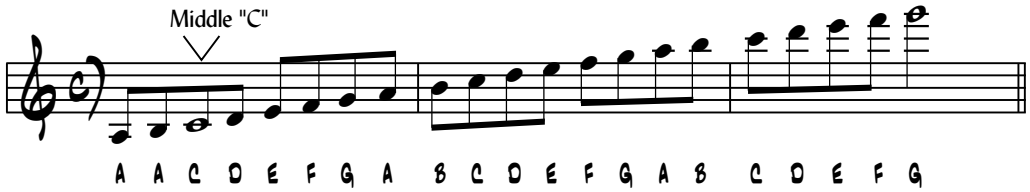
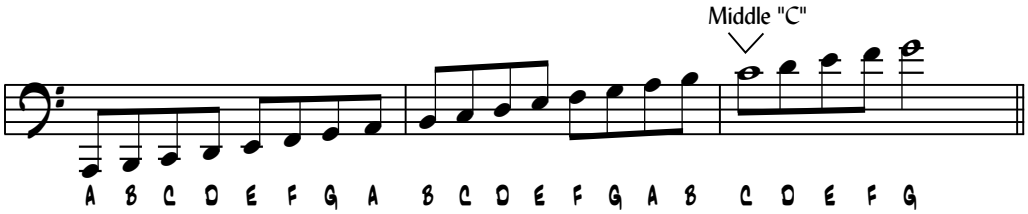
The Jazz Improvisation
Chord/Scale Workbook

"The no shortcuts, putting the work back into it, workbook. Do the work, and you will know your scales!"

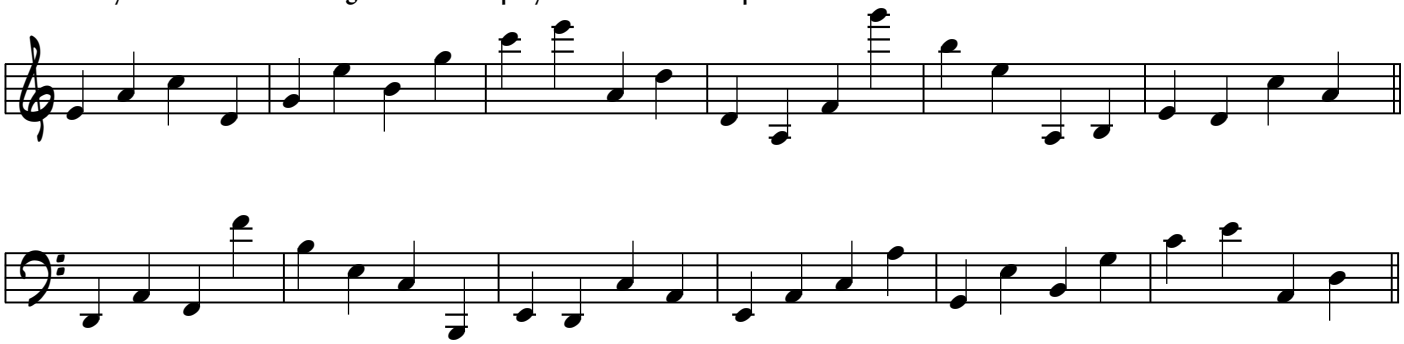
Treble Clef

Exercise 1 - Treble and Bass Clefs

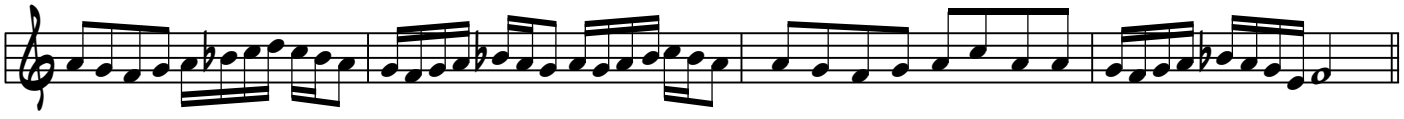




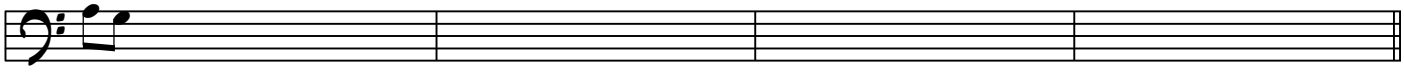
1. Identify each of the following notes. Then play each note on the piano.



2. Copy the following treble clef melody to bass clef so it sounds one octave below the original and play it on your instrument. Then play both melodies on the piano. If possible play them with two hands in octaves.



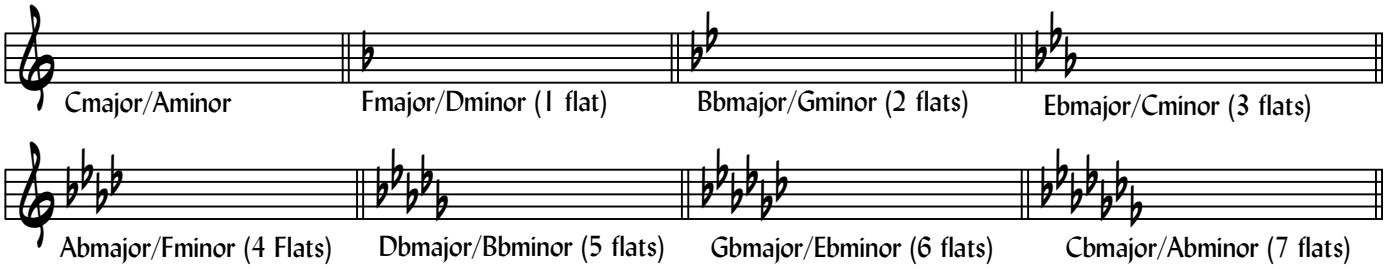
(Starting notes)



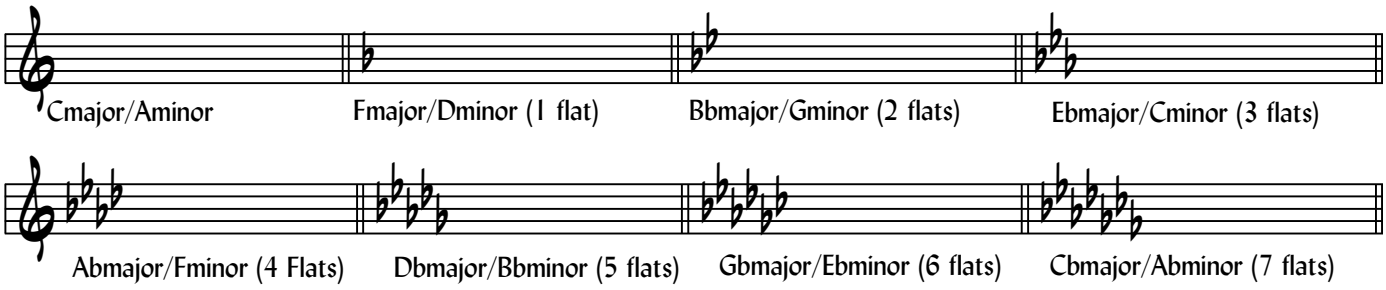
Exercise 2 - Key Signatures

1. Memorized the order of flats: Bb, Eb, Ab, Db, Gb, Cb, Fb
2. Memorize the order of sharps: F#, C#, G#, D#, A#, E#, B#
3. Memorize the placement of key signatures for both treble and bass clef.
4. Memorize the number of flats or sharps for every major and minor key.

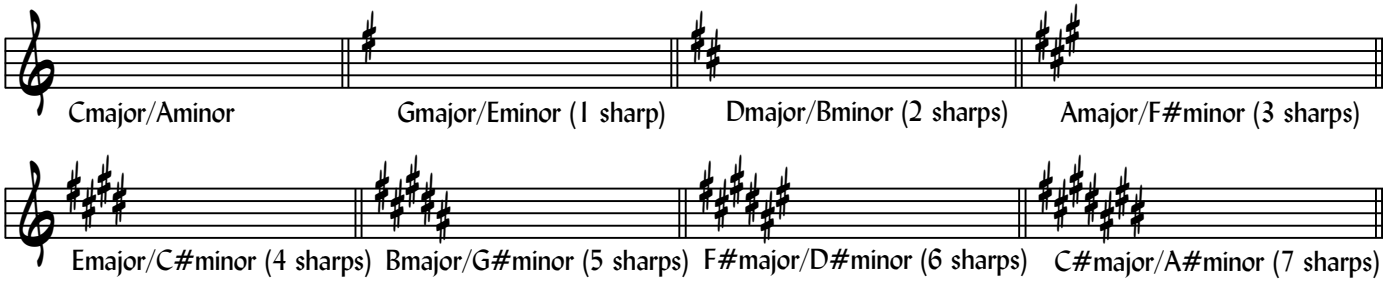
Key Signatures with flats - Treble Clef:



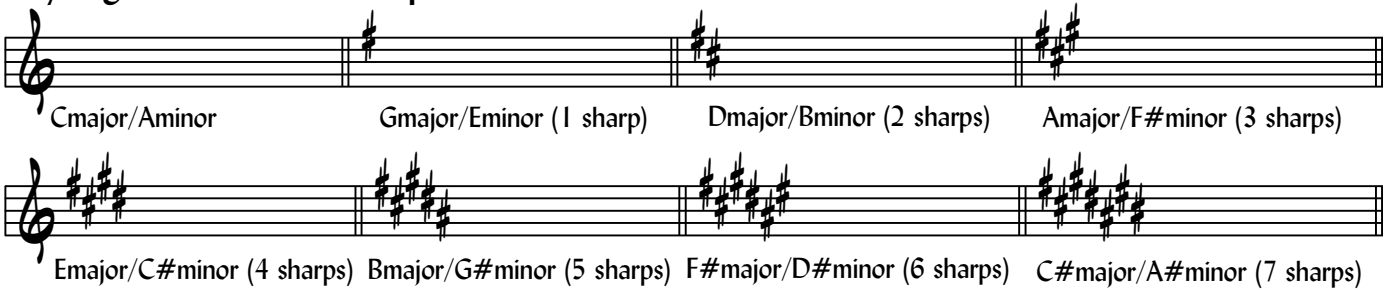
Key Signatures with flats - Bass Clef:



Key Signatures with Sharps - Treble Clef:



Key Signatures with Sharps - Bass Clef:



Exercise 2 - Key Signatures

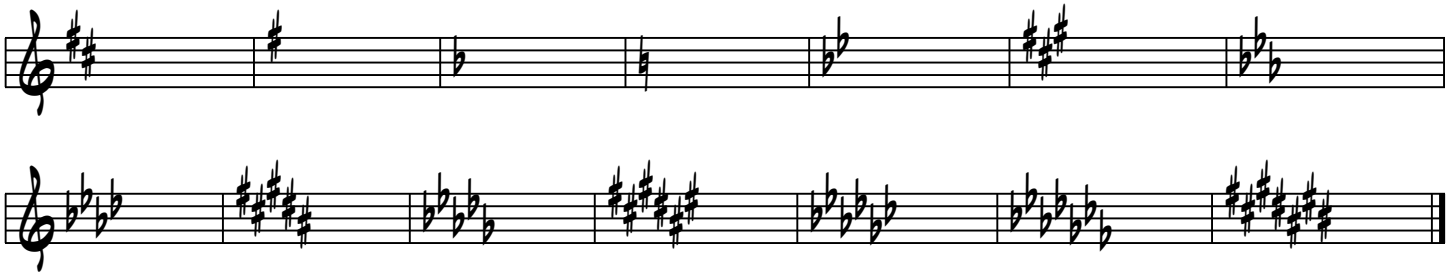
1. List the order of sharps five times:

2. List the order of flats five times:

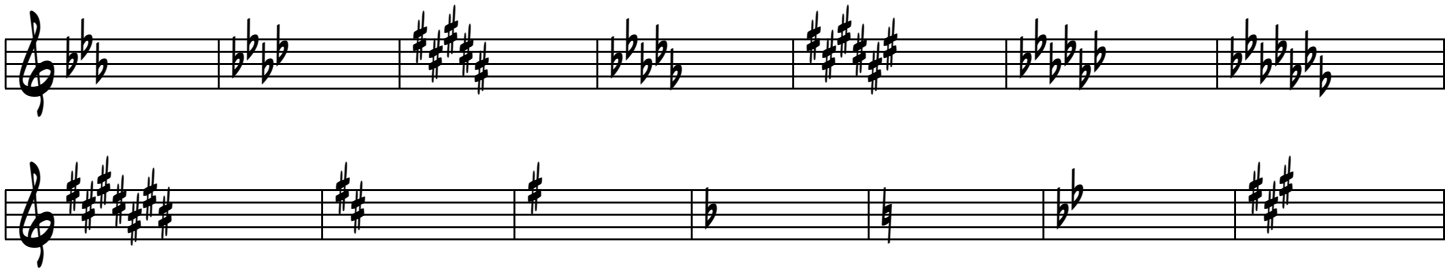
3. List the order of sharps in reverse order:

4. List the order of flats in reverse order:

5. Identify each of the following major keys:



6. Identify each of the following minor keys:



7. Notate the requested key signature. Note that the clef changes every measure.

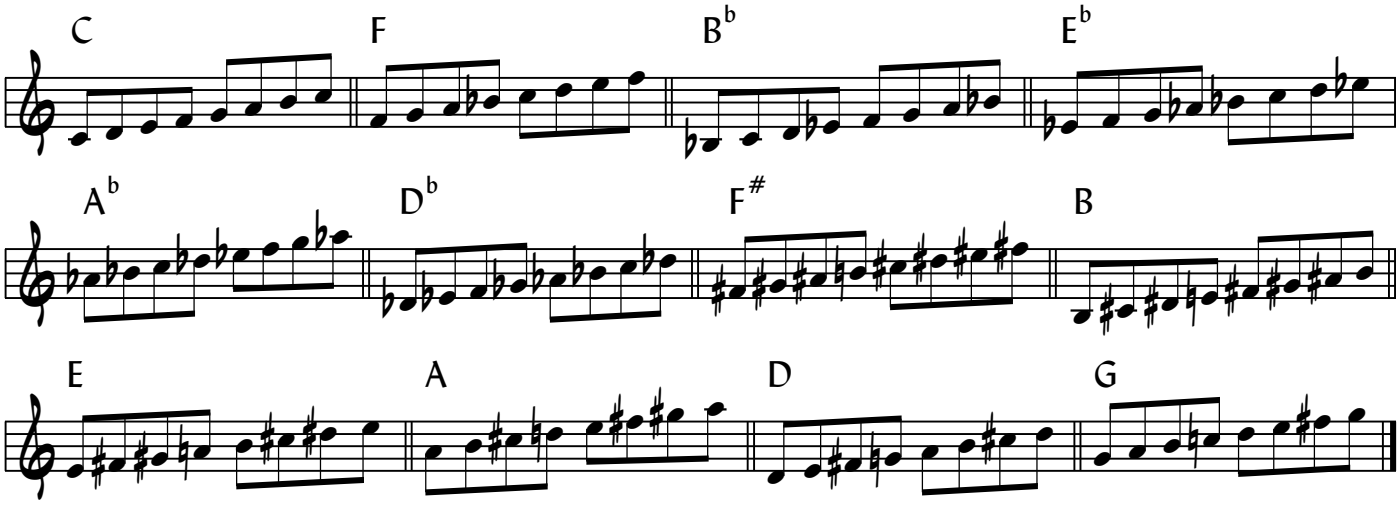
Amajor Bminor Fminor Dbmajor

Ebmajor Bbmajor Abmajor G#minor

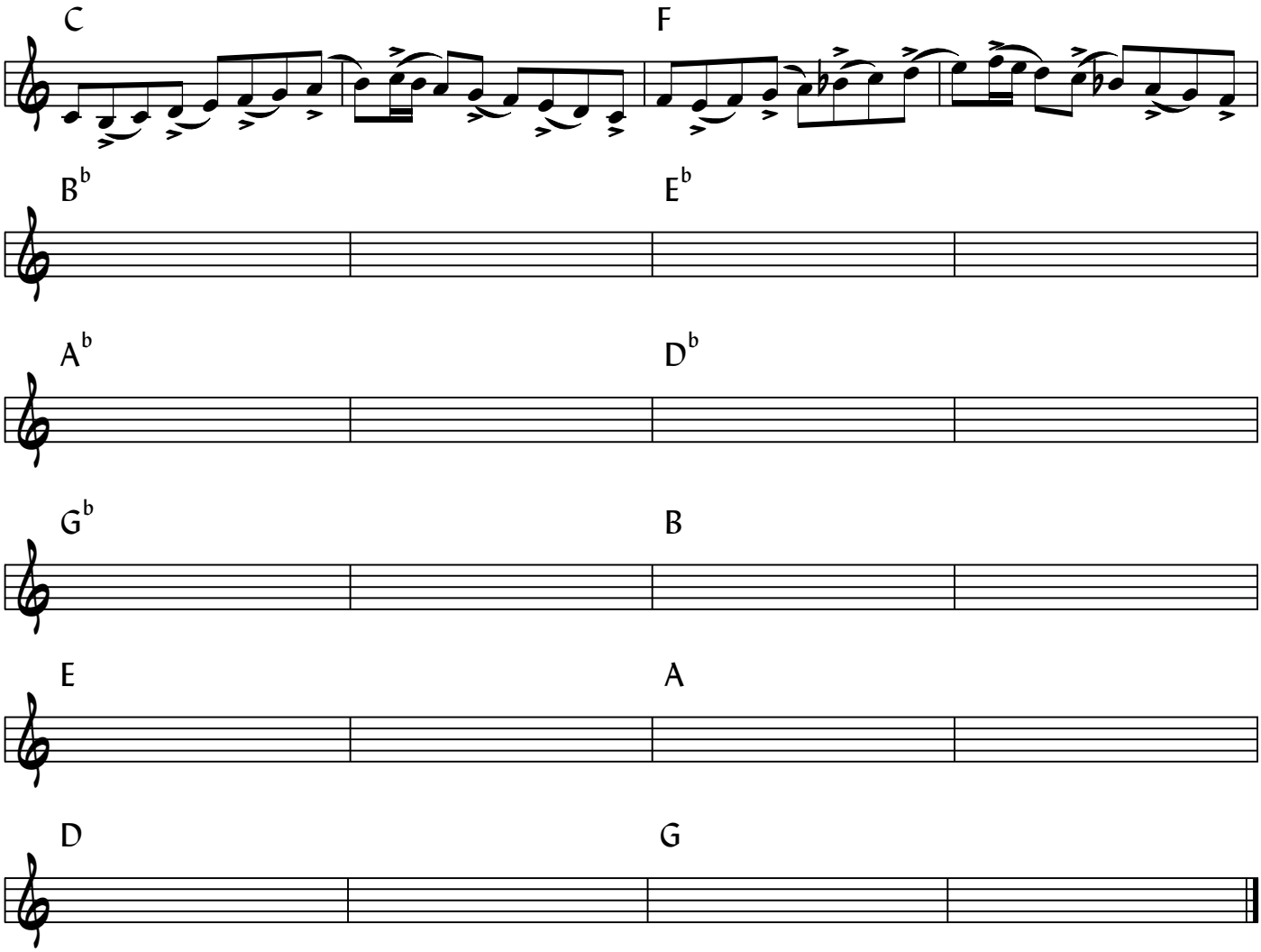
Dminor Eminor Emajor Dmajor

Exercise 3 - Major Scales

1. Learn all major scales on your instrument and be able to play them on the piano.

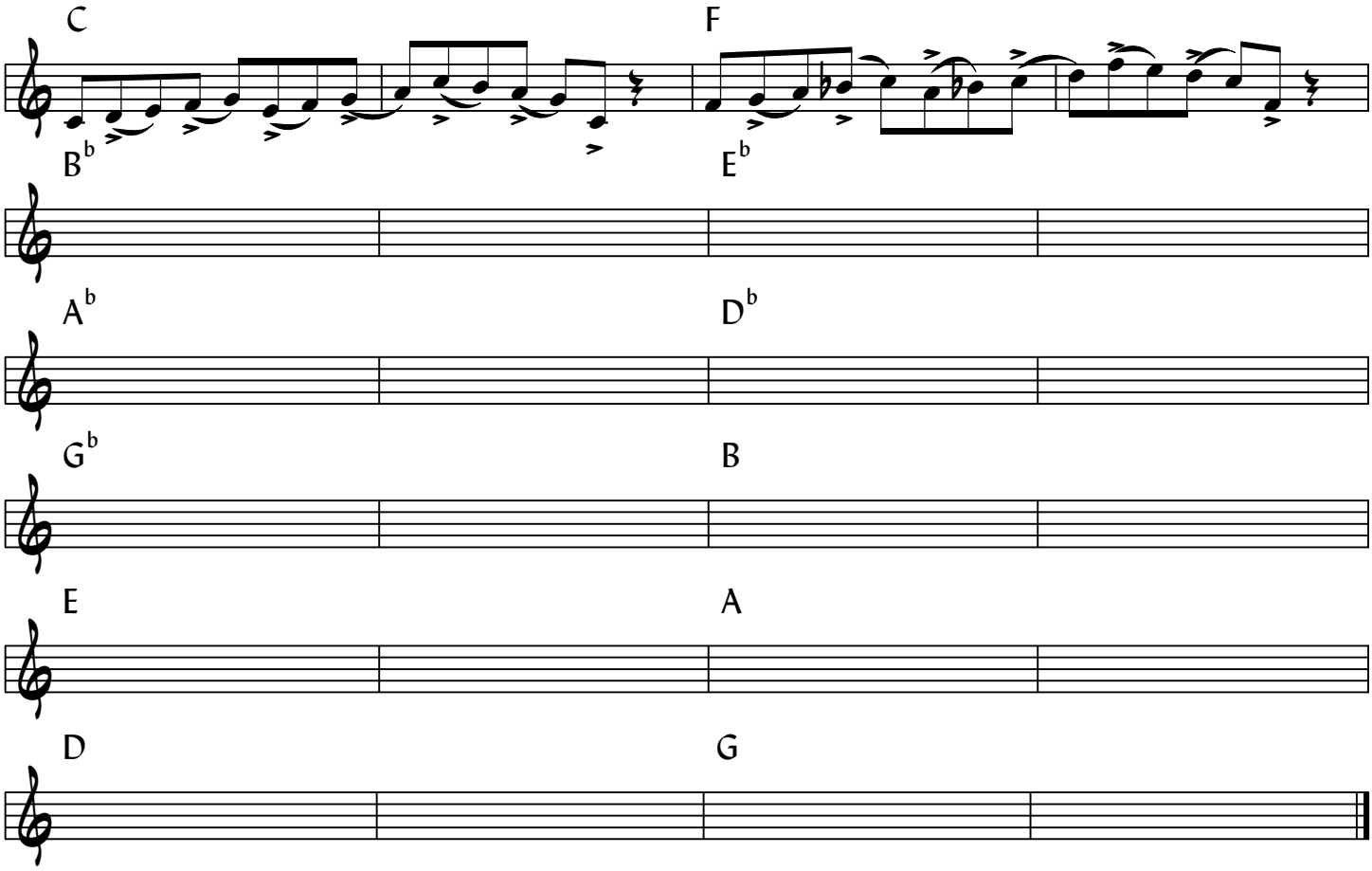


2. Notate the following pattern for all major scales as marked. Learn and memorize on your instrument.

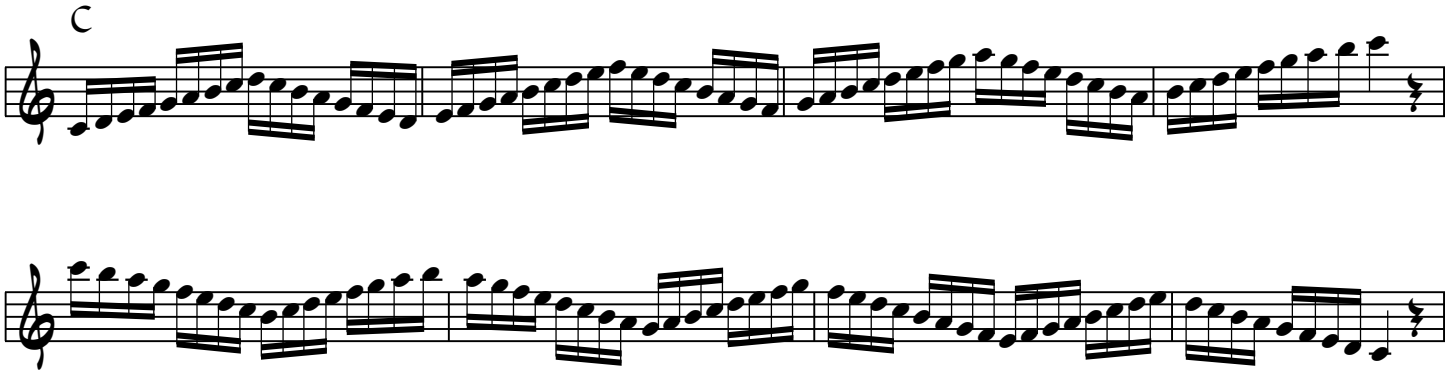


Exercise 3 - Major Scales

3. Notate the following pattern for all major scales as marked. Learn and memorize on your instrument.



4. Memorize the following major scale pattern in all 12 keys on your instrument and on piano.
Play as slowly as needed.

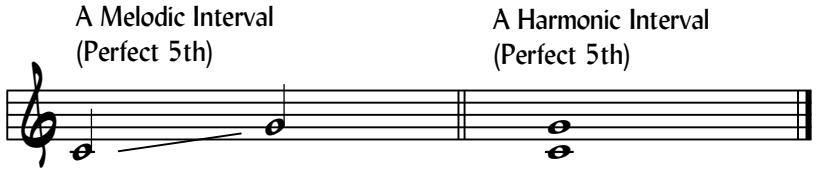


Exercise 4 - Intervals

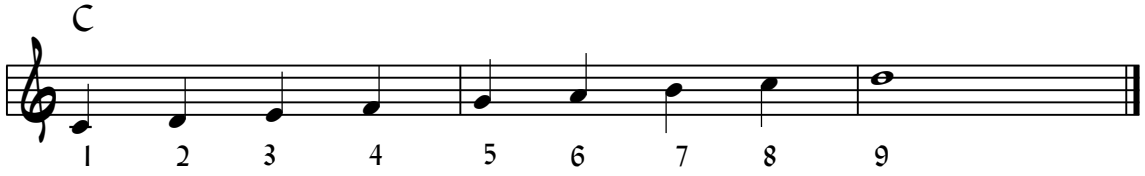
Interval = The distance between two notes.

A Melodic Interval measures the distance between two notes sounding in succession as in a melody.

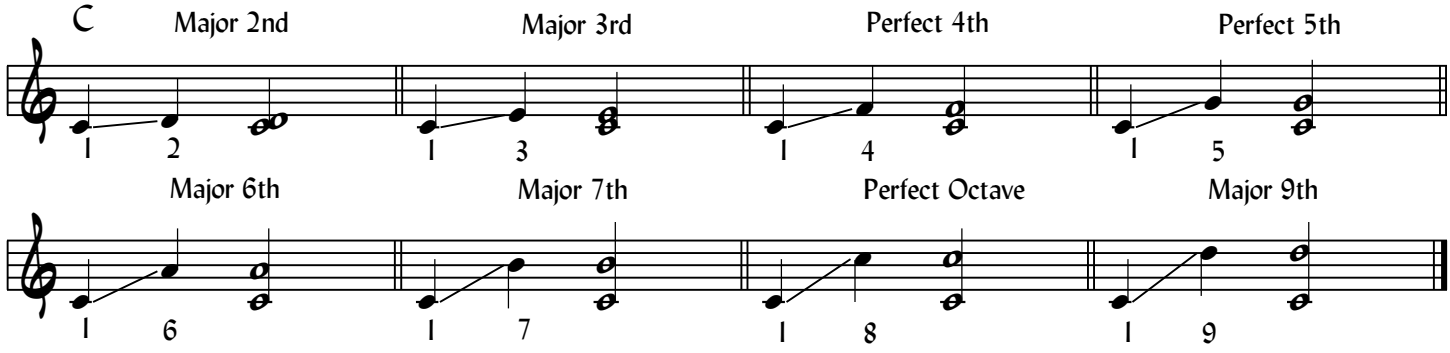
A Harmonic Interval measures the distance between two notes sounding at the same time as in a chord.



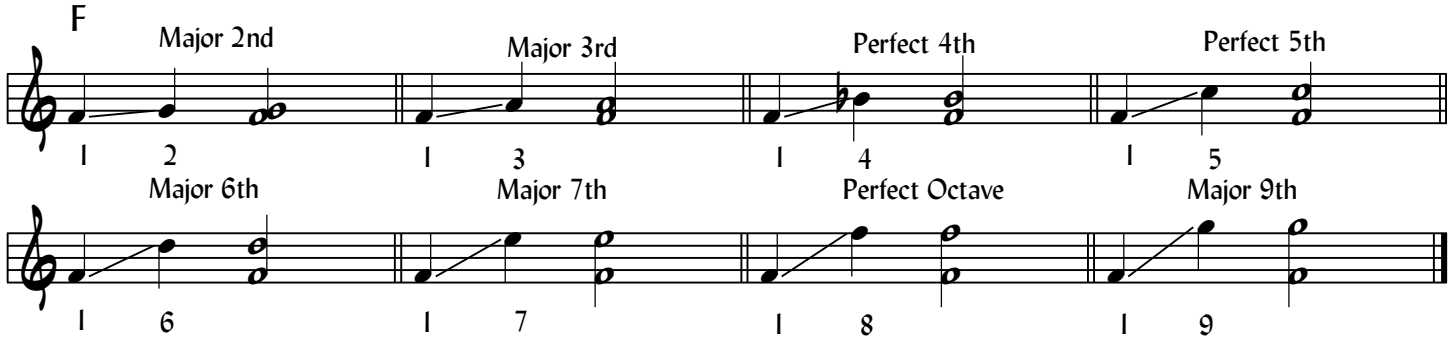
For ease of initial understanding and indentification, let's consider all intervals to be measured from the tonic (or root, or "1") of a major scale. To avoid confusion, all intervals need to be measured from the lower note up to the higher note. Begin by numbering each note of a major scale:



Major Key intervals from C. Play these intervals on the piano, your instrument and sing them.

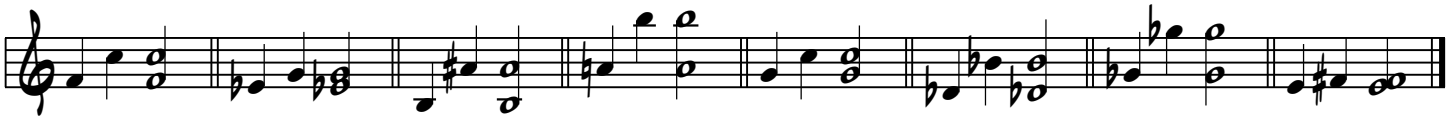


All major scales being equal, 1-3 will be a Major 3rd in all keys, 1-6 will be a Major 6th in all keys, etc. Below is the same table transposed to the key of F major. Play these intervals on the piano, your instrument and sing them.

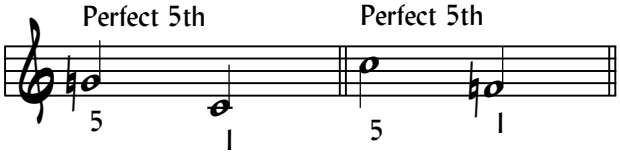


Exercise 4 - Intervals

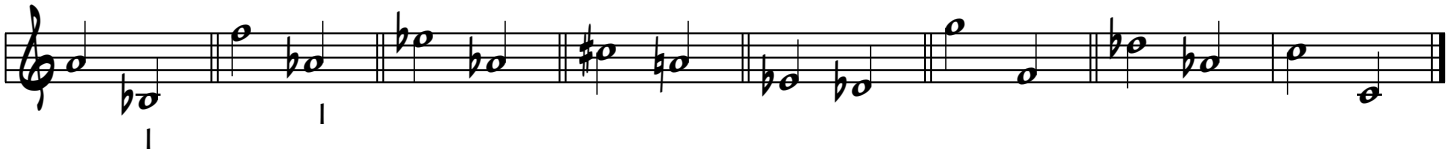
1. Identify each of the following intervals. Remember, the lower note is always "1" regardless of the actual key.



For melodic intervals downward, the same rules apply. Always consider the lower note to be "1" even though the it would be the second note heard.



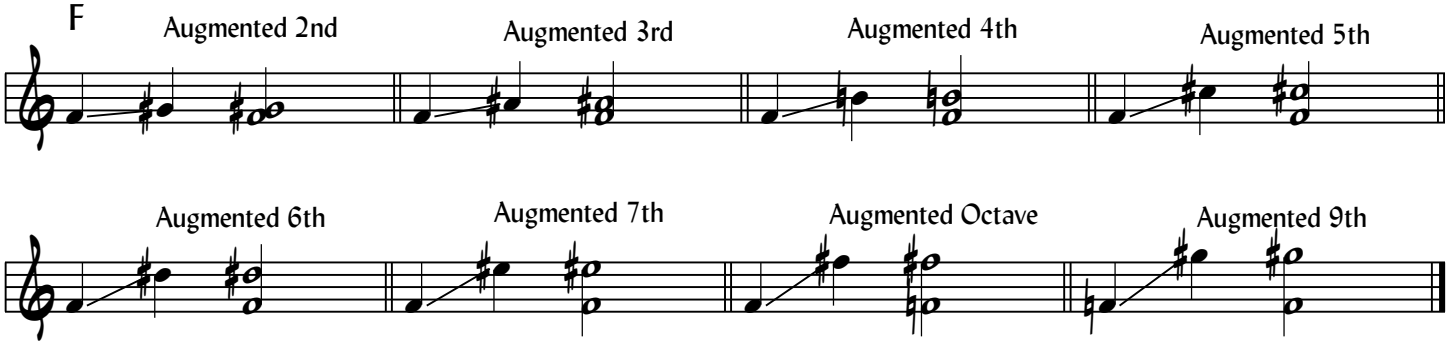
2. Identify each of the following intervals.



So far we have identified two kinds of intervals, Major and Perfect. When an interval is raised or lowered it becomes:

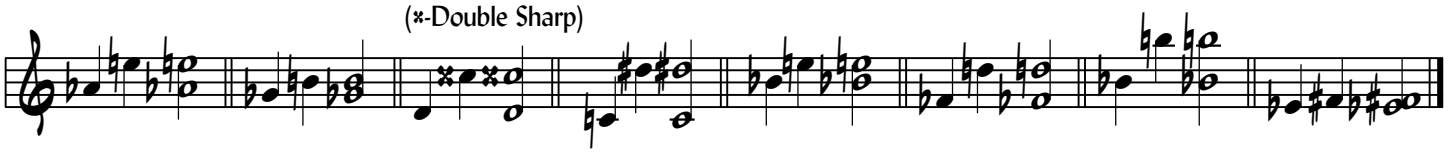
Major Interval raised = Augmented
Major Interval lowered = Minor (When a minor interval is lowered, it becomes diminished.)
Perfect Intervel raised = Augmented
Perfect Interval lowered = Diminished

Raised (augmented) intervals from F: (play on the piano and sing)

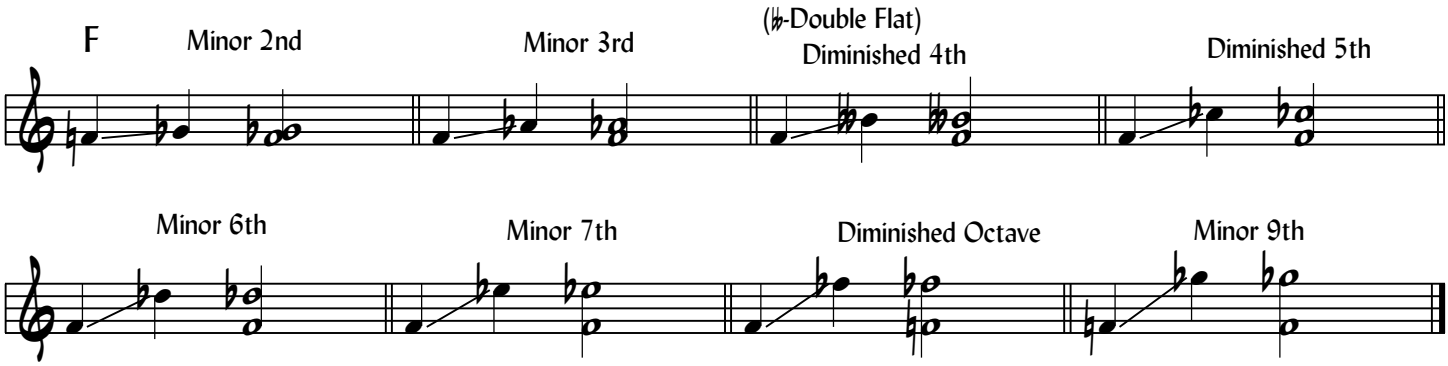


Exercise 4 - Intervals

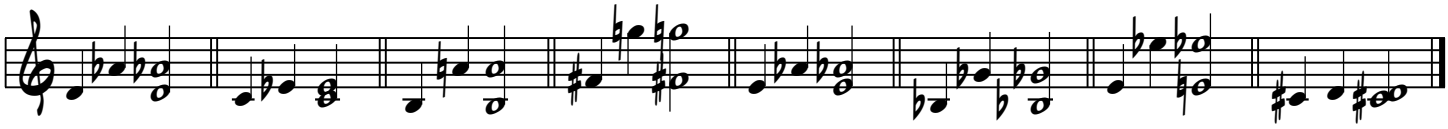
3. Identify each of the following intervals.



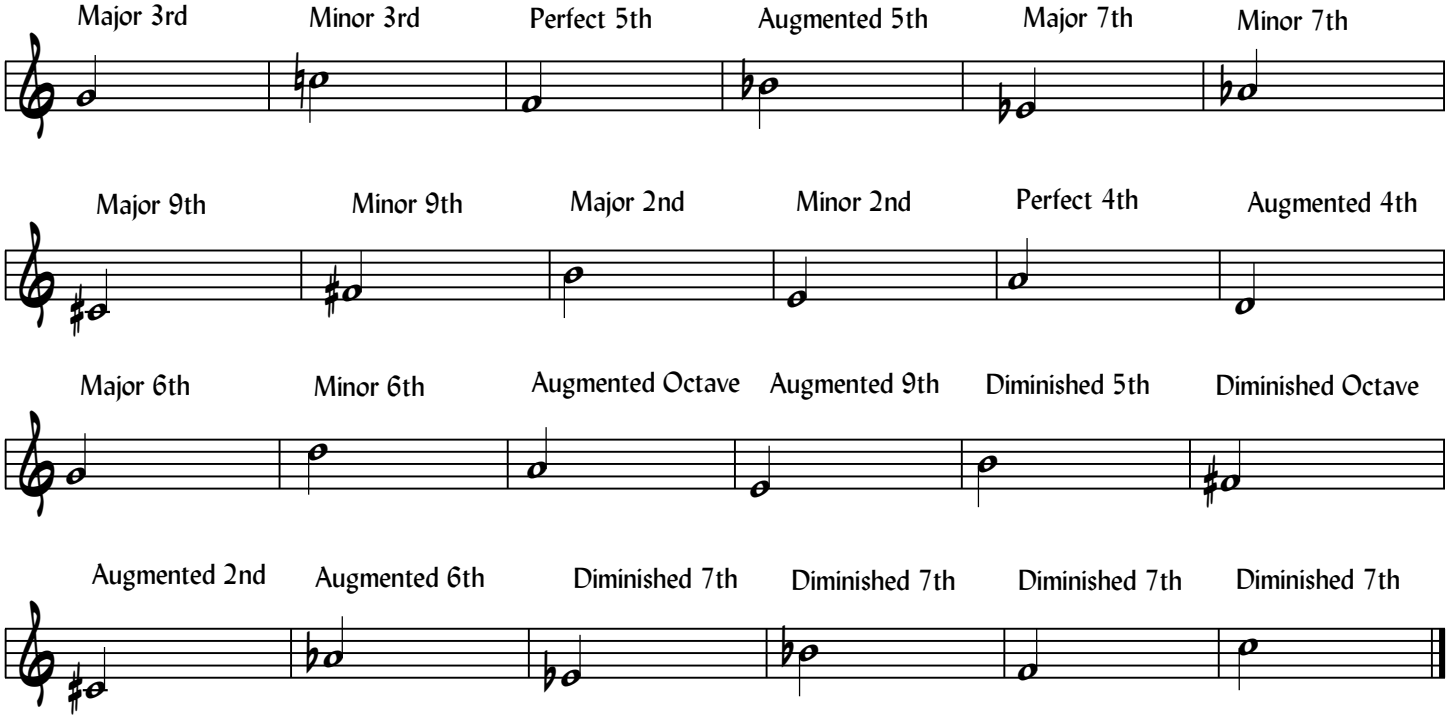
Lowered (minor and diminished) intervals from F: (play on the piano and sing)



4. Identify each of the following intervals.



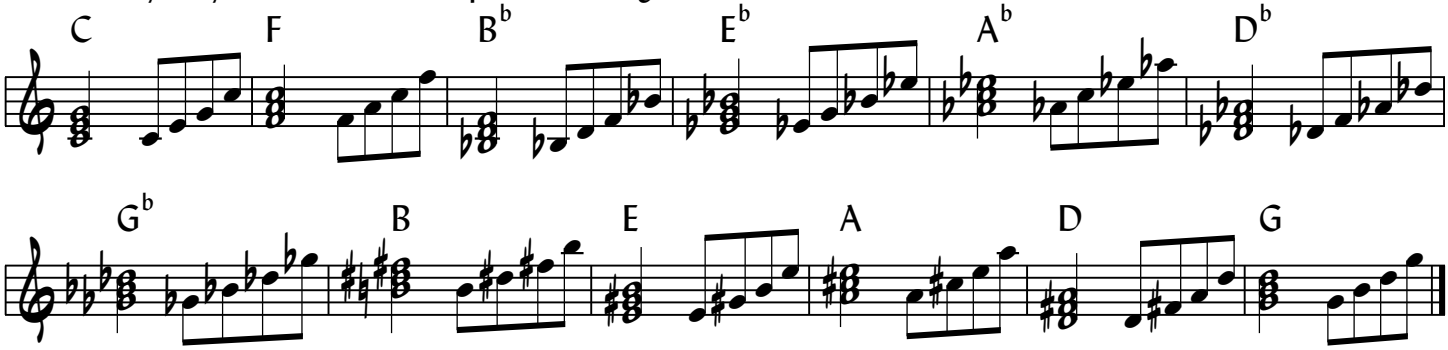
5. Notate the interval above the given note.



