

Music improvisation

Music Improvisation Tool - MIT



***Manual and
Description***

Introduction

Musical improvisation - 'creating' the music (mostly melody) while playing - may be performed according to more - at least three - strategies: 1) Paraphrasing over the melody - often in popular rhythmic music, blues, church music and more, 2) 'free style improvisation' in modern jazz and 3) improvising over the harmonic source in the score using tonal material from that or those modal scales, that originally was the fundament for creating the chord.

Chord structures can be 'constructed' according to more methods. Nowadays chords are created by harmonizing the modern western - more than 30 - modal scales. Resulting in round 90 different chord structures, of which round 60 are in steady use. All 60 chords in the Music Improvisation Tool are created this way.

This means, that one can improvise over any of these chords using the scale, or one of the scales, that might have been the chords modal fundament. As more scales can be the fundament of one chord, MIT will select the scale that at the same time supports the actual tonality best possible.

MusicImproTool use an algorithm based on above rules. Tell MIT the mode/key of the music played and the chord to improvise over. MIT will answer the question as showed below. Of course, one shall not play the proposed improvisation scale as such, but use its tonal material to 'compose' own improvisation; and spice it with chromatic sequences and odd/larger intervals and interesting phrases - and

Music Improvisation Tool

See the demo-version of 'Music Improvisation Tool' (MIT) and find examples and further information on: 'www.musicimprotool.dk'.

The MIT tool answers the question: 'How to improvise over a chord played in a certain tonality' in the following textual form: 1) The function of the chord in the actual tonality; 2) which scales may be used as the basis for covering/hitting the tones in the chord and, to the widest extend, hitting the tones in the tonality played.

The MIT covers all genres of western music where improvisation is in practise.

The tool includes 60 chords, the two western tonalities, the 12 western fundamental notes and 25 different modal scales, meaning more than 17.000 combinations of chords and tonalities.

Description

Find a brief description and examples on how to use this APP below, and further examples and a list of chords and tonalities on the web-page: www.musicimprotool.dk.

Background

This APP is based on the theories and methods presented in the book 'GuitarGuide' from 2008 and 2011 by Søren Prom. With the APP one can play and show all included tonalities, chords and modal scales and determine how to improvise over almost all western combinations of tonalities and chords. The APP is of benefit to all improvising musicians - not only guitarists. The APP's terminology and notation is taken from the 'Oxford - Grove Online Music' and US Wikipedia.

Standard notation

With the APP's more than 17.000 possible combinations of tonality and chords, it is not suitable to write out correct codes (i.e. # and b) for all combinations.

The App uses the following standard notation: Chords fundamental notes: C-Db-D-Eb-E-F-Gb-G-Ab-A-Bb-B, meaning that a Dbm7b5 chord corresponds enharmonically to a C#m7b5.

Tonality's tonics in both major and minor mode are: C-Db-D-Eb-E-F-Gb-G-Ab-A-Bb-B (not C-C#-D-Eb-E-F-F#-G-G#-A-Bb-B which is norm for minor mode). So you may see an ex. of a score referring the tone or tonality F# (F sharp), while the written proposal refers the enharmonically equal Gb (G flat). Do not confuse.

The APP do not include a tonal display of the 'maj7b9' chord.

How to use the APP

The APP is arranged in two sections:

1. Determine, display and play improvisation scales - pull-down menus and buttons, and
2. Play back of the modal scales presented in the APP.

In the area for playing the improvisation scale there are three general buttons: A) Button to 'Reset all' selections made in the pull-down menus, and B) the button 'Show proposal', which displays the result from the menu-selections in plain text in a separate window. The result - one or two - proposed improvisationscales - will play and display using the button 'Play impro scale'. C) The 'Help' button displays the MIT helptext.

In the helptext find the reference to the example web-page.

Find and play improvisation scale

Select: 1. tonal gender (major or minor), 2. tonality's tonic, 3. the chord to be improvised over and 4. the chord's fundamental tone.

Display the result and play the selections and the improvisation scale by activating the buttons as described above.

Play the APP's modal scales

See about modal scales on above mentioned web-page. All the scales, that are played back activating the key 'Play impro scale', are in fact modal scales; they may all of course be played back each in turn exclusively.

Select a modal scale in the menu: 'Select modal scale' and select the scales tonic in the menu for selection of tonal tonic. Play the selected scale by activating the key: 'Play modal scale'.

