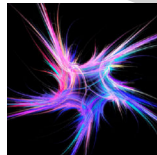


GuitarGuide

Music Improvisation Tool - MIT



Modes and scales

1 Task: Improvise over the chord B9 in C major.

Right, maybe a little un-usual combination, but seen ... Using the Music Improvisation Tool and pressing the key 'Show proposal' displays the following recommendation for above improvisation task:

Proposed improvisation mode:

The chord **B9** is a secondary dominant on step **VII** in the harmonised **C major** scale.

To improvise over **B9** on step **VII** in **C major**, use the **E melodic minor** scale from this scales **5.** step, which is the tone **B**, or use the **B mixolydian b6** scale, which is the **5.** mode in **E melodic minor**.

Alternative: None.

Activating the 'Play tonality', 'Play chord' and 'Play improvization scale' keys reveals the following illustrations of the played recommendations:

Toanlity: C major:



Chord: B9 with the notes: B-D#-F#-A-C#



Improvisation scale: B mixolydian b6 - with the notes: B-C#-D#-E-F#-G-A. B mixolydian b6 scale is the 5. mode in E melodic minor, that origins from G major (aeolian 6. mode), with raised C and D. Hence the G major score.



As seen, the proposed improvisation scale hits all the tones in the chord, but not the notes C, D and F in C major. To accomplish that, one may play a chromatic sequence - or part of - with the tones C, C#, D, D# and F, F#, G - or so, or some of, or up or down, or around - to hit and cover tones in both tonality and chord.

The improvisation scale is in G major with the fundamental note B, and a raised C and D. How is this correlated to the B mixolydian b6 scale:

The mixolydian b6 scale is the 5. mode in melodic minor - as stated above.

Or, see the table-set below covering melodic minor: In the leftmost column in the melodic minor table-set, search and find the note B. Where the B line intersect with (cross) the mixolydian b6 - or the 5. mode - column, find the melodic minor scale fundamental note E, meaning that B mixolydian b6 scale is the 5. mode in E melodic minor.

In the upper table-set for the major mode, one find a G in the cross-cell between the line for note E and the aeolian (eq. minor) column. Meaning that the B mixolydian b6 scale has its origin in the G major tonality or scale: **Hence the G score above.** See more about mode and modality below.

C	C ₁	Bb	Ab	G	F	Eb	Db
C# / Db	Db	B	A	Ab	Gb	E	D
D	D	C ₂	Bb	A	G	F	Eb
D# / Eb	Eb	Db	B	Bb	Ab	Gb	E
E	E	D	C ₃	B	A	G	F
F	F	Eb	Db	C ₄	Bb	Ab	Gb
F# / Gb	Gb	E	D	Db	B	A	G
G	G	F	Eb	D	C ₅	Bb	Ab
G# / Ab	Ab	Gb	E	Eb	Db	B	A
A	A	G	F	E	D	C ₆	Bb
A# / Bb	Bb	Ab	Gb	F	Eb	Db	B
B	B	A	G	Gb	E	D	C ₇
Step in scale:	1.	2.	3.	4.	5.	6.	7.
Mode in major:	<i>ionian eq. major</i>	<i>dorian</i>	<i>phrygian</i>	<i>lydian</i>	<i>mixolydian</i>	<i>aeolian eq. minor</i>	<i>locrian</i>
Degree descending:	1	1	½	1	1	1	½

C	C ₁	Bb	A	G	F	Eb	C#
C# / Db	C#	B	Bb	G#	F#	E	D
D	D	C ₂	B	A	G	F	Eb
D# / Eb	Eb	C#	C ₃	Bb	G#	F#	E
E	E	D	C#	B	A	G	F
F	F	Eb	D	C ₄	Bb	G#	F#
F# / Gb	F#	E	Eb	C#	B	A	G
G	G	F	E	D	C ₅	Bb	G#
G# / Ab	G#	F#	F	Eb	C#	B	A
A	A	G	F#	E	D	C ₆	Bb
A# / Bb	Bb	G#	G	F	Eb	C#	B
B	B	A	G#	F#	E	D	C ₇
Step in scale:	1.	2.	3.	4.	5.	6.	7.
Mode in melodic minor:	<i>melodic minor</i>	<i>dorian b2</i>	<i>lydian augmented (#5)</i>	<i>lydian dominant</i>	<i>mixolydian b6</i>	<i>half diminished</i>	<i>altered dominant</i>
Degree descending:	1	½	1	1	1	1	½