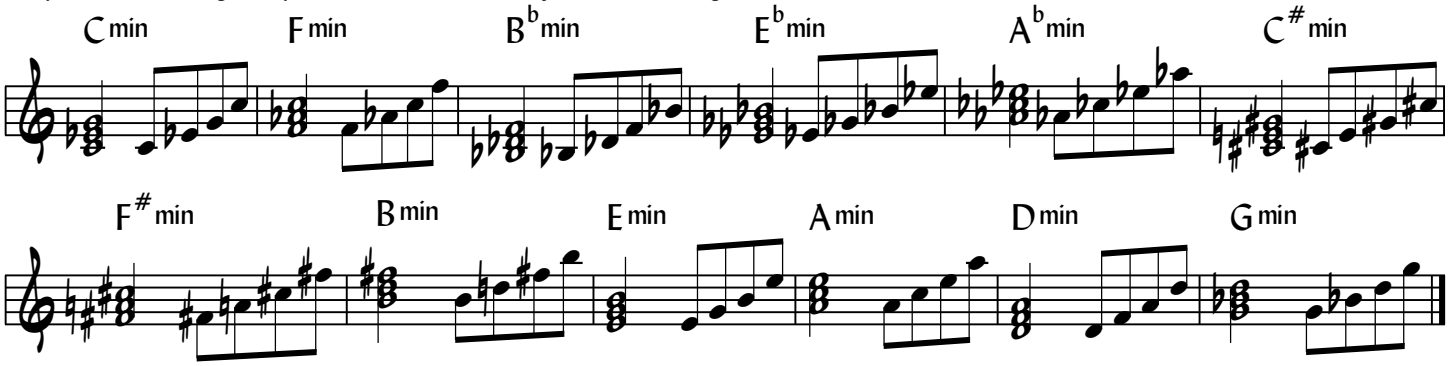
Exercise 5 - Triads

Triad = A three note chord spelled in thirds.

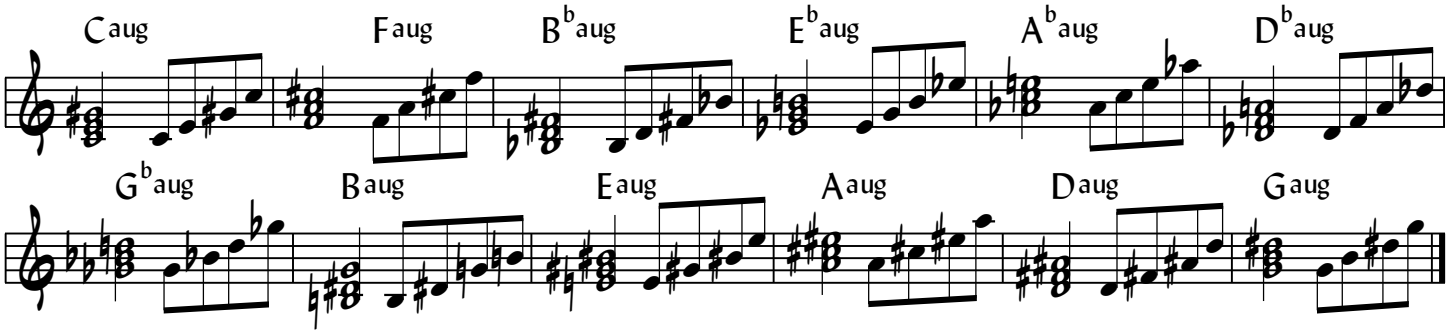
1. A major triad is spelled using 1, 3 & 5 of a major scale. The symbol for a triad is notated as a single note name. Play on your instrument, on piano and sing.



2. A minor triad is spelled 1, b3, 5 of a major scale. The symbol for a minor triad is a note name followed by a minor indicator. In common practice, the minor indicator could be any of the following: Cmin, Cm, or C- Play the following on your instrument, on piano and sing.

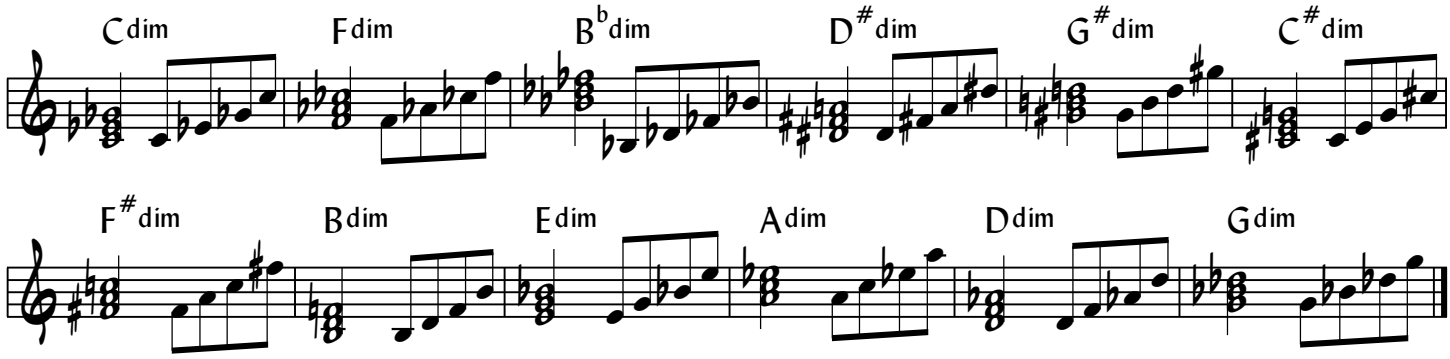


3. An augmented triad is a major triad with a raised 5th, or 1, 3, #5 of a major scale. It will usually be notated as a letter name followed by aug, a plus sign or possibly #5. Play each of them on your instrument, on piano and sing.

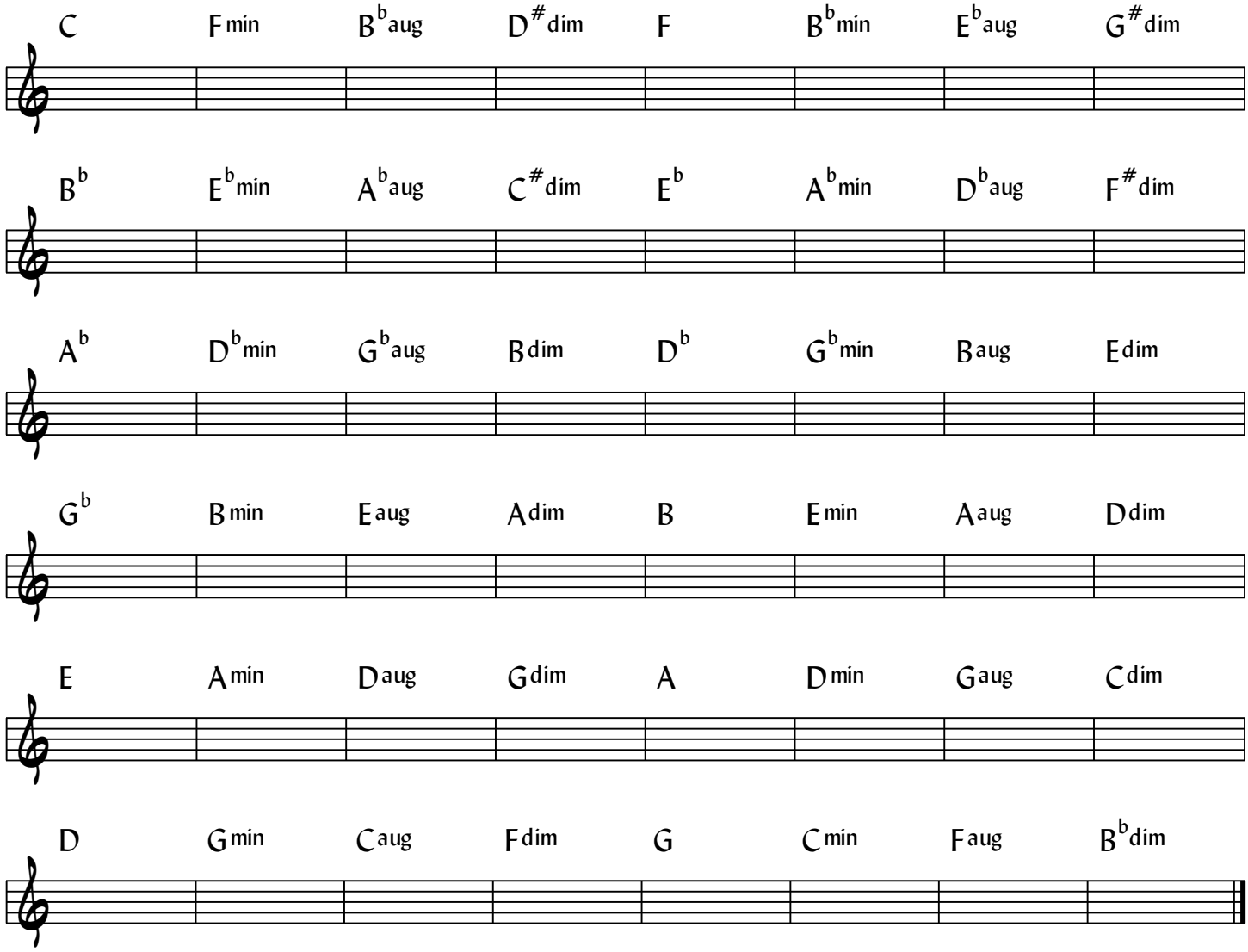


Exercise 5 - Triads

4. A diminished triad is a minor triad with a lowered 5th, or 1, b3. b5 of a major scale. It will usually be notated with a letter name followed by dim. or a small circle. (Cdim, C°) Play the following on your instrument and on a piano.



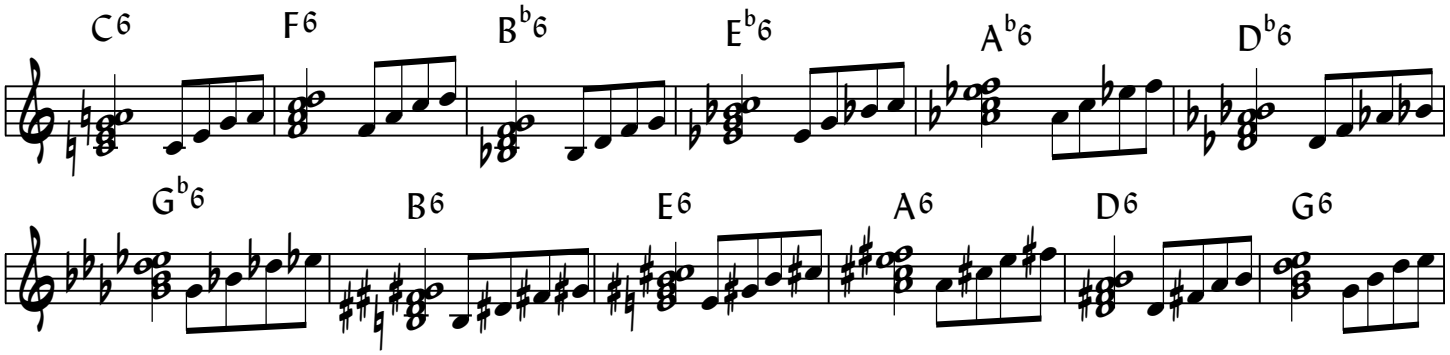
5. Spell each of the following triads.



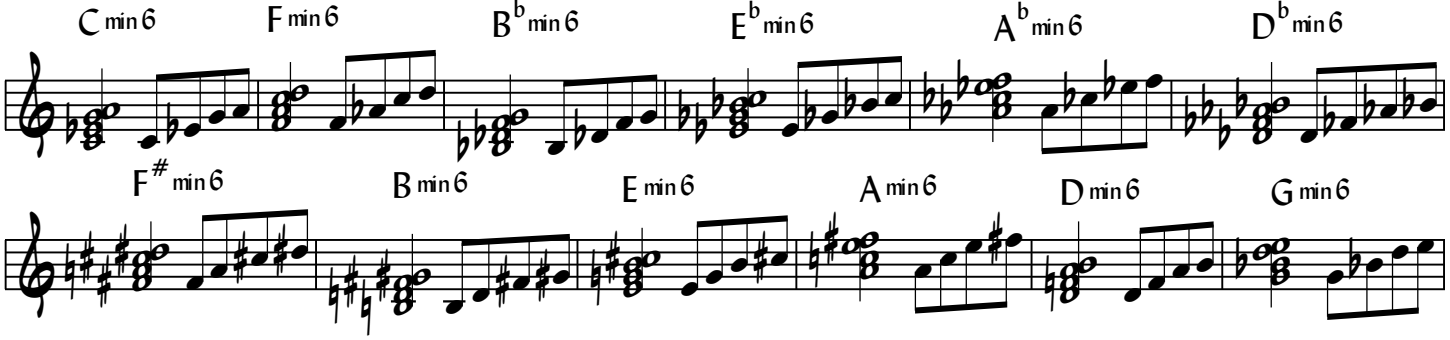
Exercise 6 - Six chords

Six chords are four note chords consisting of a triad with an added 6th above the root. There are two forms of six chords that are commonly used, major and minor. Major six chords are often used as substitutes for a major 7 chord to avoid conflicts between the melody and the major 7. Minor six chords are used as substitutes for minor one and four chords (often to avoid specifying a specific 7th) and in fake books are often inversions of minor7b5 chords. For now, concentrate on their spelling and sound at the piano.

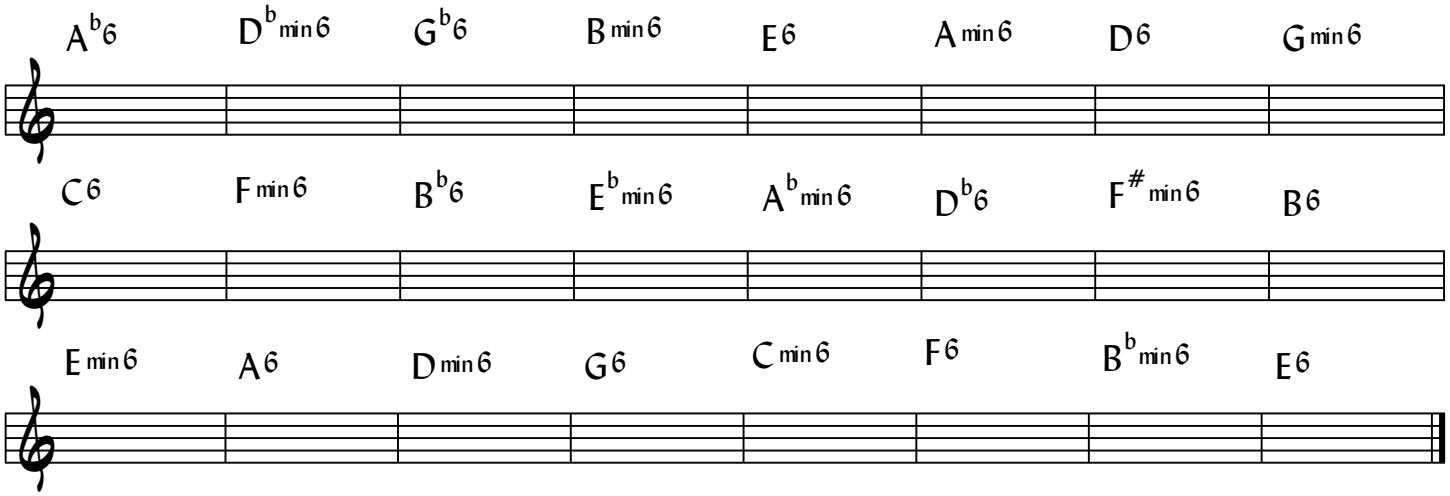
1. Major 6 chords are major triads with an added 6th above the bass - 1,3,5,6 of a major scale. They are usually notated as a letter followed by a 6 (C6) or a letter followed by a maj 6. (Cmaj6) Play them on your instrument as well as on piano. Practice playing the chord with your left hand and the arpeggio up an octave with your right.



3. Minor 6 chords are minor triads with an added 6th above the base - 1,b3,5,6 of a major scale. They are usually notated as a letter followed by a min6 (Cmin6), m6 (Cm6) or -6. (C-6) Play them on your instrument as well as on piano. Practice playing the chord with your left hand and the arpeggio up an octave with your right.



4. Spell each of the following 6 chords and play them on your instrument and on the piano.

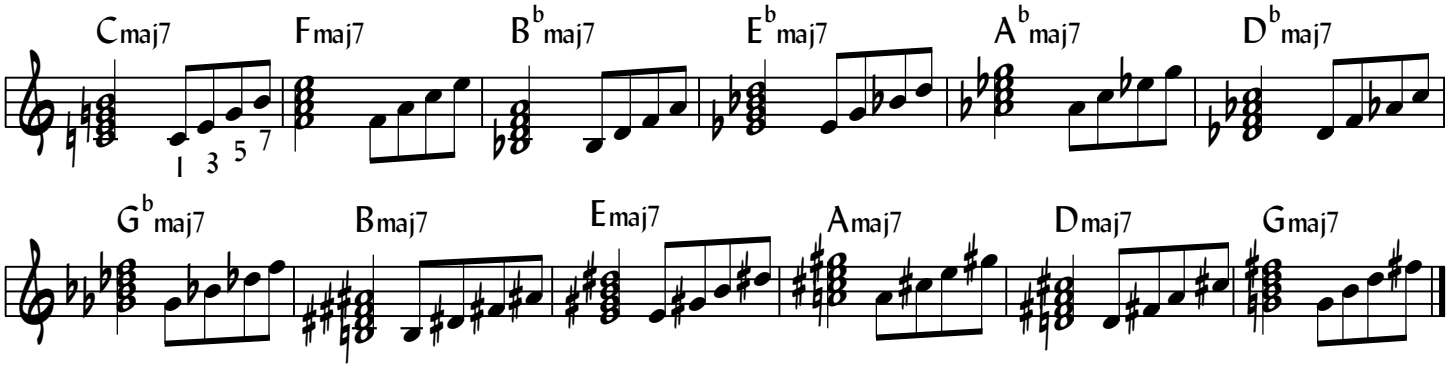


Exercise 7 - Major Seven Chords

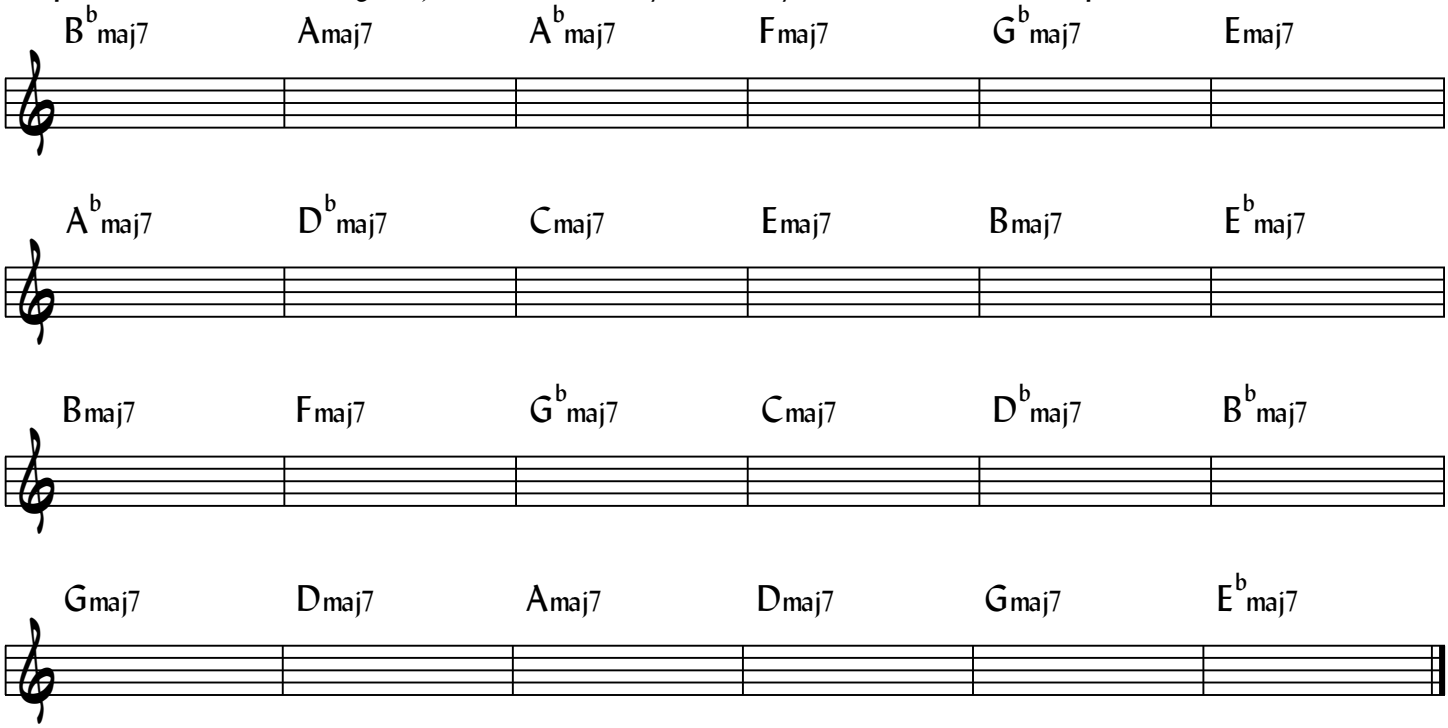
Seven chords are four note chords making up the vast majority of chord symbols found in the jazz repertoire. As the name suggests, seven chords are triads with the addition of a note a 7th above the root. While in practice, additional notes are often added to seven chord, the first step will be to learn them as notated.

The easiest way to spell a major 7 chord is to think of it as a major triad with a major seventh above the root or 1,3,5,7 of a major scale. The chord symbol for a major 7 chord is a note name followed by a Maj 7, (CMaj7) MA7, (CMA7) maj7, (Cmaj7) upper case M7 (CM7) a triangle, either with or without a 7, (C△, C△7) or on very rare occasions as a 7 with a slash through the stem.

1. Play each of the following major 7 chords on your instrument and on the piano.



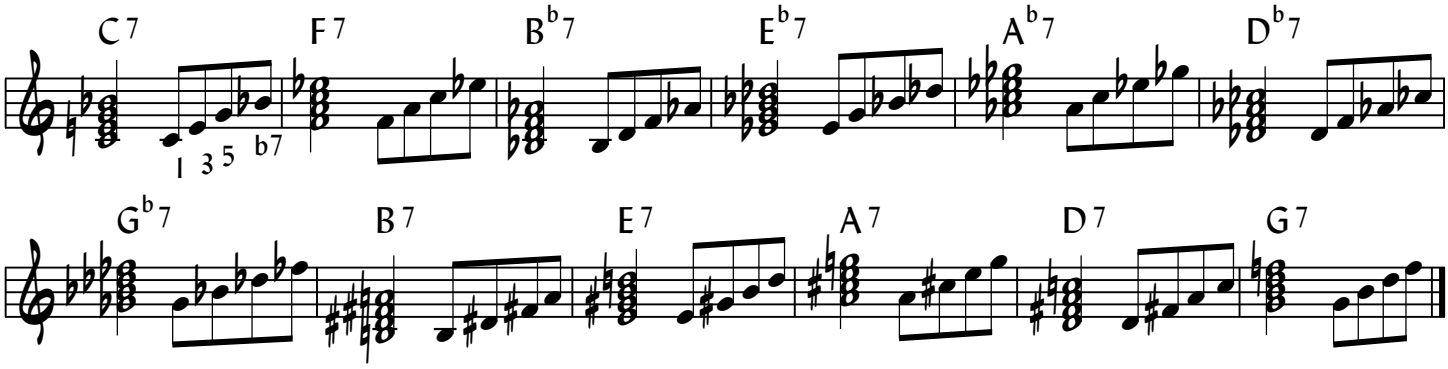
2. Spell each of the following Major 7 Chords. Play each on your instrument and on piano.



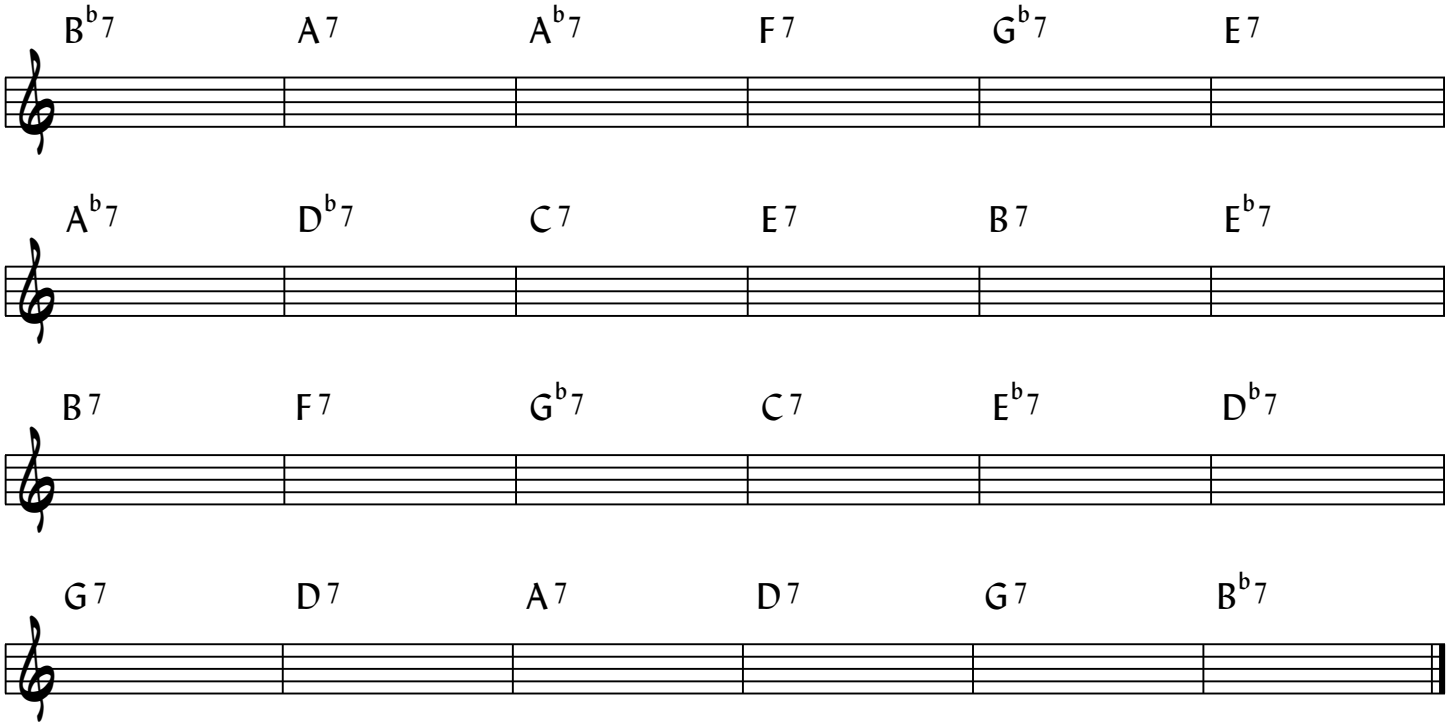
Exercise 8 - Dominant Seven Chords

The chord symbol for a dominant seven chord is a note name followed by the number 7. (Or any number greater than 7. C9, C11 and C13 are all dominant chords with extensions - more on that later) To spell a dominant chord, begin with a major triad and add a minor 7th above the root, or 1,3,5,b7 of a major scale.

1. Play each of the following dominant 7 chords on your instrument and on the piano.



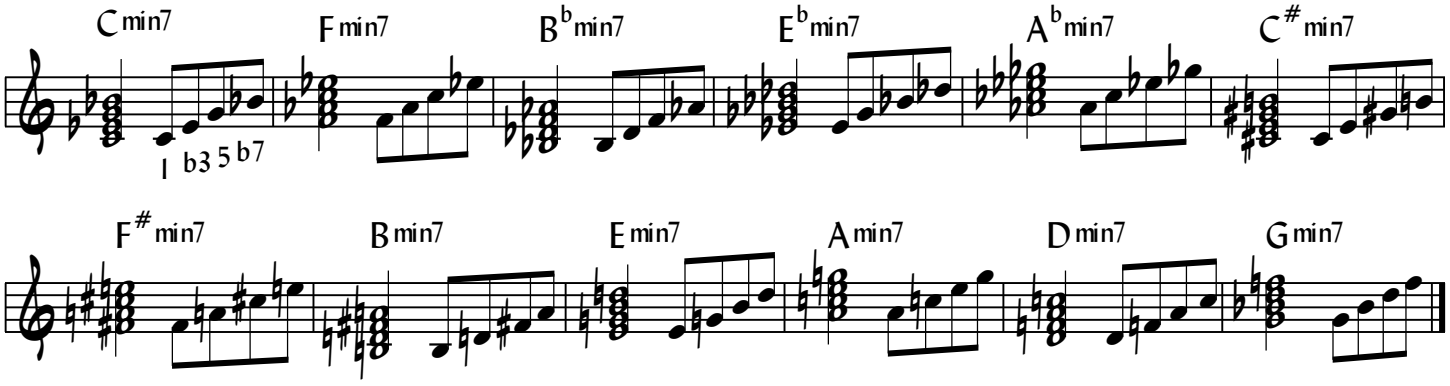
2. Spell each of the following dominant 7 chords then play them on your instrument and on the piano.



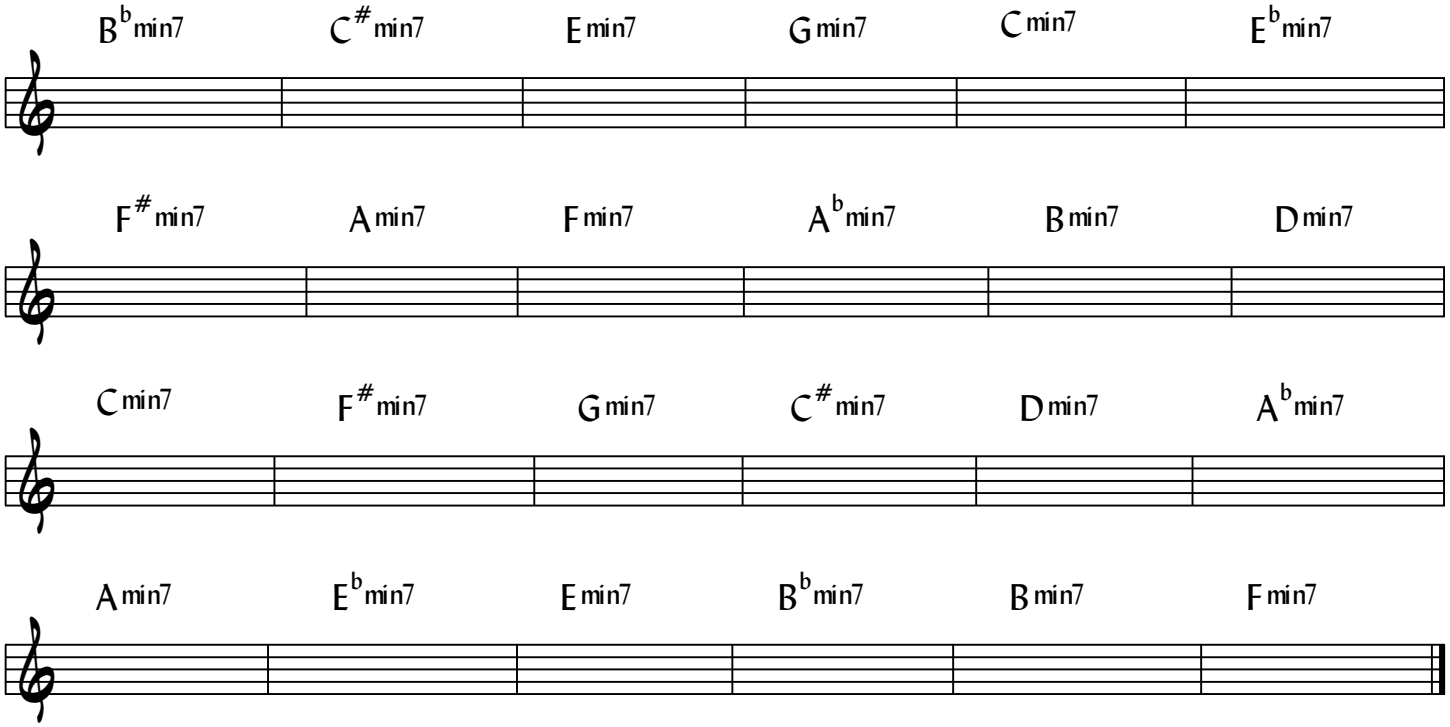
Exercise 9 - Minor Seven Chords

The chord symbol for a minor seven chord is a note name followed min7 (Cmin7) m7 (m7) or -7 (C-7). To spell a minor 7 chord, start with a minor triad (1, b3, 5 of a major scale) and add a minor 7th above the root. (1, b3, 5, b7 of a major scale)

1. Play each of the following minor 7 chords on your instrument and on the piano.



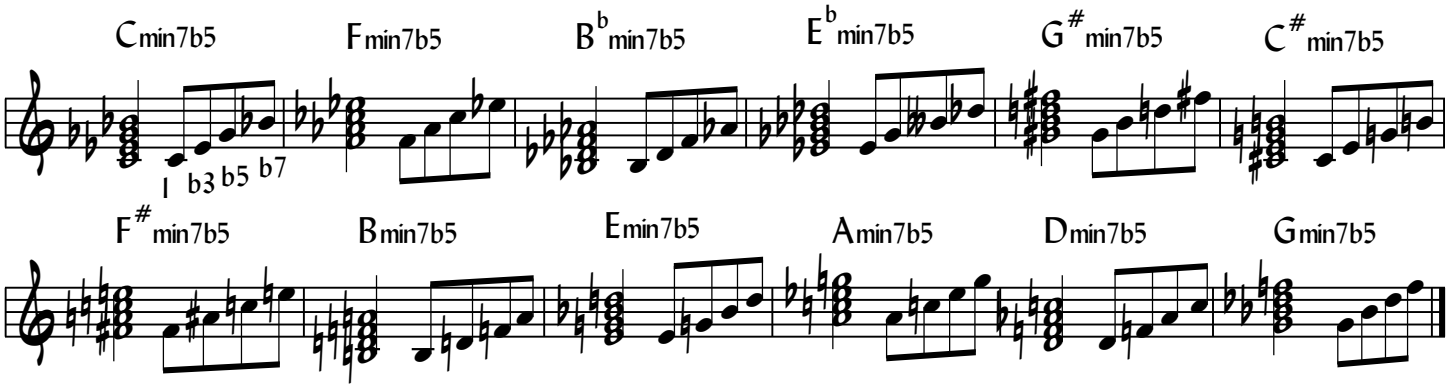
2. Spell each of the following minor 7 chords then play them on your instrument and on the piano.



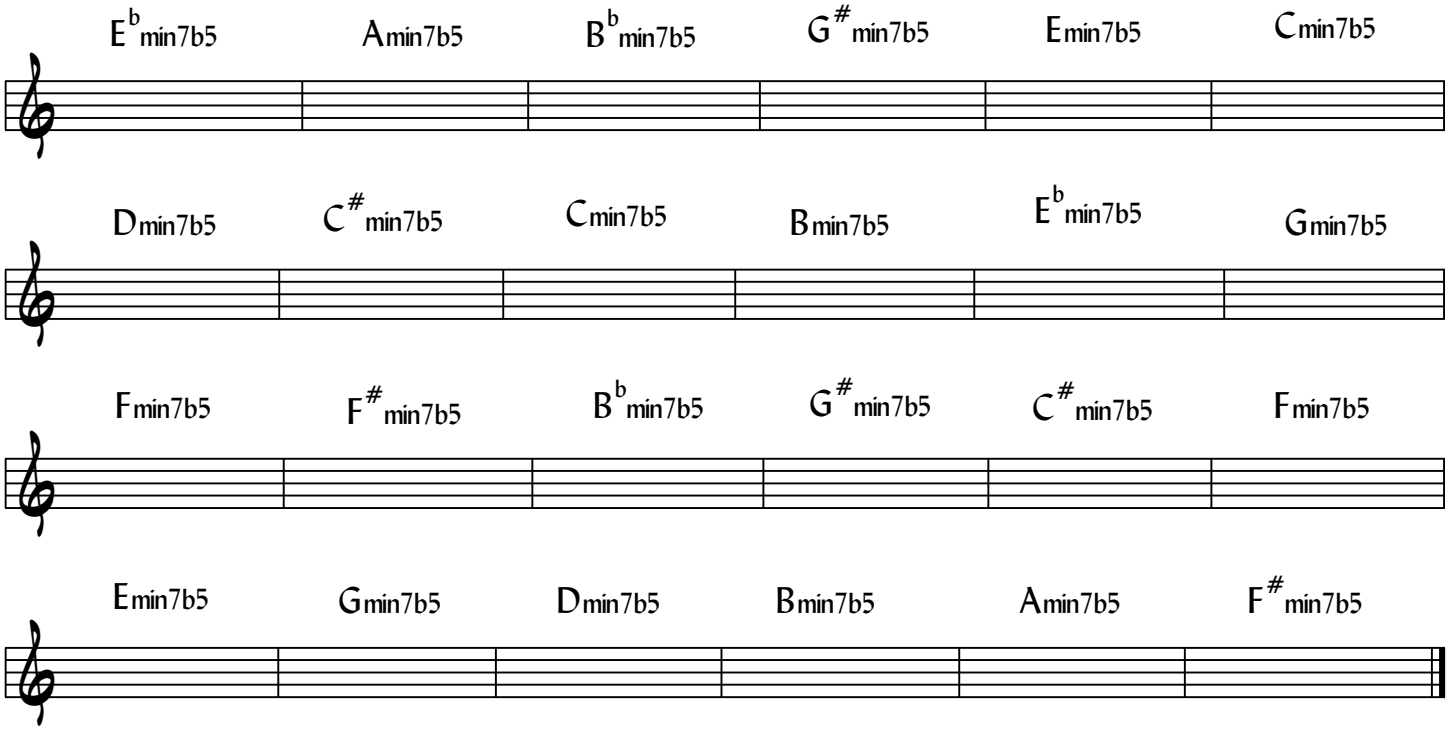
Exercise 10 - Minor Seven b5 Chords (Half-Diminished)

A minor 7 flat five chord can be thought of in several different manners. Sticking with our major scale template, it would be 1, b3, b5, b7 of a major scale. It can also be looked at as a diminished triad with a minor 7th added above the root. My personal favorite is as a minor 7 chord with a lowered fifth. (min7b5) The symbols for this chord include: min7b5, (Cmin7b5) -7b5 (C-7b5) or a circle with a slash through it signifying "half-diminished" either with or without a 7. (Cø, Cø7)

1. Play each of the following minor 7b5 (half-diminished) chords on your instrument and on the piano.



2. Spell each of the following minor 7b5 chords then play them on your instrument and on the piano.



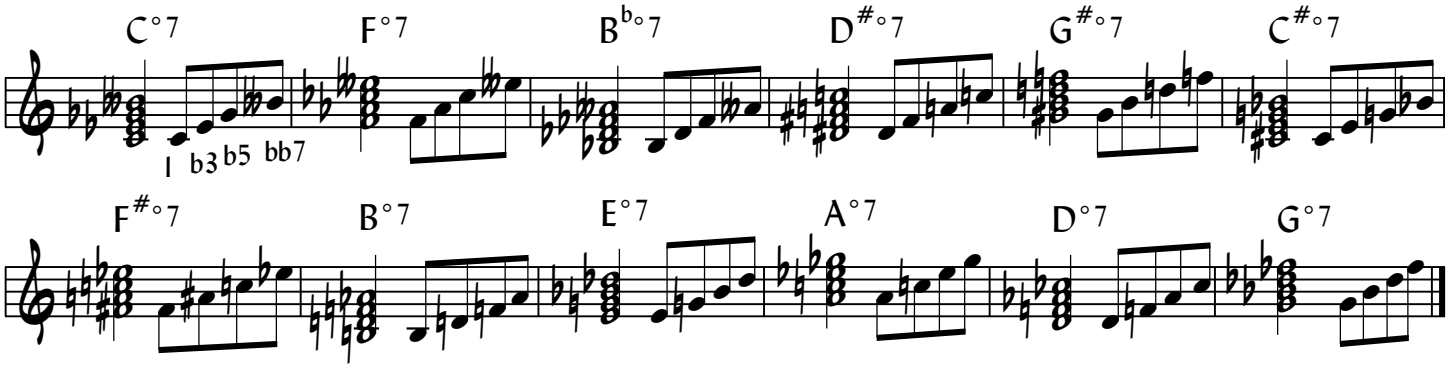
Exercise 11 - Diminished 7 Chord

A diminished 7 chord (or "fully diminished") is a symetrical chord consisting of all minor thirds. It is possibly best understood as a diminished triad (1, b3, b5) with a diminished7th (bb7 or double flat 7th) above the root. It can also be thought of as 1, b3, b5, bb7 of a major scale. Because a diminished 7th sounds the same as a major 6, it is possible, and likely, that you will see diminished chords spelled enharmonically to simplify reading. (ex: Cdim7=C, Eb, Gb, Bbb or C, Eb, Gb, and A or C, Eb, F# and A)

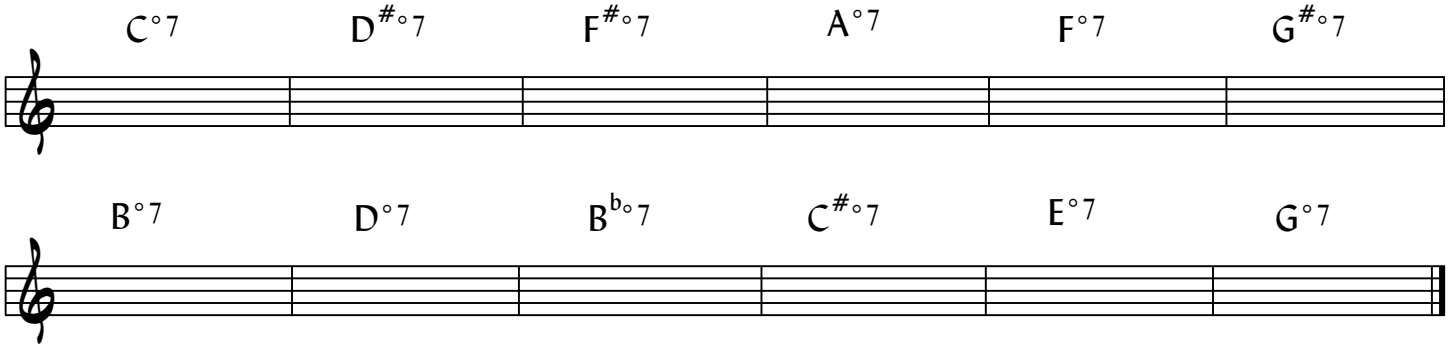
Being symetrical, there are only three distinct diminished chord sounds. If a diminished 7 chord is transposed a minor third, it becomes an inversion of itself. In other words, a Cdim7 chord has exactly the same notes as an Ebdim7, F#dim7 and an Adim7. C#dim7 has the same notes as an Edim7, Gdim7 and a Bbdim7. Ddim7 has the same notes as Fdim7, G#dim7 and Bdim7.

