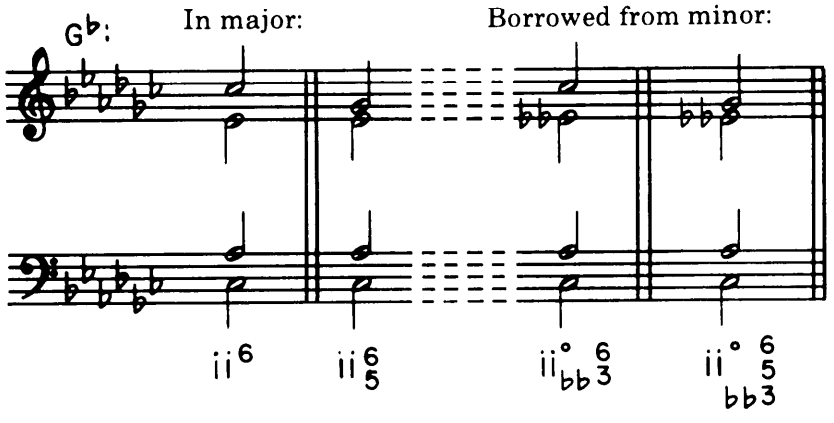


FIGURE 14.1. The Borrowed Supertonic from Minor

Leading tone seventh (dim^7)

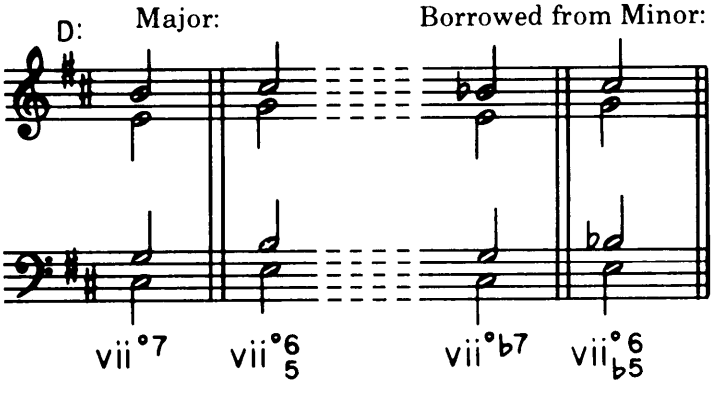


FIGURE 14.2. The Borrowed Leading Tone Seventh

Subdominant (min) in a Plagal cadence

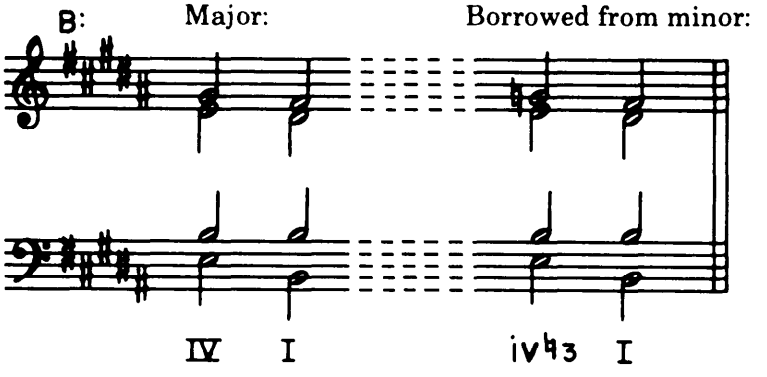


FIGURE 14.3. The Borrowed Subdominant in a Plagal Cadence

Extensions on the dominant chord (♭9-♭13)

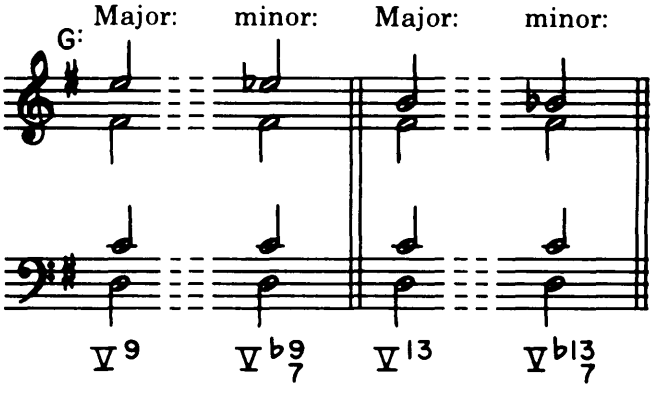


FIGURE 14.4. Borrowed Extensions on the Dominant

Submediant (Maj)

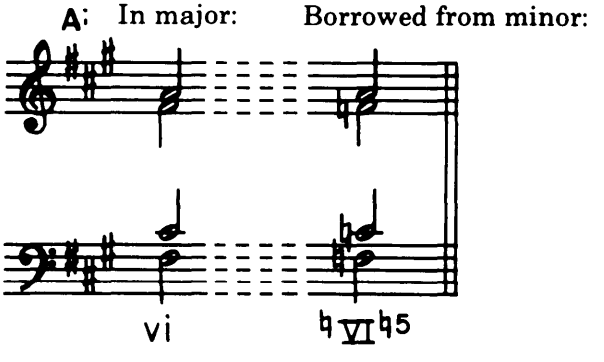


FIGURE 14.5. The Borrowed Submediant

Non-harmonic tones occurring with borrowed chords must be borrowed from the parallel minor.

