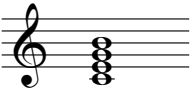
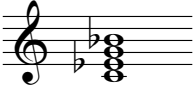

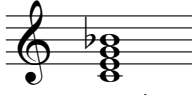

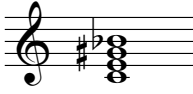



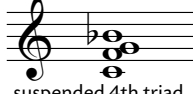




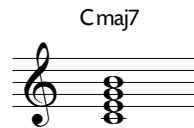
<p>C major 7th</p>  <p>major triad major 7th</p>	<p>C minor 7th</p>  <p>minor triad minor 7th</p>	<p>C minor 7th with lowered 5th</p>  <p>diminished triad minor 7th</p>	<p>C dominant 7th</p>  <p>major triad minor 7th</p>
<p>C diminished 7th</p>  <p>diminished triad diminished 7th (spelled enharmonically)</p>	<p>C augmented dominant 7th</p>  <p>augmented triad minor 7th</p>	<p>C dominant 7th with lowered 5th</p>  <p>major triad with diminished 5th minor 7th</p>	<p>C augmented major 7th</p>  <p>augmented triad major 7th</p>
<p>C minor triad with major 7th</p>  <p>minor triad major 7th (Obviously!)</p>	<p>C dominant 7th with suspended 4th</p>  <p>suspended 4th triad minor 7th</p>	<p>C major 6th</p>  <p>major triad major 6th</p>	<p>C minor 6th</p>  <p>minor triad major 6th</p>

Some observations about a few of these chords:

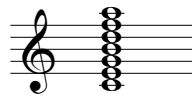
- The minor 7th with a lowered 5th is not identified as a half diminished chord. This will be explained.
- The 7th of the diminished 7th chord is often notated without double flats.
- The dominant 7th with a suspended 4th does not contain a supporting triad constructed in thirds.
- The suspended 4th is a replacement for the 3rd of the dominant 7th chord.

There are other chord types, but not as common as those above.

To review: the following chord symbol defines the notes of the 7th chord:



And, at the same time *implies* the upper extensions of the chord (9th, 11th, 13th):



Not all seven pitches are harmonically stable, but they are *melodically available*:



When arranged as a scale, the harmonic and melodic pitches are a *chord scale*. The chord scale defines basic harmonic and limited melodic activity (when compared to the chromatic scale) for a given chord symbol.

The individual components of a chord scale are:

1. CHORD TONES,
2. available TENSION(s),
3. harmonically AVOIDED NOTE(s).

As with chord symbols, ♭ means “lowered”, # means “raised.”

The chord scales used for major 7th and major 6th chords are the above mentioned Ionian and Lydian scales. Major 6 and minor 6 chords are used as alternatives for the maj7 and min(maj)7 chords especially if the melody pitch is the root of a chord containing maj7. The root should represent an avoid note inasmuch as it is a half step above the major 7th. The melody can not be avoided. The alternative 6th chord is used to compensate for this dilemma.

The chord scales used for -7th chords are:

C-7 = C Dorian

refer to the text

C-7 = C Aeolian

C-7 = C Phrygian

The 6th degree of the Dorian scale is an acceptable whole step above the 5th, *but* it is still avoided. All other -7 chord scales avoid the 6th degree. In the Dorian chord scale, major 6th along with the minor 3rd of the chord creates a tritone which is the basis for dominant sound and function. This exception to avoid notes is slowly changing, especially in jazz situations where 13 occurs as a melody pitch. More and more we will find a Dorian chord scale being used with 13 as an available tension. For now it will be considered an avoid note. Although avoid notes do not occur harmonically, their inclusion melodically is what defines a specific function for a chord. Avoid notes are the pitches from which each chord derives its characteristic sound.

The chord scale used for the $-7(\flat 5)$ chord is *Locrian*:

C $-7(\flat 5)$ = *Locrian*

root avoid -3rd 11 $\flat 5$ th $\flat 13$ -7 (root)

The chord scales for dominant 7th chords are too numerous to mention at this point. They will be introduced gradually. The two most common **dominant 7th** chord scales are *Mixolydian* and *Lydian $\flat 7$* :

C7 = C *Mixolydian*

root 9 3rd avoid 5th 13 -7 (root)

C7 = C *Lydian $\flat 7$*

root 9 3rd #11 5th 13 -7 (root)

The *Lydian $\flat 7$* scale is nondiatonic to any key. (Nondiatonic means “not belonging to a controlling tonal center.” “Nondiatonic” will also be used when referring to a chord’s function.) Also of importance is the fact that *Lydian $\flat 7$* has *not* been identified as a *Mixolydian #11*. There is a significant reason for this distinction, that will eventually be examined in detail.

