Chord Shapes
for
Major-Thirds (M3) Tuning
on a 7-String Guitar

An introductory tutorial about chords
on a 7-string guitar tuned to major-thirds

by
Keith Bromley
keith@bromley.name
www.keith.bromley.name

to the glory of God
through His son Jesus Christ

October 2013

Foreword

The purpose of this tutorial is to introduce the interested guitar student to the benefits of major-thirds tuning. I have strived to be objective, and I do recognize that other tunings have their merits. I encourage experimentation to explore what is best for your interests, style, and objectives. This tutorial is not meant to be your first introduction to guitar playing. Some knowledge of music theory and guitar skills is a prerequisite. If you are a complete novice, then I strongly encourage you to seek out a professional teacher who will be able to provide exercises and practical tips that are beyond the samples provided here. (You may wish to bring this tutorial to the teacher's attention and work together in understanding it.)

Major-thirds (M3) tuning is regular (meaning that all strings are the same number of semitones apart), so chord fingering patterns remain the same as we move across the strings. This substantially reduces the number of chord shapes that the guitarist has to learn.

When one thinks of M3 tuning, the truly important number is not 3. It is 4 - the number of semitones (or frets) comprising the major-third interval. One can tune a guitar to M3 by tuning each string to the same note as that sounding from the 4th fret on the next-lower string. The fact that this interval is ***four*** semitones results in some dramatic simplifications in guitar playing.

The first has to do with musicology and numerology: Most Western music is based on 12-tone equal-temperament wherein the octave is subdivided into twelve notes. M3 tuning takes advantage of the fact that 4 is a divisor of 12. If each string is four semitones lower than string the string above it, then string 4 is exactly one octave lower than string 1 (since 3 x 4 = 12). Similarly, string 5 is one octave lower than string 2, and string 6 is one octave lower than string 3. Thus there are only 3 different open-string notes in M3 tuning – regardless of how many strings the guitar actually has. (So the novice player has to learn the frets/notes on only 3 strings.) Also, this implies that any riff can be simply transposed 3 strings across the fretboard and will produce exactly the same notes (except one octave lower or higher).

The second simplification has to do with human physiology: We each have only 4 fingers on our left hand. With M3 tuning, every possible position of 4 consecutive frets along the keyboard contains a complete chromatic scale. Since the chromatic scale contains all other scales, this means that all scales in all keys can be played within four frets for each position along the fretboard. There are no more awkward 5th fret stretches.

While I don't want to denigrate standard guitar tuning or all-fourths tuning, I can't resist pointing out that the perfect-fourth interval on which they are based is actually 5 semitones, and obviously 5 is not a divisor of 12. So neither of the above simplifications apply.

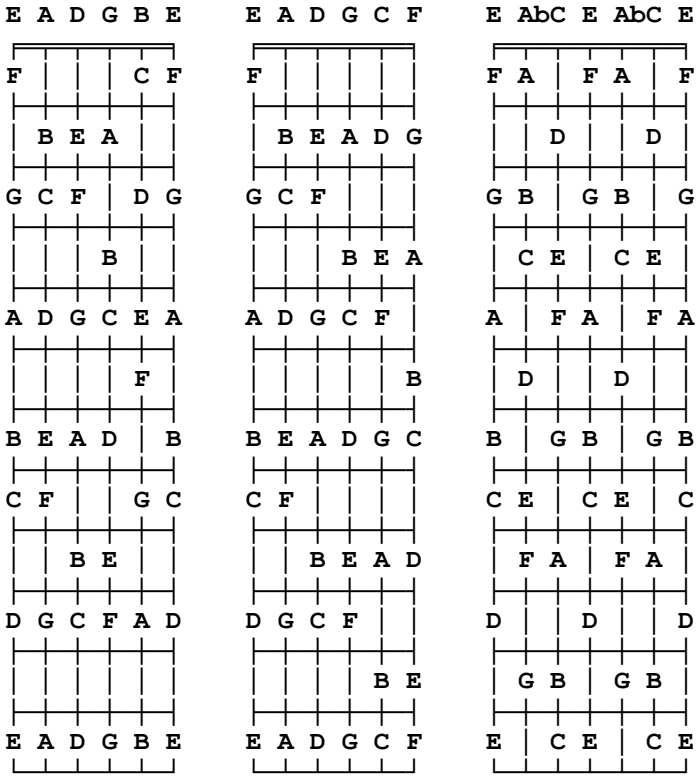
This tutorial outlines the strengths of M3 tuning, shows chord diagrams for 4-note chords in their various inversions on 4 consecutive strings, shows more chord diagrams for chords on 5 or 6 strings, and then ends with some final observations. It is basically a chord book for M3 tuning. Here are some online sites for learning more about M3 tuning. (I wish to thank Kiefer Wolfowitz for critiquing this document and allowing me to occasionally paraphrase parts of his Wikipedia article listed below.)

Other On-Line References to Major-Third Tuning

Ralph Patt's Jazz Web Page	http://www.ralphpatt.com/Tune.html
Ole Kirkeby's “Welcome to M3 Guitar”	http://v1p0..com http://v2p0.m3guitar.com http://v3p0.m3guitar.com
Wikipedia's “Major Thirds Tuning”	https://en.wikipedia.org/wiki/Major_thirds_tuning
Wikipedia's “Ralph Patt”	https://en.wikipedia.org/wiki/Ralph_Patt
Kiefer Wolfowitz' “Chord Diagrams for M3 Tuning”	https://commons.wikimedia.org/wiki/File%3AMajor_thirds_tuning_guitar_chords_1.pdf
Bill Sethares' “Alternate Tuning Guide”	http://sethares.engr.wisc.edu/alternatetunings/alltunings.pdf
Hal Berstram's “Proposal for a New Guitar Tuning”	http://brothertypewriter.blogspot.com/2009/06/proposal-for-new-guitar-tuning.html
Jacub Marian's “Major Third Guitar Tuning”	http://jakubmarian.com/major-third-guitar-tuning/
Migo's “Tuning Your Guitar in Major Thirds”	http://www.migo.info/music/major_third_guitar_tuning.xhtml_en.php
Andreas Griewank's “MathTune”	http://www.opus4.kobv.de/opus4-matheon/files/675/7046_mathtune.pdf
Jazz Guitar Online “Major Thirds Tuning” thread	http://www.jazzguitar.be/forum/getting-started/29759-major-thirds-tuning.html

Introduction

The diagram on the left below shows the fretboard of a 6-string guitar tuned to standard tuning. It shows all of the frets where notes of the C major scale can be fingered. That is, the letters identify all of the frets corresponding to the white piano keys. The standard tuning of a guitar tunes the six strings to the notes E, A, D, G, B, and E for the strings numbered from 6 to 1. Notice that the bottom four strings are tuned a "perfect fourth" apart. That is, musically speaking, A is a perfect fourth interval above an E tonic; D is a fourth above A, and G is a fourth above D. However, the interval between G and B is only a major third (one semitone less than a perfect fourth). The interval between the 2nd and 1st strings is back to a perfect fourth (i.e., E is a fourth above B). This non-uniformity means that chord fingering patterns change depending on which strings they are played on. That is, a 4-note major chord played on string 1, 2, 3, 4 will be fingered differently when played on strings 2, 3, 4, 5 – and differently again when played across strings 3, 4 ,5, 6. This problem is avoided by switching to **regular** tuning. Chord fingering patterns then remain the same as we move across the strings – thereby dramatically reducing the number of chord shapes that the guitarist has to learn. Likewise, fingering patterns for riffs or melody lines remain the same as we move across the strings. Two popular regular tunings have the strings tuned either a **perfect fourth** (5 semitones) apart or a **major third** (4 semitones) apart.



The second fretboard diagram shows a 6-string guitar tuned to "all-fourths" tuning. That is, all six strings of the guitar are tuned a perfect fourth (P4) interval apart. The strings are tuned to E, A, D, G, C, and F for the strings numbered from 6 to 1. Again, the diagram shows all of the frets where notes of the C major scale can be fingered. Notice that the bottom four strings are the same as for standard tuning, and the top two strings are simply tuned a semitone higher. The author has written a tutorial called "Sixty Guitar Chords for All-Fourths Tuning" which can be downloaded from www.keith.bromley.name . While I still like P4 tuning, I have since been "turned on" to the major-third (M3) tuning and am having fun exploring its features. Let me give a lot of credit to the guitarist Ralph Patt who is generally credited with inventing this novel tuning and describes it on www.ralphpatt.com/Tune.html - Ralph Patt's Jazz Web Page.

The rightmost fretboard diagram shows a 7-string guitar tuned to major-third tuning. That is, all 7 strings are tuned a major third apart. If the 7th (bottom) string is tuned to E, then the 6th string should be tuned to G# (the same as Ab) which is a major-third spacing above E. Then the 5th string should be tuned to C – the major-third interval above Ab. Then a wondrous thing occurs: When we tune the 4th string to a major-third above C, we get back to E – albeit one octave higher than the E of the 7th string. Since 12 / 4 = 3, there are only 3 string tunings in this scheme. That is, the three open-string notes E, Ab, and C repeat themselves across the strings. Once the student learns the frets for all of the various notes on the bottom three strings, he has learned the frets for all of the strings. From the perspective of the guitarist already well versed in standard tuning, he is already very familiar with the note on the 1st, 4th, and 7th strings – all tuned to E. So he really has only 2 new strings to learn.

While M3 tuning can certainly be used on a 6-string guitar, using a 7-string guitar has three advantages: The first is that the 7 strings tuned to M3 cover the same total note span as the 6 strings tuned to standard tuning. So, all music arranged for a standard guitar can still be played over its total tonal range. The second advantage is the nice symmetry that is provided by the top, middle, and bottom strings all having the same open-string note (albeit at different octaves). And the third advantage is that the notes /frets on the top and bottom strings (both tuned to E) are the same as what the guitarist transitioning from standard tuning is familiar with. For the remainder of this tutorial, I shall use the term "7M3 guitar" to refer to a 7-string guitar with major-third tuning.

Guitars with 7, 8, 9, and even 10 strings are becoming increasingly common, and are readily available at reasonable prices from several manufacturers. Most guitarists buy them to add low bass strings to their otherwise standard tuning – thereby getting extended frequency range (hence they are usually termed extended-range (ER) guitars). But I claim that with M3 tuning, the improved ease and simplicity of playing is an equally valid feature. When I want extended range, I have been experimenting with an 8-string guitar tuned to 7M3 with an added low C string.