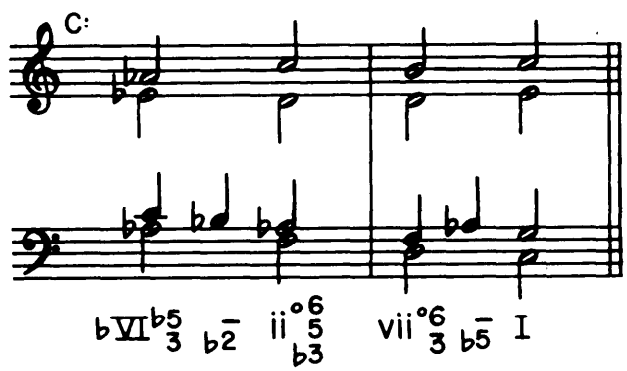


FIGURE 14.6. Non-harmonic Tones Used with Borrowed Chords

Overuse of borrowed chords and accompanying non-harmonics should be avoided as modulation may occur.

BORROWED FROM MAJOR

When writing in a minor key, the following chords may be borrowed from the parallel major:

Dominant (maj.) and Dominant Seventh

Leading tone triad (dim.)

Picardy third on tonic chord (maj.)

Supertonic chord (min.) when harmonizing the raised sixth scale degree in ascending form of melodic minor scale.

Non-harmonic tones occurring with borrowed chords must be borrowed from the parallel major.

CHAPTER 15

Chromatic Alterations

Chords may be chromatically altered. The fifth of a chord is the most frequently altered chord tone. Chromatically altered notes are never doubled.

RAISED FIFTH

The raised fifth may appear on dominant, tonic, and subdominant chord in major keys. The raised fifth (raised supertonic scale degree) of the dominant chord must ascend to the third of the tonic chord. This will result in an acceptable doubled third of the tonic chord in first inversion. The augmented dominant chord may be used in root position or first inversion.

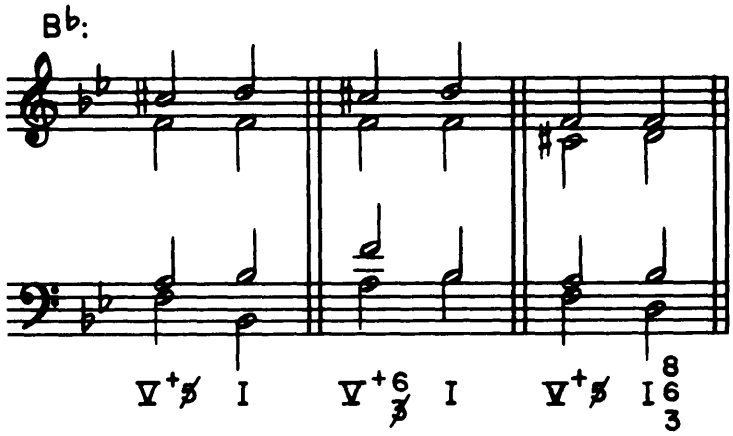


FIGURE 15.1. The Augmented Dominant Chord

The raised fifth (raised dominant scale degree) of the tonic chord must ascend to the submediant scale degree (subdominant or submediant chord). This will result in an acceptable doubled third of the subdominant chord in first inversion. The augmented tonic chord may be used in root position or first inversion when approaching the subdominant chord. It is used only in root position when approaching the submediant chord.