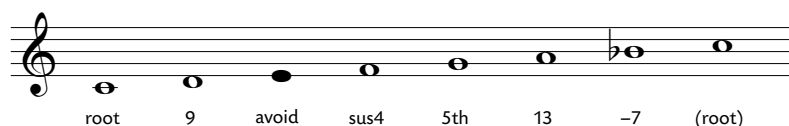
The **chord scale** used for the **+7th** and the **7($\flat 5$)** chord is *whole-tone*. The **7($\flat 5$)** is most often a wrong spelling for dominant **7(#11)**; the real **7($\flat 5$)** is rare.

C+7 and C7($\flat 5$) = *whole-tone*

root 9 3rd #11
(or $\flat 5$) +5th
(or $\flat 13$) -7 (root)

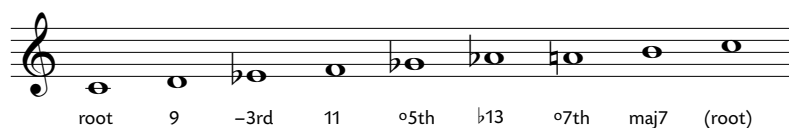
The **chord scale** used for a dominant 7th (**sus4**) is a Mixolydian chord scale but the *avoid note* is the 3rd:

C7(sus4) = C Mixolydian



The chord scales used for $\circ 7$ th chords are also numerous. Each will be examined individually. For now, a common scale associated with the $\circ 7$ th chord is:

C $\circ 7$ = symmetric diminished



This last scale contains eight pitches. This situation creates an unusual numbering pattern. In this case, the available tensions include major 7 which is usually considered a chord tone. This scale will be examined later.

- Ionian for maj7 and maj6 chords
- Dorian, Phrygian, Aeolian for -7 chords
- Lydian for maj7 and maj6 chords
- Mixolydian for dominant 7 and dominant 7(sus4) chords
- Locrian for -7(b5) chords
- Lydian b7 for dominant 7 chords
- whole-tone for +7 and 7(b5) chords
- symmetric diminished for $\circ 7$ chords

- Ionian: avoid 11 (=4)
- Dorian: avoid 13 (= 6)
- Phrygian: avoid b9 and b13 (= b2 and b6)
- Mixolydian: avoid 11 (=4) – avoid 3 for (sus4)
- Aeolian: avoid b13 (=b6)
- Locrian: avoid b9 (=b2)
- Lydian, Lydian b7, whole-tone and symmetric diminished have no avoid notes

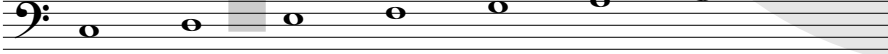
CHORD SCALE SUMMARY

AVOID NOTE SUMMARY

ROOT MOTION AND PATTERNS

If the diatonic chords in the key of C major are arranged in steps (2nds) and their functional sound is examined, the unfolding of harmonic progression from most stable to least stable can be seen. (For demonstration purposes, the VII-7(b5) has been awarded a questionable dominant function.):

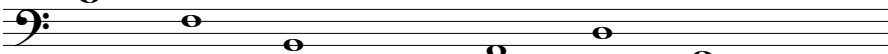
Cycle 2:

	Imaj7	II-7	III-7	IVmaj7	V7	VI-7	VII-7(b5)	Imaj7
								
	T	SD	T	SD	D	T	D?	T

Notice when diatonic chords move in stepwise root motion, there will be movement of unstable nontonic sound to stable tonic sound or unstable to very unstable then to tonic (except when the V7 moves down to IVmaj7). This defines *progression*, with the exception of the *retrogression* of V7 to IVmaj7 (an uncommon chord pattern in jazz contexts except in the blues).

If the chords are arranged in root motion of diatonic 5ths, the same symmetry of function will occur, only here the patterns are unstable – very unstable – stable, except in retrograde:

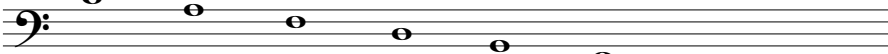
Cycle 5:

	Imaj7	IVmaj7	VII-7(b5)	III-7	VI-7	II-7	V7	Imaj7
								
	T	SD	D?	T	T	SD	D	T

This root motion of 5ths represents the building up of tension and then its release. Notice the only place in the pattern of motion where the string of perfect 5ths changes is when moving down to the VII-7(b5). This 5th pattern, when inverted, will create retrogressions except when II-7 moves to VI-7 and IVmaj7 moves to Imaj7.