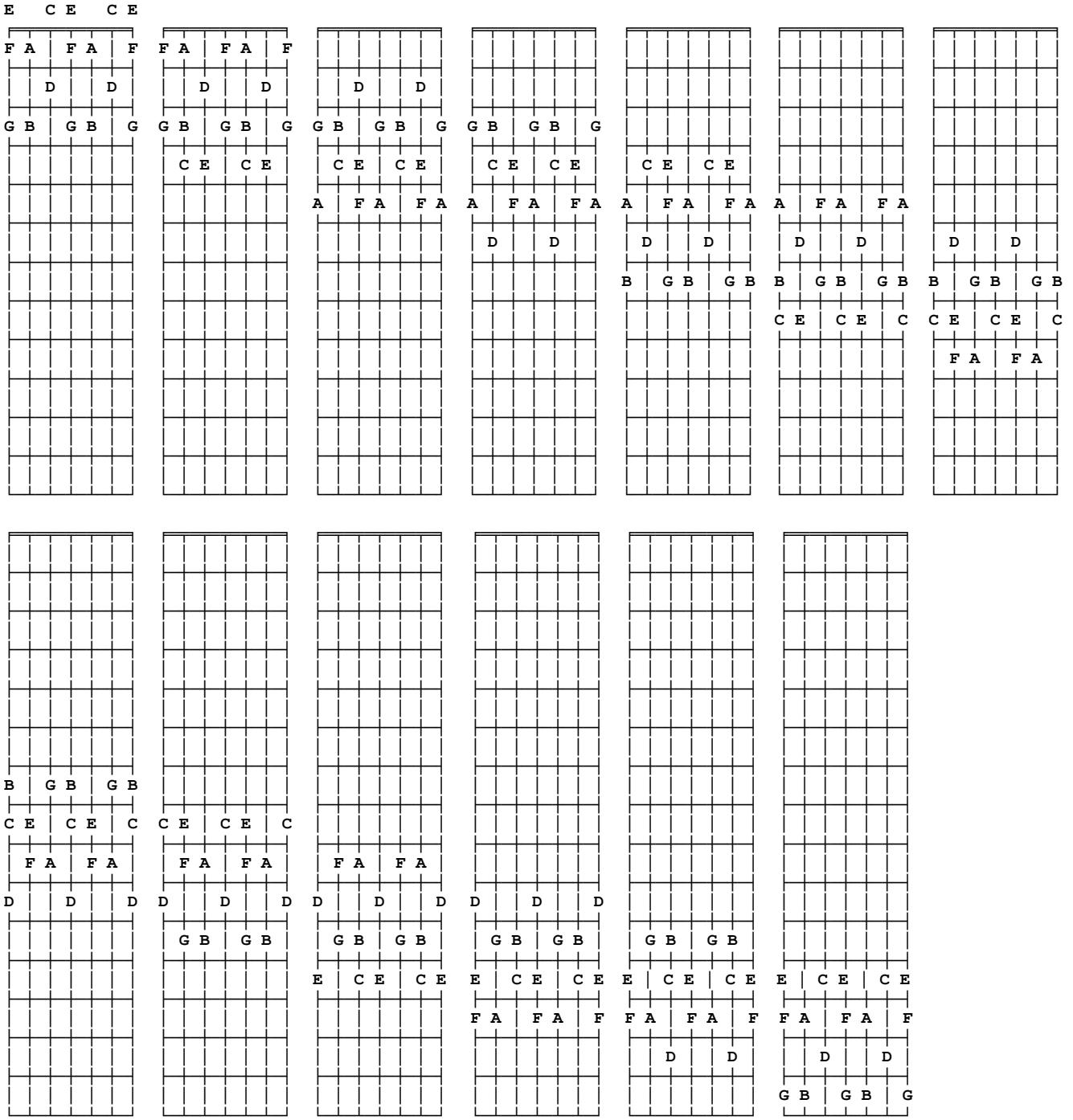
Another almost-magical property of M3 tuning is that any position of four consecutive frets contains all twelve notes of the chromatic scale - which means that all possible scales can be played in any one position. No 5th-fret finger stretches or shifts are required for any scale.

The 13 fretboard diagrams to the right show repeated 4-adjacent-fret positions moving up the fretboard showing all the notes of the C scale. Notice that awkward stretches across 5 frets are never required.

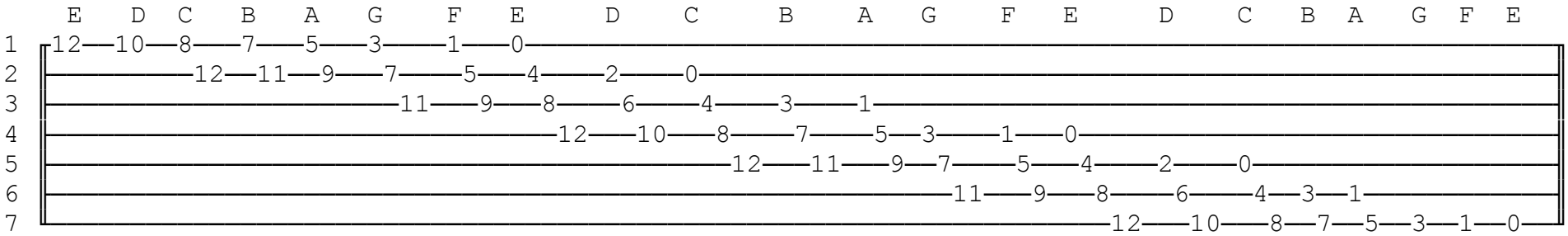
This holds true for all scales in all keys at all positions up the fretboard.

Another way of saying this is that M3 tuning compresses the note fingerings into a shorter space than standard tuning. We can play notes and scales using only 4 frets that would normally require 5 frets using P4 or standard tuning. (That is, the 5 notes that would require 5-fret stretches in standard tuning are placed within easy 4-fret reach with M3 tuning.) This makes many chords and inversions more easily playable on a guitar with M3 tuning.

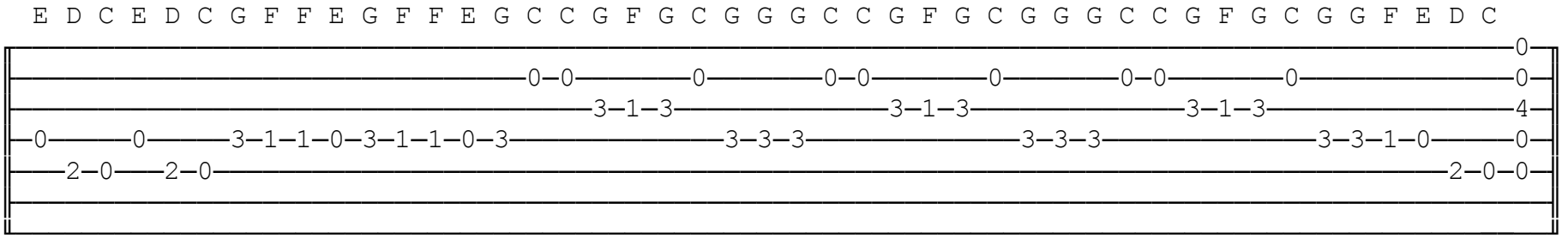
M3's avoidance of 5-fret stretches applies only to the playing of single notes, scales, or arpeggios. Complicated chords and their inversions may still require them.



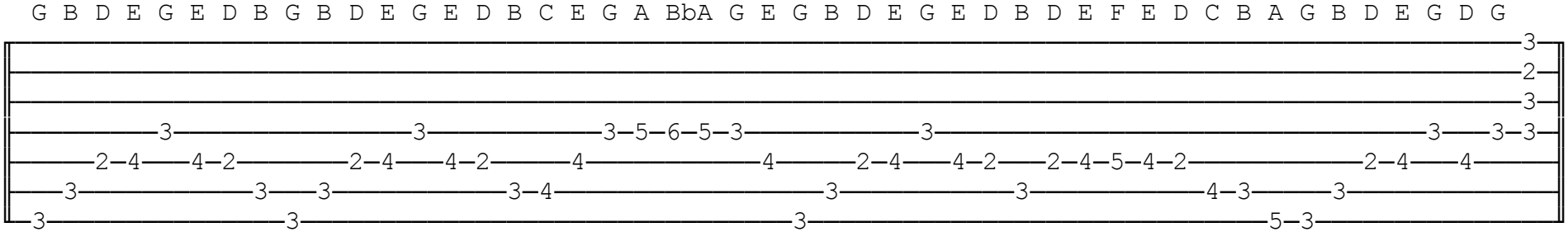
Let me switch over to conventional tablature notation and provide some simple practice exercises:



Three Blind Mice (Key C):



Boogie Woogie (Key G):



Before we move on to considering chord shapes for the 7M3 guitar, it is vitally important for the student to practice (and become comfortable with) the note names and positions across all strings and along all frets. The above exercises are intended purely as a starting point. I recommend first starting with the bottom four frets and mastering them before working your way up the fretboard. In each position, practice simple scales and then work up to sight-reading from simple music scores. Finally you should be able to play-by-ear simple melodies at any position along the fretboard. This should take at least a month (probably more) before you venture on to working with chords.

Some diagrams on Ralph Patt's web page suggest the following simplified fingering scheme: Conceptually divide the fretboard into multiple regions. The first region covers frets 1-4; the next covers frets 5-8; the next covers frets 9-12; and so on. When you play within any one of these regions, you will find that your left hand's index finger plays only the notes F, A,and C#. Your middle finger will play only the notes F#, A#, and D. Your ring finger will play only the notes G, B, and D#. And finally your little finger will play only the notes G#, C, and E. After playing within these four-fret “boxes” for a while, the note names and fingerings will become second nature. When you move from the first region to the second, all melody fingerings remain exactly the same, but shifted down by one string. It is unclear whether Ralph actually constrained himself to play this way, but it sure makes sense to try it – and then venture into the intermediate positions as you wish.

Diagram Conventions

Before we get into the meat of this tutorial, let me say a few words about the conventions that I will be using in my chord diagrams. The guitar strings are numbered from 7 (the lowest-sounding string) on the left to 1 (the highest-sounding string) on the right. The guitar nut is at the top and the frets proceed downward. The following diagrams each show 7 frets. The numbers in the diagrams indicate which left-hand fingers should be placed on that fret on that string to produce the desired note. (1 is the index finger; 2 is the middle finger; 3 is the ring finger; and 4 is the little finger.) Below each diagram are the notes produced on that string by fingering at that particular fret. And below that are the names of the chord produced by that sequence of notes.