The usual symbols for a fully diminished seven chord are: dim7 (Cdim7) and °7. (C°7)

1. Play each of the following diminished 7 (fully-diminished) chords on your instrument and on the piano.



2. Spell each of the following diminished 7 chords, then play them on your instrument and on the piano.



3. List all the diminished 7 chords that contain an F#.

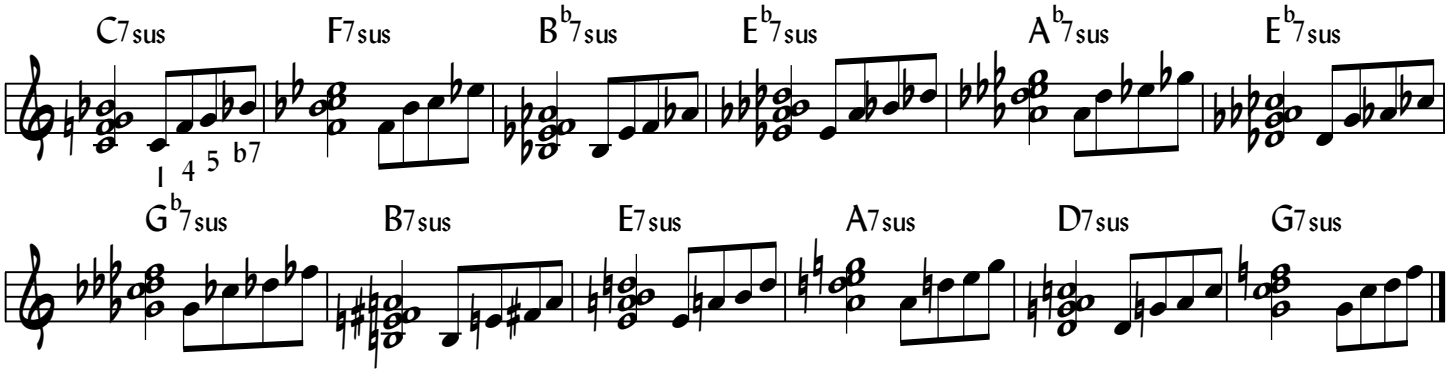
4. List all the diminished 7 chords that contain an F.

5. List all the diminished 7 chords that contain a G.

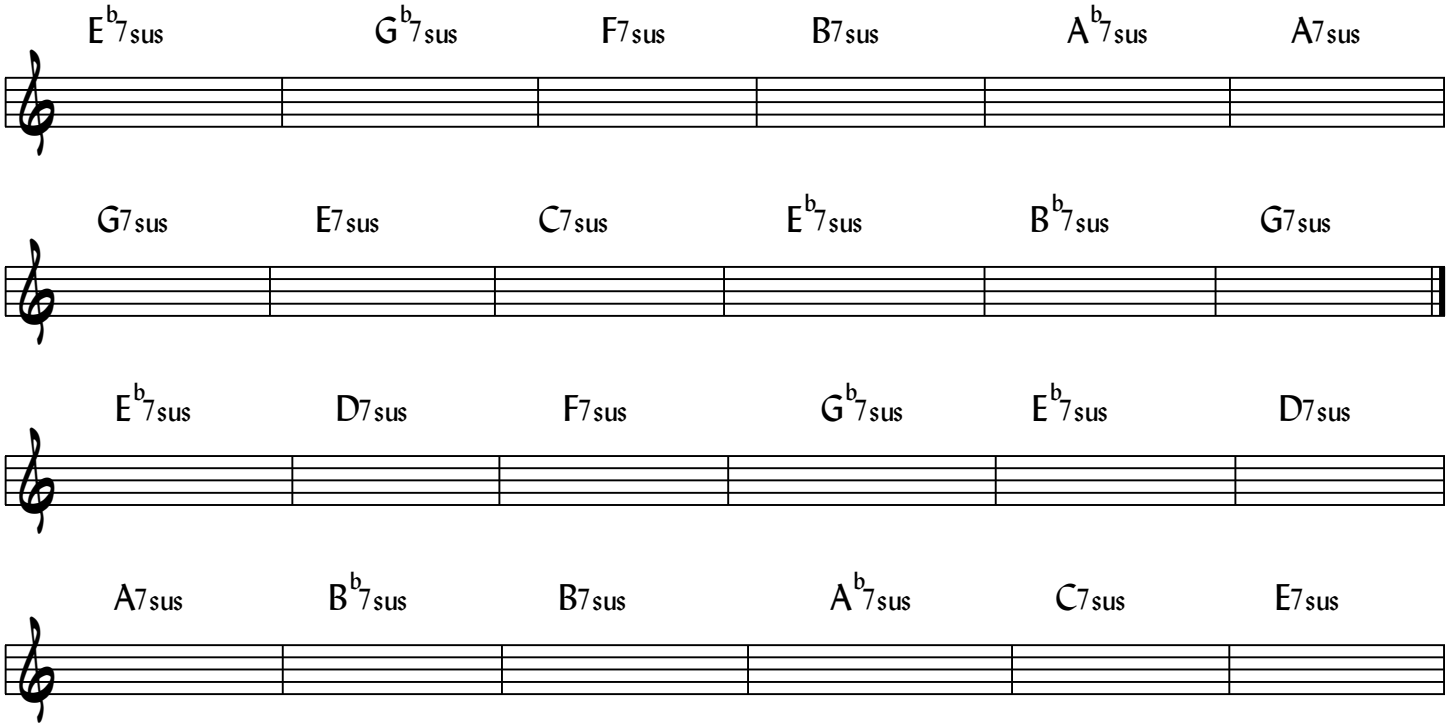
Exercise 12 - Dominant 7 suspended 4 Chord

A dominant 7 suspended 4 chord (sus4) is a dominant 7 with the fourth scale degree above the root replacing the third of the chord. Spelled as scale degrees of a major scale it would be: 1, 4, 5, b7. (C7sus = C, F, G, Bb) The symbol for this chord is usually sus. (C7sus, Csus7) It is also often notated more specifically as a "slash chord." A slash chord is a chord over an alternate bass note. You might see a C7sus (C9sus) notated as Gm7/C or Bb/C.

1. Play each of the following dominant 7sus4 chords on your instrument and on the piano.



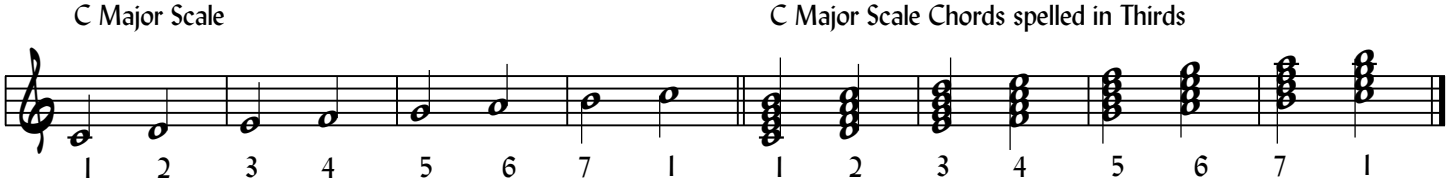
2. Spell each of the following dominant 7sus4 chords then play them on your instrument and on the piano.



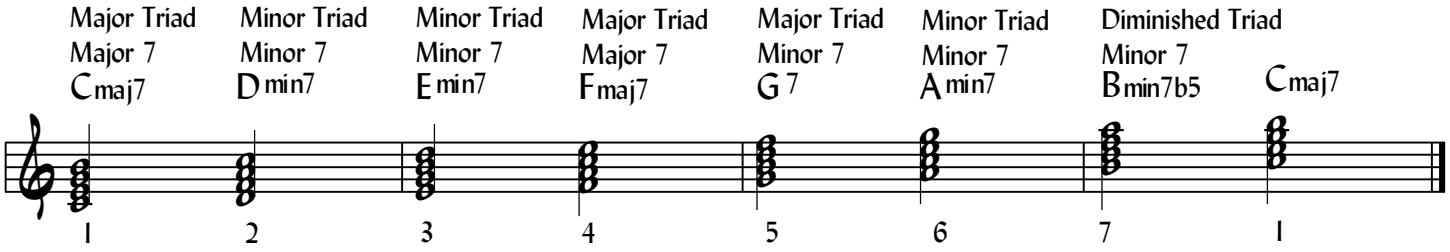
Exercise 13 - Seven Chords of the Major Scale

Let's begin with the supposition that chords come from scales. While not entirely true, certainly not in complex contemporary music, it is a very useful concept to accept when approaching harmony (chords) with the intent to create melody (jazz improvisations). For now, we will proceed by agreeing that for every chord, there is at least one scale that contains all the notes of the chord. Commonly used scales have anywhere from five notes (pentatonic) to twelve notes, (chromatic) with the vast majority containing seven notes. Most jazz chord symbols specify four notes, sometimes as many as seven. Correct scale choice fills in the blanks between the chord tones.

The first step to choosing correct scales for chords is to understand what chords are contained within a scale. This can be accomplished by simply spelling chords in 3rds (7 chords for now - four notes) starting on each note of the scale. In the key of C, this would look like the following:



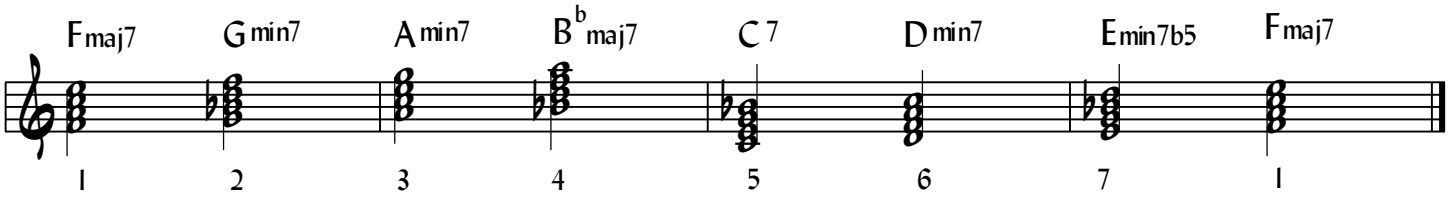
Next, analyze each chord and determine the correct symbol to specify that chord.



Major scales all being equal this demonstrates that:

1 and 4 chords in a major scale will be major 7 chords
2, 3 and 6 chords in a major scale will be minor 7 chords
5 chords in major scales will be dominant chords
7 chords in major scales will be minor 7b5 chords

Transposed to the scale of F major this would look like:

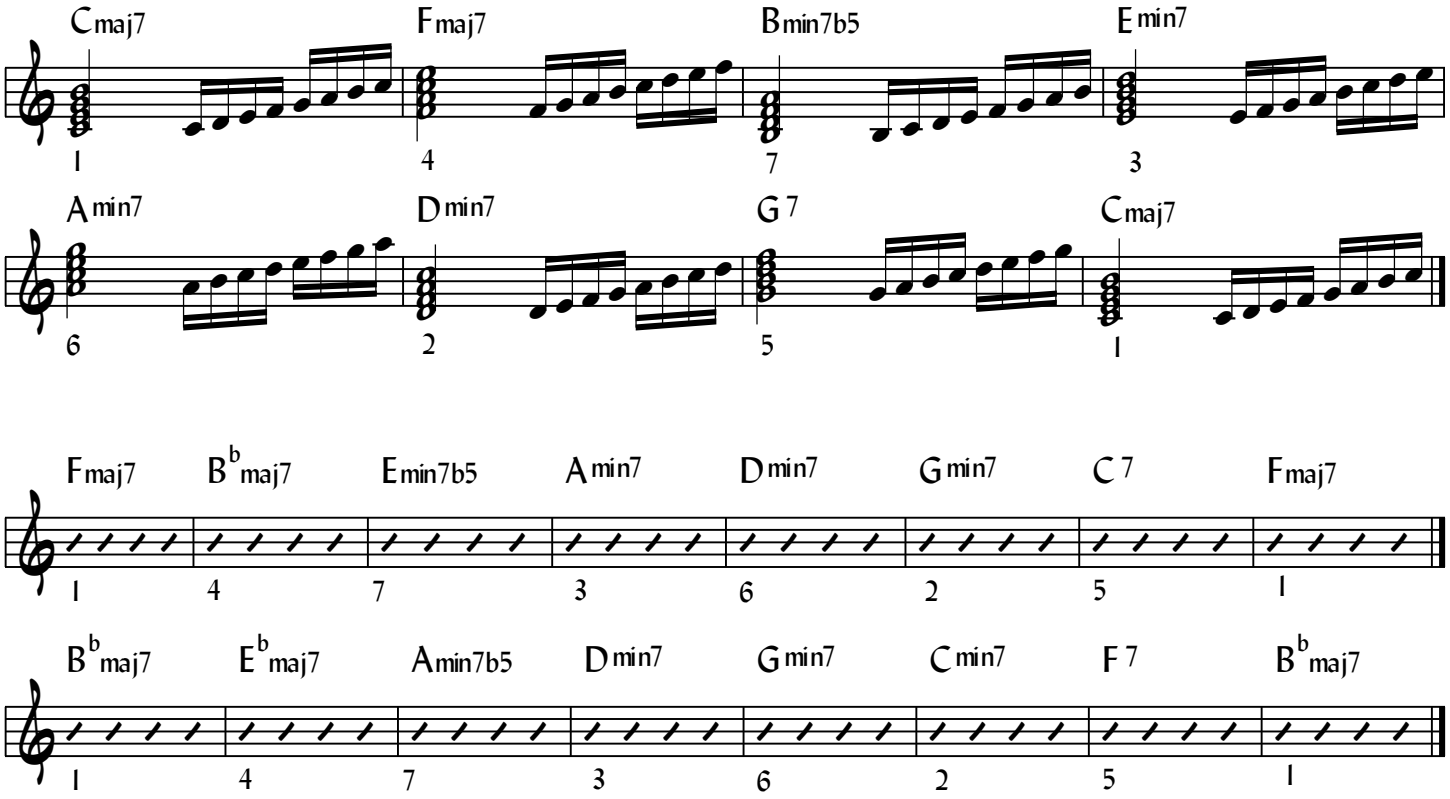


Exercise 13 - Seven Chords of the Major Scale

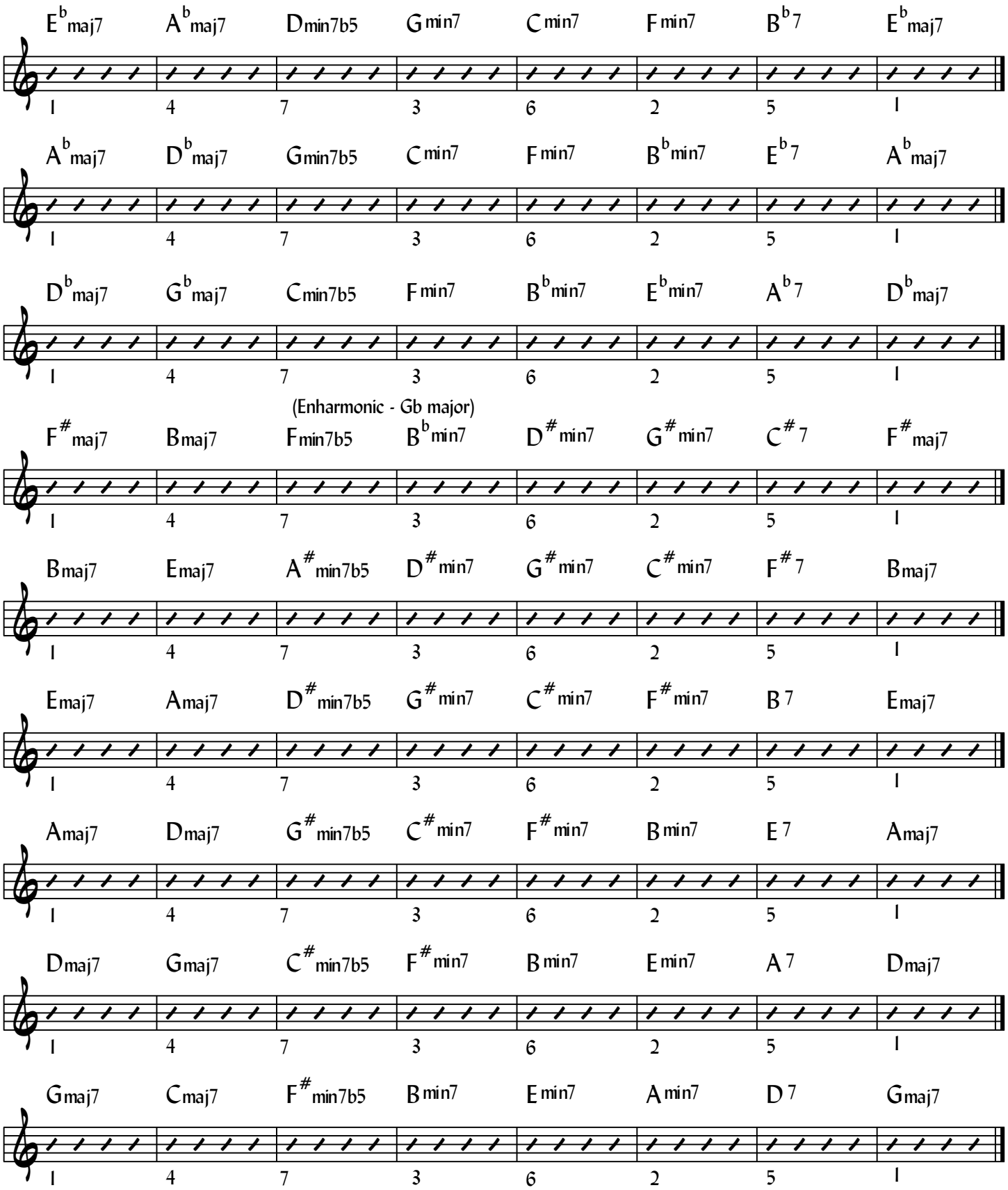
1. Complete the following chart of chords for each major scale. The first (C): is completed as an example.

C:	Cmaj7	Dmin7	Emin7	Fmaj7	G7	Amin7	Bmin7b5
F:							
Bb:							
Eb:							
Ab:							
Db:							
F#:							
B:							
E:							
A:							
D:							
G:							
	1	2	3	4	5	6	7

2. Learn the following C major scale progression on your instrument and on piano. Arpeggiate the chords if you are playing a single-line instrument. Then transpose and play it in all keys using the supplied chord charts.



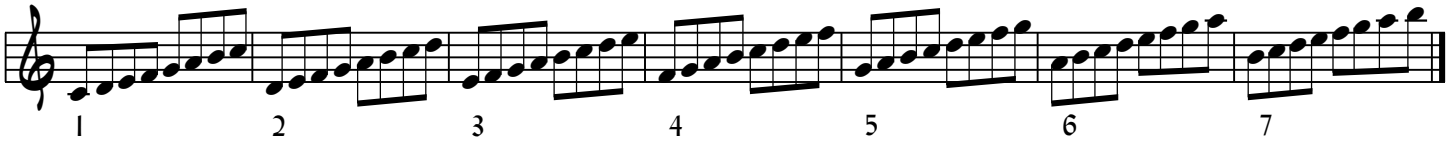
Exercise 13 - Seven Chords of the Major Scale



Exercise 14 - Modes of the Major Scale

Modes are scales using the notes of a parent scale. Modes of the major scale refer to the seven scales created by playing the notes of a major scale (or key) starting from each note of the major scale. In other words, playing a scale starting on the first note of a major scale would be the first mode of a major scale. Playing a scale starting on the second note of a major scale, but using the same notes as the parent scale, would be the 2nd mode of a major scale.

Example: C Major Modes:

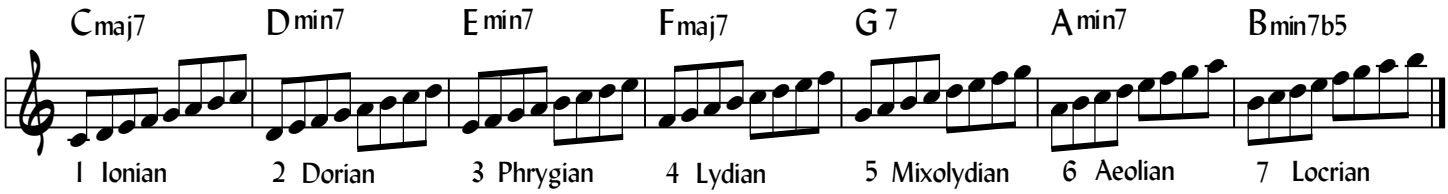


Modes of the major scale each have their own distictive name. They are:

1. Ionian (Major Scale) *(C to C in the key of C) (F to F in the key of F) etc.*
2. Dorian *(D to D in the key of C) (G to G in the key of F) etc.*
3. Phrygian *(E to E in the key of C) (A to A in the key of F) etc.*
4. Lydian *(F to F in the key of C) (Bb to Bb in the key of F) etc.*
5. Mixolydian *(G to G in the key of C) (C to C in the key of F) etc.*
6. Aeolian (Pure Minor) *(A to A in the key of C) (D to D in the key of F) etc.*
7. Locrian *(B to B in the key of C) (E to E in the key of F) etc.*

These modes of course correspond directly to the chords of the major scale.

1. Ionian (Major Scale) = Major7
2. Dorian = minor7
3. Phrygian = minor7
4. Lydian = Major7
5. Mixolydian = Dominant 7
6. Aeolian (Pure Minor) = minor 7
7. Locrian = minor 7b5 (Half-Diminished)

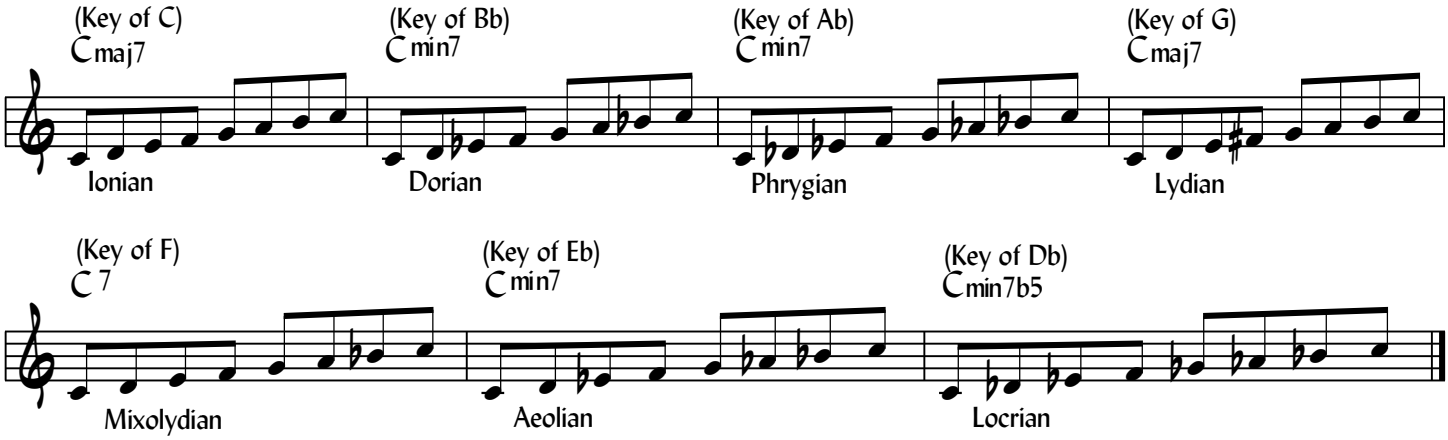


Exercise 14 - Modes of the Major Scale

1. Complete the following table by supplying the correct chord symbol for every mode/key combination. The key of C is completed as an example.

Major Key:	C	F	Bb	Eb	Ab	Db	F#	B	E	A	D	G
1. Ionian	Cmaj7											
2. Dorian	Dmin7											
3. Phrygian	Emin7											
4. Lydian	Fmaj7											
5. Mixolydian	G7											
6. Aeolian	Amin7											
7. Locrian	Bmin7b5											

Modes should also be learned and practiced in order, all from the same note. Using C as an example:



Exercise 14 - Modes of the Major Scale

2. Complete the following table by filling in the parent major scales (key) for each of the modes starting on on the note on the left side of the chart. Modes starting on C are supplied as an example. Once completed, use this chart to learn modes on your instrument starting on the same note.

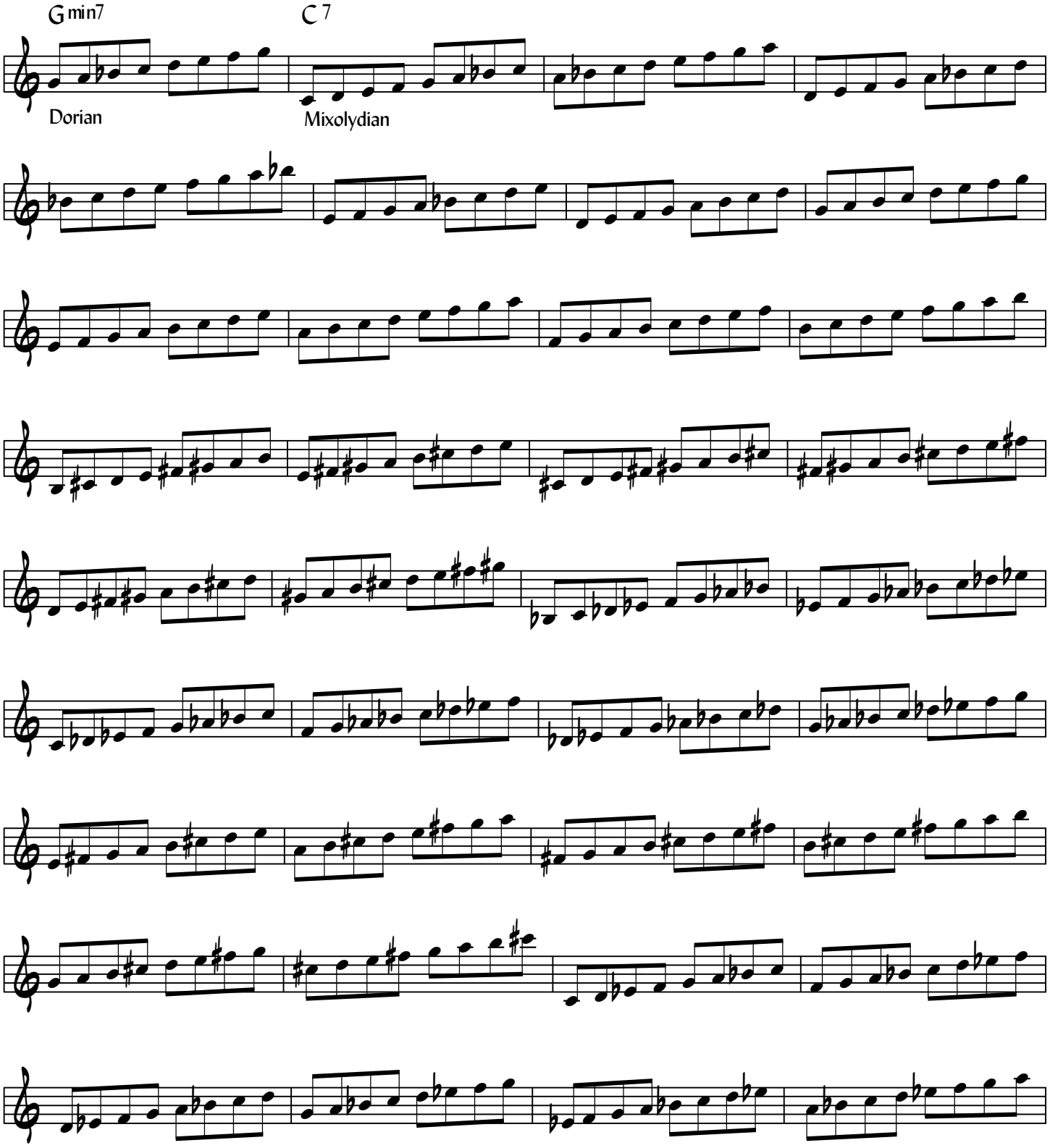
	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Locrian
C:	*C*	*Bb*	*Ab*	*G*	*C*	*Eb*	*Db*
F:							
Bb:							
Eb:							
Ab:							
C#:							
F#:							
B:							
E:							
A:							
D:							
G:							

It is also valuable to be able to conceive modes as stand-alone scales, without considering the parent scale. One way to go about accomplishing this is to alter scales already practiced and learned.

Ionian = Major Scale
Dorian = Major Scale w/b3, b7, or Pure Minor scale with a ♮6th.
Phrygian = Major Scale w/b2, b3, b6, b7, or Pure Minor scale with a b2.
Lydian = Major Scale w/#4 (#11)
Mixolydian = Major Scale w/b7
Aeolian = Pure Minor, Major Scale w/b3, b6, b7
Locrian = Major Scale w/b2, b3, b5, b6, b7 or Pure Minor w/b2, b5.

Exercise 14 - Modes of the Major Scale

3. Supply the mode name and chord symbol for each of the following measure. The first two are completed as an example.



Exercise 15 - Introduction to Chord Function

For the purposes of this workbook, the phrase "Chord Function" will be defined as how individual chords relate to the key (or scale) that the chords were derived from. Determining a chord's function makes it relatively simple to supply the most correct scale for that chord.

In Exercise 14, Gmin7 occurred in three different keys (F, Eb and Bb) and in each case a slightly different mode, all of which contained the notes of the Gmin7 within it, (dorian, phrygian and aeolian) was played. In the context of an actual chord progression, one of those modes would be more appropriate than the others.

In a major key, chord function is a fairly easy task. So far, we have already learned that within a major scale:

1. Major 7 chords = 1 or 4 in the key (I or IV)
2. Minor 7 chords are: 2, 3 or 6 (ii, iii, vi)
3. Dominant 7 chords are 5 (V)
4. Minor7b5 chords are 7 (vii)

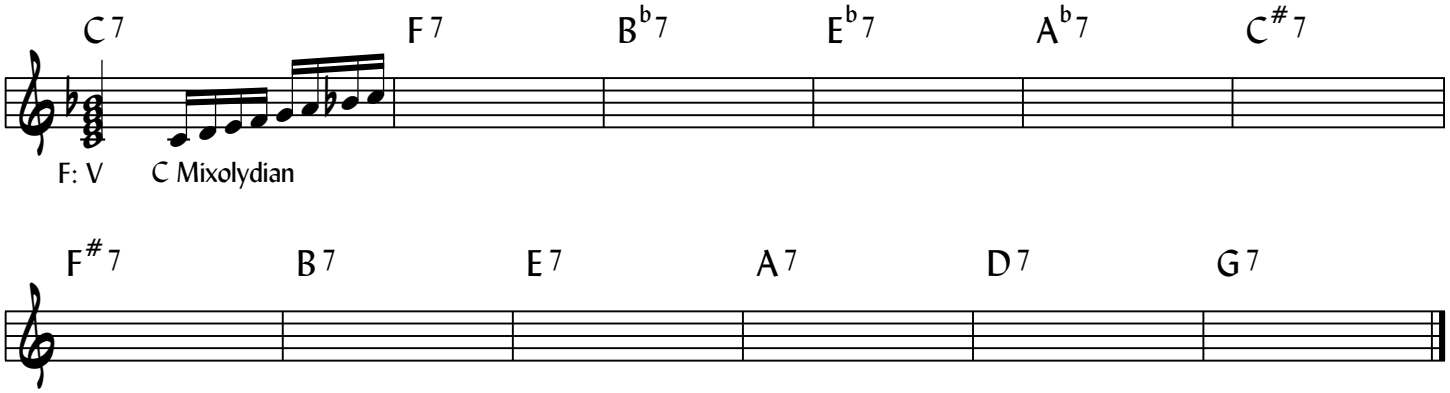
So, in every major key there are two Major 7 chords, three Minor 7 chords, one Dominant and one Half-Diminished chord. Accept for now that Minor7b5 chords also function as 2 (ii) chords in minor keys and as such, are not good indicators of major key centers. This leaves Dominant 7 chords as the chord that best indicates major key center. Put another way, Dominant 7 chords are always 5. (V)

1. Memorize the following dominant chord to major key relationships. Then, on the staff below, spell the chords, the correct scale, (mixolydian) the major key center and a roman numeral harmonic analysis (V) for each dominant chord. The first measure is completed as an example.

C7 = Fmajor F7 = Bbmajor Bb7 = Ebmajor Eb7 = Abmajor Ab7 = Dbmajor

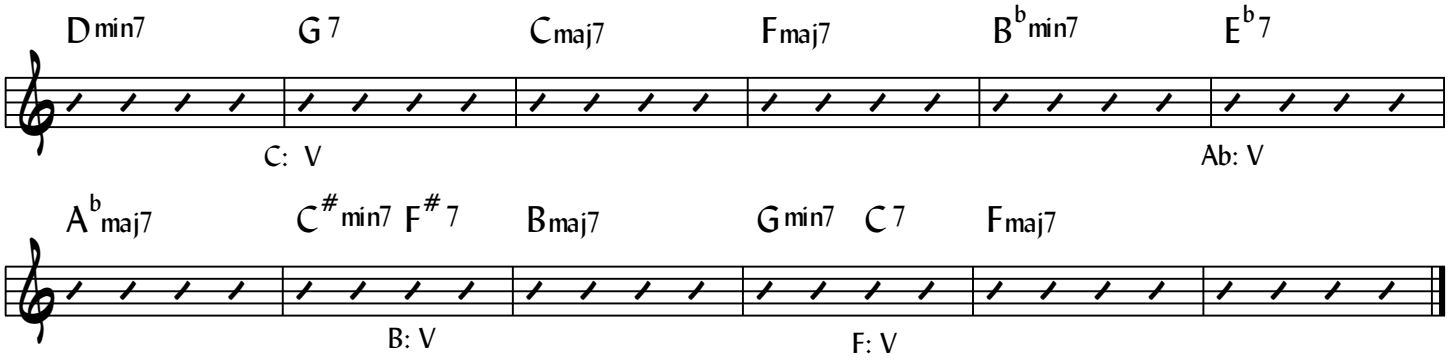
C#7 = F#major F#7 = Bmajor B7 = Emajor E7 = Amajor A7 = Dmajor

D7 = Gmajor G7 = Cmajor

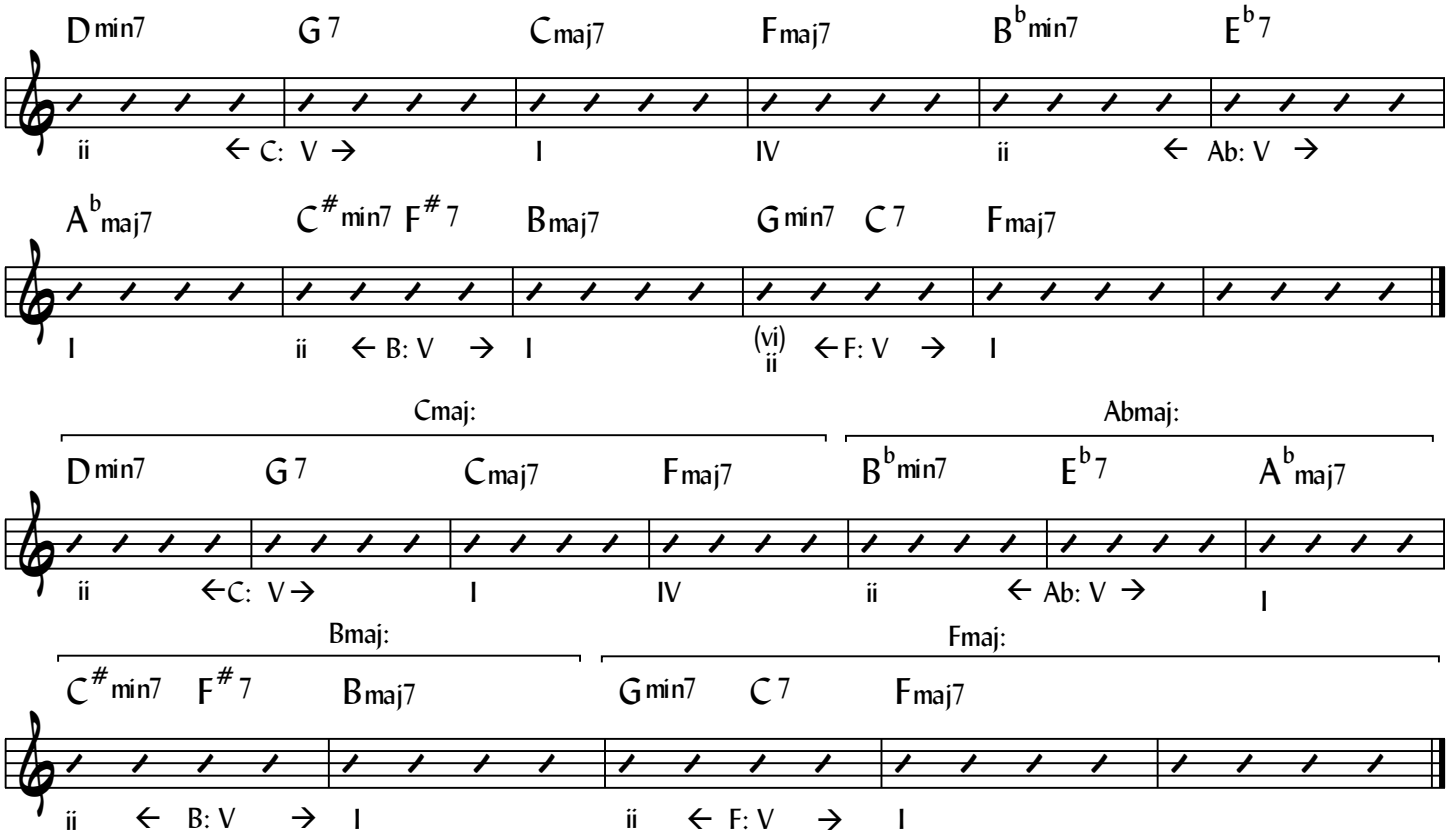


Exercise 15 - Introduction to Chord Function

If all dominant chords are V, (for now we are going to agree to that) then the first step to analyzing a chord progression would be to put a roman numeral V and the corresponding key center below every dominant.

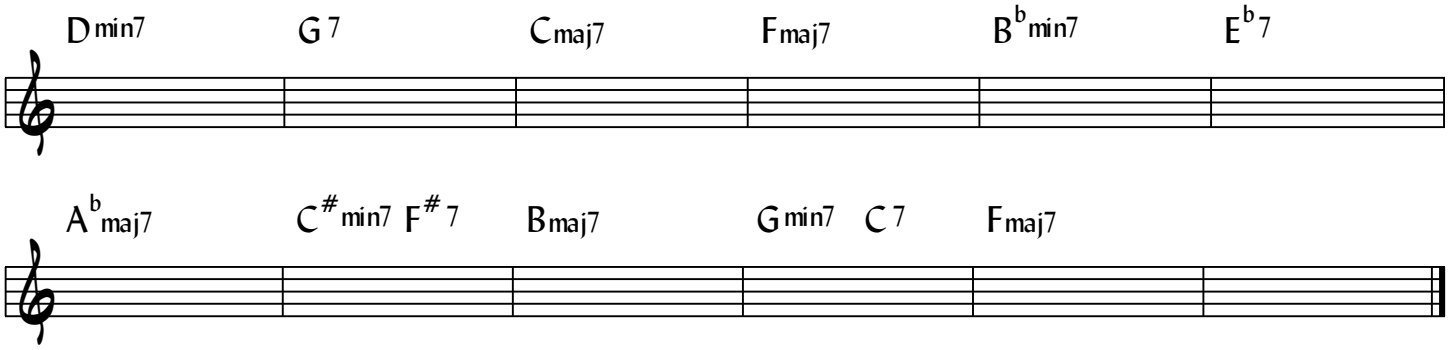


Next, starting from the first V chord in the progression and staying in the same key as long as possible, work backwards and forwards supplying a roman numeral analysis each chord. In the example below, the first dominant (G7) is in the key of C major. Working backwards, Dmin7 is also in the key of C major as a ii chord. Working forward, Cmaj7 is a I chord and Fmaj7 is a IV chord. Bbmin7 does not function (fit) in the key of C major, it is in a different key. At this point, jump to the next dominant chord and begin again.

