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## CHORD DIAGRAMS FOR MAJOR-THIRDS TUNING:

$G^\sharp-C-E-G^\sharp-C-E$

KIEFER WOLFOWITZ

ABSTRACT. Major-thirds tuning appeals to several types of guitarists: Beginners, guitarists studying theory or composing, music educators, and jazz guitarists.

The fretboard of a popular major-thirds tuning  $G^\sharp-C-E-G^\sharp-C-E$  is presented. Diagrams present major-third tuning's fundamental chords (major and minor triads, and dominant seventh chords). The diagonal, vertical, and horizontal shifting of chords is illustrated. A  $C-F-G7$  ( $I-IV-V7$ ) chord progression is shown. An appendix exhibits difficulties with standard tuning: Diagonally shifting chords requires (at least) three forms and dominant-seventh chords cannot be played (without using inversions drop-2).

This report supplements the English Wikipedia article “major-thirds tuning” and it has been uploaded to the Wikimedia Foundation under the terms of the Creative Commons 3.0 Share-Alike and Attribution license. The exposition is original but the results are documented in reliable sources (listed in the article).

## 1. INTRODUCTION

This document contains diagrams for the fretboard and for selected chords for major-thirds tuning on a six-string guitar. The diagrams display the open-string notes  $G^\sharp-C-E-G^\sharp-C-E$  of the most popular major-thirds tuning.<sup>1</sup>

Major-thirds tuning appeals to several types of guitarists:

**Beginners:** wanting to make rapid progress in learning the fretboard and chords. Time no longer wasted memorizing the ad-hoc fretboard can be used to develop proper technique. (Of course, this time can be used for learning more songs and for ear-training, e.g. by playing along to music.)

**Guitarists studying music theory:** who have previously been instructed to learn the piano.

**Guitarist composers:** who have often composed at the piano.

**Advanced guitarists, especially in jazz:** , who need to improvise.

**Music educators:** wishing to learn the guitar to lead students in singing (or to qualify on another instrument for professional certification).<sup>2</sup>

**Guitarists seeking a challenge:** , e.g. by learning a new tuning.

The diagrams illustrate the article on major-thirds tuning on English Wikipedia [5].<sup>3</sup> Besides repeating the diagrams in these articles, this document contains supplementary diagrams of all the major, minor, and dominant-seventh chords for all natural notes  $A-G$ . We have provided simple explanations of the diagrams, to make the diagrams more useful. Apart from our observation that major-thirds tuning appeals to guitarists studying music theory or composing and to music educators, no original research appears in the document; our discussion closely paraphrases or quotes from our contributions to Wikipedia articles (which contain references to reliable sources).

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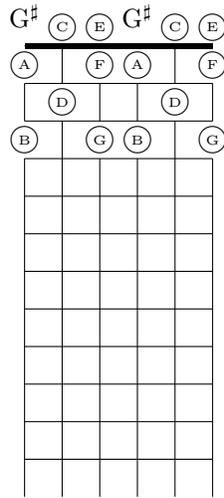
<sup>1</sup>Of course, the diagrams work for all major-thirds tunings; for another major-thirds tuning, shifting the diagrams by 1–3 frets makes them useful.

<sup>2</sup>The author, Kiefer.Wolfowitz, claims the obvious: Students of musical theory, composers, and educators have a special interest in major-thirds tuning. The other types of guitarists have been mentioned by Patt, Kirkeby, etc.

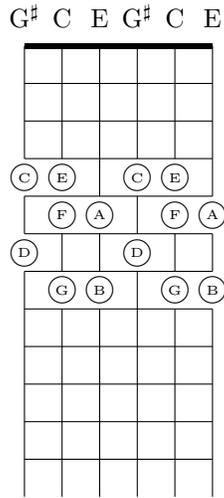
<sup>3</sup>Some diagrams illustrate other articles, for example, “guitar tunings”, “regular tuning”, “repetitive tuning”, and “Ralph Patt”.