The modal scales 'ionian' and 'aeolian' are *identical* to the 'major' and 'minor' scales respectively.

MIT example using the number 'Something'

As an example on how to use the Music Improvisation Tool, we use a slightly paraphrased version close to the worldfamous song 'Something' in our work.

'**Something**' is written by George Harrison - The Beatles, and released on their 'Abbey Road' album in 1969. The main key is C major, and the metre is 4/4 slow-rock.

As *improvisation example* we use a 'selfconstructed' paraphrase over the already existing 'improvised' guitarsolo in 'Something'.

The word improvised above is put in quotation marks, as the degree of improvisation vs. composition in this number may be questioned. But naturally the guitarsolo shall appear as an improvisation, and is used here as such.

MusicImproTool - proposed improvisation mode:

Last in this document find the scores of the Harrison - close to - composition and the 'improvised' paraphrase over Harrison's solo.

In western music chords have a so-called 'function', e.g. a tonic, a dominant, a subdominant seven, a parallel minor chord, a bidominant, a dominant parallel a lot. Used here but see more later.

Below find the presentation of four examples from 'Something'. Selecting the tonality and the chords in bars number #2 (C(Ma) in C major), #4 (C7 in C major), #7 (only E7 in C major) and #8 (Ammaj7 in C major) on MusicImproTool, and activating the key: '*Show proposal*', displays the following information and recommendations:

Proposal for bar number 2:

The chord **CMa** (major) is a/an/the tonic major chord on step **I** in the harmonised **C major** scale.

To improvise over **CMa** (major) on step **I** in **C major**, use the **C major** scale from this scales **1.** step, which is the tone **C**, or use the **C ionian** scale, which is the **1.** mode in **C major**.

Alternative: None.

Bar number 4:

The chord **C7** is a/an/the tonic secondary dominant on step **I** in the harmonised **C major** scale.

To improvise over **C7** on step **I** in **C major**, use the **F major** scale from this scales **5.** step, which is the tone **C**, or use the **C mixolydian** scale, which is the **5.** mode in **F major**.

Alternative: None

Bar number 7 - only chord E7:

The chord **E7** is a/an/the secondary dominant on step **III** in the harmonised **C major** scale.

To improvise over **E7** on step **III** in **C major**, use the **A harmonic minor** scale from this scales **5.** step, which is the tone **E**, or use the **E phrygian dominant** scale, which is the **5.** mode in **A harmonic minor**.

Alternative: None.

Bar number 8:

The chord **Ammaj7** is a/an/the minor chord with large seventh on step **VI** in **C major**.

This chord is not found on this step in major, but is often used as a colouring transitional chord on all steps in major, where minor chords are normally found. Provided you ought to improvise over the selected chord under the given tonal conditions, you may select a scale that 'hit' the chord tones, on larger or smaller expense of the affinity to the tonality of the music in question. MIT's proposal is as follows:

Improvise over **Ammaj7** on step **VI** in **C major** using **A melodic minor** scale from this scales **1.** step, i.e. the tone **A**, or using **A melodic minor** scale, i.e. the **1.** mode in **A melodic minor**.

Alternative: None.

On the next pages find the MIT verbal proposals for all the bars in 'Something', reformulated, coded and laid out in two tables; one for **chord functions** and one for **improvisation proposals**. Work through the verbal proposals vs. the formulation in the tables for bars number 2, 4, 7 and 8.

The scales proposed above contain the following tones:

| | | |
|---------------------------|-------------------------------------|--------------------------|
| C ionian mode: | C-D-E-F-G-A-B-C | ~ C major scale |
| C mixolydian mode: | C-D-E-F-G-A-B \flat -C | ~ F major scale |
| E phrygian dominant mode: | E-F-G \sharp -A-B-C-D-E | ~ A harmonic minor scale |
| A melodic minor mode: | A-B-C-D-E-F \sharp -G \sharp -A | ~ A melodic minor scale |

The tones 'hit' all the tones in the chords, but not all tones in the C major tonality.

Playing and viewing the proposals

Activating the MIT-keys: 1) Play tonality, 2) Play chord and 3) Play proposal will play and show in notes the selections made and the proposal.

The tonality is played as a triad, first the three tones each - from the selected tonic and up, and then the triad chord, while at the same time showed in a score. The same goes for the chord.