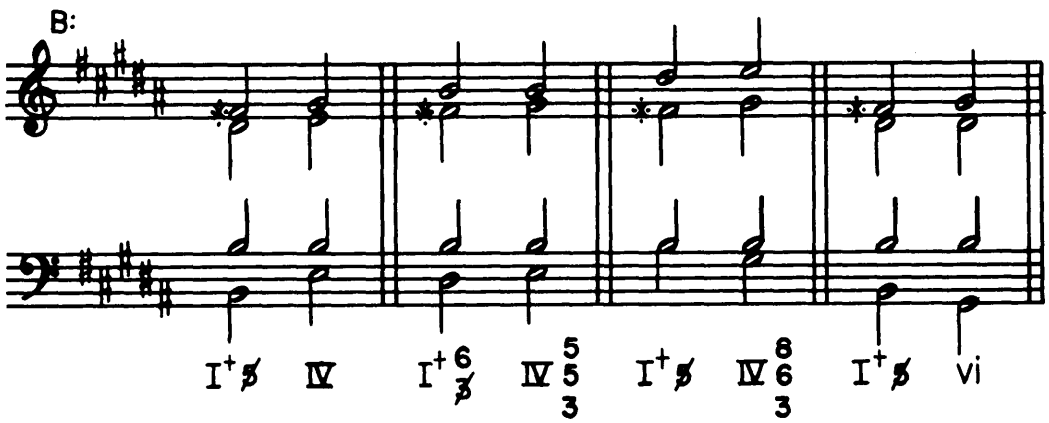


FIGURE 15.2. The Augmented Tonic Chord

A raised fifth (raised tonic scale degree) of the subdominant chord must ascend to the supertonic scale degree (supertonic or dominant chord). The augmented subdominant chord may be used in root position or first inversion when approaching the dominant chord. It is used only in root position when approaching the supertonic chord.

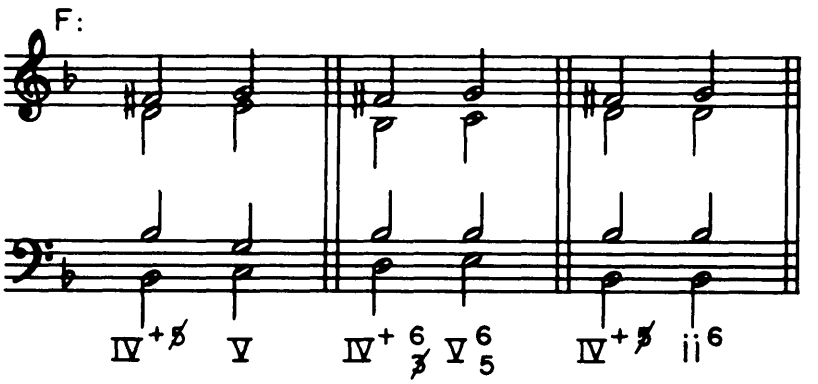


FIGURE 15.3. The Augmented Subdominant Chord

LOWERED FIFTH

The lowered fifth may appear on the dominant chord; it must descend to the tonic scale degree. The dominant chord with lowered fifth may be used in root position or first inversion.

