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Globalizing Musical Structure And Design

This course is about melodic and harmonic (chordal) improvisation. You will learn how to quickly expand what you know. The first part six parts of the course cover Melodic Improv, followed by two parts on Harmonic Improv. The last part has studies on Favored Songs and has Quizzes.

THE CREATIVE POWER OF THE MIND

Our Uncanny Ability to Apply Designs

As long as the set of notes or rhythms is straightforward, like a scale or a regular rhythm, we have an amazing ability to learn a pattern on one scale or arpeggio and apply it to another, or play a rhythm starting on one beat, then play the same one starting on a different beat. For example, if you learn the fragment pattern "1234" on a pentatonic scale, you can then apply it to any scale or arpeggio without much of an adjustment. The main task was learning the treatment of the scale.

Let's say we play a "1234" fragment with three notes per beat, starting on the beat. The pattern doesn't begin on the beat again until we have played twelve notes (three times four). We then can begin to hear that entire sequence of twelve notes as a new fragment pattern. Further, it doesn't matter so much what scale or arpeggio we play it on, we understand the treatment and can hear the 12-note sequence.

Improvised Ideas Can Be Very Complex

Once we know sets of notes like scales and units of rhythm like rhythmic words and ways to design them, we can start creating abstractly. We can learn to predict the sound of each individual note in a scale, then let the mind predict the sound of a group of them, telling us what to play.

When we analyze what our right brain has created in free association with our mathematical/logical left brain, it usually gets very complicated. Improvising on a blues with minor pentatonic scale seems really simple to do and easy to hear. But, when you analyze what has been done to contradict some of the chords and find relationships common to a few chords, it gets really complex. See Modes On I IV V Blues.

Learning and Practicing a Design

It is time-efficient to practice a number of consecutive instances of a design, going up or down a scale, for example. But when you use the design in improvising, you usually don't want more than one or two in a row.

GLOBALIZATION DEFINED

In 1996, after studying improvisational music for decades, it occurred to me that there is a common process of applying what an improviser learns. Each significant musical idea should be memorized, categorized, then modified as necessary to reapply to appropriate styles and situations. The categories can be conceived in many different ways.

In a broad view, the main categories are shown below as Pitch, Melody And Harmony, Rhythm And Form, Comping Design and Solo Design. Attributes are listed in a table below each. At the end of this Globalizing Musical Structures And Design section, tables are shown in a timeline fashion, with the timeline labeled at the top, moving forward in time to the right and with the three main categories "comping designs", "solo designs" and "pitch variables". The index to the course that follows this section shown another categorization.

When your attention is drawn to a musical idea, become aware of its appropriate variations as shown below. Learn the rules for each genre by learning what musical elements have been used so far. If you are introducing something new to the genre, take care to introduce it to the listeners. People generally like what they know, so new things necessarily need introduction. Be crafty. Bring in something new along with other elements from the genre that the listener knows and likes.

When you perform or arrange a song, be aware of which of all the attributes and designs shown below. The attributes are listed in the tables below each category, such as "Pitch, Melody And Harmony".

Pitch, Melody and Harmony

key	chord type	fingering
mode or scale	chord progression and cadences	slur type

Rhythm and Form

straight versus swing	phrasing and rhythmic displacement	melodic elaboration & abbreviation
rhythmic words	rhythmic layers	harmonic elaboration & abbreviation

Comping Designs

rhythmic strumming	bass guitar	open position chords
linear arpeggios	left, right and reggae muting	close-voiced triads
thumb bass, index strum	harmonized & walking bass	open-voiced triads
thumb bass, fingers pluck	EDCAGE movable triads	cadences
bass, mid, top: piano style	accents	pedal tone progression
patterned arpeggios	ornamented chords	voice leading

Solo Designs

minor pentatonic solo	double stops	open position chords
major pentatonic solos	theme and variation	close-voiced triads
combing six pentatonics	slide guitar	open-voiced triads
combine four heptatonics	fragment patterns	cadences
arpeggios and turnarounds	octaves, optional inner interval	pedal tone progression
two-note harmony	pivot tone	top-voice leading

THEME AND VARIATION BY GLOBALIZING

This is an outline of material that should be studied thoroughly in repertoire. For each attribute and design shown above, you should typically play and study the relative parts of three or more songs as examples.

Changing Comping Design

By using different styles of accompaniment (strumming, finger picking, arpeggiating, etc.), you can greatly vary the feel of the music.

Changing Solo Design

While retaining the core melodic theme, the solo design can be changed between all of the following:

arpeggio fragment patterns (include rhythmic word options)

- arpeggios with pivot tone (include rhythmic word options)
- heptatonic scales and heptatonic subsets with chord tone emphasis (include rhythmic word and slurring options) (after pentatonic for rock and blues)
- heptatonic fragment patterns (include rhythmic word options), (after pentatonic for rock and blues)
- heptatonic scales with pivot tone (include rhythmic word options), (after pentatonic for rock and blues)
- improv themes and schemes, substitution/secondary roots and darkening melodic cells
- blues rock cells
- swing blues cells
- 12 bar blues endings

- cadences (turnarounds)
- harmonic scalar pulse
- chromaticized arpeggios and the basic lower chromatic embellishment (largely omit for rock and blues) (include rhythmic word and slurring options)
- pentatonic chord scales and pentatonic subsets of heptatonic scales (include rhythmic word and slurring options)
- pentatonic fragment patterns (include rhythmic word and slurring options)
- pentatonic scales with pivot tone (include rhythmic word and slurring options)
- theme and variation,"duality tones" common to tonic chord and current chord (include rhythmic word and slurring options)
- 1235, 1345 and scalar V7b9 and bII9 cadences to target chord*, IIm7b5b9 to V7b9 target chord (include rhythmic word and slurring options)(largely omit for rock and blues)
- double stops (include slurring options)
- thirds and sixths (include rhythmic word and slurring options)
- octaves, octaves with inner thirds or inner sixths (include rhythmic word and slurring options)
- pedal tone progression, including I-IV-I7 and I6n5 to I9nrn3 (include rhythmic word and slurring options)
- quartal and quintal harmony (omit for typical rock and blues)
- serial melody: moving structures chromatically; major triad-base structures in serial intervals, including perfect fourths, minor thirds and diminished fifths (include rhythmic word options)(omit for rock and blues)
- pedal steel bends (primarily country music)
- slide guitar (primarily blues and blues rock)
- bebop ornamentation (similar to baroque ornamentation)
- internal voice leading
- elaborate or abbreviate chord progressions

*target chord: a chord which is preceded by melody or chord progression that leads to it.

Changing Attributes of Pitch, Melody and Harmony

changing key

Convert the theme to numbers in relation to the tone center of the original theme.

changing mode or scale

Change the versions of the numbers in relation to a major scale named after the key, but retain the numbers. For example, in changing from major mode to Mixolydian mode, the seventh is flatted, so any melody in major mode would be converted to Mixolydian by changing any note on the seventh step of the scale named after the key to a flat seven.

changing chord type

Change chord types, usually retaining the same numbers generically, but flatting or sharping certain notes in relation to the root of the chord. In some cases, the number type of a chord can be varied, such as changing a sixth chord (-3-5-6) to a seventh chord with 1-3-5-b7.

changing chord progression and cadences

Cadences are short chord progressions that punctuate the beginning or ending of a section. Cadences may be changed to involve different sets of chords, or a cadence may be used to elaborate on a single chord. Each chord in a progression could be represented instead with a cadence of three or more chords. Common cadences involve root movement ascending in fourths, such as V-I, II-V-I, VI-II-V-I, or any part of the major scale tone series of perfect fourths 7-3-6-2-5-1-4.

changing fingering: octave shape

There are five octave shapes, named and designed after the open position major chords E, D, C, A and G. The fingering for most melodies can be played in any of the five octave shapes and that should be explored, since certain attributes of the melody can be more easily and more fluently played in some octave shapes. Each octave shape has different possibilities in slurring and ease of fingering.

changing fingering: forward slash versus back slash

Most melodies and especially pentatonic and jazz arpeggio melodies that have a range of one octave or less have two basic versions. Viewing the guitar fretboard in an upright position (as in a chord diagram, with the head at the top and the neck vertically below), one version occurs in an octave in the shape of a back slash and one in the shape of a forward slash.

changing fingering: index, middle (or ring) or little finger on low octave root or tone center

Most melodies based on a seven tone scale with the range of an octave or less and arpeggios of four or more notes have three fingering possibilities per octave: one with the index finger on the low octave tone center, one with a middle finger (middle or ring) and one with the little finger on the low octave tone center.

changing slur type

Change between hammer-on/pull-off, slide and bend. When two notes are on the same string, the can be slurred with a hammer, pull-off, slide or bend. The same two notes cannot be slurred when fretted in an adjacent fretboard position where they are on different strings. When playing a melody that originated on acoustic guitar on electric guitar instead, hammers, pull-offs and slides can be converted to bends and releases and vice versa.

Changing Attributes of Rhythm and Form

straight versus swing rhythm

Straight rhythm divides the beat into two equal parts. By default, swing rhythm divides the beat into two parts, the first part two thirds of a beat and the second part one third of a beat.

There are subtle variations of swing rhythm where the beat can be divided into a long first part in between one half and three quarters of a beat, giving the second part the remainder. Closer to 50% can be called *light swing*, while closer to 75% can be called *heavy swing*.

Master musicians can interpret and closely match one another's swing percentage and can even "fade" from one approximate percentage to another!

changing rhythmic words

Rhythmic words are short selections of pulses that divide the beat into two, three, four, six or eight parts. They make up the vocabulary of rhythm from which we build the language of music rhythmically.

Where a theme features a particular rhythmic word, the theme can change to another rhythmic word of the same number of notes.

phrasing and rhythmic displacement

Core melodic tones are chord tones of the current chord. By default, the most important ones are the triad tones on which the chord is based. They can functionally be called *target tones*. Generally, you

want to target chord tones on the first beat of the bar. A target chord is a chord which is preceded by melody or chord progression that leads to it.

Phrases can begin on, before or after the first beat of a bar. It is very effective to make patterns of phrases starting in sometimes the same and sometimes different places in relation to the first beat of a bar. Repletion and variation are both good, but don't overuse either. Start a few phrases the same way (*before* the beat, for example), then vary the phrases start by starting at a different location in relation to the beginning of the bar (*on* the first beat of the bar, for example).

To punctuate a phrase, leave a silence or sustain at the end of it, at the end of two bars or four bars.

Vary your phrasing by moving the entire phrase earlier or later in time. It may have originally started on beat three of four beats, and you could change it to start on beat one. It may originally have notes primarily on the beat and, by displacing all of the notes a half beat earlier, you could change it to having the notes primarily before the beat (syncopated). Each of these interpretations has a "sound" which you can conceive to help predict and create phrases.

melodic elaboration and abbreviation

Elaboration. Phrases can be enhanced by adding decorations with slurs, neighboring tones, scale or arpeggio passages, etc., while retaining the core melody.

Abbreviation. A melody is abbreviated by going closer to its essence or omitting repetition and omitting less important chords. It is a form of summarizing.

Sequential variations. Vary a single note or small group of notes with a pattern of variations in mind.

harmonic elaboration and abbreviation

Elaboration. Chord progressions with long durations of each chord can be enhanced with cadences that strengthen the temporary tonality of the main chords.

Abbreviation. When chords are changing very rapidly, it is a chore both to listen to and to play. To make it more palatable to the listener and player, the chord progressions can be summarized. That is a whole art within itself. You need to recognize where groups of two or more chords can largely be treated as a single chord.

rhythmic layers

By using different styles of accompaniment (strumming, finger picking, arpeggiating, etc.), you can greatly vary the feel of the music.

themes in rhythmic layers

As with the tonal aspect of music, rhythm is layered. Each section of music uses rhythmic themes. The simplest thematic rhythms involve the fewest accents during a bar or two, while the more complex layers add more to the simple layers.

For each bar of three or four beats, there are usually two or three main accents. These make up the primary layer. Simultaneously, there are more layers. The next layer adds less important accents. A third layer can add still less important accents (usually at a faster rhythmic level), and/or adds more detail through variation during multiple bars.

compatibility

Musical parts need to be rhythmically compatible. Each added part needs to be discernible to the listener as one of three things:

- a duplication, elaboration or abbreviation of an existing part
- an ensemble component which can be combined in a "gear-like" or "dovetail" manner to create an ensemble part
- a part at a faster or slower rhythmic level (by a simple ratio such as doubling, halving or tripling) that is comprehensible at the same time as the other parts

GLOBALIZATION STYLE TABLES

Blues

	acoustic blues			electric blues				
	ragtime/Piedmont	1920-50	1965-	minor pentatonic		blues rock	uptown	jazz blues
Structure Or Design	Lonnie Johnson Rev. Gary Davis Blind Blake Jorma Kaukonen	Robert Johnson Son House Charlie Patton Bob Brozman	Eric Clapton Taj Mahal Ry Cooder Keb' Mo'	mojo voodoo: Howlin' Wolf, John Lee Hooker, Muddy Waters Hendrix	Elmore James Albert King ZZ Top	Freddie King Jimi Hendrix Allman Bros. Johnny Winter, S.R. Vaughan	T'Bone Walker B.B. King Eric Clapton, Robben Ford	Kenny Burrell Wes Montgomery Joe Pass
comping designs								
open chords	■	■	■	■	■	■		
left, right & reggae muting	■	■	■	■	■	■	■	■
linear arpeggios								
patterned arpeggios	■	■	■					
thumb bass, index strum	■	■	■	■		■		
thumb bass, fingers pluck								■
bass/mid/top: five fingers								
bass guitar				■	■	■	■	■
harmonized & walking bass	■	■	■				■	■
edcage movable arpeggios					■	■	■	■
rhythmic strumming			■	■	■	■		
internal accent				■	■	■	■	■
ornamented chords	■	■	■	■	■	■	■	■
cadences	■	■	■			■	■	■
pedal tone progression	■	■	■	■	■	■	■	■
close-voiced triads	■	■	■	■	■	■	■	■
open-voiced triads								
voice leading	■	■	■			■	■	■
solo designs								
minor pentatonic solos	■	■	■	■	■	■	■	■
major pentatonic solos						■		
combine pentatonic types						■	■	■
combine heptatonic types								■
arpeggios & turnarounds							■	■
two-note harmony				■	■	■	■	■
double stops, incl. blues DS						■		■
theme and variation	■	■	■	■	■	■	■	■
slide guitar		■	■		■	■		
fragment patterns						■		
octaves (opt. inter. interval)								■
pivot tone		■	■		■	■		
chromaticizing arpeggios	■						■	■
quartal & quintal harmony								
polytonal melody							■	■
tapping								
harmonics								
pitch variables								
change of key	■				■	■	■	■
change of mode	■		■	■	■	■	■	
change of chord type	■	■	■	■	■	■	■	■
change of fingering						■	■	■
change of slurs			■	■	■	■	■	■
rhythm variables								
straight versus swing			■	■	■	■	■	■
rhythmic words	■	■	■	■	■	■	■	■
rhythmic displacement	■	■	■	■	■	■	■	■
repetition	■	■	■	■	■	■	■	■
adding chords							■	■
summarizing chords							■	■

Rock

	fifties (and early sixties)		sixties (and early seventies)			classic and modern		
	rockabilly	R&B	surf	folk rock	soft rock	punk	hard rock	metal
Structure Or Design	Elvis Pres;ey Buddy Holly Jerry Lee Lewis	Chuck Berry Bo Diddley Ray Charles Little Richard Motown	Dick Dale The Beach Boys The Ventures	Bob Dylan The Byrds The Beatles Crosby, Stills & Nash The Eagles	The Beatles The Rolling Stones Elton John James Taylor Dire Straits Pink Floyd The Police	The Clash The Sex Pistols The Ramones Green Day	Cream/Clapton Led Zeppelin Rolling Stones AC/DC Deep Purple Van Halen Guns 'N' Roses	Black Sabbath Metallica Iron Maiden Ozzy Ozbourne Yngwie Malmsteen Nirvana Foo Fighters Red Hot Chili Peppers
comping designs								
open chords	■			■	■			
left, right & reggae muting	■	■	■	■	■	■	■	■
linear arpeggios		■	■		■		■	■
patterned arpeggios				■	■			
thumb bass, index strum	■			■	■			
thumb bass, fingers pluck		■		■	■			
bass/mid/top: five fingers				■	■			
bass guitar	■	■	■	■	■	■	■	■
harmonized & walking bass		■			■		■	
edcage movable arpeggios		■			■		■	■
rhythmic strumming	■	■		■	■		■	■
internal accent	■	■	■	■	■		■	■
ornamented chords	■	■		■	■		■	■
cadences	■	■		■	■		■	■
pedal tone progression	■	■		■	■		■	■
close-voiced triads	■	■	■		■		■	■
open-voiced triads							■	■
voice leading		■			■		■	
solo designs								
minor pentatonic solos	■	■	■	■	■	■	■	■
major pentatonic solos	■	■		■	■		■	
combine pentatonic types		■					■	
combine heptatonic types								■
arpeggios & turnarounds		■			■		■	
two-note harmony	■			■	■		■	■
double stops, incl. blues DS	■	■		■	■		■	
theme and variation	■	■	■	■	■	■	■	■
slide guitar				■	■		■	
fragment patterns				■			■	■
octaves (opt. inter. interval)							■	■
pivot tone					■		■	■
chromaticizing arpeggios	■	■					■	
quartal & quintal harmony								
polytonal melody							■	
tapping							■	■
harmonics							■	■
pitch variables								
change of key	■	■	■	■	■	■	■	■
change of mode	■	■	■	■	■	■	■	■
change of chord type	■	■	■	■	■	■	■	■
change of fingering	■	■	■	■	■		■	■
change of slurs	■	■	■		■		■	■
rhythm variables								
straight versus swing	■	■	■	■	■	■	■	■
rhythmic words	■	■	■	■	■	■	■	■
rhythmic displacement	■	■	■	■	■		■	■
repetition	■	■	■	■	■	■	■	■
adding chords	■	■	■	■	■	■	■	■
summarizing chords	■	■	■	■	■	■	■	■

Jazz

Structure Or Design	New Orleans	swing	bebop		cool and modal jazz		modern jazz	
	ragtime/Dixieland	big band	forties bebop	hard bop	cool jazz	modal jazz	smooth jazz	jazz rock/fusion
	Scott Joplin Jelly Roll Morton James P. Johnson Louis Armstrong	Cab Calloway Charlie Christian Benny Goodman Duke Ellington Count Basie	Charlie Parker Thelonius Monk Dizzy Gillespie Bud Powell Barney Kessel	Miles Davis Art Blakey Cannonball Adderley Kenny Burrell Grant Green Pat Martino Jimmy Raney	Miles Davis Chet Baker Dave Brubeck Bill Evans Modern Jazz Quartet Wes Montgomery	Miles Davis John Coltrane Bill Evans George Russell Herbie Hancock Wayne Shorter Jim Hall	Wes Montgomery George Benson Larry Carlton Pat Metheny	Chick Corea Mike Stern John Scofield John McLaughin Alan Holdsworth
comping designs								
open chords								
left, right & reggae muting								
linear arpeggios								
patterned arpeggios								
thumb bass, index strum								
thumb bass, fingers pluck								
bass/mid/top: five fingers								
bass guitar								
harmonized & walking bass								
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rhythmic strumming								
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combine heptatonic types								
arpeggios & turnarounds								
two-note harmony								
double stops, incl. blues DS								
theme and variation								
slide guitar								Derek Trucks: Afro Blue
fragment patterns								
octaves (opt. inter. interval)								
pivot tone								
chromaticizing arpeggios								
quartal & quintal harmony								
polytonal melody								
tapping								Holdsworth
harmonics								
pitch variables								
change of key								
change of mode								
change of chord type								
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rhythm variables								
straight versus swing								
rhythmic words								
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repetition								
adding chords								
summarizing chords								

1 How To Study This Course

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- **Who Should Study This Course?**
- **How Long Will It Take?**
- **How Should You Practice?**
- **Good Things to Study˝ First**
- **Playing Posture**

GET ACCESS TO THE ONLINE VERSION

The table of contents on the following pages shows the contents of the entire course. It is over 2,700 pages with hundreds of hours of audio and video online.

Access to the digital version of the print course, with links to online audio and video content is free.

go to this link:

www.guitarimprov.com/gi.pdf

WHO SHOULD STUDY THIS COURSE?

This course is not for beginners. You need a little knowledge and ability before studying this course. Usually a year or so of basic study is enough preparation.

HOW LONG WILL IT TAKE?

It's really dependent on your quality of practice and intensity. You could go from beginner to performer in a few years with good smart work.

Think of it as an ongoing study for the rest of your life. You'll get deeper and deeper into it. Call it a few thousand quality hours to get a thorough start on the entire course.

globalizing musical structure and design

View Globalizing Musical Structure and Design to see what is needed for each style.

HOW SHOULD YOU PRACTICE?

High Quality Practice

"dialing up" the emotive intensity of your engagement like an actor

Control the intensity and tone of your practice like an actor calling up an emotion to play a part. Act engaged and alert and you will be that way. Always think positive and "dial it up".

Practice things you will actually use in playing music. You will do much better if you are engaged in what you are doing. Choose pieces you can get into. Study a few pieces in a row that develop a particular technique or design.

Breathe and use good posture.

repetitions geared for retention

repeating cycles Use high-intensity training as in sports. Practice something you can accomplish within a ten or twenty minute session. You should usually practice repeating phrases that take under a half minute to play once. Perform the phrase over and over with a high degree of focus.

During repetitions of a phrase or exercise, you will usually improve gradually. At some point you will fatigue and start getting worse, usually after a few minutes Acknowledge the point of fatigue and rest about half the time you practiced. Really rest, don't play. Then repeat the cycle (repeat until fatigue, then rest) five or ten times.

play enough cycles to retain Adjust the number of cycles (a set of a repeated event, followed by rest) so you will remember the item the next time you practice. As you get to know your practice habits you get better at predicting the necessary number of cycles for retention.

multiple contexts

Think the song in terms of how it makes you feel. What it sounds like. The melody. The chord progression. The rhythm. The emotive curve, building to a climax near the end.

If you know the piece well in many of these contexts you'll more easily retain it in your memory and more fluently make enhancements to it.

Build modules into larger knowledge and ability. Break down things you are learning to do into small units and plan on putting the units together. For example, memorize phrase by concentrating on the note pattern with the fretting hand separately from picking or plucking hand. Do whichever first is easier, then add the other. Build the phrases into an entire piece.

Avoid Redundancy and Memory Loss

To avoid redundancy and memory loss, wait an appropriate number of days to practice a song or study again so you have no trouble remembering it and retaining proficiency at playing it. Don't practice an item too soon if there are other songs or studies that need work sooner. Technical studies need to be practiced closer to daily.

Practice each item enough that you will remember it until the next time you practice. Learn to predict how many times you need to repeat something in practice to remember it for a given number of days. The number of repetitions would be different according to the difficulty of the piece and your goal number of days. Hypothetically, if a particular person practiced a particular four bar section fifteen times, and was therefore able to remember it for four days: in three days it would be redundant to practice it and in five days you would experience some memory loss. The periods of time between practice of any particular item should be of increasing lengths of time, as you build a stronger memory.

Practice each phrase with enough repetitions to remember it while you are working on the next phrase. By studying multiple aspects of a piece such as technique, rhythm, phrasing and harmonic theory, you build memories in different parts of your brain and therefore create a greater total awareness of the piece.

Learn the Part Right in the First Place

Get it right in the first place. It is a waste of time to have to go back and re-learn parts.

Practice new material within 48 hours of a lesson or media study, preferably the same day as the lesson or media. Use visual input (tablature, diagrams, standard notation or watching a video with cueing ability) very carefully at first, while you are memorizing the part.

study techniques

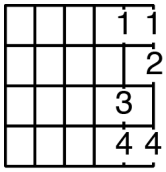
Develop principles of study techniques and drills creatively to meet challenges in your playing of songs. Isolate difficult sections and practice them slower at first. Isolate any difficult technique required for each hand, such as practicing chord fingerings with a simple strum.

Learn to make up exercises to overcome difficult sections that trouble you. Break the troublesome part down to components and work on each separately. For example, count and clap the rhythm. Go over the fingering first without rhythm. Then put the two together. If a fretting technique is difficult for you, make up an exercise for it. Always make your exercises musical, so they have some relationship to something you will play.

fingering

Carefully learn each note with good principles of fingering. Take advantage of the more capable fingers, sometimes avoiding fretting with the little finger. When avoiding use of the little finger, you typically will span two frets with the index and middle fingers, with an "empty" fret between then.

Prepare for the occasions when the little finger should be used by heightening the ability to fret with the little finger. This is typical of more complex parts that use four consecutive frets on the same string or patterns like whole step (two frets), half step (one fret) on one string and half step, whole step on the next, as shown below in playing ascending notes from the second through first strings. It doesn't matter what position (fret) you play this at.



rhythm

If you are reading tablature or if you are reading music without a great reading ability, be sure to listen to any available recordings to mimic the rhythm. Learn the placement of each note (or group of notes) in relation to the beat. Progressively establish an even tempo.

In three steps: count the rhythm, then vocalize it, then memorize its sound. Start looking at the standard music notation above the tablature to get graphic cues as to the duration of notes, even before you completely understand how to read it.

Progressive Study

Work on music that is a little challenge for you, so you can accomplish in a few weeks at most. Start at a tempo that is slow enough that you make 5-10% errors. Work until perfect, then increase the tempo slightly. A phrase is around 8-20 events (notes or chords). Practice short phrases, then join them together.

learning with recordings

- Play with the original recording slowed down enough to allow you to play with it. Gradually increase the speed of the recording, so you can keep up with it.
- Learn to play the melody and chords separately first.
- If the part you are learning can be sung, sing it along with the original recording and sing the before you play it on the guitar. Then play it while you are singing.

- If you can play the chord progression while singing the melody, do it.

media aids

Software can enable you to slow down songs, change them to the key you need or cue sections of the songs for study.

On an Apple Macintosh computer, you can use Quicktime 7 (not Quicktime X) by selecting "show A/V controls" in the window menu and adjusting the speed at the lower right. Get Quicktime at http://support.apple.com/downloads/#quicktime. Even better, get the more capable Amazing Slow Downer at http://www.ronimusic.com

On a PC, you can use Windows Media Player as follows: Begin playing a file. Click the arrow below the "now playing" tab, point to "enhancements", and then click "play speed settings". Move the "play speed" slider to the speed at which you want to play the content, or click the "slow, normal, or fast" link. To select speeds between the labeled play speeds, in the "enhancements" pane, clear the "snap" slider to common speeds check box. To hide the settings, click the "close" button in the "enhancements" pane.

Play with a metronome http://www.webmetronome.com or http://www.metronomeonline.com

Record yourself on one channel with the original recording on the other channel with software like Audacity (free): http://www.audacity.sourceforge.net

practice with a looper

It's great to practice with a looper, especially if you re-record the accomaniment every time, so you get better at it. My favorite loopers are the Boss RC-1. Boss RC-2 and the TC Electronics Flashback series.

GOOD THINGS TO STUDY FIRST

Reading Tablature and Chord Diagrams

If you are not already able to read chord diagrams and tablature, see Chord Diagram and Tablature Quick Start.

Chords and Scales

Your first approach to most songs should be strumming or plucking the chords and thinking the melody. To be able to do this, learn the first 19 chords or the first 35 chords. Use them in songs and in the progressions used below in Learning Keys With Chord Progression.

Number and Letter Cycles

Study the number and letter cycles in Note Sets, Structures and Design. You should begin with stepwise, thirds and fourths in numbers in the key of C (all natural notes). Then relearn to rotate each cycle so it aligns each of the other keys with "1" in the cycle and apply the key signature. For example, the cycle of thirds for D major would start with "D" at the "1" and cycle around with the letters "D-F-A-C-E-G-B D", just like the did in the C major cycle, except sharp the "C" and sharp the "F".

Octave Shapes and Intervals

Learn at least to identify each of the five octave shapes. Learn the intervals necessary to construct a major chord.

Rhythmic Words and Comping Rhythms

rhythmic words

Like the words that make up our verbal languages, music is made up of common short rhythms, which I call *rhythmic words*. Start building your library of rhythms by memorizing the most common rhythmic words to both recognize them when you need them in playing songs and to improvise rhythms in your own accompaniment and solo parts.

comping rhythms

Comping rhythms are used to create accompaniment parts. Memorize them and learn to vary them. You can memorize them by ear in the Comping Rhythms section of Rhythmic Words And Comping.

Major Scale Note Names

learn major scale note names first by playing chord progressions

Song are built with scales. Learn the names of the notes in each major scale by playing chord progressions that each use a single major scale. Once you have many memories of chord progressions that each use the notes of a major scale, the note names in every major scale can be more thoroughly memorized with the system of key signatures.

The roots of the songs will teach you the names of the notes in each major scale, starting with chords built on I, IV and V (the first, fourth and fifth steps of each of the keys). Then you can use them to progressively use more keys and chords built on each of the steps of the scale. After I, IV and V, we'll first add VIm (six minor).

Learn the step to step intervals by number in major scales in number and letter cycles. III to IV is one fret. IV to V is two frets. V to VI is two frets, and so on.

Each major scale uses all seven letters, A through G. Each letter is used only once.

I, IV and V are easy to figure out in any key. You just need to get a sense of the notes that need sharps or flats. IV to V is two frets, so if IV is B (as in the key of F#), V has to be C#, since B to C is only one fret. In the key of F, IV has to be Bb, since III to IV needs to be one fret, III is A, so B has to be flat to make it one fret from III to IV.

The chart below can be used to figure out each of these progressions in every key. The chart is in the order of keys (going down vertically) you should use to learn the progressions in all keys.

major scale tone triads in all keys

major scale tone	1	2	3	4	5	6	7
major scale tones	1, 3, 5	2, 4, 6	3, 5, 7	4, 6, 1	5, 7,2	6, 1, 3	7, 2, 4
quality	major	minor	minor	major	major	minor	diminished
formula on root	1, 3, 5	1, ♭3, 5	1, ♭3, 5	1, 3, 5	1, 3, 5	1, ♭3, 5	1, ♭3, ♭5
roman numeral name	I	IIm	IIIm	IV	V	VIm	VIIdim.
no sharps nor flats							
literal names in C	C	Dm	Em	F	G	Am	Bdim.
keys with sharps							
literal names in G	G	Am	Bm	C	D	Em	F♯dim.
literal names in D	D	Em	F♯m	G	A	Bm	C♯dim.
literal names in A	A	Bm	C♯m	D	E	F♯m	G♯dim.
literal names in E	E	F♯m	G♯m	A	B	C♯m	D♯dim.
literal names in B	B♭	Cm	Dm	E♭	F	Gm	Adim.
literal names in F♯	F♯	G♯m	A♯m	B	C♯	D♯m	E♯dim.
literal names in C♯	C♯	D♯m	E♯m	F♯	G♯	A♯m	B♯dim.
keys with flats							
literal names in F	F	Gm	Am	B♭	C	Dm	Edim.
literal names in B♭	B♭	Cm	Dm	E♭	F	Gm	Adim.
literal names in E♭	E♭	Fm	Gm	A♭	B♭	Cm	Ddim.
literal names in A♭	A♭	B♭m	Cm	D♭	E♭	Fm	Gdim.

literal names in D♭	D♭	E♭m	Fm	G♭	A♭	B♭m	Cdim.
literal names in G♭	G♭	A♭m	B♭m	C♭	D♭	E♭m	Fdim.

Learn the Minor Pentatonic Scale and a Few Licks

Short melodic ideas called licks, riffs, motifs or cells are the building blocks of improvisation by ear. Cells are the shortest ones. You'll learn to modify the ones you've memorized and adapt them to fit on new songs.

Study some of the solos in Improv Level 1-Improv By Ear, learn a pentatonic scale fingering or two and start experimenting with licks you'll find in Blues Rock and Swing Blues Cells.

PLAYING POSTURE

I like the combination of my player-specific point of view on guitar playing posture and Ethan Kind's anatomical point of view. Ethan wrote a series of books, curiously available only in Kindle book format on Amazon.com. You can get a free Kindle reader from Amazon for your PC or Mac. Check out An Alexander Technique Approach to Jazz and Rock Guitar Technique.

Feel your body and relax all the muscles you don't need for your activity. The most common cause of fatigue, stress and injury on the guitar is caused by tightening muscles that you don't need. Use only the pressure needed for fretting, adequate tension for form, no more, no less.

Keep your lower back in its nearly straight, naturally-curved shape. Since you are reaching around in a circular manner (seen from an aerial view), your upper back is slightly rounded. Your shoulders should not be forward of the clavicle by more than about a half inch.

Keep the head of the guitar at least as high as the bridge. I keep the neck at more than 45° to the floor.

Sitting Posture

Sit where your knees are at least as high as your hips. The rounded part of the guitar in the middle of its body is meant to rest on your leg. In classical guitar style, you can raise the knee on the fretting hand side with a foot stool to allow the fretting hand arm to bend less at the wrist. Flamenco players put the ankle on the fretting hand side on top the leg on the fretting hand side, just before the knee.

Using a foot stool or similar device, elevate your fretting-hand foot six to nine inches to raise your upper leg on your fretting hand side. Put the other foot flat on the floor. I built a wood block assembly with 4"X4" wood, strapped it together with cable ties, screwed it to a 1" solid wood base. I got tired of foot stools breaking.

Avoid bending your fretting-hand wrist. When you need to bend it, try to make it momentary.

Tilt the upper part of the guitar body toward you about two to six inches (from a vertical position). Don't lean over and look at the fretboard much. Learn to look at the edge of the fretboard and feel where your fingers are on the fretboard. You won't develop a good spacial sense otherwise.

Keep the neck of the guitar about one open hand span away from your fretting hand shoulder. This will help in keeping your fretting hand wrist straight. Rather than keeping your fretting hand fingers parallel to the frets, generally play with your fingers angled to the frets about 10° to 20°, so the tip of the index finger is right up against the fret, but the base of the index finger is over half way toward the next fret on the head side. This is very similar to the fingering hand posture of a violinist.

tweaking of the distance between the neck and the fretting hand shoulder

The distance can be tweaked by fretting four-finger G chord (sixth through first string GBDGDG), then moving it to the seventh fret (first finger at the seventh fret). Start with the neck three or four inches from your fretting hand shoulder. Unless you have extreme hyper-extension in your fingers (one of my students can bend each finger tip to a full 90°!), when you get to around six to ten inches between your fretting hand shoulder and the guitar neck, the fifth string should become muted by the fretting hand second finger. Find the "tipping point" distance where this begins and use the distance and inch or two closer to your shoulder as a safety margin.

Standing Posture

Sitting posture should generally mimic standing posture in regard to the angle of the neck, the distance from the fretting-hand shoulder and the distance in tilting the guitar back from the imaginary vertical plane.

Most of us sit too much. I had major back surgery a few years ago, primarily caused by too much sitting. Alternate your playing between sitting and standing. Take a five minute break every 20-30 minutes.

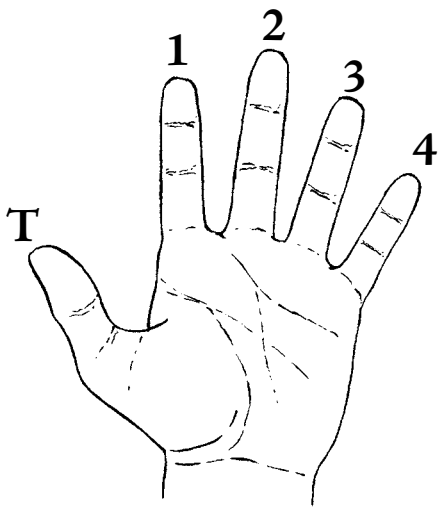
2 Chord Diagram and Tablature Quick Start

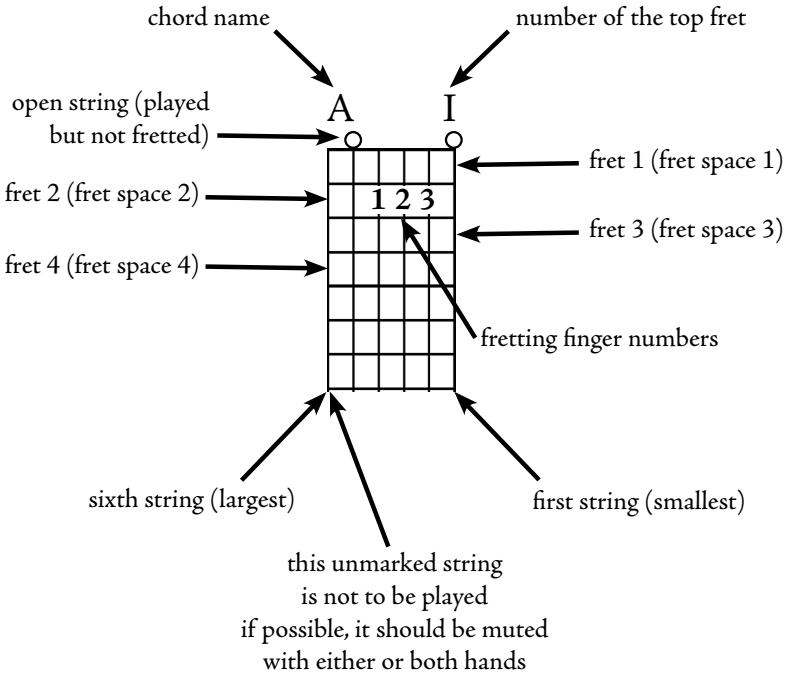
- **Chord Diagrams**
- **Tablature**

CHORD DIAGRAMS

physical relationship of a fretboard diagram to a guitar

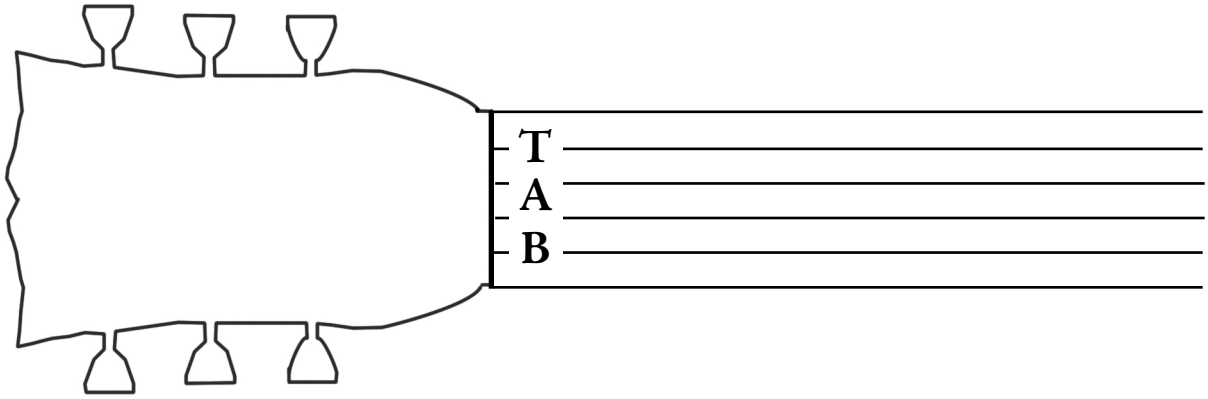
symbols for the fingers of the fretting hand



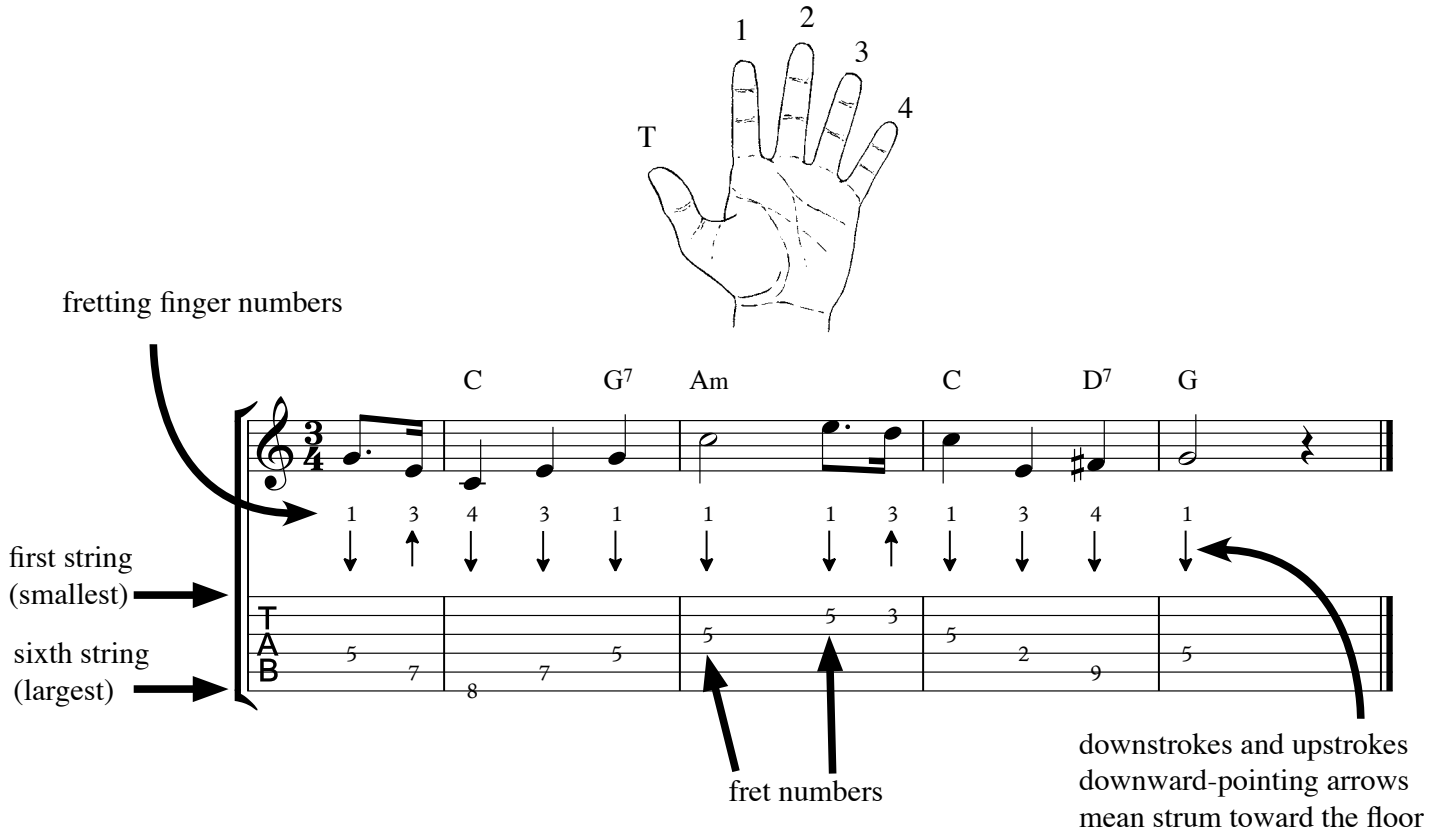


TABLATURE

This system of notation is a graph of the guitar strings from the perspective of looking down on the guitar as you're playing it. The tablature indicates where each note is fretted. Numbers on the strings indicate frets and are written from left to right in the sequence they are to be played.