C	C ₁	Bb	A	G	F	E	C#
C# / Db	C#	B	Bb	G#	F#	F	D
D	D	C ₂	B	A	G	F#	Eb
D# / Eb	Eb	C#	C ₃	Bb	G#	G	E
E	E	D	C#	B	A	G#	F
F	F	Eb	D	C ₄	Bb	A	F#
F# / Gb	F#	E	Eb	C#	B	Bb	G
G	G	F	E	D	C ₅	B	G#
G# / Ab	G#	F#	F	Eb	C#	C ₆	A
A	A	G	F#	E	D	C#	Bb
A# / Bb	Bb	G#	G	F	Eb	D	B
B	B	A	G#	F#	E	Eb	C ₇
Step in scale:	1.	2.	3.	4.	5.	6.	7.
Mode in harmonic minor:	<i>harmonic minor</i>	<i>locrian #6</i>	<i>ionian #5</i>	<i>ukrainian dorian</i>	<i>phrygian dominant</i>	<i>lydian #2</i>	<i>altered diminished</i>
Degree descending:	1	½	1	1	½	1½	½

2 The modal principle and modal scales

The modal principle is closely related to ancient greek and medieval church music and tonality; it was the fundamental musical principle until the major/minor tonality took over in the mid baroque era. The modal principle has found new actuality as an efficient tool for composition, chord-creation and improvisation, especially within jazz, but the principle gives today's musicians a comprehensive set of tools to improvise and to create new sound elements - especially chords - within *all* musical genres.

2.1 Modality in today's musical context

Modus or *modal* means: *mode* or *rule* (english *mode*). From each of the 12 tones in the western music as fundamentals and the diatonic scale as basis, we can create 84 modal scales, namely 7 x 12. The naming of modal scales are done by placing the name of the fundamental tone in front of the scales modal designation (C major scale as example).

Tone:	C	D	E	F	G	A	B	C	D	E	F	G
Step sequence:	1	1	½	1	1	1	½	1	1	½	1	

In the figure above the notation 'Step sequence' refers to the 'stepwise tonal development' or 'interval sequence', where: 1 equals a whole tone or whole step, and ½ equals a semitone or half step.

A *phrygian* scale with the tone E as the fundamental, is the 3. mode in that major tonality, that has the tone E as the scale's 3. tone, meaning C major. An E phrygian scale has E as the fundamental tone and a step sequence traversal equal to the C major scale from that scale's 3. step, that is the tone E. F phrygian is the 3. mode in D \flat major. Meaning, the F phrygian scale is that phrygian scale, that can be derived from D \flat major. G phrygian is the 3. mode in E \flat major. Meaning: The G phrygian scale can be derived from E \flat major.

In today's musical context the modal scales are derived not only from the major tonality, but from any valid scale system. It can be done for major (as shown above), for the 3 minor scales, the pentatonic scales, the blues scale, and so forth (see further below). Hereby is from a few well-known scales derived a long row of new step-patterns, that are well suited as the background 1) for creating **new chord material**, and 2) to **improvise** over this material.

2.2 The approach to modal scales

From the figure above it can be seen, that an E phrygian scale can be played by playing a C major scale from this scale's 3. step. This means, that an (E) phrygian scale has the interval or step pattern or step sequence: ½ - 1 - 1 - 1 - ½ - 1 - 1. One can play an E phrygian scale by playing the phrygian step sequence with the tone E as the fundamental, without thinking of, that this sequence is derived from the C major scale, or one can play a C major scale from this scale's third step E, without thinking of, that one thereby plays the phrygian step sequence.

Some musicians play the modal scales without thinking of their source. Others play the basic major and minor scales from the step in the scale that results in the wanted modal step sequence (pattern).

Whether one think the one or the other way is a question of style, knowledge and experience. In the following a set-up in which all modal scales are derived from the same **basical scale** are called: 'Modal scales from same scale', while a set-up where all the modal scales are based on the same **fundamental note** are called: 'Modal scales with same fundamental'. Thus avoiding the discussion of whether a modal scale is derived from, or in itself is a unique step pattern.

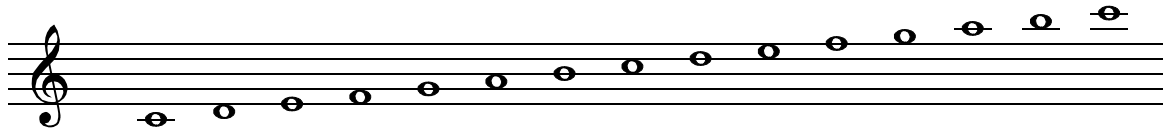
3 The modal scales in major

7 modal scales can be derived from the C major scale. C major used as example.