The proposed improvisationscale is played and showed as the modal scale with the proposed modal fundamental as the scales fundamental. 'C mixolydian' (fifth mode in F major) in bar 4 looks like this:



Equal to F major from this scales fifth tone.

Score, score analysis and examples of usage

Find the scores of Harrisons 'Something' and 'improvisation' at the end of this document, and the analysis of the 'improvisation' below. Key for each bar are stated in the key column, and the chord functions and codes in the other columns. Note the keychange to A major in bar 11, and then back to C. In the second table the improvisation proposals are laid out.

Codes used in the tables below

The sign: '~' used everywhere means: 'is equal to' or 'refers to' or 'the code means'.

The code: [H] ~ a chord in the harmonized scale. [D] ~ a major or dom7 chord in a dominantized scale, that is a harmonized scale containing only major or dom7 chords.

Capital roman letters ~ major chords; small roman letters ~ minor chords.

T ~ tonic chord. D ~ dominant chord. D7 ~ dominant seventh chord (dom7). DD7 ~ dominants dominant 7 chord. (D7) ~ second dominant 7 chord. S ~ subdominant. SS ~ subdominants subdominant. S7 ~ subdominant seventh. SS7 ~ subdominants subdominant seventh. Tp ~ tonic parallel chord. Sp ~ subdominant parallel. Dp ~ dominant parallel chord.

Further abbreviations: '3ts' means 'tritone substitution'; the abbreviation 'alt.' and the '>' mark means 'altered'. The code 'D7>' indicates an altered dom7 chord.

The code V7 (where the 'roman' V = 5) indicates a dom7 chord on step 5 (V).

Analysis: Define tonality, chord and chord function

Use the MIT tool to determine the function of the chords for each of the bar-groups on the basis of the actual keys and chords played in the bars. The MIT results appear in the table below.

| From score | | | Results from Music Improvisation Tool | | |
|------------|---------|-----------------|--|--------------------------|--|
| Bar # | Key | Chord | Chord spec. & code | Step in scale note 1) | Note to chord |
| 1 | C major | F | Subdominant S | IV | S to C. [H] |
| | - | Eb (Eb-G-Bb) | Eb is not inherent in C major scale, but gives a nice transitional timbre between F and G7 | bIII Low(III) | Transitional chord. Tone Bb in chord Eb forms a nice chromatic progress from tone A in F to tone B in G7 and on to C |
| | - | G7 | Dominant seventh D7 | V (V7) | D7 to C. [H] |
| 2 | - | C | Tonic T | I | [H] |
| 3 | - | Cmaj7 | Tonic T | I | [H]. Tetrad w. large seventh |
| 4 | - | C7 | Second dominant (D7) | I | D7 to F in # 5. [D] to F |
| 5 | - | F | S | IV | [H] |
| 6 | - | D7 | Dominants dominant 7 DD7 | II | D7 to G in bar 7. [D] |
| 7 | - | G | Dominant D | V | [H] |
| | - | E7 | Second dominant (D7) | III | Second dominant to C. Major dominant to Am in bar 8. [D] |

| From score | | | Results from Music Improvisation Tool | | |
|------------|---------|-----------|---------------------------------------|--------------------------|---|
| Bar # | Key | Chord | Chord spec. & code | Step in scale note 1) | Note to chord |
| 8 | - | Am | Tp | vi | Tonic parallel. [H] |
| | - | Ammaj7 | Tp | vi | Transitional chord betw. Am and Am7. Tetrad with large seventh (G#) |
| 9 | - | Am7 | Tp | vi | Tonic parallel. Tetrad. [H] |
| | - | D7 | Dominants dom7 DD7 | II | D7 to G; but instead next chord is F (S) in bar 10. [D] |
| 10 | - | See bar 1 | | | |
| 11 | A major | A | Tonic T | I | Tonal change - C to A. [H] |
| 12 | C major | See bar 1 | | | |
| 13 | - | C | Tonic T | | [H] |

Note 1). The heading: 'Step in scale' refers to the step in the **key's** scale on which the *chords fundamental note* resides. See further about the usage of the word 'step' in note 2) below.

Analysis: Select improvisation scale

Use the MIT tool to determine the improvisation scale for each of the bar-groups on the basis of the actual keys and chords played in the bars. The MIT results appear in the table below.