Symbols above each tablature number indicate the suggested fretting finger. In reading the tablature, remember that the top string on the tablature is the smallest, first string.



3 Practice and Learning

THREE STEP SONG DEVELOPMENT

Build a Song List

finding songs

Make a list of songs you would like to learn. Use your music collection. Go online and try youtube, iTunes or Amazon to audition songs. Try music streaming services like Pandora, Google Music, Apple and Spotify. Talk to friends and family and get suggestions.

order by difficulty

Prioritize your song list so you can work on the easier songs first. You could make multiple lists according to difficulty. On a computer, you could make an editable list of the songs by difficulty.

batching songs

It is very useful to study songs in batches, where the songs share an attribute such as a particular technique, fingering or rhythm. By studying a particular technique such as picking on a number of songs, you will come across many aspects of the technique and be prepared for a wider range of picking styles and challenges.

Three Steps to Learn a Song

step 1. basic version

First listen to the song. Music usually has one, two or three significant parts that require your attention to understand, such as a vocal melody and an interesting bass part. In a band recording, two or more of the instruments, like the bass and drums may be playing versions of the same idea.

Listen to the music multiple times. Focus on the vocal or instrumental melody a few times through the song. Separately, listen with your focus on a second part, like a bass part (or the bass/drum composite).

Find a way to play the chords in as simple manner as necessary to get through the song right away. Simplify the chords. Simplify the rhythm, as much as strumming each chord only once, if necessary. However you do it, find a version you can play right away.

Think the melody while you play, humming it or singing it. If you can find the melody on a guitar or piano, it is very useful to sing it while playing it.

step 2. parts: structure and design

Learn versions of accompaniment and solo parts for the song, copied from recordings, read from books or periodicals.

Break down step two into three stages by playing studies on the chord progression:

stage 1: chords with comping rhythms

stage 2: arpeggios with melodic rhythms

stage 3: scales and melody with harmonic and rhythmic variation

For any key, the fretboard can be segmented into five areas, called octave shapes. Preview the five octave shape areas of the fretboard for the song in stage 1, stage 2 and stage 3, then focus on one octave shape (for the key) first. Choose the octave shape area that is easiest. The Little Wing Study in Pentatonic Scales and Octave Shapes shows this way of thinking.

In stage 1, you are playing the chord progression in an area of the fretboard, using appropriate comping rhythms. This will build your memory of rhythms and fingerings. The chord fingerings will give you a memory of groups of notes that are part of each chord.

In stage 2, arpeggio fingerings give you a more complete knowledge of the chord tones in a fretboard area and show build a library of melodic rhythms in your mind. See Triad Arpeggio Exercises.

In stage 3, you use scales and arpeggios with harmonic and rhythmic variation to create melody. See Theme and Variation.

The ability to create reasonably sophisticated melodic design on one chord should occur early in your development. This both makes it more fulfilling for you and builds memories of ultimately more useful melody.

Chord progression is commonly abbreviated by the improviser. For example,"II-V" chord changes such as Dm7 to G7 in C major can be played discretely as V7 (G7), playing in the temporary key of the V chord (G7) or in the temporary key of the II chord (Dm7). Melody should generally be strong enough to stand alone on one chord before using it on many. So, if you intend to use a melody that sounds V7 over IIm7 - V7 chord changes, it should sound well just on the V7. It should also be reasonably sensitive to the differences between the IIm7 and the V7, so its part played over the IIm7 sounds good also.

Making the melody viable in each style require the appropriate devices and color.

- Rock and blues use hammer, pull-off and bend slurring, more minor pentatonic scales (and less major pentatonic scales), triads with some seventh chords and darkening tones (blue notes), some chromatics, syncopation and a few tonal and rhythmic layers.

- Country music uses more major pentatonic scales (and less minor pentatonic), triads, few chromatics, little syncopation and few tonal and rhythmic layers.
- Jazz uses less slurring, more colorful chords like ninths and altered dominant chords, many chromatics, many tonal layers through varying interpretations of the chord progression through elaboration and abbreviation, much syncopation and many rhythmic layers.

step 3. performability

Maintain a lists of songs you like to play and purposed ones like "dream band song list" or "corporate gigs song list". Delete songs that you won't play again.

This is where you can test out the elements you have worked out in step 2: parts. You will often take a song back to step 2 and develop it further.

When You Think You Can't Do It

You probably have a perfectly good brain and since you're reading this, you're probably motivated. If you don't understand or can't do something, break it down to components. If you don't understand or can't do a component, break it down… and so on.

PLAYING IT RIGHT

How Do You Know You're Playing It Right?

Improvising guitarists commonly practice songs with errors in rhythm, notes and with bad technique. They think they are playing correctly and repeat errors over and over. This is bad. This creates strong memories of the errors.

you can't erase an inaccurate memory

Once you have practiced something with errors many times, you have created an inaccurate memory of a musical part. Without brain damage (not recommended), you cannot erase the bad memory. You can only overpower it with a new correct memory. It is also difficult to prevent the incorrect memory from coming to mind when you play the piece in the future.

get auditory feedback

Make sure you have the part you are practicing in mind correctly and that you are playing it correctly. Record yourself playing it and listen to it played back. An excellent way to do this is to make a stereo recording with a correct version on one channel and your rendition on the other.

In recording programs like Garageband, Audacity, Pro Tools, Logic or Digital Performer, you can put a reference recording like the original artist you are coping in one track and record yourself on another track. Then play back the recording and pan the reference recording track to the left and your track to the right. Adjust the volume so you can clearly hear both at the same time.

Figure out how to slow down the original to 50-70% speed and record yourself playing with it at. Make successive recordings at increased speeds. Go up to 110%, so you can easily play at 100%.

If you don't use a recording program, at least play with the reference recording well-balanced with the volume of your guitar, so you can clearly hear both. Start at slower speeds.

Think It Correctly First wIth "Air Guitar"

Think through the piece first without actually playing guitar. Whenever you can, sing or hum your guitar part, even if only its rhythm in a monotone voice. Then do the same with "air guitar and, upon repetitions, gradually "fade in" touching the guitar until you are actually playing the part.

PRACTICE PLAN

Hopefully, you will see the need for structure in your practice early on, before wasting hundreds of hours of practice by creating bad memories, not building retention and playing redundantly. It is typical that a guitarist will play for years and finally realize that they are not using their practice time efficiently.

Bruce Lee, Jerry Rice, Yo Yo Ma, Tom Cruise, Michael Phelps

Do you think these people randomly practice their art, or do they have a plan? Does Tom Cruise do all his own stunts just banking on the abilities he gained as an athlete in high school and college, or does he have a regimen? Does Yo Yo Ma play whatever he feels like every day, or does he look for areas of improvement and work on them with a plan?

When Eric Clapton recorded with the Bluesbreakers for John Mayall in 1965, he was hired to work eight hours a day on the project. One day, they finished the session after three or four hours. Eric asked his employer, John Mayall what he should do for the rest of the eight hours. John said, "go practice". Eric did.

In the Clint Eastwood film, *Bird*, Charlie Parker, the phenomenal bebop alto sax player is shown in Kansas City playing at a "cutting" contest (informal improv competition). Charlie had practiced hard for the competition, but apparently not hard enough. In the middle of his solo, the drummer gestured the ultimate insult by removing the mounting screw from his crash cymbal and throwing it onto the stage (meaning Charlie was no good). Of course, Charlie was devastated. In the next scene, Charlie has returned to the club after months of practice and enters another cutting contest. No one has ever heard a soloist so good, like he was from another planet!

Daily Technique

Technical studies need to be practiced daily. Neuromuscular connections require regular practice. Look for both weak and strong points in your performance and use technical studies to strengthen weak points and take advantage of strong ones.

Work At the Edge of Your Ability

Repeat phases or technical exercises in a looped fashion at a level of difficulty and tempo high enough to cause your performance to be slightly flawed. Correct the flaws during repetitions, then increase the level of difficulty and tempo. In this manner, you are increasing your capability by working at the "edge of your ability.

Acknowledge Fatigue and Take a Break

As you repeat a phrase or section, you will increasingly improve. Then at some point, you will fatigue. Recognize when flaws in your performance are caused by fatigue. Take a break for a minute, or for about half the period of time you were looping the exercise.

Every 15-30 minutes, take a five-minute break. Leave the area. Relax.

Build Strong Memories

Many guitarists play the same thing when they first pick up a guitar every day for many days. Recognize when you have mastered a piece and give yourself the opportunity to experience something new. Continually find new "pick up" songs.

There are a limited number of songs you can retain in your practice over each period of days or weeks.

build phrases into sections

A single-note phase is typically 8-20 notes, usually 2-4 bars. Build your memory of a phrase (two to four bars) by repeating it. When you think you can remember it while working on the next phrase, go onto the next phrase. Then combine the two phrases. If you cannot remember the first phrase, you should have given it more repetitions.

Likewise built longer sections of music and entire songs, memorize smaller regions of music and joining them together to make larger regions.

section or song repetitions and schedule

Each section or song you practice has to be repeated enough times that you can remember it until the next time you will practice it, no more (redundant), no less (memory loss). Without knowing when you will practice it next, you won't know the necessary number of repetitions. This is the purpose of a practice plan: to know how well you have to memorize each item.

separate the rhythm and pitch

The picking and plucking hand typically plays rhythmically. Isolate the rhythm that it plays by muting the strings with the fretting hand or holding a single chord and playing just the picking or plucking part without the changing notes. Even if you don't read music, use standard music notation as a graphic guideline for the rhythm and listen to any available recording.

The fretting hand generally makes the pitch changes. Memorize the sequence of notes by reading the tablature or standard music notation, keeping the picking/plucking hand idle.

Once the rhythmic and pitch components are strong by themselves, multi-task and put them together, playing the full version of the piece.

separate the melodic and accompaniment components

Guitar parts will often combine melody, accompaniment figures (like arpeggios), bass lines and rhythm-keeping parts. Isolate each part and practice it alone, then combine the parts.

Outline Your Practice

Most musicians don't experience using a record of their practice, but they should. The best approach is to use a written record on paper on in a computer to develop the concept of scheduled and monitored practice for a few weeks or months. As you get more proficient at using the plan, you will need less and less of it written down and can eventually do it in your head or with a brief outline.

cycle in all of the elements during a broad period of time

During every few weeks or months, you should incorporate all the necessary components of your musical performance: expression, melody, rhythm, technique, chord progression, fingering and theory.

a practice log

Making a record of your practice can be very productive. Recording your exercise sets to monitor the growth of your muscles in weight training since muscles grow when exercised at the right frequency, some daily, some every two days or more. Likewise, recording your practice can build memories of musical parts to use in performance.

In a diet program, a written record makes sure you are getting all the proper nutrition. In music practice, you should monitor the components (expression, melody, rhythm, etc.) to make sure they are all getting covered.

a sample log

These instructions are given:

> "We will modify the log as necessary to represent songs and studies you enjoy and are designed to attain you long term goals in music. To the right of each forward slash, enter a number from 0 to 9 to indicate how intensely and intelligently you worked, where "9" is the highest (best) rating. Ideally, you would attain ratings of "9" early on and consistently. Low ratings can be raised by choosing music you enjoy and by making difficult tasks easier by including more progressive steps."

Note: the links (blue, underlined) in the table below are not live.

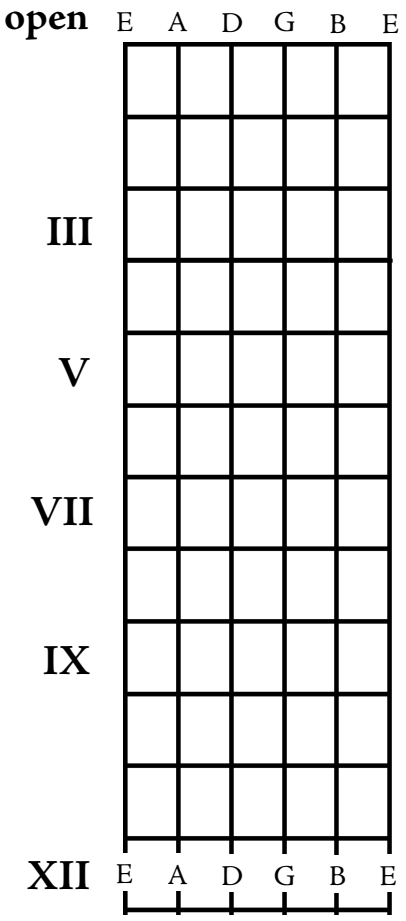
exercise, song or design ✓	Thu,8/1		Fri,8/2		Sat,8/3		Sun,8/4		Mon,8/5		Tue,8/6		Wed,8/7	
song ratings comping design solo design **guitar improv** (quizzes) more log items	min	rate	min	rate	min	rate	min	rate	min	rate	min	rate	min	rate
TECHNICAL WARM-UPS FORM. close&clear, chromatic rolling on 2 strings PENTATONIC. locating, warm-ups, blues rock cell develop. MAJOR SCALE. warm-ups,	5		5		5		5		5		5			
FIRST STEP: BASIC COMPING & MELODIC AWARENESS **Californication** **Sultans Of Swing**	20						20						10	
SECOND STEP: PARTS . Comping and solo structures and designs (incl. copied rhy. guitar + solos from original and solo or comping studies). **Three stages:** chords/ comping rhythms, arpeggios/melodic rhythms, scales/ melody with harmonic/ rhythmic variation. Preview five octave shapes, focus on one octave shape (for the key) first. **Under The Bridge study** **Day In The Life Arpeggios** **Cliffs Of Dover main themes**			20		20				20		20		10	
THIRD STEP: PERFORMABILITY **review song list**														
	25		25		25		25		25		25		20	

4 Memorizing Fretboard Letter Names

- **Memorizing The Open Position and Two Bass Strings**
  - **Open String Names Repeat at the Twelfth Fret**
  - **Root Locations of Open Position Chords**
  - **Duplicate Notes at the Fifth Fret**
  - **Notes Alphabetically up the Strings**
  - **Relating to the Piano**
  - **Memorizing the Letter Names on the Two Bass Strings**
- **Memorizing Letters On All Strings**
  - **"G" fed "CBA"**
  - **Sharps and Flats**
  - **Multiple Instances of Each Note**
  - **Note Names at the Fifth and Twelfth Frets**
  - **The Other Notes**
  - **Notes by Letter Name on One String**
  - **Full-Fretboard Letter Names**
  - **All Natural Notes (C major scale)**
  - **Building Major Scales in the Bass**
- **Songs in Every Key**

MEMORIZING THE OPEN POSITION AND TWO BASS STRINGS

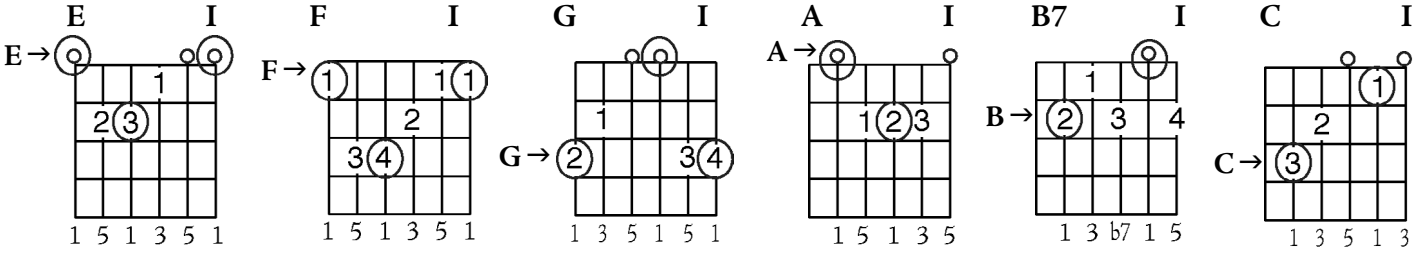
Open String Names Repeat at the Twelfth Fret



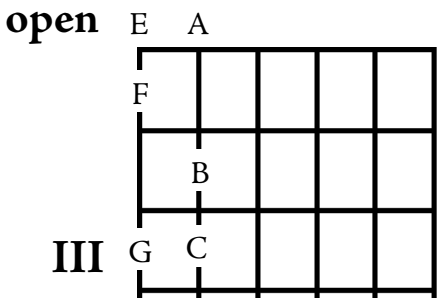
The open string letter names repeat at the twelfth fret. The names of the three bass open strings are "E", "A" and "D" (6 = E, 5= A, 4= D). So, the twelfth fret names on strings 6, 5 and 4 are E, A and D.

Root Locations of Open Position Chords

The root of a chord is the letter name after which it is named (E is the root of an "E" chord). On each of the chord diagrams below, the multiple occurrences of the same root are enclosed in large circles. The large circle on the largest string (on the left of the diagram) is used as a reference. Learn the locations of the largest-string roots for the chords E, F, G, A, B7 and C. The letter name may include a sharp (making it one fret close to the guitar body) or a flat (making it one fret closer to the head of the guitar).



If you have these chords memorized, additionally memorizing the bass note (on the largest string involved in the chord) can provide a method of memorizing the lowest three notes on each string, as diagramed below.

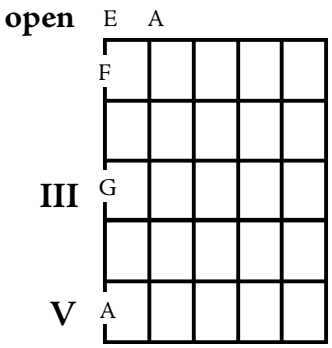


Duplicate Notes at the Fifth Fret

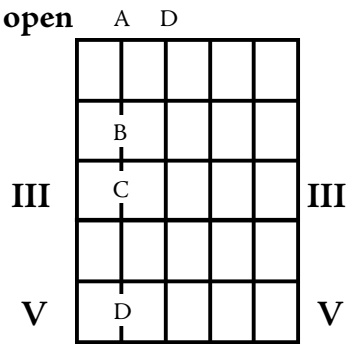
The sixth string, fifth fret is "A", the same note as the fifth string open. The fifth string, fifth fret is "D", the same note as the fourth string open. The fourth string, fifth fret is "G", the same note as the third string open.

One method of tuning, compares the pitch of each string fretted at the fifth fret to the next smaller string open (except the third string, which is not relevant here).

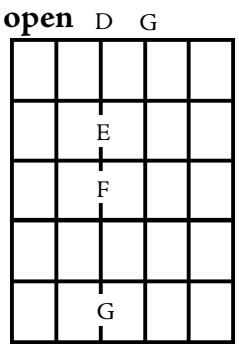
the two "A's" below are the same note



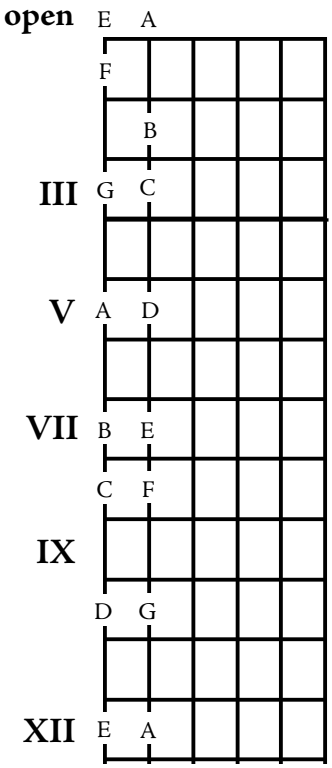
the two "D's" below are the same note



the two "G's" below are the same note



Notes Alphabetically up the Strings

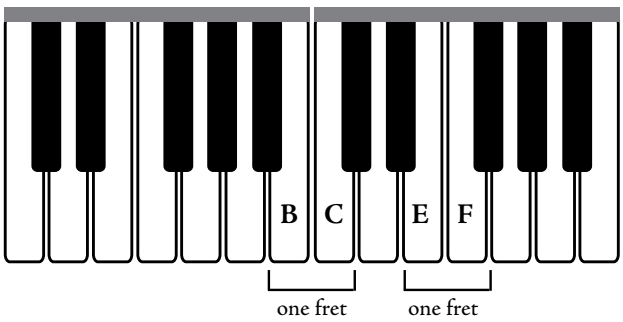


Name the notes alphabetically up the strings, toward the guitar body. In alphabetical order, each note is two frets to the next (with a fret between them), except B to C and E to F which are one fret apart (with no note between them).

Relating to the Piano

The white keys on the piano use letter names with no sharp or flat, called natural notes. The white keys progress in ascending alphabetical order from left to right. The white keys are periodically interrupted with a black key' forming a pattern of two black keys beginning to the right of C, then three black keys to the right of F.

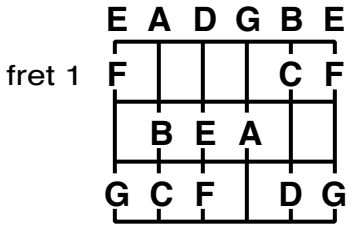
Middle C is immediately or the left of the pair of black keys (see the labeled drawing). B Is to the left of C, showing that there is no note between B and C. Following the alphabet to the right from C, E is to the right of the pair of black keys. F is to the right of E, showing that there is no note between E and F and that they would be one fret apart on the guitar.



Memorizing the Letter Names on the Two Bass Strings

This will show you how to memorize the natural letter names (with no sharps nor flats) on the two bass strings in three steps. Once you have memorized the natural letter names, it is easy to learn the locations for the sharp and flat versions of each letter.

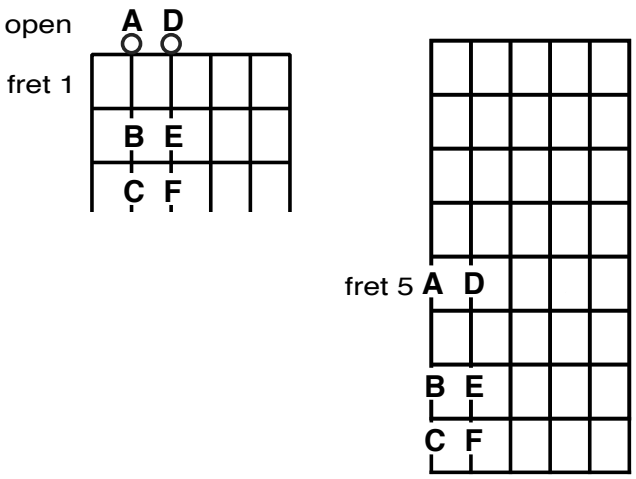
1. Learn the open position note names.

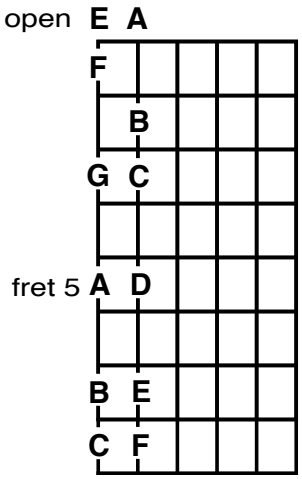


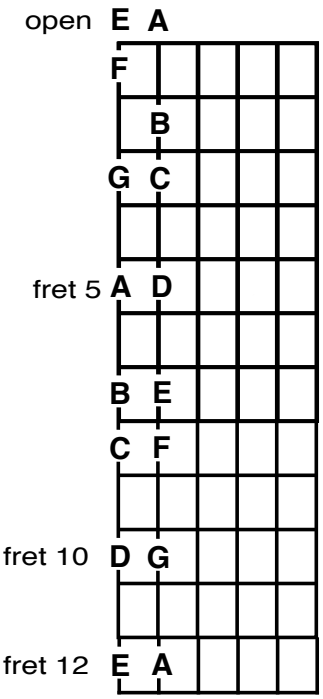
2. Learn the open position notes A, B, C, D, E, F on the fifth and fourth strings as a group (the first diagram below) to the fifth position on the sixth and fifth strings (the second diagram below). Then add that to the notes you've learned in first position (they are added together on the third diagram below).

3. The notes on the twelfth fret are the same names as the open strings (last diagram below). Two frets below each of the notes at the twelfth fret, the note at the tenth fret is the next lower letter in the alphabet. "E" is on the sixth string twelfth fret and "D", the next lower letter in the alphabet is at the tenth fret. "A" is at the fifth string, twelfth fret and "G" is at the tenth fret.

Now you have memorized all the natural notes on the sixth and fifth strings.





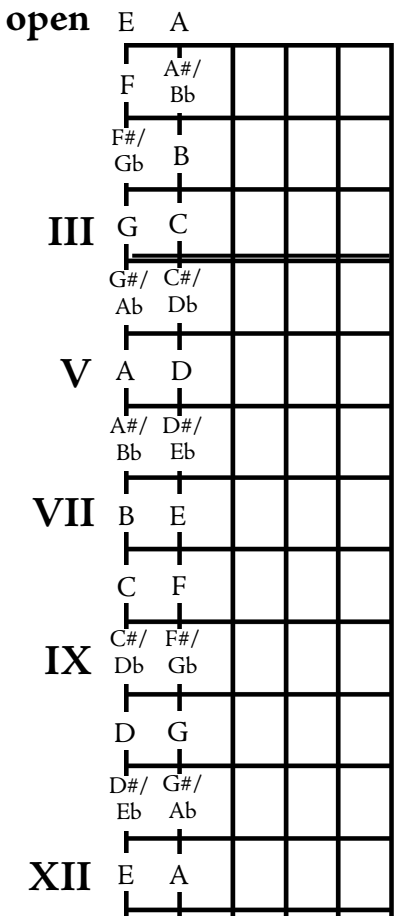


MEMORIZING LETTERS ON ALL STRINGS

"G" Fed "Cba"

Naming the notes alphabetically down the strings (toward the head of the guitar) spells "G" FED "CBA". Think this guy named "G" fed his cat named "CBA". Practice naming the notes on each string, as on the previous page from the twelfth fret down to the open string.

Sharps And Flats



Natural notes have no sharps nor flats. They are A, B, C, D, E, F, G.

The sharp version of any note is one fret toward the guitar body. "A" is on the sixth string, fifth fret. So. A# (A sharp) is on the sixth string, sixth fret.

The flat version of any note is one fret toward the guitar head. "A" is on the sixth string, fifth fret. So. Ab (A flat) is on the sixth string, fourth fret.

Use the rule that any note on the sixth string occurs also five frets lower on the fifth string. The sixth string "C" is on the eighth fret and the fifth string "C" is on the third fret (minus five). Conversely, any note on the fifth string occurs also five frets higher on the sixth string.

Multiple Instances of Each Note

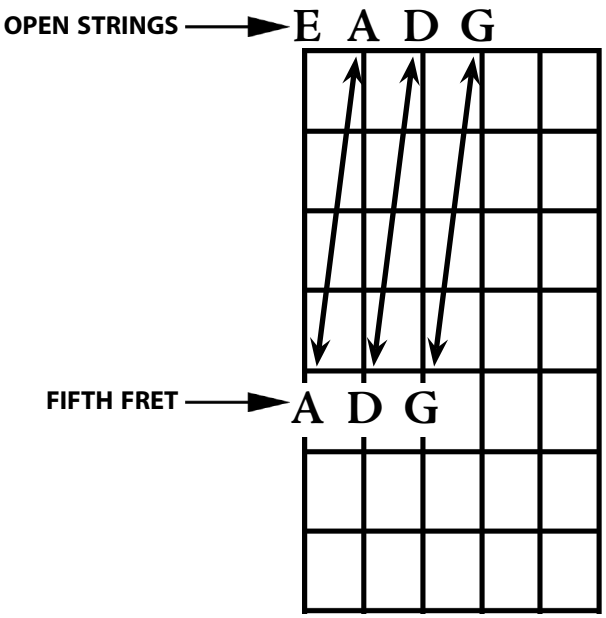
Search for all the occurrences of the note "A" on the diagram above. It is on the sixth string open and twelfth frets, as well as the fifth string seventh. Search for all the occurrences of any other note and you'll discover that every note occurs in two or three places on the sixth and fifth strings.

Note Names at the Fifth and Twelfth Frets

To locate chords anywhere on the fretboard, you need to know the location of all the letter names above on the sixth, fifth and fourth strings (Notes By Letter Names On One String). That's a lot to memorize. Get started by memorizing the note names at the fifth and twelfth frets.

You probably know the names of the open strings (not fretted). The series of letters in the sentence "Eat A Darn Good Breakfast Early" (E-A-D-G-B-E) represents the open string note names from the largest (sixth) to the smallest (first) strings. The note names at the twelfth fret are the same as the open strings. That part is easy!

At the fifth fret on the three largest strings (sixth, fifth and fourth), the note name is the same as the next smaller string open:

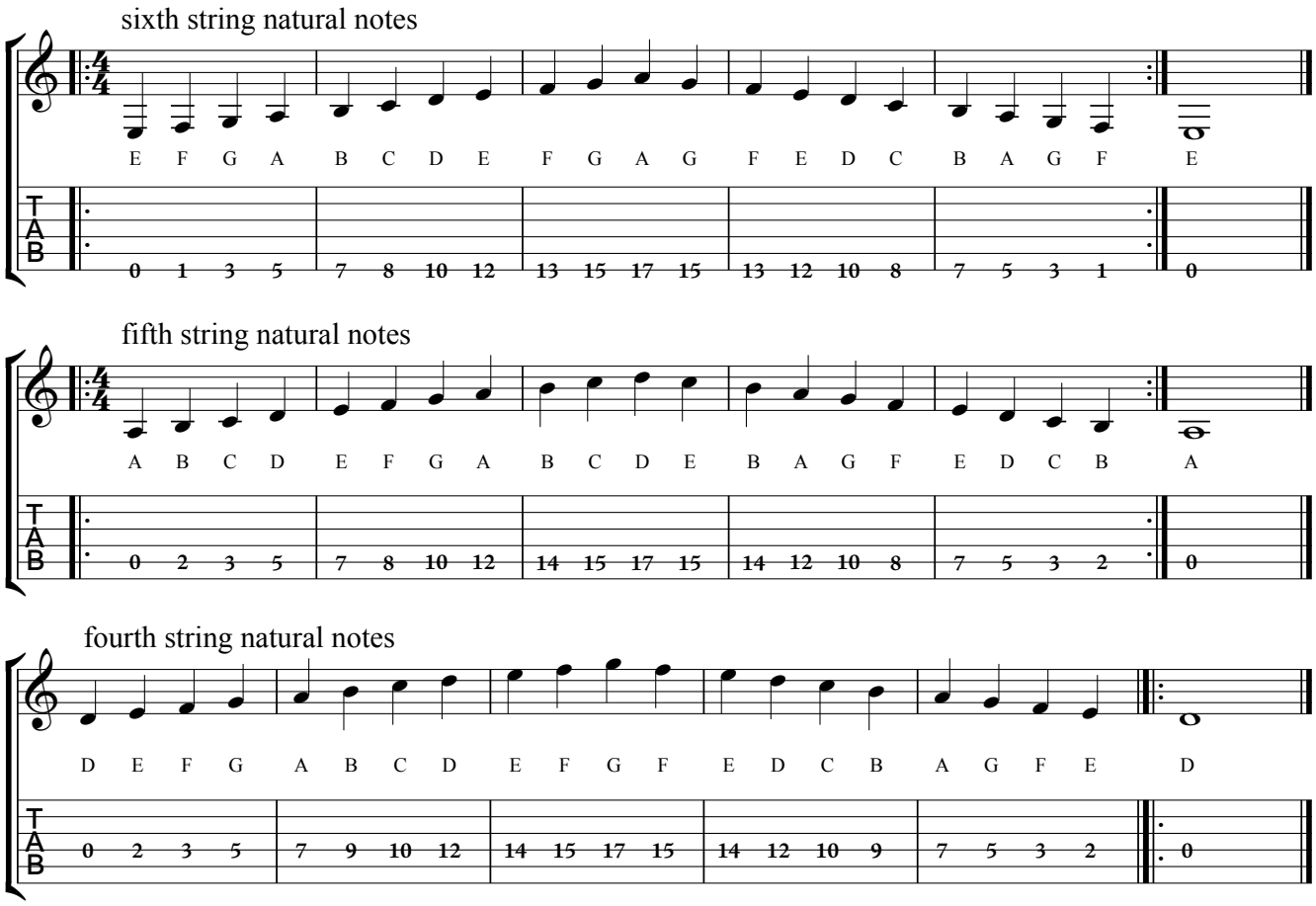


The Other Notes

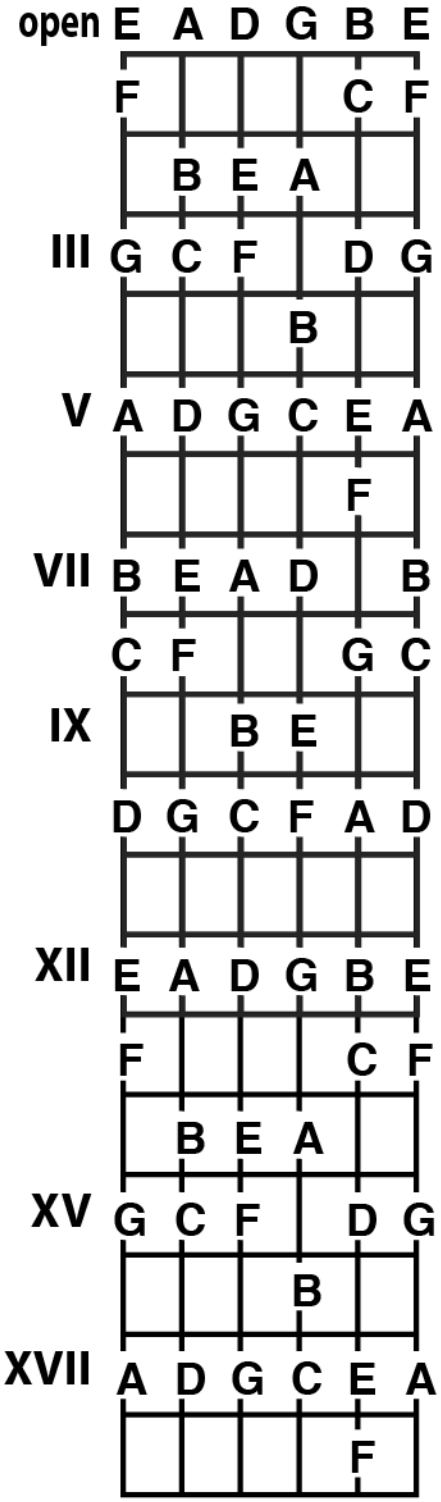
Using the fifth and twelfth frets as points of reference, you can figure out the location of all the other letter-named notes by moving alphabetically up and down a string from a know note.. Beyond that, sharped versions of notes are one fret toward the guitar body (from the un-sharped or *natural* versions) and flatted versions of notes are one fret toward the head of the guitar (from the un-flatted or *natural* versions).

Notes by Letter Name on One String

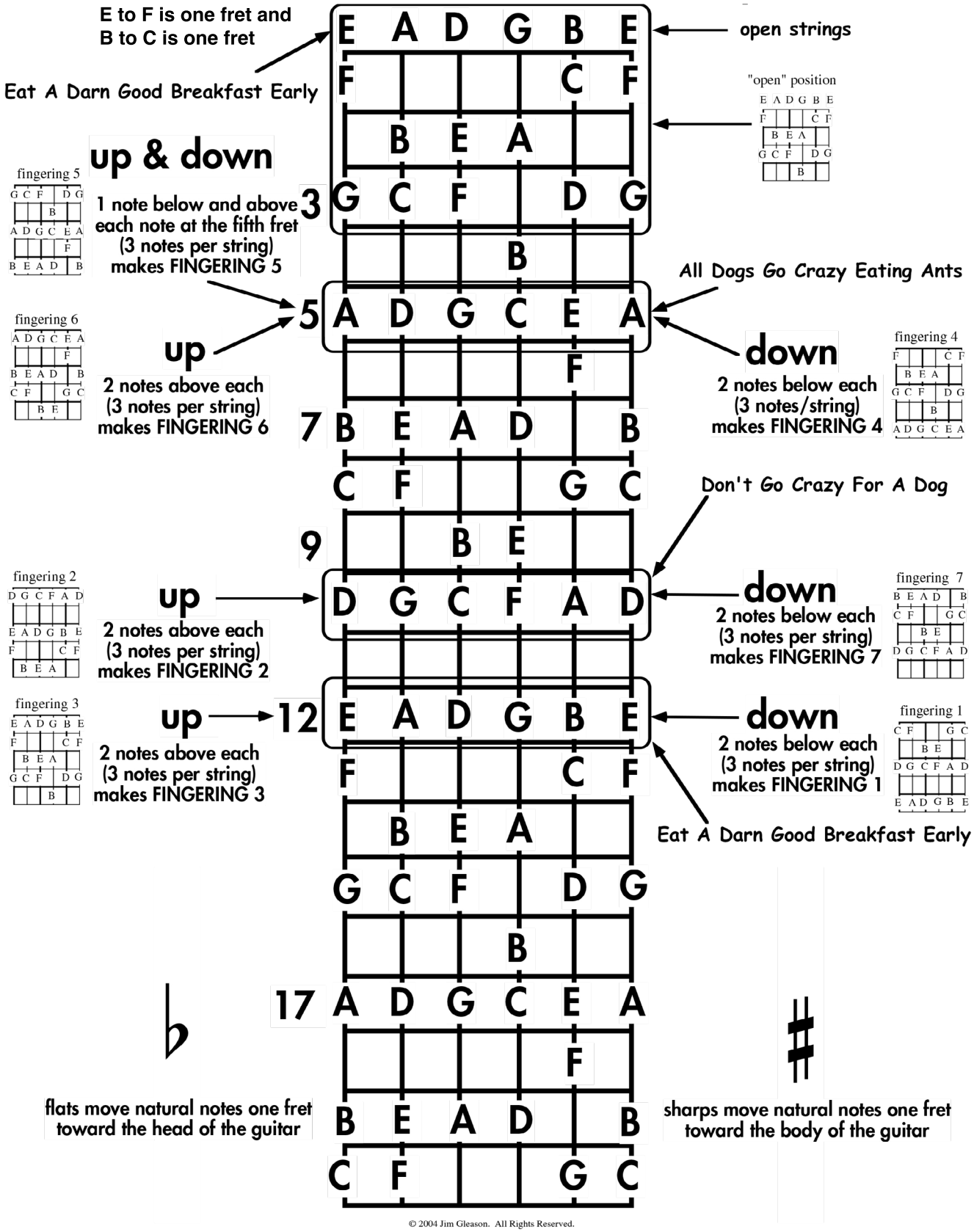
In alphabetical order, each note is two frets apart from the next, except "B" to "C" and "E" to "F" are one fret apart. As you can see by the tablature below, this is true on any string. Notice that where the alphabet starts over with "G" to "A", it is also two frets.



Full Fretboard Letter Names



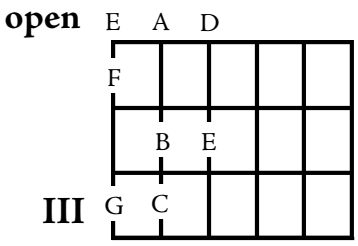
All Natural Notes (C Major Scale)



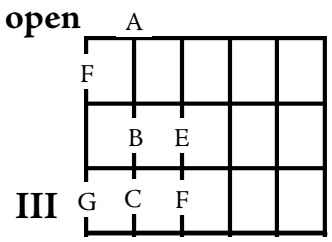
Building Major Scales in the Bass

The C major scale uses all natural notes, no sharps nor flats. Fingerings for it are shown below, each ranging eight notes of the scale. Most of them won't start and end on the note "C", so they may not sound like a major scale to you. They are very useful in playing and constructing melodies and musical parts and to learn the names of the notes. Be sure to use the roman numerals to get oriented to the fret numbers where each scale fingering occurs.