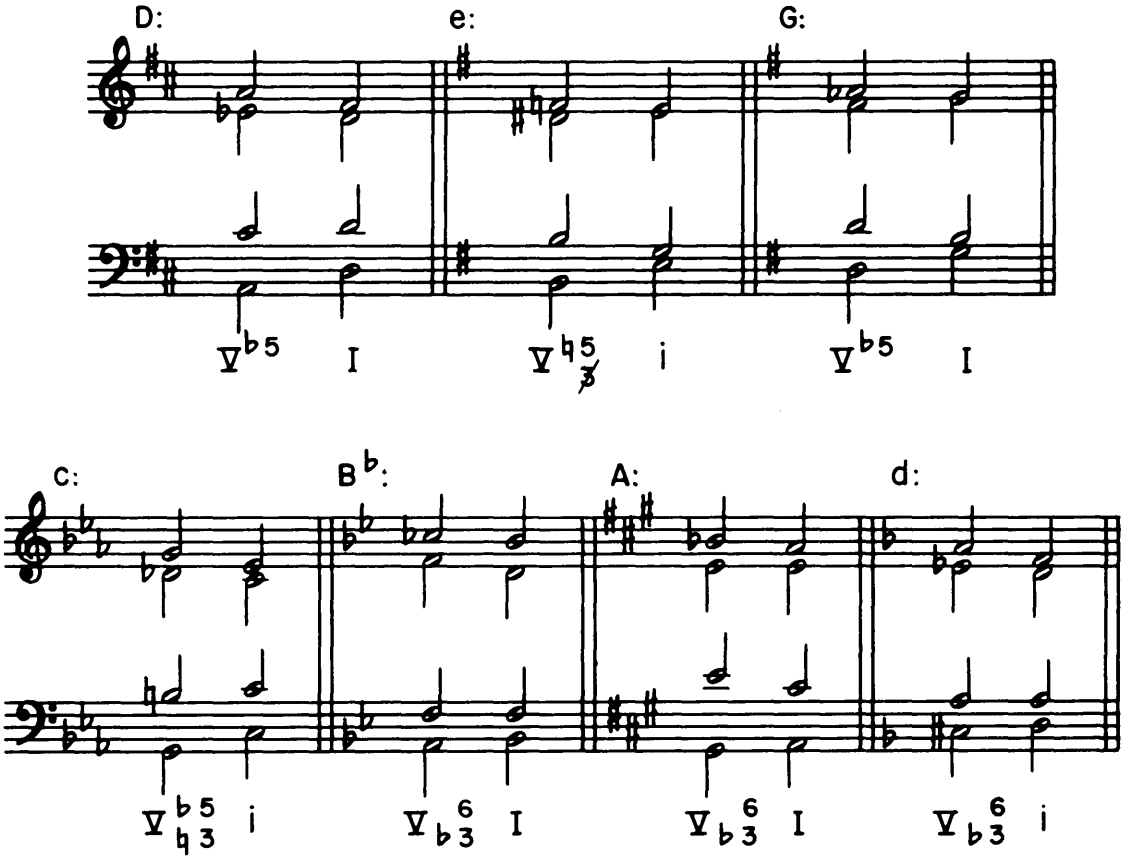


FIGURE 15.4. The Dominant with Lowered Fifth

RAISED ROOT

Chords constructed on the raised tonic, supertonic (in major), subdominant, and dominant scale degrees were previously identified as secondary leading tone chords.

CHAPTER 16

Augmented Sixth Chords

The augmented sixth chords are named Italian, French, and German. Augmented sixth chords are often identified using an abbreviation of their respective names. Augmented sixth chords progress to a dominant chord or to a tonic six-four followed by the dominant chord.

The dissonant augmented sixth interval normally occurs in outer voices and resolves to the *dominant octave.* Tendencies of the chromatically altered notes must be followed. Commonly used approach chords are supertonic, subdominant, or submediant chords.

ITALIAN

The *Italian sixth* is constructed on the raised subdominant scale degree and is used in first inversion with doubled fifth. It is analyzed and figured as $\text{IV}^{\sharp}_{3}3$.

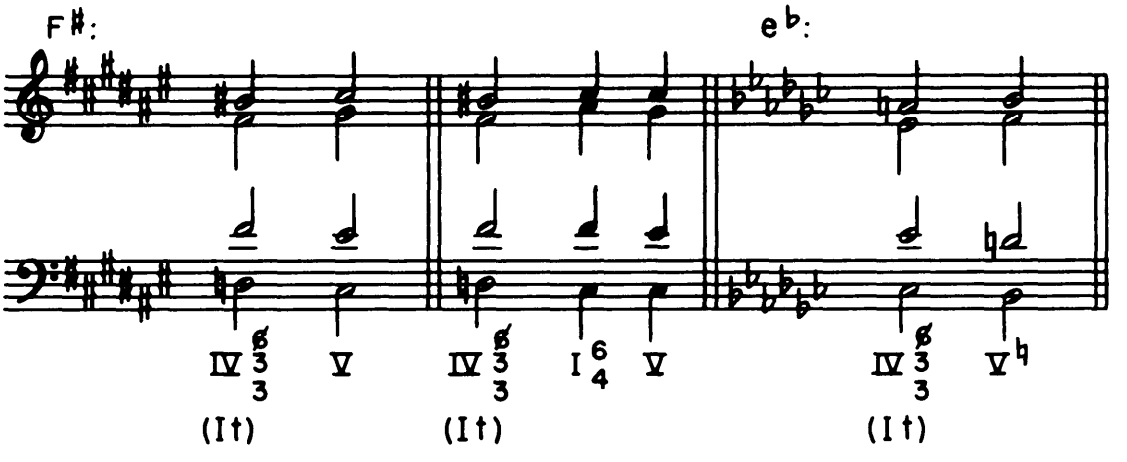


FIGURE 16.1. The Italian Augmented Sixth

FRENCH

The *French sixth* is constructed on the supertonic scale degree and is used in second inversion. It is analyzed and figured as $\text{II}^{\sharp}_{3}4$.