2. FRETBOARD

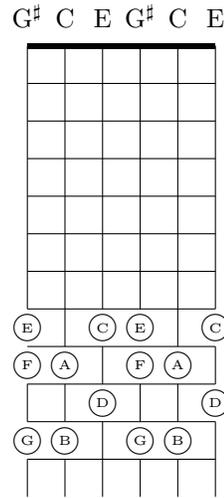
Major-third tuning has the following natural notes on the first 11 frets of its fingerboard, which are displayed in segments of four consecutive frets. This four-fret segmentation allows a guitarist to fret each note with exactly one finger (in different hand positions).



Frets 0-3



Frets 4-7



Frets 8-11

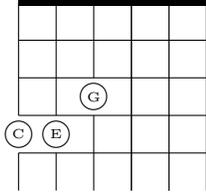
## 3. SHIFTING NOTES AND CHORDS

The  $C$ -major chord is defined to be a triplet of notes ( $C$ ,  $E$ ,  $G$ ), ordered (from low to high) as

$$C < E < G.$$

where the  $(C,E)$ -interval is a *major third* (four semitones) and the  $(E,G)$ -interval is a *minor third* (three semitones); the composite  $(C,G)$ -interval is a *perfect fifth* (seven semitones).

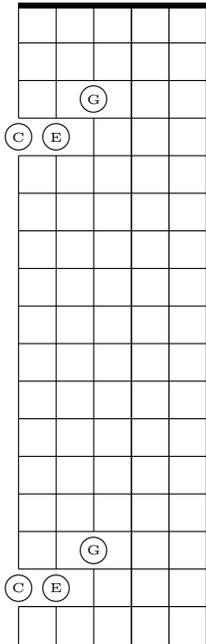
$G^\sharp$  C E  $G^\sharp$  C E



$C$  major ( $C,E,G$ )

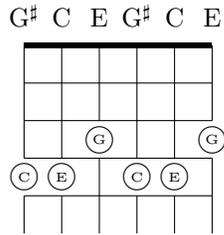
3.1. **Horizontal shift of 12 frets.** For every guitar tuning, chords can be moved *horizontally* (on the same strings) twelve frets because the notes repeat themselves (on a higher octave).

$G^\sharp$  C E  $G^\sharp$  C E



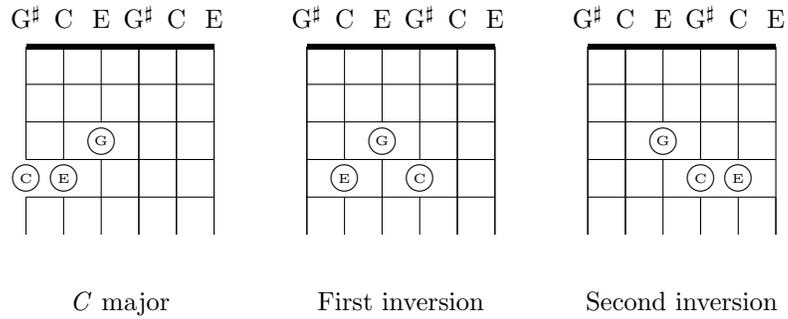
Horizontal shifting of  $C$  major

**3.2. Vertical shifts: An advantage of repetitive tunings.** Because major-thirds tuning repeats its open notes after three strings, its chords may be shifted *vertically* by three strings on the same frets. The vertical shifting of chord-patterns is illustrated by another diagram for the *C*-major chord.

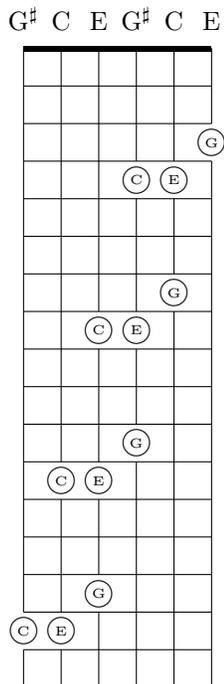


Vertical shifting (between 1–3 and 4–6) of *C* major

## 4. INVERSION OF CHORDS



4.1. **Diagonal shifts: An advantage of regular tunings.** In major-thirds tuning, for each fret, the notes of consecutive strings differ by exactly a major third (that is, by four semitones, or one-third of the octave's twelve semitones). Consequently, the shape of a chord may be moved *diagonally*, by four horizontal-shifts and one vertical-shift.