If the diatonic chords are arranged in root motion of diatonic 3rds, a different symmetric pattern of events occurs. Root motion in 3rds is usually downward:

Cycle 3:

	Imaj7	VI-7	IVmaj7	II-7	VII-7(b5)	V7	III-7	Imaj7
								
	T	T	SD	SD	D?	D	T	T

CADENCES

The cadence is the most important harmonic formula in music. It represents or confirms a tonal center and therefore appears mostly at the end of a musical section. In general the chords of a cadence form a harmonic goal or are heading for one. All types of traditional cadences also apply to jazz, though some are more important than others. The most important progression, as mentioned before, is V7 going to I, known as **authentic cadence** or **authentic resolution**:

Diagram illustrating the authentic cadence (V7 to I) in F major. The progression is shown in two measures. The first measure contains the dominant seventh chord (V7), labeled as D (Dominant) and C7. The second measure contains the tonic chord (I), labeled as T (Tonic) and F. An arrow points from the V7 chord to the I chord, indicating the resolution.

The **plagal cadence** or **plagal resolution** is most often found in Blues (refer to chapter *Blues*), but may be also found in popular songs like "Yesterday" by the Beatles.

Diagram illustrating the plagal cadence (IV to I) in F major. The progression is shown in two measures. The first measure contains the subdominant chord (IV), labeled as SD (Subdominant) and B \flat . The second measure contains the tonic chord (I), labeled as T (Tonic) and F. No arrow is used to indicate the resolution.

Notice that no arrow is used.

A dominant chord can resolve to any quality of chord. Resolution to a $\circ 7$ th or a $-7(\flat 5)$ ("Stella by Starlight") is uncommon. The only requirement for resolution of a dominant chord is root motion down a perfect 5th:

The *primary dominant's* resolution is down a perfect 5th to I_{maj7} . A *secondary dominant's* resolution is down a perfect 5th to one of the diatonic chords *other than* I_{maj7} or $VII-7(\flat 5)$. (Here again the $VII-7(\flat 5)$ chord is relegated to a different status.):

HARMONIC RHYTHM

Harmonic rhythm is the rate of harmonic change. In common time the typical rhythms are 2, 4 and 8 beats per chord:

C A-7 F G7(sus4) C A- F G7(sus4)

C6 A7 D-7 G7

D-7 G7 E-7 A7

In triple meters the common rhythms are 3 and 6 beats per chord:

Cmaj7 Fmaj7 E-7 A7 D-7 G7 Cmaj7 G7(sus4)

D-7 G7 A-7 D7

In any grouping of rhythmic pulsations, we tend to hear multiples of four. The first pulse is the strongest; the third is not so strong; the second is weaker; the fourth is the weakest:

S W s w S W s w S etc.

This stress pattern can be demonstrated for any harmonic rhythm:

The image shows five musical staves illustrating harmonic rhythms. Each staff consists of a treble clef, a time signature, a series of notes represented by slanted lines, and chord names above the staff. Below the notes are stress patterns: 'S' for strong and 'W' for weak, with lowercase 's' and 'w' for secondary stresses.

- Staff 1 (4/4):** C, A-7, F, G7(sus4), C, A-, F, G7(sus4). Stress pattern: S, W, s, w, S, W, s, w.
- Staff 2 (4/4):** C6, A7, D-7, G7. Stress pattern: S, W, s, w.
- Staff 3 (4/4):** D-7, G7, E-7, A7. Stress pattern: S, W, s, w.
- Staff 4 (3/4):** Cmaj7, Fmaj7, E-7, A7, D-7, G7, Cmaj7, G7(sus4). Stress pattern: S, W, s, w, S, W, s, w.
- Staff 5 (3/4):** D-7, G7, A-7, D7. Stress pattern: S, W, s, w.

Harmonic cadences, with few exceptions, are found moving from a weak beat to a stronger beat. The V7 chord typically moves to a tonic chord from weak to strong:

The image shows a musical staff in 4/4 time illustrating a cadence. The staff contains two measures. The first measure has two chords: II-7 (A-7) on a strong beat (S) and V7 (D7) on a weak beat (W). The second measure has two chords: III-7 (B-7) on a strong beat (s) and VI-7 (E-7) on a weak beat (w). A second example shows II-7 (A-7) on a strong beat (S) and V7 (D7) on a weak beat (W), with an arrow pointing to I6 (G6) on a strong beat (s). The stress pattern below is S, (W) → s, w, S, (W) → s, w.