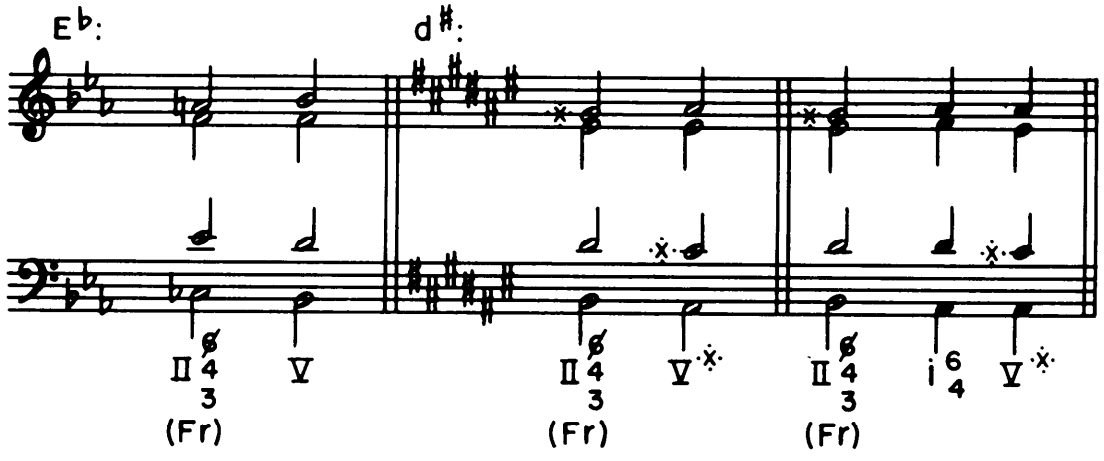


FIGURE 16.2. The French Augmented Sixth

GERMAN

There are two forms of the *German sixth.* The first is constructed on the raised subdominant scale degree and is used in first inversion. It will progress to the dominant chord in major or minor. It may also progress to the tonic six-four followed by the dominant chord in minor. It is analyzed and figured as $\text{IV}\flat\overset{\text{ø}}{5}_{3}$. The parallel fifths that occur in resolving this chord to the dominant are acceptable, but they should not appear in the outer voices.

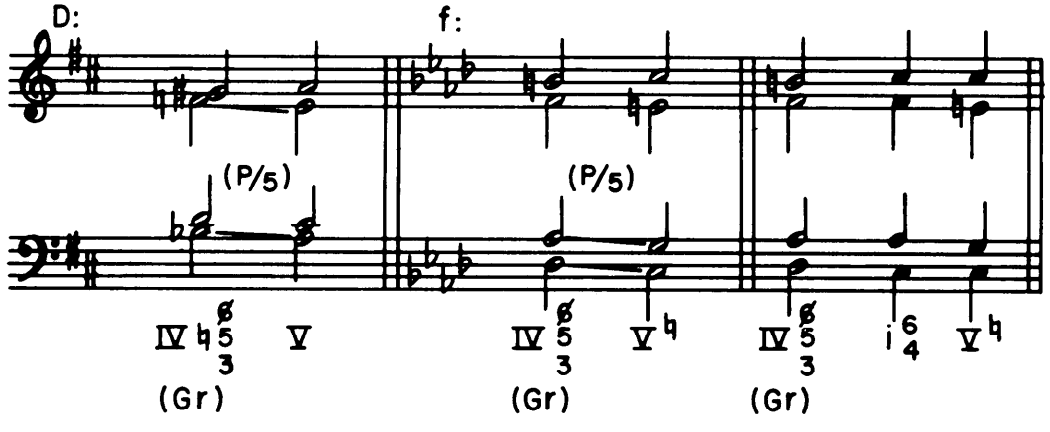


FIGURE 16.3 The German Augmented Sixth on the Raised Subdominant

The second form of the *German sixth* is constructed on the raised supertonic scale degree and is used in second inversion. It will progress to the tonic six-four followed by the dominant chord in major. It is analyzed and figured as $\text{II}^{\#6}_{4\ 3}$.

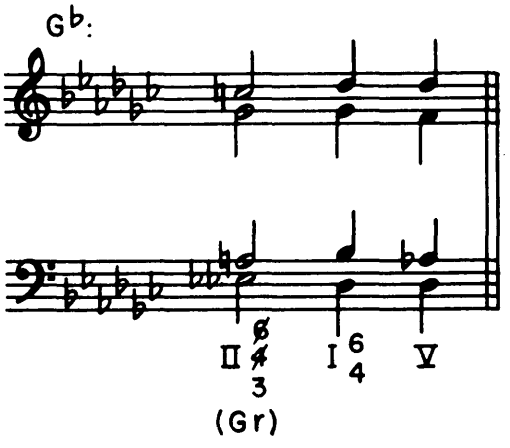


FIGURE 16.4. The German Augmented Sixth on the Raised Supertonic

Occasionally, other forms of augmented sixth are used in different inversions or are constructed on other scale degrees leading to other than dominant chords. The interval relationships must remain intact and chromatic tendencies must be followed.

CHAPTER 17

Neapolitan Sixth Chord

A *Neapolitan sixth* chord is a major triad constructed on the lowered supertonic scale degree and is used in first inversion. It is analyzed and figured as $\text{II}^{\flat 6}_{\flat 3}$. $\text{II}^{\flat 6}_{\ 3}$. The chord has a subdominant function. The third is always doubled.

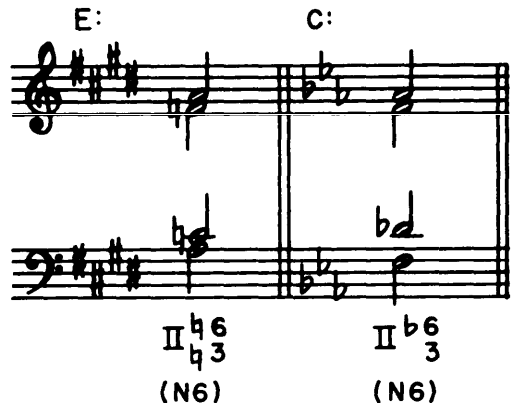


FIGURE 17.1. The Neapolitan Sixth Chord

The N6 chord progresses to dominant harmony or dominant harmony decorated by tonic six-four. When resolving to the dominant chord the lowered supertonic (root of N6) moves to the leading tone (third of V). This produces a cross relation which is not objectionable.