3.1 Modal scales from same scale

The 7 modal scales based on the C major scale are derived by selecting the step sequences with each of the 7 tones in the major scale as fundamental notes. Remark the names of the modal scales. Used here is the american standard of names as stated in 'Oxford - Grove Online Music' and US Wikipedia.

Step sequence: 1 1 ½ 1 1 1 ½ 1 1 ½ 1 1 1 ½
 Tone: C D E F G A B C D E F G A B C



Mode and step:	1	C ionian ~ major	Cmaj7: (C-E-G-B) Chord in harmonized scale
Tone:	C	D E F G A B C	
Step sequence:	1	1 ½ 1 1 1 ½	
Mode and step:	2	D dorian	Dm7
	D	E F G A B C D	
		1 ½ 1 1 1 ½ 1	
Mode and step:	3	E phrygian	Em7
	E	F G A B C D E	
		½ 1 1 1 ½ 1 1	
Mode and step:	4	F lydian	Fmaj7
	F	G A B C D E F	
		1 1 1 ½ 1 1 ½	
Mode and step:	5	G mixolydian	G7
	G	A B C D E F G	
		1 1 ½ 1 1 ½ 1	
Mode and step:	6	A aeolian (~ minor)	Am7
	A	B C D E F G A	
		1 ½ 1 1 ½ 1 1	
Mode and step:	7	B locrian	Bm7b5
	B	C D E F G A B	
		½ 1 1 ½ 1 1 1	

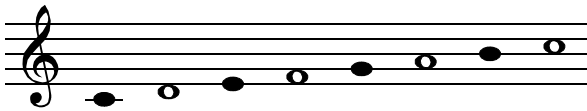
In modern music chords, as a stack of thirds (or derivations), are created by *harmonization*. Meaning, from every second note in a modal scale, with the modal scales fundamental note (1. tone) as the chords fundamental tone, is created triads, tetrads, pentads and so forth. Right to each modal scale in

above figure are written the code for that tetrad (seventh chord e.g. Cmaj7), that is derived from the actual modal scale by harmonizing.

3.2 Modal scales with same fundamental

The 7 modal scales in major with C as the fundamental tone. (The mark '~' means 'equal to').
The abbreviation 'ma' means major.