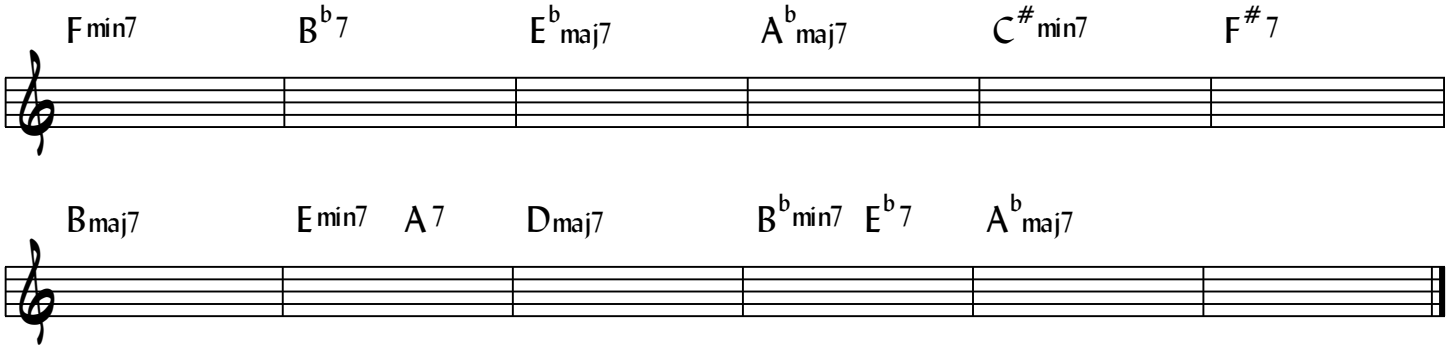


Exercise 15 - Introduction to Chord Function

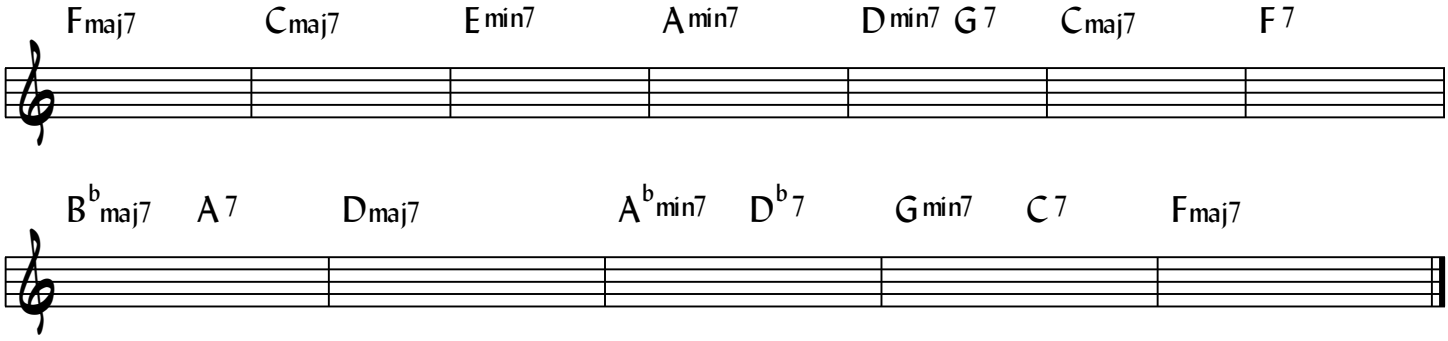
2. Analyze this same progression on your own supplying roman numerals, key centers and additionally, notate scales and identify mode names for each chord. Play on your instrument (outline chord, play scales) and on piano.



3. Analyze this same progression in a different key, supplying roman numerals, key centers, notate scales and supply mode names for each chord. Play on your instrument (outline chord, play scales) and piano.



4. Analyze the following progression supplying roman numerals, key centers, notate scales and identify mode names for each chord. Play on your instrument (outline chord, play scales) and piano.



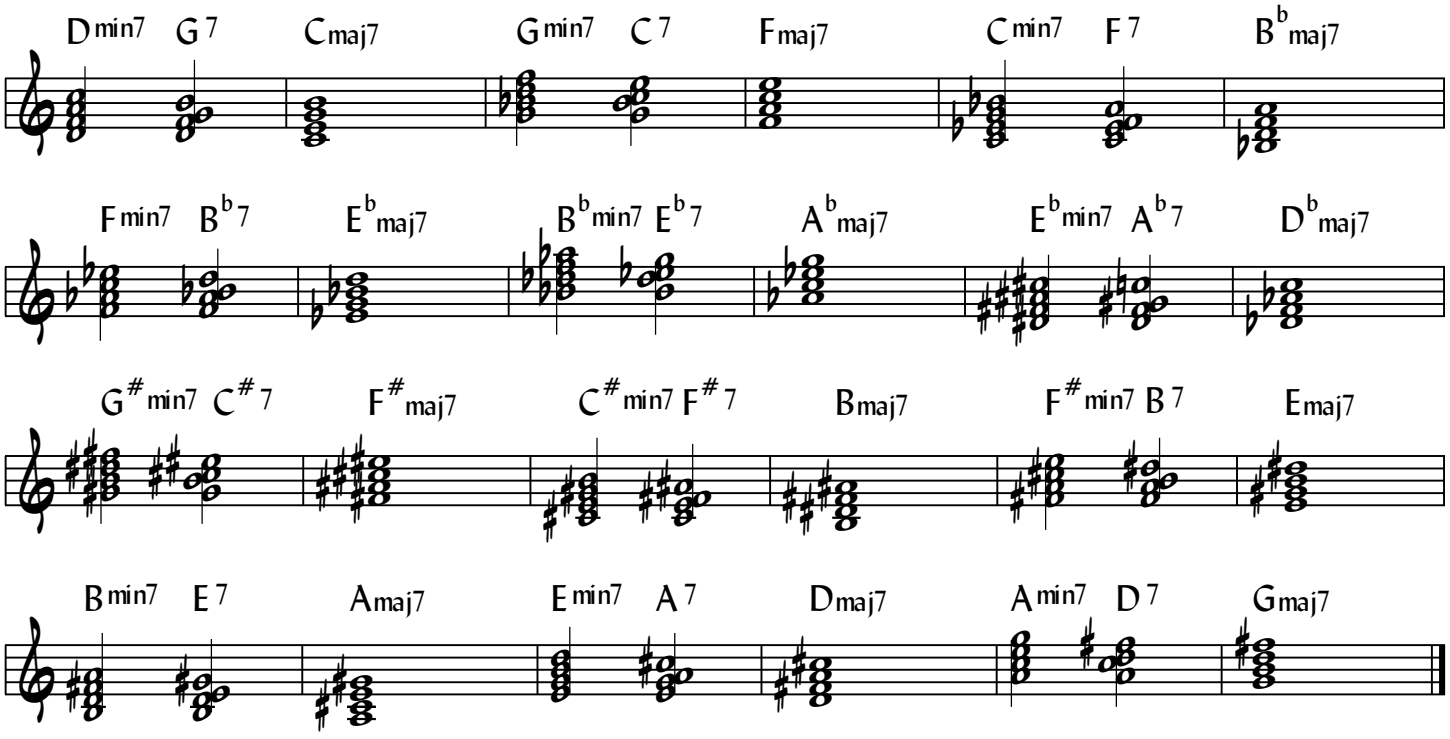
Exercise 16 - The Major ii-V-I progression

The ii-V-I (Two-Five-One) progression is probably the most common progression in music associated with jazz improvisation. It is imperative that these progressions be memorized and instantly recognized as they appear.

1. Memorize the following ii-V-I progressions in all keys.

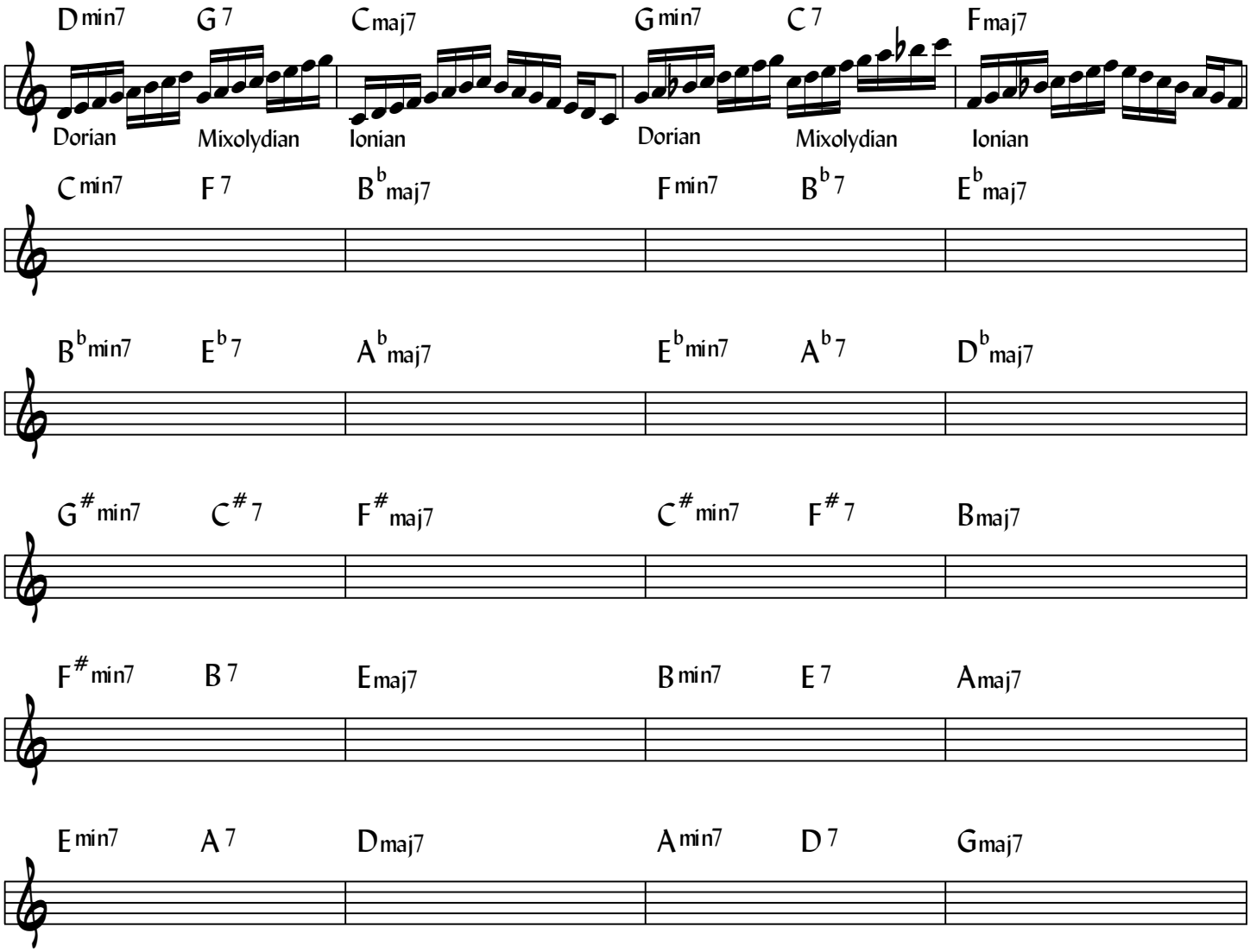
C:	Dmin7	G7	Cmaj7	F:	Gmin7	C7	Fmaj7
Bb:	Cmin7	F7	Bbmaj7	Eb:	Fmin7	Bb7	Ebmaj7
Ab:	Bbmin7	Eb7	Abmaj7	Db:	Ebmin7	Ab7	Dbmaj7
C#:	D#min7	G#7	C#maj7	F#:	G#min7	C#7	F#maj7
Gb:	Abmin7	Db7	Gbmj7	B:	C#min7	F#7	Bmaj7
E:	F#min7	B7	Emaj7	A:	Bmin7	E7	Amaj7
D:	Emin7	A7	Dmaj7	G:	Amin7	D7	Gmaj7

2. Learn the following simple, left hand piano voicings for ii-V-I progressions. The are notated here to minimize ledger lines but should be played an octave below where they are written.

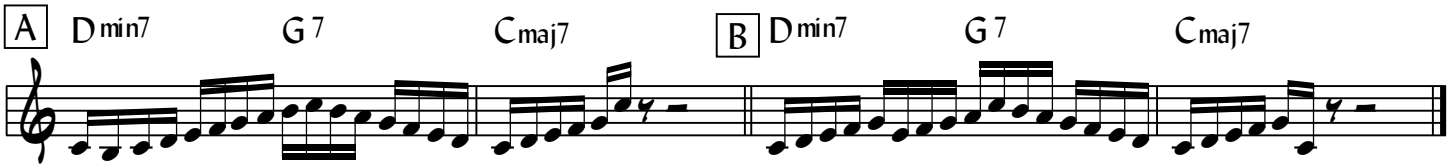


Exercise 16 - The Major ii-V-I progression

3. Play the following exercise on your instrument and on the piano. If necessary, write in the modes for all keys. Once learned, add the left hand piano voicings from the previous exercise and play the modes over the left hand chords. Switch octaves wherever necessary to avoid crossing hands.



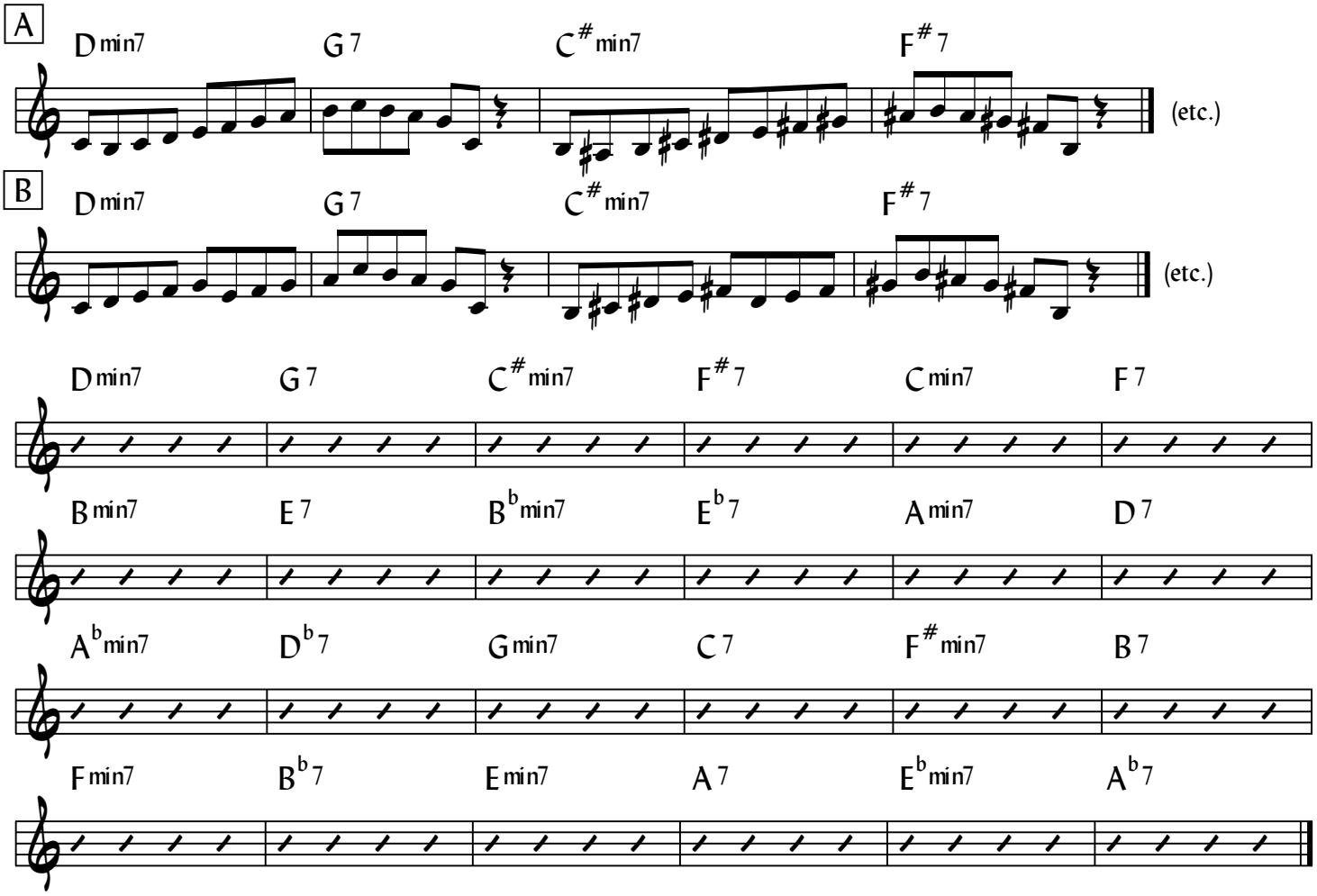
4. Learn the following two major scale patterns (A and B) in all keys on your instrument and on the piano using the chord chart above. Add the left hand piano voicings and play the patterns over the top of the chords.



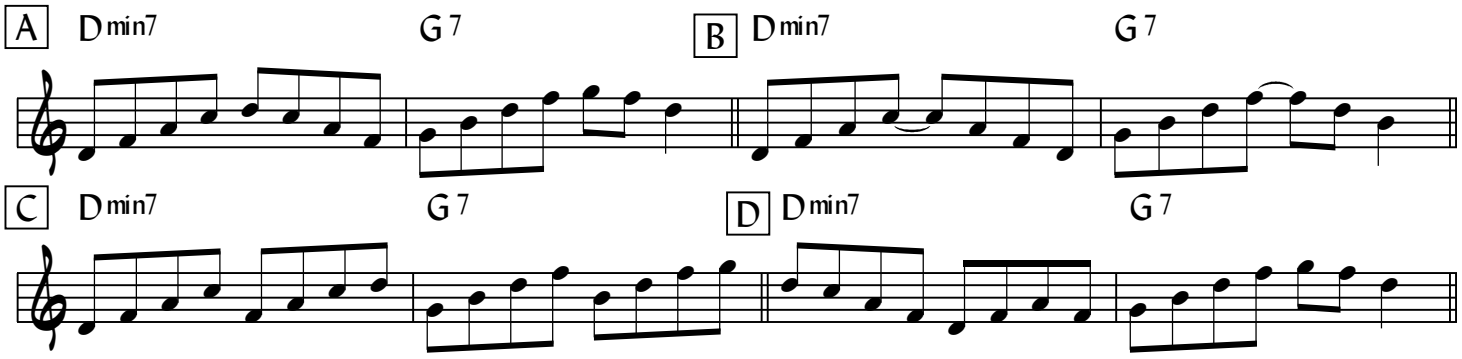
Exercise 16 - The Major ii-V-I progression

The ii-V portion of this progression often occurs without the I chord.

5. Learn the following major scale patterns on your instrument and on the piano with chords in your left hand using the progression of ii-V's below.



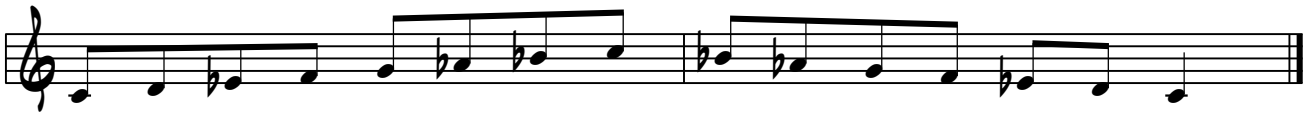
6. Learn the following chord outline patterns (A-D) on your instrument and on the piano with chords in your left hand using the progression of ii-V's above.



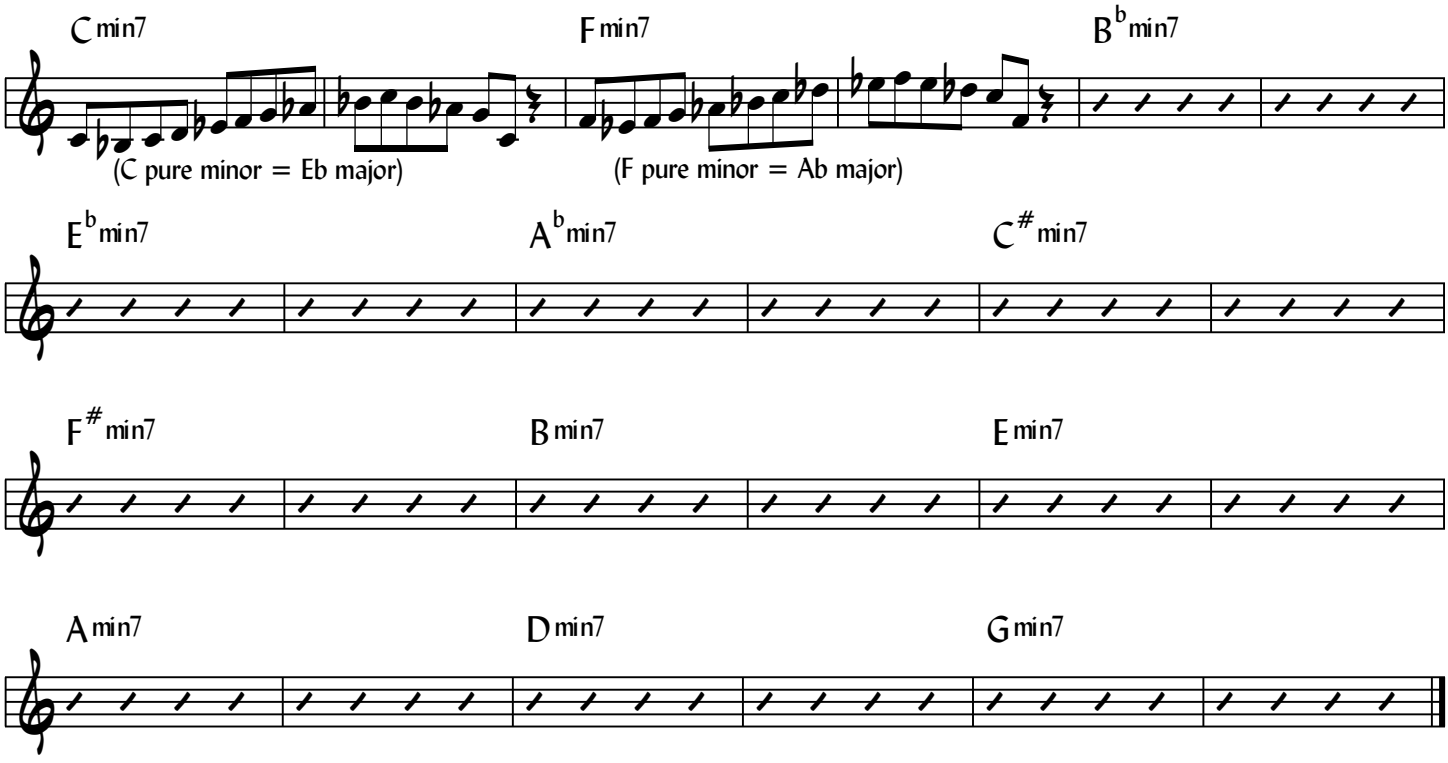
Exercise 17 - The Pure Minor Scale (Aeolian Mode)

Pure minor, or Aeolian Mode, is the sixth mode of a major scale. It is commonly the first (and sometimes only) minor scale students learn using traditional materials. While not the most common choice for improvisations, (Dorian is usually substituted because the ♮6 creates a scale with no "bad" notes and is often considered a "hipper" choice) it is important to know as a source of minor key harmonies. Students often find it easiest to learn this scale as b3, b6, b7 of a major scale.

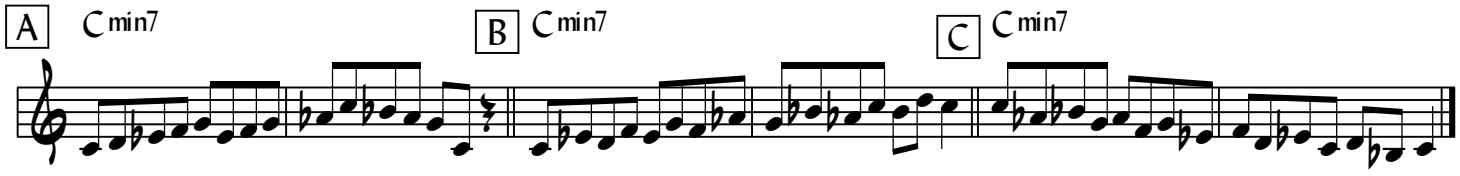
C: Pure Minor (b3, b6, b7)



1. Learn the following Pure Minor (Aeolian) scale pattern in all keys using the supplied chord chart.



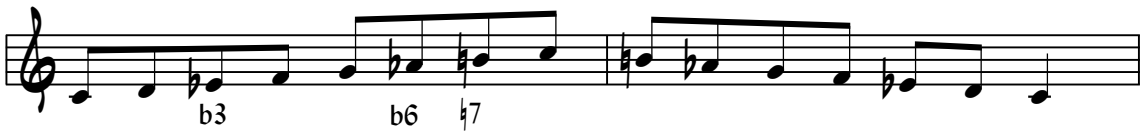
2. Learn the following aeolian mode patterns in all keys using the chord chart above. Practice on your instrument and on piano with the chords in your left hand.



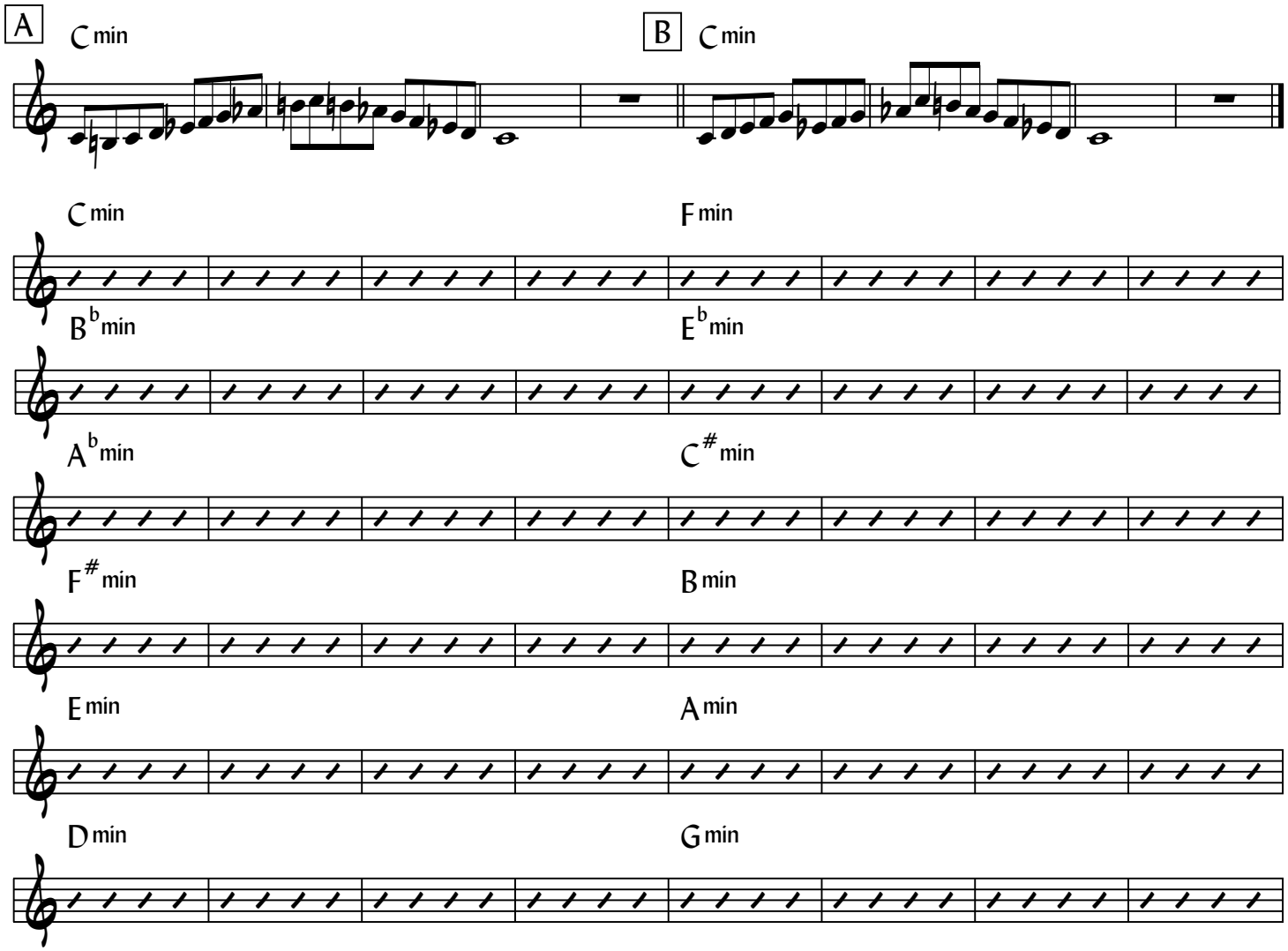
Exercise 18 - The Harmonic Minor Scale

The harmonic minor scale is a minor scale (b3) with a lowered sixth (b6) but a natural seventh. (♮7) This creates a scale with an augmented second (Ab to B♮ in the C harmonic minor scale) between the 6th and 7th scale degrees. The natural 7th is the leading tone in the minor key, meaning it becomes the major third of the dominant V chord and in traditional music theory will want to resolve up a half-step to the tonic of the key. The b6 in the scale becomes the b9 of the dominant V chord, meaning in the key of C minor, you would expect the V chord to be a G7b9. (G, B♮, D, F and Ab) The harmonic minor can be thought of as a pure minor scale with a raised (♮7) or as a major scale with a lowered 3rd (b3) and a lowered 6th. (b6)

C Harmonic Minor

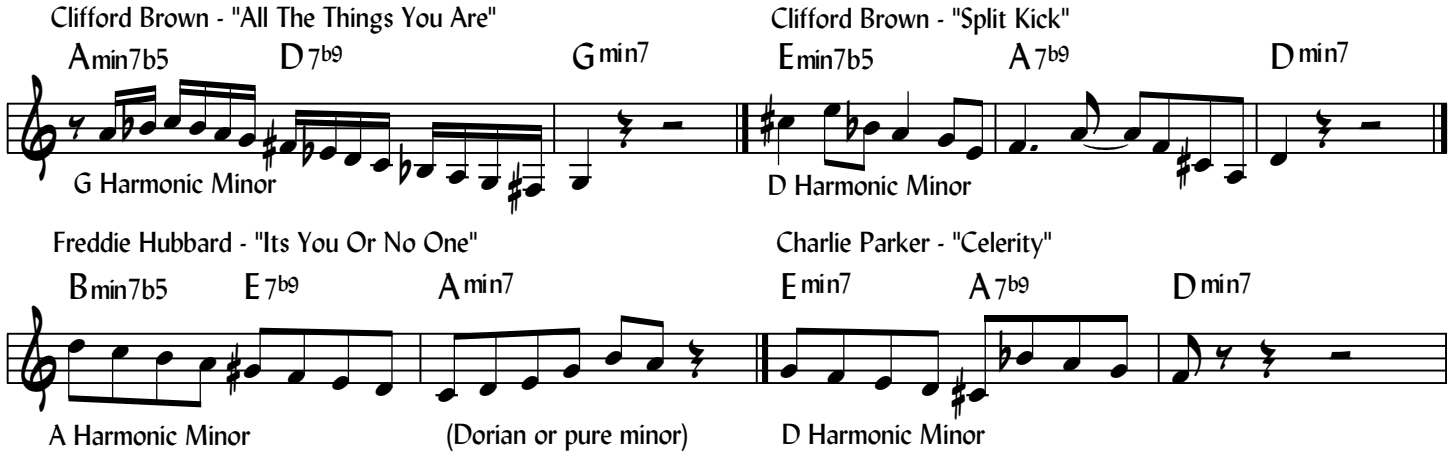


1. Learn the harmonic minor scale in all keys using the following two patterns on your instrument and on piano.



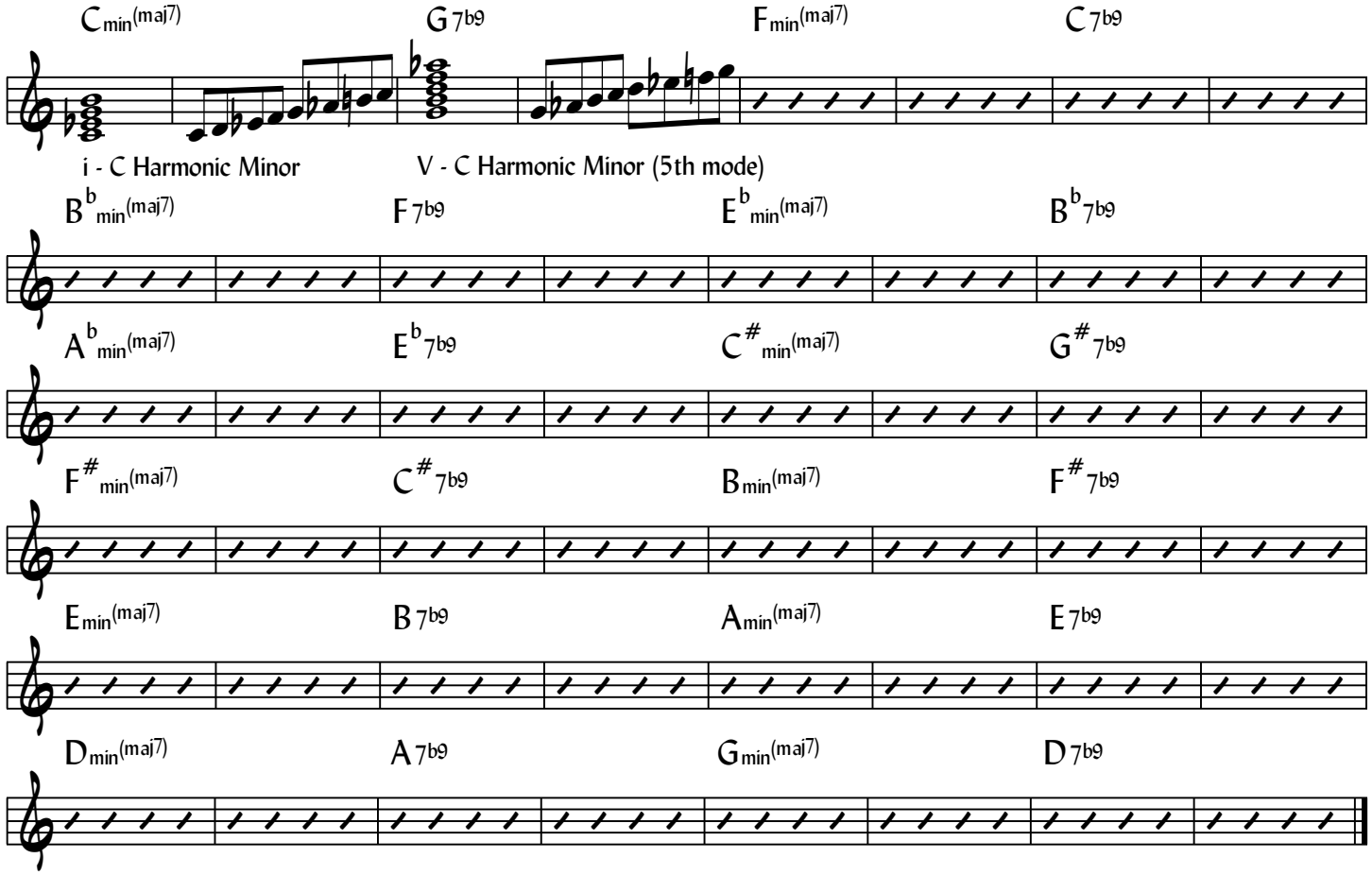
Exercise 18 - The Harmonic Minor Scale

Below are four examples of the harmonic minor scale as used by great jazz soloists.



The tonic chord of harmonic minor is a minor with a major 7 chord. Unless specified, this scale is rarely used for that chord. As seen in the examples above, the augmented 2nd between the b6 and the ♮7 in the harmonic minor creates the interval between the major third and the b9 of the dominant chord that is very typical of bebop style lines. While players of that era may not have been specifically thinking harmonic minor as they played, it would appear that they were playing a melodic sound that appears naturally within the scale, making it an excellent tool for learning and recreating that sound.

2. Play the following in all keys on piano and on your instrument, outlining the chords on single-line instruments.



Exercise 19 - The Minor ii-V-i (Harmonic Minor)

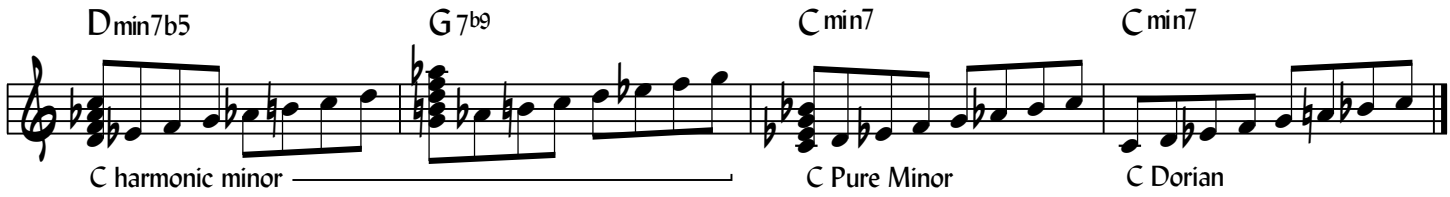
Almost as common as the major ii-V-I, understanding and acquiring facility with the minor ii-V-i is imperative for any jazz soloist. The first step is to be able to recognize a minor ii-V-i when it occurs.

In the key of C major, a ii-V-I would be: Dmin7 - G7 - Cmaj7. In a minor ii-V-i, the roots stay the same but the chord qualities change. In C minor, a minor ii-V-i would be: Dmin7b5 - G7b9 - Cmin7.

1. Complete the table below and memorize the following minor ii-V-i progressions in all keys. Cmin and Fmin are completed as examples.

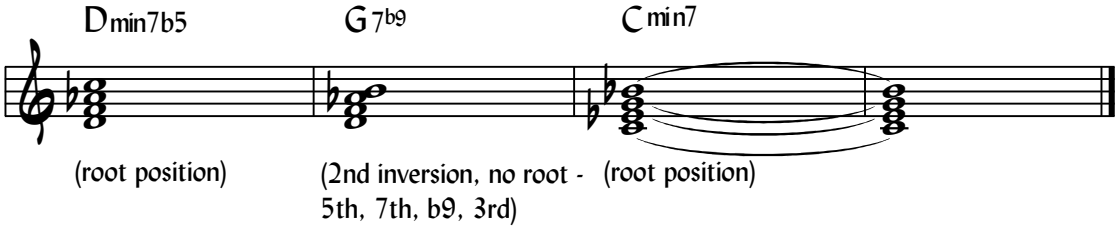
Cmin:	Dmin7b5	G7b9	Cmin7	Fmin:	Gmin7b5	C7b9	Fmin7
Bbmin:				Ebmin:			
Abmin:				Dbmin:			
C#min:				F#min:			
Gbmin:				Bmin:			
Emin:				Amin:			
Dmin:				Gmin:			

If Dmin7b5 - G7b9 - Cmin7 is known to be in the key of C minor, then these chords must come from C minor scales.

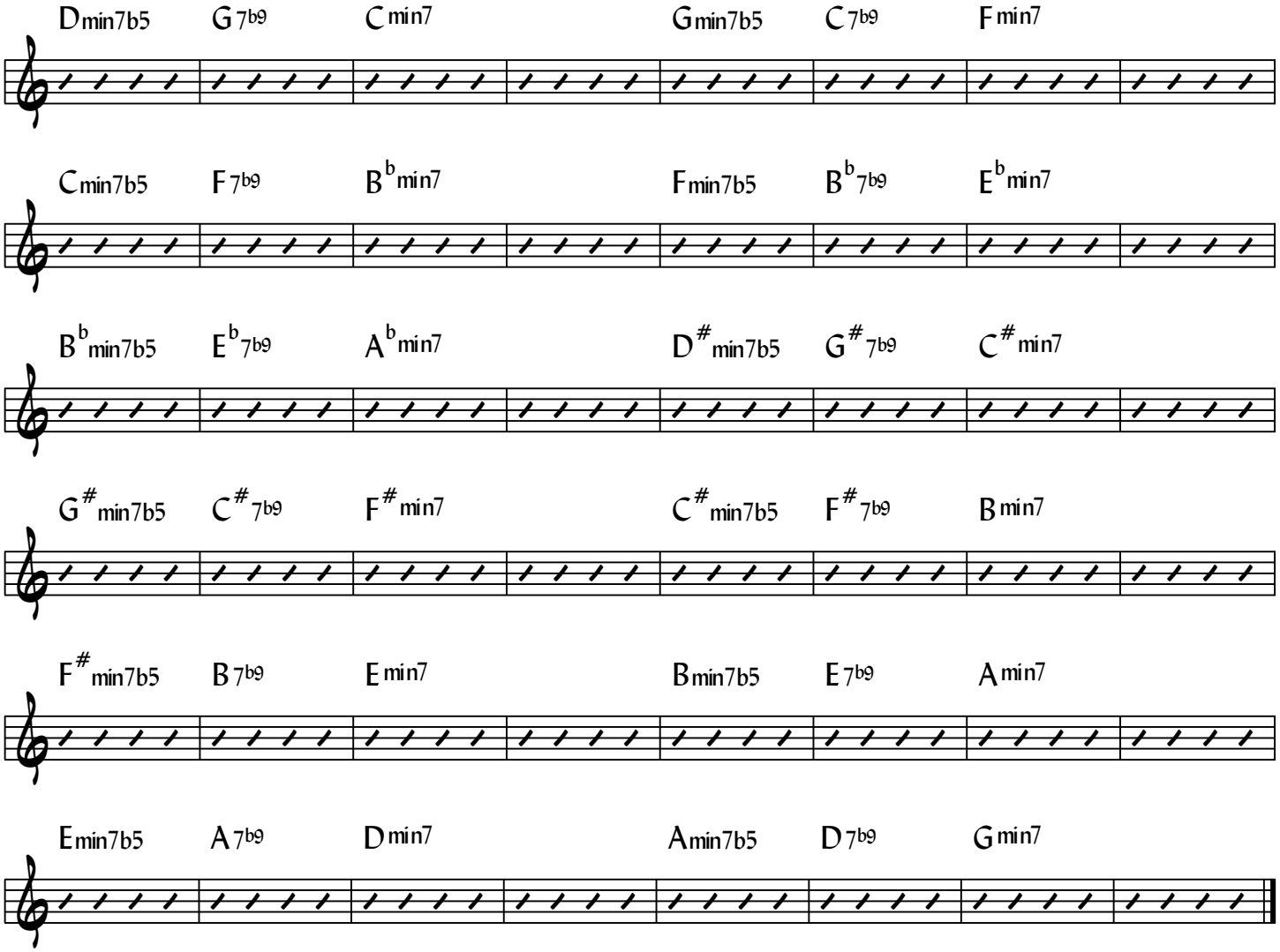


From the example above, it should be apparent that the harmonic minor scale, of the tonic minor key, works for the ii and the V of the minor ii-V-i. The tonic chord in this progression is usually a minor 7 chord, meaning a change of mode to either pure minor (Aeolian - an okay choice) or dorian (usually considered a better, more advanced choice) is required in order to supply the lowered 7th scale degree. Either pure minor or dorian will work fine in most cases.