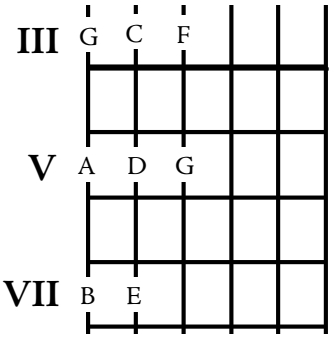
E to E



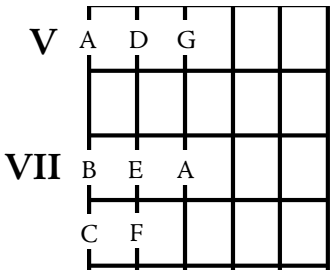
F to F



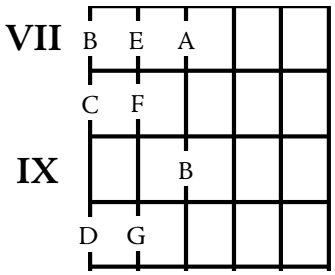
G to G



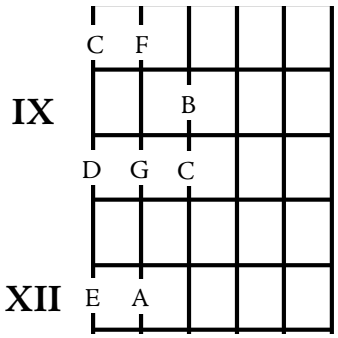
A to A



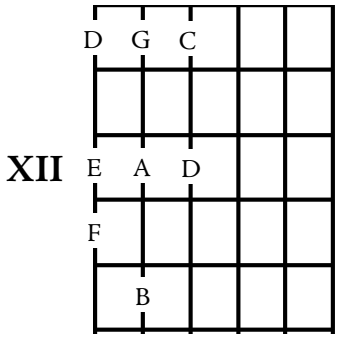
B to B



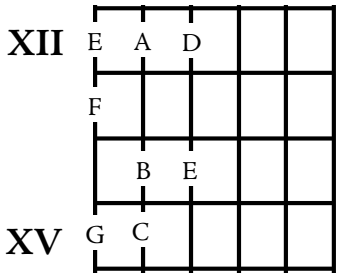
C to C



D to D



E to E



SONGS IN EVERY KEY

(youtube links)

Songs in every key, demonstrating the twelve note names:

E	Not Fade Away
F	Beverly Hills
F#	She
G	Walking Alone
Ab	American Idiot
A	God Save the Queen
Bb	Human
B	Jumpin' Jack Flash
C	Sheena is a Punk Rocker
C#	Gimmie Shelter
D	Whatshername
Eb	Basket Case

5 Reading Notation

- **Reading Fretboard Diagrams**
- **Reading Tablature**
- **Reading Standard Music Notation**

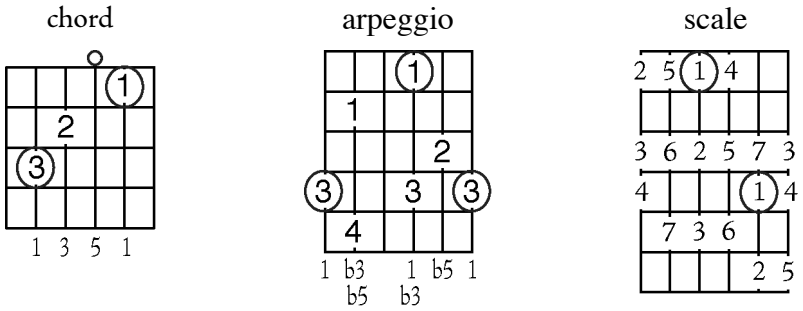
READING FRETBOARD DIAGRAMS

fretboard diagrams for chords, arpeggios and scales

Fretboard diagrams are more commonly used for chords, but often used for scales. Chords sound only one note one each string at a time. When you see more than one note at on a string in a fretboard diagram, it is not a chord.

Arpeggios play the notes of chords, one at a time. They may be played as a held chord, but are more often fingered like scales, one note at a time.

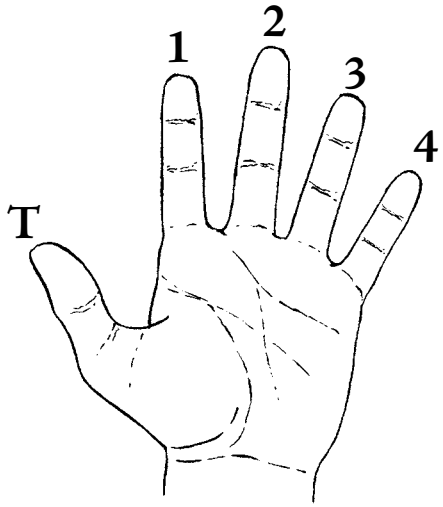
Arpeggios have one or two notes per string, rarely three on a string. Scales have two, three or more notes on each string

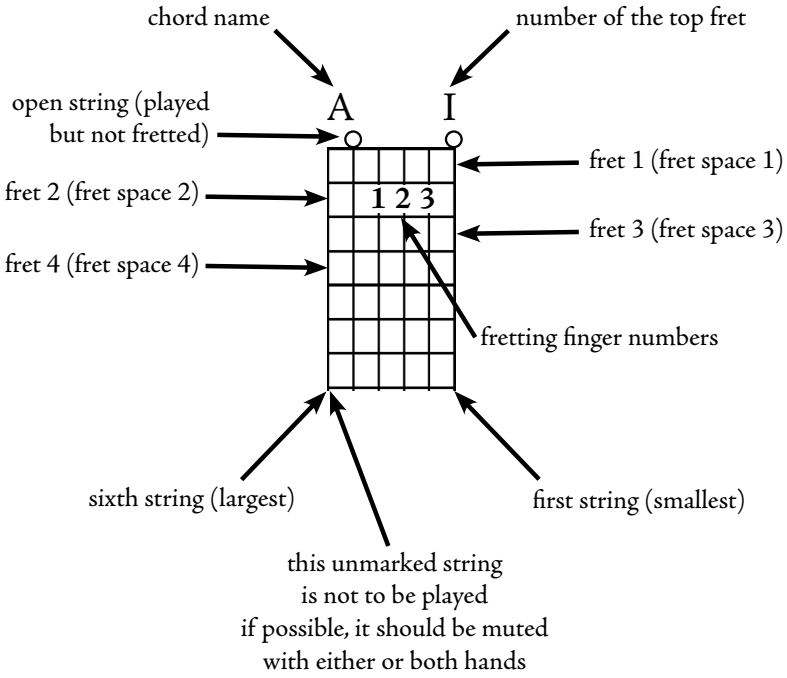


Anatomy of a Fretboard Diagram

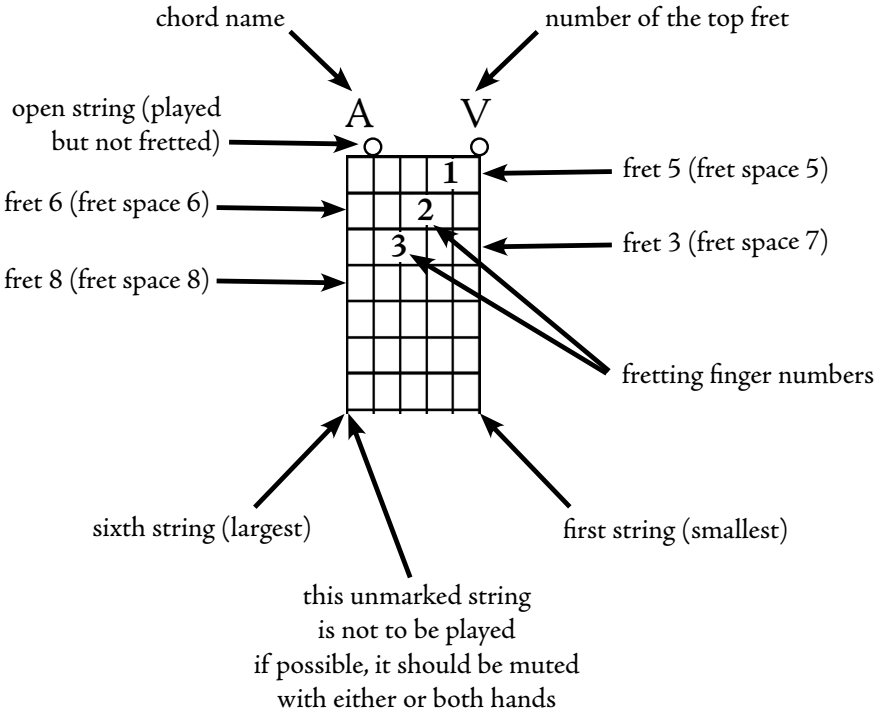
physical relationship of a fretboard diagram to a guitar

symbols for the fingers of the fretting hand

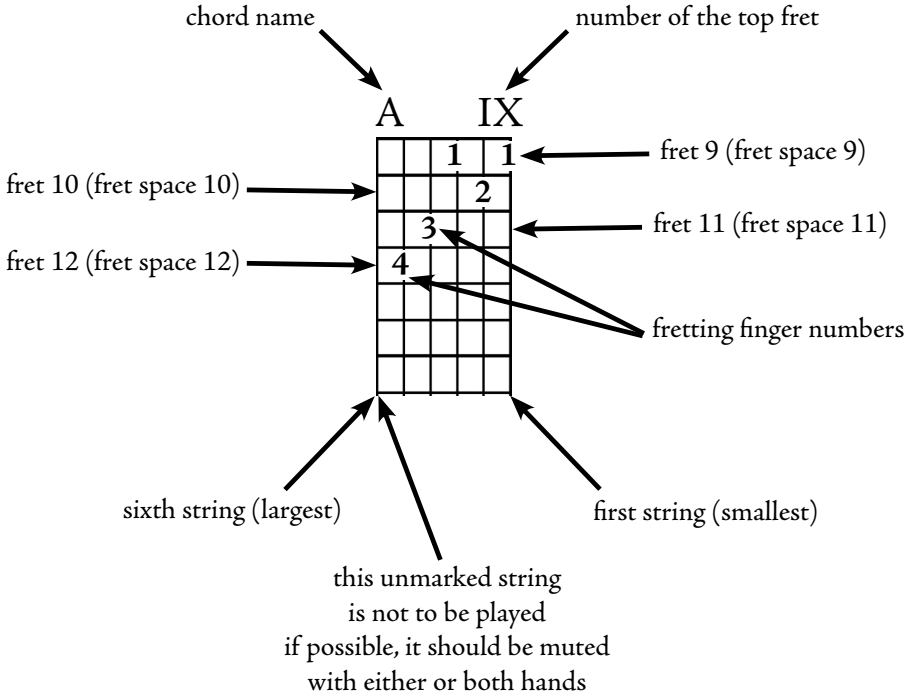




Fifth Position



Ninth Position



Chord Names and Roman Numerals

roots and tone centers

At the upper left of a grid diagram, the chord, arpeggio or scale is named with a letter. On the diagram, I usually enclose the notes that name the chord, arpeggio or scale in a large circle. Letter names may have a flat or sharp immediately after the letter, like "Bb" (B flat) or "F#" (F sharp).

A plain letter name, such as "B" or Bb (B flat) indicates a major chord. A small "m" after a letter name indicates a minor chord. "Bb" means "B flat major", while "Bbm" means "B flat minor". A few more common chord symbol abbreviations are shown later in this section.

A chord root is the note after which a chord is named ("D" is the root of a D major chord). Each arpeggio has a chord root also, since it is a chord played one note at a time ("D" is the root of a D major arpeggio).

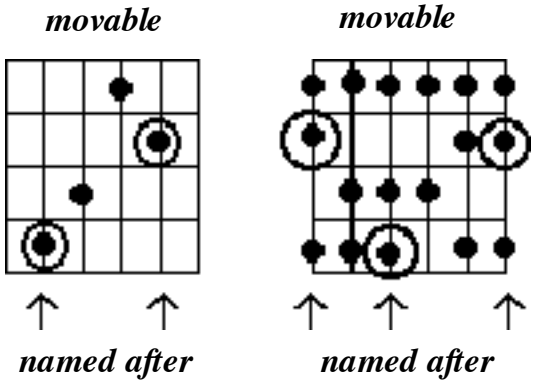
A tone center is the note after which a scale is named ("C" is the tone center of a C Lydian scale).

roman numerals

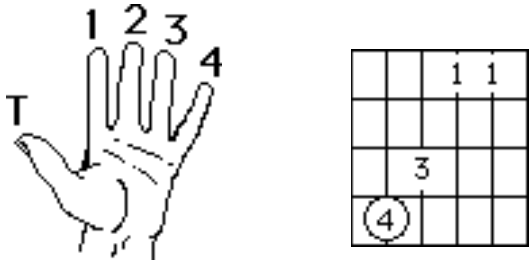
A roman numeral above the top right of the diagram indicates the number of the top fret on the diagram. Roman numerals are used elsewhere in text about music to number the steps of a major scale, especially in regard to which numbered step (from I to VII) a chord is built on.

Movable Diagrams

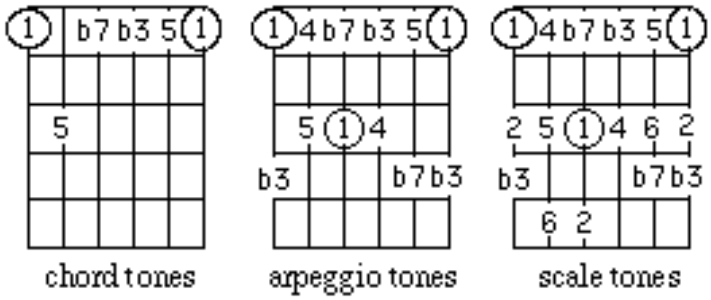
Movable diagrams have no roman numeral on their upper right and therefore have no specified top fret number. They may be placed anywhere on the fretboard according to their chord root(s) or tone center(s). If notes on a diagram are indicated by dots, a circled or enlarged dot indicates the chord root or tone center.



The numbers 1, 2, 3 and 4 within diagrams indicate left hand fingers. The finger number on the chord root or tone center may be circled.

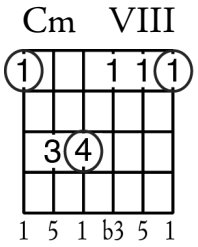


When numbers higher than 4 are used in a diagram, all of the numbers indicate scale, chord or arpeggio tones.



Chord Tones by Number

Most of my chord diagrams show the numbered tone of a major scale in the same key as the chord for each note. Below each string (the vertical lines) on the diagram a number is shown for each note. "b3" would be a flatted third in the key of the chord. So, for a C minor chord, which has a flatted third, "b3" indicates a flatted third, , which is "Eb" (E flat) in the key of C.



Fretboard Diagram Reading Procedure

You read the previous pages and may be anxious to play songs. How complicated can it be? True, chord diagrams are a simple graphic representation of fingers on the fretboard, but be careful not to make an error in reading them. It is quite common that someone new to reading chord diagrams "thinks" they have read a diagram correctly, and doesn't find out until much later (if at all) that they have made an error.

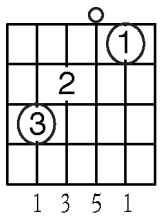
take your time and read chord diagrams right the first time.

- Thoroughly review *Fretboard Diagrams For Chords, Arpeggios and Scales* and *Anatomy Of A Fretboard Diagram* at the beginning of this section.
- Read the header (Gm III) with the chord name and roman numeral for position.
- Read chord diagrams from left to right *slowly*, one string at a time from the sixth (largest) string to the first string (smallest).
- Allow two to three seconds to read each string, until you experience no errors in reading, then read faster.
- Recognize when strings are "skipped" or frets are "empty" (see below).
- Recognize when fingering patterns in scales repeat on adjacent strings and when they change on adjacent strings.

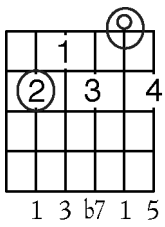
"skipped" strings

When a string is played open or muted in-between fretted notes, it can be called a "skipped" string. Each chord or scale below each has one or more skipped strings.

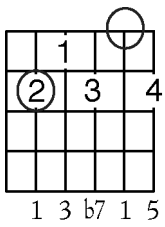
skipped third string



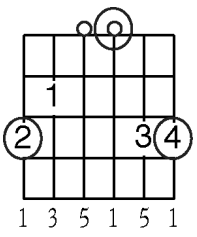
skipped (open) second string



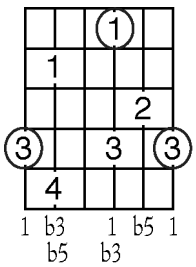
skipped (muted) second string



skipped third and fourth strings

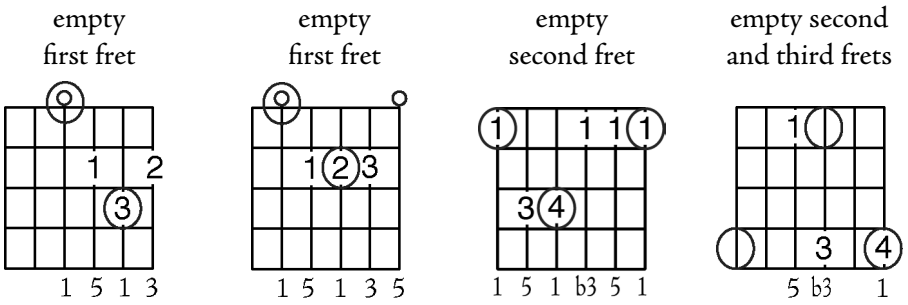


skipped fourth string



"empty" frets

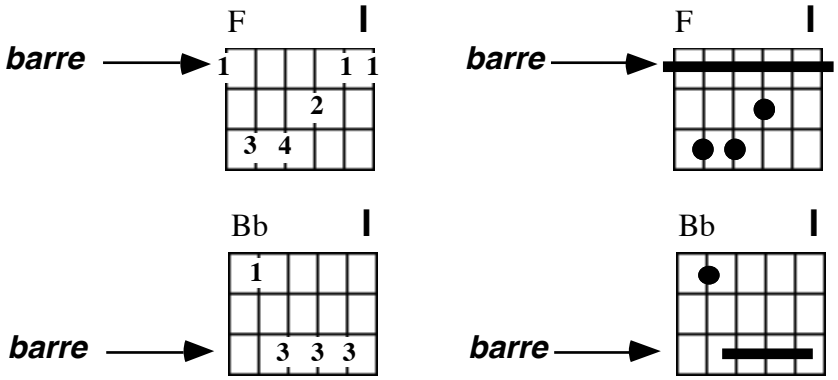
Where a fret in-between your fingers on a chord or scale is not fretted, it can be called an "empty" fret. Each chord or scale below each has one or more "empty" frets.



the barre

The barre is a group of notes all on the same fret of two or more strings. It is fingered with a straight portion of one finger. It uses the classical wrist position, with the base of the fingers parallel to the fretboard. Fret the barre with the harder edge of your finger when you can. Avoid the creases opposite your knuckles (by adjusting the positing of your finger vertically), since they can mute notes.

In the "F" chord shown below with finger numbers, it is left up to the reader to interpret that the first finger is placed across all six strings (as shown by the diagram to it's right).



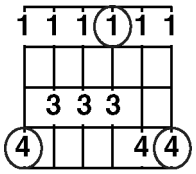
guitarists playing left-handed guitars

For the left-handed guitarist, all diagrams should be imagined in "mirror image". Guitarists playing left-handed guitars should interpret references to the right hand as left and vice-versa.

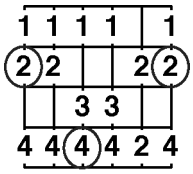
fingering patterns for scales

Recognize when fingering patterns for scales repeat and when they change.

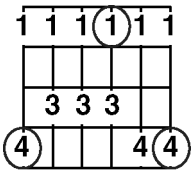
fingers "1, 4" on strings 6, 2 and 1
fingers "1, 3" on strings 4, 3 and 2



fingers "1, 2, 4" on strings 6, 5 and 1
fingers "1, 3, 4" on strings 4 and 3

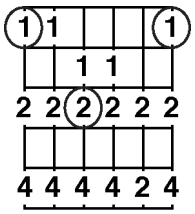


A whole step is a "two fret" interval, spanning three consecutive frets, where the middle fret is "empty". Strings 5, 4 and 3 in the diagram below use a whole step interval.

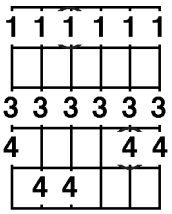


A "double whole step" refers to part of a scale fingering uses two consecutive whole steps on the same string. They can be fingered with fingers "1, 2, 4" or "1, 3, 4". Players with a wider span between their ring and little fingers tend to prefer the "1, 3, 4" fingering. The fingerings below have double whole steps.

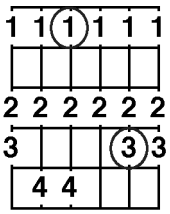
double whole step
on strings 6,5 and 1
with fingers 1, 2 and 4



double whole step
on strings 5 and 4
with fingers 1, 2 and 4

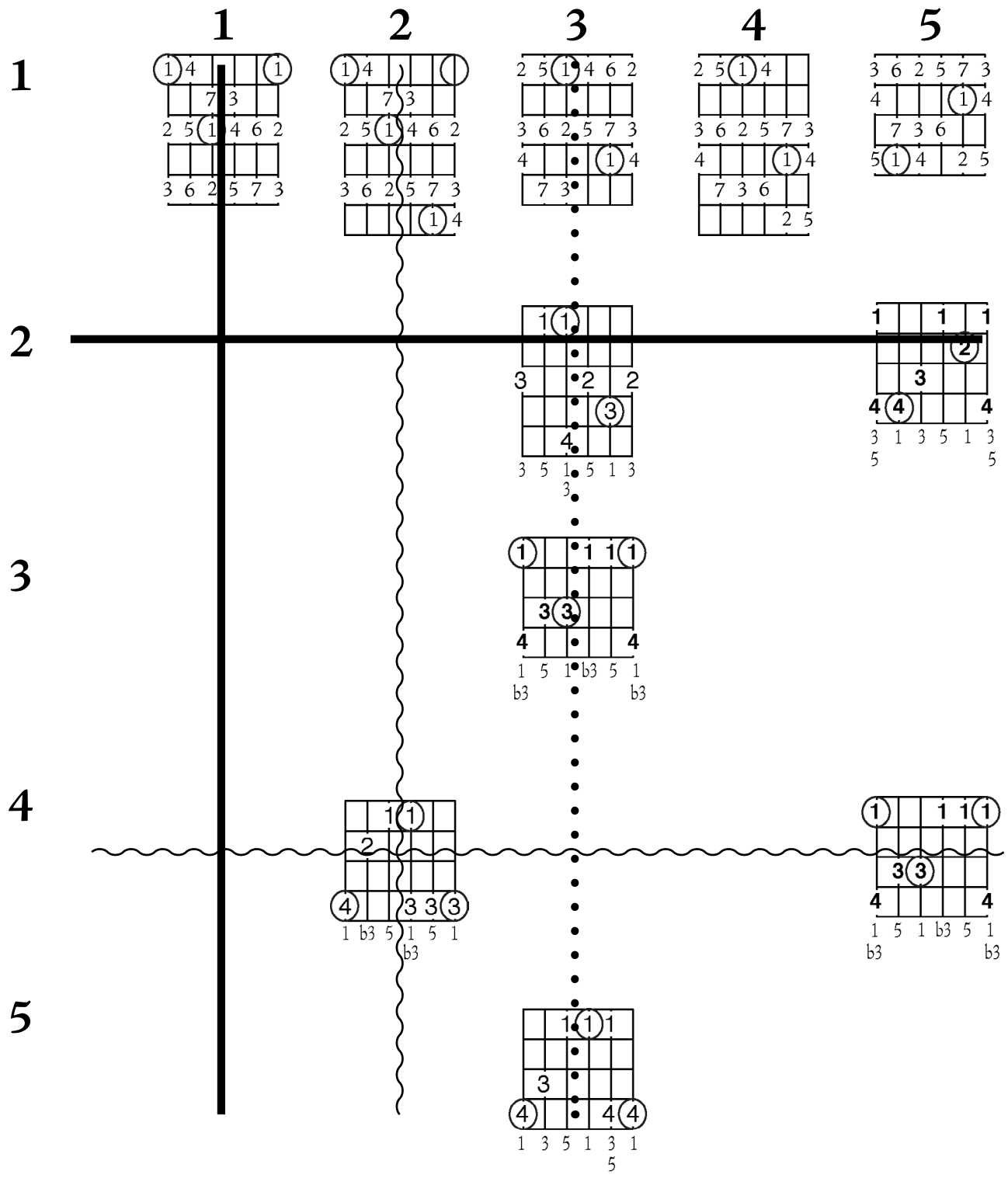


double whole step
on strings 5 and 4
with fingers 1, 2 and 4



Columns and Rows of Grid Diagrams

Columns are vertical. Rows are diagonal. The first column and the second row below each have a straight line drawn through them. The second column and the fourth row each have a wavy line drawn through them. The third column has a dotted line drawn through it.



Chord Abbreviations and Symbols

7 = seventh chord (dominant)

7#5 = seventh sharp five chord (dominant)

7b5 = flat five chord (dominant)

7#9 = seventh sharp nine chord (dominant)

C = C major chord

6 = sixth chord (major sixth chord)

6/9 = sixth add nine chord

Δ7 = major seventh chord

Δ9 = major ninth chord

/9 = major add nine chord

m7b5 = minor seventh flat five chord

m(ma7) = minor, major seventh

n3 = no third

n5 = no fifth

9 = ninth chord

9#5 = ninth sharp five chord (dominant)

9b5 = ninth flat five chord (dominant)

°7 = diminished seventh chord

Cm = C minor chord

m6 = minor sixth chord

m6/9 = minor sixth add nine chord

m7 = minor seventh chord

m9 = minor ninth chord

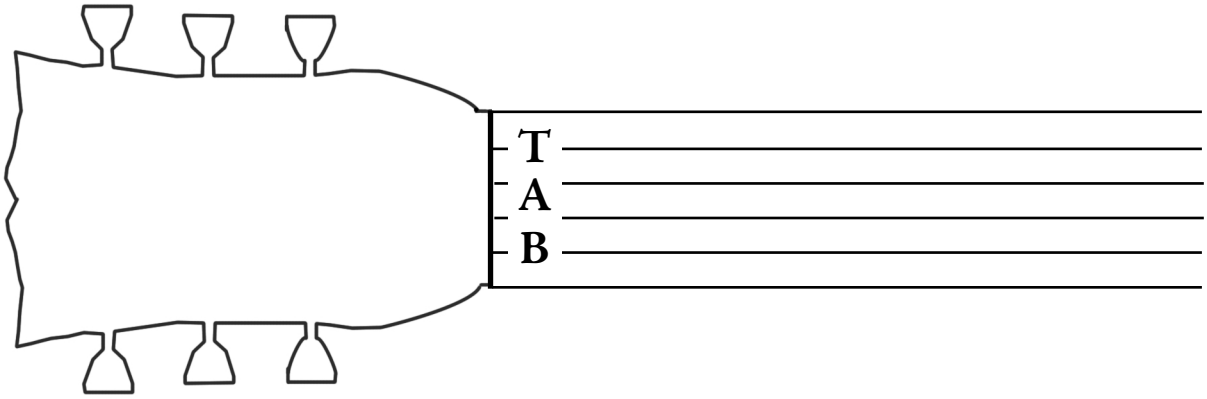
m/9 = minor add nine chord

sus. 4 = suspended fourth chord

sus. 2 = suspended second chord

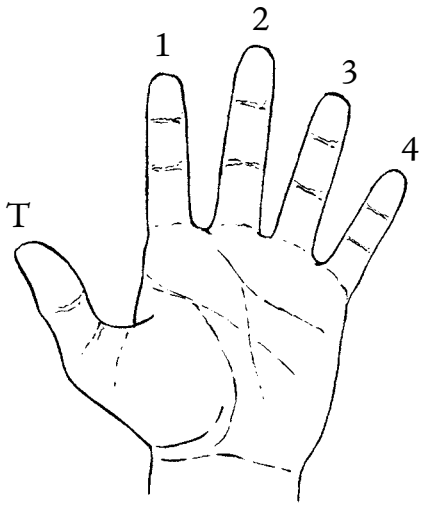
READING TABLATURE

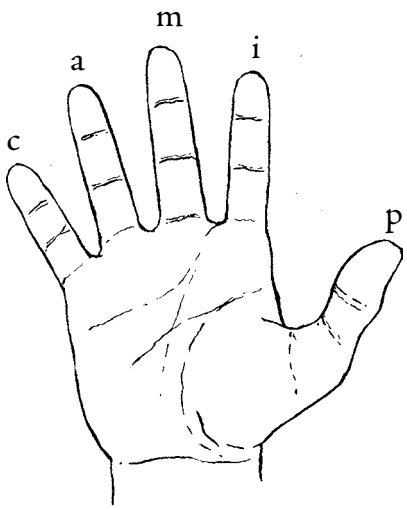
This system of notation is a graph of the guitar strings from the perspective of looking down on the guitar as you're playing it. The tablature indicates where each note is fretted. Numbers on the strings indicate frets and are written from left to right in the sequence they are to be played.



symbols for fingers

The symbols that indicate the fingers of each hand are shown below. They are typically placed below the standard music notation, between the music notation and the tablature. The plucking hand finger symbols are abbreviations for Spanish words, such and *anular* as in annual ring around the sun.



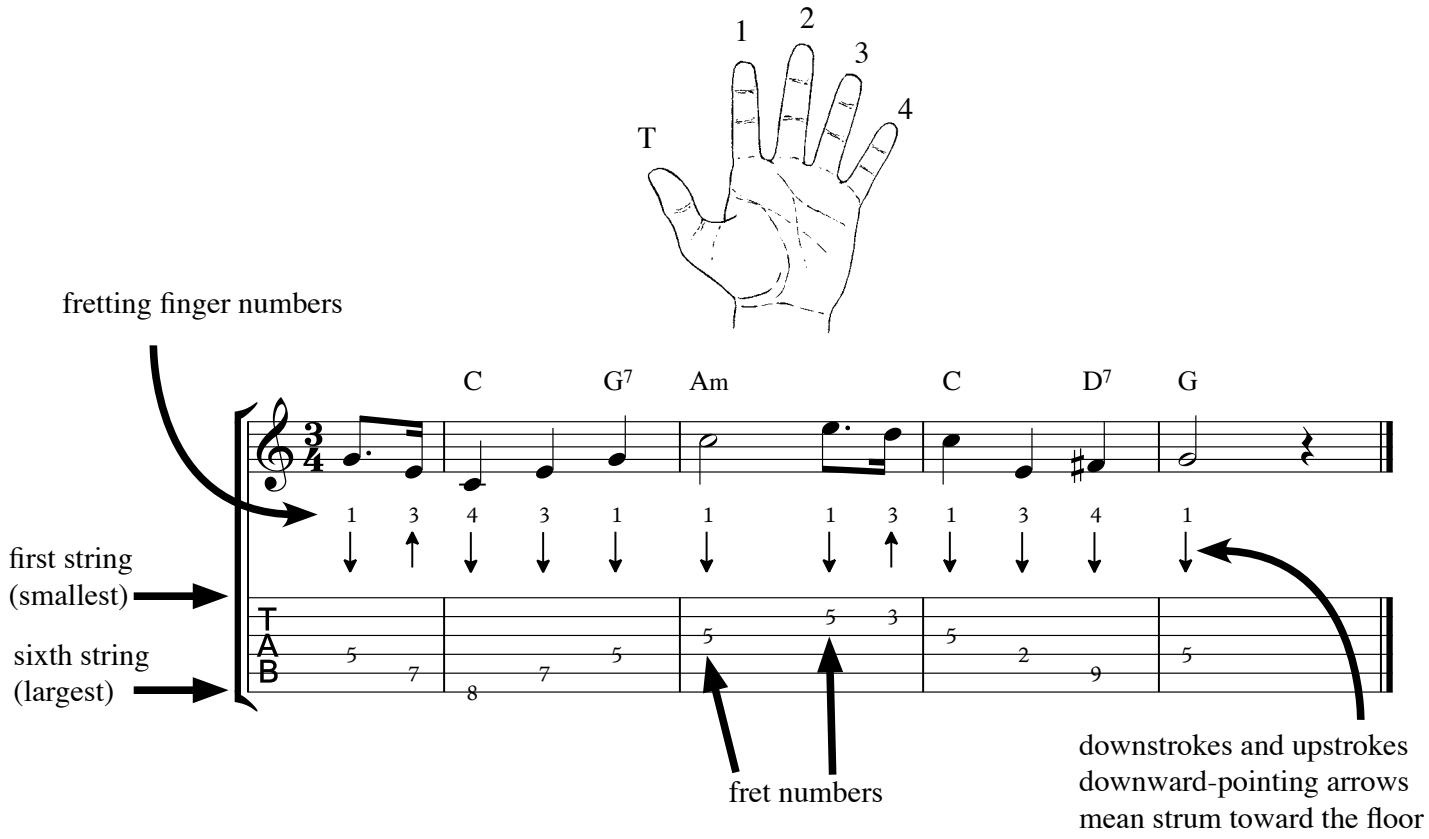


fretting hand
T = thumb
1 = index finger
2 = middle finger
3 = ring finger
4 = little finger

plucking hand
p = thumb (pulgar)
i = index finger (indice)
m = middle finger (medio)
a = ring finger (anular)
c = little finger (chiquita)

symbols above the tablature

Symbols above each tablature number indicate the suggested fretting finger. In reading the tablature, remember that the top string on the tablature is the smallest, first string.

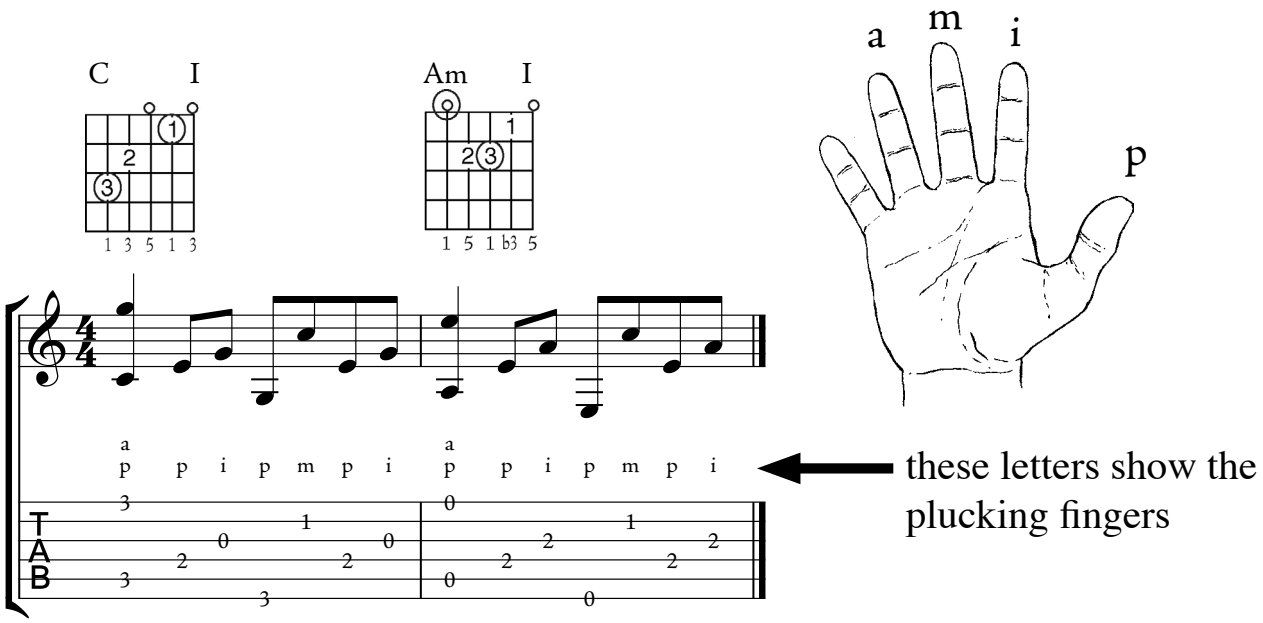


chord diagrams and plucking fingers

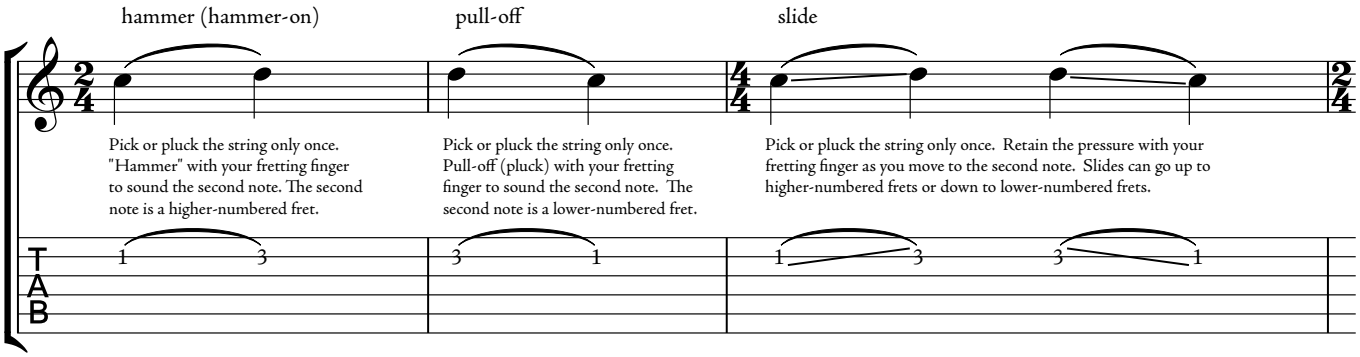
The fretboard chord diagrams shown above the music notation in the diagram below are aids in reading the tablature. Instruction on reading these diagrams is in the earlier section Reading Fretboard Diagrams.

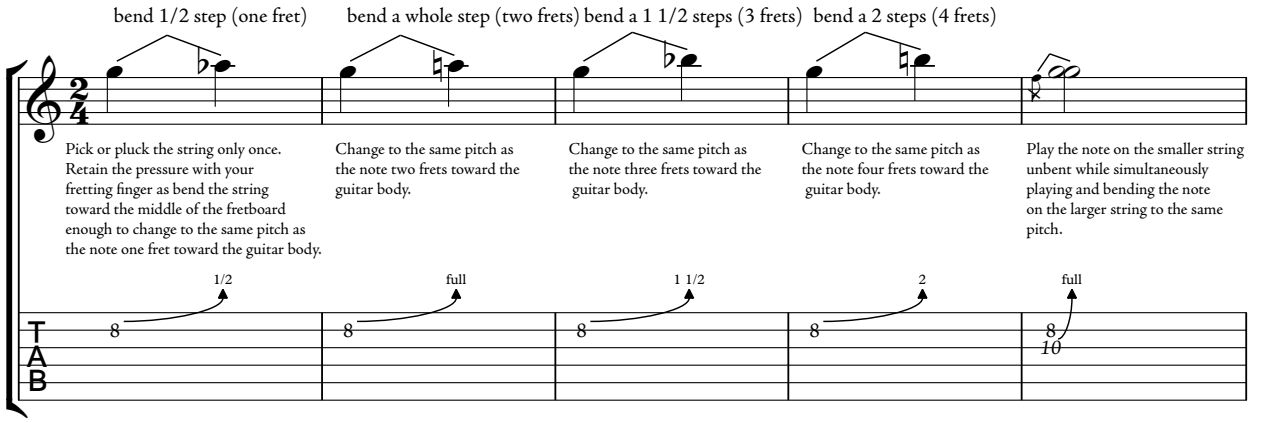
Fretboard chord diagrams are used in this course where the fretting hand mainly retains a particular chord fingering. You should still read the guitar part in the tablature, since it shows the exact sequence of notes.

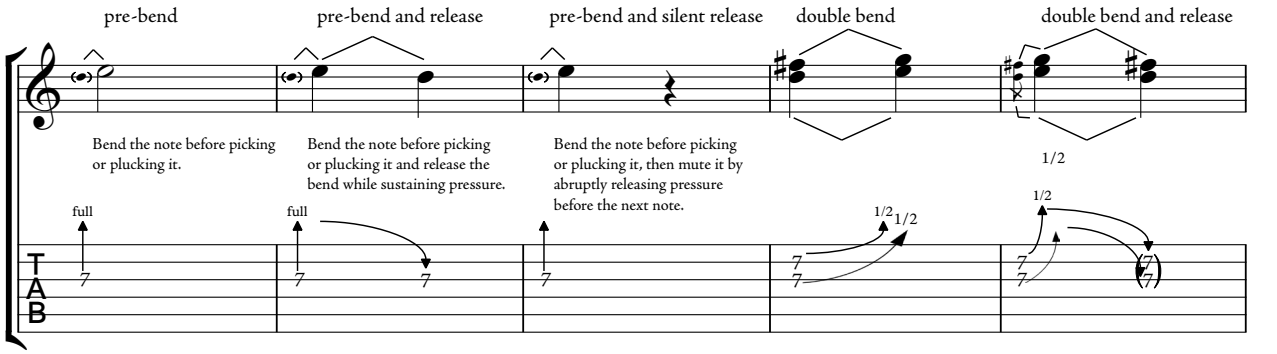
Right hand symbols are shown above or below notes in the standard music notation. The right hand finger symbols are "p" (pulgar = thumb in Spanish), "i" (indice = index finger in Spanish), "m" (medio = middle finger in Spanish) and "a" (anular = ring finger in Spanish).

