

## UNDERSTANDING HARMONY FOR BASS CLEF PLAYERS

Tutorials on harmony almost always use the treble clef or bass clef and treble clefs when giving examples. There are many players who can't read treble clef so this is an attempt to redress the balance. I take it for granted that the major and minor scales are known. When referring to the ascending form of the melodic minor scale which can be used in jazz to go up and down, I will call it the minor scale. For sharpened alterations to chords, I will use a + sign. For lowered alterations, a - sign.

### MAJOR TRIADS

These consist of the root-note, the major 3rd and the perfect 5th (all to be found as steps in the major scale).

### MINOR TRIADS

These consist of the root-note, the minor 3rd and the perfect 5th (all to be found as steps in the minor scale. The minor 3rd is a semitone lower than the major 3rd).

C major triad                      C minor triad

written C                                      Cm



The image shows two musical staves in bass clef. The first staff, labeled 'C major triad' and 'written C', contains three notes: C (middle C), E (major 3rd), and G (perfect 5th). The second staff, labeled 'C minor triad' and 'Cm', contains three notes: C (middle C), Bb (minor 3rd), and G (perfect 5th).

### INVERSIONS

With the root-note at the bottom, the chord is in *root position*. If you start on the 3rd of the chord and play the root-note in a higher octave, it is called the 1st inversion. This is written like this C/E - the note after the slash is at the bottom.

Similarly if you start off with the 5th and place the other notes in a higher octave it is called the 2nd inversion. This could be written as C/G.

### DOMINANT SEVENTHS

Take a major triad and add a minor 7th note to it. The minor 7th is a tone (ie. 2 semitones) down from the octave. In a major scale you have to lower the 7th note by a semitone to get it. As there are 4 notes to this chord, there is 1 extra inversion.

C dominant seventh

written  $C^7$  *root position*  $C^7/E$  *1st inversion*

$C^7/G$  *2nd inversion*  $C^7/B\flat$  *3rd inversion*

The image shows two staves of music in bass clef. The first staff shows the C dominant seventh chord in root position (C7) and its first inversion (C7/E). The second staff shows the second inversion (C7/G) and the third inversion (C7/Bb). Each chord is represented by four notes on a five-line staff.

The basic scale which fits this is the major scale a perfect 5th below the root-note of the chord, hence F major scale.

## MAJOR SEVENTHS

Take a major triad and add the major 7th note to it. The major 7th is a semitone down from the octave and occurs in a major scale.

C major seventh

written  $C^\Delta$  *root position*  $C^\Delta/E$  *1st inversion*

$C^\Delta/G$  *2nd inversion*  $C^\Delta/B$  *3rd inversion*

The image shows two staves of music in bass clef. The first staff shows the C major seventh chord in root position (CΔ) and its first inversion (CΔ/E). The second staff shows the second inversion (CΔ/G) and the third inversion (CΔ/B). Each chord is represented by four notes on a five-line staff.

Sometimes this chord is written CM, Cmaj or Cmj.

## MINOR SEVENTHS

Take a minor triad and add the minor 7th note to it (2 semitones lower than the octave).

C minor seventh

written Cm<sup>7</sup> *root position* *1st inversion*

Cm<sup>7</sup>/E<sup>b</sup>

*2nd inversion* *3rd inversion*

Cm<sup>7</sup>/G Cm<sup>7</sup>/B<sup>b</sup>

Sometimes this chord is written C- or C-7. The most common scale which fits this is the major scale a tone below the root-note, ie. B<sup>b</sup> major scale. However, you can also play an E<sup>b</sup> major scale or an A<sup>b</sup> major scale instead, depending upon the key and the context.

### MINOR MAJOR SEVENTHS

Take a minor chord and add the major seventh.