The Benefit of Regularity

I stated earlier that one problem with the standard guitar tuning is that chord shapes vary as the fingers move across the guitar neck, and that this problem goes away with regular tunings. To illustrate this specifically for the 7M3 guitar, consider a four-note chord consisting of the major triad (1-3-5) with the root note repeated. For the root note G, the notes of the triad would be G, B, and D. This chord (G, B, D, G) when fingered on the bottom 4 strings of a 7M3 guitar is shown in the left diagram below.

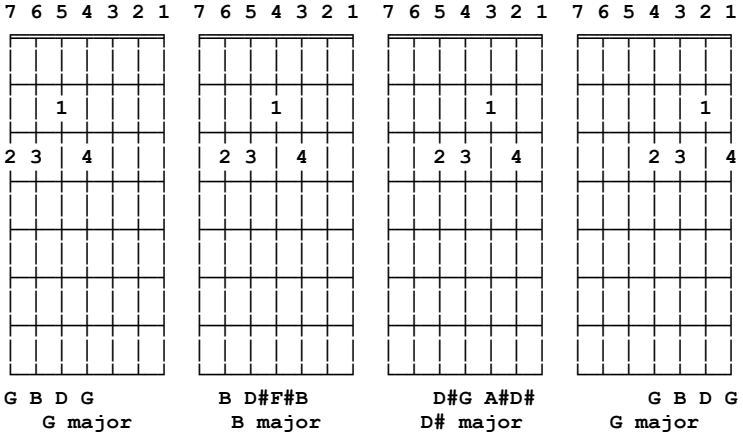
If we now move up one string and form the 1-3-5-1 chord beginning with the 3rd fret on the sixth string, we would get a B major chord consisting of the notes B, D#, F#, B as fingered in the second diagram below. Notice that the chord has exactly the same shape – just one string higher.

Now let's move up one string again and form the 1-3-5-1 chord beginning with the 3rd fret on the fifth string. We get a D# major chord consisting of the notes D#, G, A#, D#. It is fingered as shown in the third diagram below. Notice again that the chord has exactly the same shape – just one string higher.

Now let's move up one more string and form the 1-3-5-1 chord beginning with the 3rd fret on the fourth string. We get a G major chord consisting of the notes G, B, D, G. It is fingered as shown in the third diagram below. Notice that the shape has still not changed. A major chord fingered on strings 4,3,2,1 is the same pattern as a major chord fingered on strings 5,4,3,2 or on strings 6,5,4,3 or on strings 7,6,5,4.

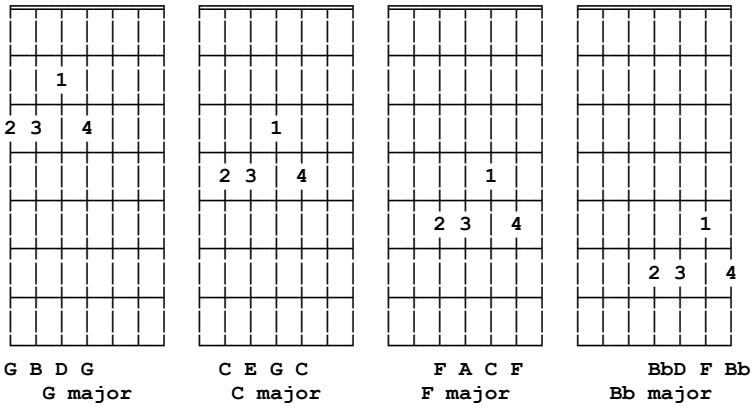
The leftmost and rightmost figures illustrates another almost-magical quality of 7M3 tuning: chords played on strings 7,6,5,4 are exactly the same chords as the same fingering on strings 4,3,2,1 – except one octave lower.

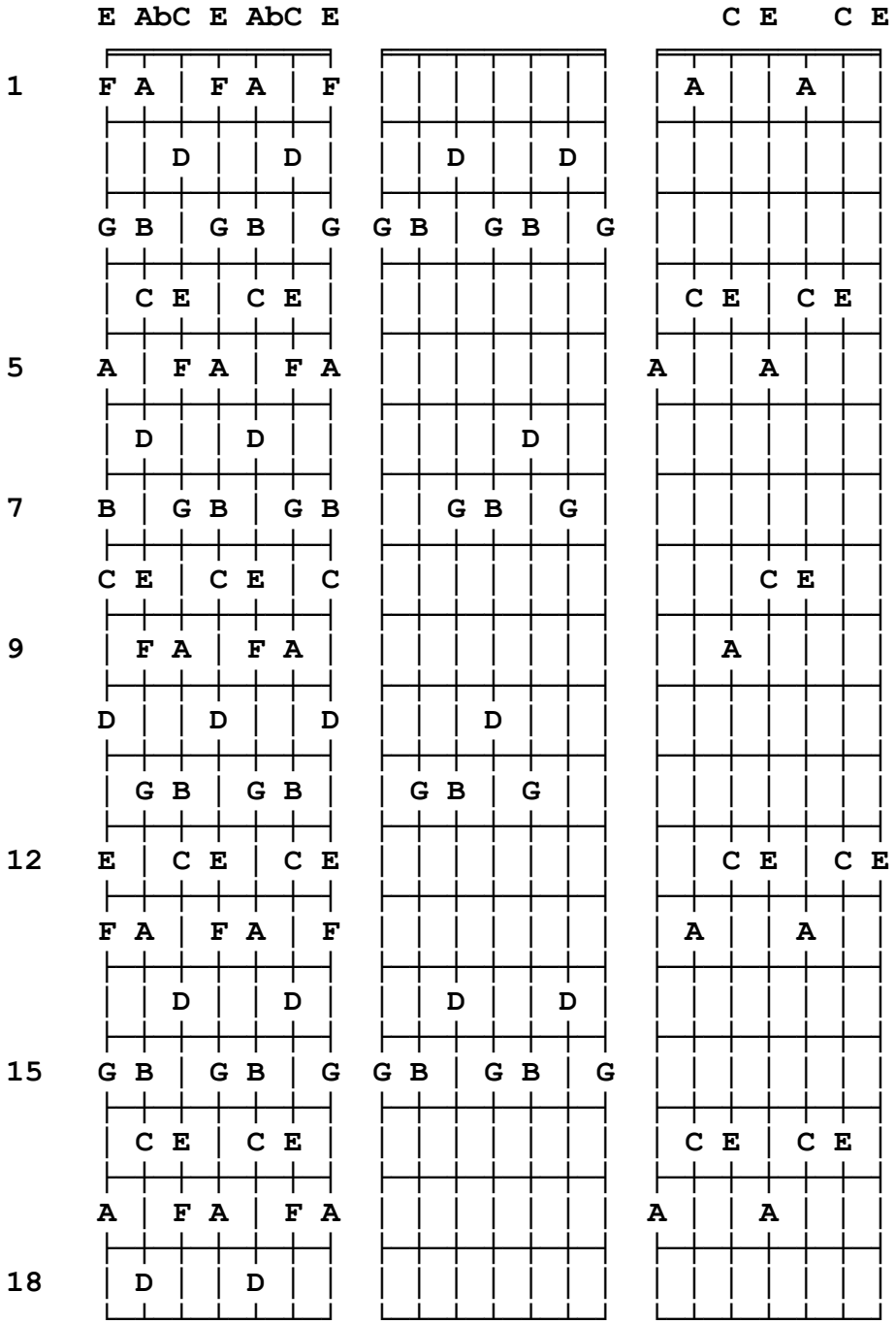
In the pages that follow, I will not take the space to repeat the four chords obtained by shifting a given shape up or down across the strings. I will show the shape for only one group of 4 strings and count on the reader (you !) to practice playing and naming them across all sets of 4 strings – and also to practice playing and naming them at all frets along the fretboard.



It is rather impressive that each of the four-note fingering patterns that we will learn can produce 4 x 12 = 48 different chords – as we move the chord shape in 4 positions across the fretboard and in 12 positions along the fretboard. I realize that some of these 48 chords are exactly the same notes (just at different positions up the fretboard), but these are still valuable because the tune's melody or bass-line may require the fingers to be at that fretboard position.

In Western music, chords generally move around the “circle-of-fifths”. For example, G7 tends to resolve to C; C7 tends to resolve to F; and F7 resolves to Bb. The notes of the circle-of-fifths lie diagonally along the 7M3 fretboard. So I prefer to illustrate (and practice) the movable chord shapes along the circle-of-fifths diagonal progression since these are the chord transitions common in real music. Here are the major 1-3-5-1 chords fingered across 4 strings while moving along the circle-of-fifths.





Another benefit of major thirds tuning is that simple major and minor chords span only two consecutive frets. This is demonstrated by the fretboard diagrams to the left. For reference, the leftmost diagram repeats the previously shown 7M3 fretboard with the notes of the C major scale named. The middle fretboard shows all of the places where a 4-note root-inversion G major chord (G B D G) can be played. Note that all of these span only two consecutive frets. (Note that this two-adjacent-fret property applies only to major and minor chords. More complex chords still span many frets.) The rightmost fretboard shows all of the places where a root-inversion simple A minor triad (A C E) can be played. Note that, due to the 7M3's regularity, all chord shapes remain the same as we move both across the fretboard and along the fretboard.

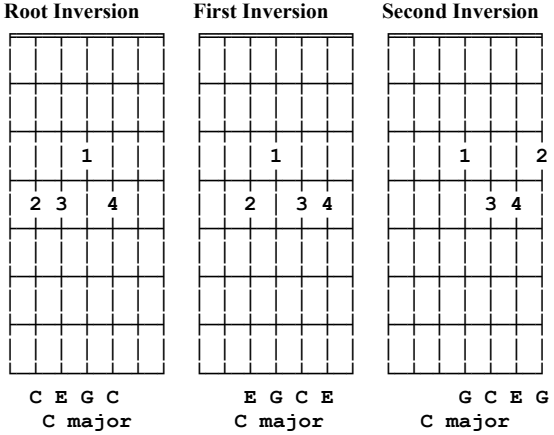
For triad chords, inversion is especially simple in major-thirds tuning. Triads are inverted simply by raising one or two of the chord's notes three strings. The raised notes are played with the same finger as the original notes. For example, in the rightmost diagram on the left, considering only frets 4 and 5, an A minor chord can be played as A, C, E on strings 7, 6, 5 or as C, E, A on strings 6, 5, 4 or as E, A, C on strings 5, 4, 3 or as A, C, E on strings 4 ,3 ,2 or finally as C, E, A, on strings 3, 2, 1. Thus all inversions are easy and straightforward.