In the tables are presented both the parent scales: major, minor, melodic and harmonic minor, and the derived modal scales: ionian, dorian etc. as musicians prefer 'either / or'.

| Score | | MusicImproTool results | | | | |
|-------|-------|------------------------|-----------------|--------------------|----------------------|----------------------------|
| Bar # | Chord | Improvisation scale | | | | |
| | | Major/minor scale | | | Modal scale | More info |
| | | Tonic | Gender/tonality | Step ²⁾ | Fundamental and mode | |
| 1 | F | C | major | 4 | F lydian | |
| | Eb | Eb | major | 1 | Eb ionian | step 1 in Eb maj |
| | G7 | C | major | 5 | G mixolydian | |
| 2 | C | C | major | 1 | C ionian | |
| 3 | Cmaj7 | C | major | 1 | C ionian | |
| 4 | C7 | F | major | 5 | C mixolydian | step 5 in F maj |
| 5 | F | C | major | 4 | F ionian | |
| 6 | D7 | G | major | 5 | D mixolydian | step 5 in G major scale |
| 7 | G | C | major | 5 | G mixolydian | |
| | E7 | A | harmonic minor | 5 | E phrygian dominant | step 5 in A harmonic minor |

| Score | | MusicImproTool results | | | | |
|-------|------------|------------------------|-----------------|--------------------|----------------------|--|
| Bar # | Chord | Improvisation scale | | | | |
| | | Major/minor scale | | | Modal scale | More info |
| | | Tonic | Gender/tonality | Step ²⁾ | Fundamental and mode | |
| 8 | Am | C | major | 6 | A aeolian | A-C-E-A |
| | Ammaj7 | A | melodic minor | 1 | A melodic minor | Tetrad: A-C-E-G# The G# in Ammaj7 constitutes a transition between the A in Am and G in A-C-E-G |
| 9 | Am7 | C | major | 6 | A aeolian | A-C-E-G |
| | D7 | G | major | 4 | D mixolydian | |
| 10 | See bar #1 | | | | | |
| 11 | A | A | major | 3 | A ionian | |
| 12 | See bar #1 | | | | | |
| 13 | C | C | major | 1 | C ionian | |

Note 2): Step. The numbers 1 to 7 in the column 'Step' refers to the step in the proposed **improvisation scale** on which the chords fundamental note resides. Example: bar 1, chord G7, where G is on step 5 in the C major improvisation scale.

Score analysis examples

Let's take a closer look at the improvisation-notes for some of the bars. The goal of any improvisation is, that the played notes hit the notes in the different chords, while they, at the same time, 'supports' the notes in the actual tonality, i.e. gives the listener a feeling of listening to music in the actual tonality, in 'Something' mostly C major.

Hereunder find a systematic summarization of the textual advices given by pressing the button: 'Show proposal' for each of the selections.

Example 1. bar #2:

Many of the notes - except D - in bar #2 hits the tones in chord C, while all notes inhere in the C major scale.

The results from MIT are listed below. The improvisation will be based on notes from the C major scale, with a possible start on step 1: C, or use the C ionian modal scale, that is equal to the C major scale from step 1: C.



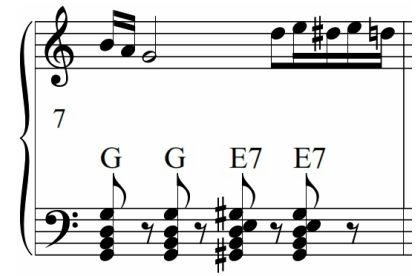
| Bar # | Key | Chord | Chord code | Step in scale | Note |
|-------|-----|-------|------------|---------------|------|
| 2 | C | C | Tonic T | I | [H] |

| Bar # | Chord | Major/minor scale and step | | | Modal scale | More info |
|-------|-------|----------------------------|-------|---|-------------|-----------|
| 2 | C | C | major | 1 | C ionian | |

Example 2. bar #7:

All notes in bar #7, except D#, hit the tones in the C major scale; all notes in chord G are hit, but only the tones E, B, D in the E7 chord (E-G#-B-D), not the tone G#.