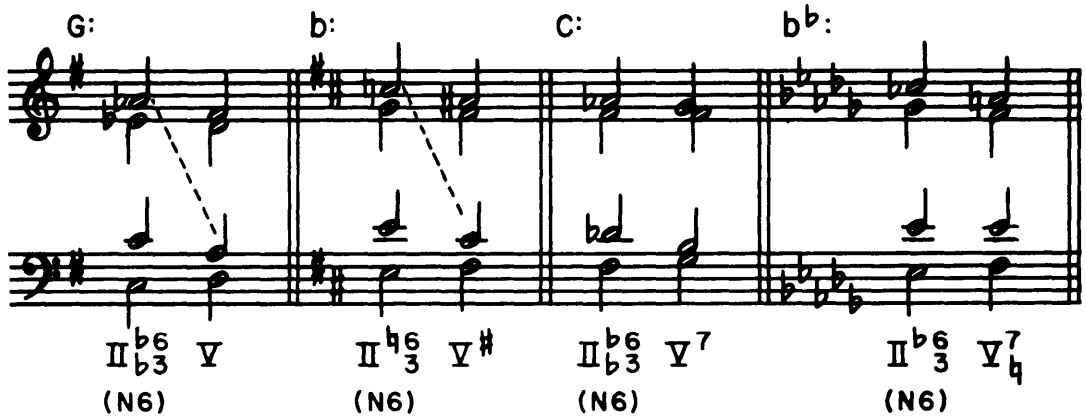


FIGURE 17.2. Progressions of the Neapolitan Sixth

The Neapolitan chord may occur in root position progressing to a root position tonic chord. The fifth will ascend to the tonic to avoid parallel fifths.

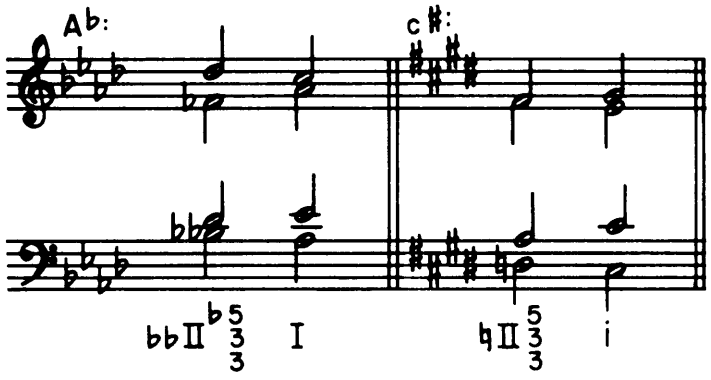


FIGURE 17.3. Voice Leading of the Neapolitan Chord in Root Position

The Neapolitan sixth chord may be preceded by its secondary dominant or secondary dominant seventh chord.

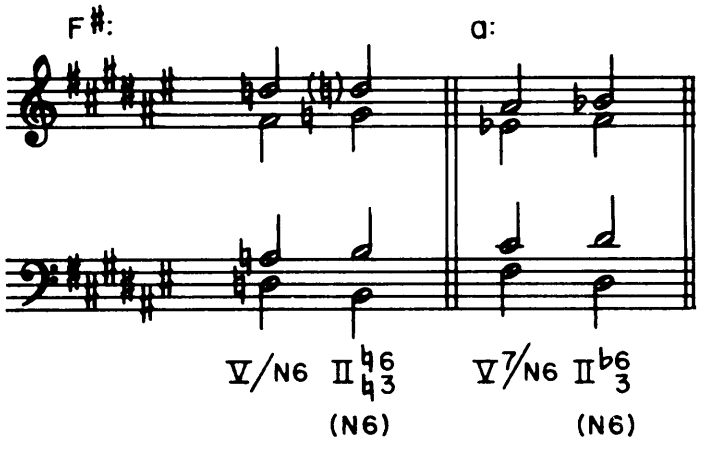


FIGURE 17.4. The Neapolitan Sixth Preceded by Secondary Dominant

Chords similar to the Neapolitan chord may be found on other scale degrees progressing to other than dominant chords.

CHAPTER 18

Advanced Modulation

Advanced modulation is the process of moving to a distantly related key or to a closely related key using advanced modulation techniques. All pivot chords may be described as:

old key	**new key**
Diatonic	Diatonic
Diatonic	Chromatic
Chromatic	Diatonic
Chromatic	Chromatic

Pivot chords may be enharmonically spelled.

DIATONIC TO DIATONIC

The pivot chord will be diatonic in both the old and new keys using diatonic to diatonic modulations.