C minor major seventh

written Cm<sup>Δ</sup> *root position* *1st inversion*

Cm<sup>Δ</sup>/E<sup>b</sup>

*2nd inversion* *3rd inversion*

Cm<sup>Δ</sup>/G Cm<sup>Δ</sup>/B

### MAJOR AND MINOR SIXTHS

Take a major or minor sixth and add the major 6th note to it. The major 6th occurs in the major scale and in the minor scale (see introduction)

C major sixth C minor sixth

written C<sup>6</sup> Cm<sup>6</sup>

### CHORD CATEGORIES

There are 6 basic categories of chords: major, minor, dominant 7ths, minor sevenths, diminished and half-diminished.

The major chords include triads, major sevenths and major sixths plus any other major chords with extensions (higher intervals above an octave) or

alterations

(a note that is altered by raising it or lowering it a semitone).

The minor chords include minor triads, minor major sevenths and minor sixths plus any other minor chords except for minor sevenths.

## DIMINISHED CHORDS

These consist of minor 3rds (an interval of 3 semitones) on top of one another.

### C diminished

written C<sup>o</sup>

The image shows two staves of music in bass clef. The first staff shows the C diminished chord in root position, with notes C, Bb, Ab, and Gb. The intervals between C and Bb, Bb and Ab, and Ab and Gb are each labeled 'min 3'. The second staff shows the first inversion of the C diminished chord, with notes Bb, Ab, Gb, and F.

The inversions happen to be the root-position chords of the other notes. There are only 3 diminished chords plus their inversions. The other 2 start on C# and D. Sometimes the diminished is written as dim, eg. C dim.

Scales which can be used for a diminished chord are the harmonic minor, starting a semitone above the root of the chord, and the diminished scale, also starting a semitone above the root.

### Db harmonic minor scale

The image shows the Db harmonic minor scale in bass clef, starting on Db. The notes are Db, Eb, Fb, Gb, Ab, Bb, and Cb. The interval between Ab and Bb is a tritone.

### Db diminished scale

The image shows the Db diminished scale in bass clef, starting on Db. The notes are Db, Eb, Fb, Gb, Ab, Bb, Cb, and Db. The intervals between notes are labeled as T (Tritone) and S (Semitone) in the sequence T S T S T S T S.

There are only 3 diminished scales. The others are these:

### D diminished scale

The image shows the D diminished scale in bass clef, starting on D. The notes are D, Eb, F, G, Ab, Bb, C, and D. The intervals between notes are labeled as T (Tritone) and S (Semitone) in the sequence T S T S T S T S.

### Eb diminished scale

The image shows the Eb diminished scale in bass clef, starting on Eb. The notes are Eb, F, G, Ab, Bb, C, D, and Eb. The intervals between notes are labeled as T (Tritone) and S (Semitone) in the sequence T S T S T S T S.

## HALF-DIMINISHED CHORDS

A half-diminished chord is a minor seventh with a flattened fifth. The scales which can be used are shown below.

written  $C^\circ$  C half-diminished

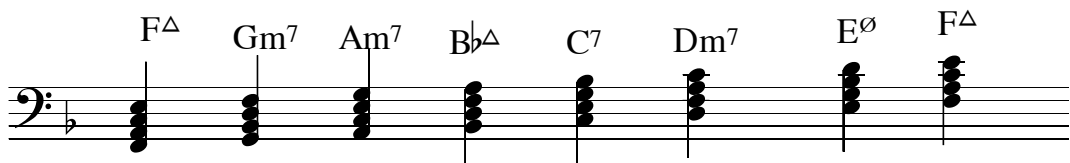


=Eb minor scale with the D natural  
or Db major scale with the Db

Half-diminished occur as the II in a **II V Im** sequence. (It is built on the second step of the scale and the **V** is the dominant seventh on the 5th degree.) Sometimes it is written as, for example, Cm7-5.