7M3 Chord Shapes
4-Note Chords on 4 Consecutive Strings

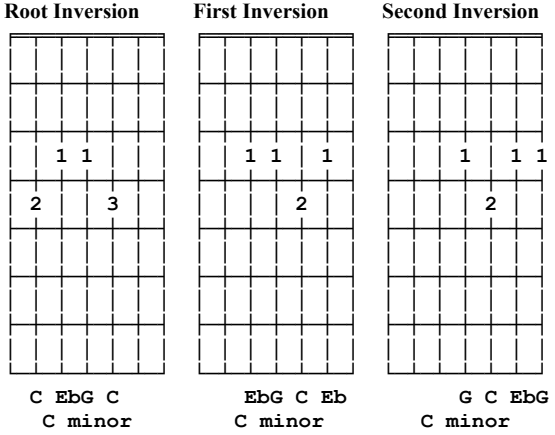
We now start our exploration of chord shapes on a 7M3 guitar. For the purposes of this tutorial, we are interested in “movable” chords – that is, chords which can be moved (or translated) along the fretboard. These do NOT use any open-strings. Chords utilizing open strings can be very useful musically at times, but in chord-solo playing (particularly for jazz), the guitarist's basic tool consists mostly of movable chords. In my diagrams, any string without a number showing a finger-press should not be played. I will omit the usual “X” to indicate unplayed strings.

We will start with 4-note chords on four adjacent strings – and their inversions. We will progress through several chord types - from simple major and minor chords, through dominant 7^{th} and minor 7^{th} chords, to augmented and diminished chords, and finally to a variety of color chords. Working your way through all the inversions for all of these chord types can get somewhat boring, so you may want to just learn the root inversion (the so-called “power chords”) on your first pass through and then come back later to learn the rest. As a side comment, because fingerings for 7M3 tuning are so compressed, we are typically able to play most inversions of the chords of interest. The astute student will see that some of the inversions in the next few pages have omitted some notes (such as the root or fifth) in order to be easily playable. Patt's web pages give exact inversions, but I chose to simplify some of the more awkward fingerings. (Remember that each of the 68 patterns on the next 3 pages is actually 4 x 12 = 48 different chords when moved across and along the fretboard, so you will be learning 68 x 48 = 3,264 new chords.) After that, we will repeat these chords again but this time with chords that span five, six, or seven strings. These provides a fuller “bassier” sound. Some of them will utilize open strings and are therefore non-moveable.

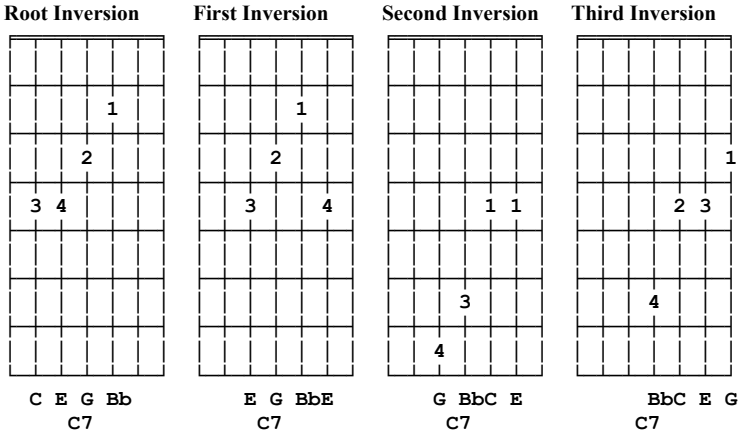
Major Chords (1 3 5)



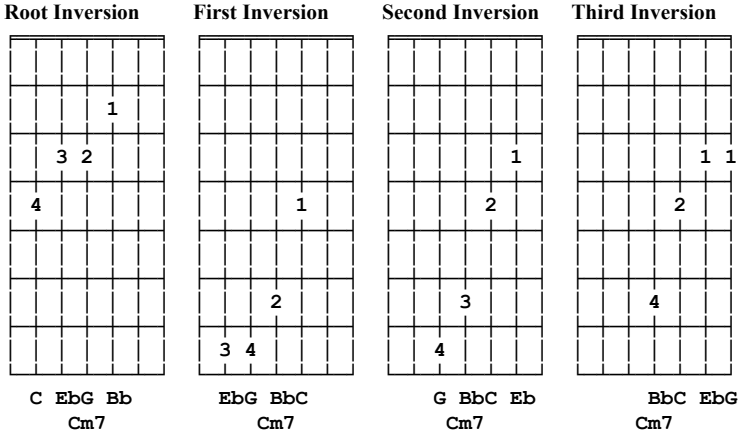
Minor Chords (1 b3 5)



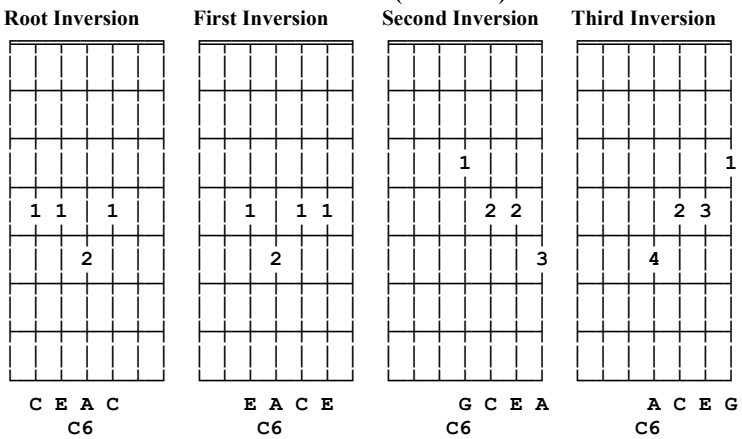
Dominant-Seventh Chords (1 3 5 b7)



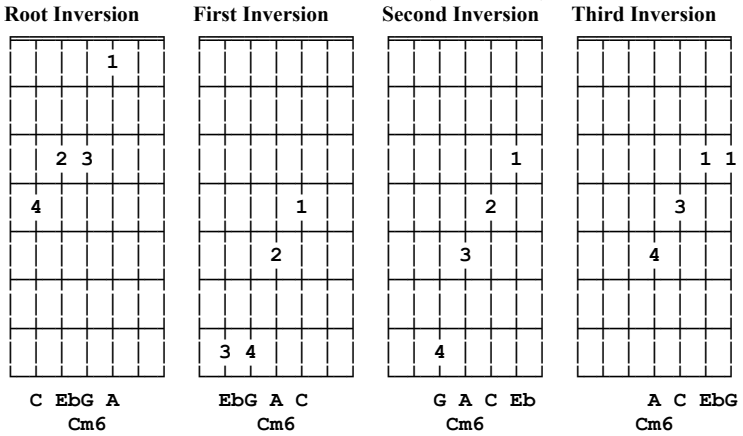
Minor-Seventh Chords (1 b3 5 b7)



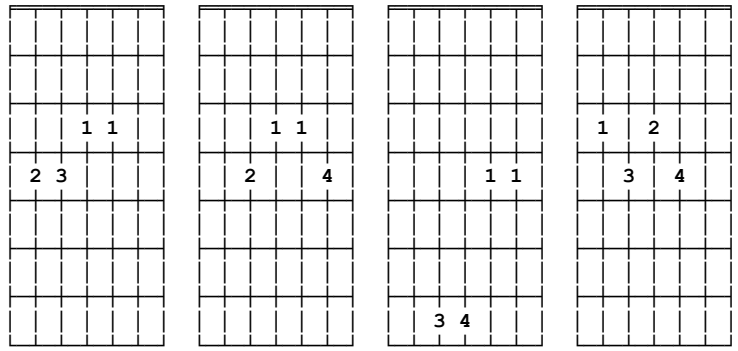
Sixth Chords (1 3 5 6)



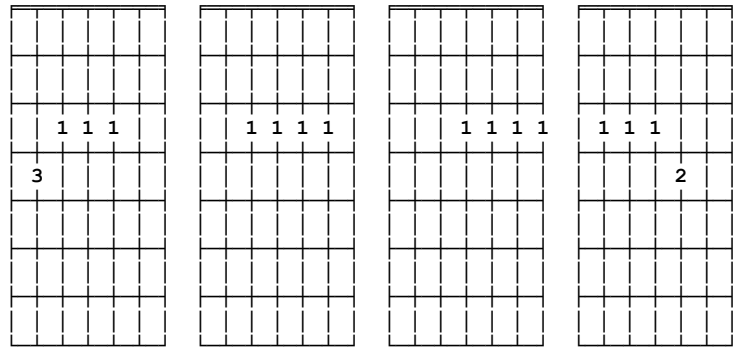
Minor Sixth Chords (1 b3 5 6)



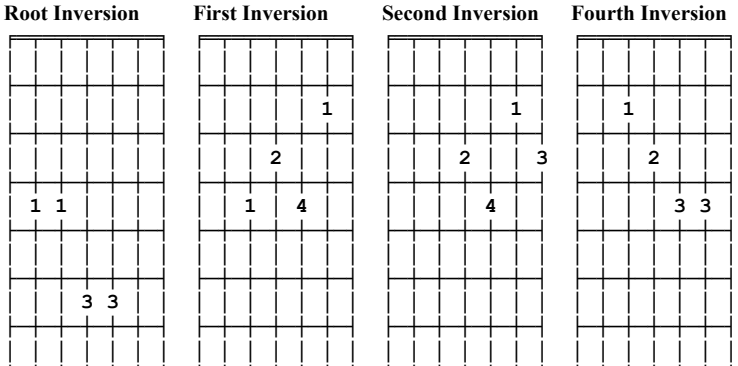
Major-Seventh Chords (1 3 5 7)



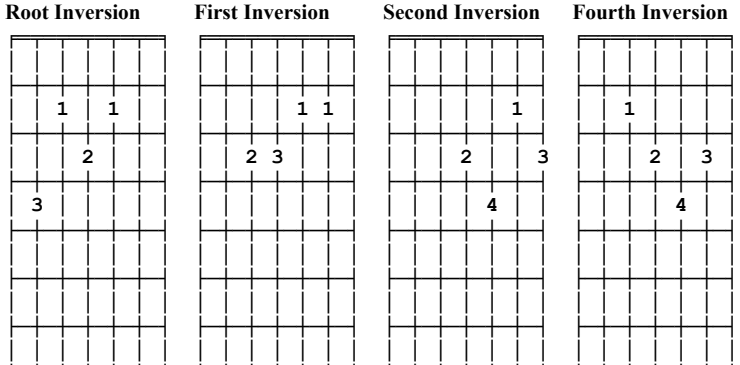
Minor Major-Seventh Chords (1 b3 5 7)