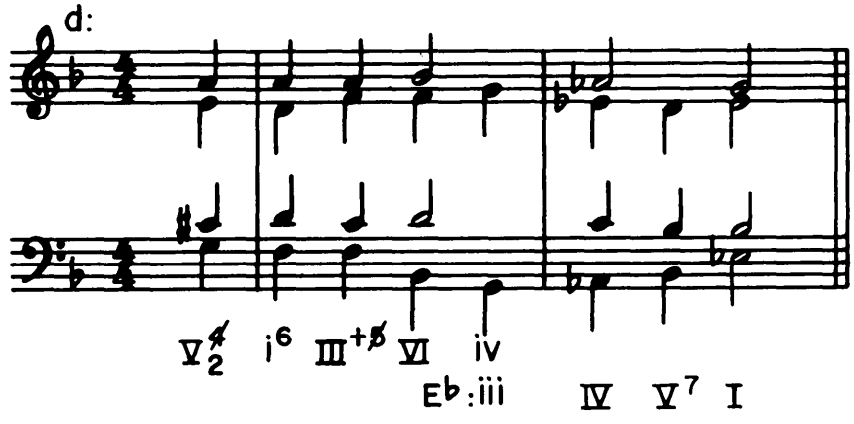


FIGURE 18.1. Modulation Using the Diatonic to Diatonic Pivot Chord

DIATONIC TO CHROMATIC

The pivot chord will be diatonic in the old key and chromatic in the new key using diatonic to chromatic modulations.

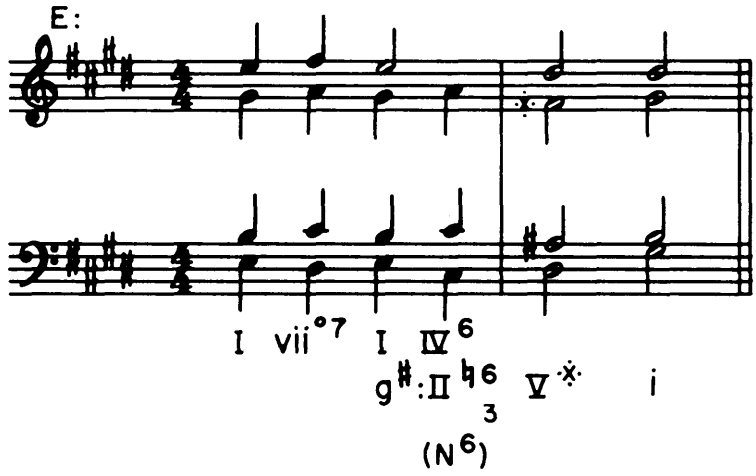


FIGURE 18.2. Modulation Using the Diatonic to Chromatic Pivot Chord

CHROMATIC TO DIATONIC

The pivot chord will be chromatic in the old key and diatonic in the new key using chromatic to diatonic modulations.

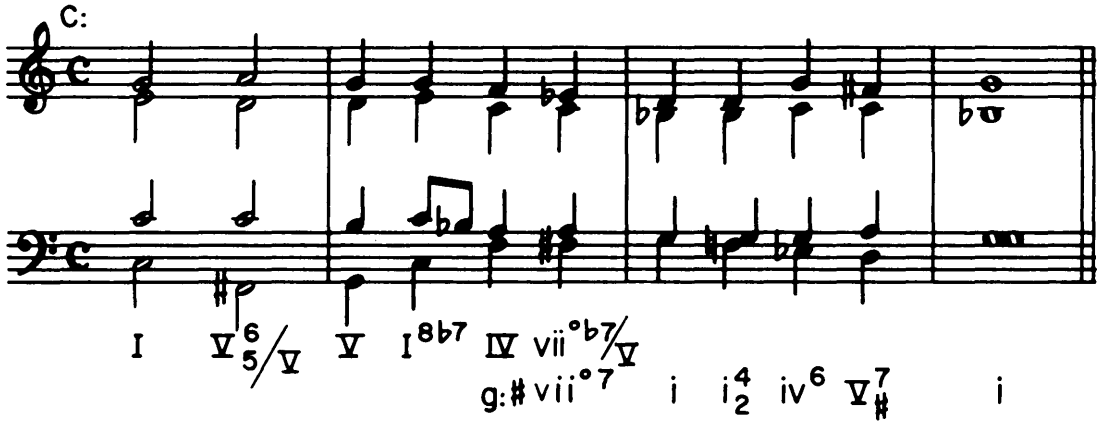


FIGURE 18.3. Modulation Using the Chromatic to Diatonic Pivot Chord

CHROMATIC TO CHROMATIC

The pivot chord will be chromatic in both the old and new keys using chromatic to chromatic modulations.