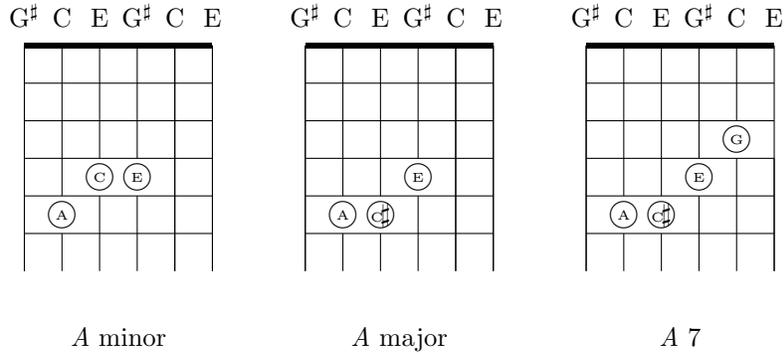


Diagonal shift of *C*-major

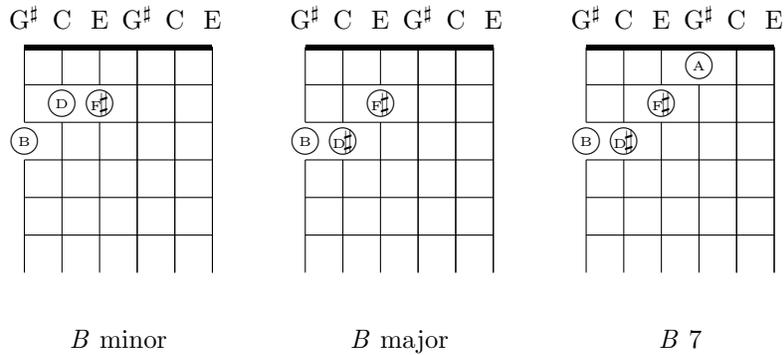
5. BASIC CHORDS: A DICTIONARY

For each of the natural notes  $A$ – $G$ , we display three commonly used chords—namely, the minor, major, and dominant seventh chords.<sup>4 5</sup>

5.1.  $A$  chords.



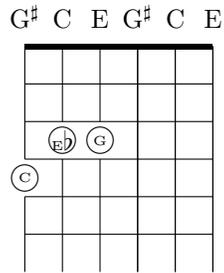
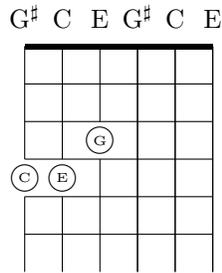
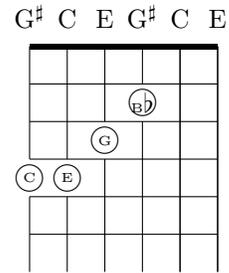
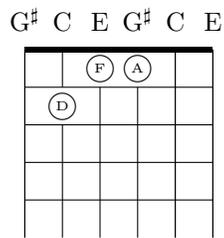
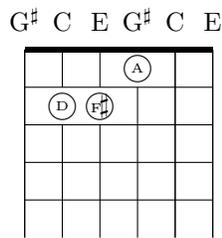
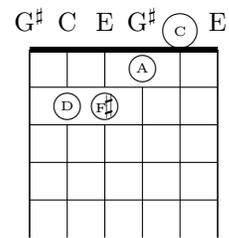
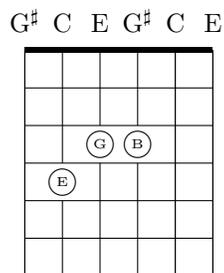
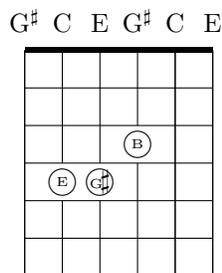
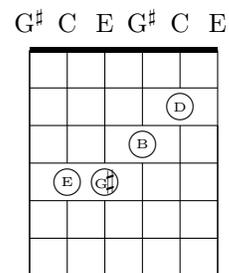
5.2.  $B$  chords.