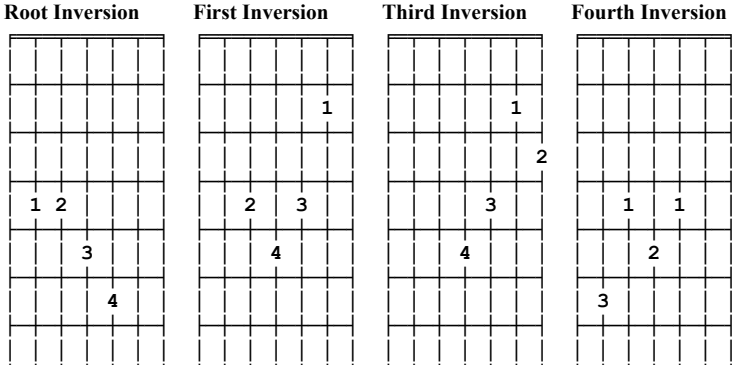
Ninth Chords (1 3 5 b7 9)



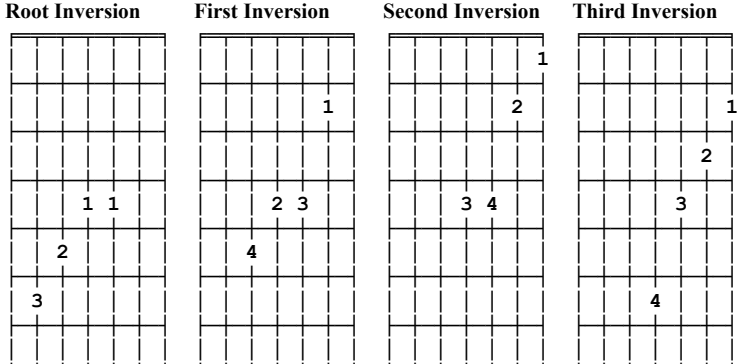
Minor-Ninth Chords (1 b3 5 b7 9)



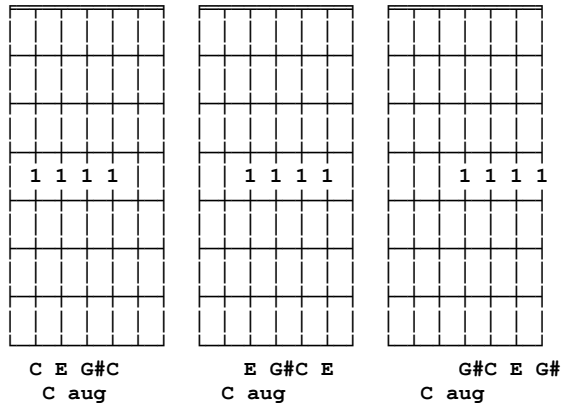
Sixth Ninth Chords (1 3 5 6 9)



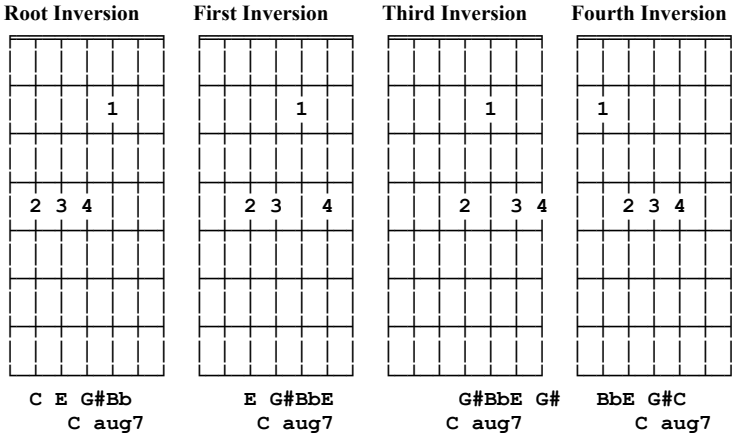
Minor-Seventh Flat-Fifth Chords (1 b3 b5 b7)



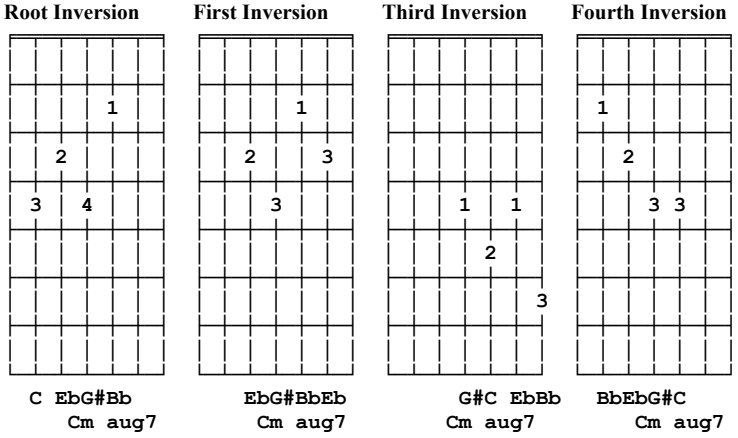
Augmented Chords (1 3 #5)



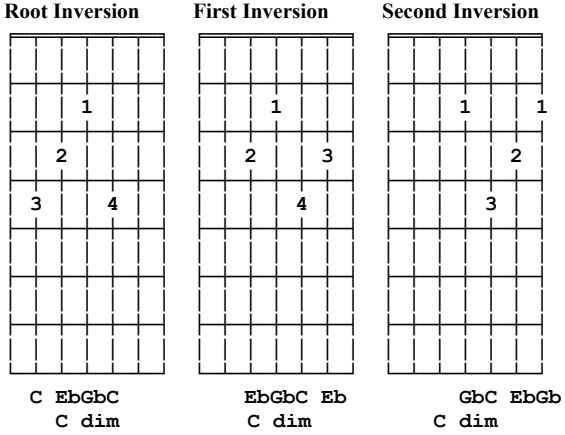
Augmented Seventh Chords (1 3 #5 b7)



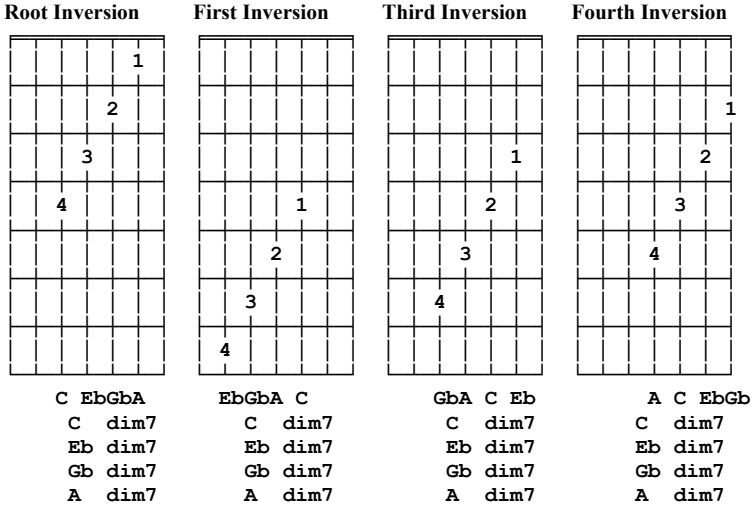
Augmented Minor-Seventh Chords (1 b3 #5 b7)



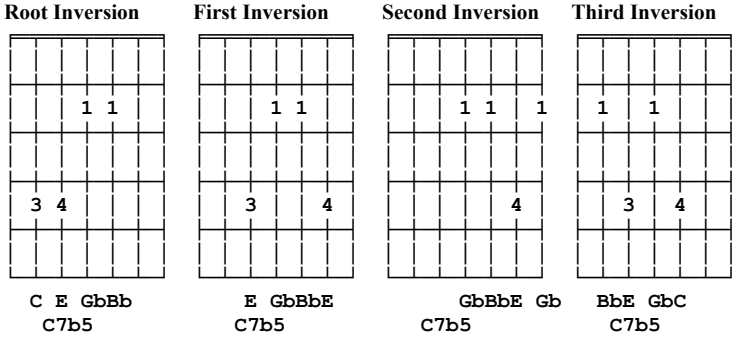
Diminished Chords (1 b3 b5)



Diminished Seventh Chords (1 b3 b5 bb7)



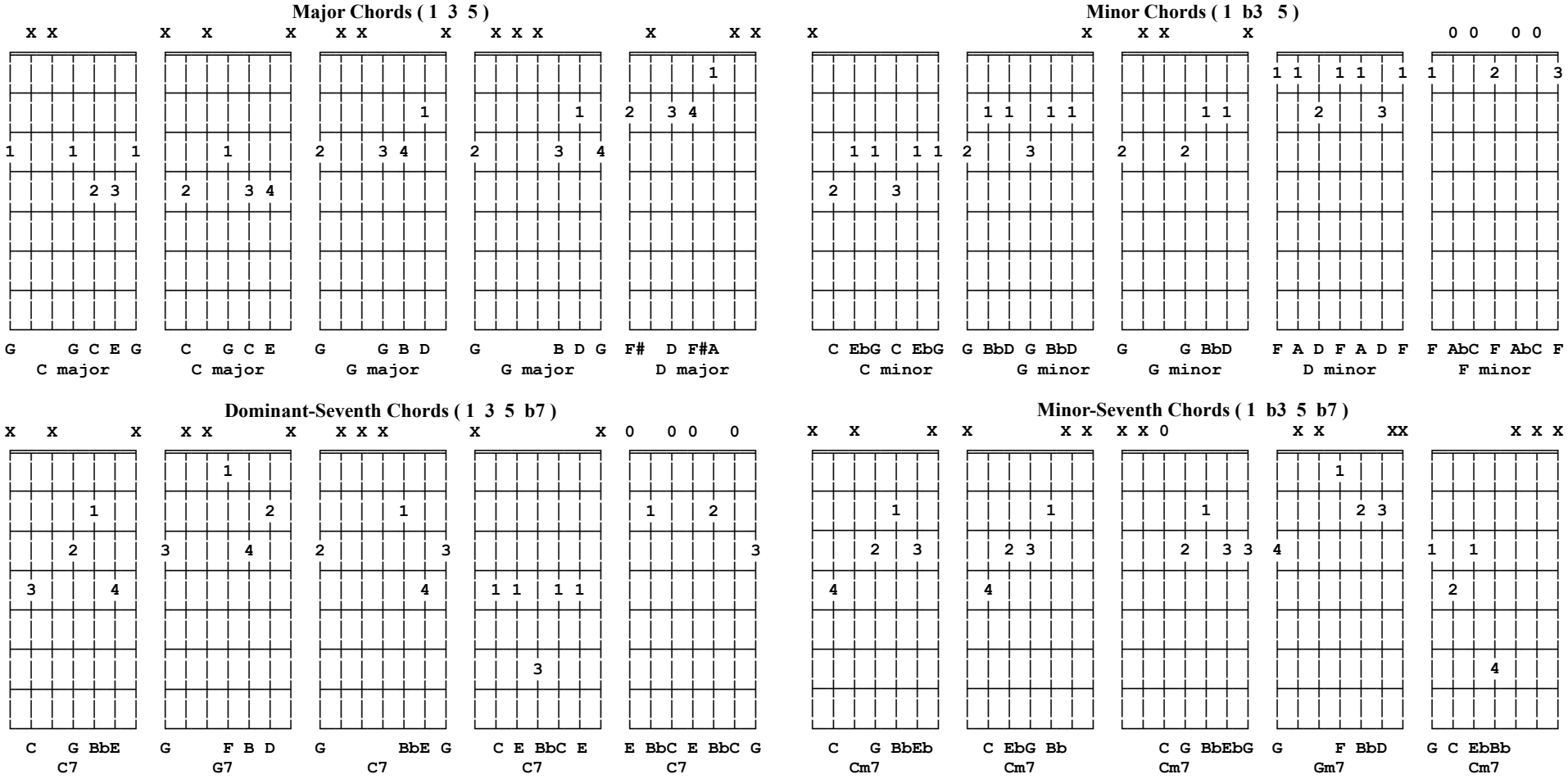
Seventh Flat-Fifth Chords (1 3 b5 b7)