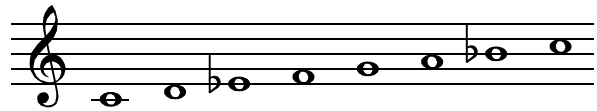
1. C ionian ~ *C major*



Tone: C D E F G A B C
Step seq.: 1 1 ½ 1 1 1 ½

Chord: Cmaj7
~ *C major (ma) step 1*

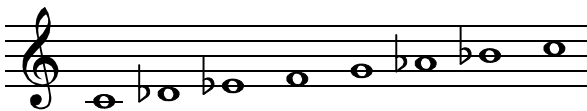
2. C dorian



C D Eb F G A Bb C
1 ½ 1 1 1 ½ 1

Chord: Cm7
~ *Bb ma step 2*

3. C phrygian



Tone: C Db Eb F G Ab Bb C
Step seq.: ½ 1 1 1 ½ 1 1

Chord: Cm7
~ *Ab ma step 3*

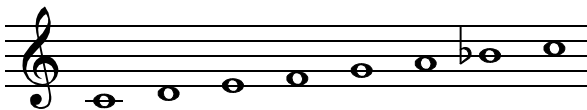
4. C lydian



C D E F# G A B C
1 1 1 ½ 1 1 ½

Chord: Cmaj7
~ *G ma step 4*

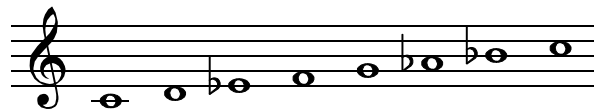
5. C mixolydian



Tone: C D E F G A Bb C
Step seq.: 1 1 ½ 1 1 ½ 1

Chord: C7
~ *F ma step 5*

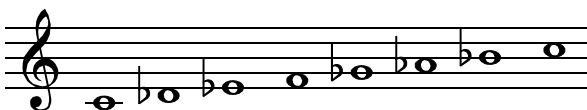
6. C aeolian ~ *C minor*



C D Eb F G Ab Bb C
1 ½ 1 1 ½ 1 1

Chord: Cm7
~ *Eb ma step 6*

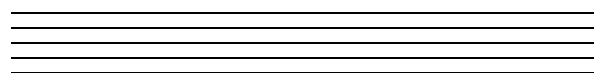
7. C locrian



Tone: C Db Eb F Gb Ab Bb C
Step seq.: ½ 1 1 ½ 1 1 1

Chord: Cm7b5
~ *Db ma step 7*

Notes



The modal scales in above set-up have the same fundamental note, meaning that they are derived from major scales with different fundamentals. Which major scale are the source of e.g. the C phrygian scale? The phrygian scale is the 3. mode in major. Determine the major scale that has the tone C as the scales 3. tone. Thus the C phrygian scale is derived from Ab major that has C as the scales third tone; Ab is accordingly marked **fat italic**.

The chords that are created from each of the 7 scales, are noted below the step sequences. The 4 notes in the C ionian scale, that form the Cmaj7 chord, are filled with black (only here).

4 Minor modal scales

The major scale is identical to the original medieval church music ionian mode. The modern major scale is developed by a retrospect to the church music practice, just as the the names of the modern modal scales are original church music names - and further back the names on ancient Greek provinces. Modal scales are neither major or minor, but each their own tonal mode.

Today's minor scale is identical with the original church modal aeolian mode. The historical connection between the ancient and medieval scales and today's major and minor scales, is not valid for melodic and harmonic minor. These minor scales are of a newer construct, that are designed to inject special characteristics to music in minor.

If one, despite of this, adapt the modal principle also to melodic and harmonic minor, one get a new row of scales, that form a unique background for extended chord creation and improvisation over a widened chord material in modern major/minor music.

Hereby emerge a question of naming. Ionian e.g. are the designation of a certain step sequence - and no other. In this overview we use the american standard as it appears in 'Oxford - Grove Online Music' and US Wikipedia. See a little further below.

4.1 Minor (standard aeolian)

If modal scales are derived from the minor tonality, we get the modal scales that already exists from major, and not new scales, because the aeolian scale is the 6. mode in major.

The naming of the modal scales derived from major, is described above. The naming of modal scales derived from minor are quite different. If a modal minor scale is close to a major modal scale, the name is reused with an added code stating the difference, e.g. 'dorian b2', 'mixolydian b6' and so on. While some other names are taken from other musical cultures, e.g. 'ukrainian dominant' and 'hungarian minor' (also named 'gipsy minor'). See the names in the set-ups below.

4.2 Melodic minor

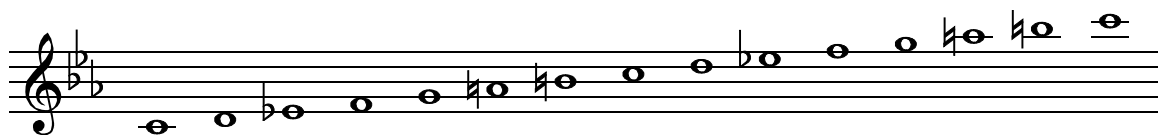
Compared to aeolian minor the melodic minor scale has a raised 6. og 7. step, which gives a tonal scale progression with the major ascent from the 6. tone and a leading tone effect up to the fundamental octave.

See the names of the melodic minor modes in the set-up below.

4.2.1 Melodic minor modal scales from same scale

Modal scales in C melodic minor.

Step sequence: 1 ½ 1 1 1 1 ½ 1 ½ 1 1 1 1 ½
 Tone: C D Eb F G A B C D Eb F G A B C



Mode and step:	1	C melodic minor	Cmmaj7	Chord in harmonized scale
Tone:	C	D Eb F G A B	C	
Step sequence:	1	½ 1 1 1 1 ½		
Mode and step:	2	D dorian b2	Dm7	
Tone:	D	Eb F G A B	C	D
Step sequence:	½	1 1 1 1 ½ 1		
Mode and step:	3	Eb lydian augmented (#5)	Ebmaj7#5	
Tone:	Eb	F G A B	C	D Eb
Step sequence:	1	1 1 1 1 ½ 1 ½		
Mode and step:	4	F lydian dominant	F7	
Tone:	F	G A B	C	D Eb F
Step sequence:	1	1 1 ½ 1 ½ 1		
Mode and step:	5	G mixolydian b6	G7	
Tone:	G	A B	C	D Eb F G
Step sequence:	1	1 ½ 1 ½ 1 1		
Mode and step:	6	A half diminished	Am7b5	
Tone:	A	B	C	D Eb F G A
Step sequence:	1	½ 1 ½ 1 1 1		
Mode and step:	7	B altered dominant (~ super locrian)	Bm7b5	
Tone:	B	C	D Eb F G A B	
Step sequence:	½	1 ½ 1 1 1 1		