The tone D# in the improvisation indicates a chromatic figure around the tones D, D# and E - one of the few chromatic sequences in the whole original improvisation.



| Bar # | Key | Chord | Chord code | Step in scale | Note |
|-------|-------|---------|----------------------|---------------|---|
| bar 7 | C key | G chord | Dominant D | V step | [H] |
| | | E7 | Second dominant (D7) | III | Second dominant to C. Major dominant to Am in bar 8. [D] |

| Bar # | Chord | Major/minor scale and step | | | Modal scale | More info |
|-------|---------|----------------------------|----------------|---|---------------------|----------------------------|
| 7 | G chord | C | major scale | 5 | G mixolydian mode | |
| | E7 | A funda-mental | harmonic minor | 5 | E phrygian dominant | step 5 in A harmonic minor |

Example 3. bar #11:

During the improvisation in 'Something' there is a very few half-tone or chromatic (colouring) progressions between scale-inherent tones.

Depending on the style of the music played it may be desirable to add chromatic, colour-impressing progressions between scale-inherent notes - not to forget to use larger intervals than 1 step between notes. And it is of course not necessary to begin an improvisation on the tonic or fundamental note. Any other will do.



| Bar # | Key | Chord | Chord code | Step in scale | Note |
|-------|-------|---------|------------|---------------|----------------------------|
| 11 | A key | A chord | Tonic T | I step | Tonal change - C to A. [H] |

| Bar # | Chord | Major/minor scale and step | | | Modal scale | More info |
|-------|-------|----------------------------|-------|---|---------------|-----------|
| 11 | A | A fund. | major | 3 | A ionian mode | |

In bar #11 we have therefore added a chromatic figure beginning on the A major's tonic as well as the A major chord's fundamental note A, hitting the third C# and the fifth E, finally ending on F in bar #12.

The play buttons

As stated above, MIT will play the selections made and the proposed improvisation scale by activating the play buttons. In addition to the playing, a score showing the played example will be exhibited. Below: 'Impro.' means: 'Improvisation'.

Example bar #2:

Tonality: C major key. Harmony: C maj chord.

Tonality: C major



Chord: C maj



Proposed impro. scale: C ionian



The tonality is shown - and played - as a C triad chord, as this sound clearly represents the selected tonality. If one instead wants to hear the 7 tones in the major or minor scales, then select the equivalent modal scale. The C major scale (diatonic tonality) is equivalent to the C ionian modal scale, and the C minor scale (tonality) is equivalent to the C aeolian modal scale.

Example bar #7:

Tonality: C major key. Harmonies: G maj and E7 (E-G#-B-D) chords.

Tonality: C major



Chord: G maj



Prop. impro. scale: G mixolydian



Tonality: C major



Chord: E7



Proposed improvisation scale:



E phrygian dominant

C major - or C ionian - scale instead of C major chord:



Example bar #11:

Tonality: A major key. Harmony: A maj (A-C#-E) chord.

Tonality: A major



Chord: A maj



Proposed impro. scale: A ionian



The tonality is shown as an A triad chord, as this sound clearly represents the selected tonality. If one instead wants to hear the 7 tones in the major or minor scales, then select the equivalent modal scale. The A major scale is equivalent to the A ionian modal scale, and the A minor scale is equivalent to the A aeolian modal scale - that is parallel to the C major scale.

Example inspired from:
"Something" by George Harrison, 1969

Piano

1 F Eb G7 2 C 3 Cmaj7

Pno.

4 C7 5 F 6 D7

Pno.

7 G E7 E7 8 Am Ammaj7 9 Am7 D7 D7

Pno.

10 F Eb G7 11 A 12 F Eb G7 13 C

Example inspired and paraphrased from:
The guitar solo in:
"Something" by George Harrison, 1969

Piano

1 F Eb G7

2 C

3 Cmaj7

Pno.

4 C7

5 F

6 D7

Pno.

7 G G E7 E7

8 Am Am Ammaj7

9 Am7Am7 D7 D7

A C# E F

Pno.

10 F Eb G7

11 A

12 F Eb G7

13 C

The musical score is written for piano and guitar. It consists of four systems of music. The first system is for the piano, showing measures 1, 2, and 3. The second system is for the piano, showing measures 4, 5, and 6. The third system is for the piano, showing measures 7, 8, and 9. The fourth system is for the piano, showing measures 10, 11, 12, and 13. The guitar part is indicated by a 'Pno.' label and a treble clef. The piano part is indicated by a 'Piano' label and a bass clef. The score includes various chords and melodic lines, with some measures featuring a 3/4 time signature change.