2. Below is a block, simple left hand piano voicing for minor ii-V-i progressions. Learn this in all keys, using the chord chart on the following page. Once again, it should be played an octave below where it is written. As a general rule, keep the lowest note of these voicings below middle C.

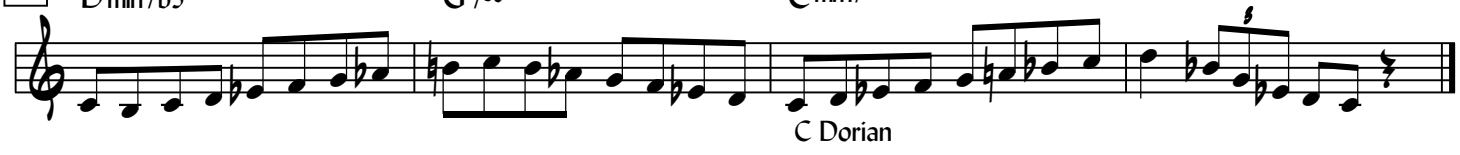


Exercise 19 - The Minor ii-V-i (Harmonic Minor)



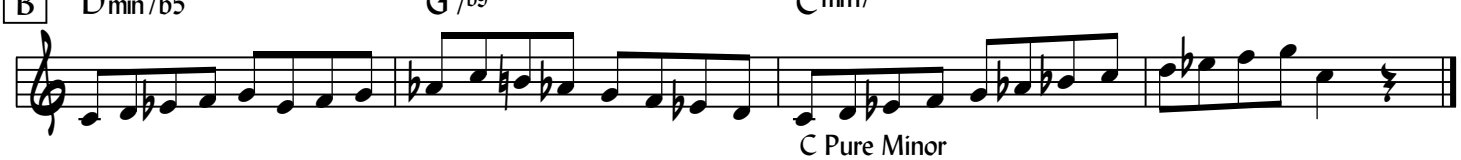
3. Learn the following scale and chord outline patterns in all keys using the chord chart above on your instrument as well as on piano. On piano, play the chords in your left hand, the pattern in your right.

A



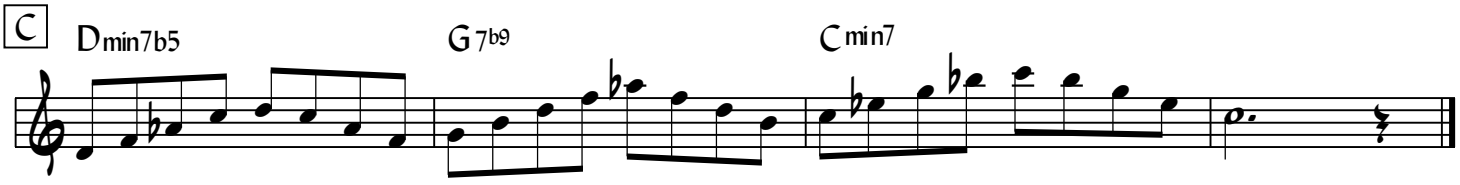
C Dorian

B

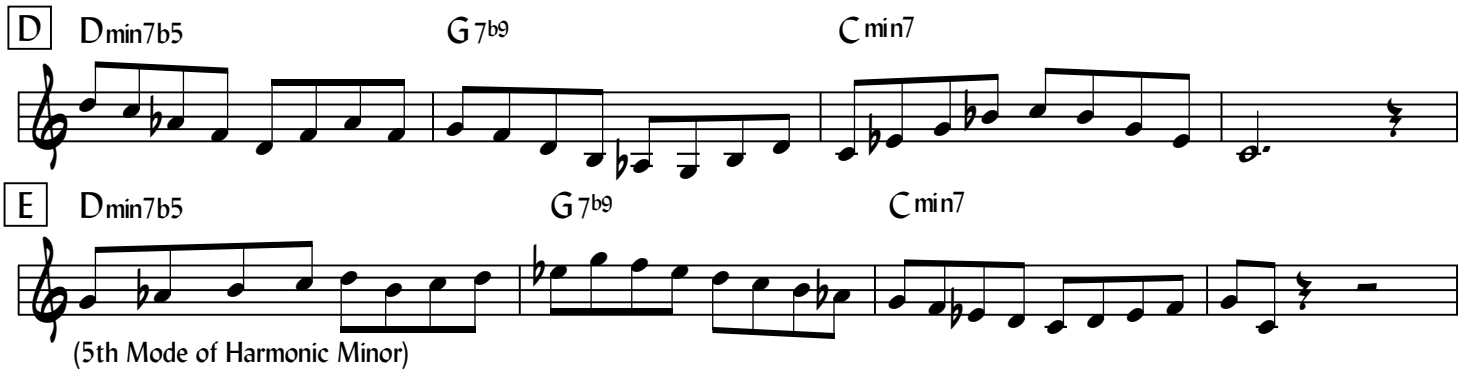


C Pure Minor

C

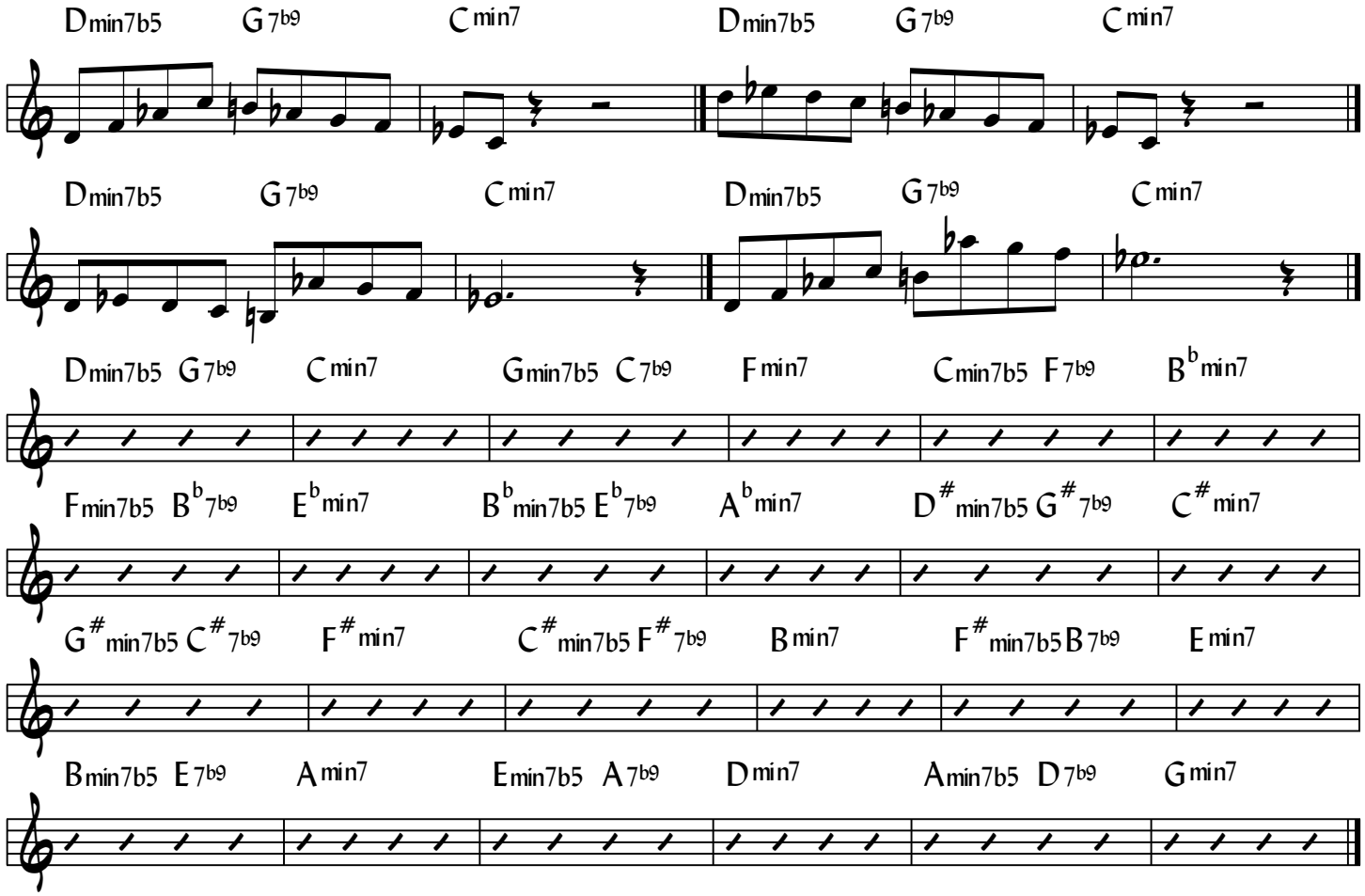


Exercise 19 - The Minor ii-V-i (Harmonic Minor)



Minor ii-V-i progressions often occur in the space of two bars.

4. Learn the following chord outline patterns using the chord chart below on piano and on your instrument.



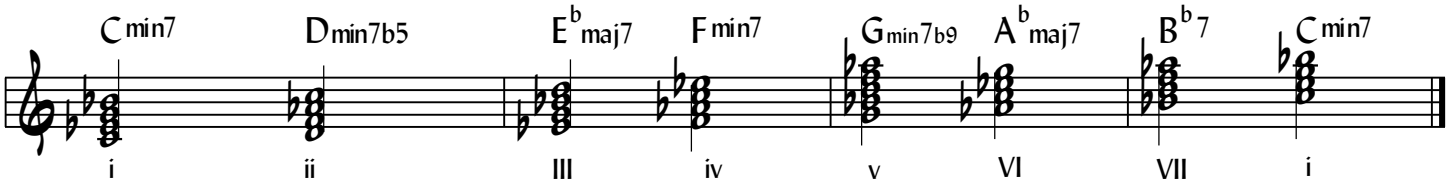
In actual music, especially in many popular jazz play-along series, minor ii-V-i progressions will often be notated with alterations to the V chord other than b9, (C7#9, C7#9#5, C7alt, etc.) or in fake books with no alteration to the V chord at all. (Gmin7b5 to C7 to Fmin7) While in the first case this indicates scale choices other than harmonic minor, harmonic minor will still work. In the second case, from the chords surrounding it, the C7 should always be approached as the V in a minor key. For now, approach any ii-minor7b5 to V-dominant 7 to i-minor 7 chord as a minor ii-V-i using harmonic minor.

Exercise 20 - Minor Key Harmony and Function

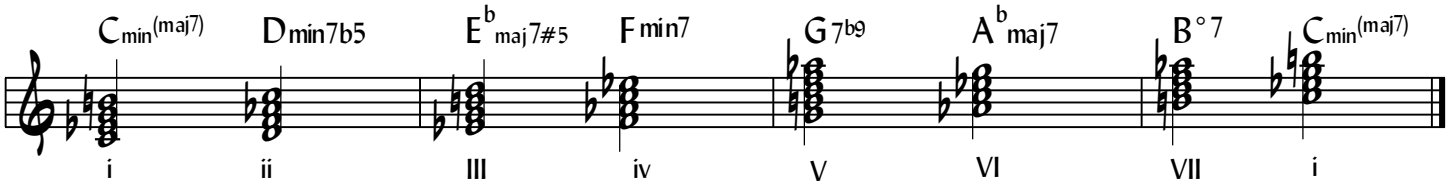
Minor key harmony is a little more complicated than major key harmony. In major keys, a single scale (the major scale) is used to create chords. In minor keys, a combination of three scales (pure minor, harmonic minor and melodic minor) can be used to create chords. To keep things as simple as possible for now, this exercise will deal only with the most common, traditional minor key harmonies.

For the most part, common minor key harmonies come from either the pure minor scale or the harmonic minor scale. Below are each of these scales and the chords contained within them.

Pure Minor Scale

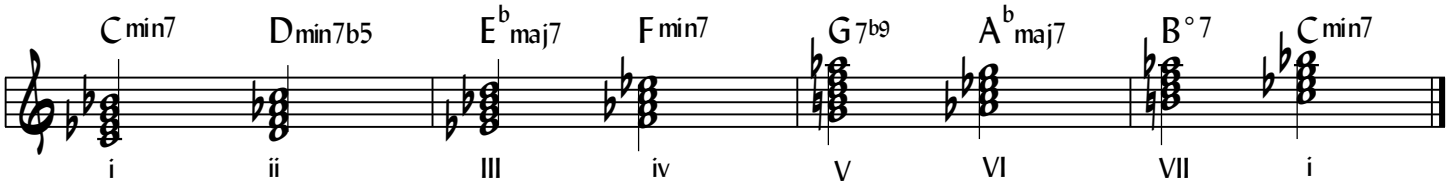


Harmonic Minor Scale



Below are the most common minor key chords. The ii, iv, and VI chords are the same for both the pure minor and the harmonic minor scale. The i and III chords typically come from the pure minor scale, the V and vii, (the dominant functioning chords) both come from the harmonic minor scale.

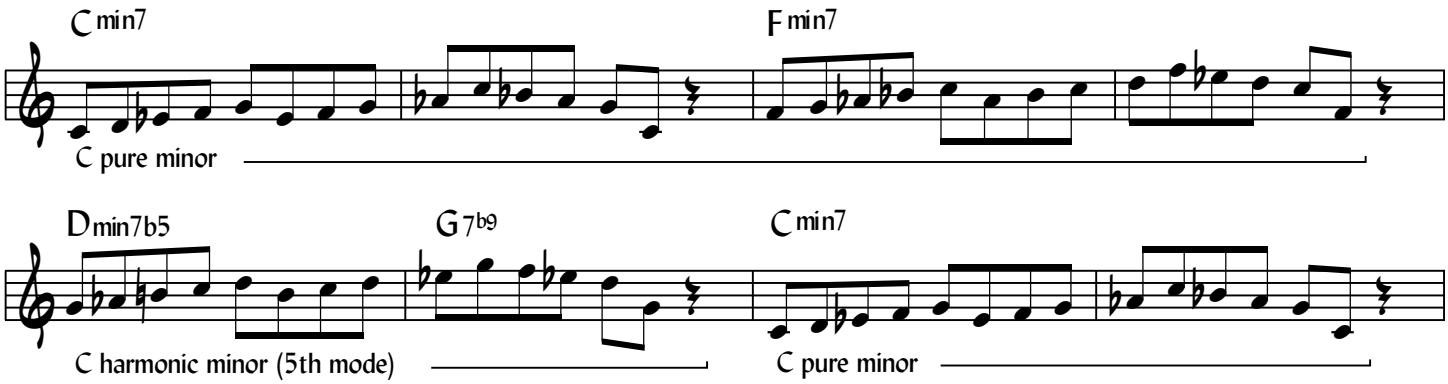
Common Minor Key Chords

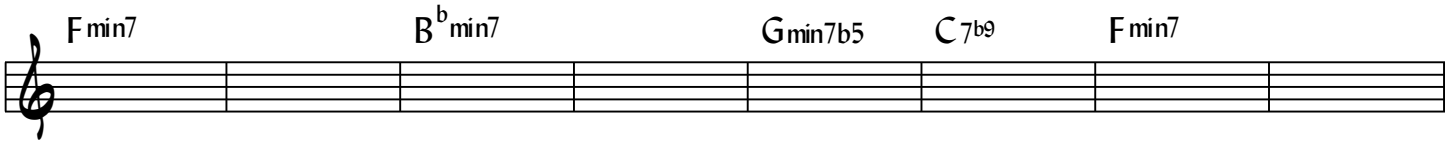


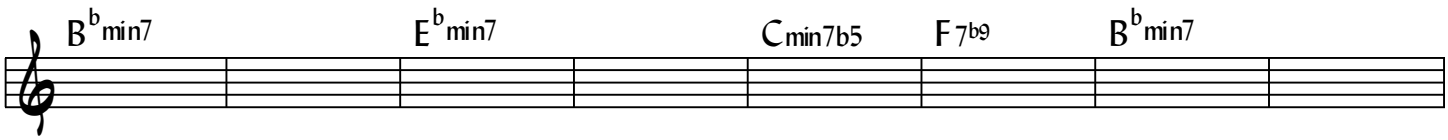
The most common minor key chords found in standard jazz tunes are: i (min7) ii (min7b5) V (dom7b9) and iv (min7). VI (maj7) and III (maj7) occur more often preceded by a (secondary) dominant and from a melodic standpoint become tonic chords in major keys. The vii diminished 7 chord rarely occurs as a vii chord, the dominant b9 V chord filling that role with diminished 7 chord the top four notes of the structure. Most diminished 7 chords in standard jazz tunes are passing or secondary dominant chords and will be addressed in later exercises.

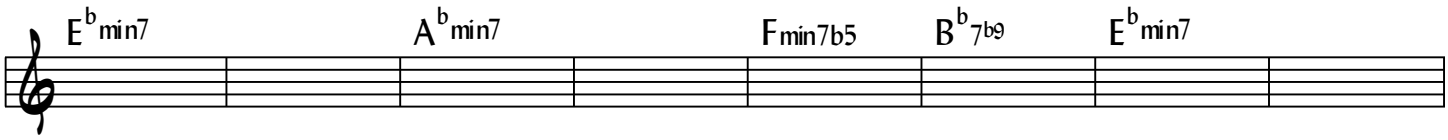
Exercise 20 - Minor Key Harmony and Function

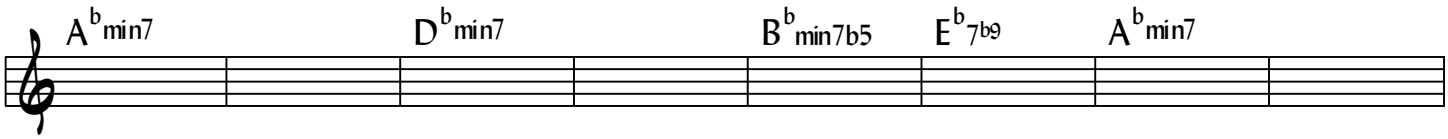
1. Learn the following minor scale patterns in all keys on your instrument using the the chord chart below. As previously stated, dorian can almost always be substituted for pure minor. Feel free to play dorian (♮6) for all the minor 7 chords in this exercise instead of pure minor if you feel comfortable with doing so.

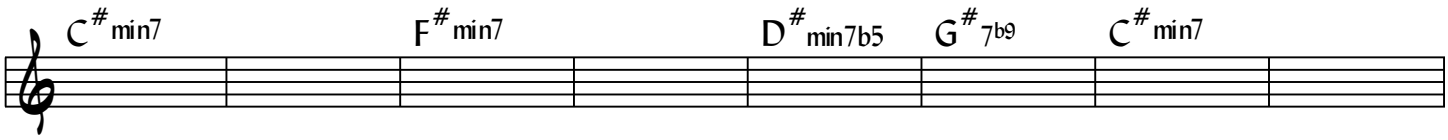


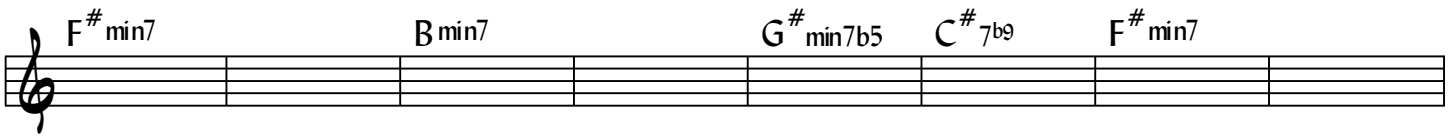


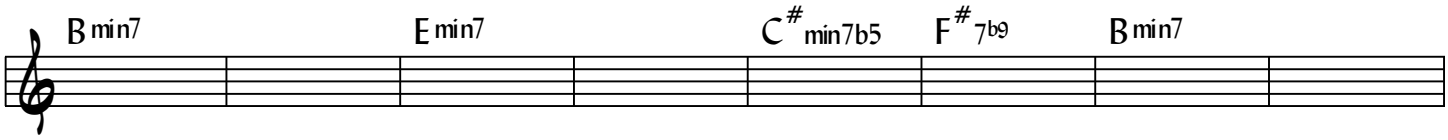


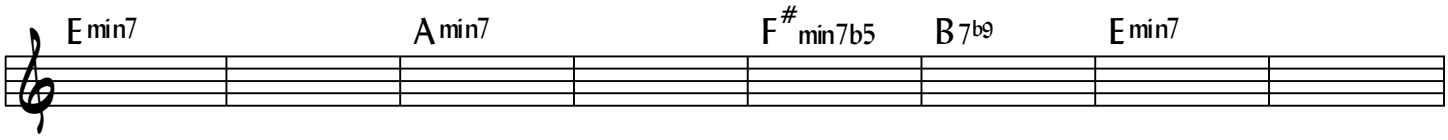




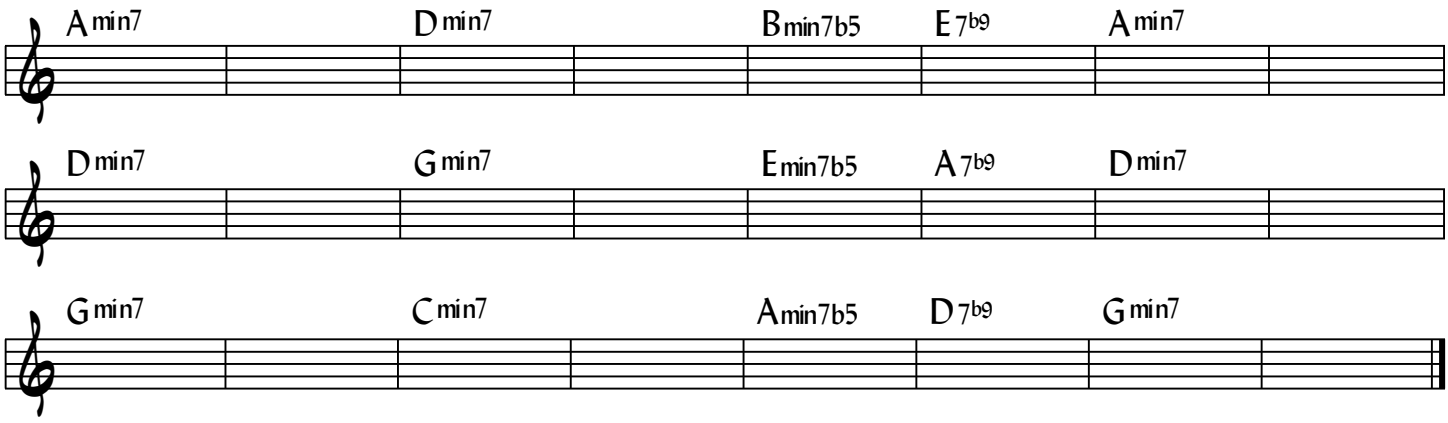




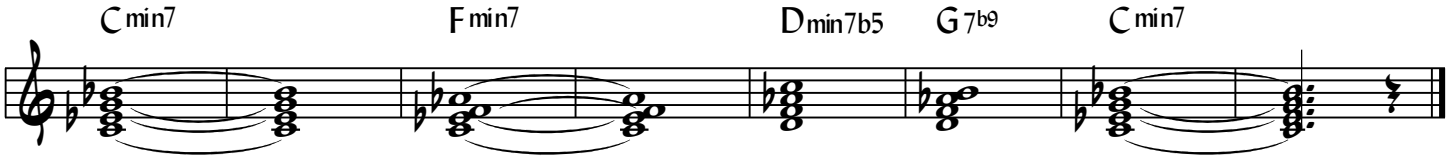




Exercise 20 - Minor Key Harmony and Function

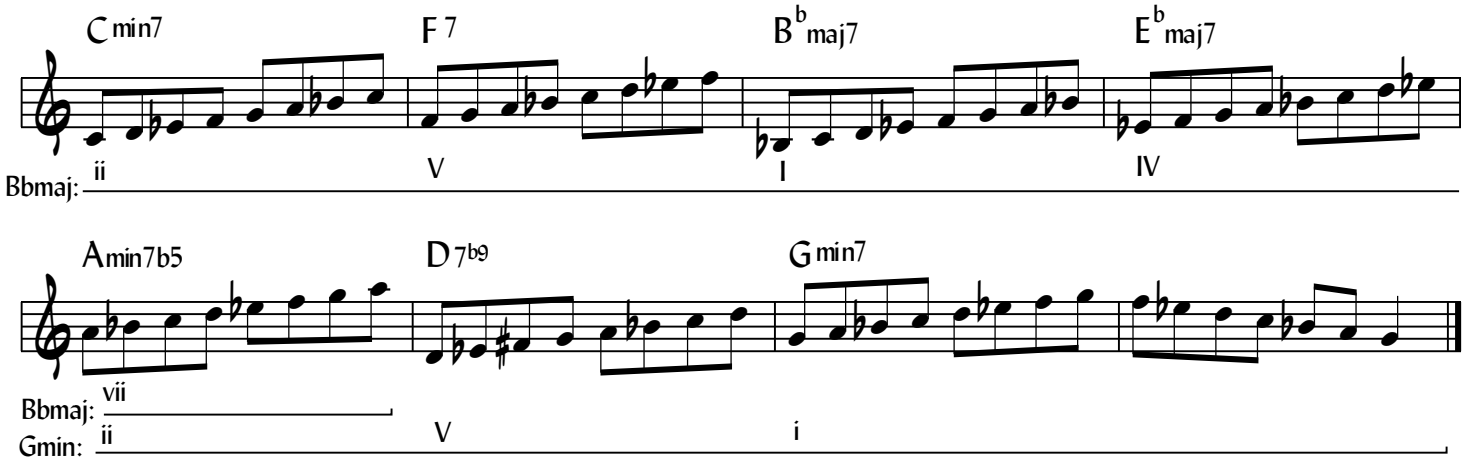


2. Learn the simple left-hand block piano voicings below in all keys. Learn them in all keys, playing the scale patterns from the previous exercise in your right hand an octave above. (Play chords an octave lower than written)



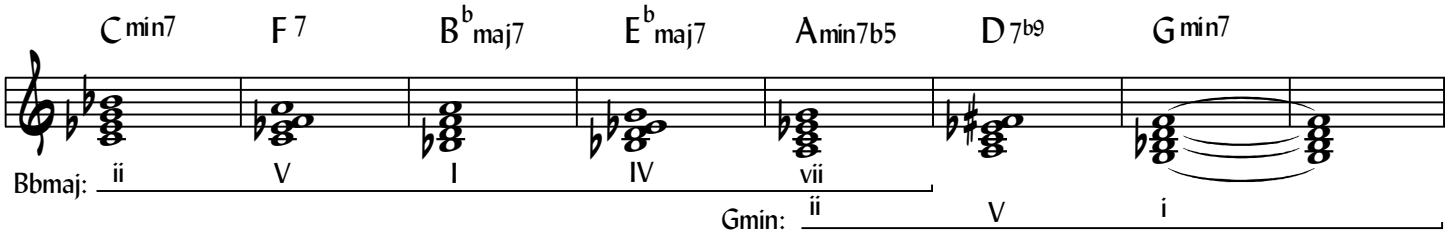
In minor keys, as in major keys, the dominant 7 V chord determines key. In each of the examples just learned this should have been apparent. What may have been confusing was that the first chord of each system, (the tonic chord) could also have been the minor iv chord from the previous key. Chords functioning in two keys are called "pivot" chords and allow for smooth and natural modulations between keys. Soloists often choose to approach these chords differently depending on the shape and direction of their melodies.

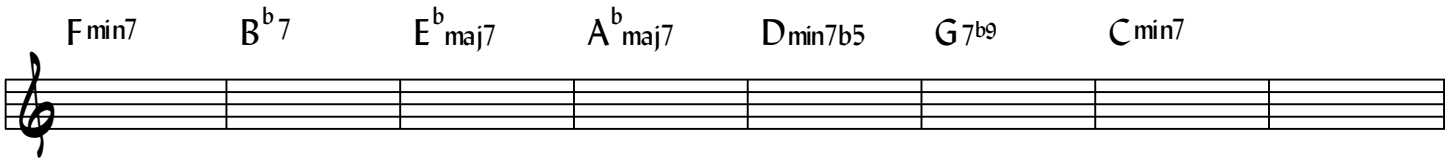
Below is an example from "Autumn Leaves." The Amin7b5 is a pivot chord, functioning both as vii in the key of Bb and ii in the the key of G minor. In the example, locrian is notated as the scale choice. A soloist could easily decide to approach the Amin7b5 to D7b9 as a ii-V in G minor and use G harmonic minor for both of those measures.

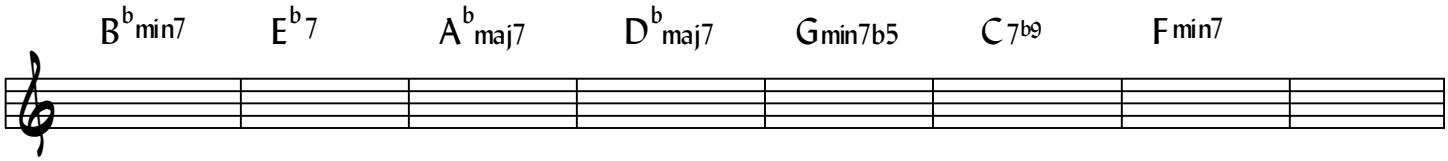


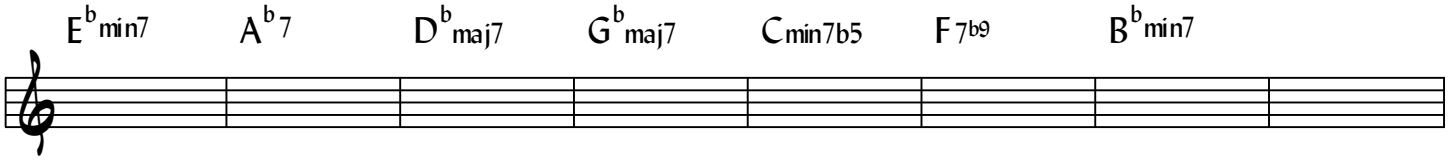
Exercise 20 - Minor Key Harmony and Function

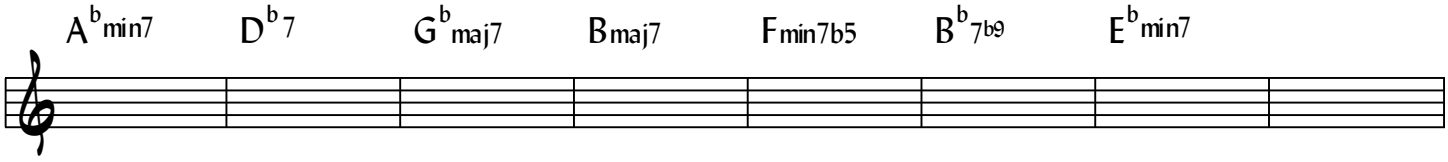
2. Learn the following block chord voicings on piano in all keys using the chord chart that follows. Be able to play scales or patterns previously learned for every chord in every key on your instrument.

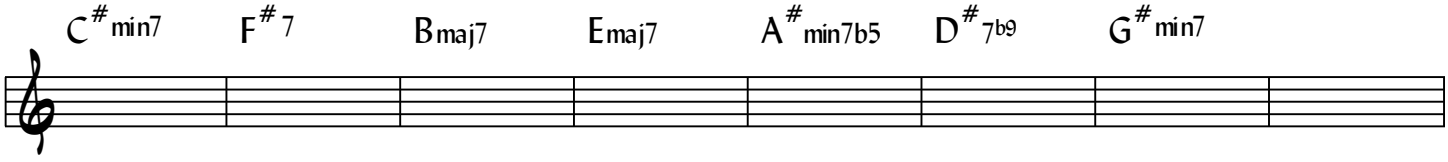


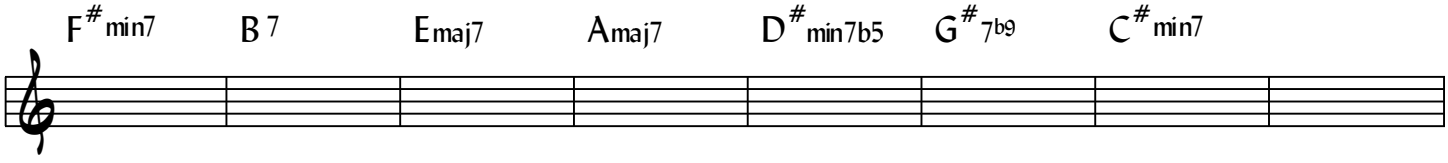


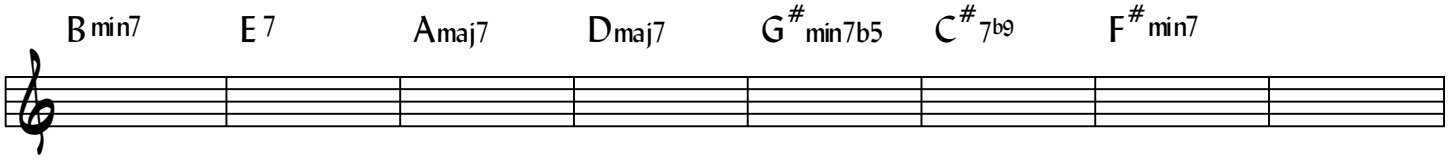




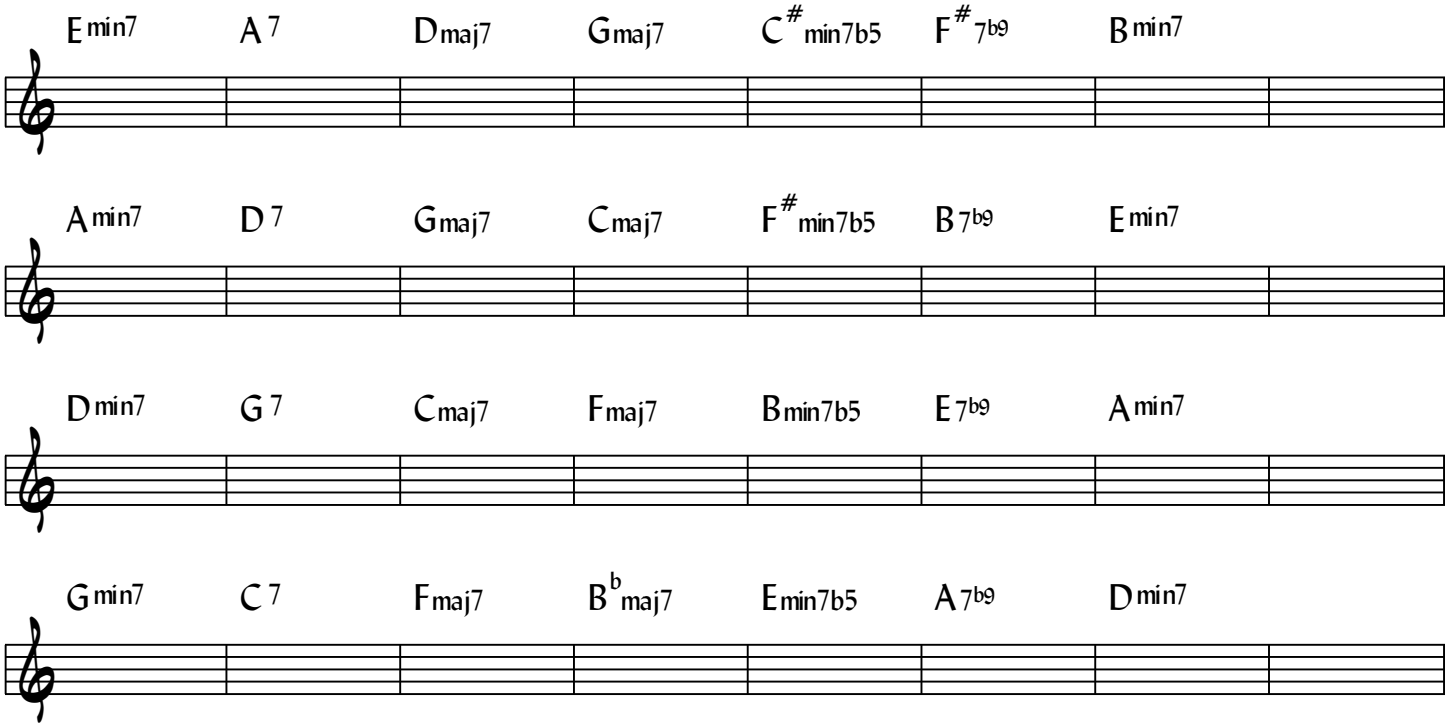




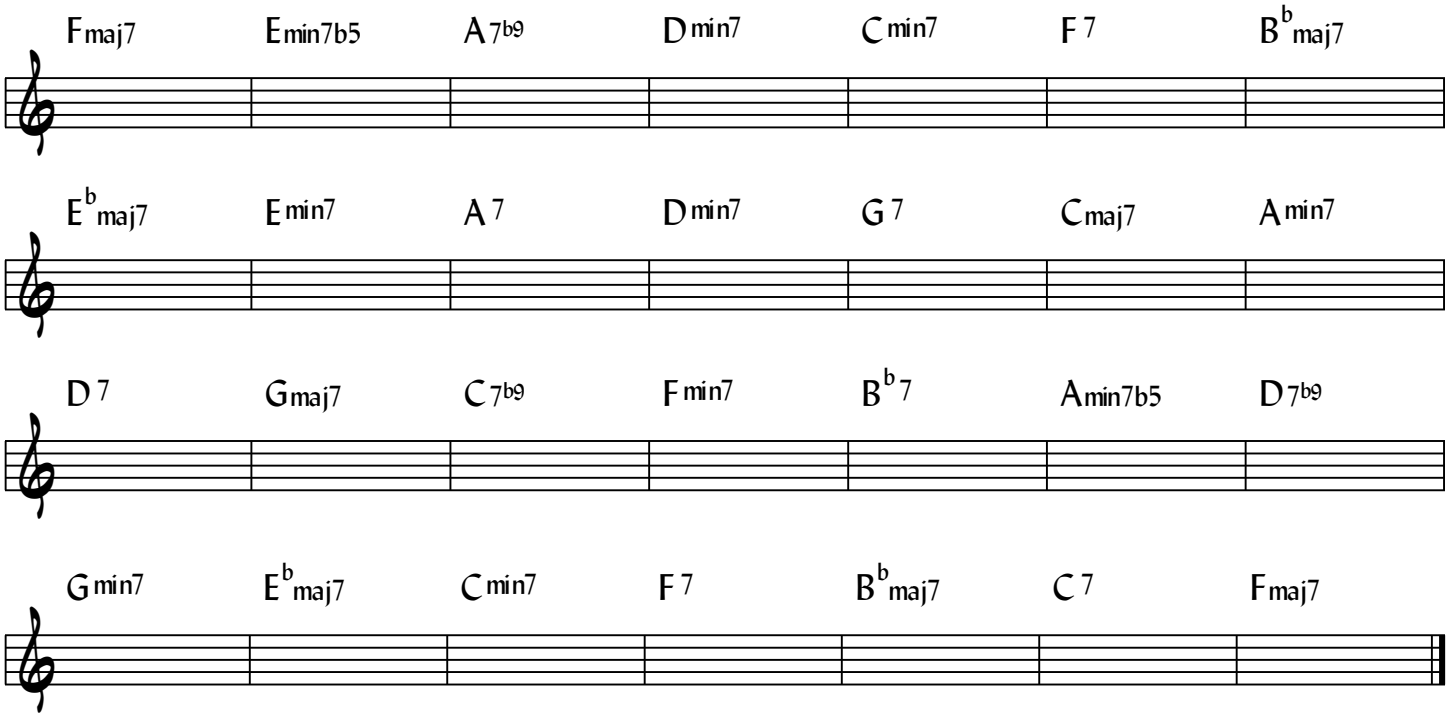




Exercise 20 - Minor Key Harmony and Function

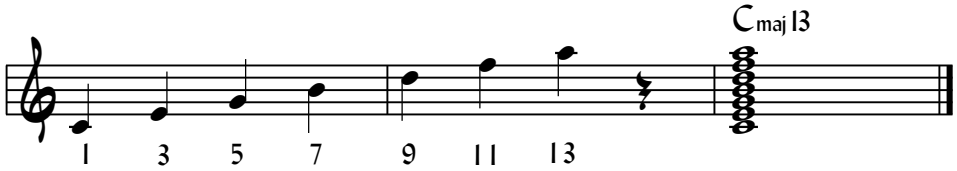


3. Supply a roman numeral analysis with key centers and scales for the following progression.



Exercise 21 - Chord Extensions

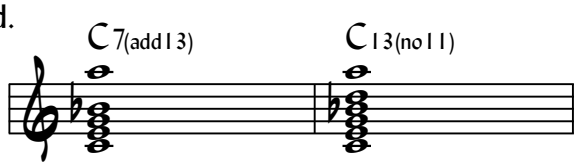
Extensions are notes added to chords beyond the 7th scale degree. Continuing with the concept that chords come from scales and chords are spelled in 3rds, this would leave three notes from a seven note scale available to be added as extensions.



The three extensions, 9, 11 and 13 represent the 2nd, 4th and 6th scale degrees. (Subtract 7 from any extension and the result will be the correct scale degree.) A full 13 chord will include all the notes required to spell a complete scale. This will be important to remember when dealing with chords with multiple alterations. A few common practice rules about chord extensions.