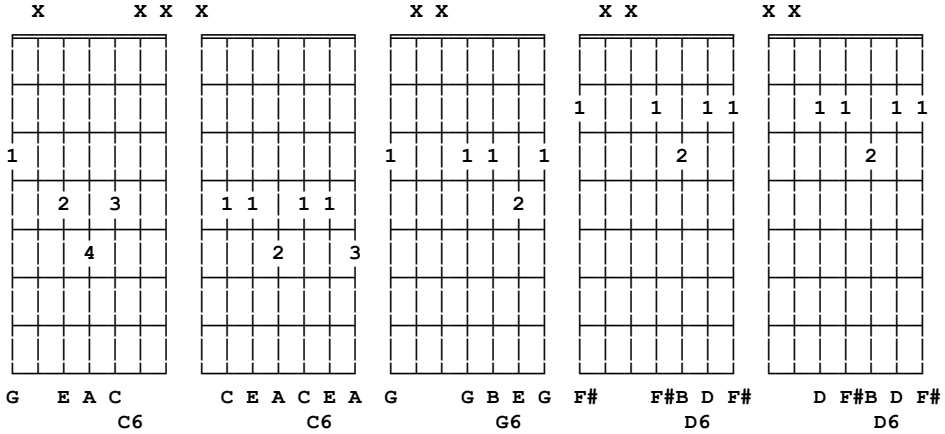
Chords Spanning 5, 6, or 7 Strings

Now that we have mastered 4-note 4-string chords, we will study movable chords that span five, six, or seven strings. These provides a fuller "bassier" sound. Some of them will utilize open strings and are therefore non-movable. Rather than showing each inversion, I will show four or five examples of convenient ways to play these full chords. In some cases I have shown more notes than it is physically possible to play. Feel free to play only sub-chords of the examples shown. Ease and fluidity of playing is often more important than having all notes present.

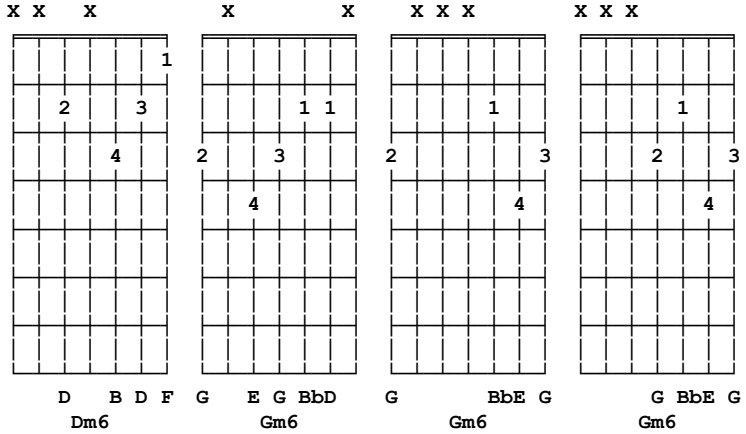
As you practice these chords and use them in your songs, you will develop certain "favorites" that you like the sound of and become comfortable with playing. You will learn that others are unwieldy and generally avoided – or only used as a last resort. This process is normal and desirable.



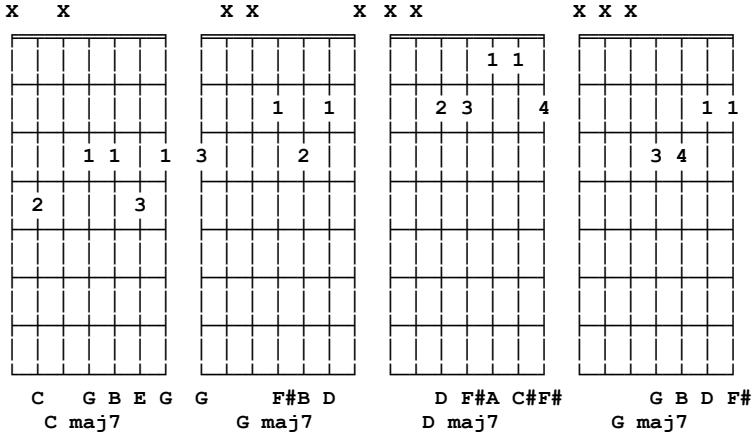
Sixth Chords (1 3 5 6)



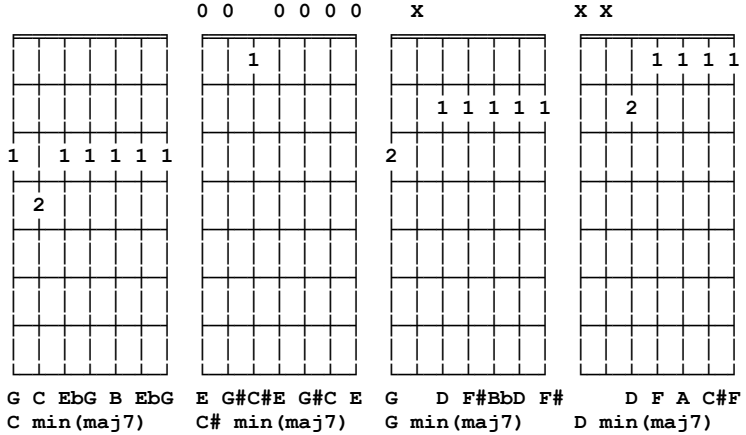
Minor Sixth Chords (1 b3 5 6)



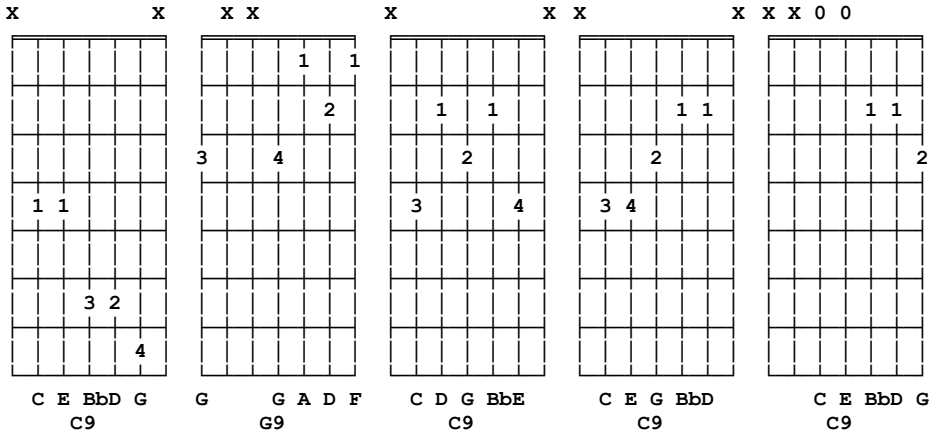
Major-Seventh Chords (1 3 5 7)



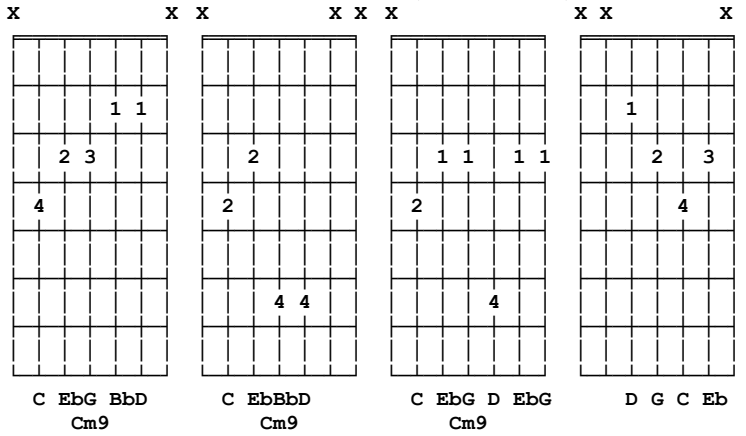
Minor Major-Seventh Chords (1 b3 5 7)



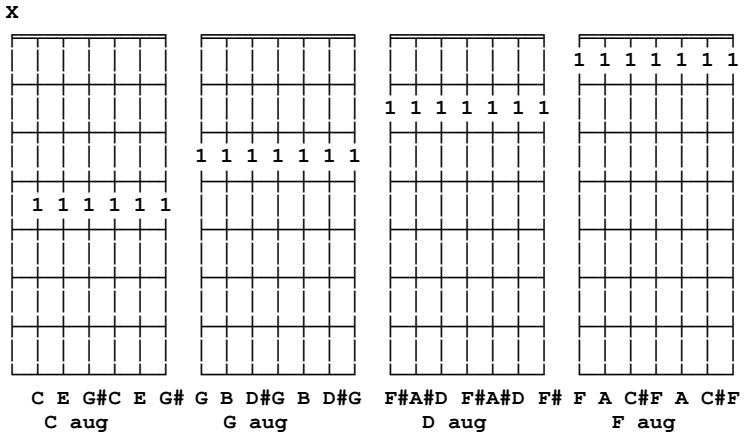
Ninth Chords (1 3 5 b7 9)