Within a major scale, the following 4-note chords can be found:

### F major scale

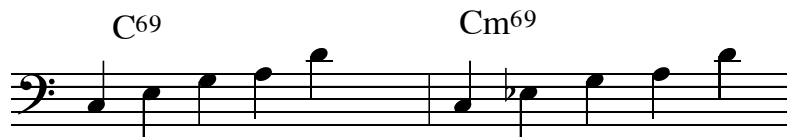


## SECONDS AND NINTHS

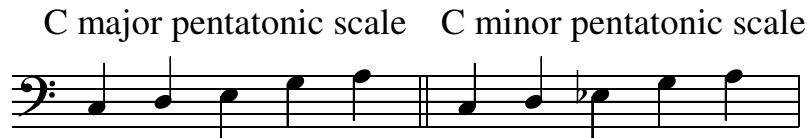
Nowadays it is common to find major and minor triads with added seconds, written, for example, as C2 or C add D. Sometimes the root-note is omitted. Ninths can be found when there is a sixth or seventh note in the chord. They can be added to any category of chord:



You can also add a ninth to a major and minor 6th chord



By placing the 9th as the second note in these 2 chords, you get a pentatonic scale.



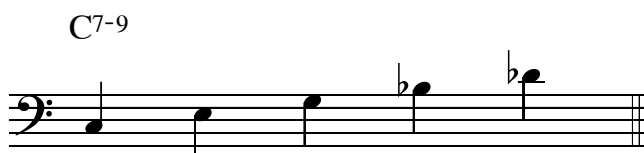
In other words, a major pentatonic scale is made up of the root, major 2nd, major 3rd, perfect 5th and major 6th. In the minor pentatonic scale, you use the minor 3rd in place of the major 3rd.

### ALTERED NINTHS

In a dominant seventh chord, a ninth can be raised or lowered a semitone. If it is raised, you get a dominant seventh with a sharpened ninth. This gives a blues sound as the resulting note is the same as the minor third - a blues note. It is often written as a minor third.



If you lower the ninth you get a dominant seventh with a flattened ninth.



The dominant seventh with a flattened ninth is often found as the **V** chord in the **II V Im** sequence. Notice that if you take away the root-note you are left with a diminished chord, which one depends upon which note is the lowest one. The flattened ninth is a semitone above the octave/root-note. Where a chord has an altered ninth, try not to play a natural ninth, except in passing.

### SCALES WHICH FIT DOMINANT SEVENTHS WITH ALTERED NINTHS

Provided the fifth is unaltered, you can use a diminished scale a semitone above the root of the chord for both chords (the Db diminished scale is shown above).  
 In addition, you can use the harmonic minor scale a perfect 5th above the root-note of the flattened ninth dominant seventh chord, eg, an F harmonic minor scale against a C7-9 chord. For a sharpened ninth chord with a natural fifth you can also use a blues scale built on the same root-note.

### C blues scale

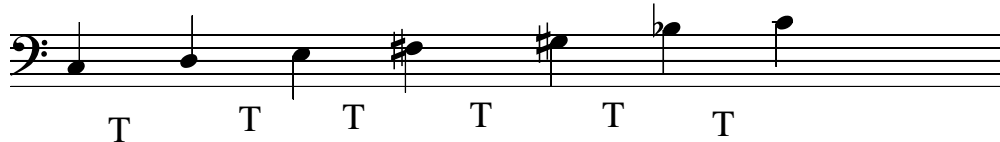


### ALTERED FIFTHS

The fifths of major triads, dominant seventh chords and major seventh chords can be raised or lowered a semitone. Major triads with a sharpened fifth are called augmented triads. Dominant sevenths with sharpened fifths are sometimes known as augmented seventh chords. The whole-tone scale can be used for these 2 types of chord, as well as for dominant seventh chords with a natural ninth and a sharpened fifth

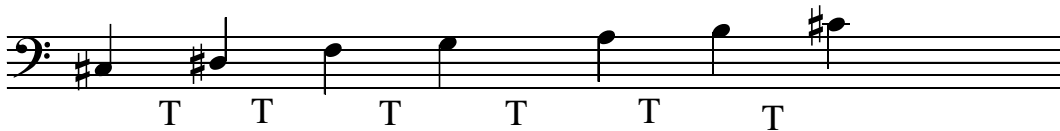


### C whole-tone scale



Note that there is a tone between each note. There is only one other whole-tone scale, which is this.