1. Regardless of key or chord quality, extensions are notated as major scale intervals (major 9th, perfect 11th major 13) above the root of the chord. Put another way, extensions come from the major scale starting on the root of the chord. The extensions for Cmaj13, Cmin13, C13 etc. are all figured from the C major scale.

2. Extensions are inclusive of all chord tones below. Meaning that a 13 chord includes the 11th and 9th. Extensions that do not include chord tones below can be notated with extensions added or with specified notes not included.

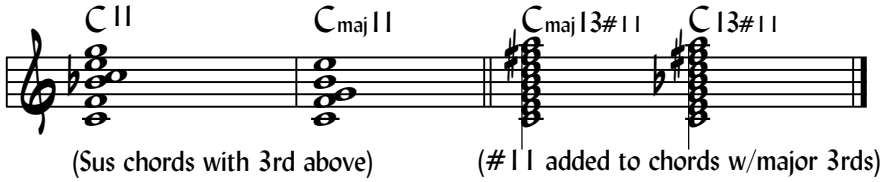


3. A chord symbol with a note name followed by a number 7 or higher is a dominant chord with a lowered 7th scale degree. (C7, C9, C11, C13)

4. A C major 7 chord with extensions would be notated as Cmaj13 or Cmaj9.

5. A C minor 7 chord with extensions would be notated as Cmin13, Cmin11 or Cmin9.

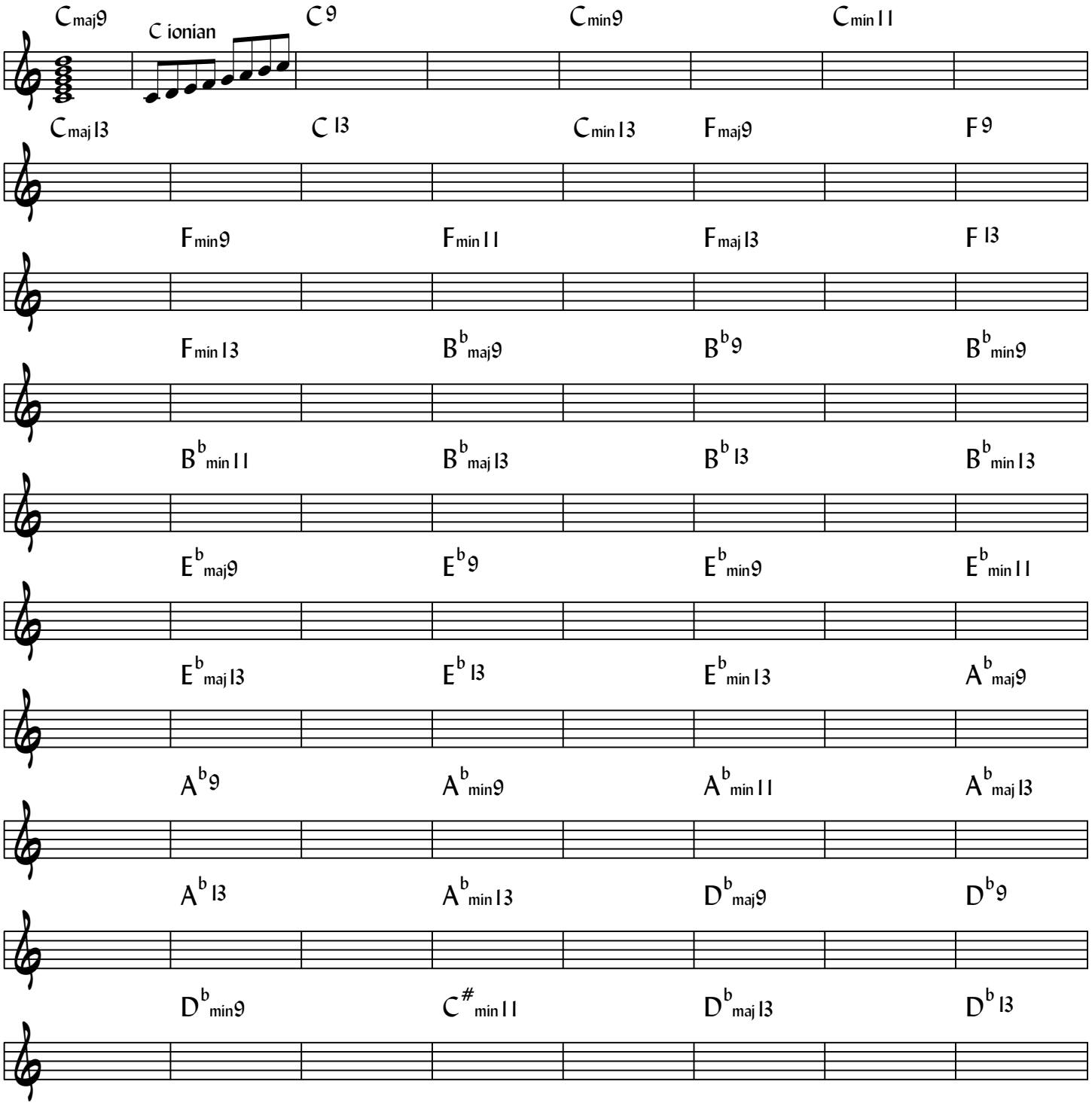
6. The natural 11th is rarely included in chord voicings with a major 3rd (major or dominant chords) because of the the half-step (or minor 9th) clash it creates. While it is part of the scale and can be used as a passing tone melodically, the 11th should be left out of chord voicings. Another option is to raise the 11th a half-step creating a #11 chord. This would need to be notated in the chord symbol and would result in a different scale choice. One exception to this is when an 11th chord is voiced as a sus chord (the 4th replacing the 3rd, the third added above). This is an excellent sounding chord that will sometimes be notated as an 11th chord.



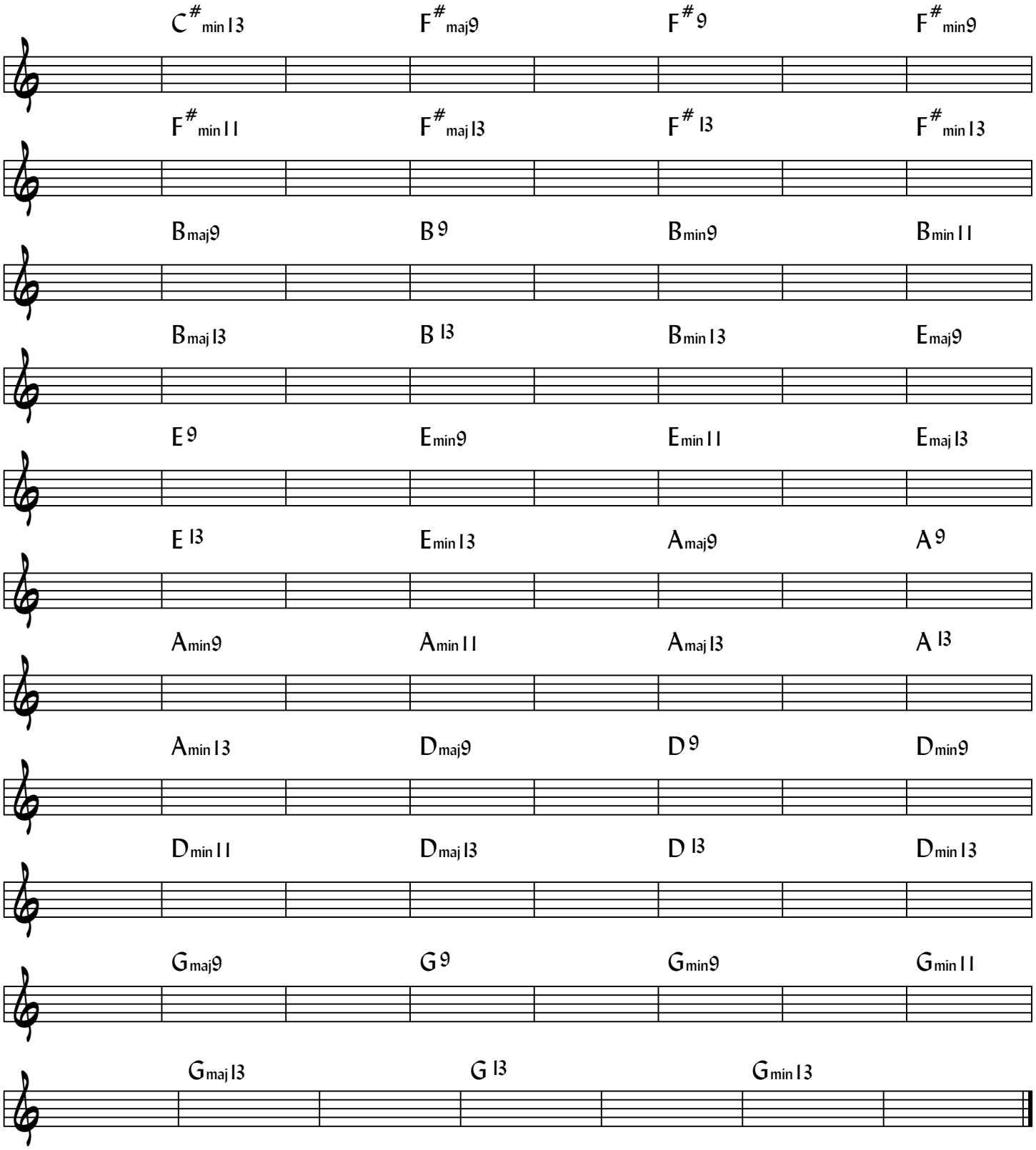
Exercise 21 - Chord Extensions

7. The natural 11th in minor chords (any chord with a b3rd) sound great and are an excellent color tone. They can and should be considered a target note melodically.

1. Spell each chord. In the second bar, spell the correct scale and supply the correct scale name.



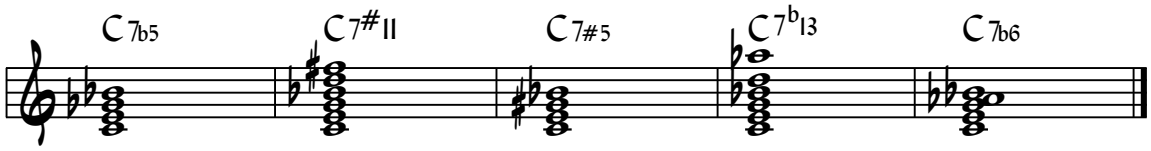
Exercise 21 - Chord Extensions



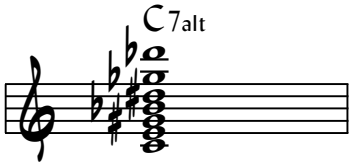
Exercise 22 - Chord Alterations

Chord alterations are notes within a chord structure that are either raised or lowered to produce a different sound without changing the actual quality (major, minor, dominant) of the the chord. Chord quality is determined by the 3rd and 7th. Obviously altering the root would create a completely different chord, so that leaves four pitches (out of the seven in a complete 13 chord) that could theoretically be altered. These would be the 5th, (#5, b5) the 9th, (#9, b9) the 11th, (#11 or #4 in some play-along books) and the 13th (b13 or b6). While it would be possible for someone to write a b11 or a #13, these pitches duplicate the major 3rd and the dominant 7th and as such are not generally used as alterations.

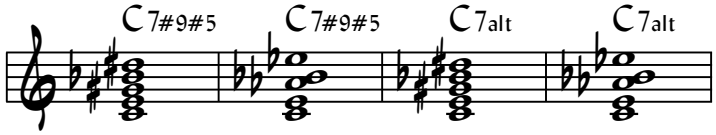
Notice that some of these alterations create the same pitch to be added to the chord. In a C chord, a b5 is a Gb while a #11 is an F#. The #5 is a G# while a b13 is an Ab. The difference is that a C7#11 would include a natural fifth (G) and a C7b5 would not; a C7b13 or C7b6 would also include a natural fifth (G) while a C7#5 would not. In each case causing a completely different sounding chord and scale choice.



So, a chord that is "fully altered" would include a b5 (#11) #5 (b13) b9 and #9. A C7#9#5b9b5 chord is sometimes notated as C7alt for fully altered.



Most of the time, a fully altered chord will be voiced to include just the #5 and the #9. In chords that are notated, either or both of the alterations may be enharmonically spelled for ease of reading.



Common alterations by chord quality:

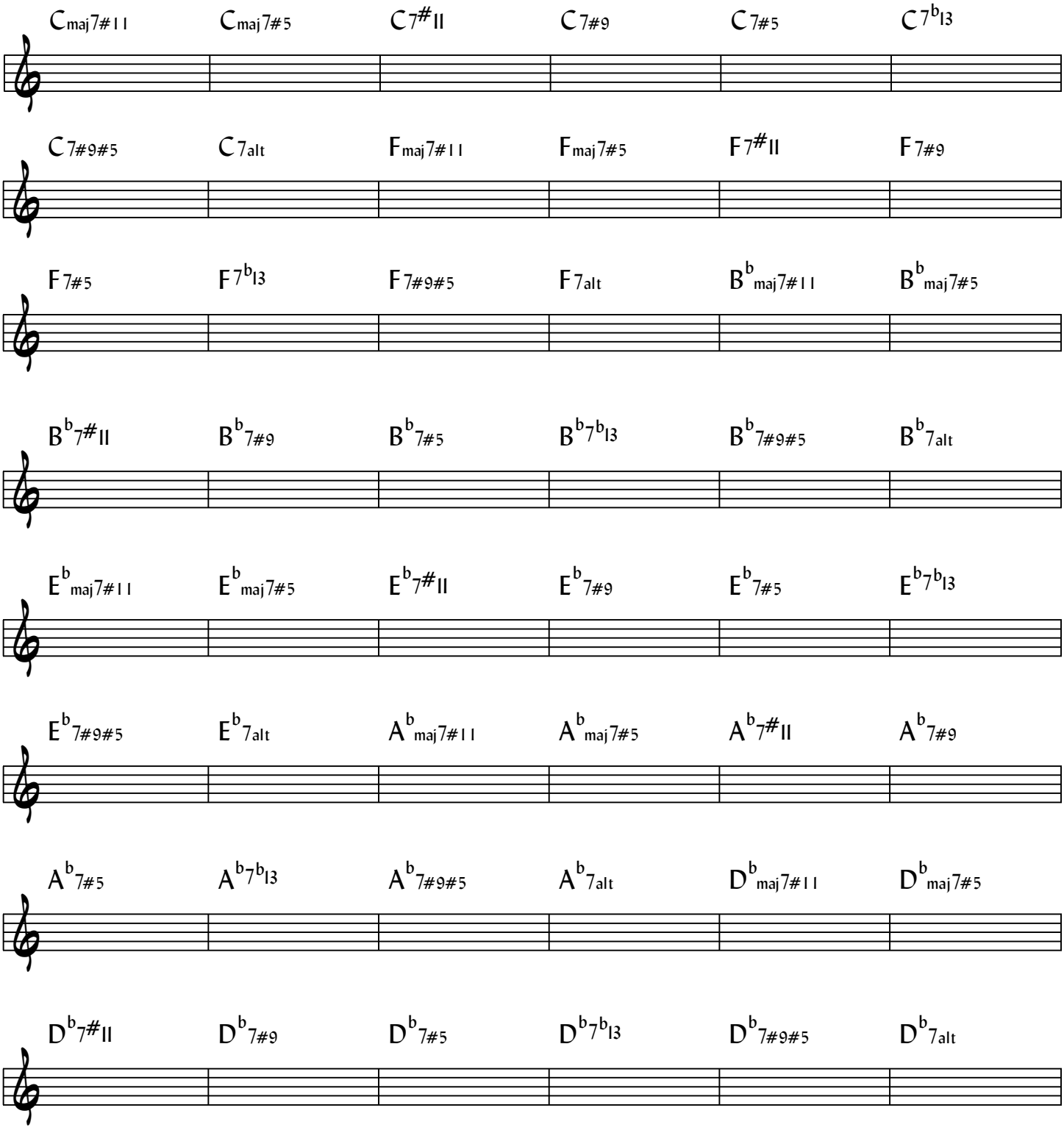
1. Dominant chords are by far the most often altered chord. Expect to see b5, #5, b9, #9, #11, b13 in any combination. In advanced playing situations, virtually any dominant chord that resolves to tonic will be altered in some way, whether it is notated as such or not.

2. The most common major 7 chord alterations are #11 and #5. The #11 (lydian scale) can be added to almost any major 7 chord as a color tone and will create a scale with no bad notes. (The 4th scale degree of the major scale conflicts with the 3rd of a major chord and needs to be used with caution.)

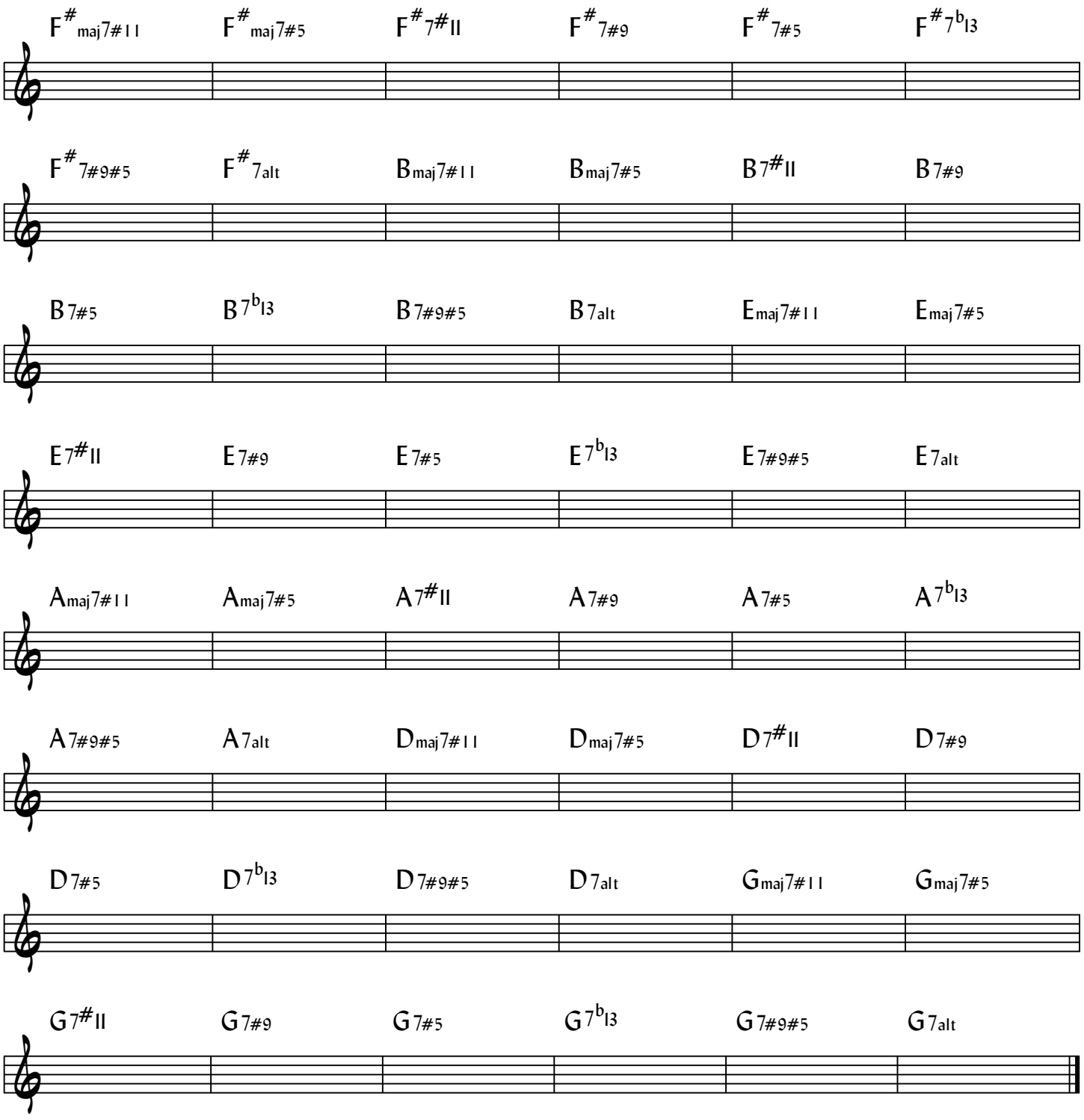
3. Minor 7b5 chords are very common. Less common are min7b13 (aeolian) or min7b9 (phrygian).

Exercise 22 - Chord Alterations

1. Spell each of the following chords with alterations.

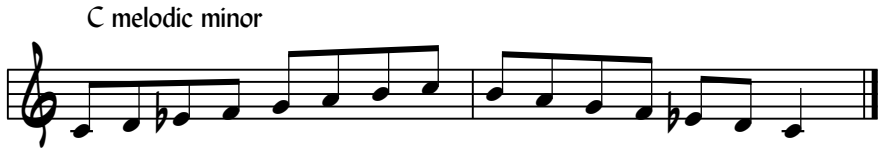


Exercise 22 - Chord Alterations

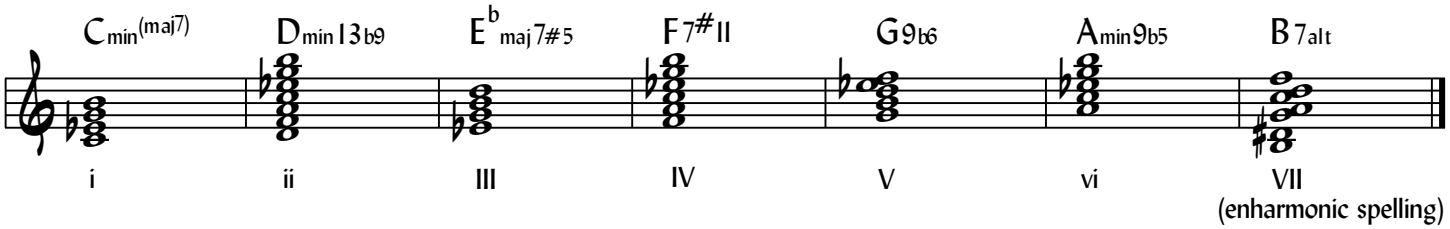


Exercise 23 - The Melodic Minor Scale

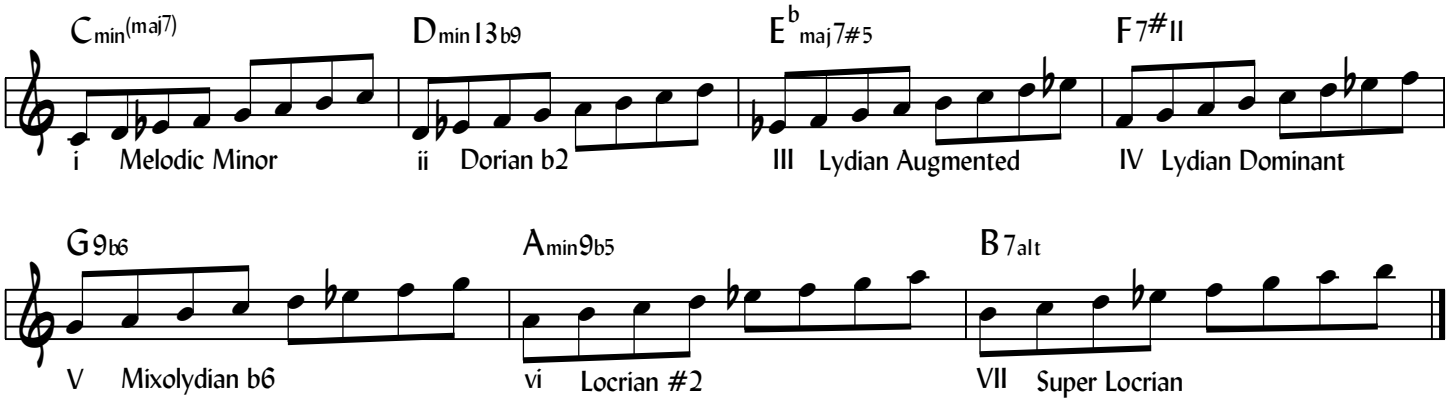
The ascending melodic minor (or just melodic minor in this text) creates a set of very important chords/scales. Only the ascending version is used because the traditional descending version (b7, b6, b3) duplicates pure minor and adds nothing to the vocabulary. While it sounds like a contradiction, the easiest way to learn melodic minor scales is to think of them as major scales with a lowered third scale degree.



Below are the chords that come from C melodic minor.

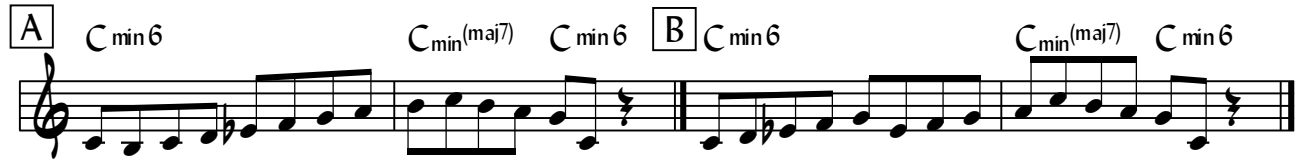


Below are the modes of C melodic minor.

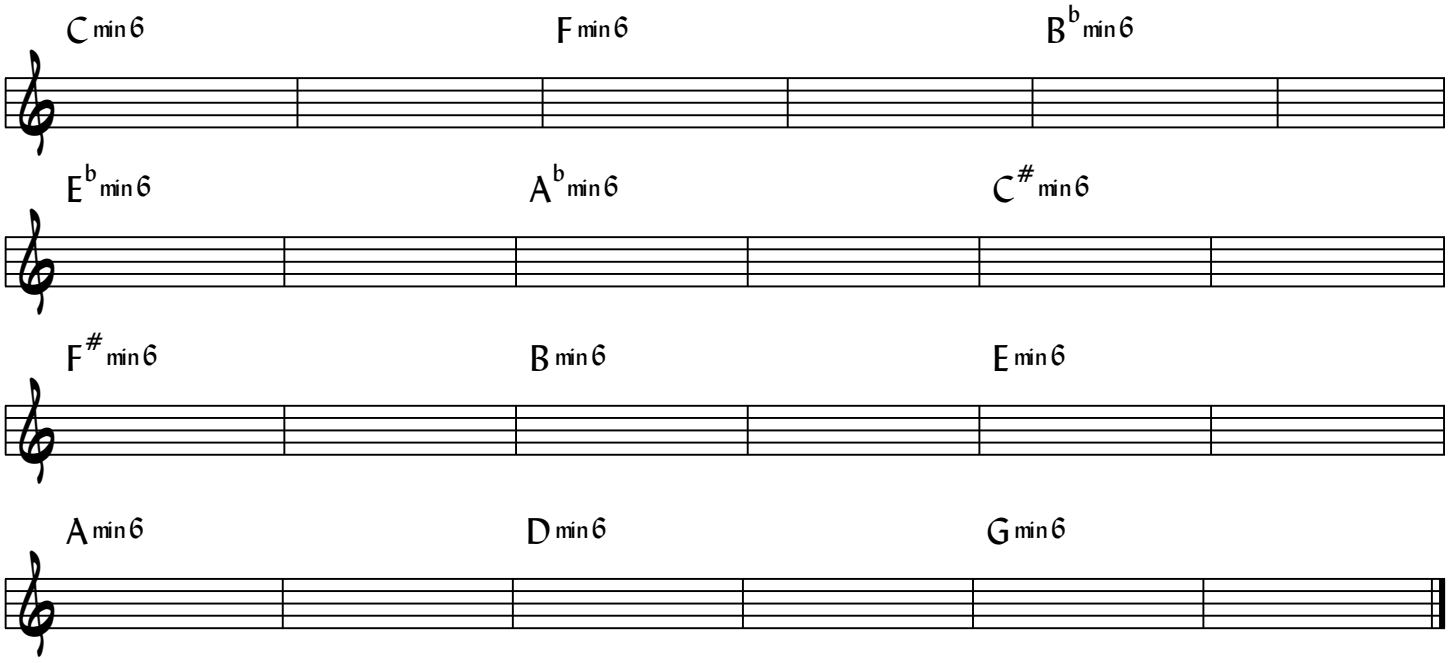


Of these chords and modes, the ii and V of melodic minor are seldom used and should be understood from a theoretical standpoint for the rare occasions they do show up. The rest are extremely important and need to be playable in any key.

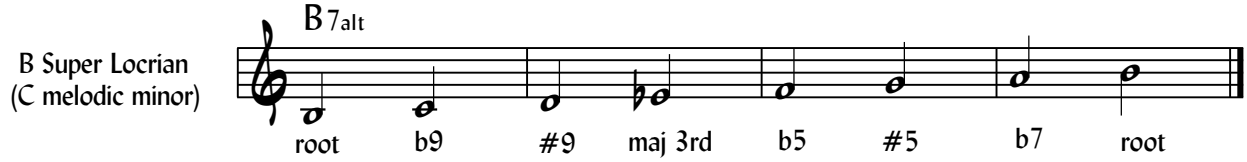
1. Learn the following melodic minor scale patterns in all keys on your instrument and on piano with the chord in your left hand. Use the chord chart on the following page.



Exercise 23 - The Melodic Minor Scale



Super Locrian is the VII mode of melodic minor and is the scale for fully altered (altered 9th & 5th) dominant chords.

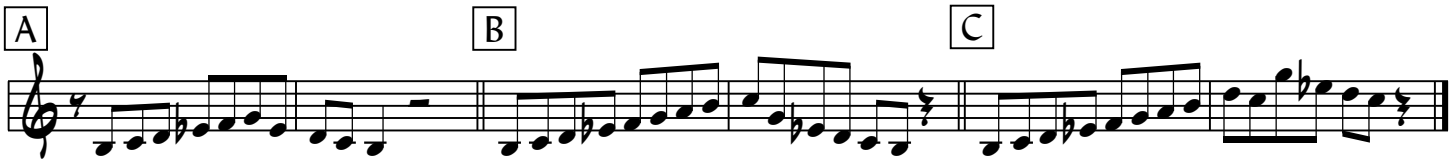


2. Memorize the following chart of fully altered dominants followed by their parent melodic minor scale. Note that by using enharmonics the scale choice can easily be simplified.

B7alt = C melodic minor
A7alt = Bb melodic minor
G7alt = Ab melodic minor
F7alt = Gb melodic minor
Eb7alt = D#7alt = E melodic minor
C#7alt = D melodic minor
E7alt = F melodic minor
D7alt = Eb melodic minor
C7alt = Db melodic minor
Bb7alt = A#7alt = B melodic minor
Ab7alt = G#7alt = A melodic minor
F#7alt = G melodic minor

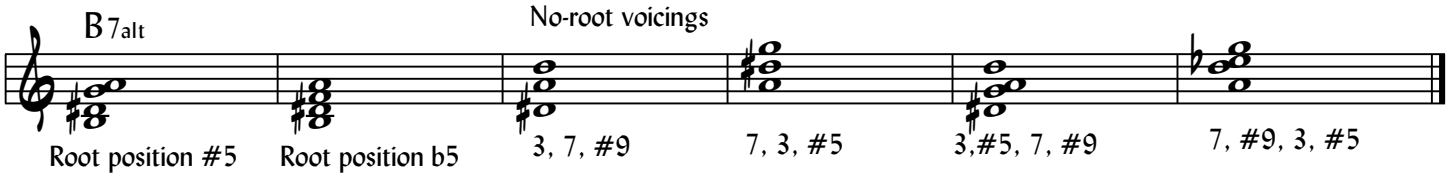
Super Locrian = the melodic minor scale 1/2 step above the root of of the fully altered dominant chord.

3. Learn each of the following super locrian patterns in all keys on your instrument and on piano using the chord chart on the next page.

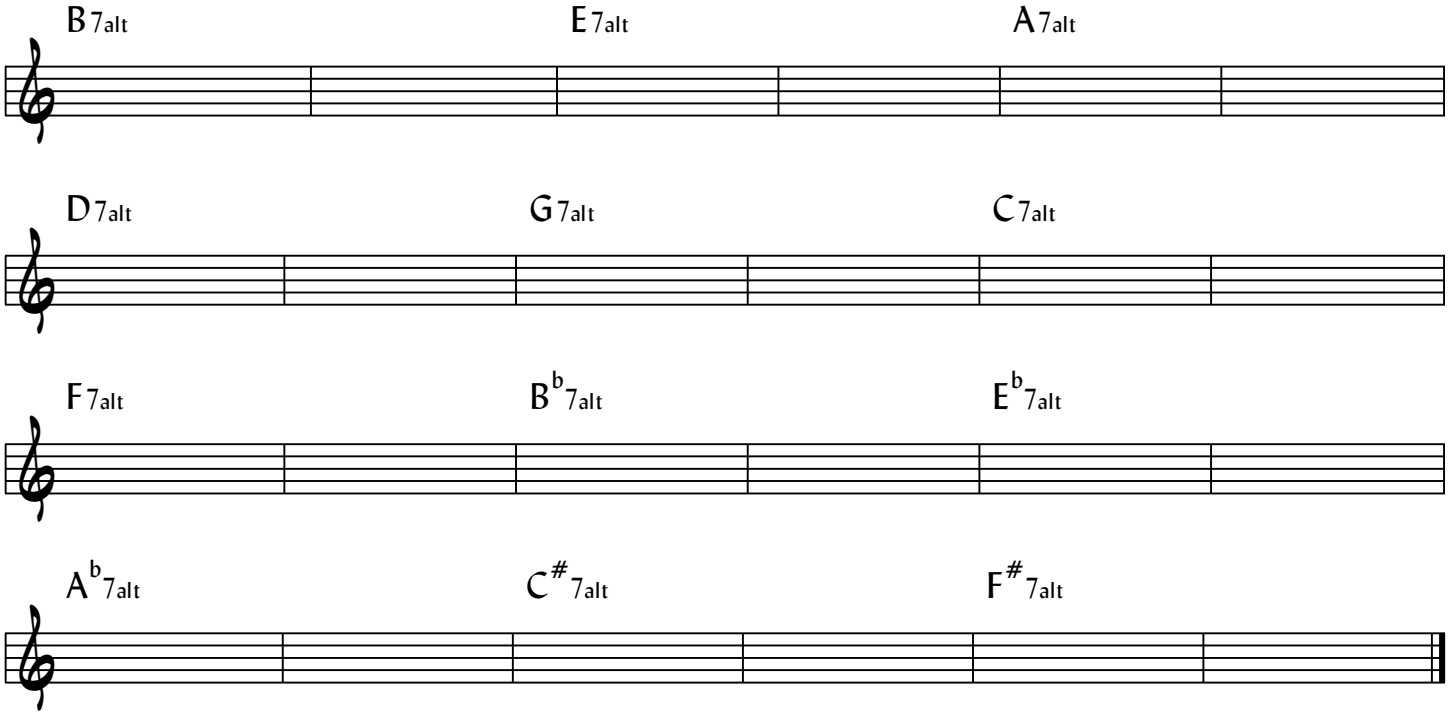


Exercise 23 - The Melodic Minor Scale

Below are sample voicings for B7alt. Begin adding these to the piano exercises. Practice the no-root voicings first in your right hand with the root an octave (or two) below in your left hand. Then put the voicings in your left hand and work towards hearing the root with your inner ear.

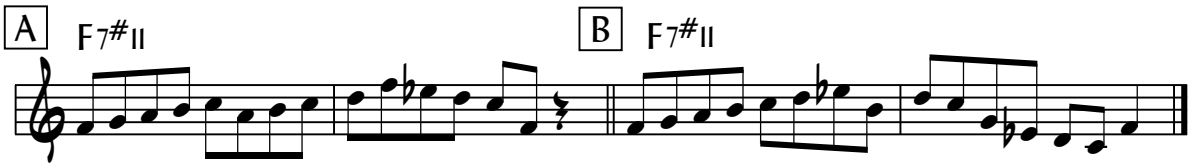


Super Locrian



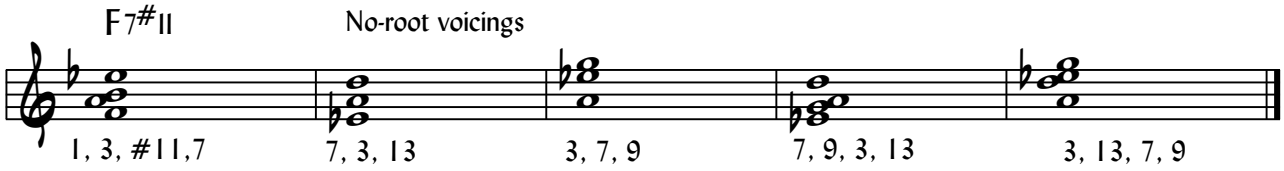
Lydian Dominant (or Lydian b7) is the IV mode of melodic minor and is the scale of choice for a dominant chord with a #11 and an unaltered 9th (F9#11 = C melodic minor). It can also be used as a substitute for mixolydian on any dominant that has and unaltered 5th and 9th (G9 = G mixolydian or G lydian dominant). By this point, it is probably easiest learned as a dominant scale (mixolydian) with a raised 4th scale degree. It could also be thought of as a lydian scale with a b7 or a major scale with a #4 and a b7. The easiest way to remember the lydian dominant parent scale is to play the melodic minor starting on the 5th of the chord. (G9#11 = D melodic minor, Bb9#11 = F melodic minor, etc.)

4. Learn the following lydian dominant patterns in all keys on your instrument and on piano. Use the chord chart on the following page.

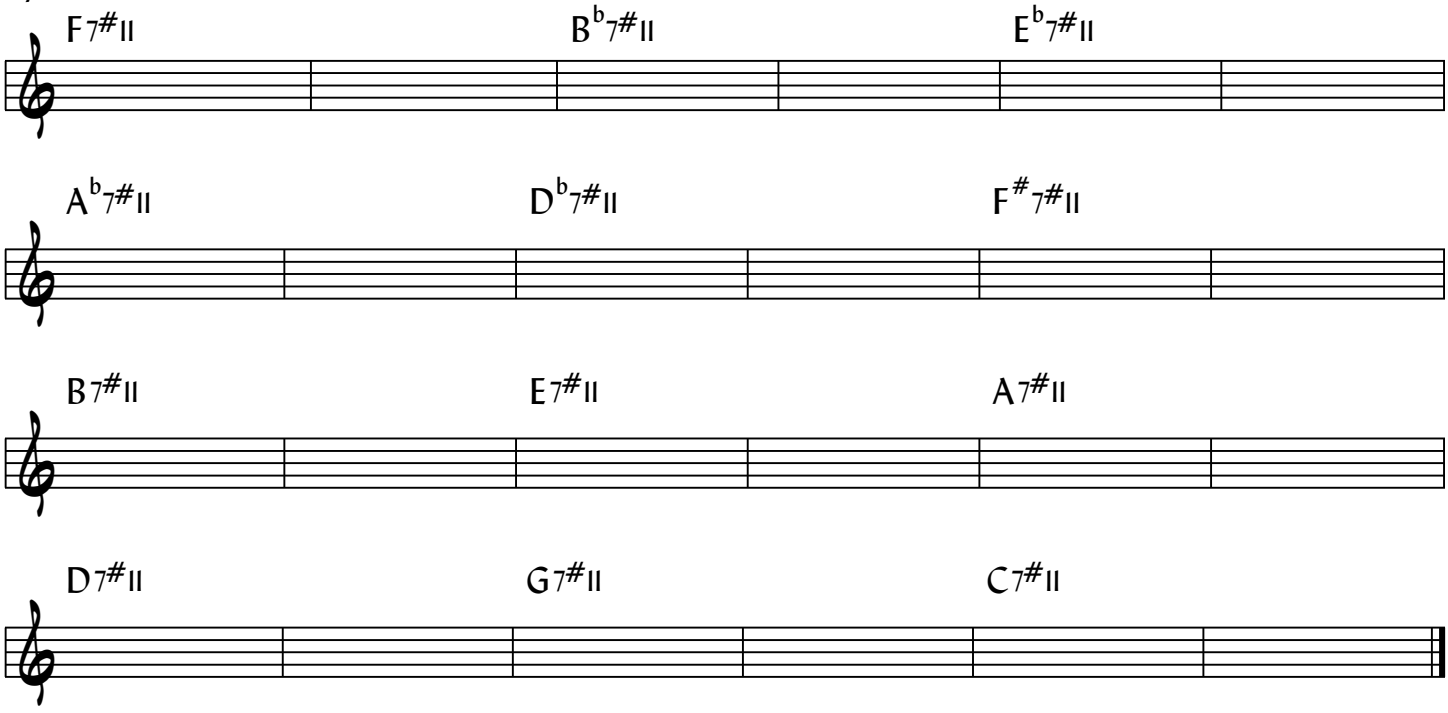


Exercise 23 - The Melodic Minor Scale

Here are suggested voicings for F7#11. As much as possible begin focusing on the no-root voicings. Notice the similarities between the no-root F7#11 voicings and the no-root B7alt voicings.

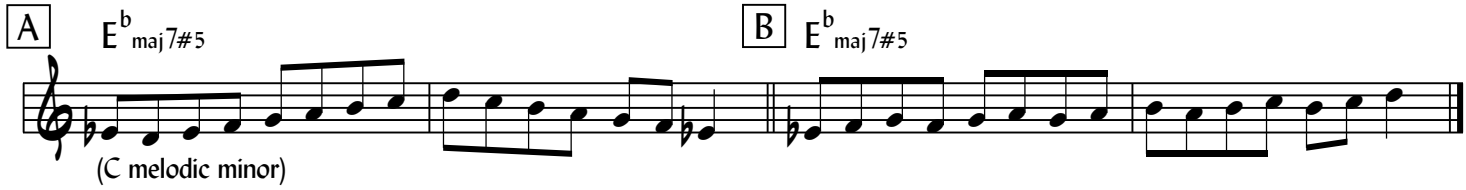


Lydian Dominant

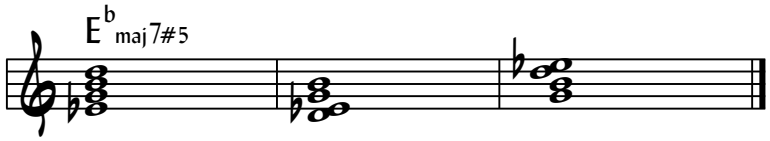


The III mode of melodic minor is lydian augmented and creates a major 7 with a #5 chord (Ebmaj7#5). This chord is often notated as a "slash chord," meaning a chord structure over an alternate bass. For example, Ebmaj7#5 is often written as a G triad over an Eb bass or G/Eb. This chord is often used in compositions as a tonic I chord and in reharmonizations as either a substitute for the tonic major 7 or as a suspension that eventually resolves to tonic major 7 (ex. Fmin7 - Bb7 - Ebmaj7#5 - Ebmaj7).