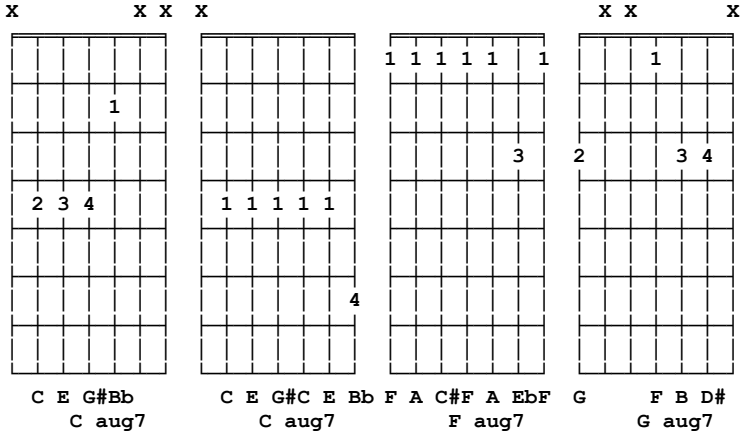
Minor-Ninth Chords (1 b3 5 b7 9)



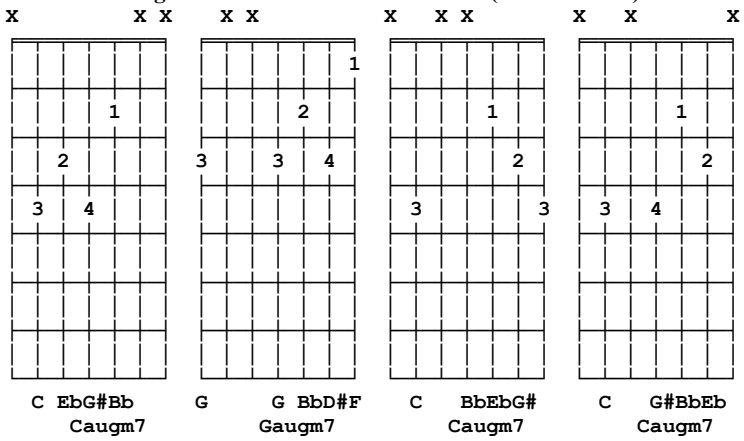
Augmented Chords (1 3 #5)



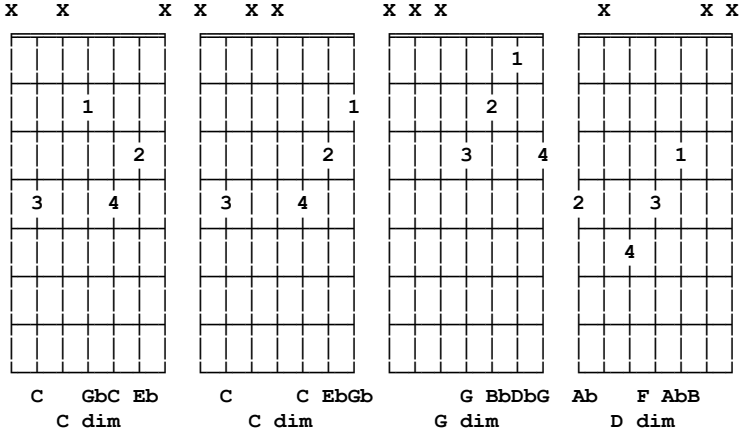
Augmented Seventh Chords (1 3 #5 b7)



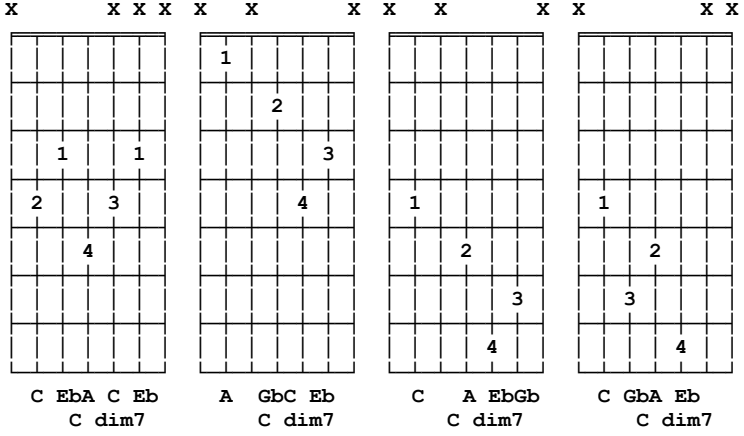
Augmented Minor-Seventh Chords (1 b3 #5 b7)



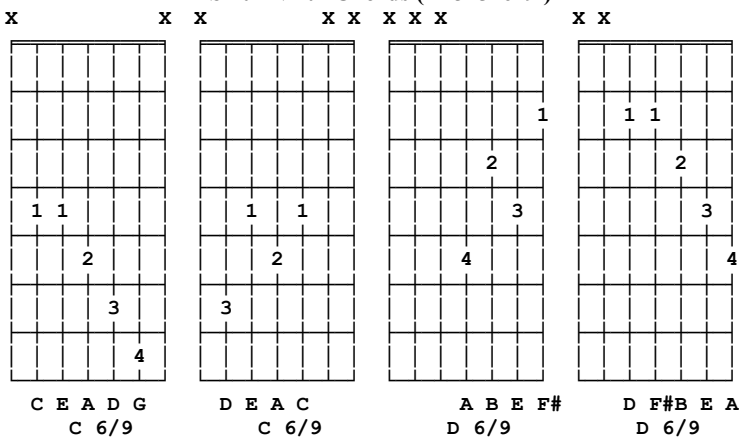
Diminished Chords (1 b3 b5)



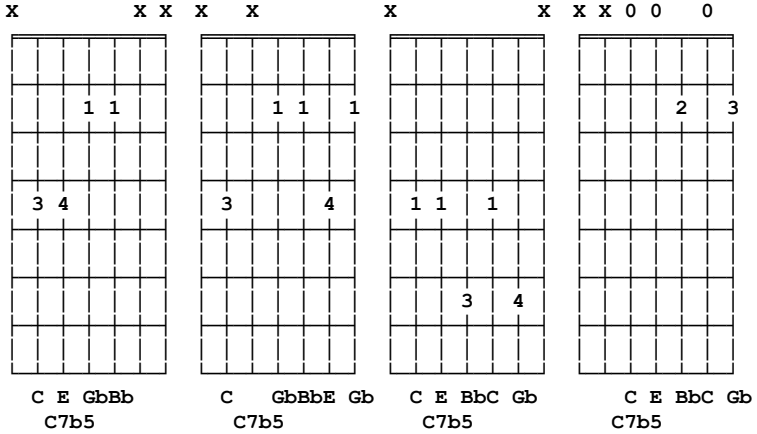
Diminished Seventh Chords (1 b3 b5 bb7)



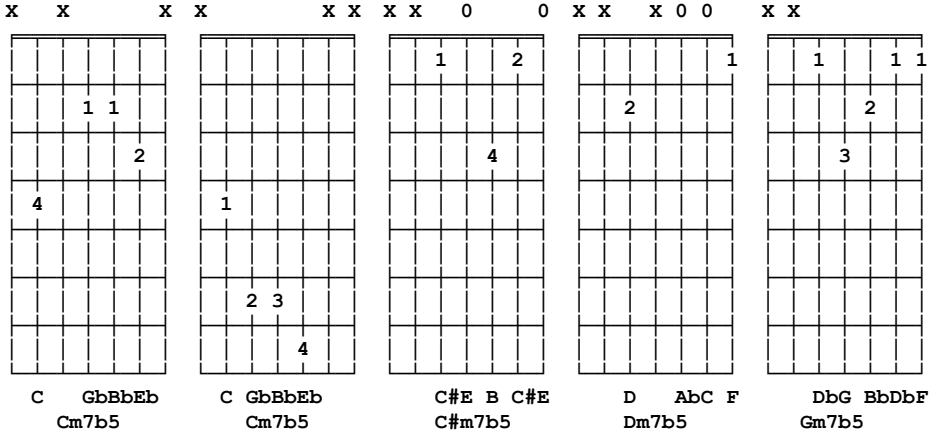
Sixth Ninth Chords (1 3 5 6 9)



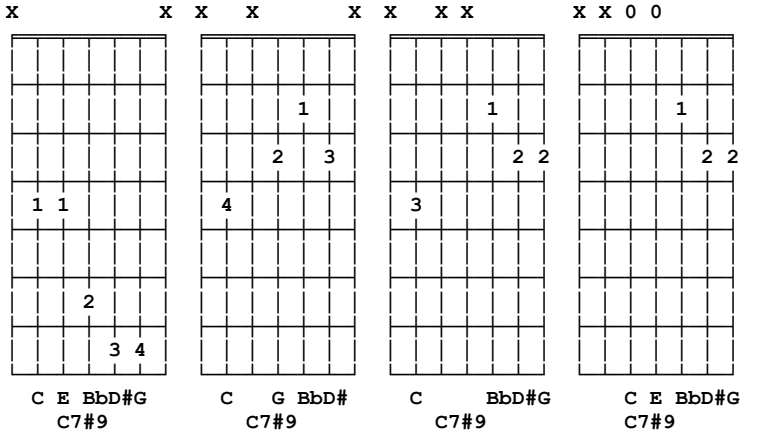
Seventh Flat-Fifth Chords (1 3 b5 b7)



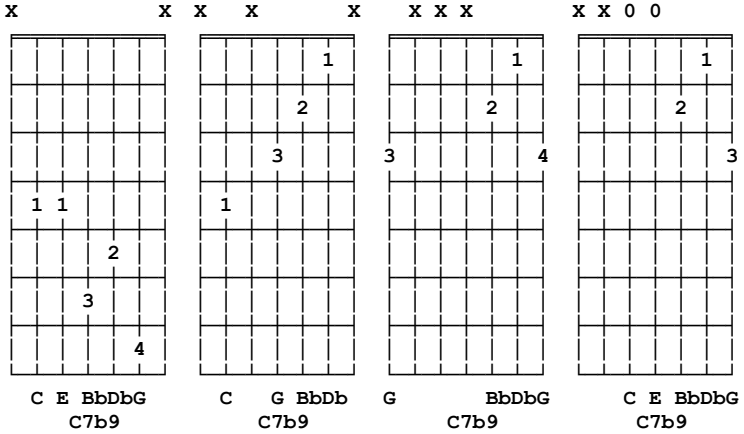
Minor-Seventh Flat-Fifth Chords (1 b3 b5 b7)