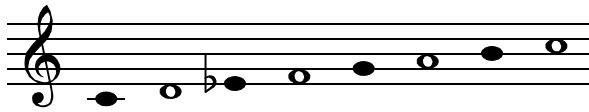
The 3. mode are named lydian, not phrygian, because of the similarity with the lydian scale hence the raised 4. step. The 5. mode are designated as 'mixolydian b6'. Remember that the 6. og 13. tone are the same tone in the ovtave interval. Some admires therefore to call this scale b13 instead of b6. A question of taste.

The 7. mode are also named 'altered dominant' or 'super locrian' (or the 'alterered scale').

4.2.2 Melodic minor modal scales with same fundamental

Melodic minor modal scales with C as fundamental. The abbreviation 'mm' means melodic minor. Remark: The tone Fb i 7. mode may be enharmonically re-interpreted as the tone E.

1. C *melodic minor*



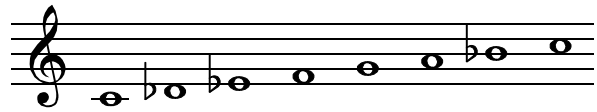
Tone: C D Eb F G A B C

Step seq.: 1 ½ 1 1 1 1 ½

Chord: Cmmaj7

~ C *melodic minor (mm) step 1*

2. C dorian b2



Tone: C Db Eb F G A Bb C

Step seq.: ½ 1 1 1 1 ½ 1

Chord: Cm7

~ Bb *mm step 2*

3. C lydian augmented (#5)



Tone: C D E F# G# A B C

Step seq.: 1 1 1 1 ½ 1 ½

Chord: Cmaj7#5

~ A *mm step 3*

4. C lydian dominant



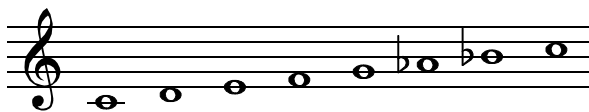
Tone: C D E F# G A Bb C

Step seq.: 1 1 1 ½ 1 ½ 1

Chord: C7

~ G *mm step 4*

5. C mixolydian b6



Tone: C D E F G Ab Bb C

Step seq.: 1 1 ½ 1 ½ 1 1

Chord: C7

~ F *mm step 5*

6. C half diminished



Tone: C D Eb F Gb Ab Bb C

Step seq.: 1 ½ 1 ½ 1 1 1

Chord: Cm7b5

~ Eb *mm step 6*

7. C altered dominant (~ super locrian)



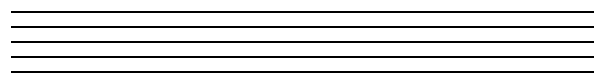
Tone: C Db Eb $\overset{Fb}{\sim}E$ Gb Ab Bb C

Step seq.: ½ 1 ½ 1 1 1 1

Chord: Cm7b5

~ Db *mm step 7*

Notes



4.3 Harmonic minor

The aeolian and harmonic minor scales are different from each other on *one* note, namely the 7. tone, that in aeolian minor is small and in harmonic minor is large. Result: The modal scales, that are derived from these two scales, are comparatively equal. E.g. Eb ionian scale is equal to Eb ionian#5, except from the 5. tone: in Es ionian the tone Bb and in Es ionian#5 the tone B.

4.3.1 Harmonic minor modal scales from same scale

Modal scales derived from C harmonic minor scale. Signatures are placed as key signatures as well accidentals in front of the notes in the system. Phrygian dominant is also named: 'spanish phrygian'.