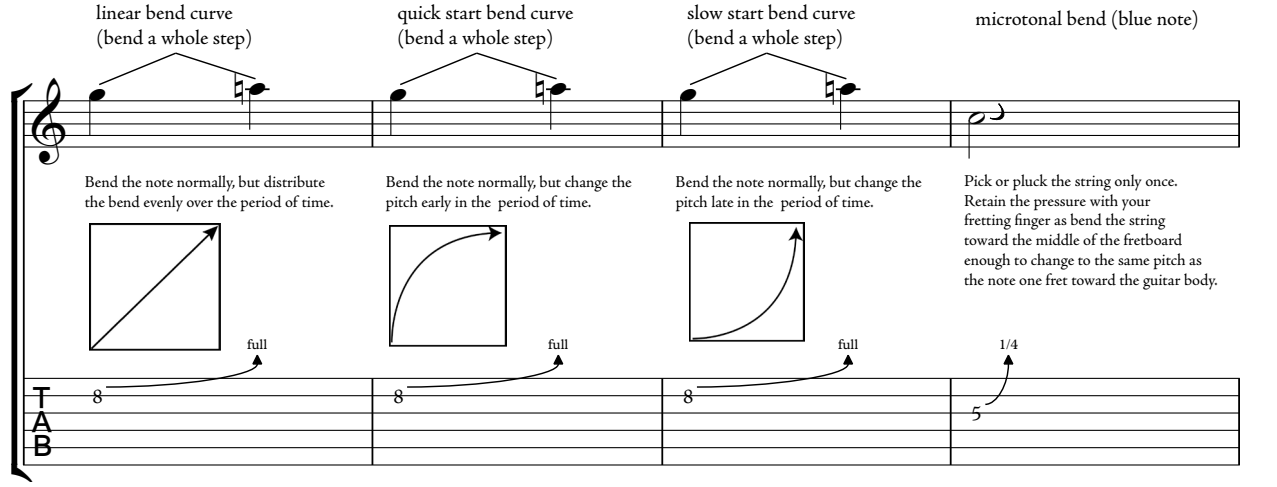


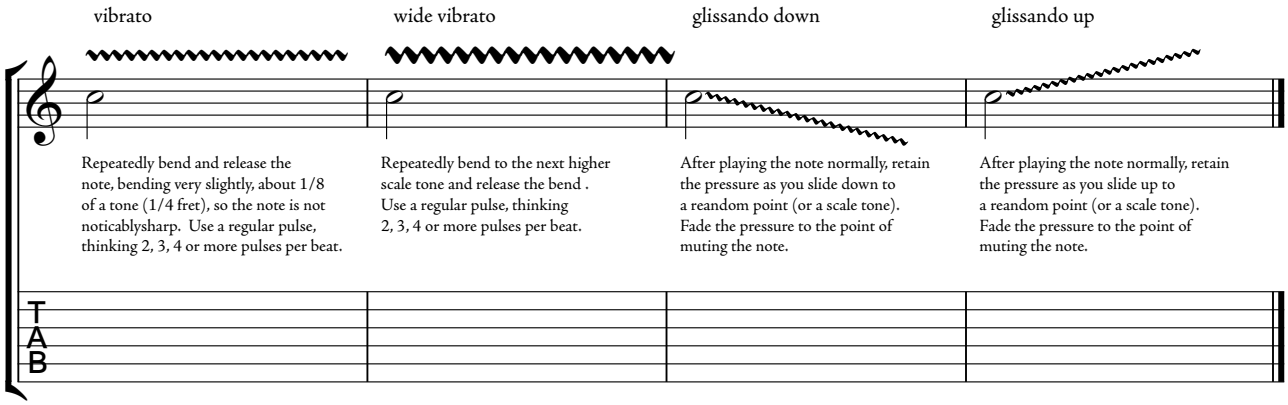
Special Tablature Symbols





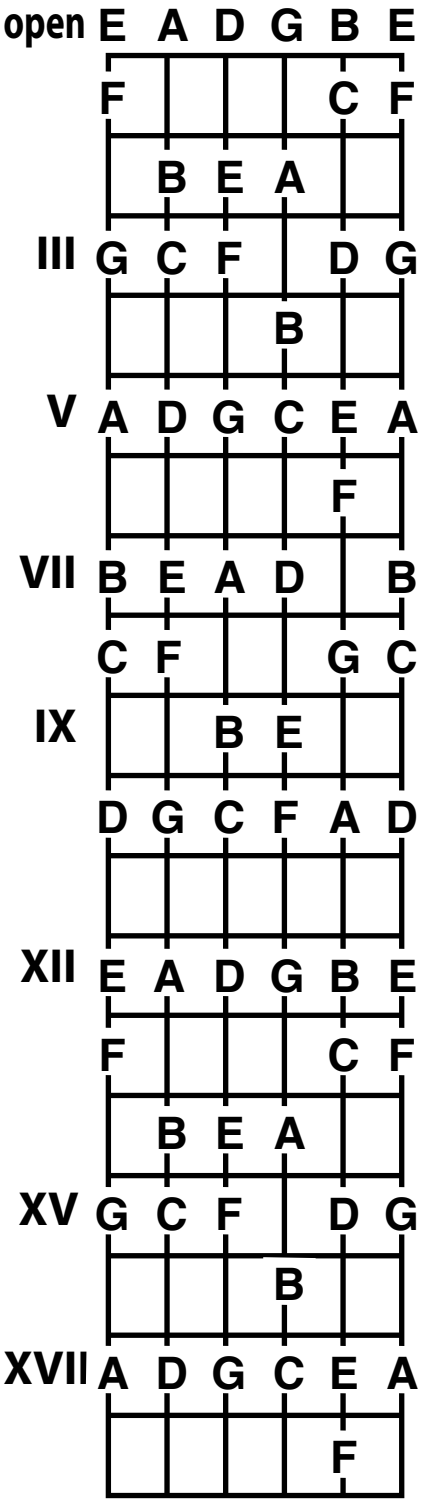


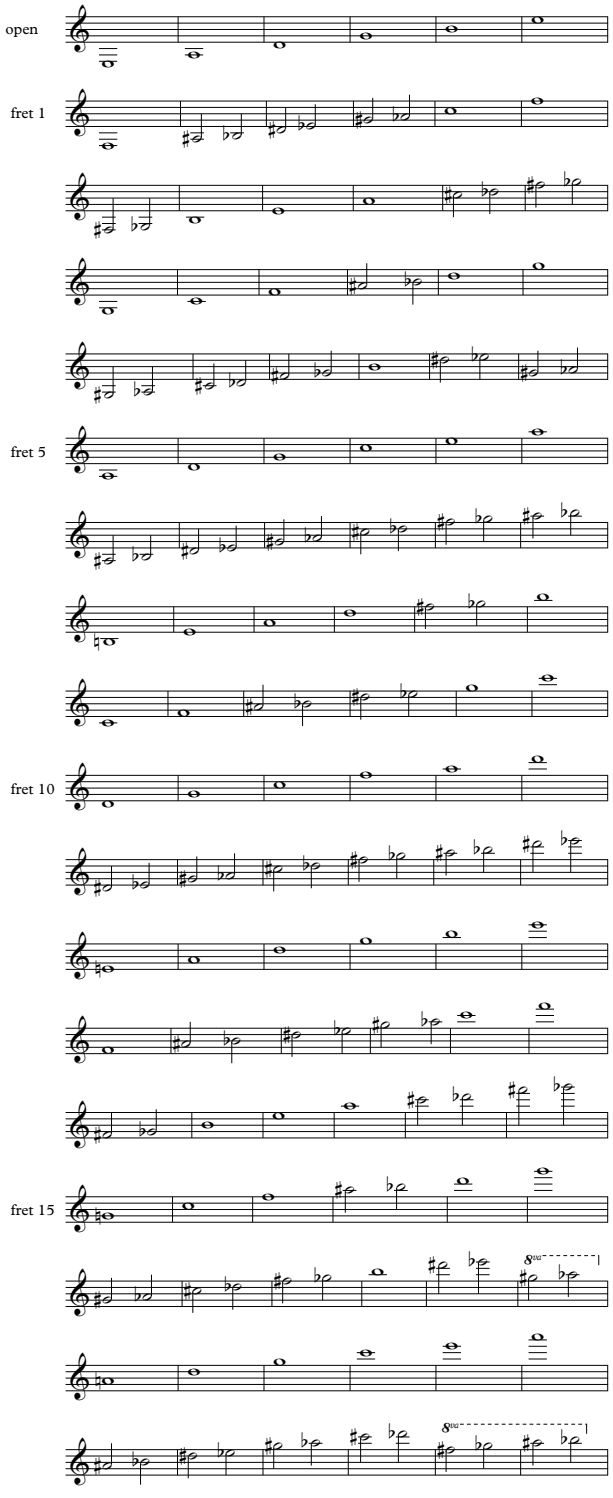




READING STANDARD MUSIC NOTATION

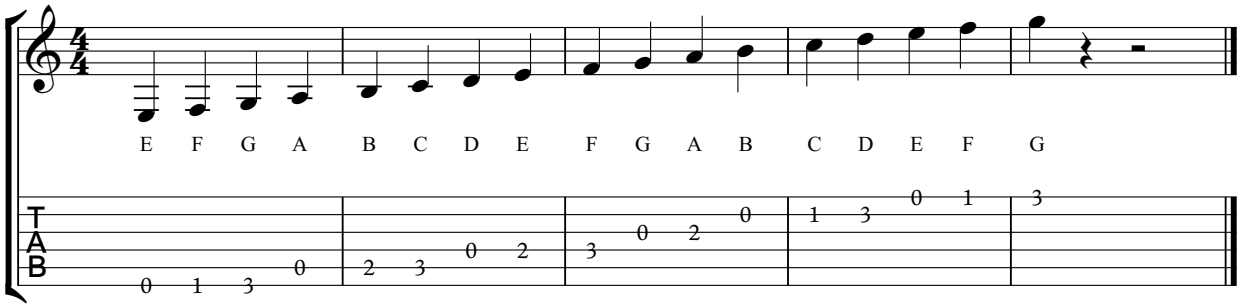
Fretboard Note Names and Staff Locations





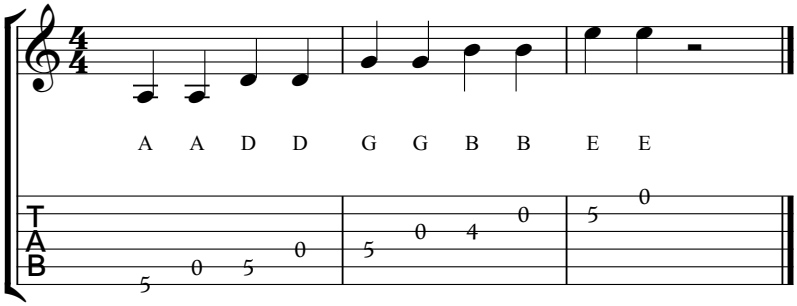
First Position Natural Notes

Play the notes below and speak the letter names. Notice that each pair of notes "E" to "F" and "B" to "C" are one fret apart, meaning there is no note between them. The other alphabetical pairs of notes; ("A-B", "C-D", "D-E", "F-G" and "G-A") are two frets apart. Remember, the musical alphabet starts over after "G" (which are also two frets apart).



duplications at the fifth and fourth frets

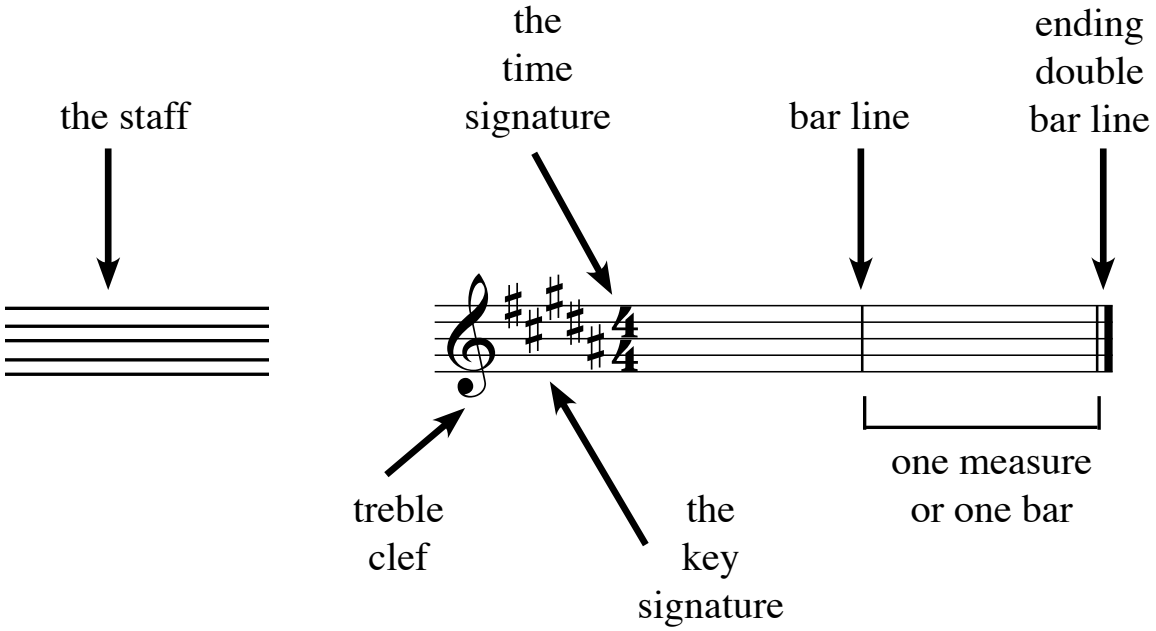
The example below shows the locations of fretted notes which are the same pitch and note names as the next smaller string open. Except for the third string, this occurs at the fifth fret. The third string, fourth fret, is the same pitch as the second string, open.



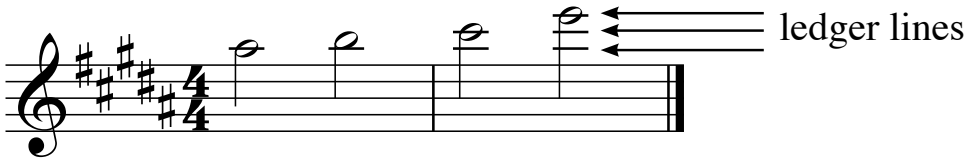
The Staff and Note Parts

the staff

The staff is a group of five horizontal lines on which music is written. The plural is usually "staves", but may be "staffs". Bar lines (above) are vertical lines written across the staff to divide it into groups of beats. Each group of beats is called a bar. Time signatures indicate the number of beats in the bars that follow it, as well as the relative beat value of each note.

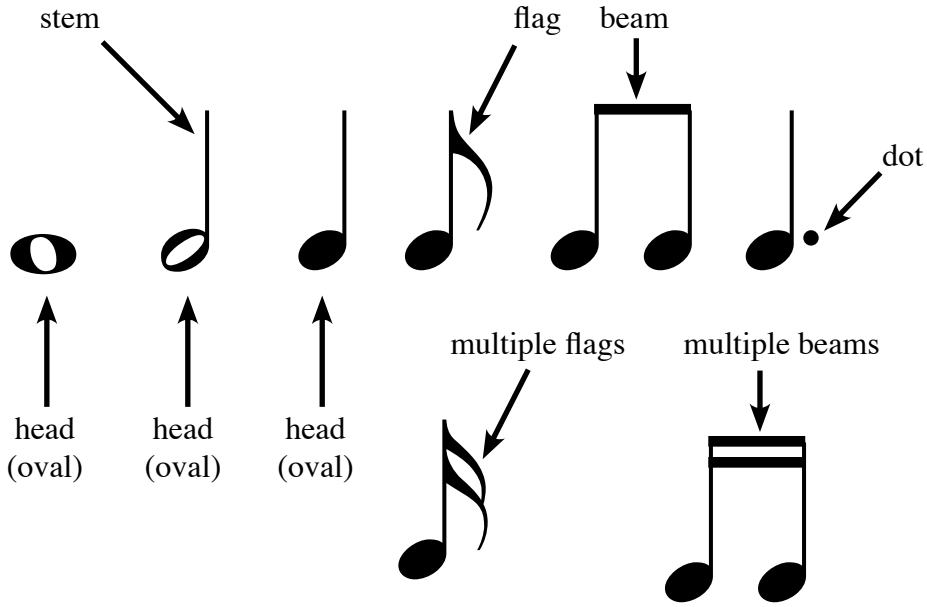


Ledger lines are short lines placed above or below the staff to add to its range.

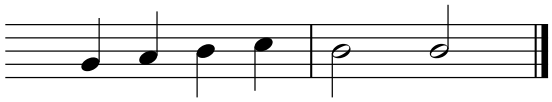


note parts

The parts of notes are the head, stem, flag, beam and dot. The head of a note is an oval. It is centered vertically on or between the lines of the staff. The whole note's only part is its head.



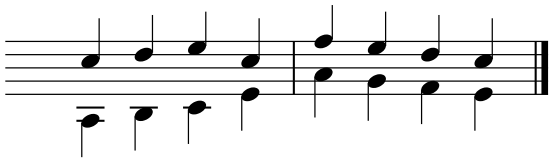
The stem of a note is a vertical line connected to the head. It connects to the left if it goes down from the head and to the right if it goes up. Stems on note heads above the middle of the staff are usually written down. Stems on heads below the middle of the staff are usually written up. Stems on the center line of the staff can be written up or down.



A flag or a beam halves the time value of a note. Each additional flag or beam cuts the value in half again. A dot multiplies the value of a note by one and a half. Two dots multiply the value of a note by one and three quarters.

up and down stems

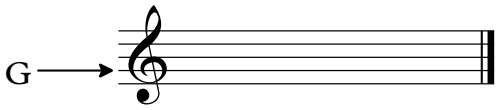
When two voices (two instrument or voice parts) are written on the same staff, the upper part is usually written with all stems up and the lower part with all stems down:



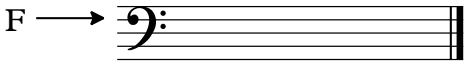
treble and bass clefs

A clef is a sign placed on the staff at the beginning of a piece of music to indicate the placement of the letters. The letters used in music include "A, B, C, D, E, F, and G."

The treble clef or "G" clef assigns the letter "G" to the second line from the bottom of the staff. Guitar music is written on the treble clef, although *the guitar sounds one octave lower than written*. Notes on the treble clef are completely above those on the bass clef in pitch.



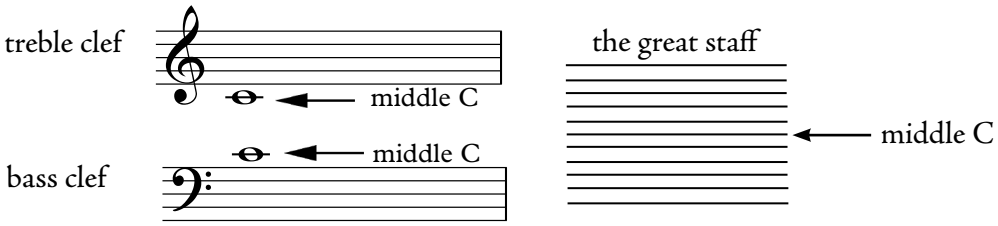
The bass clef or "F" clef assigns the letter "F" to the second line from the top of the staff. Notes on the bass clef are completely below those on the treble clef in pitch.



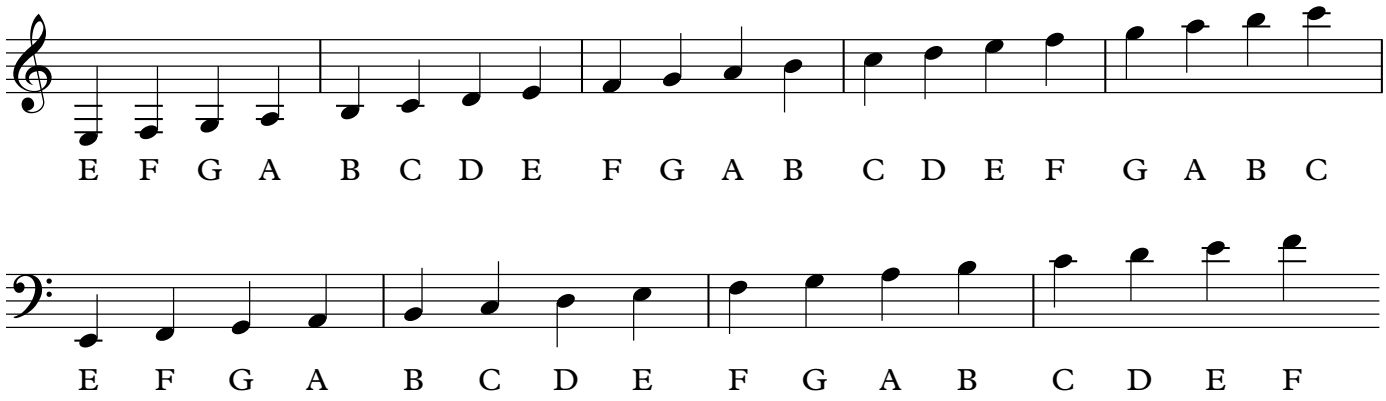
middle C

Middle C is the C nearest the middle of the piano keyboard (full 88 key version). It is the "dividing line" between the treble and bass clefs. It is on the first ledger line below a staff using the treble clef and the first ledger line above a staff using the bass clef.

The treble and bass clefs are conceptually part of the great staff, which has eleven lines. The top five lines are extracted to make the treble clef, and the bottom five lines are extracted to make the bass clef. The center line of the great staff is middle C.

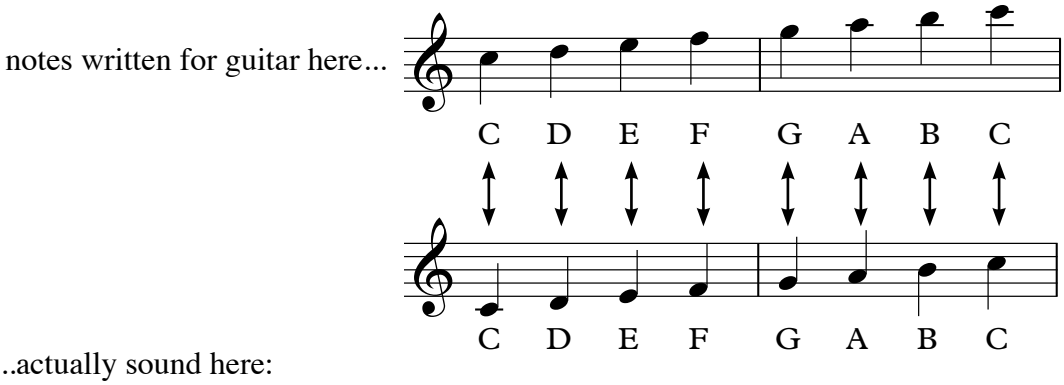


The notes on the staves are in alphabetical order:



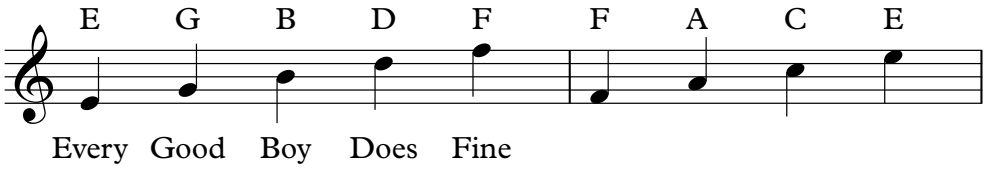
guitar transposes one octave

Guitar is usually written on the treble clef, transposed down one octave.

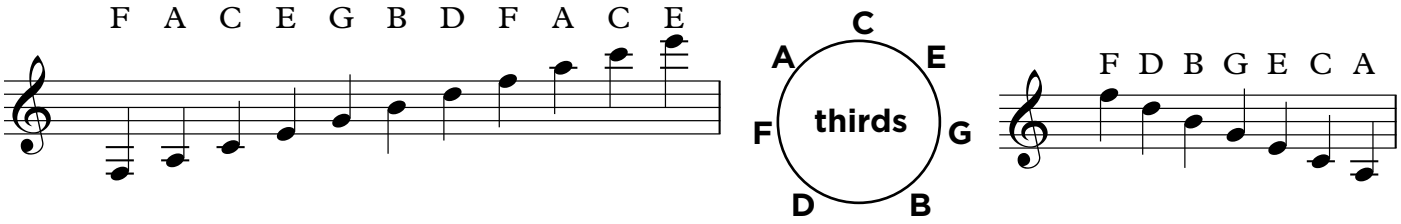


Memorizing Note Names

The letter names on the treble clef are easy to memorize with the use of a few associations. From bottom to top, the notes on the lines of the staff are the first letters of the words in this sentence: Every Good Boy Does Fine. From bottom to top, the notes on the spaces of the staff spell the word "face."

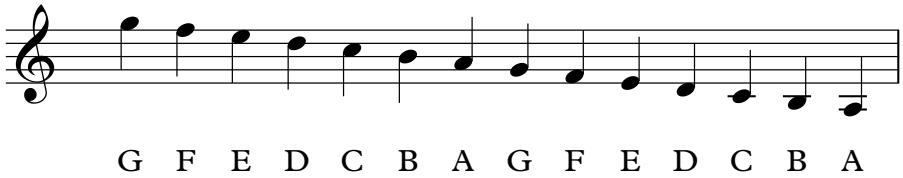


The notes on the lines (including ledger lines) are in an alternate alphabetical pattern: A, C, E, G, B, D, F, A, C, etc. Likewise, the notes on the spaces are in the same alternate alphabetical pattern: A, C, E, G, B, D, F, A, C, etc. Memorize the alternate alphabetical cycle (thirds) shown below.

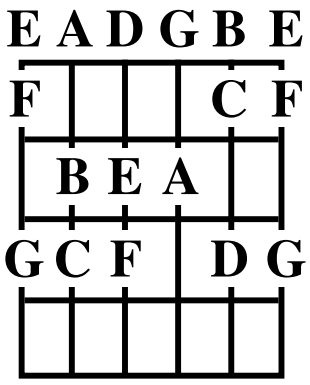


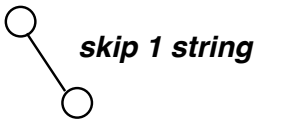
note names in reverse order ("gfedcba" or "gee-fed-cee-bah")

Most of us were only taught to think the alphabet forward, not forward and backward. In music, whenever notes descend (go down) a seven tone scale such as the major scale, you will need to think the letters backward. As a memory device, think of someone named "G" who "FED" his cat named "CBA" (pronounced: "cee-bah"). Of course, the notes continue down the scale after "A", forming the cycle "G-F-E-D-C-B-A-G-F-E-D, etc." Thirds in reverse order spell "F-D-B-G-E-C-A".



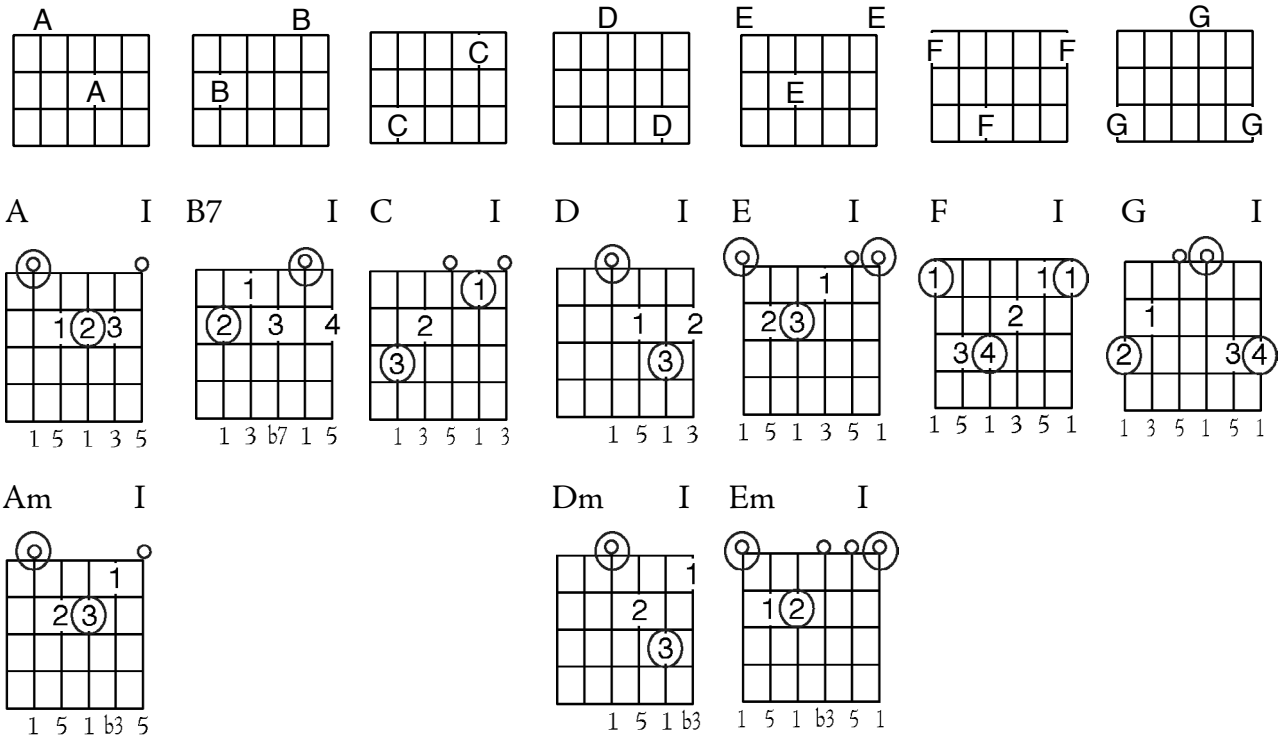
memorizing first position note names on the guitar



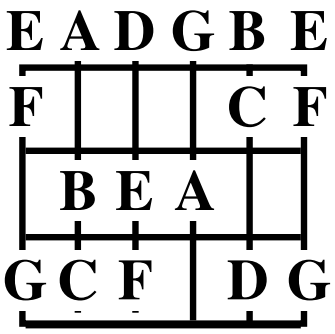


- The open strings, from sixth to first string are Eat A Darn Good Breakfast Early (E A D G B E).
- E to F is one fret. B to C is one fret.
- A-B, C-D, D-E, F-G and G-A are each two frets apart.
- There are three each of the notes E, F and G.
- The note name at any fret on the sixth string is the same at that fret on the first string.
- Octaves "skip" one or two strings, depending on their angle. Octaves are notes which have the same name, but are eight letter names apart (counting the starting and ending notes). See the diagrams at the left below.
- Octaves of A, B, D, E and G each include an open string.
- The fingering pattern on strings 1, 2 and 6 is open, 1, 3.
- The fingering pattern on strings 5 and 4 is open, 2, 3.
- The fingering pattern on string 3 is open, 2.
- Memorize the locations of the notes after which each chord is named below .

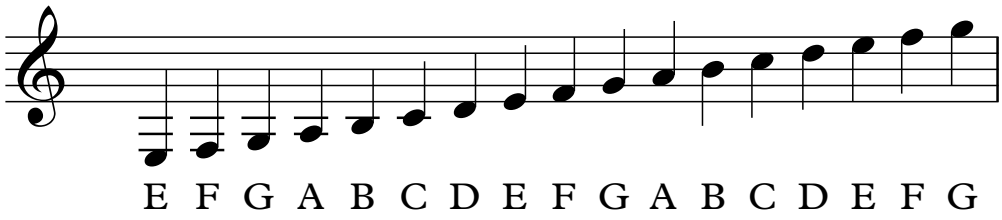
The top fret on all of the diagrams below is the first fret. The tiny circles above the chord diagrams indicate open strings (not fretted). Notes enclosed in the large circles below enclose the letter names after which the chord is named. In each diagram, the notes enclosed in the large circles are octaves (eight letter names apart, inclusively). Letter names for notes above the diagrams indicate open strings.



Beginning to Read Music Notation

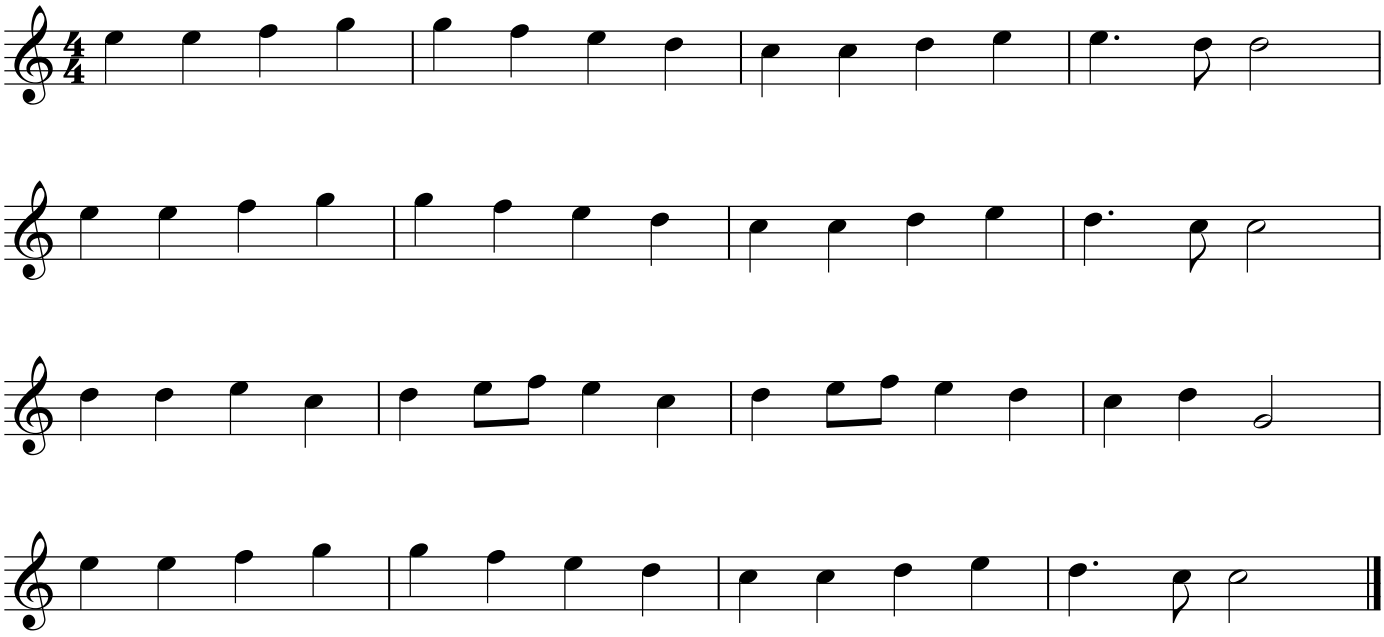


Read the diagram at the left and play the notes from "G" on the third string to "G" on the first string. Then, play the notes from "G" to "G" again as you read the last eight notes on the staff below. Think the letter names as you focus on the notes on the staff.