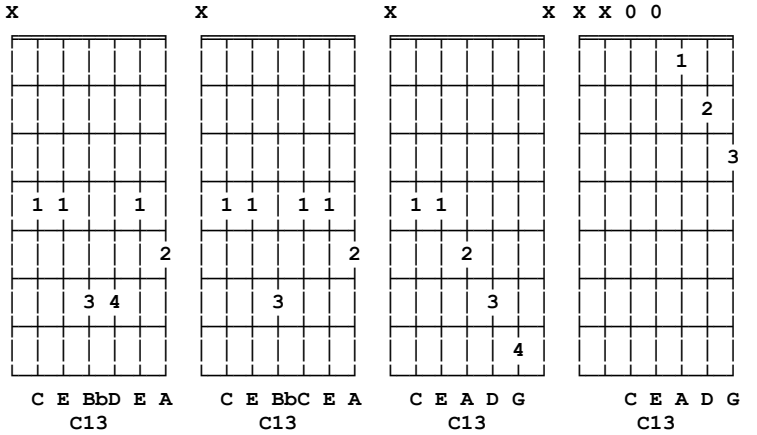
Seventh Sharp-Ninth Chords (1 3 5 b7 #9)



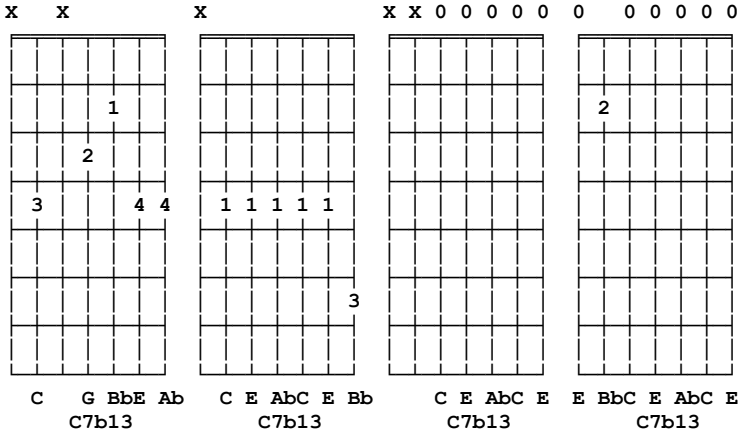
Seventh Flat-Ninth Chords (1 3 5 b7 b9)



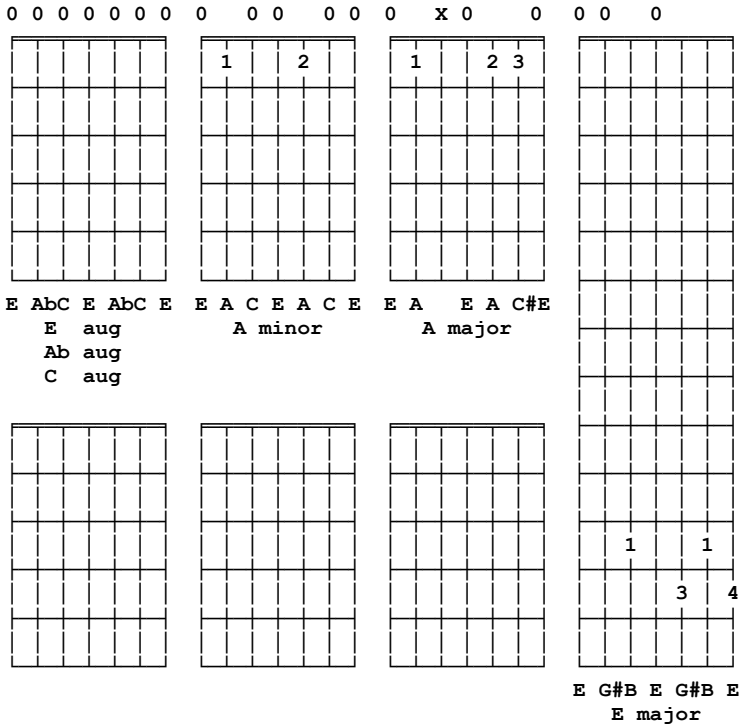
Dominant Thirteenth Chords (1 3 5 b7 9 13)



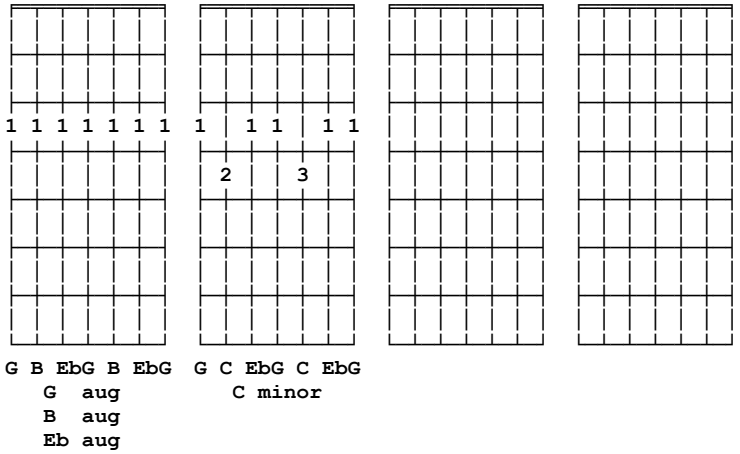
Seventh Flat-Thirteenth Chords (1 3 5 b7 b13)



Some Special Open-String Chords



Some Special Movable Chords



Some Final Observations

Standard guitar tuning provides a rich catalog of easy-to-play simple folk chords (usually called “cowboy” chords since they were used by movie cowboys to accompany their singing). These usually span all six strings and, when strummed, provide a full rich harmonious sound. Such cowboy chords are quite difficult to play with M3 tuning. If your primary interest is simply to accompany your singing, then stick with standard tuning. M3 is not for you.

What is the “best” tuning of the guitar? What are the criteria for measuring “best”. As I've explored guitar tunings over many years, I have concluded that there is no one tuning that is optimum for all types of users and all musical styles. (This was a difficult conclusion because the scientist in me really wanted to prove one to be superior using simple logic.) If you have extensive experience with standard tuning and it satisfies your needs, then stay with it. If you like exploring new possibilities then give alternative tunings a try.

The guitar is a 'shape-based' instrument. (Most other instruments such as trumpets, saxophones, and harmonicas are 'scale-based'.) That is, when playing a guitar, once you learn how to play a major scale with your left-hand fingers on frets 1, 2, 3, and 4, you have learned how to play it in all twelve keys. You simply move the fingering-pattern ('shape') of the scale up or down along the fretboard. Similarly, once you learn how to finger the shape of a particular moveable chord, you can transpose that shape along the fretboard to play that same chord-type in all keys. In my quest for the “best” tuning, I place a heavy emphasis on easy finger-friendly shapes for the predominant chord types. Some tunings (such as “open” tunings) make fingering certain chord types really easy while making other chord types impossibly hard. I prefer to avoid such tunings since I want my instrument to be flexible enough to allow me to play any chord or arpeggio that comes to mind. In my humble opinion, both P4 and M3 tunings offer a reasonably large number of chord types with easy to moderate difficulty. In both tunings, some chords are easier and some are more difficult than with standard tuning.

Since 7M3 tuning has a major-third interval between all strings, chords with lots of major-third intervals are relatively easy to play – typically with one finger barred across 3 or 4 strings. For example, augmented chords have many major thirds and no minor thirds or perfect fifths. As expected, they can be played by a simple grand barre across all strings. Chords with multiple major-third intervals (and hence easy barre-style fingerings) are:

augmented chords,
augmented seventh chords,
augmented major seventh chords,
dominant-seventh flat-fifth chords,
minor major seventh chords, and
minor-thirteenth chord.

On the other hand, with M3 tuning, chords with no major-third intervals cannot be fingered using a barre across multiple strings. But it would be a mistake to say that such chords are difficult to play. The compressed layout of the M3-tuned fretboard places more notes within easy reach than does standard tuning, so M3 offers more comfortable finger options. For example, diminished chords have no major-third intervals, but the diagrams in the preceding section show several easy fingerings.

While writing this document, I realized that I might as well recommend an additional modification that has been bugging me all of my life. In the first year or two of learning the guitar, I observed that most of the songs that my instructor had me play were in the key of E – primarily to take advantage of the nice open-string notes on the 1st and 6th strings. But the key of E has 5 incidentals (F#, C#, G#, D#, and A#) that I needed to keep track of in my sight-reading. While advanced musicians have no trouble with this, it is a burden for novice students with lots of other things to learn. I envied students of other instruments who were playing songs in the key of C – with no incidentals to have to worry about. I don't know why guitar tuning became E-centric. So my recommendation is to tune your 7-string guitar to C-E-Ab-C-E-Ab-C so that it becomes C-centric. That is, songs in the key of C major will be able to take advantage of the nice open-string notes on the 1st, 4th, and 7th strings. All of the chord shapes will remain the same as shown in this tutorial – just shifted up one string.

I have encountered one negative with M3 tuning that is keeping me from committing to it: In standard or P4 tuning, when playing a root-inversion chord, it is very easy to toggle the left-hand finger playing the root note down one string ON THE SAME FRET to play the 5th of the chord. I use this technique a lot – to create an alternating bass line with my chords. Toggling this finger leaves three other fingers for the remainder of the chord. But with M3 tuning, the 5th of the chord is ONE FRET LOWER (on the next lower string) than the root. So toggling between the root and the 5th requires moving my left-hand finger sideways by one fret - which is very difficult to do while holding the other fingers stationary. (Human fingers have very little independent sideways motion.) Alternatively, I could commit two left-hand fingers to these two notes – but that only leaves two fingers for other chord- or melody-notes.

I am writing this tutorial mainly to help me to analyze this novel guitar tuning and to learn the chord shapes for my own musical edification. My desire to help others along the way has convinced me to post this on the internet and make it freely available. Please feel free to send me feedback and/or recommended modifications to keith@bromley.name to help me to improve this document for others.

I am not aware of any “big name” professional guitarist who regularly uses M3 tuning. This lack of a role model or idol is currently a major drawback. Most of the interest in 7M3 tuning has been from scientifically-inclined individuals who recognize and value its regularity, symmetry, and intrinsic simplicity – myself included. While we may lack the musical gifts to demonstrate it, we certainly recognize a great idea when we see it. If you have read to this point in the tutorial, and have great musical talent, then perhaps you can become the M3 Guitar Hero we are waiting for!