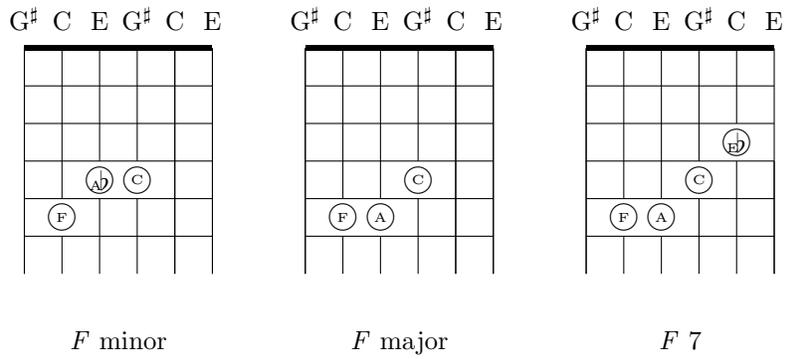
<sup>4</sup>In popular music, the most commonly played chords are the major chords (especially the  $C$ ,  $A$ ,  $G$ ,  $E$ ,  $D$  major chords) [5].

<sup>5</sup>“Other common chords include the [dominant] seventh chords (especially  $B7$ ,  $D7$ , and  $G7$ ) and the minor chords (especially  $A$  minor and  $D$  minor)” [5].

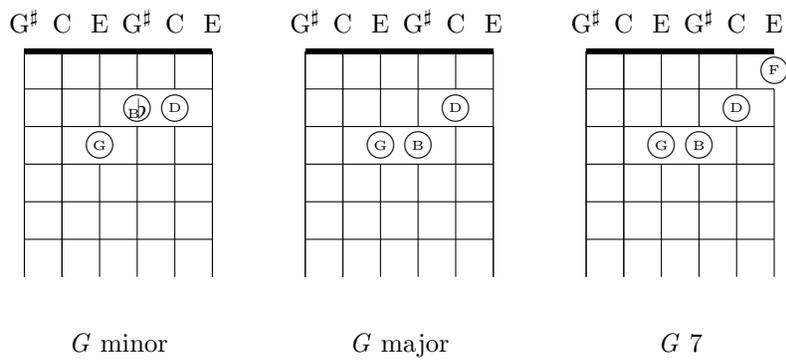
“Denyer and also Schmid and Kolb each list the same fifteen chords for beginners:  $Am$ ,  $A$ ,  $A7$ ;  $B7$   $C$ ,  $C7$ ;  $Dm$ ,  $D$ ,  $D7$ ;  $Em$ ,  $E$ ,  $E7$ ;  $F$ ;  $G$ ,  $G7$ . Denyer [1, “The beginner, Open chords, The beginner’s chord dictionary”, pp. 74–75] and Schmid and Kolb [9, “Chord chart”, p. 47].” [5]

5.3. *C* chords.*C* minor*C* major*C* 75.4. *D* chords.*D* minor*D* major*D* 75.5. *E* chords.*E* minor*E* major*E* 7

5.6. *F* chords.



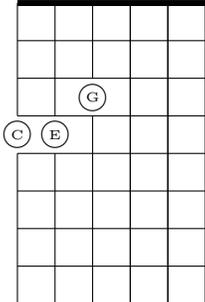
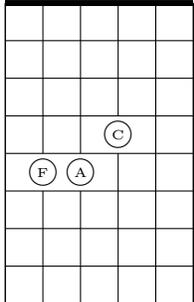
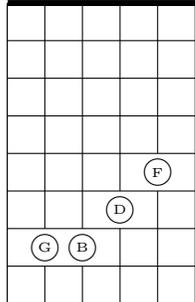
5.7. *G* chords.