5. Learn the following lydian augmented patterns in all keys on your instrument and on piano.

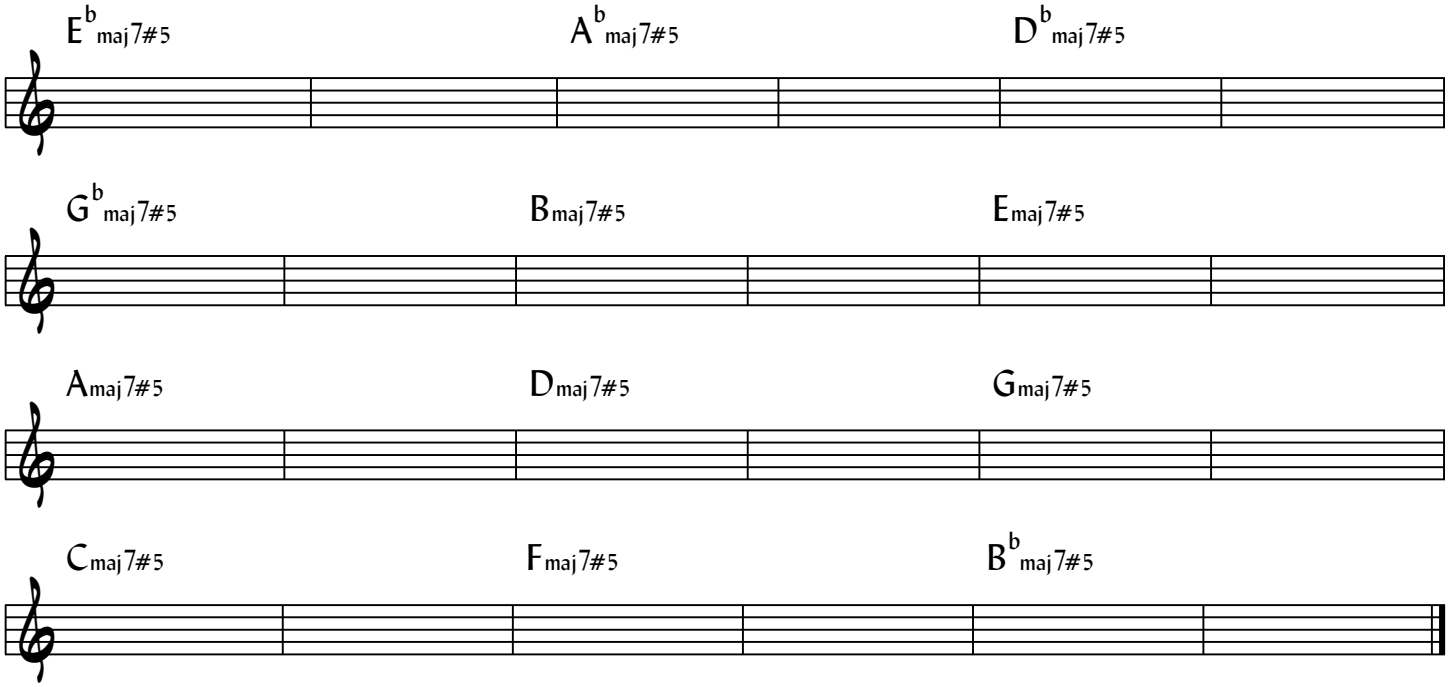


Voicings for lydian augmented.



Exercise 23 - The Melodic Minor Scale

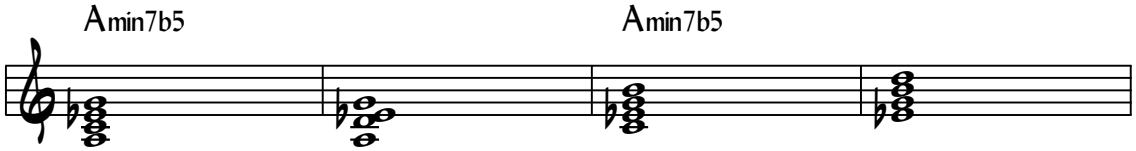
Lydian Augmented



The 6th mode of the melodic minor scale is locrian #2 and creates the minor 9b5 chord. (Amin9b5) The actual "min9b5" chord symbol is rarely used but the natural 9 is often added as a color tone to minor 7b5 chords. Most half-diminished chords can be approached using this scale and any extended minor 7b5 chords (two or more bars) will probably sound better with the ♮9th. It might be best remembered as a pure minor scale with a b5, a major scale with a b3, b5, b6 and b7, or as the name suggests, a locrian scale with a raised 2nd scale degree.

6. Learn the following locrian #2 patterns in all keys on your instrument and on piano.

Half-Diminished voicings.

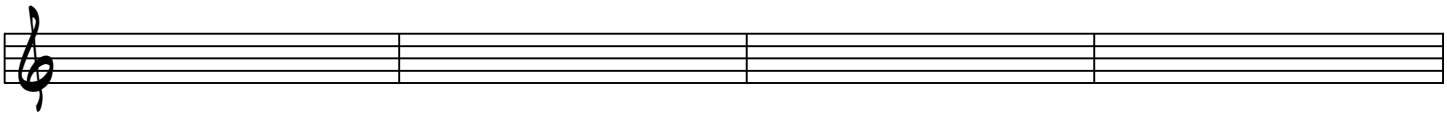


Exercise 23 - The Melodic Minor Scale

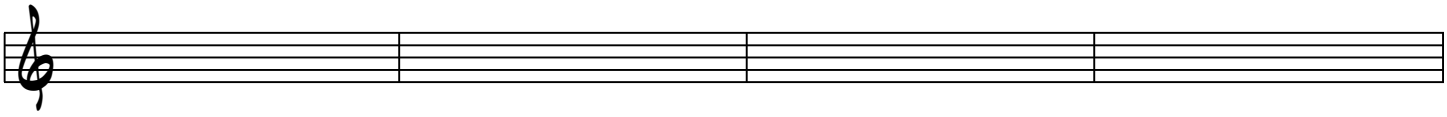
Locrian #2

Amin7b5 Dmin7b5

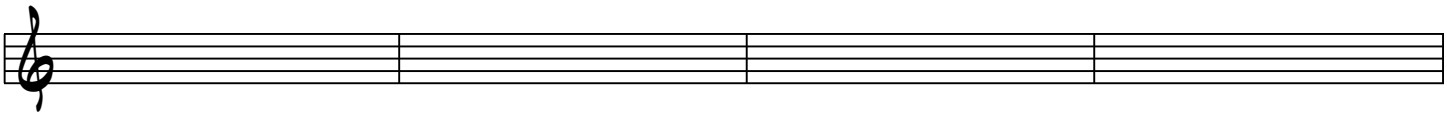
Gmin7b5 Cmin7b5



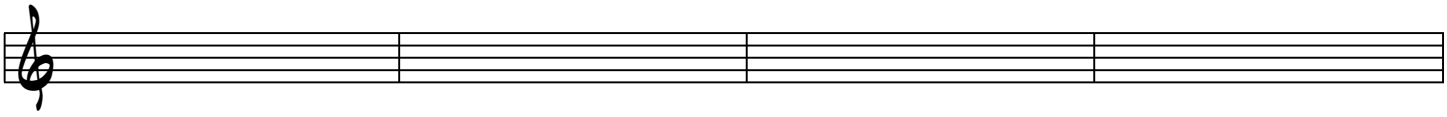
Fmin7b5 B^{b}min7b5



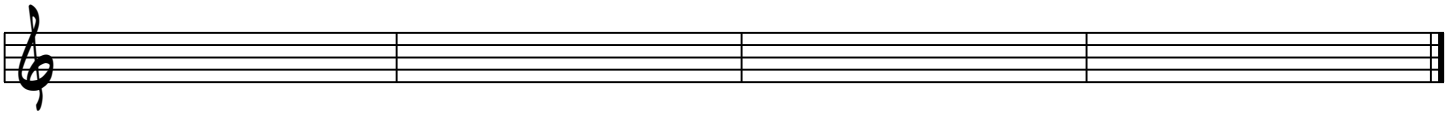
$D^{\#}$min7b5 $G^{\#}$min7b5



$C^{\#}$min7b5 $F^{\#}$min7b5

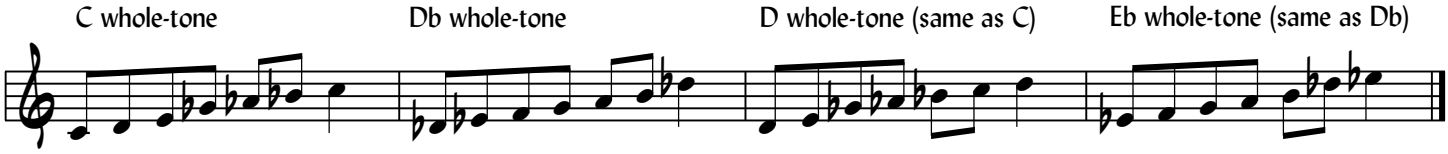


Bmin7b5 Emin7b5

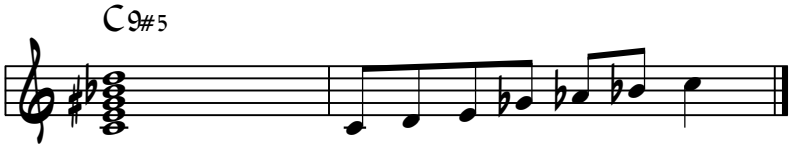


Exercise 24 - The Whole-Tone Scale

The whole-tone scale is a six note scale consisting of all whole steps. There are only two distinct whole-tone scales; the scale starting on a given note and the one a half-step away. Once you are a whole step away from the original starting pitch the scale repeats identical pitches.

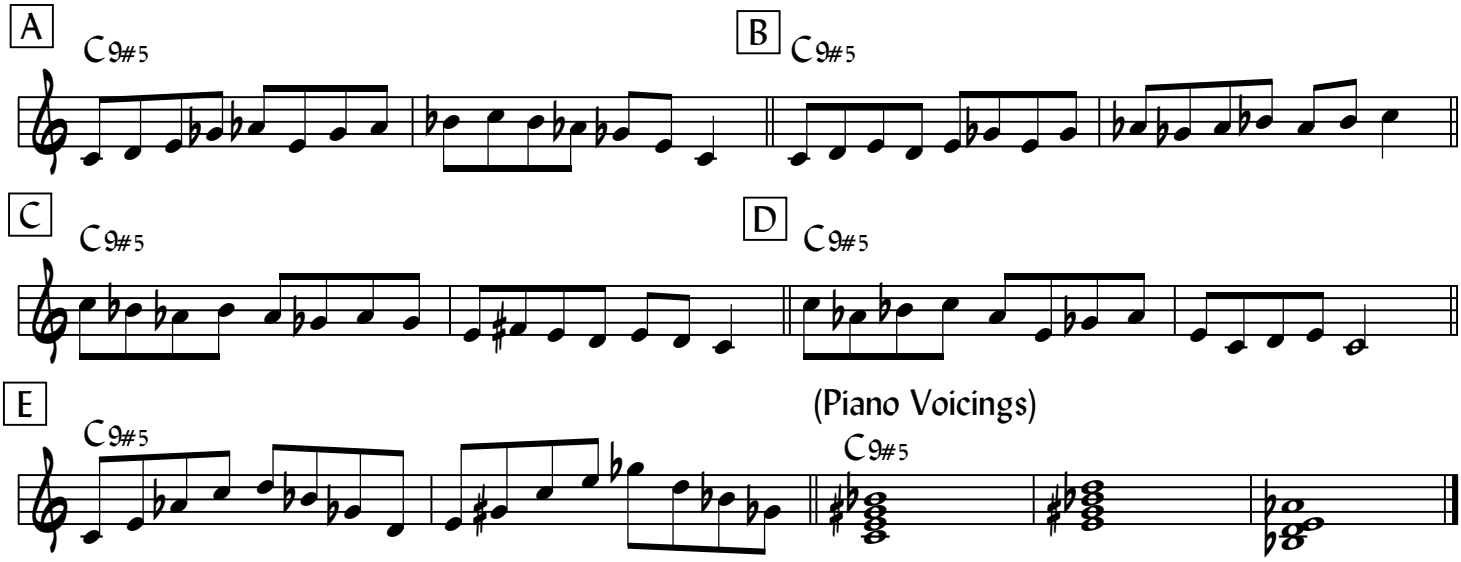


Because of its symetrical nature, the whole-tone scale only generates one quality chord, the dominant 9#5.

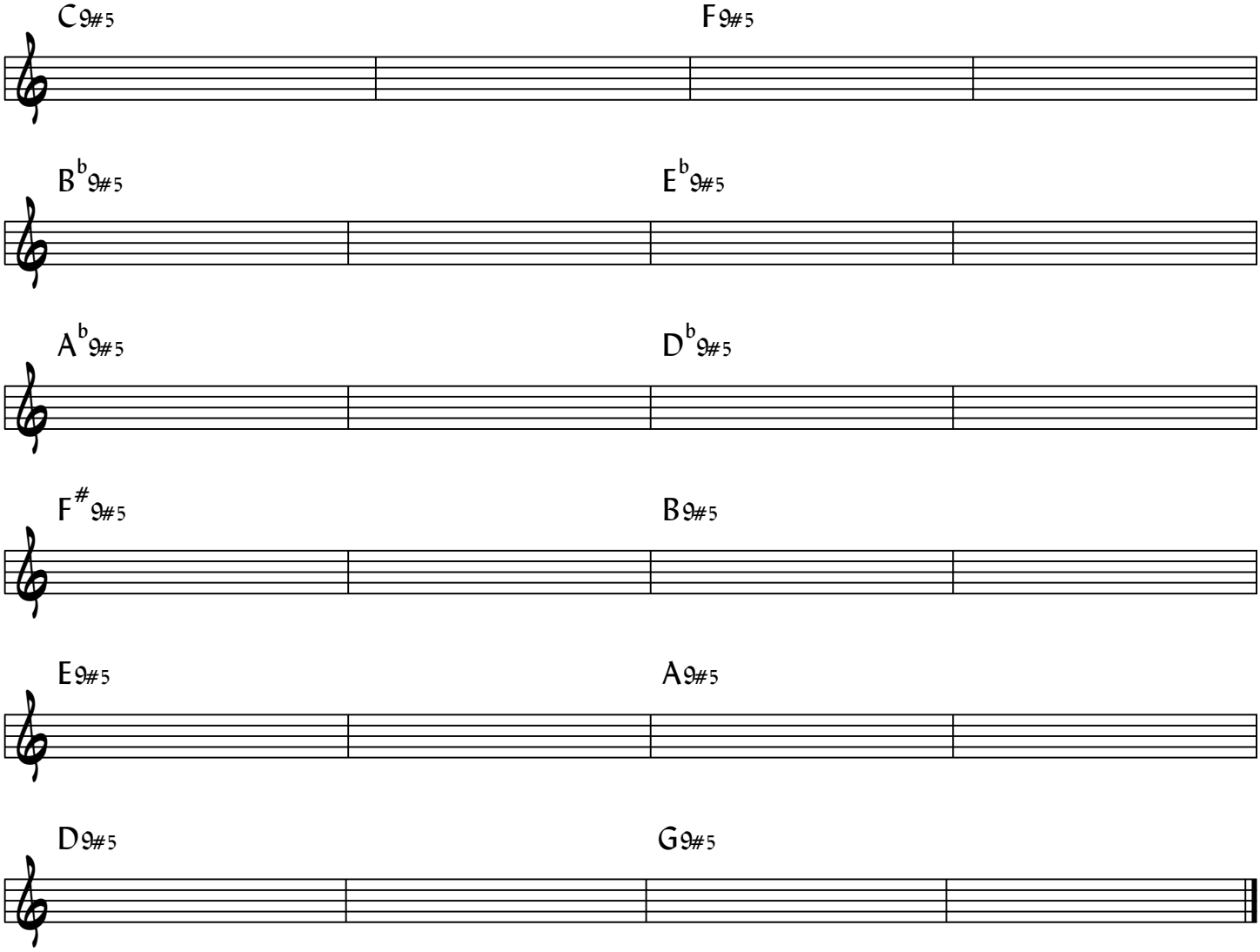


The natural 9th in the whole-tone scale can cause scale-choice confusion when dealing with dominant 7 chords with raised 5ths (#5) but the 9th is not specified. (C7#5) Often times piano/guitar players will see a dominant 7 chord with an altered 5th and out of habit alter the 9th as well, especially when the dominant resolves to a tonic minor. Similarly, a chord that really should include an altered 9th might be notated as a dominant 7th with just an altered 5th (ex. Dmin7b5 - G7#5 - Cmin9). While this sometimes will require discussion, usually context (the written melody, duration of the harmony, preceding chords, resoloution) as well as some close listening to what the soloist/chording instruments are playing will answer the question.

1. Learn the following whole-tone patterns in all keys on your instrument and on piano using the chord chart on the following page.

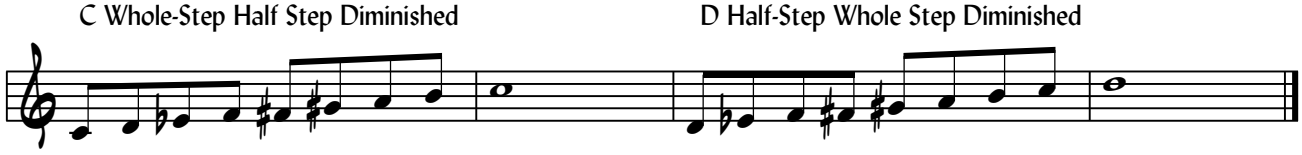


Exercise 24 - The Whole-Tone Scale



Exercise 25 - The Diminished Scale

The diminished scale is an eight-note, symetrical scale consisting of alternating whole-steps and half-steps. Because of its symetrical construction, there are only three distinct set of pitches that make up diminished scales with each set repeating themselves every minor third away. Each diminished scale consists of two modes, the Whole-Step Half-Step Diminished and the Half-Step Whole-Step Diminished.

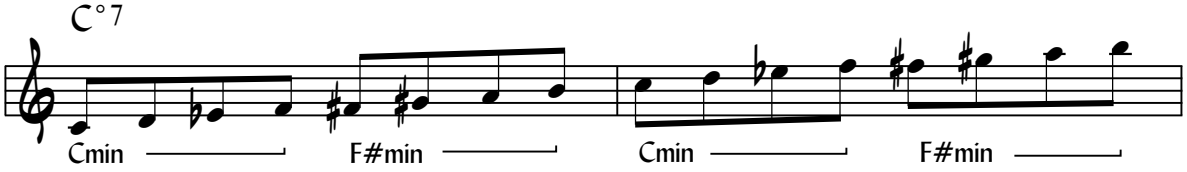


The Whole-Step Half-Step Diminished scale is used for the fully diminished 7 chord and the diminished major 7 chord. The Half-Step Whole-Step Diminished scale creates a dominant 7 chord with an altered 9th (#9, b9) but with a natural 5th and 13th. It is the scale of choice for an dominant 13 chord with an altered 9th (C13#9) and is used extensively as an altered sound on virtually any dominant chord that resolves to tonic and does not specifically have an altered 5th. (ex. Gmin7 - C7 - Fmaj7, soloist plays half-whole diminished on the C7, piano player hears it and adds an altered 9th to the voicing.)

The following chart demonstrated the note relationships between diminished scales. From looking at the chart, C whole-half has exactly the same notes as Eb, F# and A whole-half. Which in turn have exactly the same notes as D, F, Ab and B half-whole diminished.

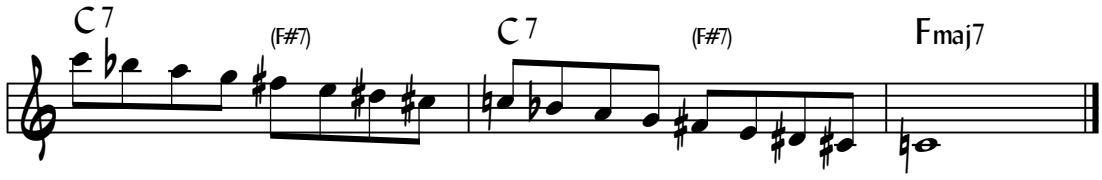
Whole-Half Diminished	=	Half-Whole Diminished
C, Eb, F#, A		D, F, Ab, B
C#, E, G, Bb		Eb, F#, A, C
D, F, Ab, B		E, G, Bb, C#

Diminished scales can be learned several ways. The first is simply to practice working on the whole-step and half-step relationships. The second is to "chunk" the scales into two recognizable fragments already learned. Whole-half diminished can be chunked into two, four note tetrachords, consisting of the first four notes of a minor scale followed by the first four notes of a minor scale a tritone away from the root of the first set. In other words, a C whole-half = the first four notes of Cmin followed by the first four notes of F#min.

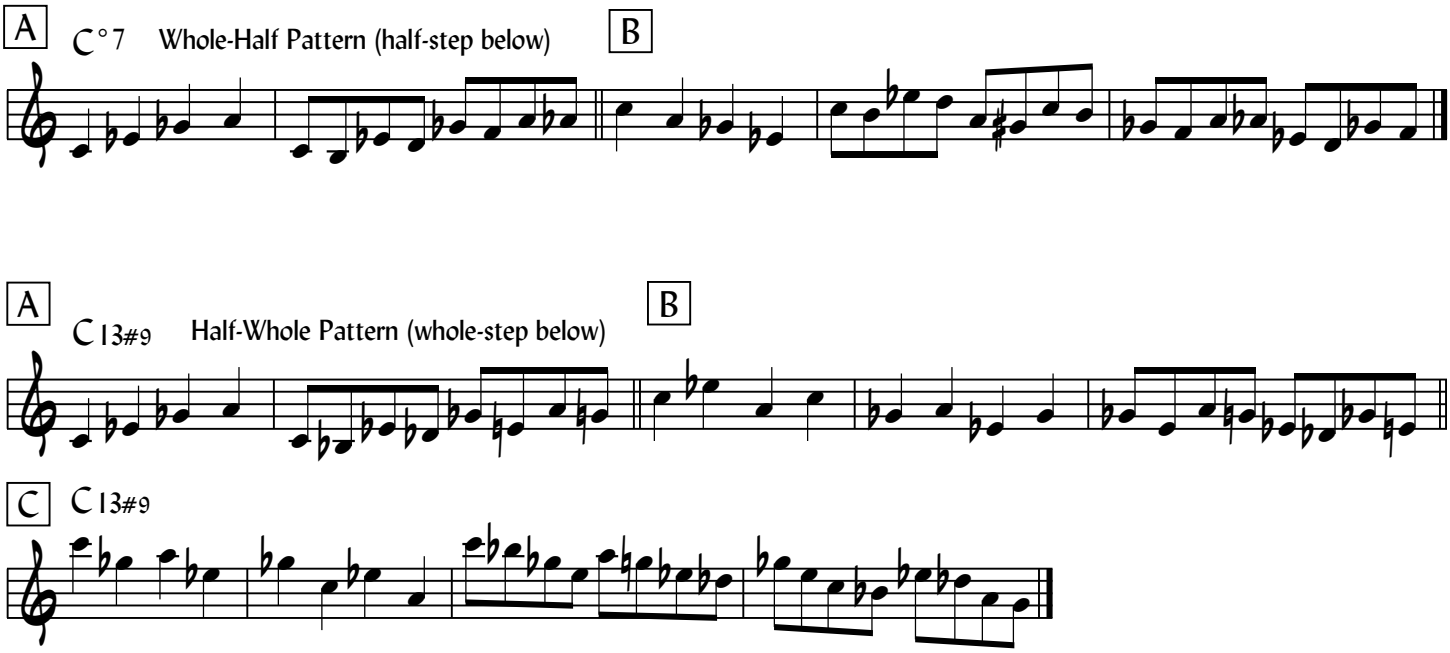


Exercise 25 - The Diminished Scale

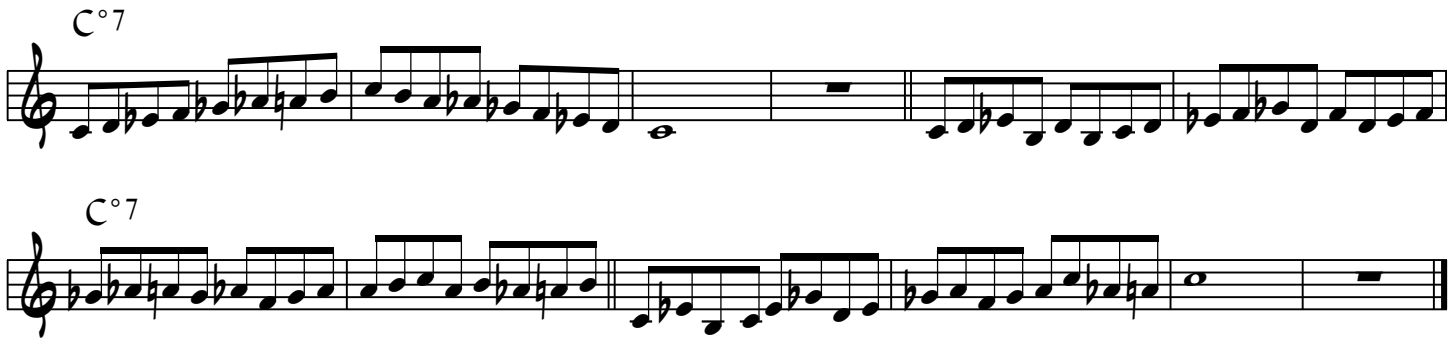
For chunking half-whole diminished scales, it is easiest to learn them descending. This has the added benefit of creating a line that resolves naturally to the tonic. For a C half-whole diminished, chunk the scale as the first four notes of C7 (descending) followed by the first four notes of F#7 (descending)



Diminished scales are often used to create symetrical patterns revolving around a diminished arpeggio with either a half or whole step added below, depending on the scale being used.

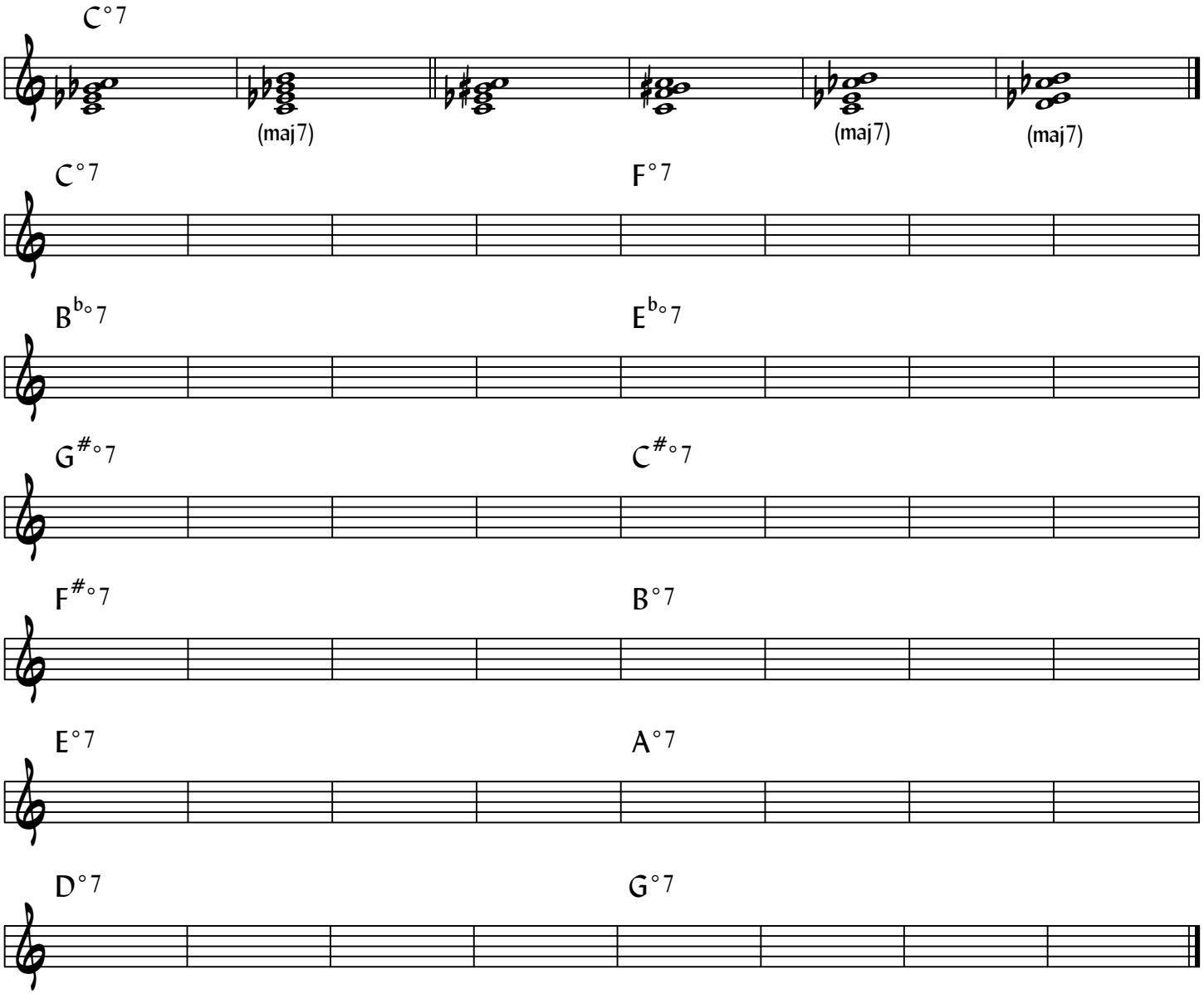


1. Learn each of the following whole-half diminished patterns in all keys on your instrument and on piano using the chord chart on the following page.

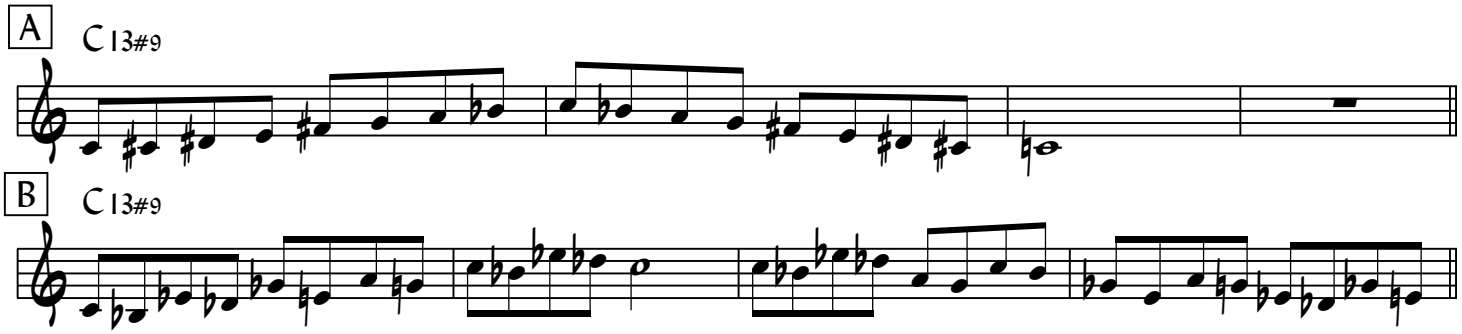


Exercise 25 - The Diminished Scale

Below are diminished chord voicings. Begin using the first two, then experiment with voicings that move notes up a whole step. (Diminished voicing rule: you can add notes a whole-step above or half-step below any chord tone)



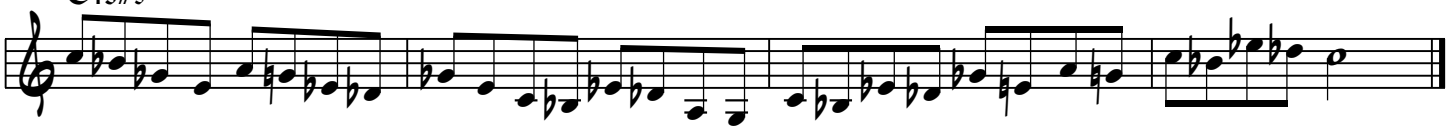
2. Learn each of the following half-whole diminished patterns on your instrument and on piano in all keys using the chord chart on the following page.



Exercise 25 - The Diminished Scale

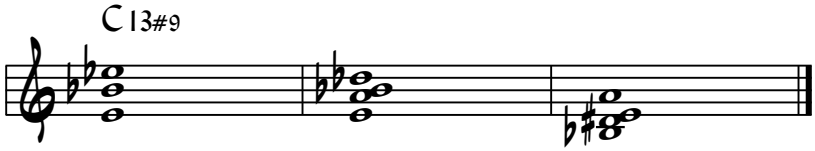
C

C13#9

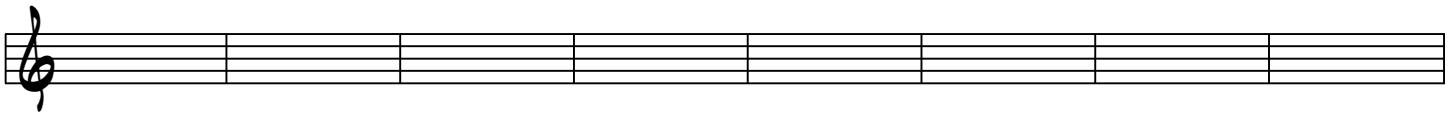


Below are voicings for C13#9, 3 and 4 note voicings, all inversions.

C13#9

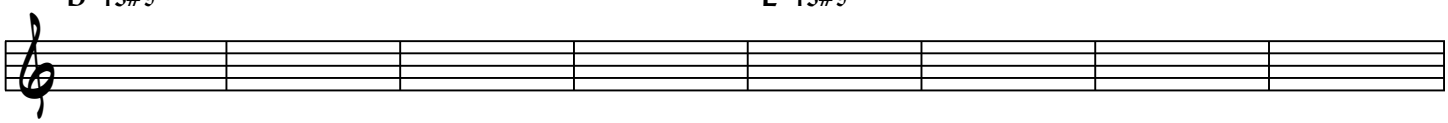


C13#9



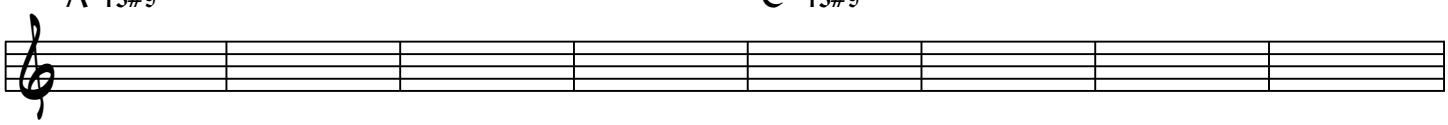
F13#9

B^{b}13#9



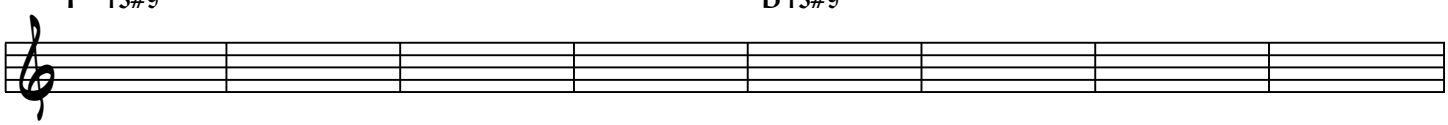
E^{b}13#9

A^{b}13#9



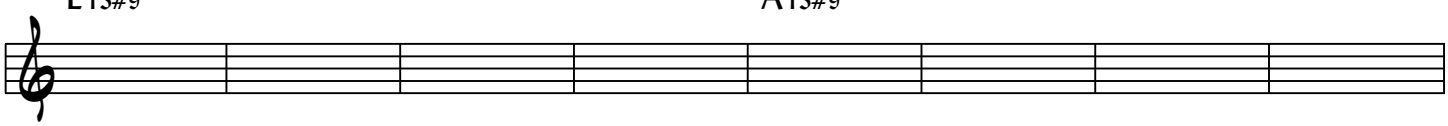
$C^{\#}$13#9

$F^{\#}$13#9



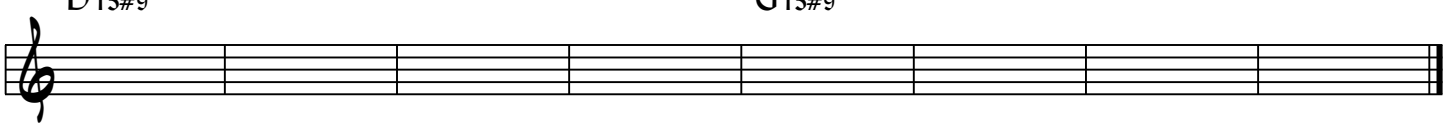
B13#9

E13#9



A13#9

D13#9



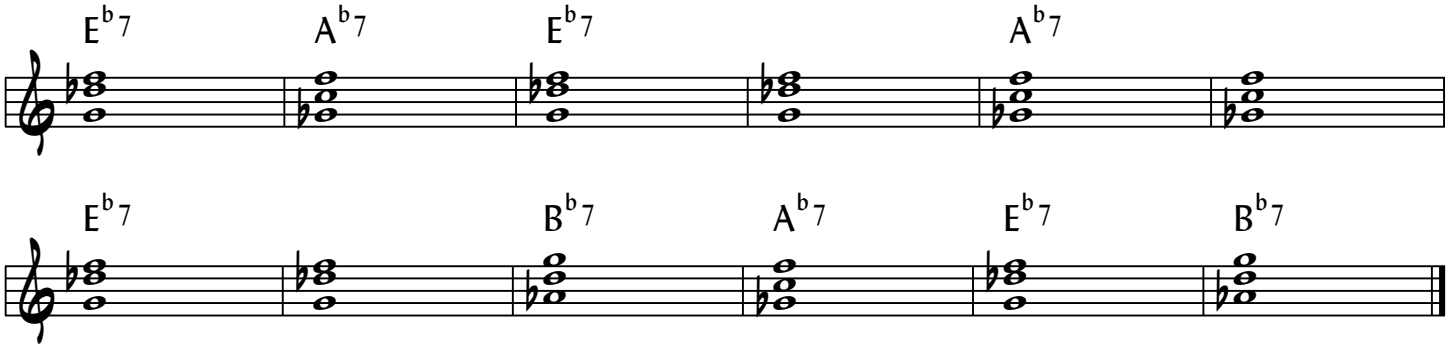
G13#9

Exercise 26 - Pentatonics and the Blues Scale

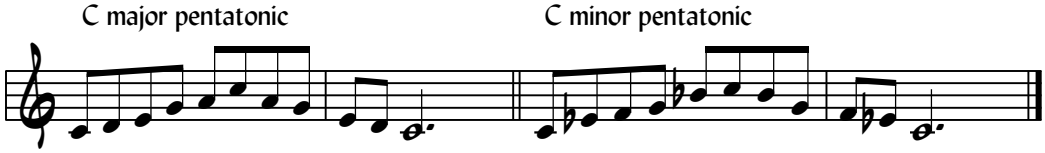
Pentatonics and the blues scale are extremely important and flexible scales that are usually the first scales young jazz musicians are taught. They are addressed near the end of this text because they are scales that do not actually define or create harmony but rather are groups of notes that can be played over any number of different chords. So while they are great for developing phrasing, melodic shape, traditional blues styles and any number of contemporary chromatic approaches, care should be taken that they do not get in the way of also learning to play melodies that actually sound the harmony versus playing over the harmony. This is especially true for those whose aspirations go beyond school performance situations.

The pentatonic scale is a five note scale the is generally taught in two forms; the major and minor penatonic. The minor pentatonic is often learned first as it is a precursor to the blues scale and like the blues scale, can be played over the entire blues form (ex. C minor pentatonic for entire C blues). The major pentatonic is best thought of as 1, 2,3,5,6 of a major scale. So a C major pentatonic would be C, D, E, G and A. The minor pentatonic is actually a mode of the major pentatonic starting on the 5th note (a sixth above the root) and they share the same relative major to minor relationship as major to minor keys. In other words, a C major pentatonic (C,D,E,G,A) has the same notes as an A minor pentatonic (A, C, D, E, G). Both forms of the pentatonic occur naturally within the black keys of a piano. Starting on Gb and playing upwards is a Gb major pentatonic. (Gb, Ab, Bb, Db, Eb) while starting on Eb is a minor pentatonic (Eb, Gb, Ab, Bb, Db). So, it should be possible to play an Eb blues at the piano just sticking to the black keys.

1. Play the following blues progression at the piano, improvising using just the black keys. Voicings should be played an octave lower than written. Start by playing roots in the left hand, the voicings in your right. Then switch to roots in left hand, black key improvisation in right. Then try voicings in left hand, black key improvisation in right hand.

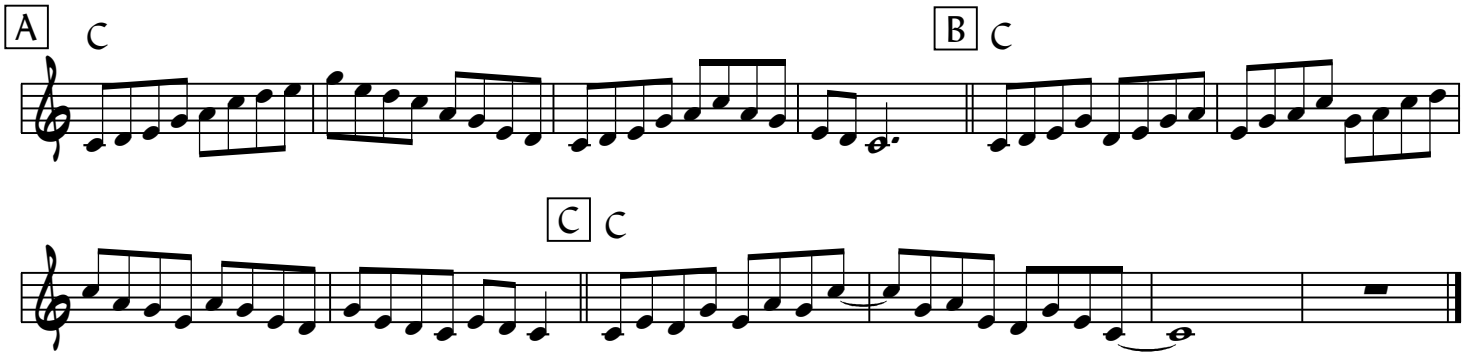


All this being said, most students find it easier to learn pentatonics based on the major scale template. The major pentatonic being 1, 2, 3, 5, 6 of a major scale and the minor pentatonic being 1, b3, 4, 5, b9 of a major scale.