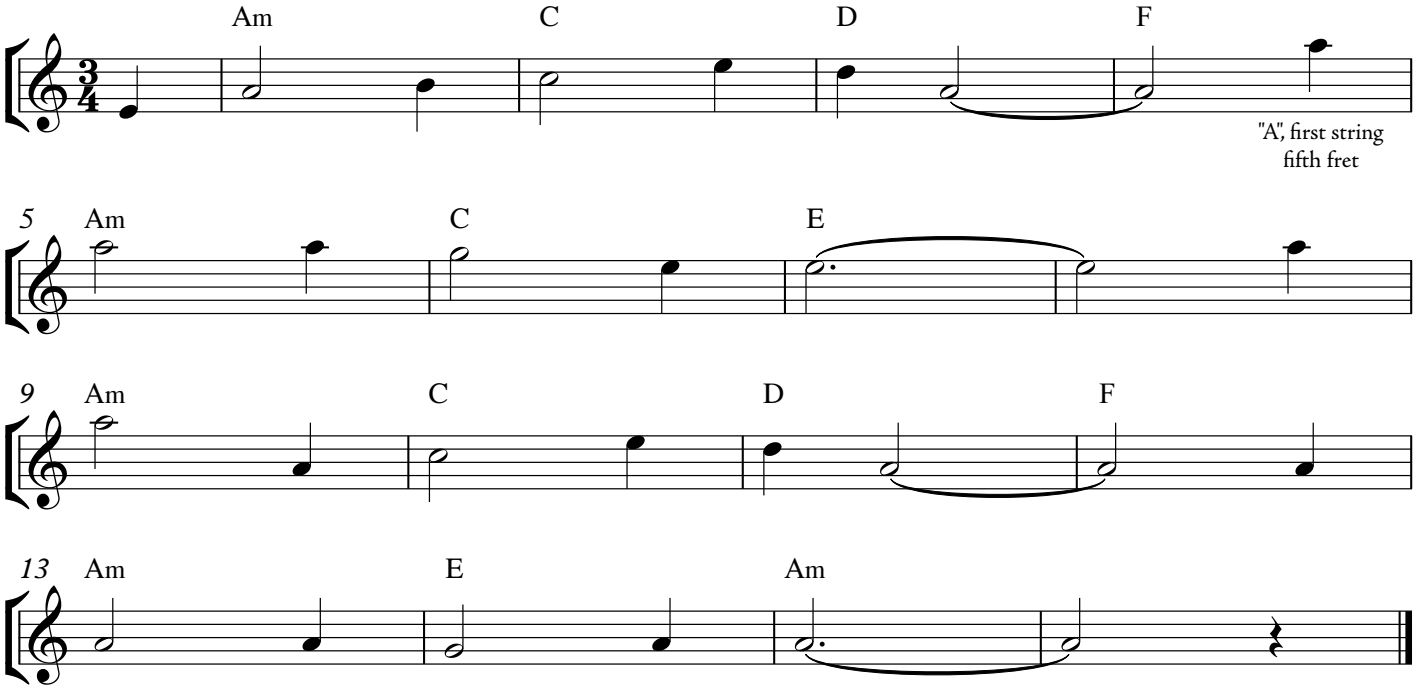


read songs

Ode To Joy

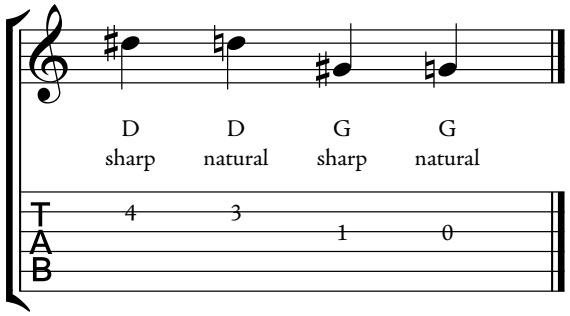


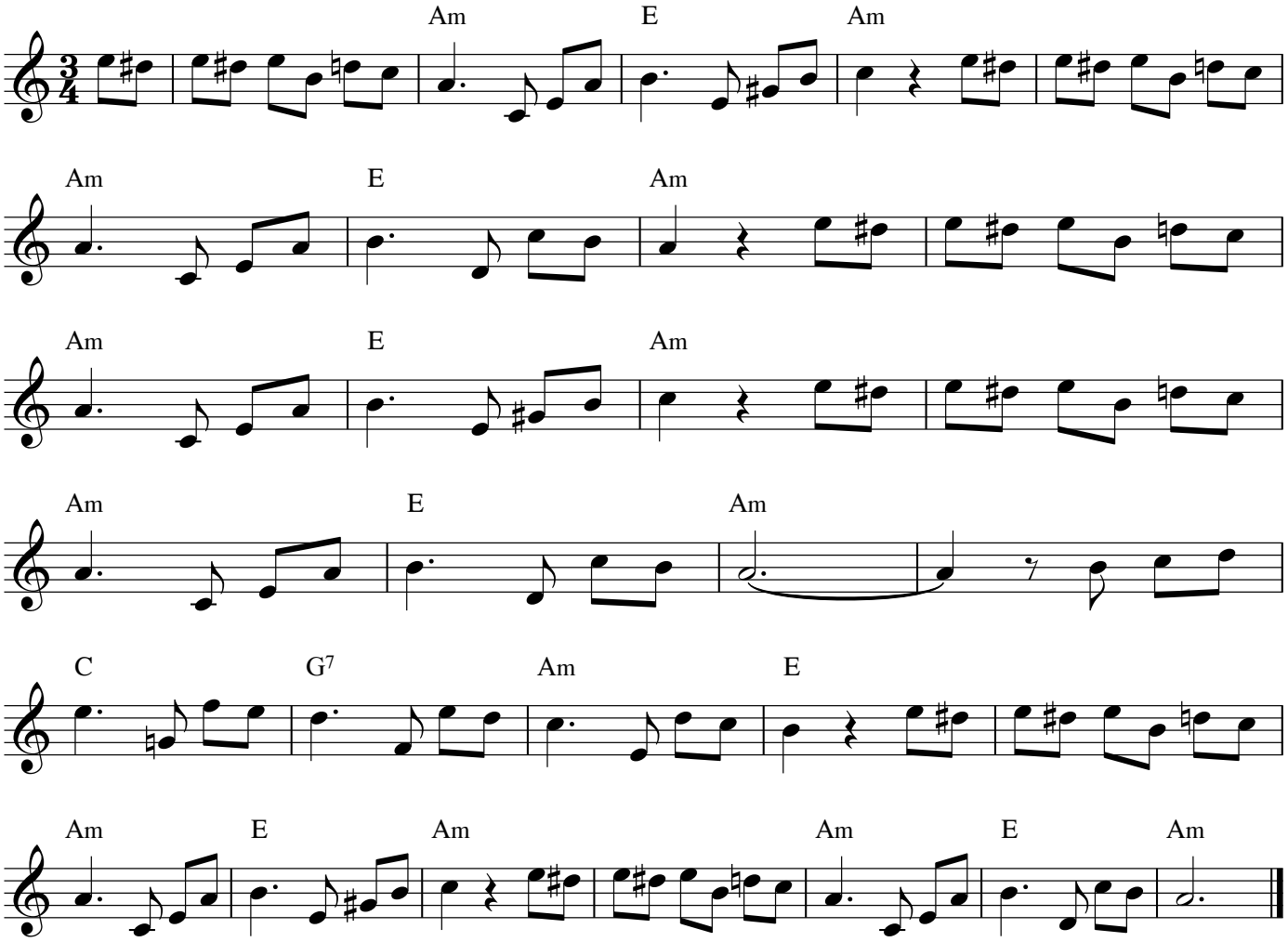
House Of The Rising Sun



Fur Elise

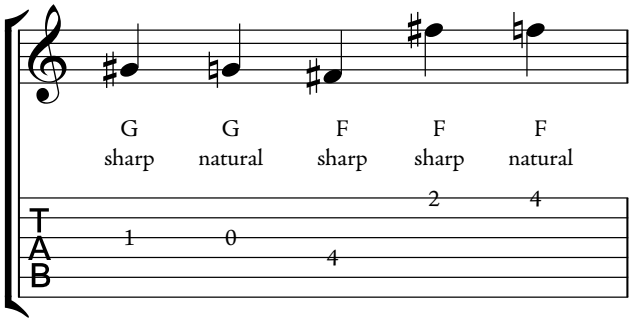
accidentals (sharps and naturals) needed for Fur Elise

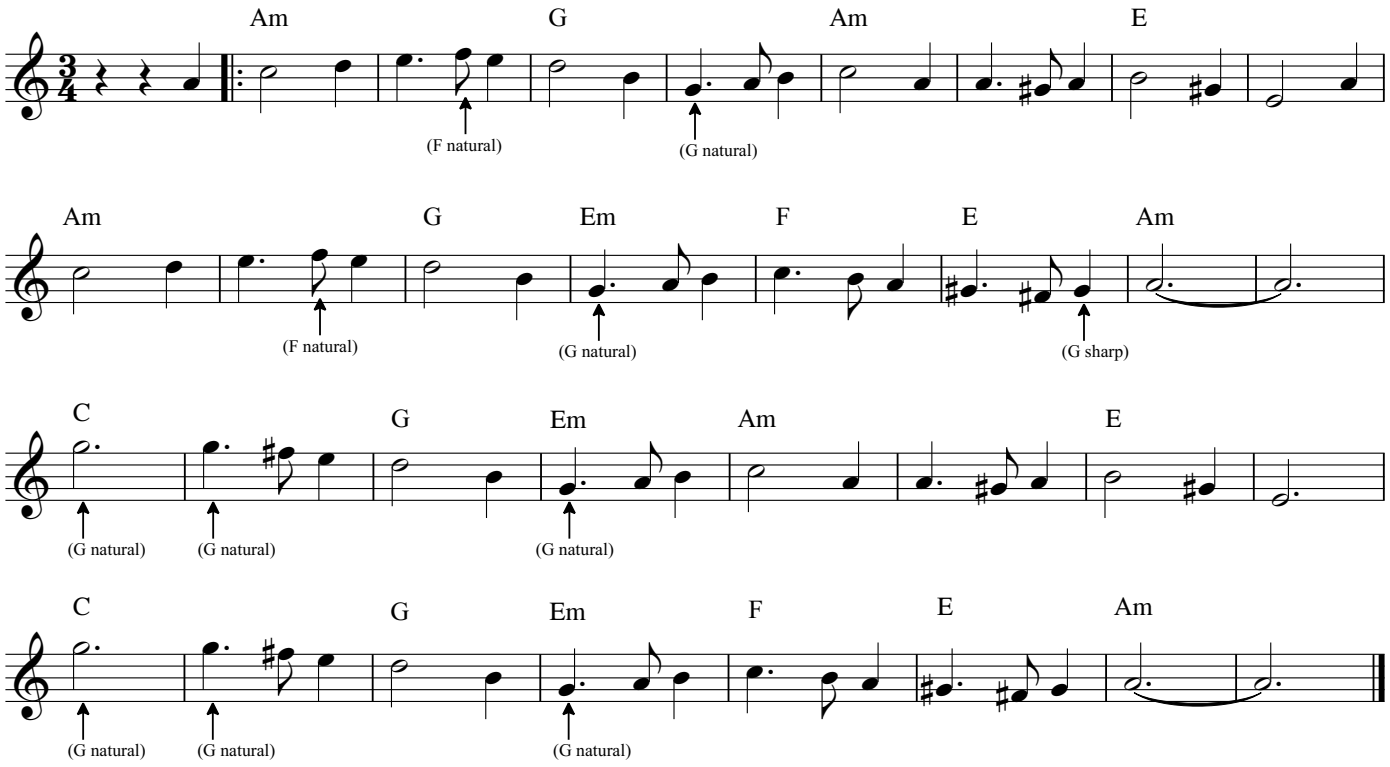




Greensleeves

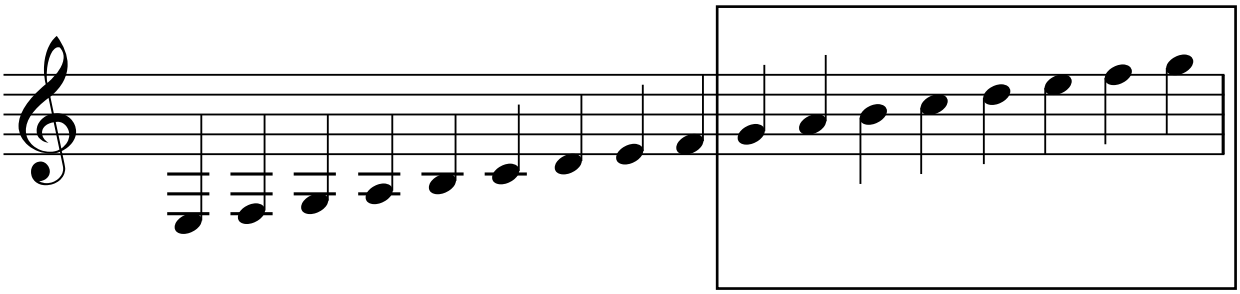
accidentals (sharps and naturals) needed for Greensleevers

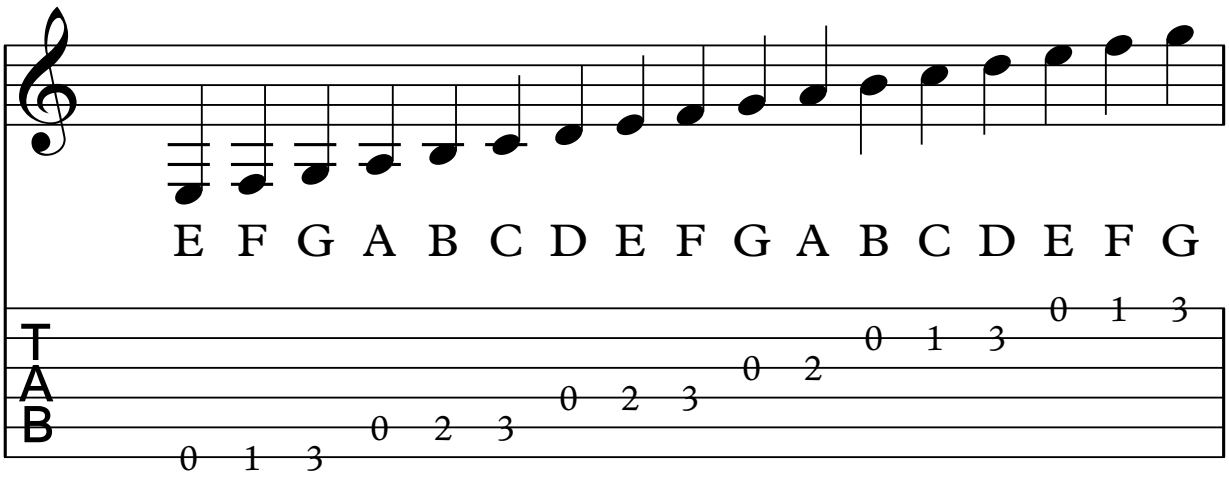




self test

Starting with the notes enclosed in the box, look at any note (without looking at the chart below). Speak its name and play it. Confirm you have played it correctly by looking at the chart below.





3 Note Sets, Structures and Design

- **Number and Letter Cycles**
- **Octaves, Scales and Chords**
- **Note Sets**
- **Musical Structure and Design**
- **Song Sections**
- **Triad Arcs**
- **Note Names**
- **Octave Shapes**
- **Intervals and Formulas**
- **The Intervals Necessary to Construct a Major Chord**

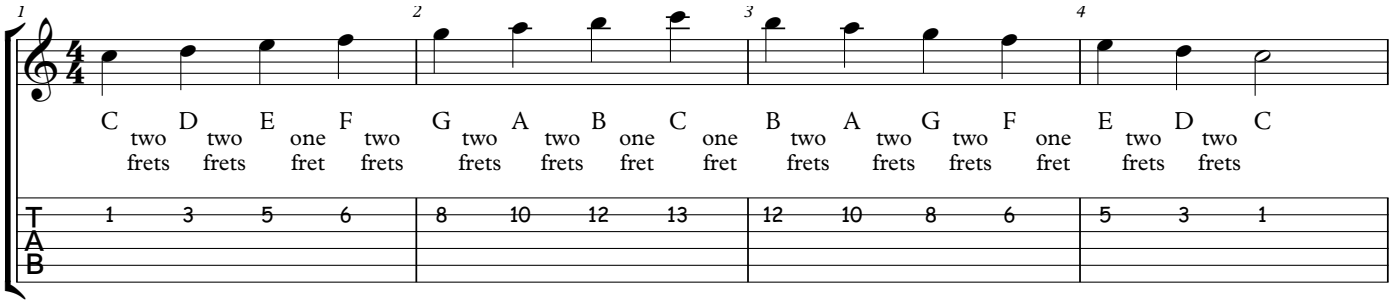
NUMBER AND LETTER CYCLES

Half and Whole Steps

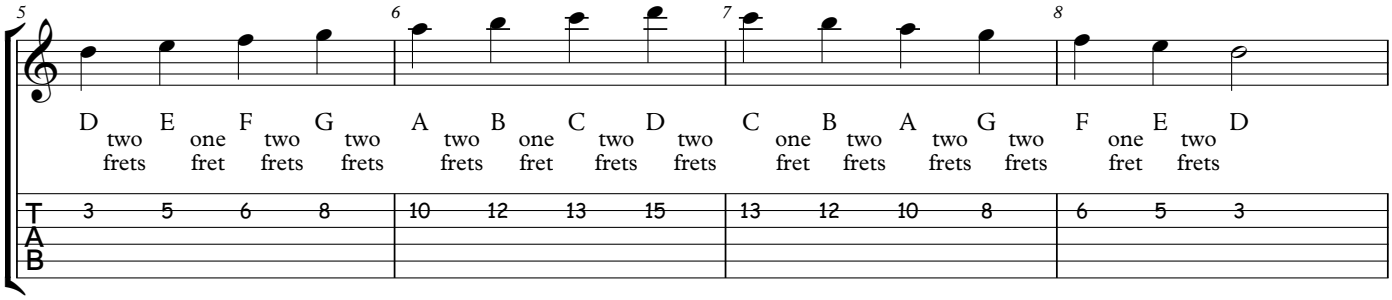
the alphabetical sequence of notes

A half step is one fret, such as fret three to fret four. A whole step is two frets, such as fret three to fret five. European and American music is based on the major scale. The major scale is the common reference for scales, chords and melodies. Letters occur are alphabetical order with two frets between each letter, including G-A where the alphabet starts over. Two exceptions: E to F and B to C are one fret. See Intervals and Formulas.

Solely on the second string, ascend (move toward the guitar body) the alphabetical sequence C-D-E-F-G-A-B-C, starting on the second ing first fret "C". That is the C major scale.



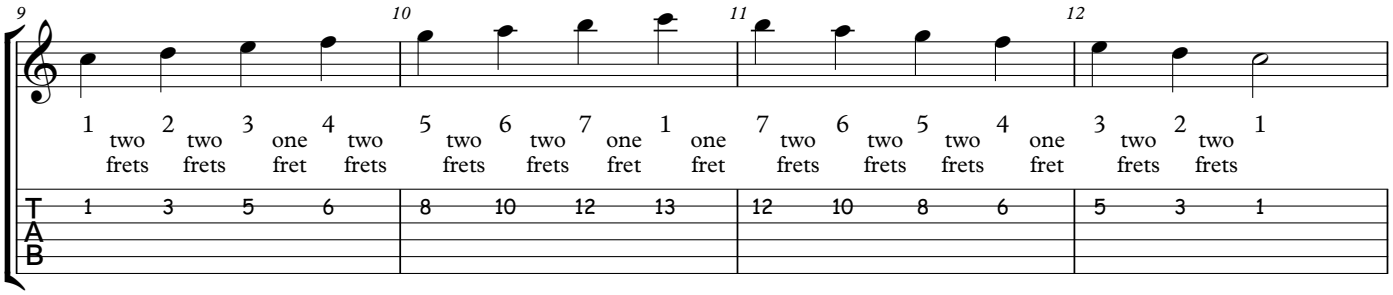
Solely on the second string, play the alphabetical sequence D-E-F-G-A-B-C-D, starting on the second string third fret, "D". That is the D Dorian mode, a mode of the C major scale. See Modes.



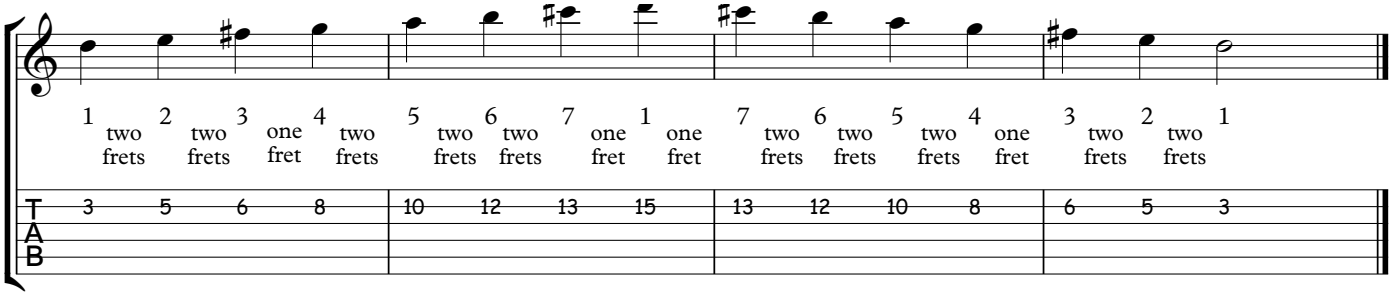
the major scale sequence of notes

With the major scale, numbers occur in numerical order with two frets between each number, with two exceptions: 3 to 4 and 7 to 1 are one fret. The next numbered tone above 7 is "1", where "1" repeats an octave higher. A typical example of the major scale would be to ascend (toward the guitar body) from any note (starting on one of the first four frets fits well on the guitar) 1-2-3-4-5-6-7-1, then descend 7-6-5-4-3-2-1, See Formulas: Numbering the Major Scale Tones, Recognizing Half Steps in the Major Scale and Play the Major Scale on One String.

Solely on the second string, thinking in "C", where "C" is "1" play the numerical sequence 1-2-3-4-5-6-7-1, starting on the second string first fret "C" (1), then descend 7-6-5-4-3-2-1. Be sure to use a one fret interval between 3-4 and 7-1. That is the C major scale in numbers.



Solely on the second string, thinking in "D", where "D" is "1" play the numerical sequence 1-2-3-4-5-6-7-1, starting on the second string third fret "D" (1), then descend 7-6-5-4-3-2-1. Don't play the same C major scale, a couple of these notes are different. Be sure to use a one fret interval between 3-4 and 7-1. That is the D major scale in numbers.

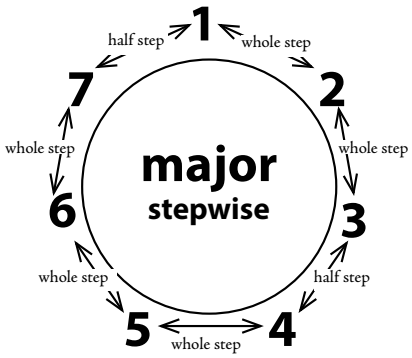


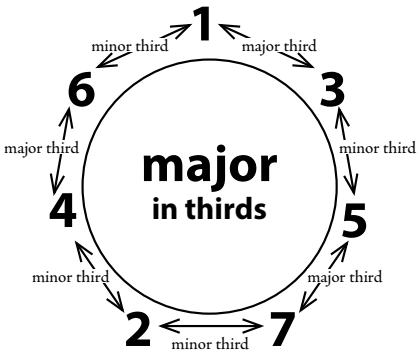
Pitch Cycles In Music

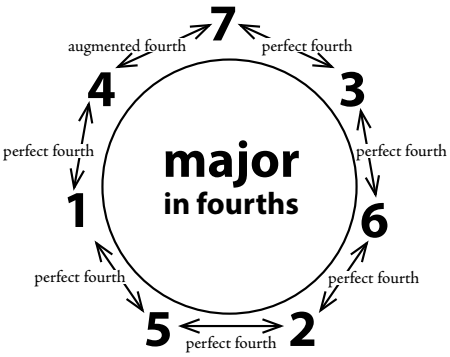
The number and letter cycles shown in this section are essential to think and converse all pitch structures in music: chords, chord progression, scales and melody. Memorize the three cycles: stepwise, thirds and fourths. They are the order in which chord roots (notes that name chords) progress.

Thirds are the default structure of building chords. "1-3-5-7" builds a four-note chord on "1". "2-4-6-1" builds a four-note chord on "2". Study all possible pairs of scale tone triads, looking for unique pairs and duplicate pairs.

Number Cycles

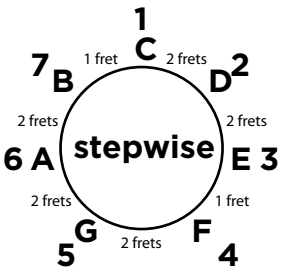


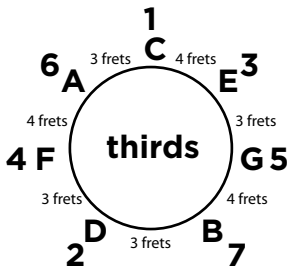


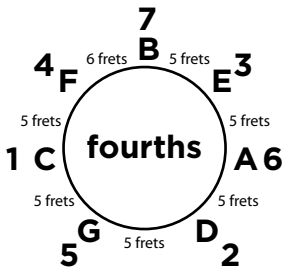


Letter Cycles

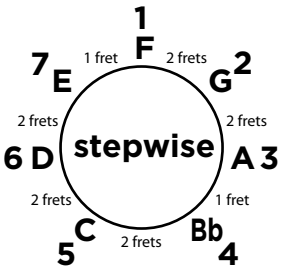
C major scale cycles

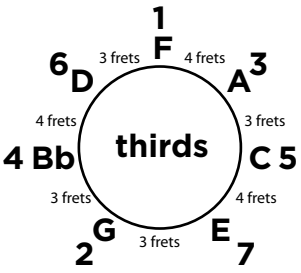


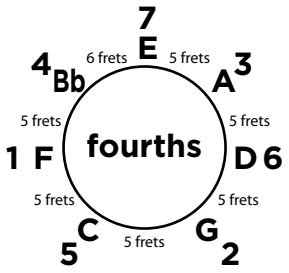




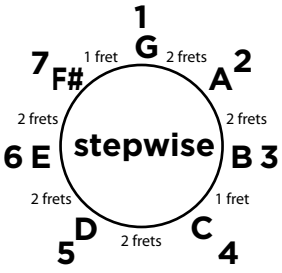
F major scale cycles

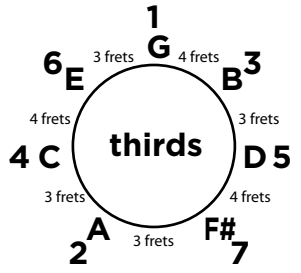


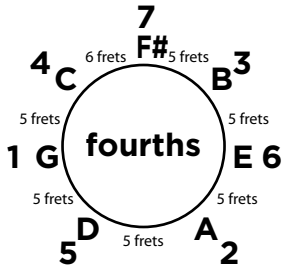




G major scale cycles





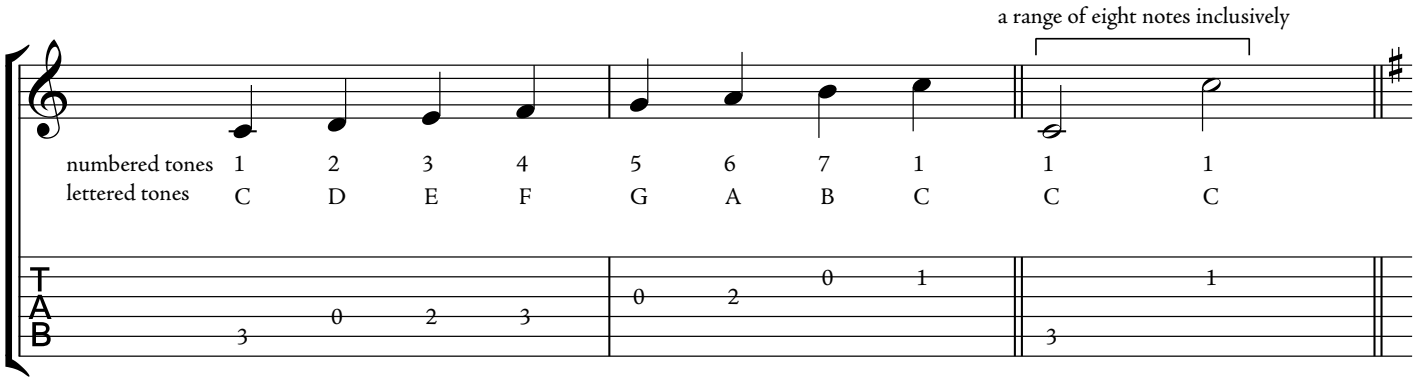


OCTAVES, SCALES AND CHORDS

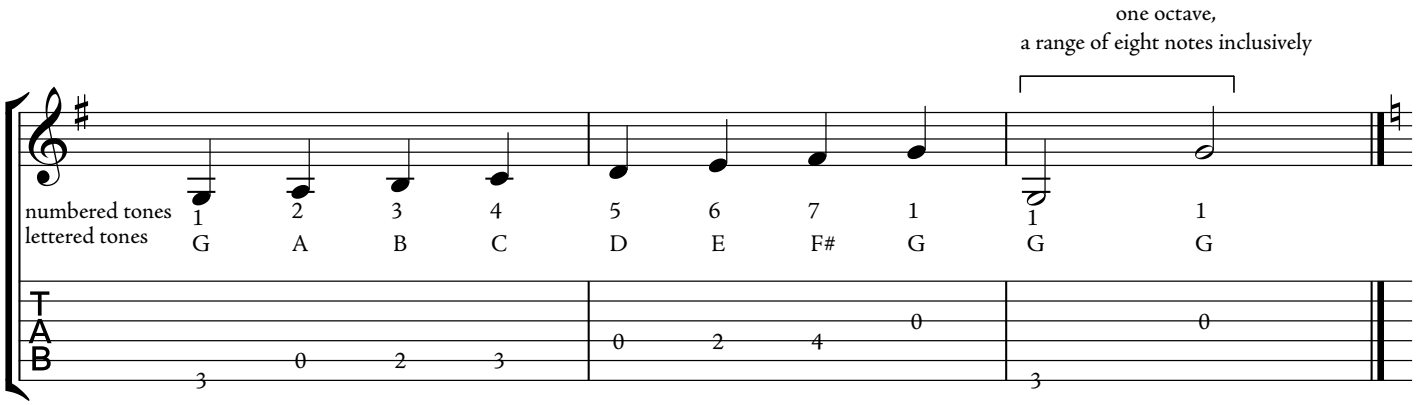
What is an Octave?

When notes are arranged in ascending or descending alphabetical order, every eighth note repeats. This range between the first and eighth notes in this alphabetical order is called an octave.

C major scale, range one octave



G major scale, range one octave



What is a Scale?

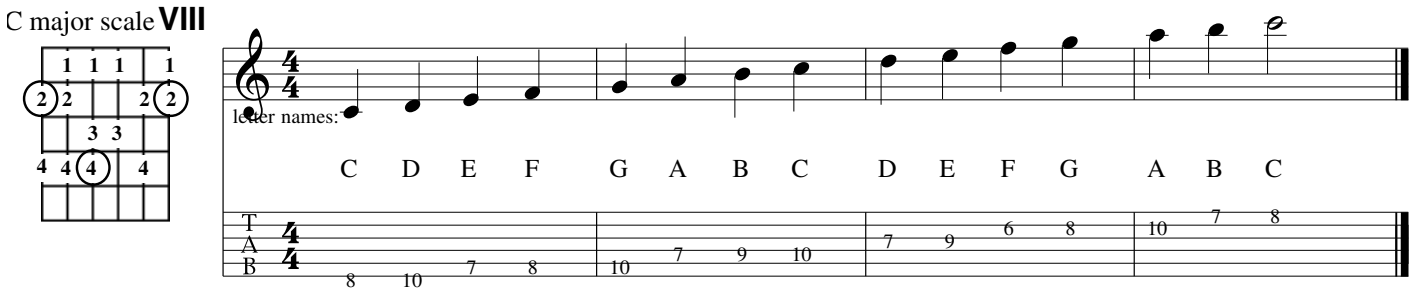
A scale is a collection of between five and twelve notes (inclusive) that spans an octave. Scales commonly involve step-to step intervals of one, two or three semi-tones (half steps or one-fret intervals).

Pentatonic scales have five notes per octave and are common to popular music, especially in blues, rock and country guitar solos. *Heptatonic scales* have seven notes per octave and are common to classical music and jazz. Common heptatonic scales are the major scale and its seven modes, harmonic minor scale and the mode on its fifth (Phrygian major), melodic minor and the modes on its fourth step

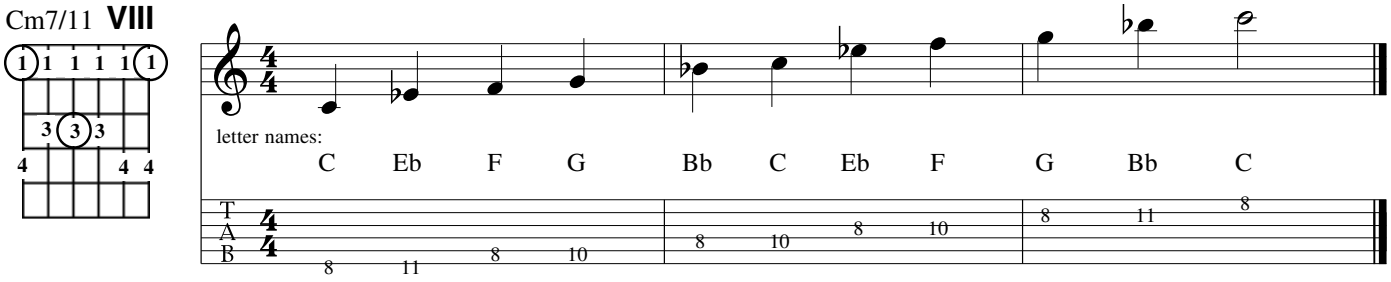
(Lydian dominant) and seventh step (super Locrian or Locrian flat four).

When playing the notes of a scale in ascending or descending order, they repeat at the octave.

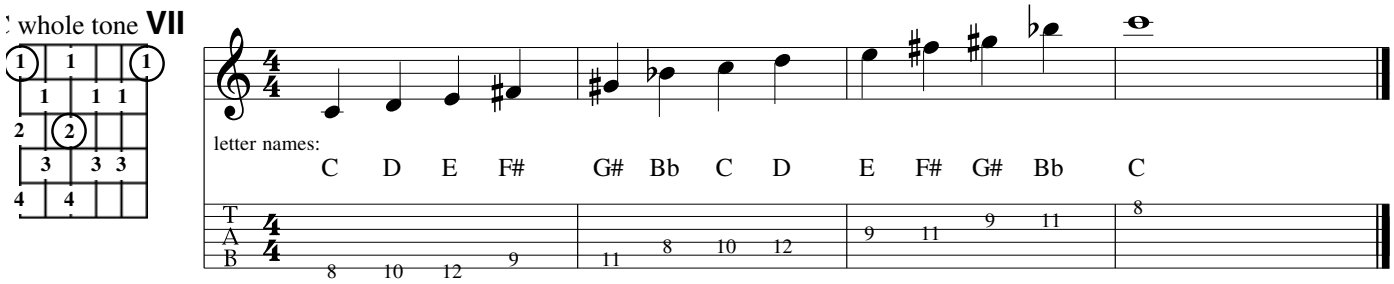
C major scale, seven notes per octave



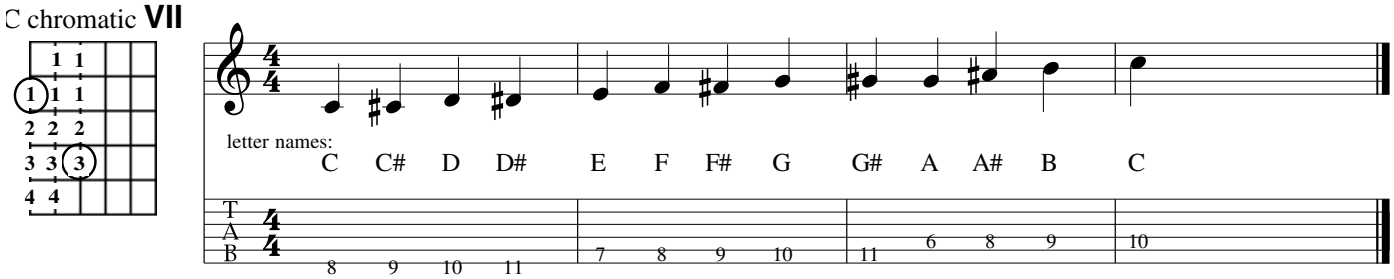
C minor 7/11 pentatonic scale, five notes per octave



C whole tone scale, six notes per octave



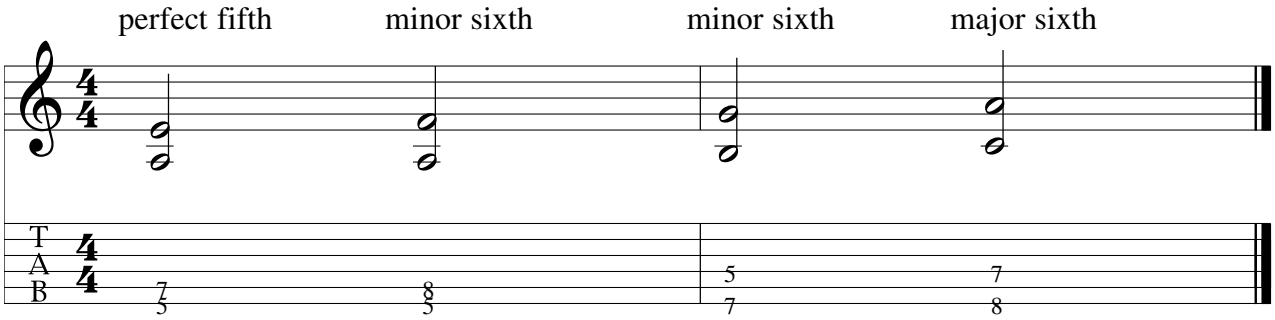
C chromatic scale, twelve notes per octave



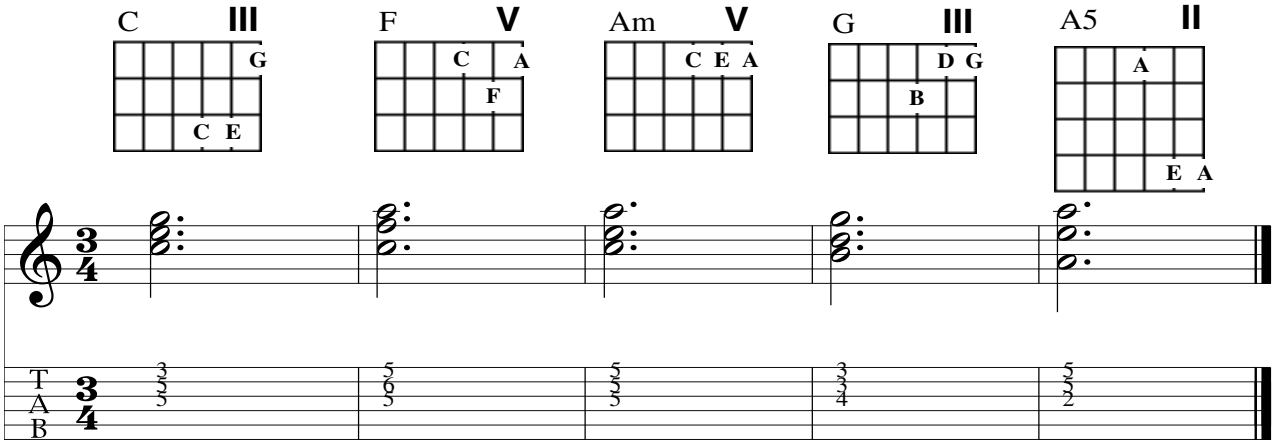
What is a Chord?

A chord is two or more notes played at the same time. Any chord tone may be doubled. A chord with three *different*, notes may have four notes, where one note occurs twice. Two note chords are typically referred to as intervals.

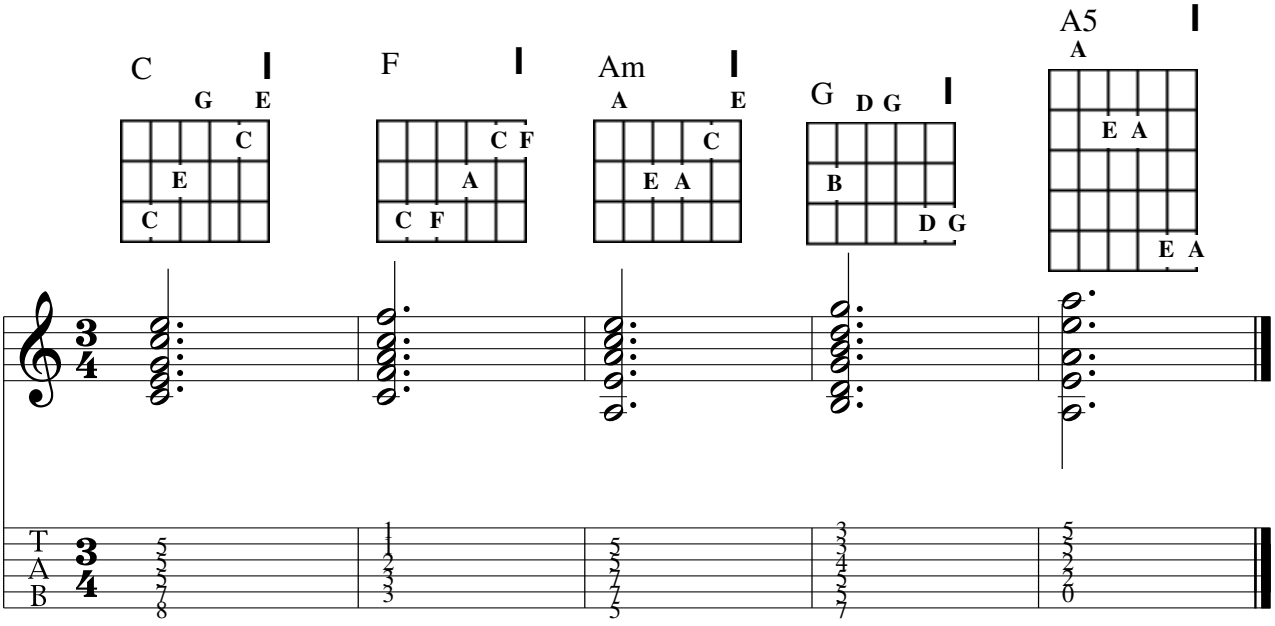
two note chords



three note chords



three note chords with note doubling



NOTE SETS

Collections of two to twelve unique notes are *note sets*. They are distinguished from *notes* by being specific collections of notes that make intervals, chords and scales.

Two played at once are called an interval. Three or more unique notes played at once are called a *chord*. Five or more unique notes spanning less than an octave played in ascending or descending order are called a *scale*. *A* pairs of unique notes played at once or sequentially is called an *interval*. Most note sets encompass an interval of an octave or less, but larger intervals and larger chords span more than an octave.

Chords and Arpeggios

Chords are usually constructed with intervals of a minor third (three half steps or frets) or larger. When chords are played one note at a time, they are called *arpeggios*. Like a chord, an arpeggio can span more than an octave.

Arpeggios can be played in order of pitch, ascending up or down. Chords can be held (their notes sustained together, usually with multiple fingers sustaining pressure) while picking their notes in a pattern, which I call *patterned arpeggios* (commonly called *fingerpicking* or *Travis Fingerpicking*).

chord and scale names

You should learn the names of all types of chords and scales common to the music you want to play. Chord types and names can be learned in Chord-Naming Conventions and All Scale Tone Chords. Scale types and names can be learned in Modes and in Key scales.

chord construction

The default method of constructing chords is every other note. This is called *tertian harmony*, meaning made of thirds (each note to the next is three notes, inclusively).

Chords with three notes are called triads. The every-other number or ever-other letter pattern is called thirds (13-5-7-2-4-6-1- or F-A-C-E-G-B-D-F). Tertian chords are built in thirds. Due to the varied spacing between the notes of the major scale, tertian triads are of varying qualities, some major, some minor and one of them diminished.

So, a three-note chord built on the first step of a major scale (or other seven tone scale) uses scale tones 1, 3 and 5. A three-note chord built on the second step of a major scale uses scale tones 2, 4 and 6; and so on. Since a C major scale has all natural notes (no sharps or flats, just C-D-E-F-G-A-B), a tertian chord build on "C" (with ever-other note) would have the notes C, E and G. A triad on "F" would have F, A and C (remember, the alphabet starts over after "G".

Read more about this in Introduction To Chord Progression, especially Basic Definitions.

MUSICAL STRUCTURES AND DESIGN

Note sets ascending or descending in linear order make scales or arpeggios. Their order is more whimsical and abstract when we create interesting music.

A musical structure is a note set conceived in a timeline. When you see a scale or an arpeggio written in ascending or descending order, it creates a structure. That structure can then be designed abstractly. The design of the structure can be expressed visibly by viewing the pattern of note heads in written music, which makes a *melodic curve*. See Harmonic Theme And Variation and Melodic Curve Exercises.

The consecutive order of note sets of primarily half and whole steps makeup scales. Consecutive order of note sets primarily thirds makeup arpeggios. The distance between two notes is called an interval. Major third intervals are equivalent the distance from the first to third step of a major scale (four frets, like frets five to nine). Minor third intervals are a half step smaller (like frets five to eight).

Melodic cells are the smallest units of melody of three to seven notes, rarely more. When you combine cells or repeat a cell on different notes, you are creating musical design.

SONG SECTIONS

intro

The intro (abbreviation for introduction), is played at the beginning of a piece. Songs don't always have introductions. Introductions are most commonly borrowed from the end of one of the main sections of the song, the verse or chorus (A or B sections in an instrumental piece). They are typically based on the end of the verse or chorus (A or B section) and followed by the same section they go into in the song.