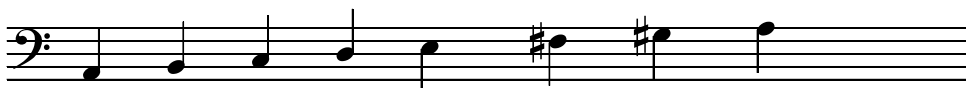
### C# whole-tone scale



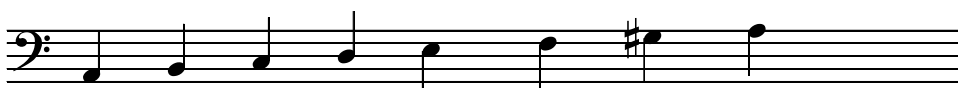
Major seventh and ninth chords with a sharpened fifth are occasionally found:



### A minor scale

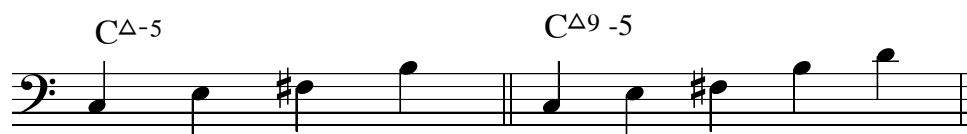


### A harmonic minor scale

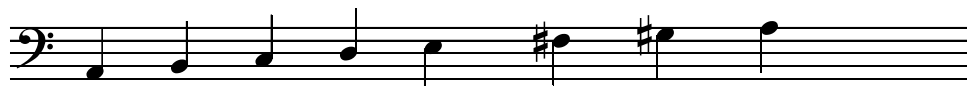


The scales which fit this are the minor scale, or the harmonic minor scale, a minor 3rd below the root, in this instance starting on A.

The fifth in major sevenths and major ninths can be lowered instead. In this case, an appropriate scale would also be the minor scale a minor 3rd below. I have written the lowered fifth here as a raised fourth to match the scale.



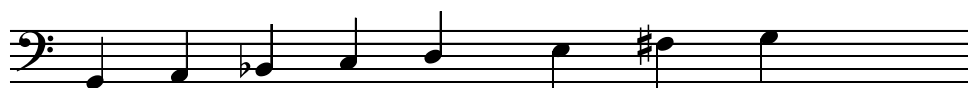
A minor scale



Dominant sevenths, including those with a natural ninth, may also have a lowered fifth. The minor scale a perfect 4th below the root would fit.



G minor scale



## ALTERED NINTHS AND FIFTHS

Dominant sevenths can have altered ninths and fifths. There are 4 variations: C<sup>7</sup>-9-5, C<sup>7</sup>-9+5, C<sup>7</sup>+9+5, and C<sup>7</sup>+9-5. The altered scale can be applied to all of these. The altered scale has the same notes as the minor scale, a semitone above the root.



Db minor scale (C alt scale)



## FOURTHS AND ELEVENTHS

A major triad consists of the intervals 1 3 5, the dominant seventh - is 1 3 5 b7. The perfect 4th is very rarely added to these chords because of the clash between the 3rd and 4th. Sometimes, though, the major 3rd is



replaced by the 4th giving these chords:

Csus<sup>4</sup> C<sup>7</sup>sus<sup>4</sup>

*Sus* is an abbreviation for suspended as the 4th sometimes is resolved to the 3rd in the following chord. The major second (D, here) may be added to these chords.

The same thing applies with (natural) 11ths which are very rarely added to dominant seventh chords. However, if the 11th is raised by a semitone the same clash is avoided. The chord is written as C<sup>7</sup>+11 (or C<sup>7</sup>#11) or C<sup>7</sup>(-5) or C<sup>7</sup>(#4).

A dominant 7th/9th with an altered ninth can also have a sharpened eleventh.

C<sup>9</sup>+11

Gm scale

The appropriate scale is the minor scale a perfect 4th below.

Dominant sevenths with altered ninths can also have sharpened 11ths. If the natural fifth of the chord is omitted, the altered scale can be used. (See section on altered ninths and flattened fifths above)

If the natural fifth is included, the diminished scale built a semitone higher than the root-note of the chord would be better (see 13ths below).