If one studies all this confusing criteria for sequential dominants closely it will be seen that it is possible for a sequential dominant progression to be only one chord that is on a strong stress and resolves to a diatonic chord – starting criterion met – ending criterion met. Unusual, but it does occur. The parentheses are used to show that this, and any sequential dominant, *can* change function and resolve diatonically as a secondary dominant (as demonstrated in the beginning of Jobim’s “Quiet Nights” and below):

Every sequential dominant in a series will be heard as a dominant of a dominant – $V7/V$. The chord scale will be the same as a $V7/V$ – Mixolydian, whether it is diatonic or not:

$D7^{(13)}_{(9)}$ - Mixolydian

Expected resolution to G7 as $V7/V$

D7 $G7^{(13)}_{(9)}$ - Mixolydian

Expected resolution to C7 as $V7/V$

D7 G7 $C7^{(13)}_{(9)}$ - Mixolydian

Expected resolution to F7 as $V7/V$

D7 G7 C7 F7

This is the weakest stress in the progression. Most listeners will expect a diatonic resolution, or a continuation of the pattern.

D7 G7 C7 F7 $B^{\flat}maj7$

Chords are first analyzed for their *sound*:

D7 G7 C7 F7 Imaj7 $B^{\flat}maj7$ $V7/III$ A7

SUBSTITUTE DOMINANTS

The instability of a dominant chord is attributed to the tritone. In order for the chord to have a dominant sound, the tritone *must represent the 3rd and 7th of the chord*:

G7

The diagram shows a G7 chord in treble clef. The notes are G4, B4, D5, and F5. A bracket labeled "tritone" spans the interval between B4 (the 3rd degree) and F5 (the 7th degree). The bass clef shows a single G4 note.

If the tritone is inverted, the enharmonic spelling of the 3rd and 7th can be heard exchanging positions resulting in a different dominant chord root that contains the same tritone:

G7 D \flat 7

The diagram compares G7 and D \flat 7 chords. On the left, G7 is shown with notes G, B, D, F. On the right, D \flat 7 is shown with notes D \flat , F, A \flat , C. Lines connect the B in G7 to the F in D \flat 7 and the F in G7 to the B \flat in D \flat 7, showing they are enharmonic. A bracket labeled "tritone" is placed under the F and B \flat notes in the bass clef, which are the 3rd and 7th degrees of both chords.

These are *substitute dominant* chords. They are also known as *tritone substitute* chords because they share common tritones and their roots are a tritone apart. In C major, G7 is the primary dominant and D \flat 7 is its substitute dominant. G7 is V7 and D \flat 7 will be analyzed as subV7. This analysis means *substitute for V7*.

The diagram shows two chord progressions in C major. The first progression is V7 (G7) to I (C), indicated by a solid arrow. The second progression is subV7 (D \flat 7) to I (C), indicated by a dashed arrow. The notes for G7 are G, B, D, F. The notes for C are C, E, G. The notes for D \flat 7 are D \flat , F, A \flat , C. The notes for C are C, E, G. The bass clef shows the root notes G and D \flat moving to C.

SEQUENTIAL SUBSTITUTE DOMINANTS

Sequential substitute dominant motion is not as common as sequential dominant motion. The chord movement during sequential dominant activity follows the cycle of 5ths and is shown with solid arrows:

$(III7)$ \curvearrowright $D7$ \curvearrowright $G7(\#9)$ \curvearrowright $C7$ \curvearrowright $F7(\#9)$ $(V7)$ $Imaj7$ $B\flat maj7$ $(V7/III)$ \curvearrowright $A7(\flat9)$

\curvearrowright $D7(\flat13)$ \curvearrowright $G7$ \curvearrowright $C7(\flat13)$ \curvearrowright $F7$ $(V7)$ $Imaj7$ $B\flat maj7$ $(V7/III)$ \curvearrowright $A7(\#9)$

The following excerpt shows the application of sequential substitute dominants in traditional music. The subV7 chords were traditionally written as German augmented sixth chords. Note that the melody implies Lydian \flat 7 as the appropriate chord scale:

F. SCHUBERT,
OP. 83, 2

Woe's me! Where am I?

The first system of the musical score shows a vocal line and piano accompaniment. The vocal line begins with a whole rest, followed by a half note G4, a quarter note A4, and a quarter note B4. The piano accompaniment features a rhythmic pattern of eighth notes in the right hand and a steady bass line in the left hand. The key signature is one sharp (F#) and the time signature is common time (C).

Where, oh, where am I?

The second system of the musical score continues the vocal line and piano accompaniment. The vocal line has a whole rest, followed by a half note G4, a quarter note A4, and a quarter note B4. The piano accompaniment continues with the same rhythmic pattern. The key signature and time signature remain the same as in the first system.