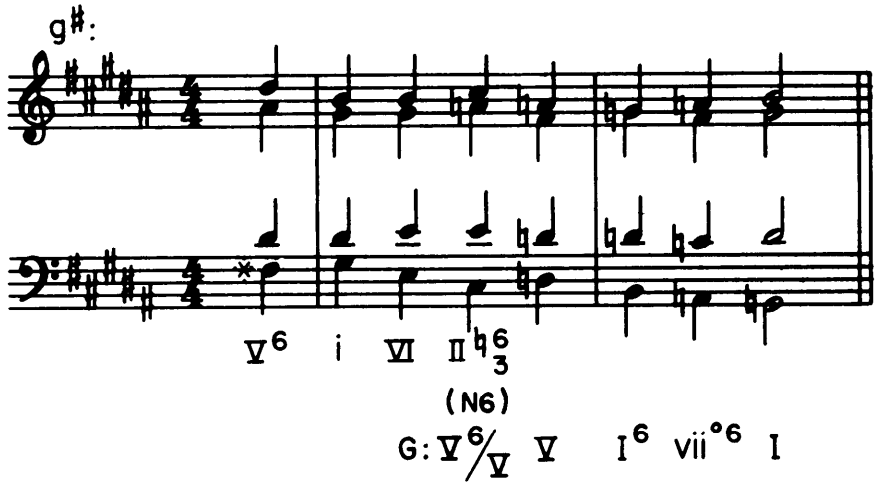


FIGURE 18.4. Modulation Using the Chromatic to Chromatic Pivot Chord

ENHARMONIC MODULATION

An *enharmonic modulation* occurs when the pivot chord sounds the same in both keys and is enharmonically spelled in the new key.

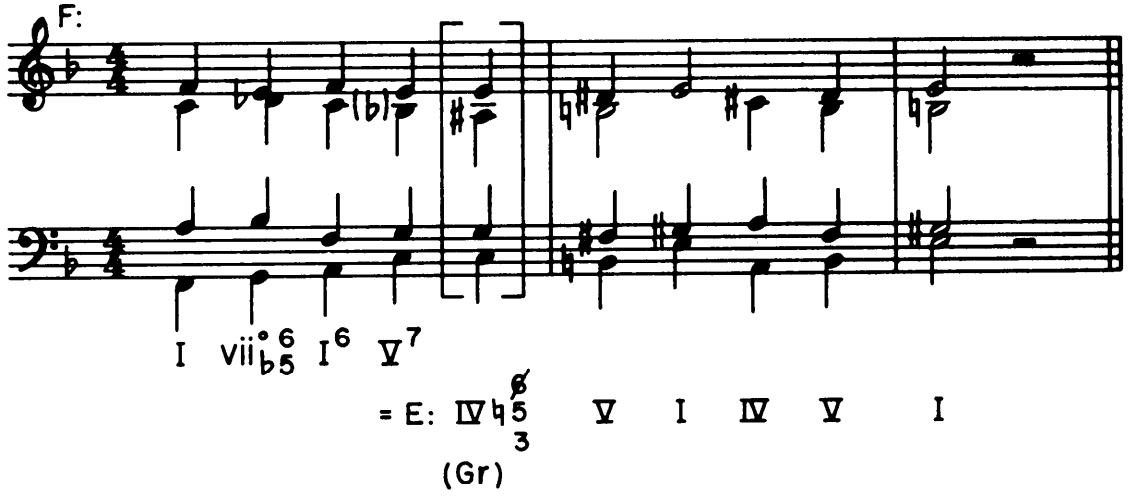


FIGURE 18.5. Modulation Using the Enharmonically Spelled Pivot Chord

CHANGE OF MODE

A *change of mode* is a modulation that occurs when a major or minor key modulates to its parallel key.

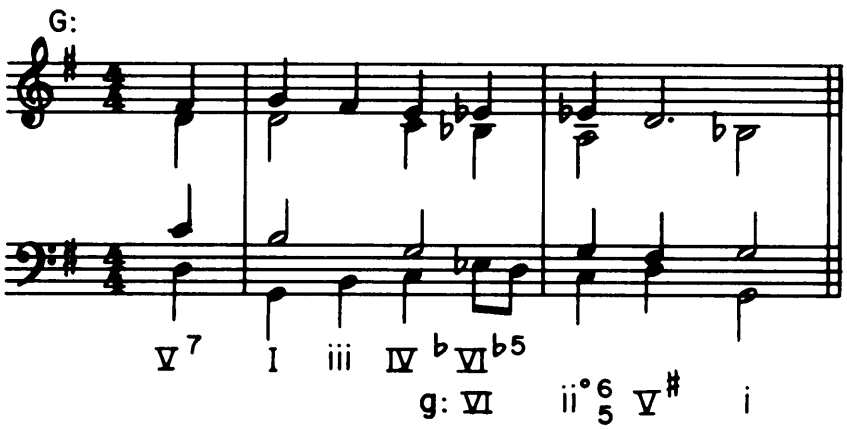


FIGURE 18.6. Change of Mode

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