## 6. CHORD PROGRESSIONS (I–IV–V)

The I–IV–V chord progression shifts the tonic chord (I) by one perfect-fourth (five semitones) to produce the subdominant chord (IV), which is shifted by one minor-third to produce the dominant chord (V).

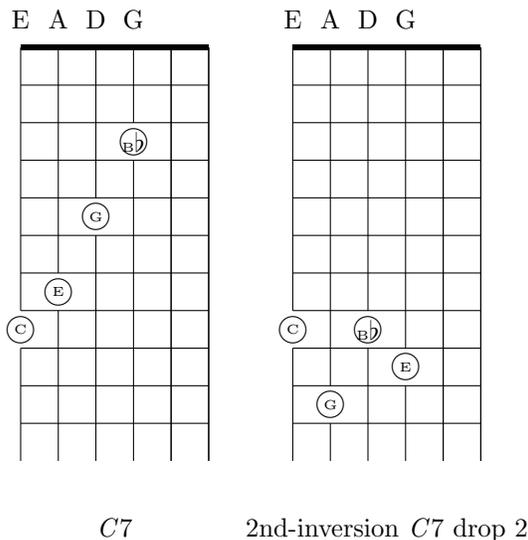
This pattern of shifts appears in the  $C$ – $F$ – $G7$  chord progression in major-thirds tuning:

$G^\sharp$ C E $G^\sharp$ C E	$G^\sharp$ C E $G^\sharp$ C E	$G^\sharp$ C E $G^\sharp$ C E
		
$C$ major	$F$ major	$G$ 7



**A.2. Sevenths are very difficult to play.** A dominant seventh is a four-note chord combining a major chord and a minor seventh.<sup>6</sup> For example, the  $C7$  dominant-seventh chord adds  $B\flat$  to the  $C$ -major chord ( $C, E, G$ ).<sup>7</sup>

In standard tuning, the dominant-seventh chord ( $C, E, G, B\flat$ ) spans six frets from fret 3 to fret 8 [11]; such seventh chords “contain some pretty serious stretches in the left hand”.<sup>8</sup> An illustration shows a naive  $C7$  chord, which would be extremely difficult to play [11], besides the variant  $C7$  chord that is conventional in standard tuning [11]. The standard-tuning implementation of a  $C7$  chord is a *second-inversion  $C7$  drop 2* chord: The second-highest note in a second inversion of the  $C7$  chord is lowered by an octave ([11, pp. 92–93] and [3, pp. 30–33]).



<sup>6</sup>This discussion quotes from and closely paraphrases our article [5]; as the author having moral rights and copyrights to the quoted text, we do not use quotation marks. We thank editor Hyacinth for (in this section) rewriting our unorthodox  $A\sharp$  as the enharmonically equivalent  $B\flat$ , which is conventional in music theory.

<sup>7</sup>[6, Chapter 6: Harmonizing the major scale, Diatonic seventh chords, pp. 37-38]

<sup>8</sup>[6, Chapter 6: Harmonizing the major scale: Diatonic seventh chords, p. 37]

## APPENDIX B. CODA

B.1. **Acknowledgments.** I thank Mr. Alexandre Oberlin for his informative website and donation of graphics. I thank Wikipedia’s `User:Hyacinth` for his many contributions to the major-thirds and guitar-chords articles on Wikipedia.

B.2. **Copyright.** This discussion is copyrighted by its author Kiefer.Wolfowitz and by the real-world author using the Kiefer.Wolfowitz account on Wikipedia. It is uploaded to the Wikimedia Foundation under the terms of the Creative Commons 3.0 Share-Alike and Attribution license.

B.3. **Colophon.** This document was typeset with **AMS-L<sup>A</sup>T<sub>E</sub>X** 2.0 (using the `amsart` style and the `gchords` package by Mr. Kasper Peters) with the **TeXMaker X** system (MikTeX distribution).

The definition of chords is traditional in the classical theory of music, and so the chord-diagrams are not original research. Similar chord diagrams can be generated with TuxGuitar, GuitarCodex-Plus, or GuitarPro, three programs which were used to confirm the accuracy of our diagrams.

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