TUNES TO ANALYZE FOR SUBSTITUTE DOMINANTS

- "One Note Samba"
- "The Girl From Ipanema" (A section)
- "Peace" (It's difficult!)
- "Turn Out the Stars" (Bill Evans – the last 3rd)
- "Sophisticated Lady"

The II-V may appear with alterations to both chords or to either chord. All the following combinations represent the sound of II-V :

Four musical staves illustrating different chord combinations for a II-V progression leading to F. Each staff shows a melodic line in G major with a II-V progression (G7 to C7) and a final F chord. The combinations are:

- Staff 1: G-7, C7
- Staff 2: G-7($\flat 5$), C7($\flat 9$)
- Staff 3: G-7, C7($\sharp 9$ / $\flat 9$)
- Staff 4: G-7($\flat 5$), C7(9)

In order for the relationship to sound as a II-V , the harmonic rhythm must be II-7 – *strong stress*, V7 – *weak stress*. This is an absolute must for the listener. A prime example are the changes in the beginning of the tune “I Got It Bad and That Ain’t Good” by Duke Ellington.

Harmonic rhythm for the beginning of “I Got It Bad and That Ain’t Good” by Duke Ellington. The staff shows the following chord changes and stresses:

Imaj7	VI-7	A7	E-7	A7	
Gmaj7	E-7				
S	(W)	S	(W)	s	w

The chord in the second measure is VI-7; in the 4th measure it is a related II-7 although the E-7 A7 appears in both locations. The harmonic rhythm is what forces the issue.

The II-V may repeat itself and not effect the function of either chord. The chords from the beginning of another Duke tune “Satin Doll” can demonstrate this (as does “Speak Low”):

Repeating II-V chord combinations from the beginning of “Satin Doll” by Duke Ellington. The staff shows the following chord changes:

D-7	G7	D-7	G7	E-7	A7	E-7	A7
-----	----	-----	----	-----	----	-----	----

The chord scales for the modal interchange chords from natural minor will reflect their use in a major key or their origin in a minor key or a combination of both considerations.

The tonic minor chord scales usually contain the natural 6 scale degree since $\flat 6$ represents the functional sound of the subdominant minor chords. The I-7 chord is most often a *Dorian* chord scale with 13 as an available tension. The natural 13 reinforces the major key while the minor scale implies the minor key:

C-7 = I-7 = Dorian

9 11 13

The \flat III $\text{maj}7$ chord is usually a Lydian scale. The $\sharp 11$ holds the progression to the key of I major – not implying movement into the natural minor key's related major (key of \flat III):

$E\flat\text{maj}7 = \flat$ III $\text{maj}7 =$ Lydian

9 $\sharp 11$ 13

If the V-7 is functioning as a tonic minor chord from natural minor, its chord scale is *Aeolian*. However, it most often occurs as a chord borrowed from the key of *Mixolydian* because of its close relationship to the tonic chord in that key. A chord closely related to V-7 is \flat VII $\text{maj}7$ that can also be seen as a Mixolydian modal interchange chord. The chord scale for \flat VII $\text{maj}7$ is *Lydian* to reflect its nontonic function:

C Mixolydian

G-7 $B\flat\text{maj}7$ C7

Traditional harmony mostly deals with three different minor scales: Natural, harmonic, and melodic minor, although dorian minor is an important tonal source for transitions and modulations.

Concerning the traditional interpretation of the melodic minor scale: It is just a guide line and *not* a rule that maj6th and maj7th appear in succession only in ascending and min6th and min7th only in descending lines (natural minor). The contemporary use of the melodic minor scale contains the maj6th and the maj7th ascending *and* descending. But this appearance can be found in several examples of traditional music too:

J. S. BACH, WELL-TEMPERED CLAVIER, BOOK I:

FUGUE IN A-MINOR:

34

dorian minor

dorian minor

melodic minor descending

FUGUE IN F-MINOR:

16

dorian minor

dorian minor

melodic minor descending

melodic minor descending

The many choices of scales available in minor key may appear almost endless, however, the truth is there are many more scales that are appropriate for use in minor keys than for major key.

The following tune has been forced to contain typical minor key chord progressions:

Common minor key traits:

Typically, the minor tonality is established immediately with the tonic chord stressed.

Secondary dominants of II, IV, and V predominate.

Sequential dominants (all diatonically rooted) often occur and, as in major key, ultimately resolve to a diatonic chord.

Unlike major key, the secondary dominant of V may appear on a strong stress where the II-7 would normally be (as in the first A section).

Nondominant cadences from the diatonic bVII7 are common.