For example, at the end of the chorus, the music flows into the verse. The intro starts with the end of the chorus, then goes into the first verse. A twelve bar blues commonly begins with the last four bars of the twelve bar chord progression, followed by the twelve bar progression from its beginning.

vamp

A rhythm section with a repeating chord progression (or on a single chord), without any significant thematic material. Vamps are used as "filler" between other sections. They are typically used to setup the section that follows them by establishing the "groove", rhythmic nature, mood, chord sound, etc (any or all of these).

interlude

An interlude is a brief instrumental section between main sections like verse and chorus. It is similar to a vamp but usually has thematic material (melody) that is less important than that of the main sections.

verse

The verse tells the story. It is almost always softer and calmer than the chorus and is commonly in the same key as the chorus, and is usually in what is considered the overall key of the song. Two or more verses commonly occur before the first chorus. Verses don't have to come before the chorus.

chorus

The title of the song is usually sung in the chorus. It is usually louder and fuller than the verse, with more harmony vocals. Etymologically, chorus is an extension of "court" referring to an enclosed area where people assemble to play and sing music or theatrical performance. The chorus comes after the verses a little more commonly, but sometimes songs start with the chorus.

pre-chorus, pre-verse, etc.

About twenty five years ago, I started seeing "pre-chorus" in printed sheet music. It seemed a strange term to me at first, but I've accepted it over time. As you would think, it comes before the chorus, and usually builds excitement into the chorus.

The term could be likewise applied to content that precedes the verse: a pre-verse.

bridge or middle eight

The section that connects the verse and chorus is called the bridge. It might not occur until the second time the verses and chorus are played. The bridge is more often in a different key from the verse and chorus, typically a key a perfect fourth (five frets) higher than the verse.

"A" section and "B" section

In instrumental music, there are usually two, sometimes three or more main sections. The sections are traditionally labeled with letters: section A, section B, etc.

AABA form

The most common song structure is thirty two bars, with two eight-bar A sections, an eight-bar B section and an eight-bar a section. Sections may be of different lengths, of course.

solo

We're used to hearing a guitar solo (or other instrument, if they insist) two-thirds of the way through a song. In this section, the guitar player improvises, or ad-libs. The melodic content may be based on the vocal part in the verse or chorus, or may be theme and variation. It is important to have some structure to the solo and not just play a bunch of dis-related licks.

The accompaniment is usually simpler during a solo, so the listeners focus can be on the solo content. If the accompaniment has melodic themes, it makes it more challenging for the soloist to make their melody understandable at the same time as the themes in the accompaniment.

ending

Like an intro, an ending should be based on content borrowed from the verse or chorus. It is often the last four bars of a verse or chorus played three times, followed by an ending chord. The ending is expected to complete with the chord named after the key, but can use a deceptive cadence, ending on an unexpected chord.

a cappella (in the manner of the chapel)

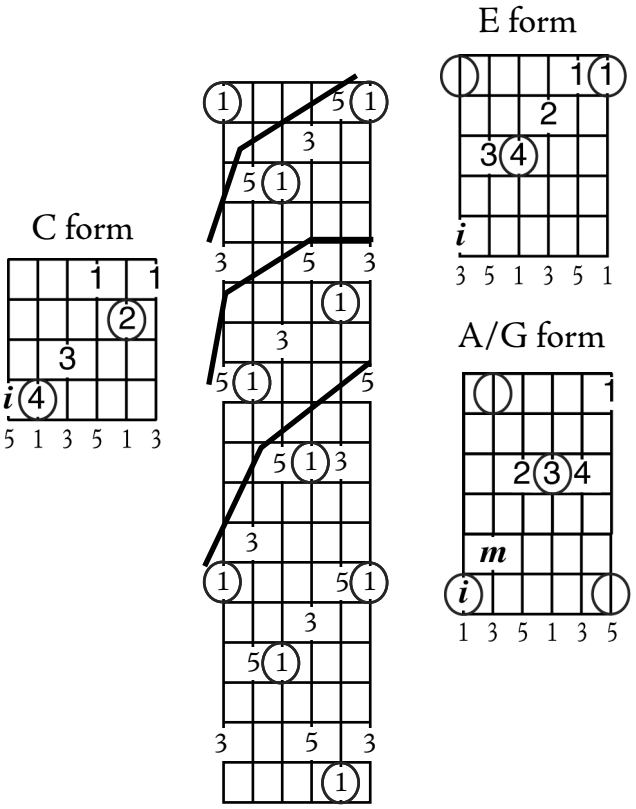
When vocals are sung without instruments, they are called a' cappella, meaning "in the manner of the chapel". In early western religion, it was thought unholy to have musical instruments in the place of worship. Overtime, instruments have been accepted in churches, along with every imaginable style of music.

TRIAD ARCS

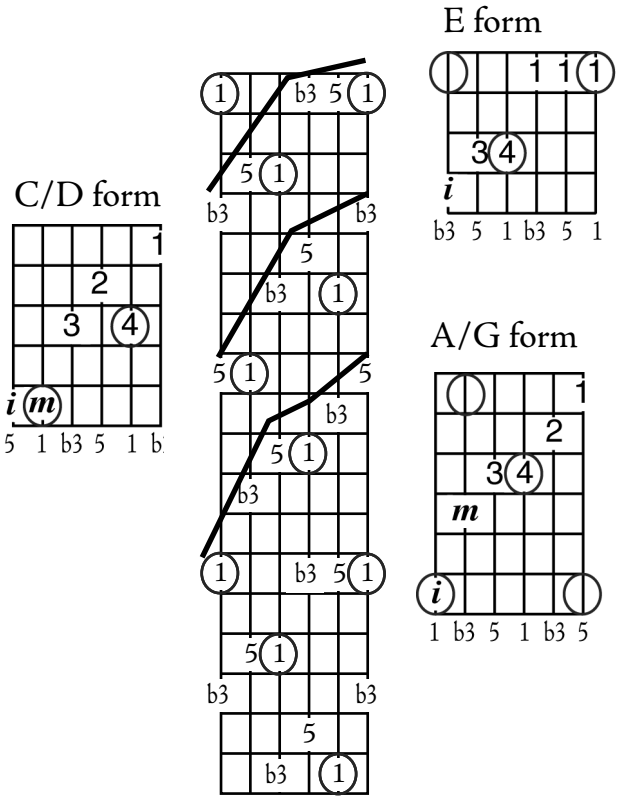
Triads are chords made up of three different notes. The notes may be repeated in octaves. Major triads combine the first, third and fifth steps of a major scale. Minor triads combine the first, flatted third (one fret toward the head of the guitar from the third) and fifth of a major scale.

I refer to the three groups of notes that represent all major chord tones or all minor chord tones on the fretboard as *arcs*, since they are the notes conceptually embraced by an arc, as shown below.

major chord tone arcs



minor chord tone arcs



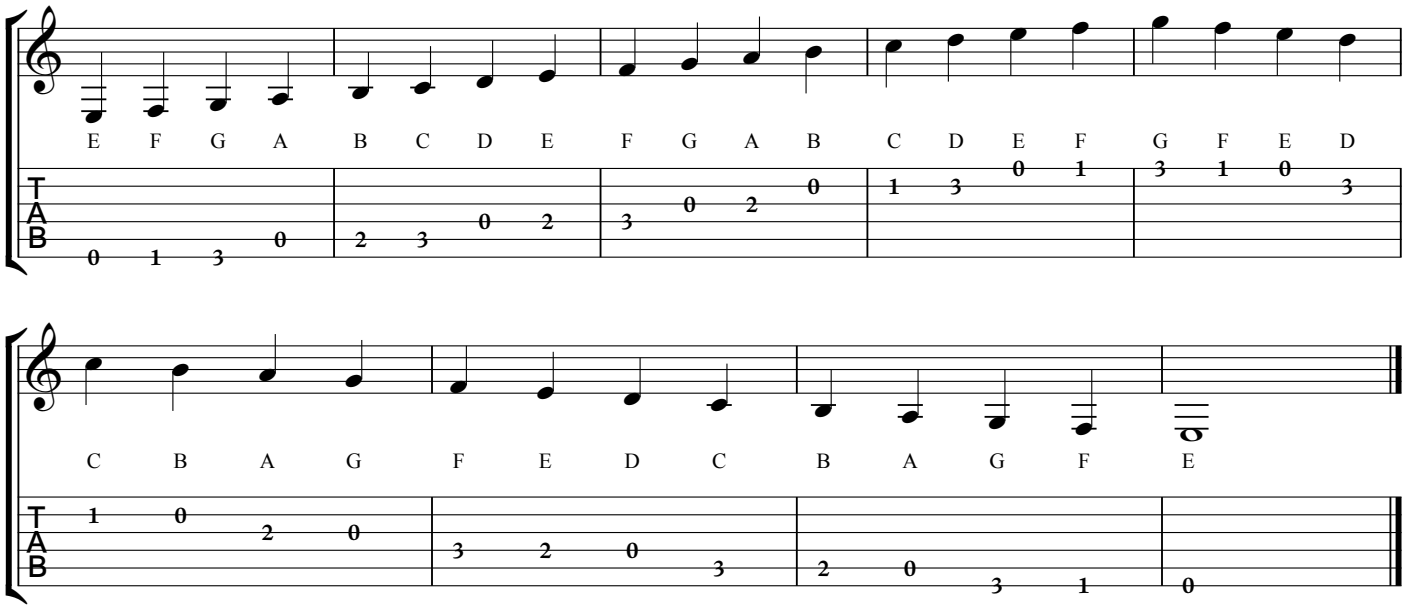
NOTE NAMES

Natural Notes in Open Position

An open string is a note played without fretting, such as the sixth string open "E" and the fifth string open "A" commonly used in tuning. Open position refers to playing in the first position, where the first finger hovers over the first fret and where open strings are involved.

The open strings are named "E, A, D, G, B, E", which can be memorized with the sentence "Eat A Darn Good Breakfast Early" (the first letter of each word). The distance from each note to the next in alphabetical order is two frets (leaving an "empty" fret between them), except "B" to "C" and "E" to "F", which are one fret. If you know the names of the notes on the piano, you know that the pairs of notes "B" to "C" and "E" to "F" each have no black key between them. So, on the guitar there is likewise no note between them.

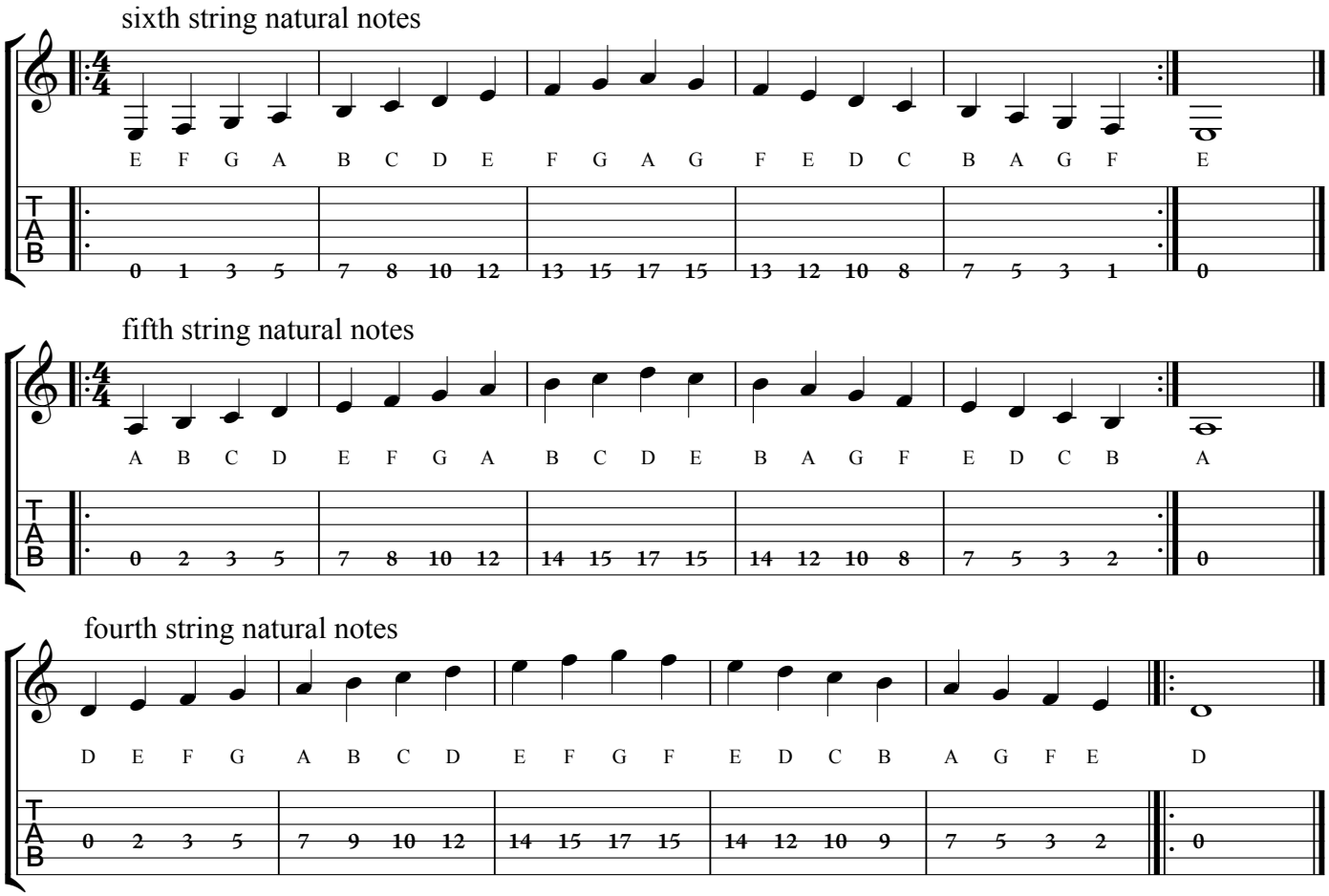
Name these natural notes shown below in open position as you play them. There are three notes on each string except the third string where there are only two.



Natural Notes on the Sixth, Fifth and Fourth Strings

Notes with their letter name followed by a sharp (♯) are raised in pitch one fret and moved one fret toward the body of the guitar (or to an equivalent pitch on the next smaller string). Notes with their letter name followed by a flat (♭) are raised in pitch one fret and moved one fret toward the head of the guitar (or to an equivalent pitch on the next larger string). A "natural" ("plain") note has no sharp nor flat.

Name these natural notes on the sixth, fifth and fourth strings as you play them:

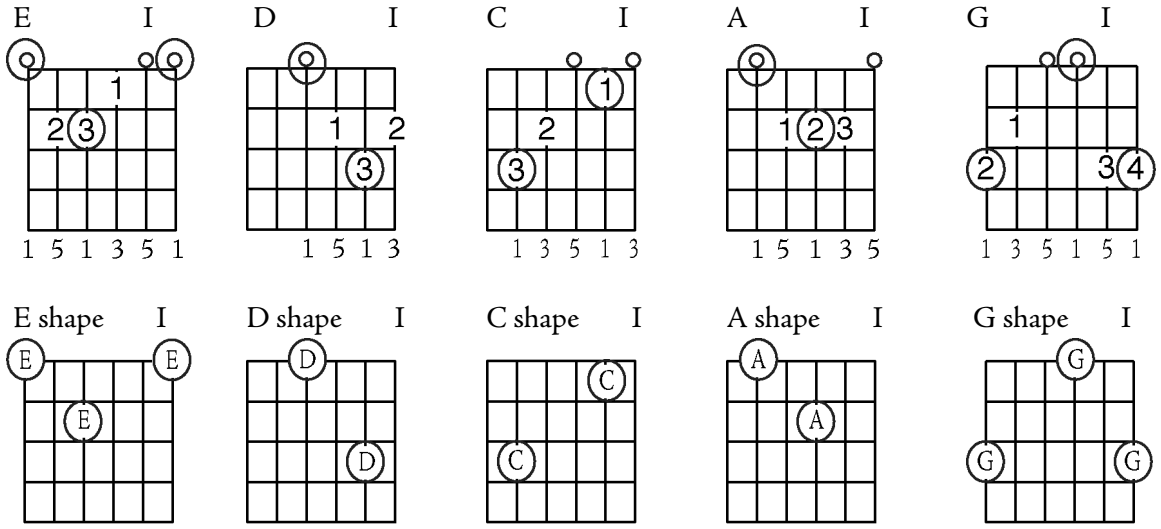


Notice above that notes in alphabetical order are two frets apart, including G to A (where the alphabet starts over), except B to C and E to F which are one fret apart.

OCTAVE SHAPES

Octave Shapes from Open Position Major Chord Roots

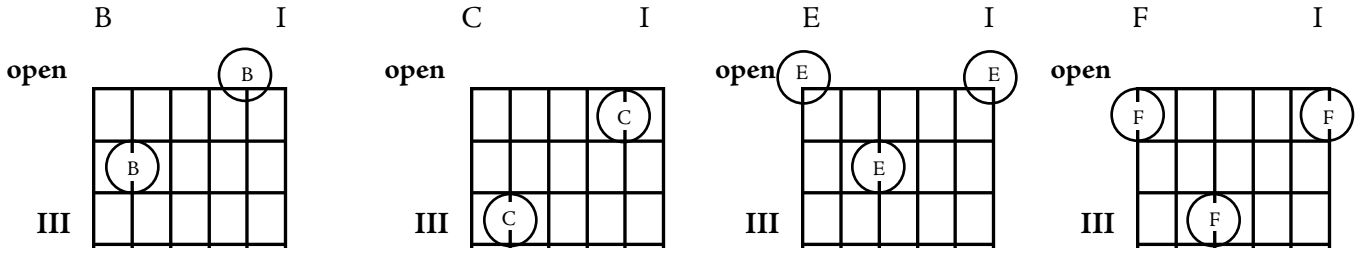
The root of a chord is the letter after which it is named. A "C" chord has a "C" root. An "Am" chord has an "A" root. A "Bbm" (B flat minor) chord has a "Bb" root. On the diagrams in the first row below, the roots are in the large circles. In each of the five chord diagrams in the first row below, the circled notes are the notes after which the chord is named. The circled octave shapes E, D, C, A and G in the second row below are the basis of fretboard orientation for keys, chords and melodies. .



why "B" and "F" are unnecessary

The octave shapes for "B" and "F" are not used as standard references because those letters make octave shapes already represented by other letters. The octave of the note "B" in open position makes the same shape as the note "C". The octave of the note "F" in open position makes the same shape as the note "E".

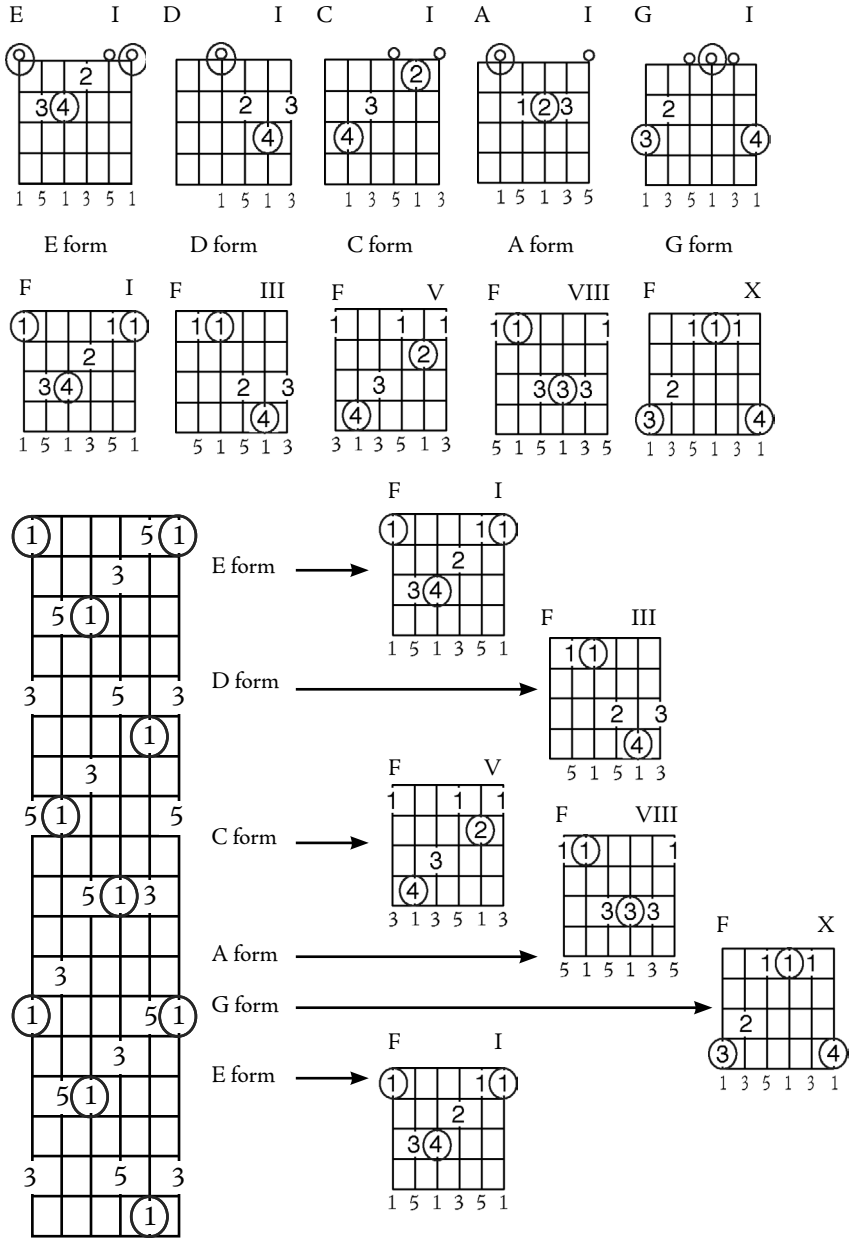
There is no practical fingering for a "B" chord in open position, so "C" was used instead. "E" is better to use than "F", since it is an easier chord to fret for those just starting guitar and has a more parallel relationship to the other chords "A" and "D" that also have an open string root (bass note on the largest string that names the chord).



Ed Cage Movable Octave Shapes

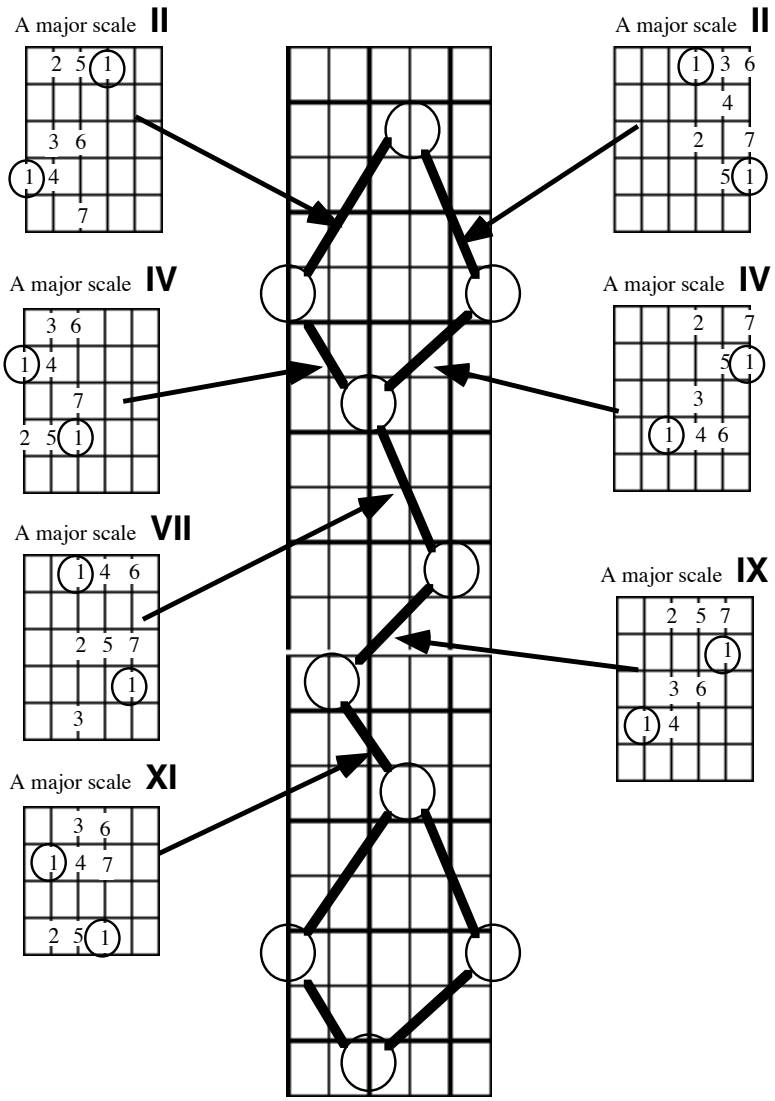
Moving all of the notes of any chord up an equal number of frets transposes the chord to a new key, but with the same quality, as demonstrated with each chord in the first row below and the transposed chord beneath it in the second row. When you transpose, the octave shape (E, D, C, A or G) does not change. Notice that for each chord in the first row, it shares the same octave shape with its transposed version in the second row.

In a single key, such as "F", shown below, the octave shapes occur in the order E-D-C-A-G, then repeat. To signify that the order repeats, I refer to the order as "Ed Cage". It could also be called "caged" in starting the cycle on "C" or "Aged C" to start on "A". I prefer "E" as the point of reference, since its tone center and root is the lowest note relative to your hand.



Single Octaves

Notes repeat every eight notes apart in a major scale, so they are called *octaves* ("okto" is Greek for eight). Each of the smaller diagrams below shows an eight note range of a major scale fingering, spanning an *octave*. Play the notes in numerical order, from "1" to "1" on each of the small major scale diagrams below. The circled notes are one octave apart.



If you can play a major scale in any particular octave area and modify it to make any other scale or chord, arpeggio or melodic phrase. All scales, chords, arpeggios and melodic phrases can be represented with the numbers and altered numbers of the major scale.

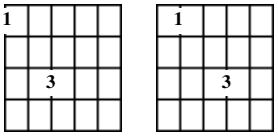
Playing all of the diagrams above on the fretboard relative to the large diagram, with the top fret on the large diagram assigned to a specific fret (and note), would make major scale fingerings in one key all over the fretboard. The key would be named after the note on which the "1's" occurred (which would all be the same note).

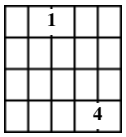
The Seven Octave Fingerings

The diagrams below can be played in any position (at any fret). Numbers within the diagrams indicate fretting fingers.

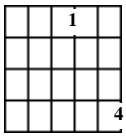
Primary Octave Fingerings

These are "two string, two fret" octaves.





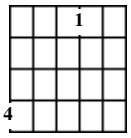
These are "two string, two fret" octaves with compensation for tuning on the smallest two strings.

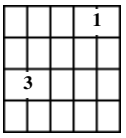


Notes on the smallest two strings must relatively be moved up one fret (higher in pitch), when combined with the larger four strings..

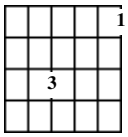
Secondary Octave Fingering

The only un-compensated "three string,- three fret" octave (compensated versions are shown at the right).





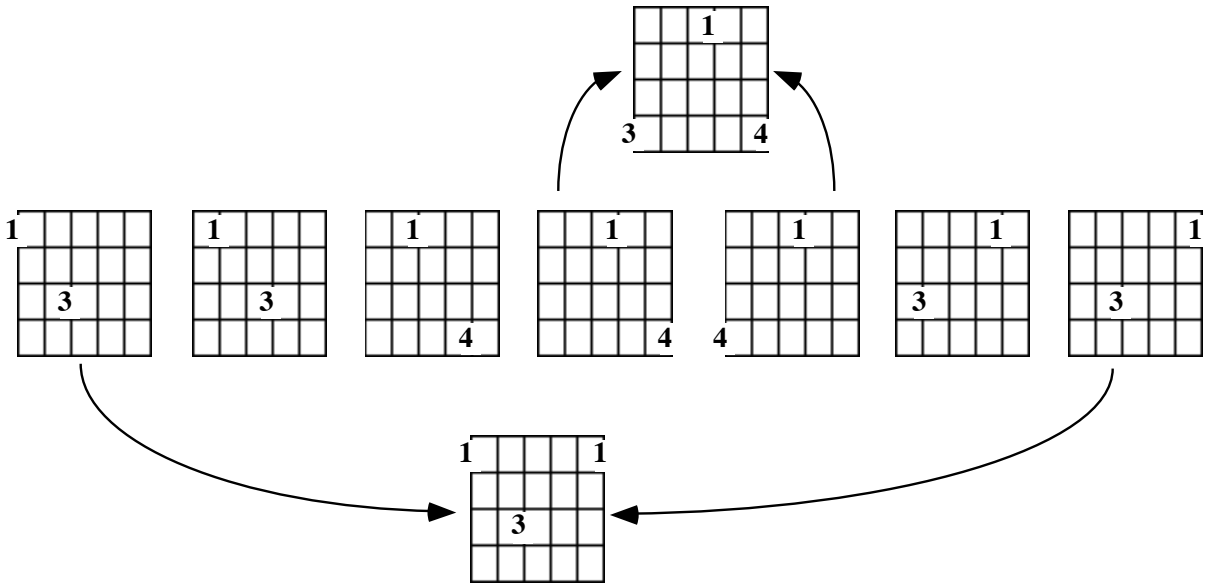
These are "three string, three fret" octaves with compensation for tuning on the smallest two strings.



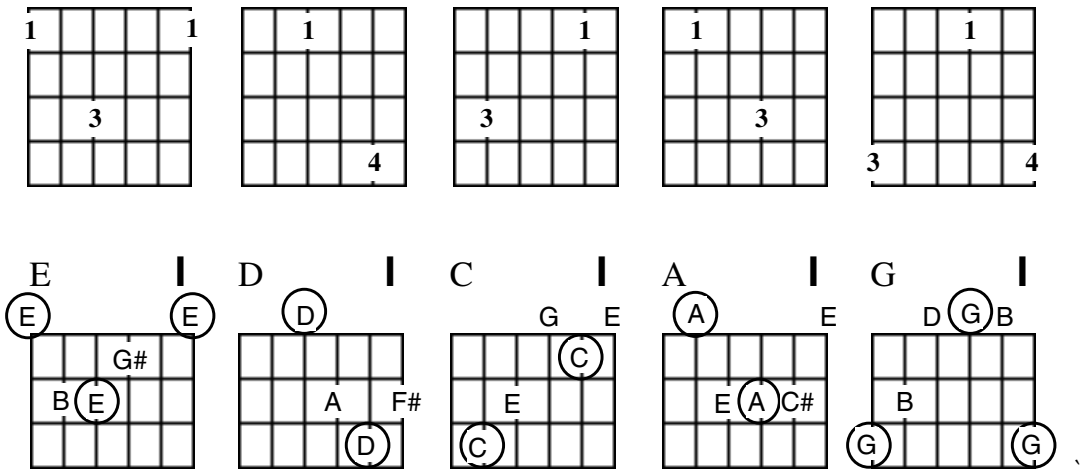
Notes on the smallest two strings must relatively be moved up one fret (higher in pitch), when combined with the larger four strings.

Five Octave Shapes From Seven Octave Fingerings

We can comfortably reach a span of four or five frets, so the full fretboard pattern of octaves needs to be conceived in sections. Sections of three or four frets can be related to octaves. By combining two pairs of the seven octaves and using the other three octaves unchanged, five octave shapes are produced.



Here are the five octave shapes. Notice how each one occurs as the roots of an open string chord:



What's Significant about the Repetition of Each Note?

To master the fretboard, you need to learn to finger scales, chords, arpeggios and melodies in two ways:

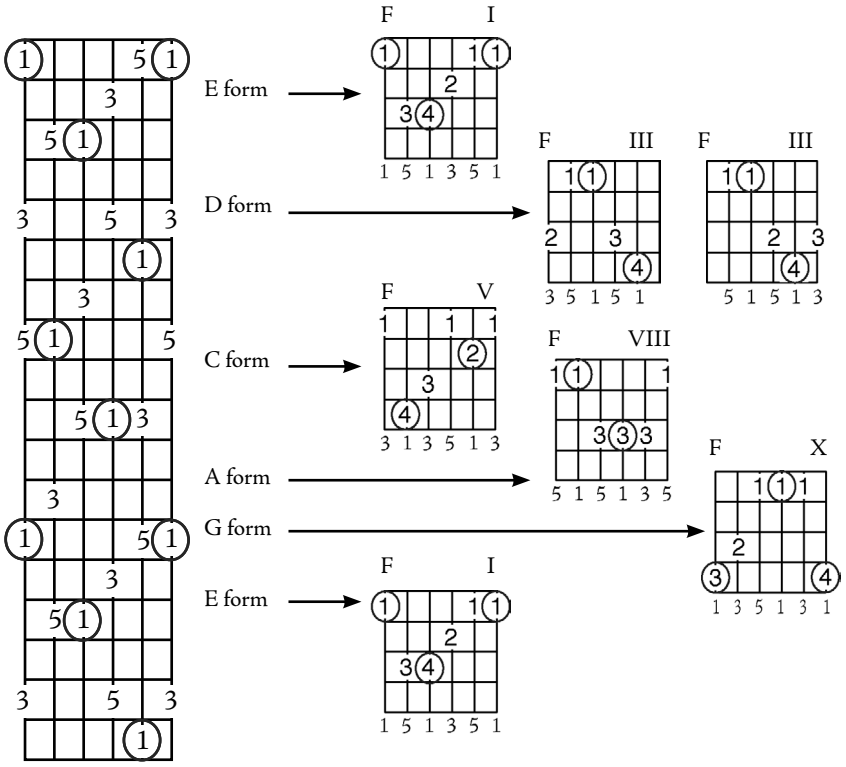
- playing in one key all over the fretboard
- playing all keys in one area of the fretboard

Playing in One Key All Over the Fretboard

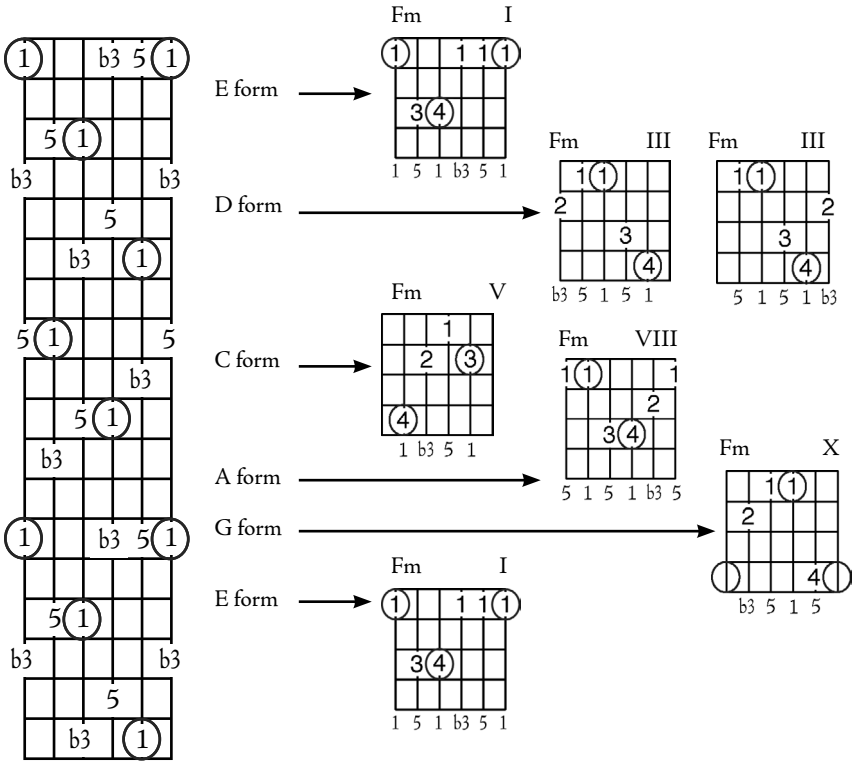
When playing a scale, arpeggio or melodic phrase at any particular location on the fretboard, you need to orient you current octave shape to the sequence of them, having memorized other fingerings categorized by their octave shape.

Full-fretboard F major and full-fretboard F minor chord tones below demonstrate chord tones on the entire fretboard on a single chord root ("F").