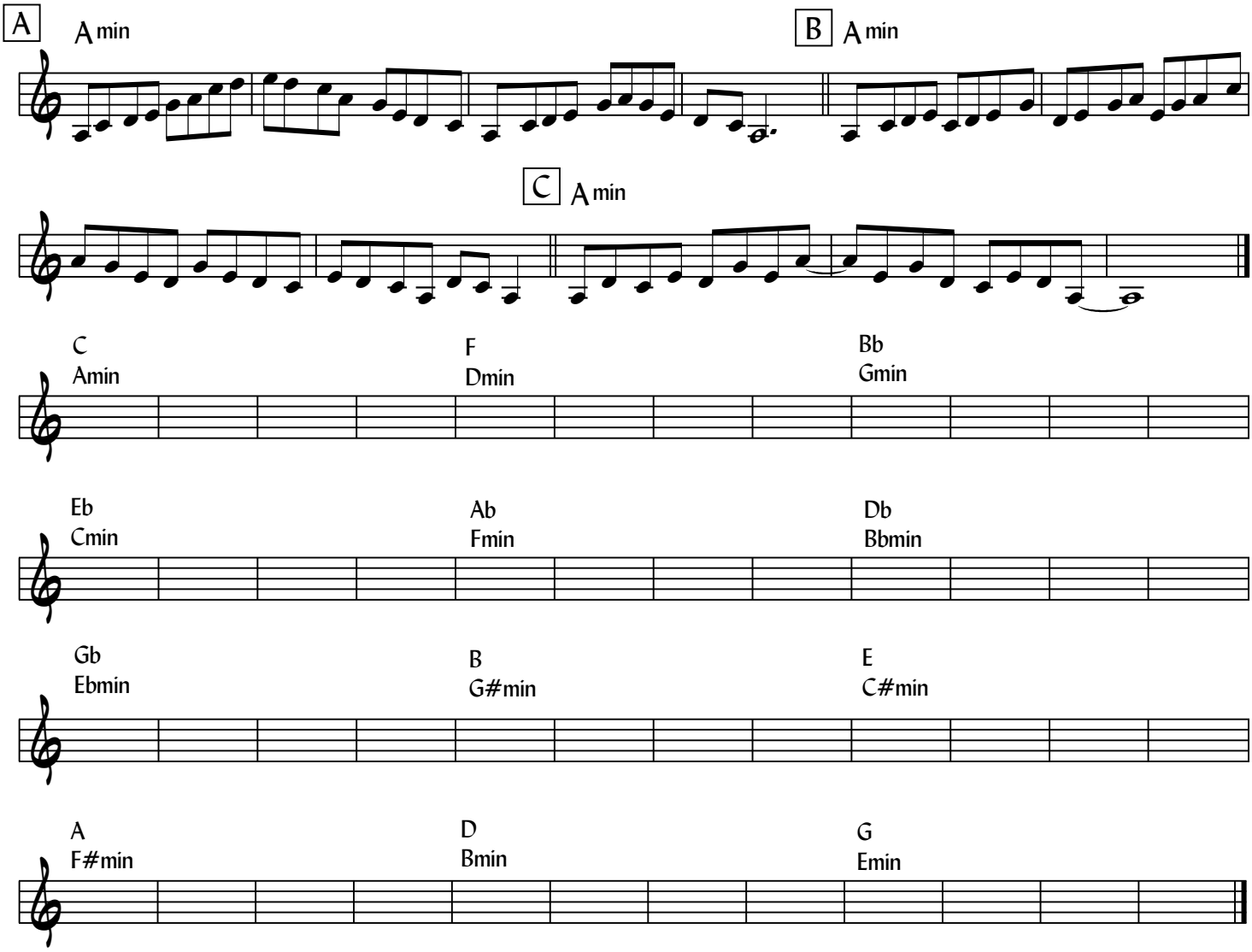


Exercise 26 - Pentatonics and the Blues Scale

2. Learn the following major pentatonic exercises in all keys on your instrument using the chord chart below.

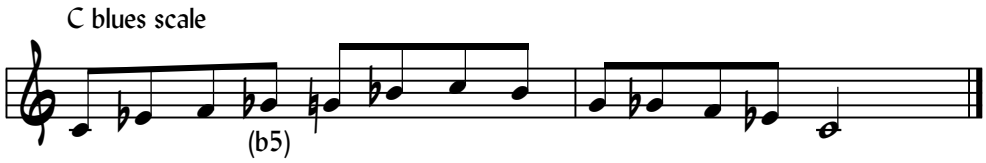


3. Learn the following minor pentatonic exercises in all keys on your instrument using the chord chart below.



Exercise 26 - Pentatonics and the Blues Scale

The Blues scale is a six note scale, in essence a minor pentatonic with a b5th (of the key) added between the fourth and 5th scale degrees.

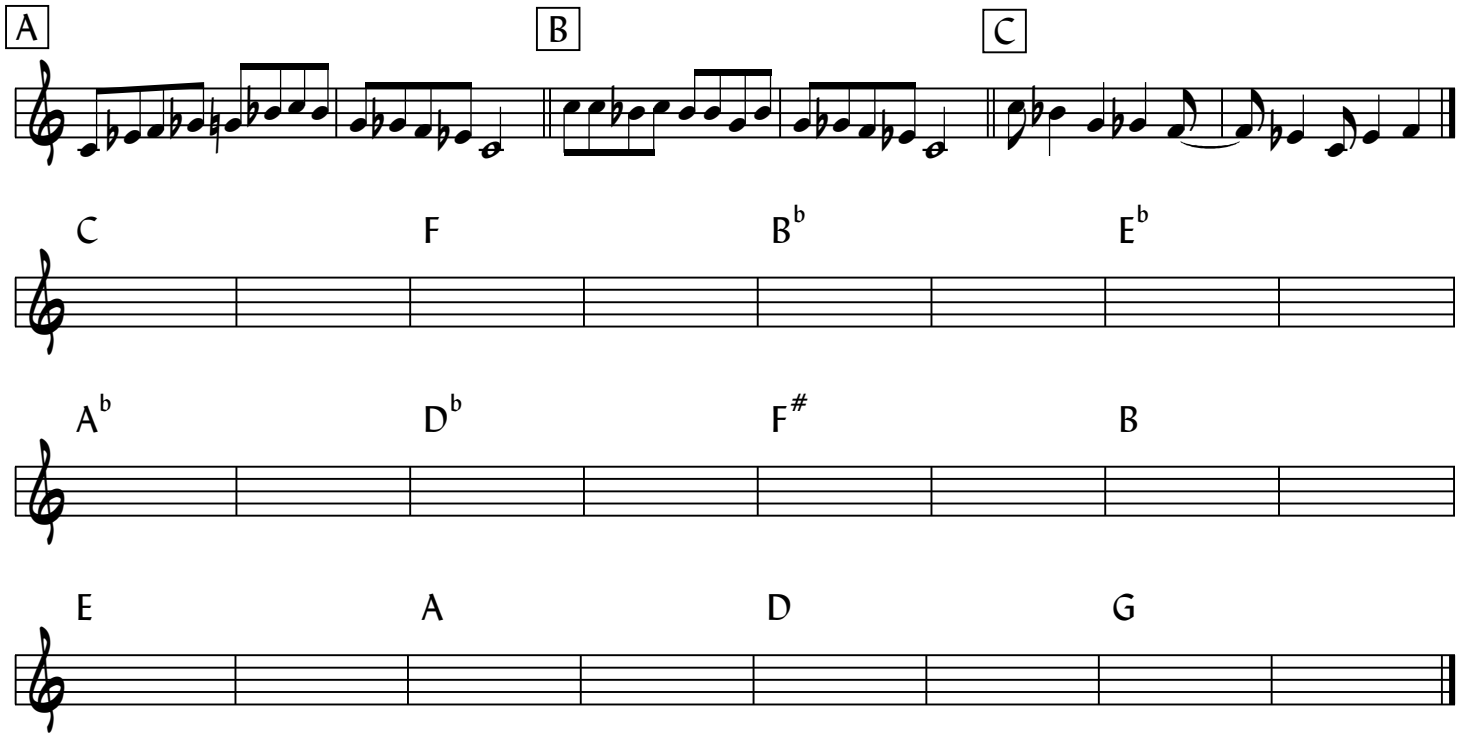


The blues scale can be used throughout the entire blues form using the scale built on the tonic of the key. In other words, a Bb blues scale would be used throughout a Bb blues, an Eb blues scale through the entire form of an Eb blues, etc.

4. Return back to #1 of this chapter (the Eb blues using the black keys of the piano) and repeat the entire exercise using the Eb blues scale (black keys + A natural).

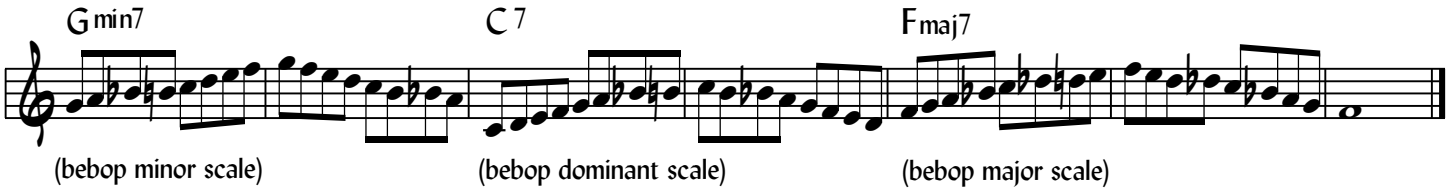
The blues scale is also used extensively when playing standard style tunes to add a blues sound. Experiment with this when practicing, especially in sections of tunes that have extended tonic sections or sections that can be analyzed predominantly in the tonic key. They also work great in minor keys, let your ears be your guide. If it sounds good, use it!

5. Learn the following blues scale patterns in all keys on your instrument to get started. Learn as many more as possible by listening to recordings and transcribing.

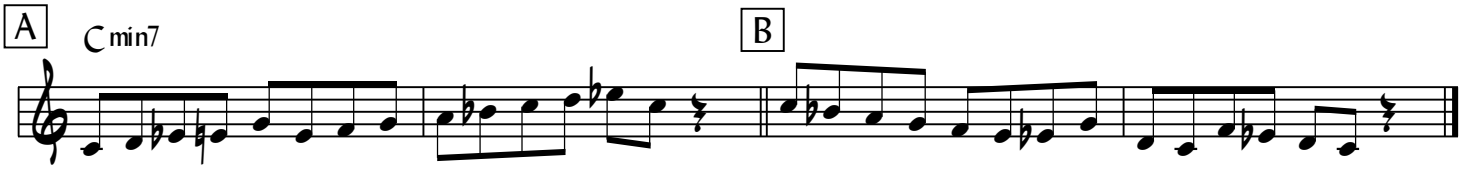


Exercise 27 - Bebop Scales

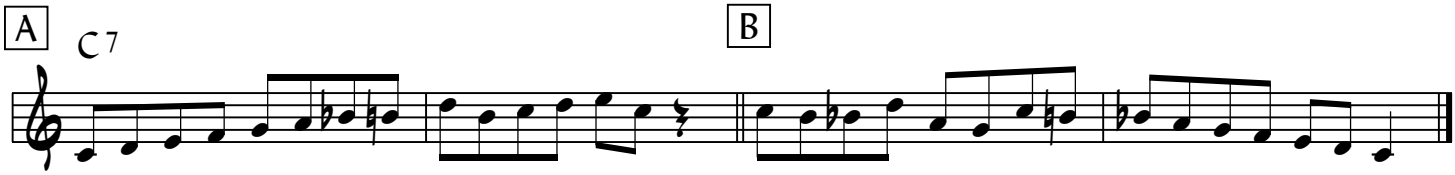
Bebop scales are traditional scales with chromatic tones added to them and are an excellent way to introduce chromatic tones to improvised melodies. They are traditionally taught in three forms, the dominant, dorian minor (a mode of the dominant) and major. The dominant bebop scale adds a chromatic note between the b7 and the root. The dorian adds a chromatic note between the 3rd and 4th
scale degree and the major bebop scale adds a chromatic note between the 5th and 6th scale degrees. So on a ii-V-I in F major using bebop scales throughout, it would look something like this:



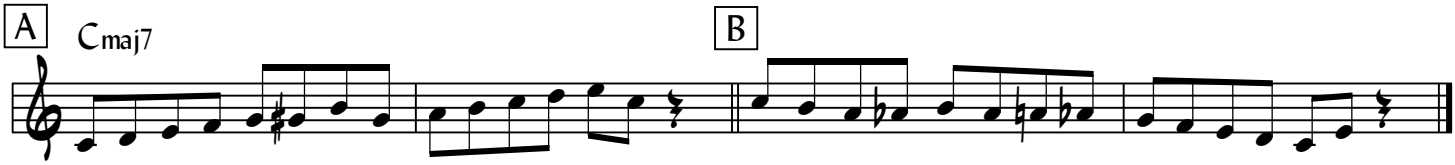
1. Learn the following bebop minor patterns in all keys on your instrument and on piano using the chord chart.



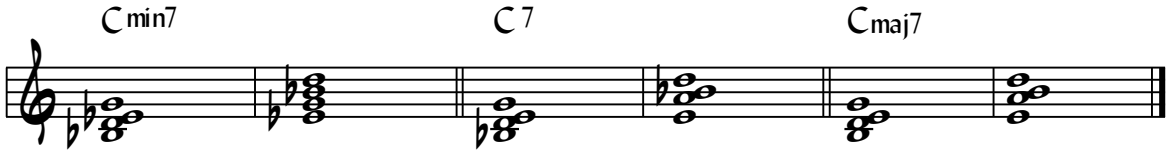
2. Learn the following bebop dominant patterns in all keys on your instrument and on piano using the chord chart.



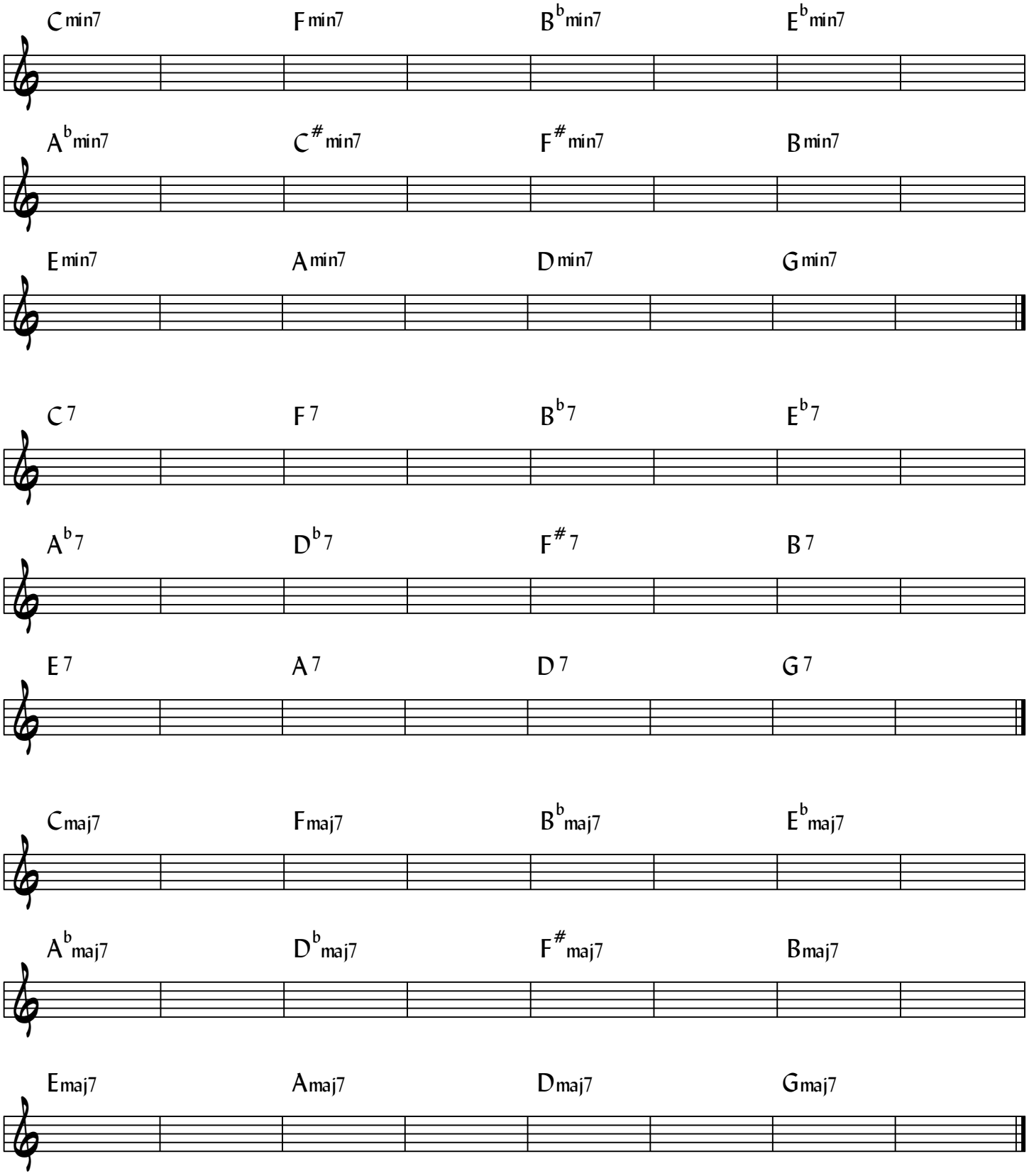
3. Learn the following bebop major patterns in all keys on your instrument and on piano using the chord chart.



Left hand voicings for chords.



Exercise 27 - Bebop Scales



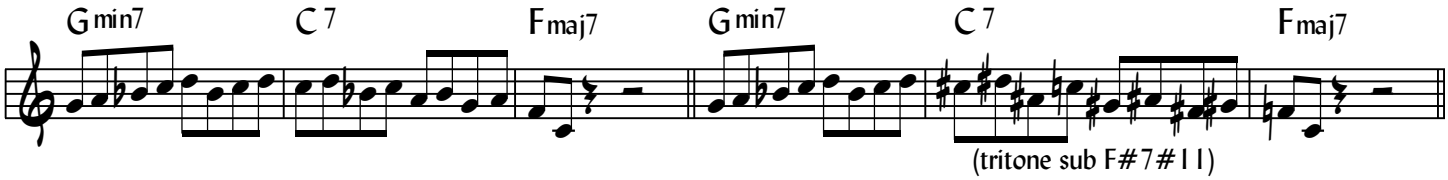
Exercise 28 - The Tritone Substitution

The phrase "Tritone Substitution" refers to dominant chords, a tritone apart substituting for each other. So in theory, a C7 chord substitues for an F#7, a Db7 substitutes for a G7 chord, etc. This substitution can occur spontaneously in the course of performance, can be used to reharmonize an excisting chord progression, or can be used compositionally to replace typical dominant V chords.

A tritone sub is usually used as a substitute for a dominant V chord that resolves to tonic. This creates chromatic, downward motion into tonic by the bass. As an example the progression Gmin - C7 - Fmaj7 becomes Gmin7 - F#7 - Fmaj7 using a tritone sub.

A tritone sub can also be used by single-line instruments melodically to create an altered sounding melody. So, if the rhythm section is playing Gmin - C7 - Fmaj7, an improviser could play Gmin7 - F#7 - Fmaj7 and it would work fine as an altered sound.

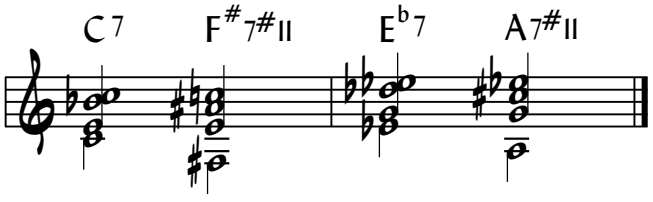
Example 1:



As shown in example one, the scale choice for a tritone sub is usually a dominant 7 #11. The #11 of the tritone sub (this will often be spelled enharmonically as a b5 for ease of reading) is the root of the orginal chord, creating a stronger connection to the key center.

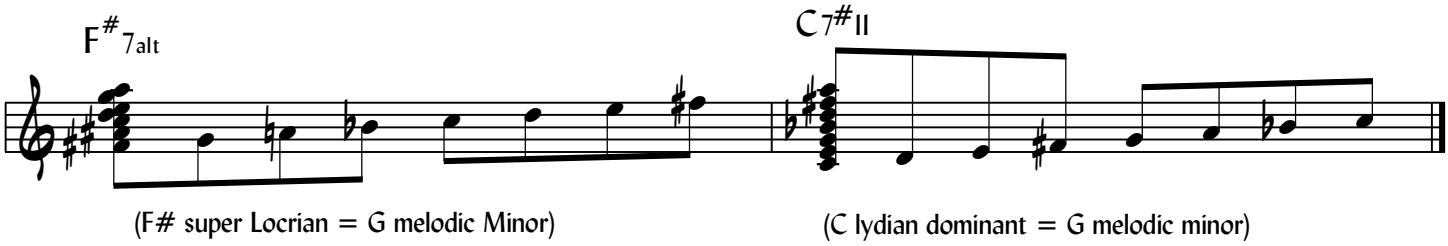
Tritone subs work because dominant chords a tritone apart share the same pitches as thirds and sevenths, though they are reversed. The third of C7 (e) is the seventh of F#7, the seventh of C7 (Bb) is the third of F#7 (A#-respell enharmonically as Bb). Add to these two the root of the first chord becoming the #11 (b5) of the sub chord and you have three notes in common, including the two most important notes, the third and seventh.

Example 2:



Exercise 28 - The Tritone Substitution

So, now we know that dominant chords a tritone apart share the same third and seventh and can substitute for each other. Melodically the best scale choice for a tritone sub is lydian dominant. But that is not the complete picture. Let's compare an F#7alt chord and scale the dominant #11 a tritone away. (C7#11)

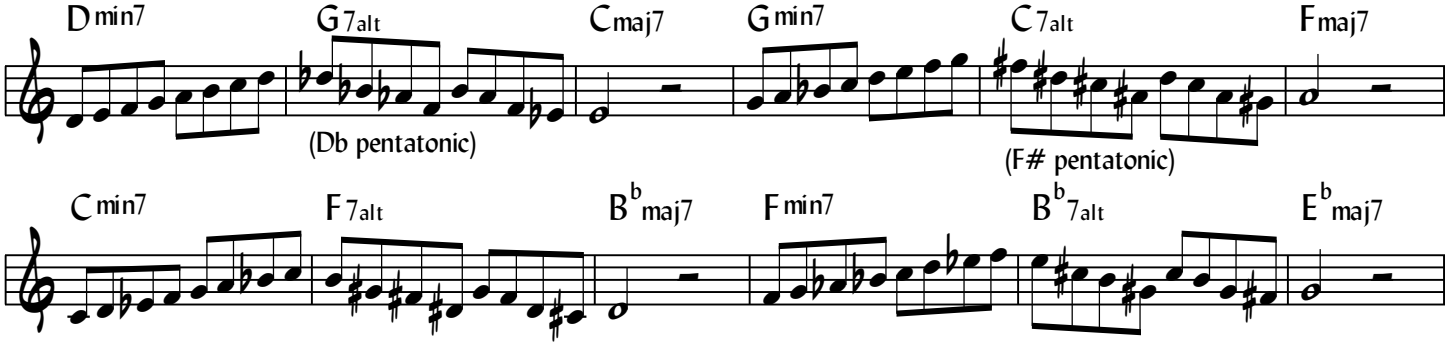


F#7alt and C7#11 share all the same notes and the same parent scale. The tritone sub in this case works because it is all the same notes, just a different note as the root. Melodically a tritone sub played over dominant creates a fully altered sound. Harmonically, a tritone sub creates an altered sound to the key center with a chromatic resoloution to tonic. As a result, a chord that can be analyzed as a tritone sub should not be altered any further. Altering a tritone sub defeats to purpose and creates a diatonic dominant in the key.

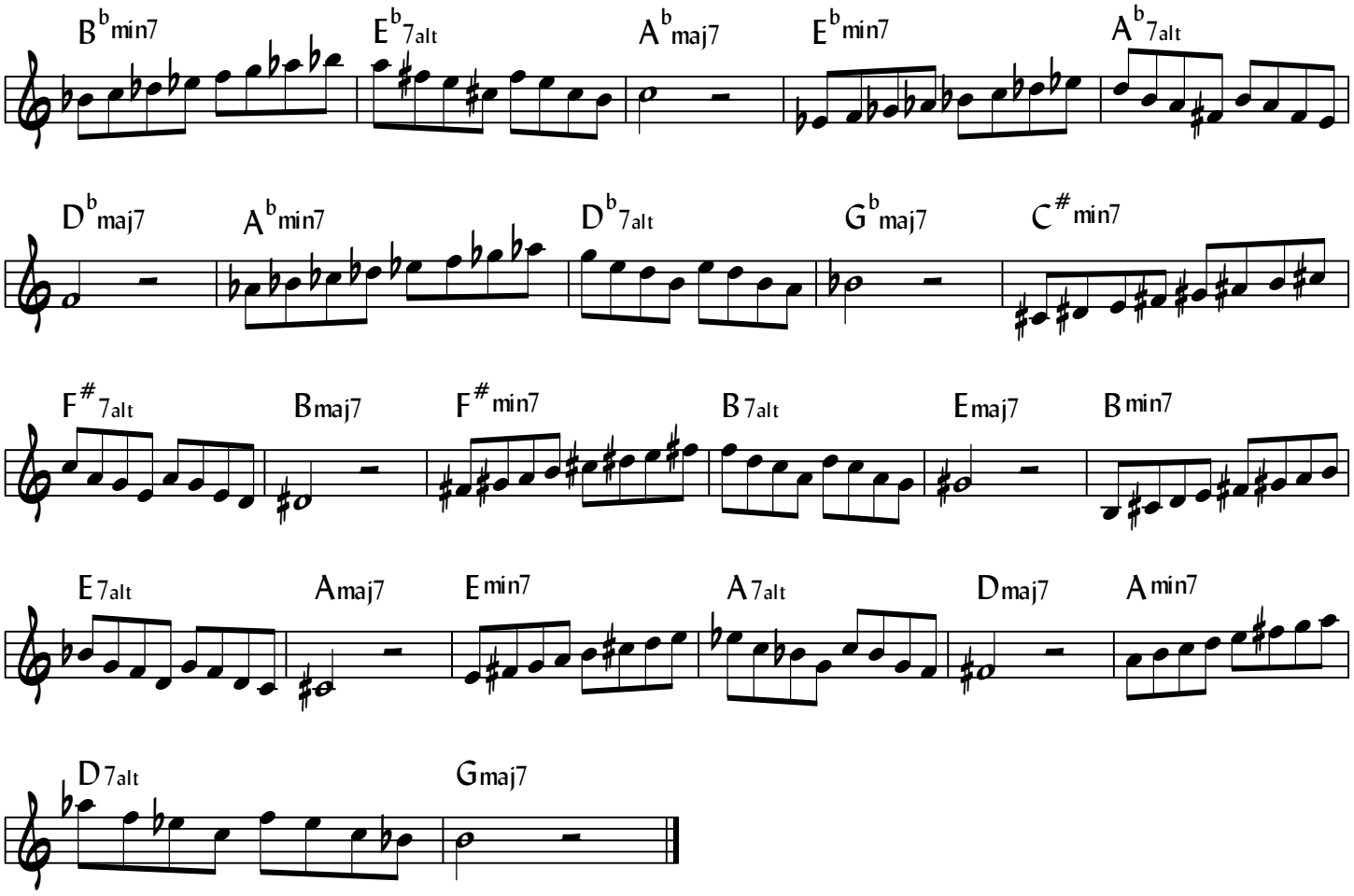
1. Memorize all tritone relationships.

C7 = F#7
Db = G7
D7 = Ab7
Eb7 = A7
E7 = Bb7
F7 = B7

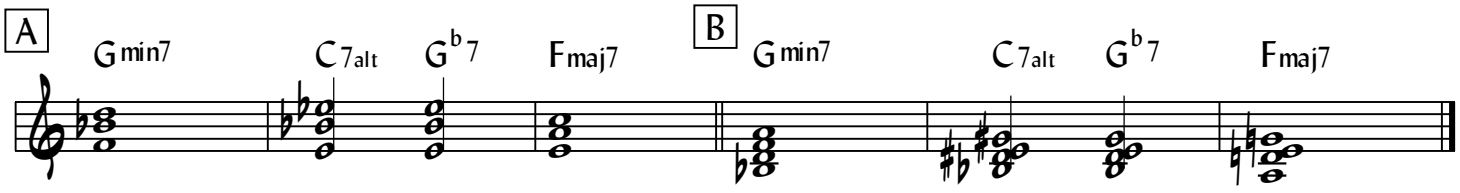
2. One of the quickest ways to begin using tritone subs melodically is using a pentatonic on the dominant chord. Learn the following tritone sub exercises on your instrument and on piano with the chords in your left hand.



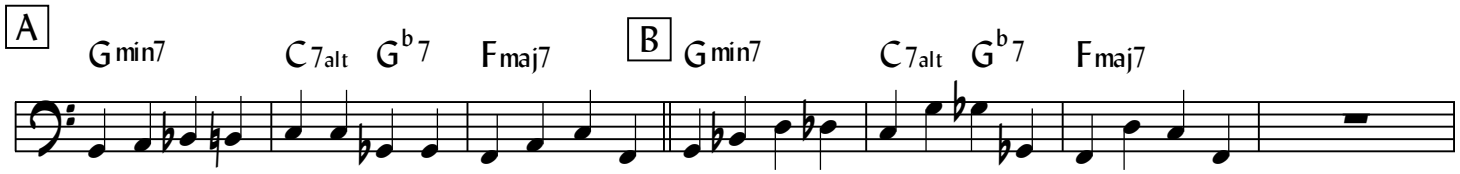
Exercise 28 - The Tritone Substitution



3. Learn the following 3 and 4 note voicings for ii-V-I in all keys on the piano. The dominant bar moves from V7alt to the tritone sub in the second half of the measure. Notice that the voicing does not change, just the root.

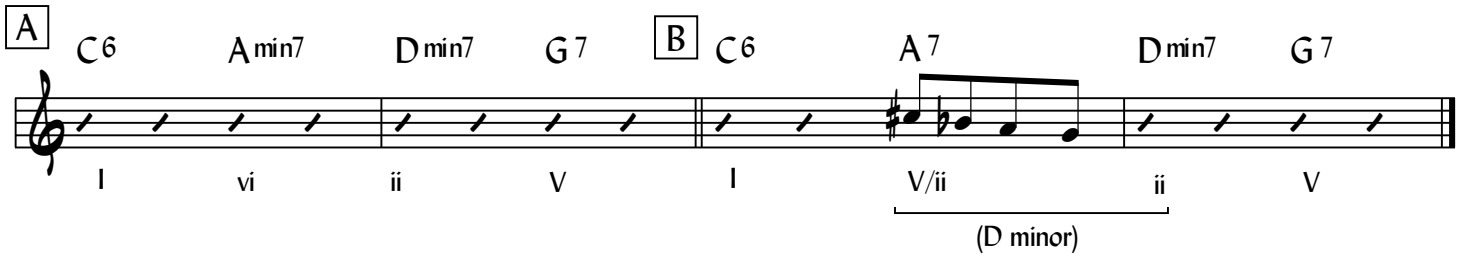


4. Below are simple walking bass lines to add to the above ii-V-I voicings. Learn each in all keys with both sets of voicings.

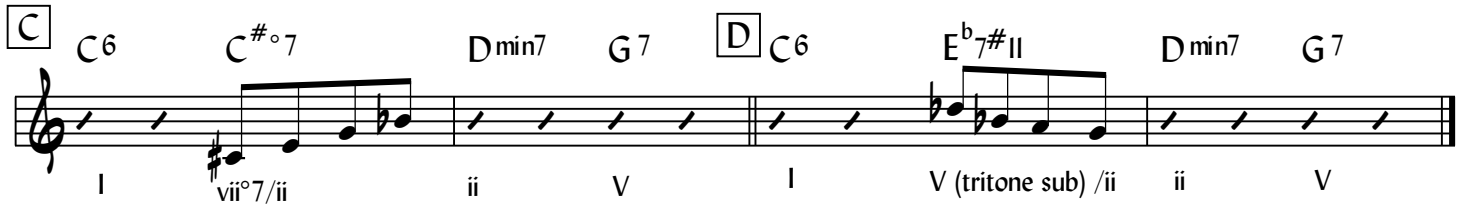


Exercise 29 - Secondary Dominants

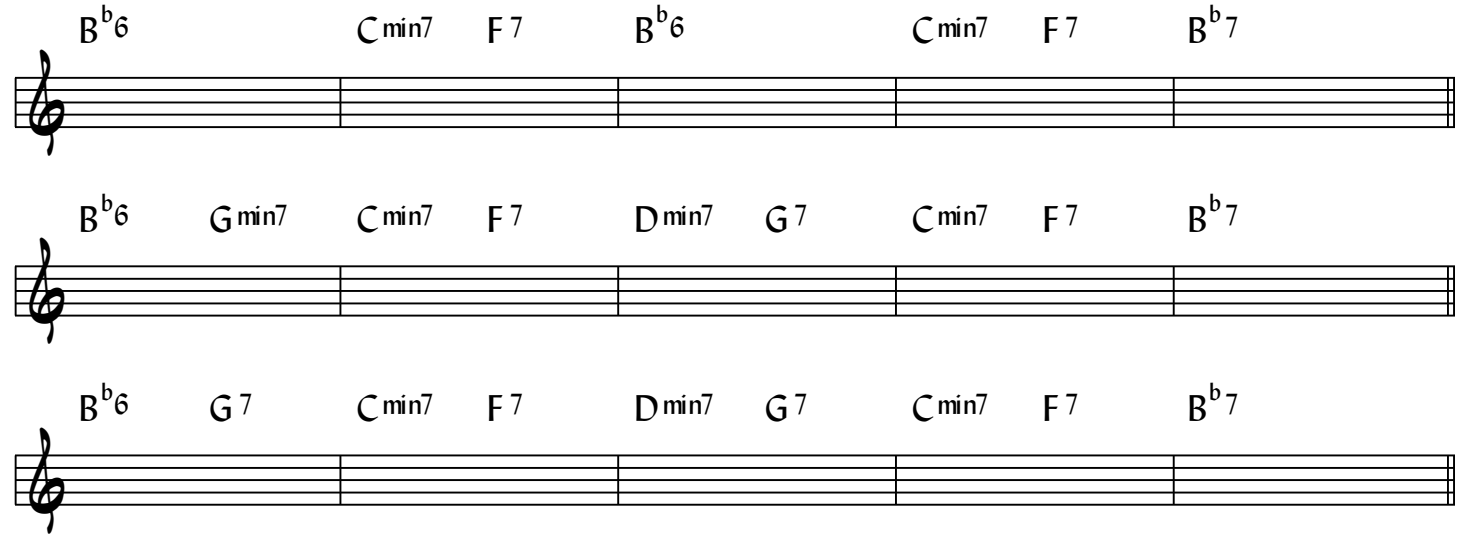
A secondary dominant is a dominant chord (dominant 7, diminished 7, tritone sub) that is not the dominant of tonic, but instead is the dominant of a another chord in the key. In other words, it is a "V7 of ____" some other chord in the key. A simple example can be made using the very common I-vi-ii-V progression in the key of C. The first two measures are a typical I-vi-ii-V in the key of C. In the second two measures, the vi chord is a dominant chord which does not function in the key of C (A7). While both of these progressions would probably be described as "I-vi-ii-V in C" on the band stand, the A7 is actually V7 of Dmin, or V7 of ii. As a dominant of D minor, the A7 should in most cases be altered with at least a b9 and/or a #5.



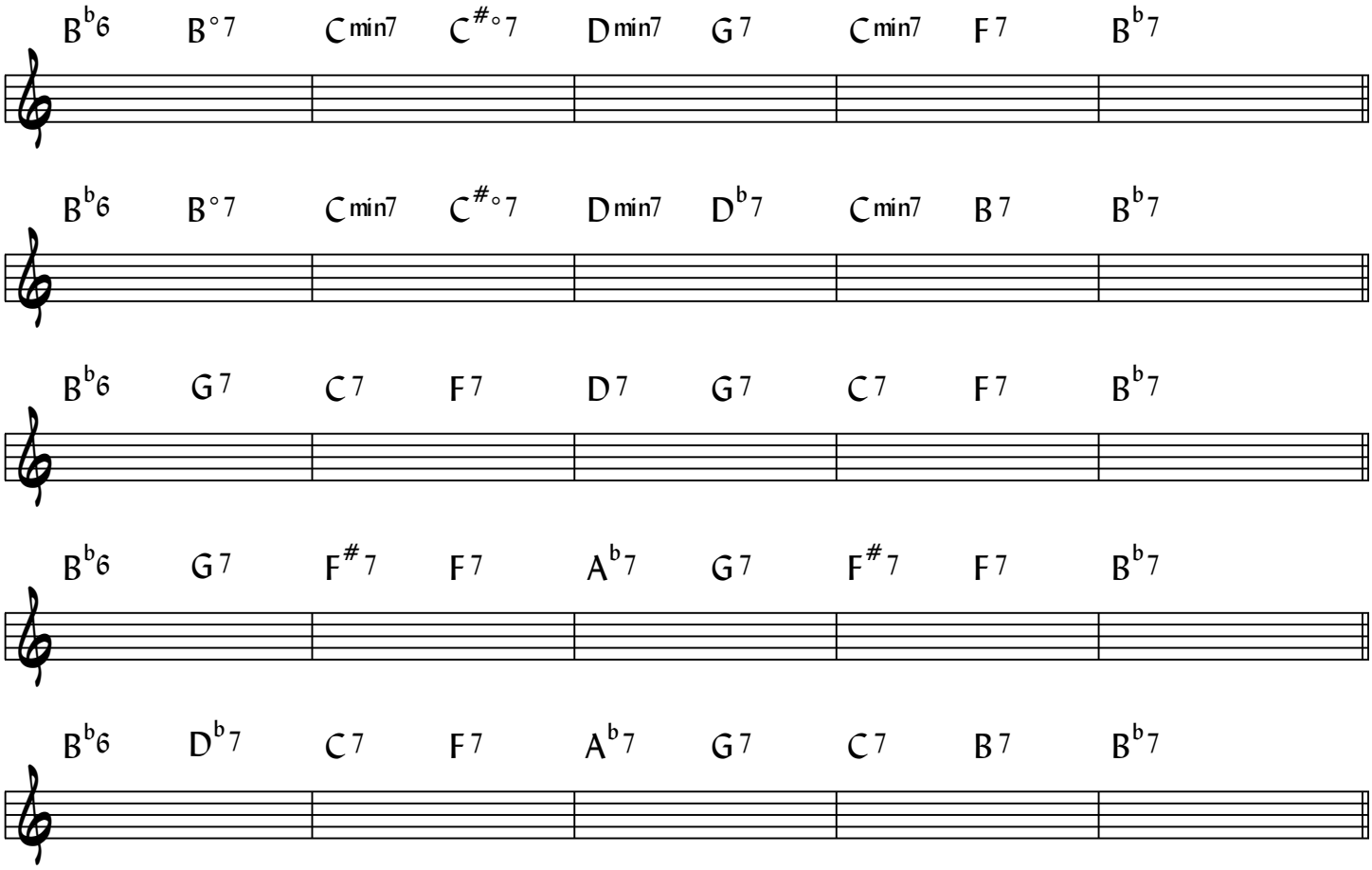
As mentioned above, a secondary dominant could also be a diminished 7 chord or a tritone sub. Each of these chords provide a dominant function.



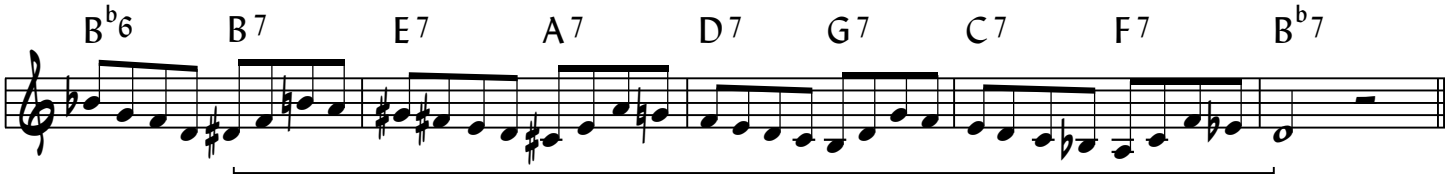
1. The chord changes to "I Got Rhythm" ("rhythm changes") are an excellent laboratory for exploring secondary dominants. Here are some examples moving from very simple to more complex using just the first five bars. Analyze the following and supply appropriate scale fragments for secondary dominants.



Exercise 29 - Secondary Dominants



Secondary dominants can also be used to create a progression that "back-cycles" from a target chord. A back-cycle is accomplished by picking a target chord and working backwards using secondary dominants to create a new progression. Using the rhythm changes example and deciding that the Bb7 in the fifth bar is going to be the target and keeping the original first chord, you would come up with:



(Back-cycle)

General guidelines for Secondary Dominants:

1. A dominant functioning chord can preceed any chord.
2. A ii-V together can be considered a dominant function.
3. A ii chord can preceed any V chord.
4. Unless a secondary dominant is specifically notated without alterations (C9, C13) alterations will normally be added that reflect the target chord. (Ex: A7 to Dmin7, the A7 should be approached as being in Dminor.)