No clashes occur when adding an 11th to minor chords and minor seventh chords

Cm<sup>6</sup><sup>9</sup> (add 11)

Cm<sup>11</sup>

Elevenths can also be added to diminished and half-diminished chords.

C<sup>o</sup> (add D,F)



C<sup>o</sup> (add D,F)



## THIRTEENTHS

Thirteenths can be added to other categories of chords. The only thing to remember is not to add one to a chord with a flattened fifth. In the case of dominant sevenths we have these chords. The b9 could also be a #9.

C<sup>13+11</sup>



C<sup>13-9+11</sup>



If they are added to a major chord they can be treated like a 6th.

C<sup>Δ</sup> 13 (+11)



Adding a thirteenth to minor chords and minor sevenths, we get:

Cm<sup>Δ</sup> add 13



Cm<sup>13</sup>



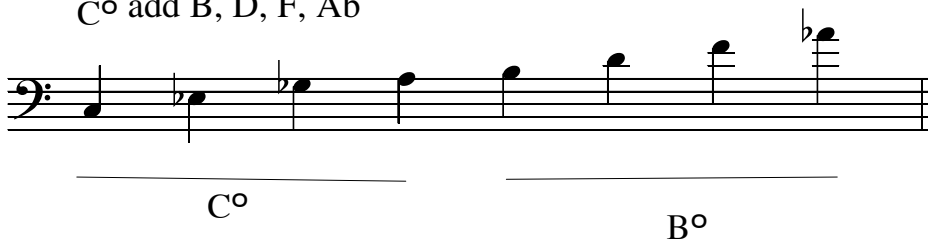
The half-diminished can also take a thirteenth:

C<sup>o</sup> add 13

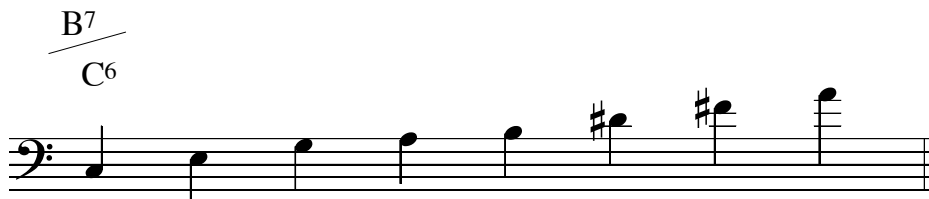


The diminished contains a major 6th interval from the root - which is the same note as the thirteenth. To enrich the chord it can take a flattened 13th (sharpened 5th). By examining the example below, you can see the additional notes that can be added to a thirteenth themselves form another diminished chord starting on the leading-note (a semitone down from the octave.)

C<sup>o</sup> add B, D, F, Ab



The only other chords you might come across are when one chord is superimposed on another. Sometimes these boil down to chords we have already covered. Here is a different one:



The last 4 notes constitute a B7, the first 4 make up a C6. Put the notes in order within the confines of an octave and you get an E harmonic minor scale.

If the arranger gives you complicated chord symbols like this, he will normally tell you which scale fits the chord. If not, you have a right to complain.

## MODES

Let's not be pedantic about this. The most common modes are merely the notes of a major scale starting on each of the different steps. Using the white notes on a piano, the Ionian starts on C (same as the major scale), the Dorian on D, the Phrygian on E, Lydian on F, Mixolydian on G, Aeolian on A and the Locrian on B. So here is how to work out which major scale will apply,

- Dorian - (the major scale) a tone below
- Phrygian - a minor third below
- Lydian - a perfect fourth below
- Mixolydian - a perfect fifth below/a perfect fourth above
- Aeolian - a minor third above
- Locrian - a semitone above

## ADVICE

All of this is complicated, so learn it piece-meal. If you are in a band and have to play a solo on certain tunes, write out which notes are in the chords and which scales can be used. Once you know the scales you will be able to play runs, arpeggios and patterns which occur within the scales. It will make you more accurate, speed up your playing and give you more confidence.