Step sequence: 1 ½ 1 1 ½ 1½ ½ 1 ½ 1 1 ½ 1½ ½
 Tone: C D Eb F G Ab B C D Eb F G Ab B C



Mode and step:	1	C harmonic minor	Cmmaj7	Chord in harmonized scale
Tone:	C	D Eb F G Ab B	C	
Step sequence:	1	½ 1 1 ½ 1½ ½		
Mode and step:	2	D locrian #6	Dm7b5	
Tone:	D	Eb F G Ab B	C	D
Step sequence:		½ 1 1 ½ 1½ ½ 1		
Mode and step:	3	Eb ionian #5	Ebmaj7#5	
Tone:	Eb	F G Ab B	C	D Eb
Step sequence:		1 1 ½ 1½ ½ 1 ½		
Mode and step:	4	F ukrainian dorian	Fm7	
Tone:	F	G Ab B	C	D Eb F
Step sequence:		1 ½ 1½ ½ 1 ½ 1		
Mode and step:	5	G phrygian dominant (spanish phrygian)	G7	
Tone:	G	Ab B	C	D Eb F G
Step sequence:		½ 1½ ½ 1 ½ 1 1		
Mode and step:	6	Ab lydian #2	Abmaj7	
Tone:	Ab	B	C	D Eb F G Ab
Step sequence:		1½ ½ 1 ½ 1 1 ½		
Mode and step:	7	B altered diminished	Bdim7	
Tone:	B	C	D Eb F G Ab B	
Step sequence:		½ 1 ½ 1 1 ½ 1½		

4.3.2 Harmonic minor modal scales with same fundamental

The abbreviation 'hm' means harmonic minor. The tone Fb and the tone (b for Bb) in 7. mode may be interpreted as the tones E resp. A. See the continuance of the 'hm' modal scales below.

5 Further scales

Scales from which there are derived 'modal-similar scales' for purposes of improvisation, as stated above:

1. Pentatonic scale.
2. Blues scale.
3. Octatonic scale.
4. Reversed octatonic scale. The reversed octatonic scale is in fact equal to the octatonic scale 2. mode. Thus there is only two different octatonic scale patterns.
5. Wholetone scale.

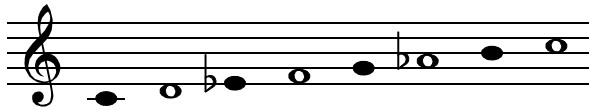
6. Hungarian minor - also called 'gipsy minor'.

Consult the book 'GuitarGuide' for much more information.

-----ooOoo-----

From point 4.3.2 above:

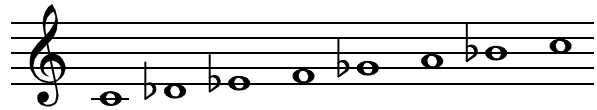
1. C æolisk#7 ~ C harmonisk mol



Tone: C D Eb F G Ab B C
Step seq.: 1 ½ 1 1 ½ 1½ ½

Chord: Cmmaj7
~ C harmonisk mol (hm) step 1

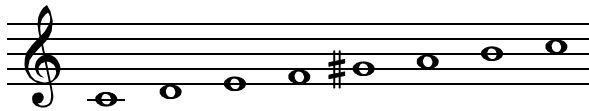
2. C lokrisk#6



C Db Eb F Gb A Bb C
½ 1 1 ½ 1½ ½ 1

Chord: Cm7b5
~ Bb hm step 2

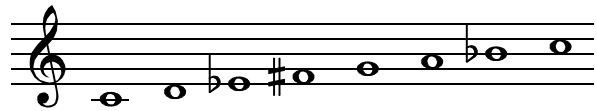
3. C jonisk#5



Tone: C D E F G# A B C
Step seq.: 1 1 ½ 1½ ½ 1 ½

Chord: Cmaj7#5
~ A hm step 3

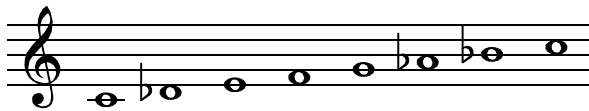
4. C dorisk#4 ~ lydiskb3b7



C D Eb F# G A Bb C
1 ½ 1½ ½ 1 ½ 1

Chord: Cm7
~ G hm step 4

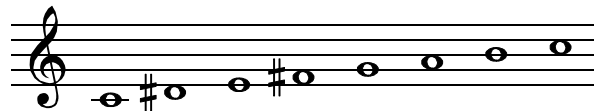
5. C frygisk dominant (#3) ~ (spansk phrygian)



Tone: C Db E F G Ab Bb C
Step seq.: ½ 1½ ½ 1 ½ 1 1

Chord: C7
~ F hm step 5

6. C lydisk#2



C D# E F# G A B C
1½ ½ 1 ½ 1 1 ½

Chord: Cmaj7
~ E hm step 6

7. C lokriskb4b7



Tone: C Db Eb Fb Gb Ab Bbb C
Step seq.: ½ 1 ½ 1 1 ½ 1½

Chord: Cdim7
~ Db hm step 2

Notes