Full-Fretboard F Major Chord Tones

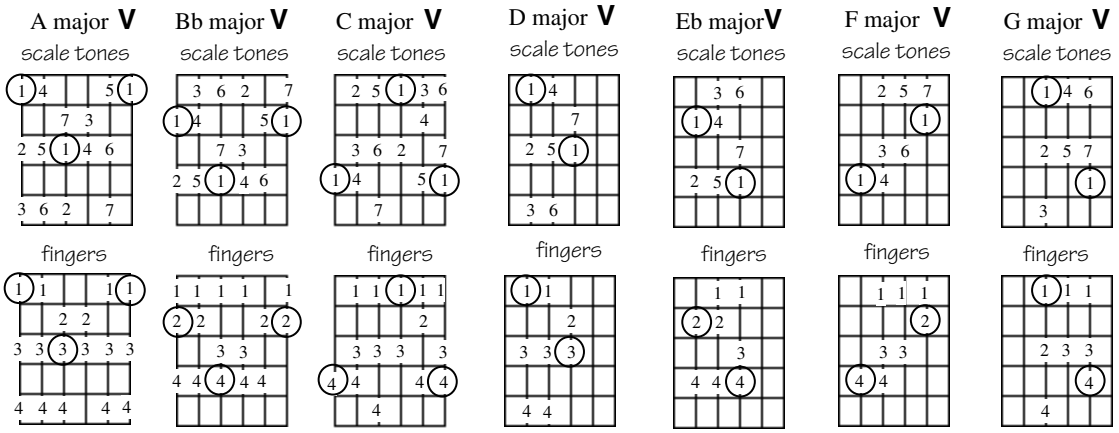


Full-Fretboard F Minor Chord Tones

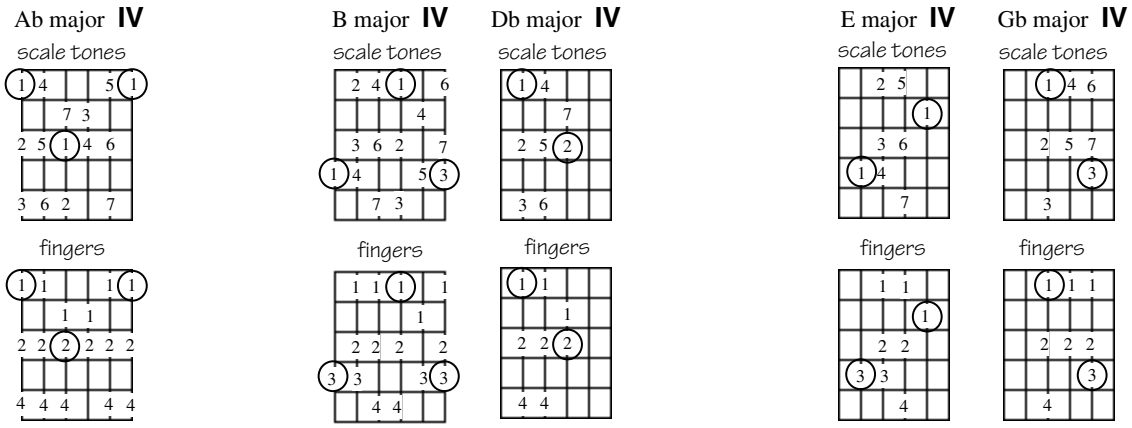


Playing in All Keys in one Area of the Fretboard

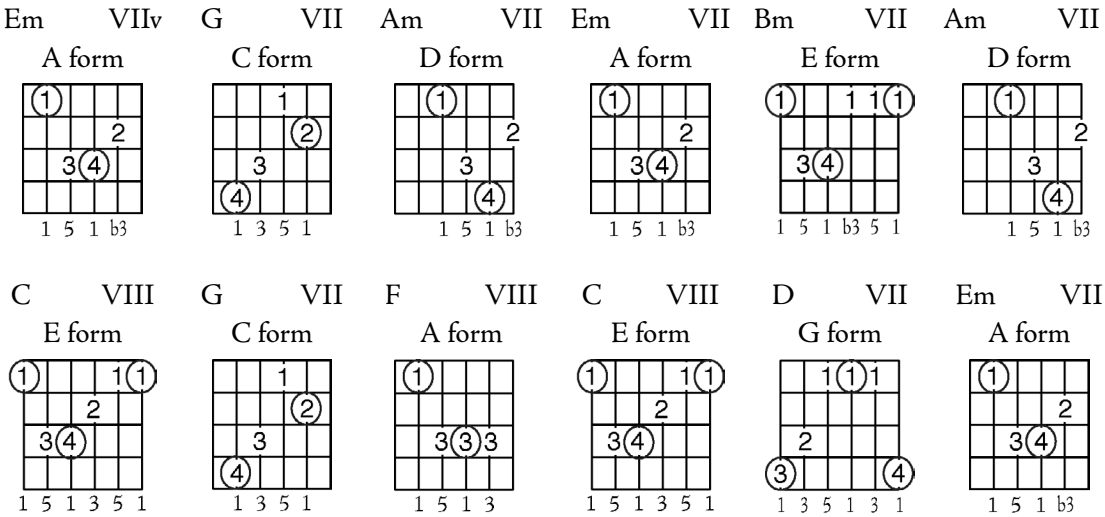
You can also use octave shapes to conceive playing chords, scales or melodies in all keys in one area of the fretboard. Here are some examples:



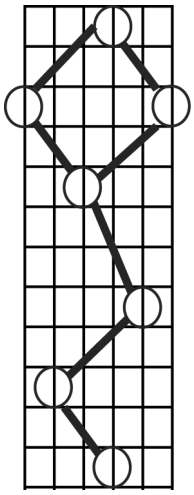
the keys shown below are in fifth position, but involve the index finger reaching to the fourth fret



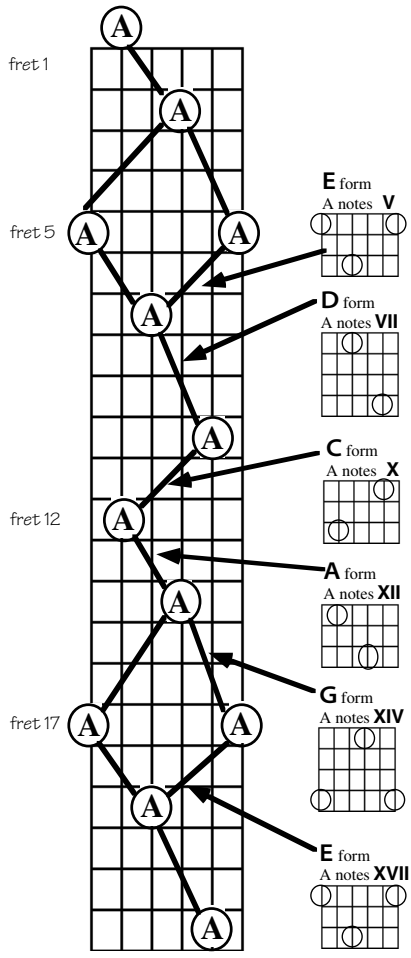
chords to Little Wing, seventh position area

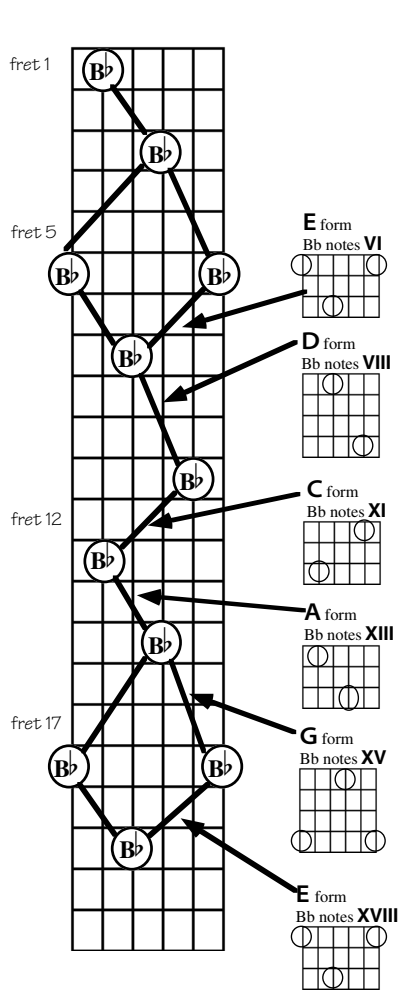


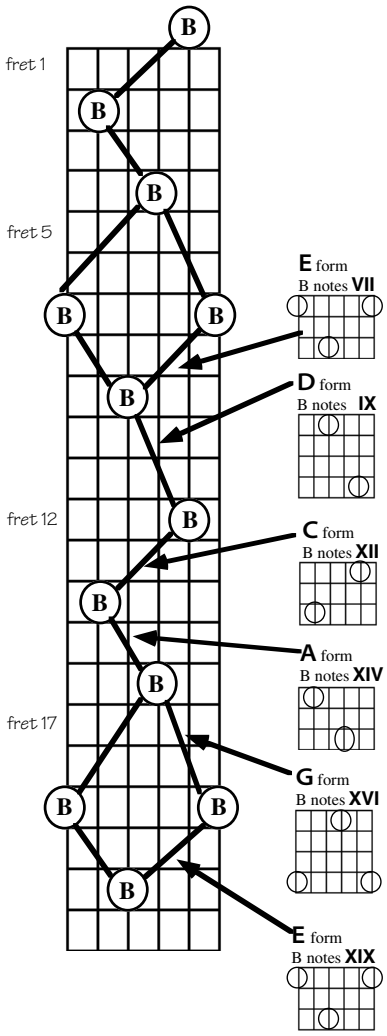
The Full Fretboard "Diamond and "Z" Pattern

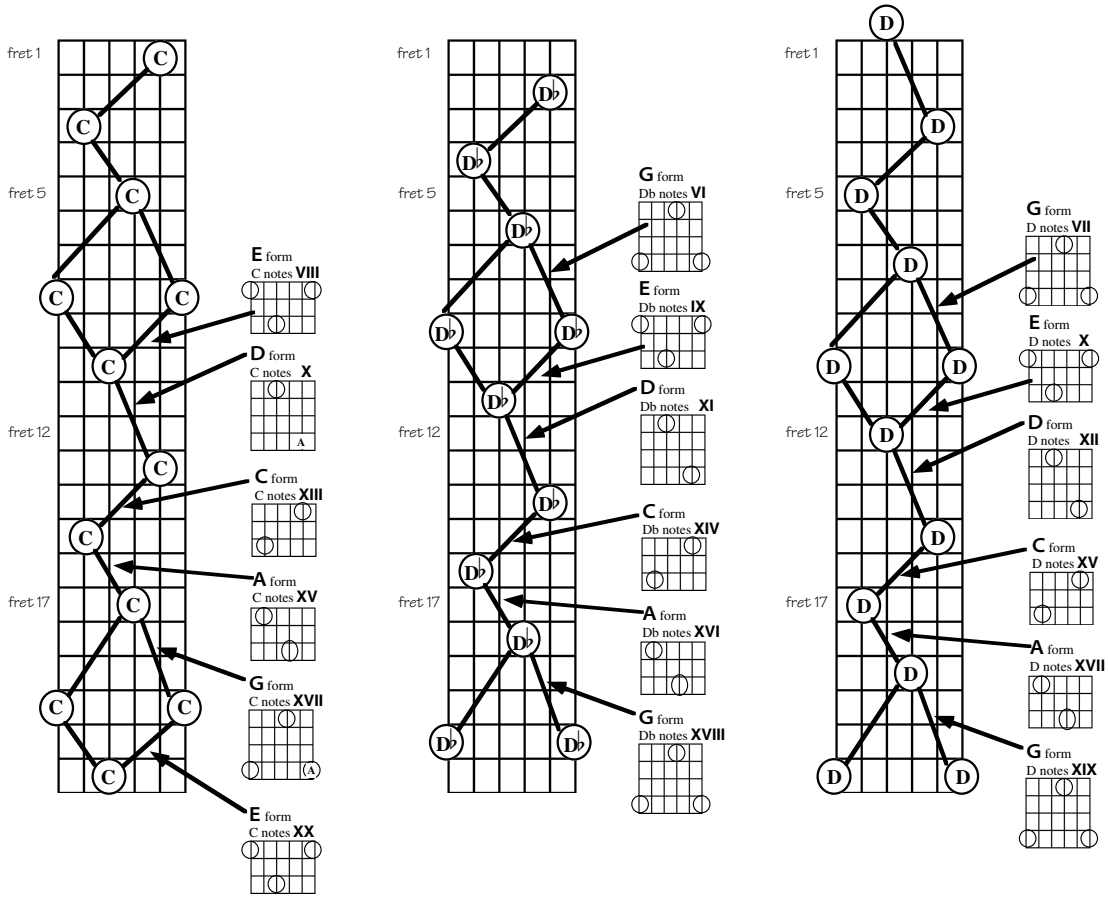


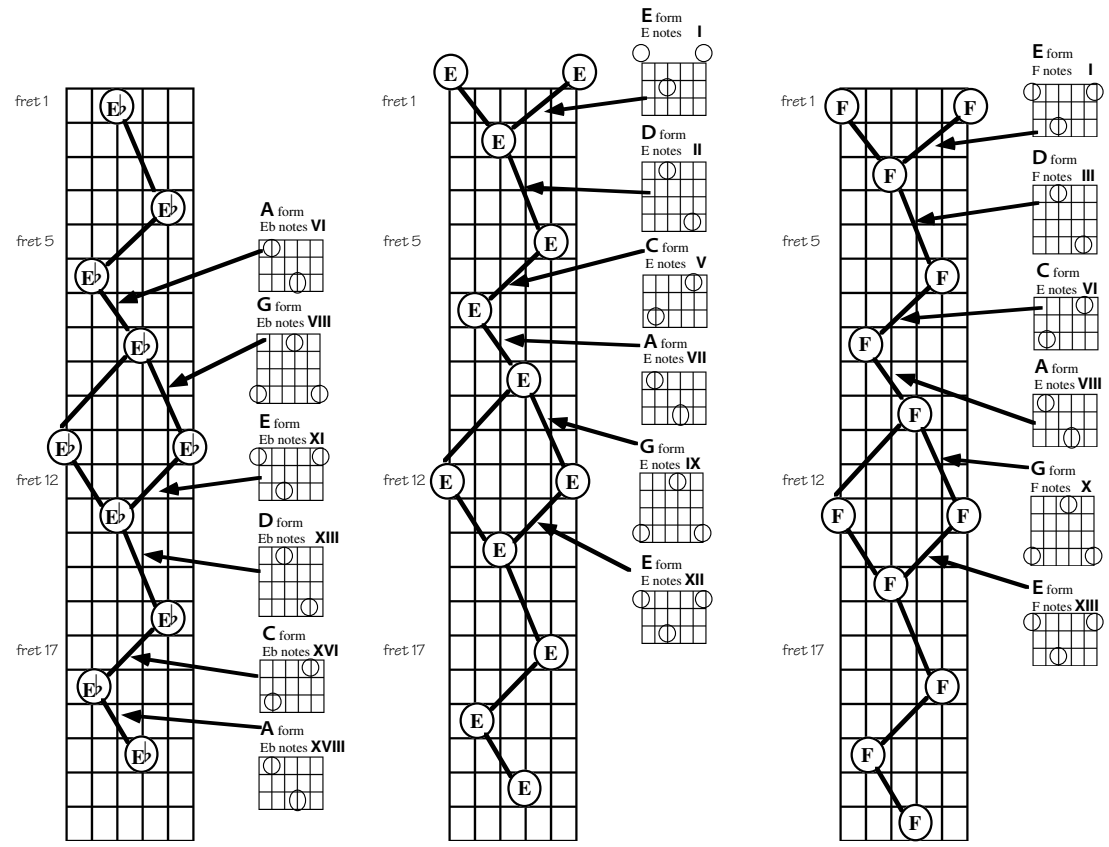
The "diamond and Z" pattern shown at the left occurs in the octaves of every note. Compare the diagrams below. Be able to visualize the "diamond and Z" pattern on any note.

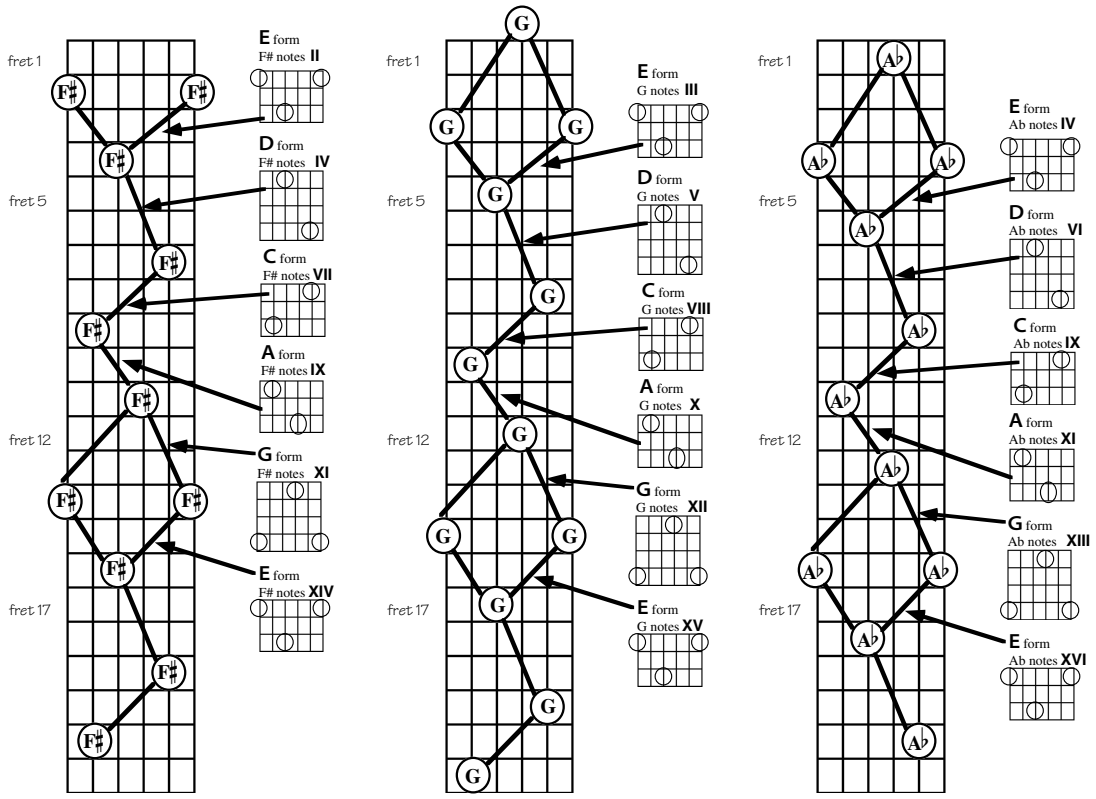












INTERVALS AND FORMULAS

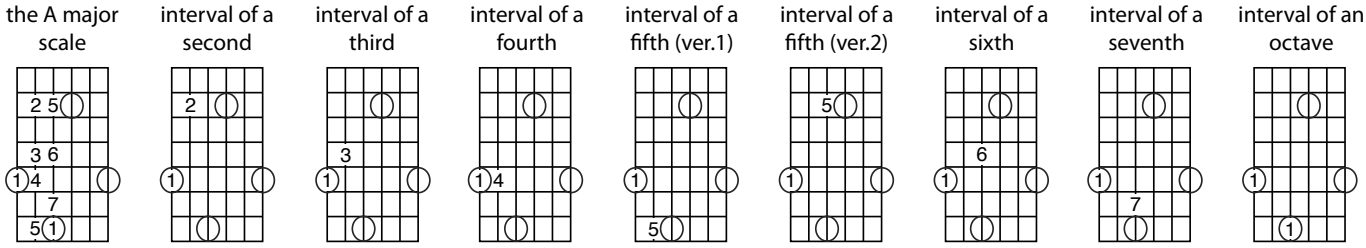
What is an Interval?

An interval is a measurement of the difference in pitch between two notes. Intervals are compared to distances between notes in the major scale. Before discussing the major scale, you'll need to know about the units used to measure the distances between its notes. The *whole step* is a standard unit of measurement that indicates a distance of two frets. The *half step* indicates a distance of one fret.

Fingering Intervals

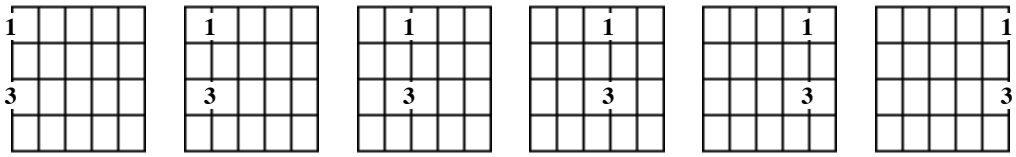
introduction: intervals of an A major scale in the bass

The major scale fingering at the left shows an A major scale in the bass. Scale tone five is shown with an option on both the fifth and fourth strings. The pairs of notes on the diagrams that follow show the basic intervals from a second (1 and 2) through an octave ("1" and "1" eight notes higher).



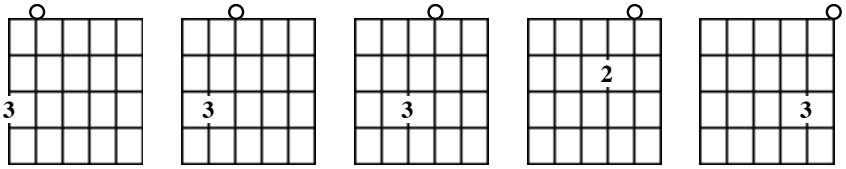
whole steps on a single string

These can be fretted in any position (anywhere up and down each string). Notice that this fingering is the same for each pair of strings. Of course, the notes could be fretted with any combination of fingers.



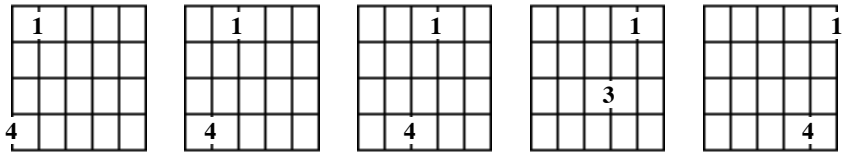
whole steps with one note on an open string

This fingering is the same for each pair of strings. The fretted notes could be fretted with any finger.



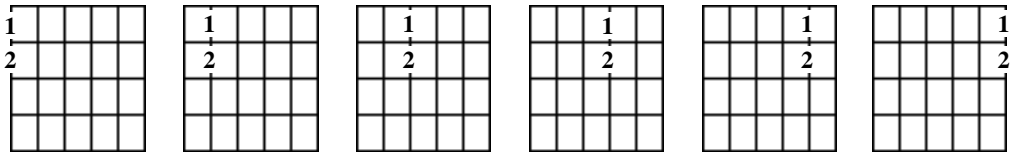
whole steps fretted on each of two adjacent strings

This fingering is the same for each pair of strings *except* the third and second string, where it is fretted with one "empty" fret between the fingers, instead of two. The notes could be fretted with any practical combination of fingers.



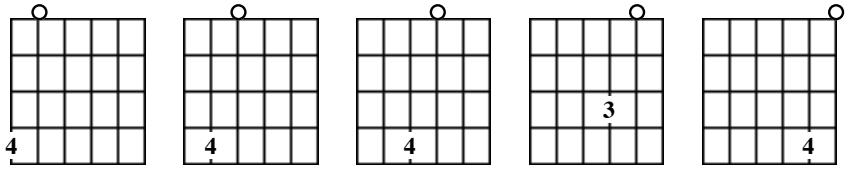
half steps on a single string

These can be fretted in any position (anywhere up and down each string). Notice that this fingering is the same for each pair of strings. Of course, the notes could be fretted with any combination of fingers.



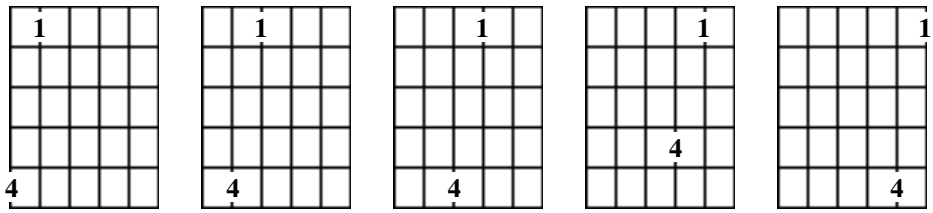
half steps with one note on an open string

This fingering is the same for each pair of strings. The fretted notes could be fretted with any finger.



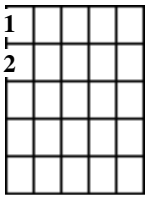
half steps fretted on each of two adjacent strings

This fingering is the same for each pair of strings *except* the third and second string, where it is fretted with two "empty" frets between the fingers, instead of three. The notes could be fretted with any practical combination of fingers.

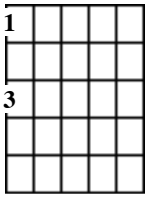


three ways to finger half and whole steps

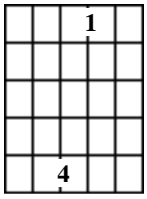
There are three ways to finger half steps and three ways to finger whole steps (not involving open strings):



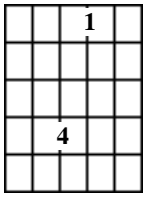
a half step on one string
may be on any string,
at any position,
with any fingers



whole step
may be on any string,
at any position,
with any fingers



a half step on two strings
may be on adjacent pair of strings
except NOT the second and third strings,
at any position, with any fingers
(as long as you can reach!)



whole step on two strings
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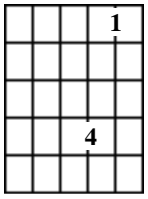
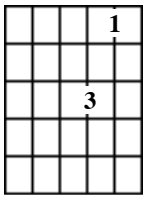
(as long as you can reach!)



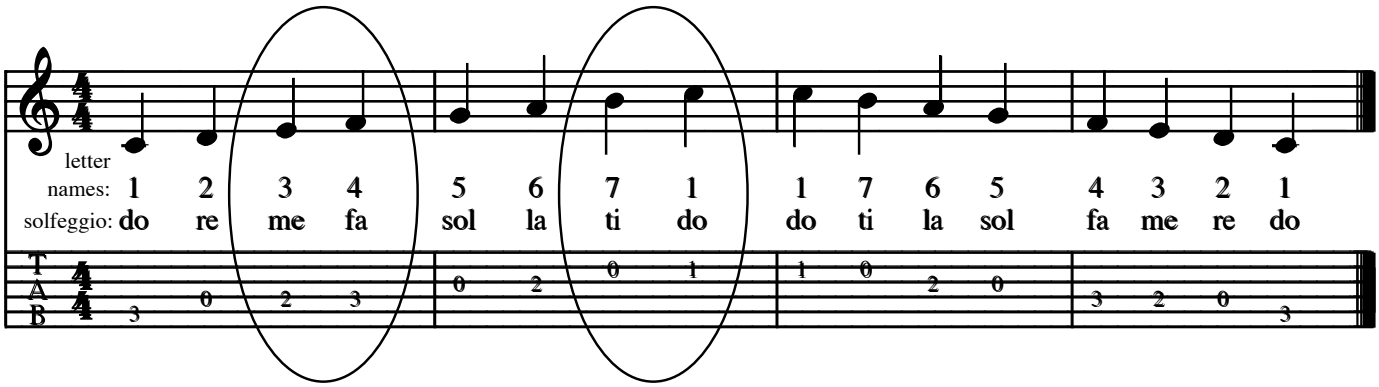
a half step on two strings
the unique fingering
on the second and third strings,
at any position, with any fingers



whole step on two strings
the unique fingering
on the second and third strings,
at any position,
with any fingers

Formulas: Numbering the Major Scale Tones

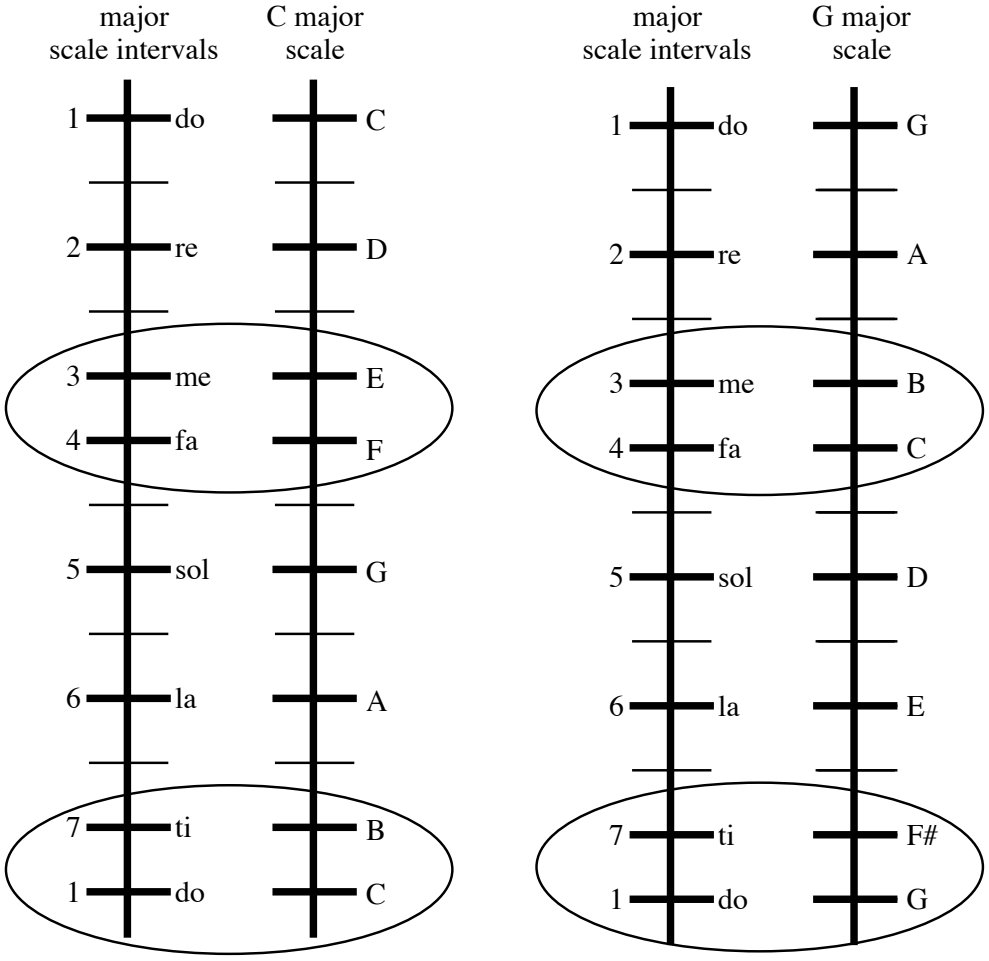
In the solfeggio system, the intervals of the major scale are labeled with the syllables "do, re, me, fa, sol, la, ti". Here is a C major scale, played in the first position (with the first finger at the first fret) and labeled both with the solfeggio syllables and the numbers 1 through 7:



Recognizing Half Steps in the Major Scale

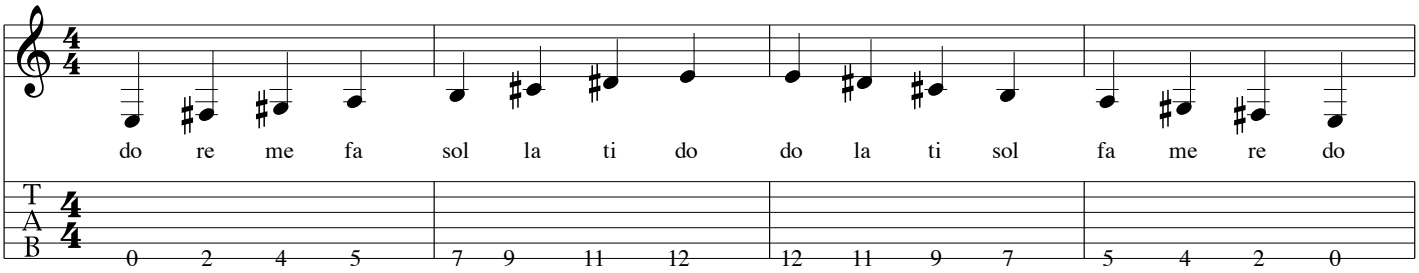
In making up major scale fingerings, each note is assigned a number, one through seven. The half steps (one fret intervals) occur between numbered major scale tones 3 and 4 and between 7 and 1 (ascending in pitch). These scale steps are circled in the example below. The remaining steps of the major scale are whole steps apart, which include the intervals between the following pairs of numbered scale tones: "1 to 2", "2 to 3", "4 to 5", "5 to 6" and "6 to 7".

The intervals between the numbered tones of the major scale are illustrated using the "string diagrams" shown below.



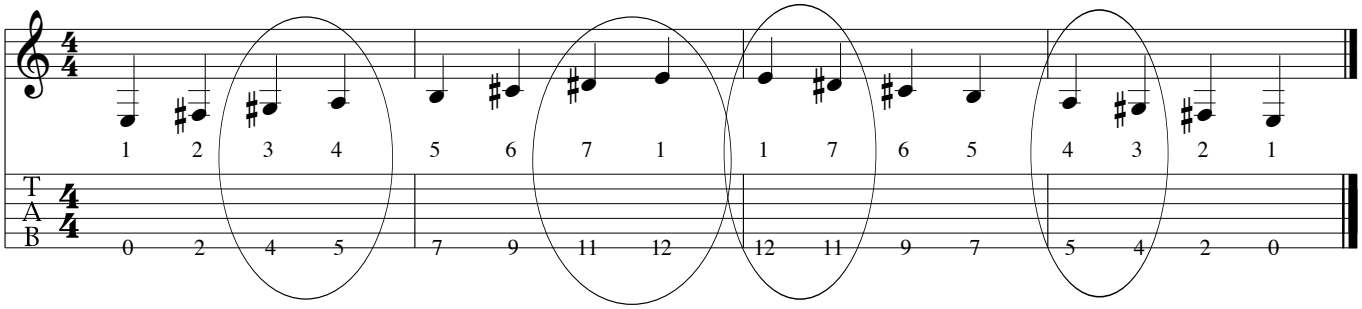
Play the Major Scale on One String

This is an E major scale, named after "E", the note on which it begins and ends. A traditional set of names for the notes of a major scale is "do, re, me, fa, sol, la, ti, do." The eighth note has the same name as the first one and is referred to as being an *octave* higher than the first note. Speak their names of the notes below as you play them.



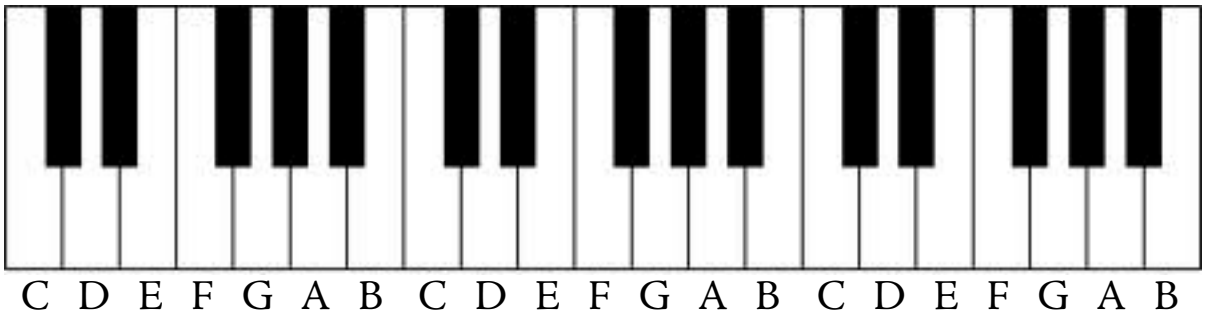
The tones of the major scale can also be labeled with the numbers "1-2-3-4-5-6-7-1". Speak the numbers as you play the notes.

Notice that the distance between the tones are whole steps, except half steps between "3" and "4" and between "7" and "1" (where "1" begins the next octave).



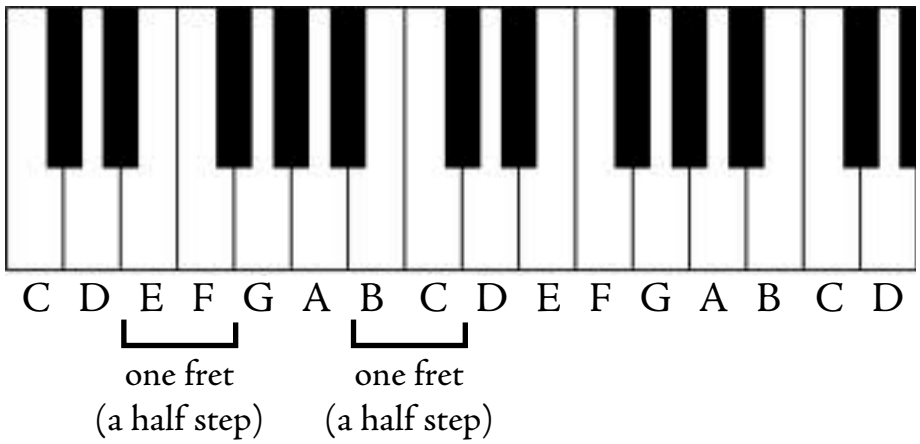
Perspective for Piano Players

If you've played piano, you know "C" is to the right of each pair black keys (see below). You also would know that the white keys are named in order alphabetically to the right.



Each white key is represented on the guitar with a note given a plain letter name like "A", "B" or "C". Each black key represents a note between the letter names. So, on the guitar, the black keys are represented by notes in between most alphabetical pairs of letters, including "G" and "A", which are consecutive in the cycle "A - B - C - D - E - F - G - A, etc.".

Where there is no black key on the piano, there is no note on the guitar, so "B - C" and "E - F" are one fret apart (see the piano diagram below).



see the chapter Major Scale Fingering

especially the section: Major Scale Fingering Numbers

THE INTERVALS NECESSARY TO CONSTRUCT A MAJOR CHORD

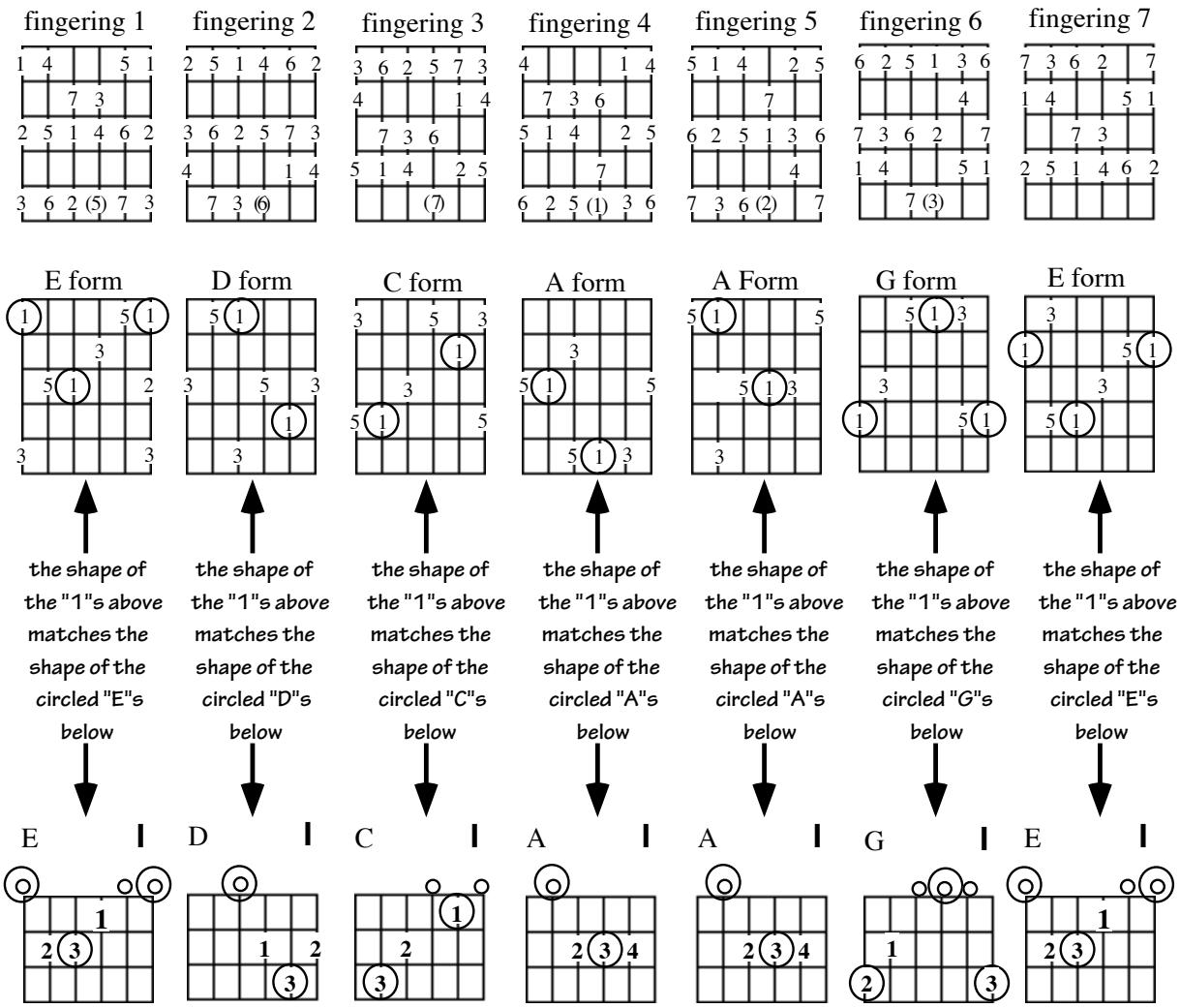
why is this important?

If you know the location of all the tones of a major chord in the area of the fretboard in which you are playing, any other two is two frets (half steps) up or down.

major is 1, 3 and 5

A major chord contains tones 1, 3 and 5 of a major scale on its chord root. You will need to know how to finger the intervals from the root ("1") to the each of the other chord tones. Play each of the major scale fingerings below. Next, isolate scale tones 1, 3 and 5 and play them in ascending and descending order. When you play major scale tones 1, 3 and 5, you are playing a major chord arpeggio named after the note on "1".

Notice that the "1" after which each major chord arpeggio is named occurs in one of five octave shapes. The octave shapes are shown by the circled notes below. Review Chapter 4: Octave Shapes.

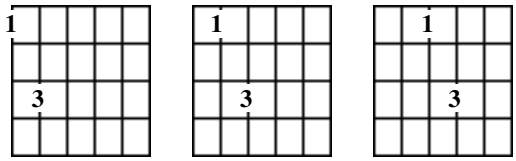


Perfect Fifth Fingerings

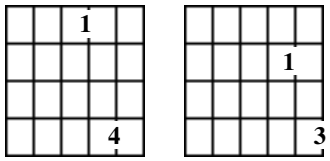
Perfect fifth intervals are equal to the distance between major scale tones "1" and "5". If you locate the lower-pitched note of any perfect fifth fingering below as the number "1" in a major scale fingering, you should be able to locate "5" as the higher-pitched note in the fingering.

Primary Perfect Fifth Fingerings

(compensated versions are shown at the right).

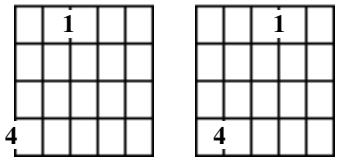


This primary perfect fifth fingering
is compensated for tuning on the smallest two strings.
Notes on the smallest two strings must relatively
be moved up one fret (higher in pitch),
when combined with the larger four strings..

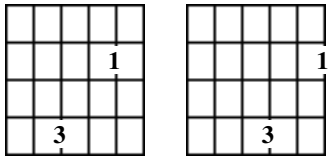


Secondary Perfect Fifth Fingerings

(compensated versions are shown at the right)



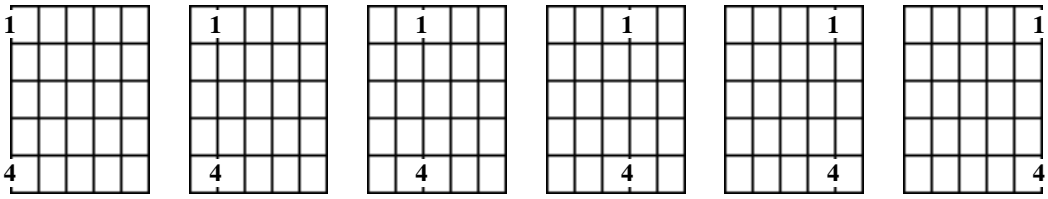
These secondary perfect fifth fingerings
are compensated for the tuning on the smallest two strings
Notes on the smallest two strings must relatively
be moved up one fret (higher in pitch),
when combined with the larger four strings.



Major Third Fingerings

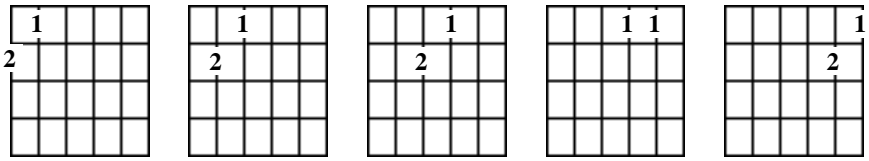
Major third intervals are equal to the distance between major scale tones "1" and "3". If you locate the lower-pitched note of any major third fingering below as the number "1" in a major scale fingering, you should be able to locate "3" as the higher-pitched note in the fingering.

a major third is fingered the same on each string



Major Third Fretted on Adjacent Strings

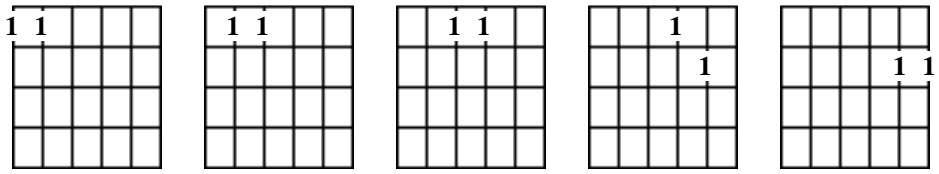
Note the unique fingering on the second and third string.



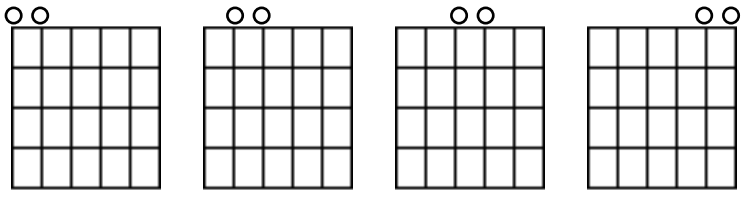
Perfect Fourth Fingerings

In constructing a major chord, you'll often need to know a perfect fourth fingering to locate the fifth of the chord below the root. Perfect fourth intervals are equal to the distance between major scale tones "1" and "4". If you locate the lower-pitched note of any major third fingering below as the number "1" in a major scale fingering, you should be able to locate "4" as the higher-pitched note in the fingering. Perfect four intervals also occur in major scale fingerings between scale tone "5" and the next higher-pitched scale tone "1", where they demonstrate the relationship between the fifth ("5") and the root ("1") of a chord.

perfect fourths fretted on adjacent strings



perfect fourth fingerings on adjacent open strings



fourths and guitar tuning

The guitar is tuned in fourths with one exception. If any note on strings six, five, four and two is considered as the first step of a major scale, the fourth step of that scale is on the next smaller string at the same fret. This applies to open strings as well. For the first string, the "next smaller string" is not available, unless hypothetically. The exception is the third string. If any note on the third string is considered to be the first step of a major scale, the third step of that scale is at the same fret on the second string.

7 Rhythmic Words and Comping

- **Rhythmic Words**
- **Time Signatures**
- **Rhythmic Reading**
- **Metering Rhythmic Audio Memories**
- **Hearing Beat Subdivisions**
- **Hearing Rhythmic Words**
- **Four-Pulse Rhythmic Words**
- **Three-Pulse Rhythmic Words**
- **Six-Pulse Rhythmic Words**
- **Hearing Pickups and Pushes**
- **First Comping Rhythms**
- **Kick and Snare Rhythms**
- **Comping Rhythms**

  Varying Rhythm, Charleston Family, Evil Ways Family, Reggae Family, Clave Family, Bossa Nova, Others, Triplets and Swing Eighths, Triplets And Swing Eights with Back Beat, Polyrhythmic Afro-Cuban

- **Melodic Rhythms**

  Primary Eighth Note Triplets, Primary Sixteenth Note Rhythms, Two-Note Rhythms, Three-Note Rhythms, Four-Note Rhythms, Five-Note Rhythms, Six-Note Rhythms in Eighth Triplets, Six-Note Rhythms in Sixteenth Notes, Seven-Note Rhythms, Pickups, Syncopated Series for Improv, Swing Sixteenth Exercises, Rhythm in Bebop Ornamentation

RHYTHMIC WORDS

Sensing a Regular Pulse

Most music is based on a regular pulse or *beat*. The rate of this pulse or beat is measured in beats per minute and is called the *tempo*. Most listeners can sense the pulse with ease and are accustomed to taping their foot, snapping their fingers or moving their torsos (dancing) in time with the beat (pulse).

Selecting From a Regular Pulse

ducks in an arcade analogy

Imagine shooting ducks (fake ones, to re-assure you bird lovers) in an arcade. A conveyor belt rotates past your field of vision with mounts attached to it at regular intervals (equal distances apart). Each mount has a duck attached to it with a hinge, but most of them have the duck folded back, so it is out of view. Occasionally, a duck is flipped forward, toward you, on its hinge. It is your goal to respond and pull the trigger and project a bullet onto the duck.

To accurately shoot a duck on the conveyor, you need to focus straight ahead at a fixed point where the conveyor passes by your field of vision. While you focus on the fixed point, you also have peripheral vision to help you anticipate and predict precisely when a duck will arrive at your focal point. Relax your mind previous to seeing a duck peripherally. When you see a duck peripherally, wait until just before the duck will pass by your focal point to heighten your attention. This will give you the highest power of concentration.

In targeting the performance of a note (or chord) at a specific point in time, you think in terms of counted pulses to anticipate and predict. You keep the number of the beat (or its subdivision, such as the third quarter) in mind as your focal point. Like with the duck, when you sense your counting is peripherally nearing the targeted beat (or subdivision), wait until just before the target to heighten your attention.

Dividing the Pulse Evenly

dividing time into regular intervals

Humans have a great ability to divide short periods of time similar to the pace of walking into two, three or four equal periods. Our concepts of rhythm in music are based on this ability. We use three basic math operations in notating music rhythmically: halving, multiplying by one and a half and dividing into a specified number of equal subdivisions. These could be called halving, dotting and tuplets.

beats and bars

Beats are pretty much analogous to footsteps in walking or running. Beats are usually regular pulses of time. Beats are usually arranged in regular groups called bars. The most typical number of beats per bar is four. Bars of three and six are also common, twelve a little less common. Other numbers of beats per bar are more rare.

dividing the beat into any number of equal parts

Each beat can be divided into equal parts, most commonly two, three or four parts. Halving can divide the beat into two parts. Halving again can divide it into four parts. Dividing the beat into three parts creates triplets.

Halving, Dotting and Tuplets

halving

The most basic rhythmic notation involves a series of values that keep cutting the duration in half. The upper number on a time signature such as "3/4" indicates the number of beats per regular period, where each period is called a bar.

The lower number on a time signature indicates the value of the whole note. Whatever number of beats is assigned to a whole note, half that number is assigned to a half note, one fourth as many beats to a quarter note, one eighth as many to an eighth note, and so on.

dotting

Dotting multiplies any note durations in the "halving" system by 1.5, making the value half again as much. A note value of two beats becomes three when dotted. A note value of a half a beat becomes three quarters of a beat when dotted, and so on.

tuplets

With tuplets, the divisions of a period of time can be other than dividing by two or four. A triplet divides a beat into three equal parts. A quintuplet divides it into five. A modern expression of tuplets is specifically indicate the new number of notes played in place of the original number of notes with two numbers separated by a colon, such as "3:2" to indicate three notes in the time of two.

Triplets occur where a period of time was previously divided into two parts, an enclosing notation like a bracket with the number "3" can indicate that it should be divided into three parts instead.

Duplets occur where a period of time was previously divided into three parts, an enclosing notation like a bracket with the number "2" indicates the beat should be divided into two parts instead.

Other tuplets. Triplets and duplets are tuplets, as are all other changes of division.

Counting time

traditional counting syllables

Count beats with whole numbers, such as four beat bars counted: "1-2-3-4, 1-2-3-4" etc. Divide beats into two parts by speaking "and" after each number. In written form the "and" may be shown as the mathematical plus symbol ("+"): "1 + 2 + 3 + 4 +".

Up until about 1970, we used a lowercase ampersand to notate the "and" more commonly than the "+" symbol, but the lowercase ampersand is no longer included in our typographical characters. It was drawn as follows:

Three parts per beat should be counted with each beat number, followed by the syllables "trip" and "let": "1 trip let 2 trip let three trip let four trip let".

Four parts per beat are counted "1, e, and, a, 2, e, and, a" etc., written "1 e + a 2 e + a 3 e + a 4 e + a".

Other divisions of the beat, such as five or six parts can be counted with an entire set of numbers for each beat, such as counting "1-2-3-4-5" during a beat to represent its five parts.

Rhythmic Words Defined

A rhythmic word is a groups of two to eight notes that represents a unique rhythmic idea, sound and feeling. Ultimately, you should be able to look at the music notation or hear the sound of groups of two to eight notes and identify them as a rhythmic word.

The process of learning a rhythmic word should begin with an auditory memory of the rhythmic word. Next you need to be able to play the rhythmic word against a metronome or other regular pulse, conceiving the selection of the notes from a continuous pulse.

Rhythm can be thought of in a digital sense as selections from regular groups of pulses, such as four per beat. On each pulse is one of three things: on, off, or hold, representing a note, a silence and a sustain (of the previous note), respectively.

vocalizing rhythm with "Ba Ahh Um Bop" Syllables

Phrases of music that are based on equal divisions of the beat, such as half beats, can be conceived in terms of on, off and hold. When a note or chord is played, that's an "on". When that note or chord is sustained (continued through one or more additional pulses without stopping), it is a "hold". When there is a silence, it is an "off:. In music notation, rests indicate "offs".

Vocalizing a rhythmic word helps you to understand it. I use "ba" for "ons", "ahh" for "holds" (continuing the same breath for the "ba" that preceded it, but surging the breath) and "umm" for "offs". Additionally, I often use "bop" for the last note before an "off" (remember, an off is a rest).

To get started, a simplified version of vocalizing can use just "ba" for "ons and "umm" for rests *or* holds. Once you are comfortable with the simplified "ba" and "umm" system, you can add "ah" and "bop".

Changing Rhythmic Level. In counting whole beats, say in 4/4, you can count "1-2-3-4, 1-2-3-4, etc."

Counting half beats can use "1 + 2 + 3 + 4 +1 + 2 + 3 + 4 +, etc." Remember, "+" is prounouced "and".

Where no note occurs on an "and" (+), it can be unspoken, as long as a space in time is left for it. So, in changing from whole beats to half beats (one bar after the other), you can count: "1, 2, 3, 4, 1 + 2 + 3 + 4 +".

The Rhythmic Level Game. In this game, the leader would count regular bars with whole numbers, randomly speaking "and" after some of the numbers, but always leaving a space in time for the "and". In time with the next beat after the leader completes a bar, the follower resumes by attempting to replicate the leaders bar. If the follower fails, the leader would resume with the same bar again. This would repeat until the follower replicates the bar.

The Follower Fails. The game is not necessarily to only test the leader, because if the follower fails (which they may do intentionally), the leader must be prepared to replicate their bar again.

Mixed Rhythmic Levels. The game can similarly be played with triplets or sixteenths. Sixteenths are typically four parts per beat. It can even mix two, three and four parts per beat, which can become difficult.

Omitting Redundant Vocalizations. Through the Rhythmic Level Game, you can learn to omit redudant parts of a beat. If a rhythm involves two parts per beat by having whole beat notes on each of the first three beats, then a pair of half beat notes on the fourth beat, you could simply count "1, 2, 3, 4, +", as long as you are leaving a space in time for each of the unspoken "ands" after 1, 2 and 3.

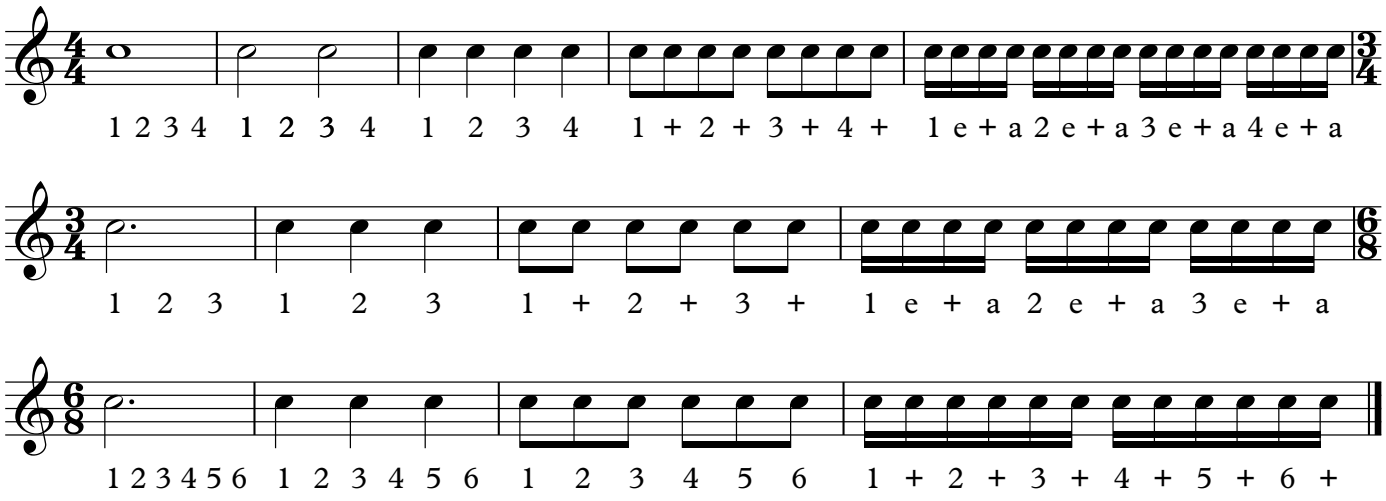
Swing Eighths And Swing Sixteenths. Swing eighths and swing sixteenths change the ratio of pairs of notes from two halves to two-thirds and one third, typical of a slow blues. The words "Swing Eighths" or "Swing Sixteenths" will appear above the time signature when such a ratio is desired.

When counting swing eighth pairs, an un-played pulse has to be inserted between each pair of notes. Rather than counting "1, and, 2, and", etc., you would begin by counting "1, um, and, 2, um, and", etc. Once you are speaking the syllables evenly, you would progressively fade out and then omit the "um" syllables, but leave a space in time for them.

Swing sixteenths would be counted in groups of four with an un-played pulse has to be inserted between each pair of notes. Rather than counting "1, e, and, a, 2, e, and, a" evenly, you could first speak "um" after each number and after each "and", making "1, um, e, and, um, a, 2, um, e, and, um, a", etc., then omitting the "ums", leaving the original "1, e, and, a, 2, e, and, a", but with a one pulse space (equal to the syllables) between "1, e" and between "and, a" (same for each beat, such as between "2, e" and between "and, a).

TIME SIGNATURES

Music is divided into regular units called bars. In common time, there are four beats to a bar. The top number on a time signature tells you how many notes there are per bar. The bottom number gives you the value in beats for the whole note. The half note gets half as much. The quarter note gets one quarter as much, and so on, in a system of halving. See the halving chart on the next page.



RHYTHMIC READING

Halving

name	*single*	*beamed*	*rest*	*calculation*	*x/4 value*	*x/8 value*	*x/2 value*
whole	𝅝			all of whole note	4 beats	8 beats	2 beats
half	𝅗𝅥			1/2 of whole note	2 beats	4 beats	1 beat
quarter	♩		𝄽	1/4 of whole note	1 beat	2 beats	1/2 beat
eighth	♪ or 𝄾	♫	𝄾	1/8 of whole note	1/2 beat	1 beat	1/4 beat
sixteenth	𝅘𝅥𝅯 or 𝄿	𝅘𝅥𝅯𝅘𝅥𝅯	𝄿	1/16 of whole note	1/4 beat	1/2 beat	1/8 beat
thirty-second	𝅘𝅥𝅰 or 𝅀	𝅘𝅥𝅰𝅘𝅥𝅰	𝅀	1/32 of whole note	1/8 beat	1/4 beat	1/16 beat

The complete name in each case ends with the word "note", such as whole note and half note. Two or more notes can be beamed.

Dotting

Dotted notes receive one and one half their value. Think of it as adding half of the value of the note for the dot. All calculations are 1.5 times the whole note.

name	*note*	*rest*	*x/4 value*	*x/8 value*	*x/2 value*
dotted whole	𝅝.		6 beats	12 beats	3 beats
dotted half	𝅗𝅥.		3 beats	6 beats	1 1/2 beats
dotted quarter	♩.	𝄽.	1 1/2 beats	3 beats	3/4 beat
dotted eighth	♪. or 𝄾.	𝄾.	3/4 beat	1 1/2 beats	3/8 beat
dotted sixteenth	𝅘𝅥𝅯. or 𝄿.	𝄿.	3/8 beat	3/4 beat	3/16 beat

Dotted notes can be beamed and secondary beams can be attached to single notes: ♩.♫ ♫♩.

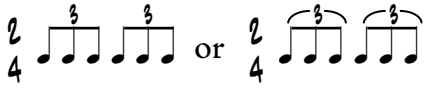
Double-dotted notes. *When notes are followed by two dots, the second dot adds half as much as the first dot added. This comes out to one and three quarters times the note (X 1.75).*

name	***note***	***rest***	***x/4 value***	***x/8 value***	***x/2 value***
double dotted half	𝅗𝅥..	𝄻..	3 1/2 beats	7 beats	1 3/4 beats
double dotted quarter	♩..	𝄽..	1 3/4 beats	3 1/2 beats	7/8 beat

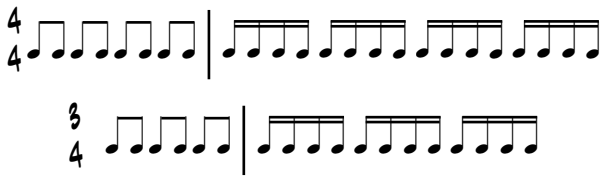
Tuplets

Pulses occur at different rhythmic levels. They occur at the beat level and in subdivisions, where the beat is divided into equal parts. The subdivisions, such as half beats, can be further subdivided, such as half beats into quarter beats.

Typically, notes of equal value in subdivisions of the beat are joined by beams in groups of two, three or four notes. The most common tuplet is the eighth note triplet, where three notes are played in the time of two:



In 4/4 or 3/4 time, there are two eighth notes or four sixteenth notes per beat:



compound time signatures

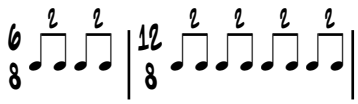
In compound time signatures, such as 6/8 or 12/8 time, there is one eighth notes per beat, but they are grouped in twos or threes. In 6/8 or 12/8 time, eighth notes are usually joined by beams in groups of three:

changing subdivision

Where a portion of a measure can be subdivided into a number of notes of equal value, tuplets change the subdivision with a bracket or beam and a number indicating a different number of notes in the portion. The number indicates a new number of notes that equally divide the specified portion of the measure.

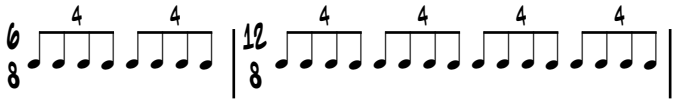
duplets

This duplet in 6/8 or 12/8 time would indicate two notes played in the time of three:



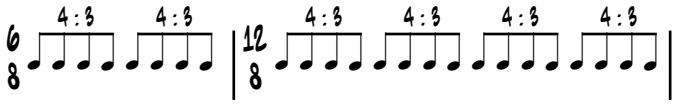
quadruplets

These quadruplets in 6/8 or 12/8 time would indicate four notes played in the time of three:



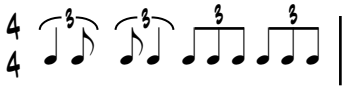
clarified tuplets

A modern convention for tuplets can clarify the new and old number of notes in the subdivision. Since this is rarely used, the notation could include numbers separated by a colon to indicate four notes in the time of three:



irregular durations within a subdivision

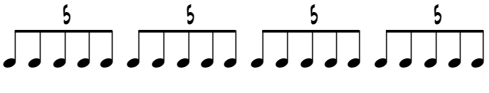
A number of notes in a tuplet may be represented by a single note, such as using a quarter note to represent two eighth notes. Notice that a bracket must be used for the irregular durations, but is optional for the complete tuplets (such as the triplets with three eighth notes).



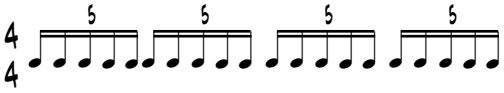
tuplet limits

When the number of notes in the tuplet exceeds twice the number of equal-valued notes in the subdivision, notes of half the value should be used.

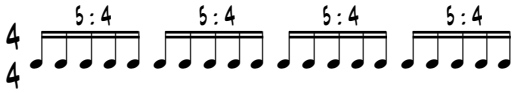
Five notes within a beat in 4/4 would not be indicated with eighth notes, since five is over twice as many as the two eighth notes that would normally constitute one beat:

incorrect: 

They would instead be indicated with sixteenth notes:

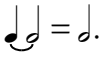
correct: 

They could also be clarified by numbers separated with a colon:

clarification: 

Ties

Ties add notes of any time value together. They can applied to any two consecutive notes of the same pitch.



METERING RHYTHMIC AUDIO MEMORIES

Four Common Activities

A guitarists typically has to multi-task four things: (1) imagine a metronomic beat and its subdivisions, (2) set the melodic or comping rhythm you are playing to that your conceptual metronome, (3) determine the pitches you are playing, usually with your fretting hand and (4) determine the strings you are playing the notes on with your picking and plucking hand.

Count, Vocalize, Audio Memory

Use this three-step process to obtain audio memories: (1) count the rhythm (counting and clapping is a good procedure), (2) vocalize the rhythm, using "ba" for long notes, "bop" notes before a rests, "ah" for sustained pulses and "um" for silent pulses.

In a digital sense, rhythm is generally chosen from a continuous pulse and notes are either "on", "hold" or "off" decisions for each pulse.

Audio Memories Must Be Accurately Metered

To be able to communicate with other musicians and your listeners, you need to play events accurately placed on a "rhythmic grid" or metronomic pulse that is imagined in common with the other musicians and listeners.

HEARING BEAT SUBDIVISIONS

Humans Can Easily Divide Beats into Two, Three or Four Parts

Humans are very capable of dividing a regular pulse into subdivisions. Non-musicians can immediately divide beats near the pace of walking (80-140 beats per minute) into two, three or four parts. I have demonstrated subdividing to non-musicians over the years and have found that they can mimic what I have done with relative ease.

Common Beat Subdivision

whole beats

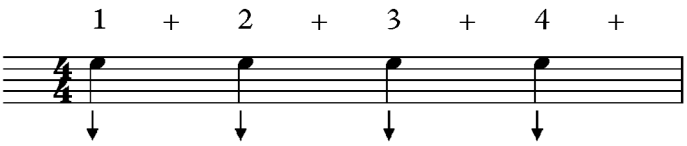
In common time signatures where the *whole note* is defined as four beats (by the bottom number in the time signature), a *quarter note* would get one quarter of four beats: one beat. The symbols for these notes and the ones that follow were shown earlier in Rhythmic Reading.

two, three or four parts per beat

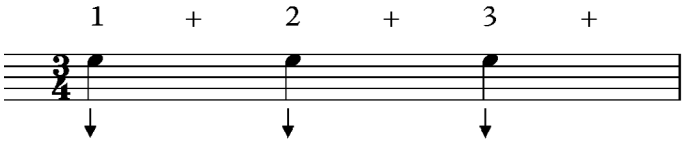
Dividing beats into two parts (in time signatures with four on the bottom like 4/4) is represented with eighth notes. So, there are two eighth notes per beat.

each note is one beat

4/4 Four Quarters



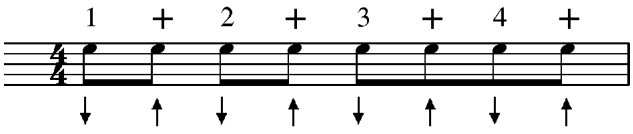
3/4 Three Quarters



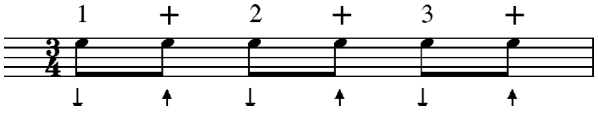
each pair of eighth notes totals one beat

4/4 Four Pairs of Eighth Notes

Beats 1 and 2 are beamed with a thick horizontal line in pairs and on beats 3 and 4 in a group of four. The time value is the same.

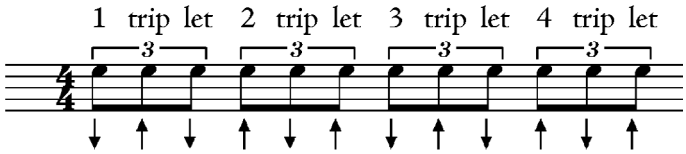


3/4 Three Pairs of Eighth Notes

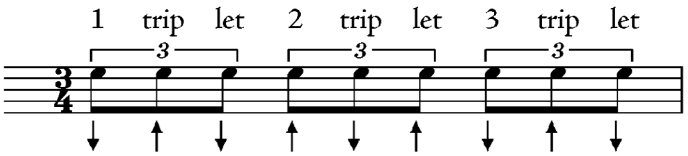


each triplet (a set of three notes) totals one beat

4/4 Four Eighth Triplets

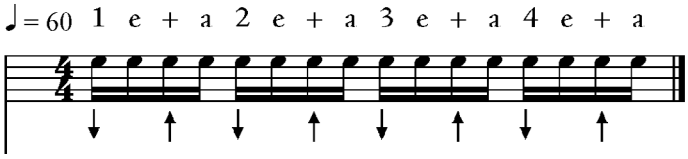


3/4 Three Eighth Triplets

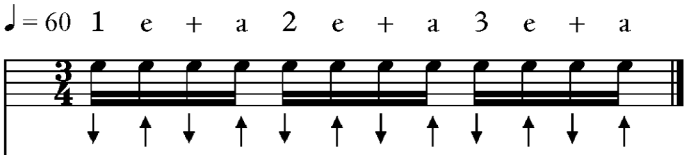


each set of four sixteenth notes totals one beat

4/4 Four Sets of Sixteenth Notes



3/4 Three Sets of Sixteenth Notes



HEARING RHYTHMIC WORDS

Like with verbal language, rhythmic words are the components that make up the musical language of rhythm. The most important three-pulse and four-pulse rhythmic words are shown below.

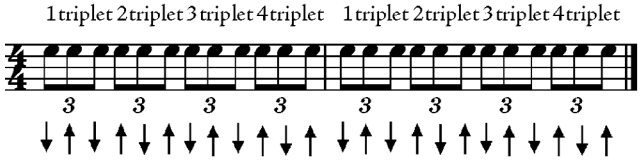
Basic Three-Pulse Rhythmic Words

triplets and swing eighths

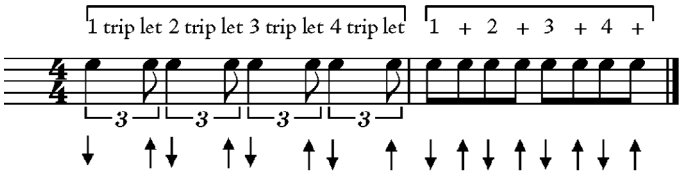
Eighth triplets (labeled "triplet" below) play three notes of equal time per beat. Swing eights play the first and third notes in a triplet (and sustain through the second one. You could sound swing eighths by speaking "1 um and", "2 um and", etc., where the "um" is the unplayed middle part of the triplet.

Notice that the "swing eighths" below are first "written out" in triplets and then shown as eighth notes with the interpretation "swing eighths", which means the same thing: play the first and third note in the triplet.

Triplet (three notes on each beat)



Swing Eighth (first and third of each triplet)

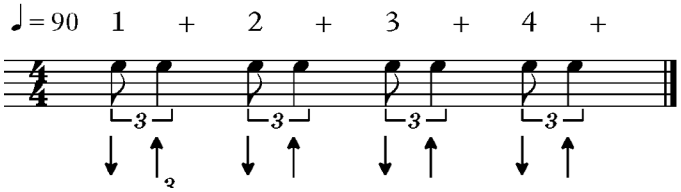


Afro-Cuban and waltz

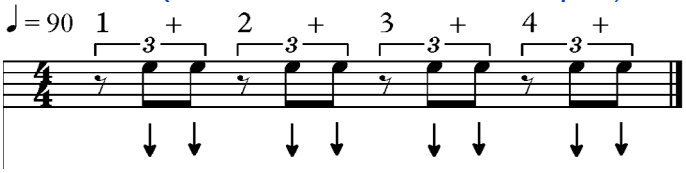
The "Afro-Cuban" selects the first two parts of a triplet. Triplets can be counted "one trip let", "two trip let" and so on. The "Afro-Cuban" could be represented by speaking "one trip um", "two trip um", etc., to represent the un-played third part of the triplet with "um".

The waltz selects the last two parts of the beat. In order to still note the numbered beats, you might could the waltz by speaking the number softly, then "trip let" loudly for each beat. The soft number could indicate the un-played note at the beginning of each triplet for the "waltz". The formal meaning of waltz is a European dance song form in 3/4. I'm using the term loosely to describe the subdivision that select the last two parts of a beat. It is typical in a waltz that a bass note plays on the first of three beats in a measure and a chord plays on the last two parts.

Afro-Cuban (on each beat)

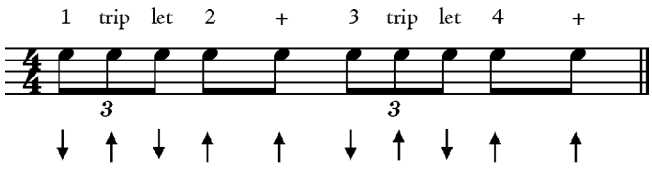


Waltz (second and third of each triplet)

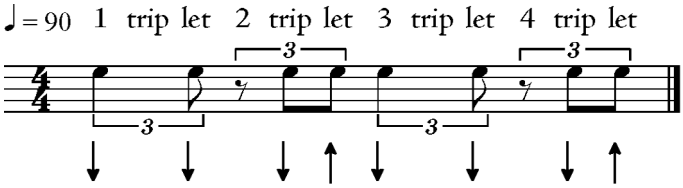


combinations

Triplets And Swing Eighths

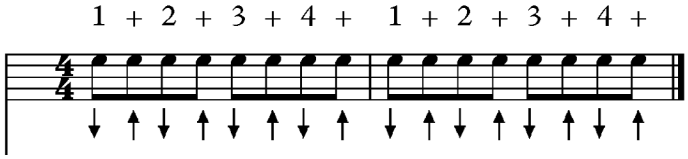


Swing Eighth And Waltz

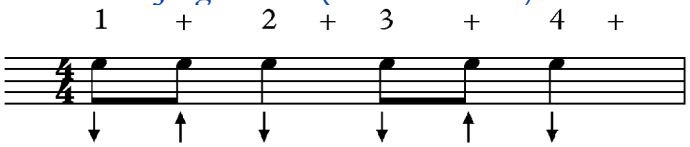


Basic Four-Pulse Rhythmic Words

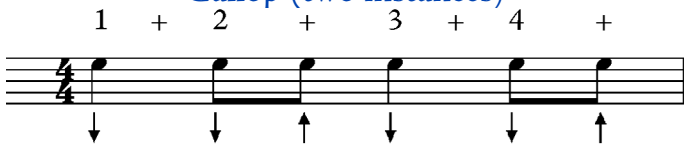
All Four (sets of four eighths)



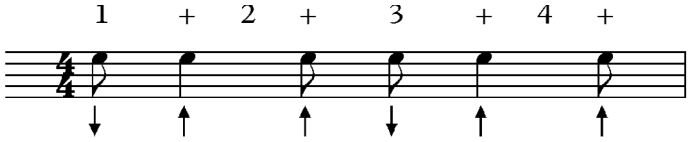
Jingle Bells (two instances)



Gallop (two instances)

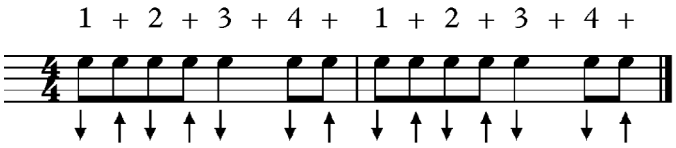


Creedence (two instances)

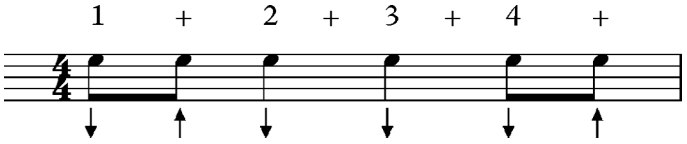


combinations

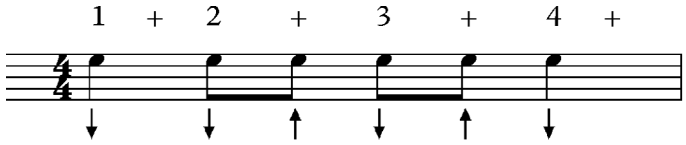
All Four, Gallop



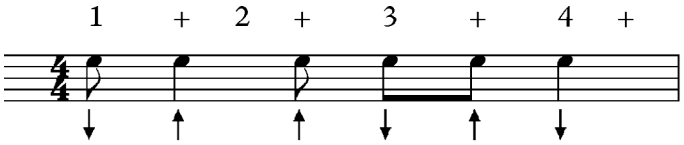
Jingle Bells, Gallop



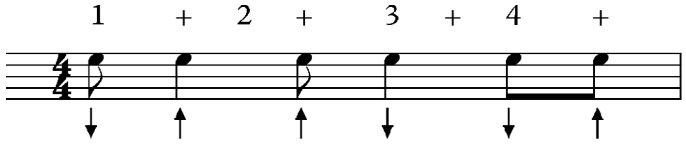
Gallop, Jingle Bells



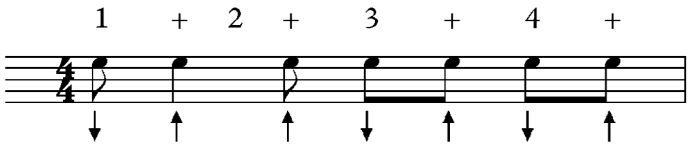
Creedence, Jingle Bells



Creedence, Gallop



Creedence, All Four



Links to More Rhythmic Words

rhythmic words: **progressive**, **strumming exercise**

Melodic Rhythms

comping rhythms: **4/4 straight**, **4/4 swing**, **6/8**, **12/8**

FOUR-PULSE RHYTHMIC WORDS

"Air Guitar" Strumming while Speaking

Start by moving your hand in the air, in evenly-timed sets of down-up-down-up. The hand should move very regularly like a metronome or pendulum. Speak the selections you intend to make of each set of four. Start by speaking "down-up-down-up", and "1-2-3-4" alternately. Gradually touch the strings and strum a single chord.

Now repeat the procedure for gallop. Speak the selections you intend to make of each set of four. Start by speaking "down-(miss)-down-up", and "1-um-3-4" alternately. Gradually touch the strings and strum a single chord. You should be missing the strings on the first "up", which is "2".

Clap and Count

First strum the rhythm on all six muted strings, or holding a chord, as described above. Next, narrow the strumming stoke length to three strings, then one string for single-note themes.

After picking a single note theme on one string with the same down up directions as when strumming, apply it to the strings you'll actually be using to play the part. So far, you're not playing the actual pitches, but picking on the right strings.

With some themes, you may find it easier to fret the part than imagine which strings it is picked on unless you are reading the tab. If you're reading the tab, learn to interpret the part according which string numbers each note is written on, not the printed fret number. The bottom tab line is "6", the top one is "1".

Finally, play the actual part, including the fretting. Take care to meter the part, meaning make it as even as if played on selected pulses of a metronome. Metering is especially important where you slur: hammer, pull-off, slide or bend. In those cases, the fretting hand is responsible for part of the rhythm. The hands have to work together to make a rhythm selected from a regular pulse.

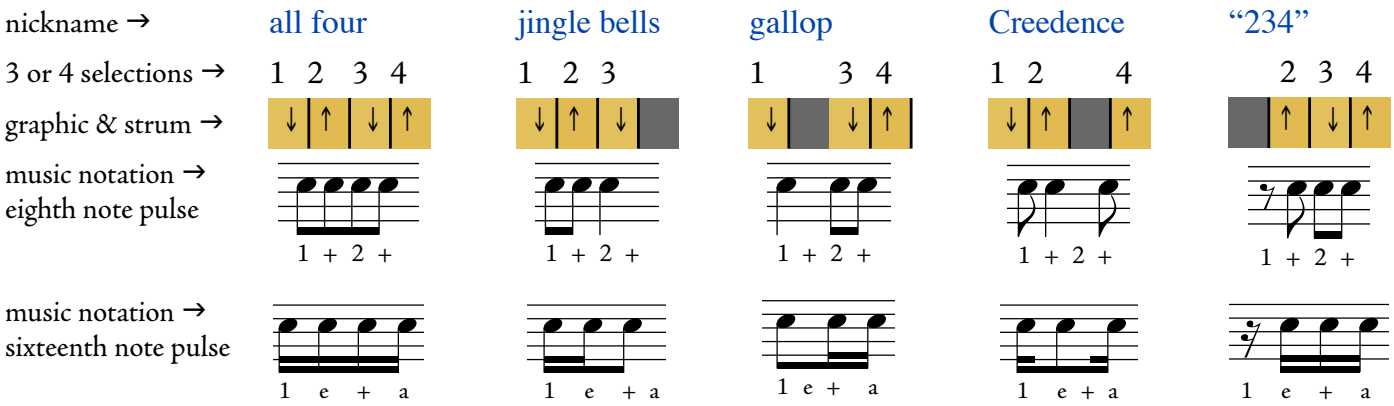
All Possible Four-Pulse Rhythmic Words

music notation versions in half beats

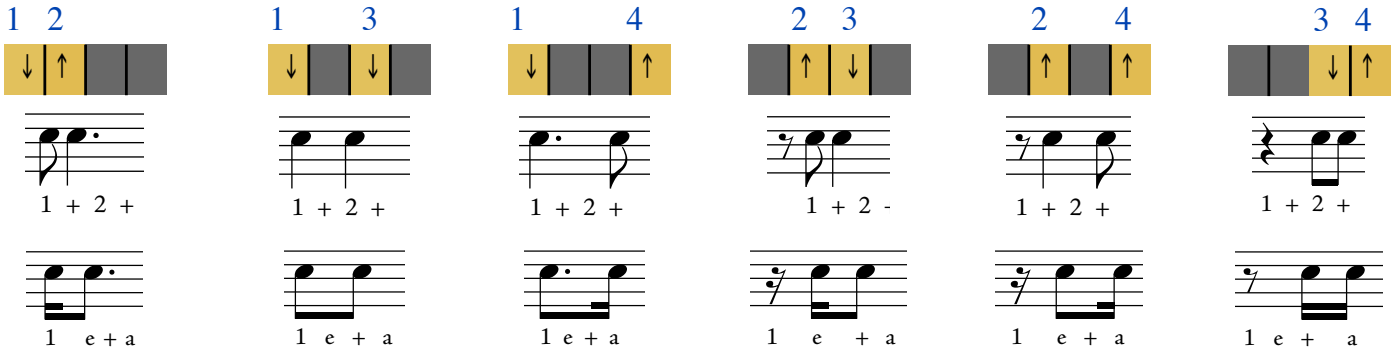
The versions shown below in standard music notation are in half beats. Each of these four-pulse rhythmic words are shown in two beats in the music notation, counted "one-and-two-and" (1, +, 2, +).

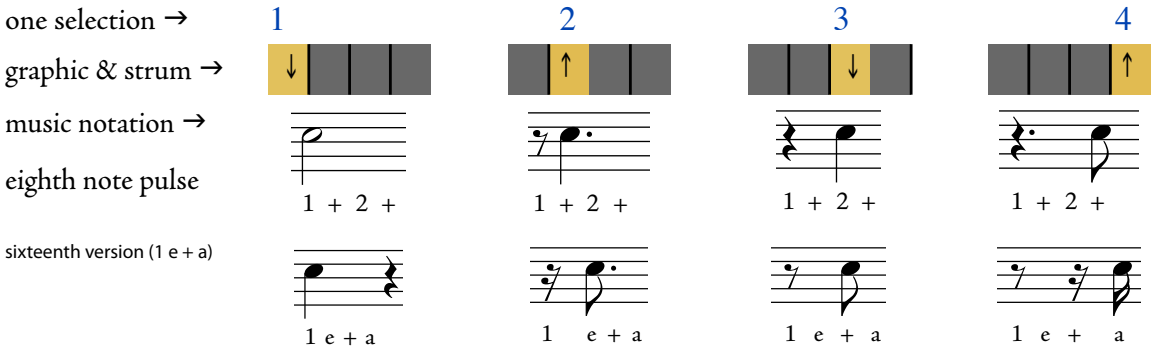
shown with no rests, except the first division of the beat

For the sake of simplicity, all of these are shown with no rests (silences), unless the rest occurs at the beginning. "2-3-4" , "2-3" , "2-3-4" , "2-3", "3-4", "2", "3" and "4" each start with a rest.



two selections



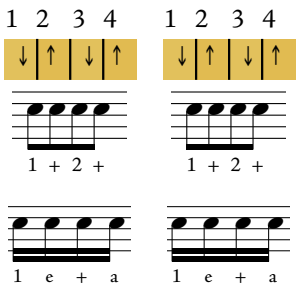


Strumming Four-Pulse Rhythmic Words

all four paired with all others (video example are all an A major to D major chord)

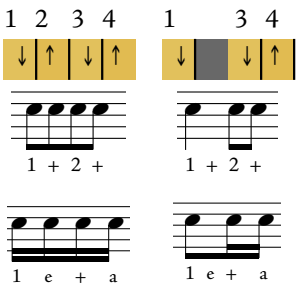
all four / all four

all four | all four



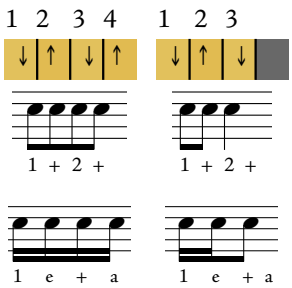
all four / gallop

all four | gallop



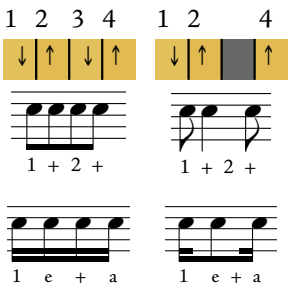
all four / jingle bells

all four | jingle bells



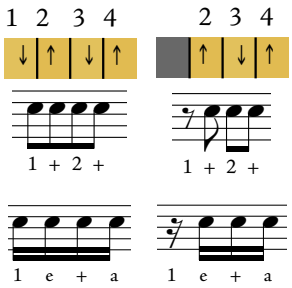
all four / Creedence

all four | Creedence



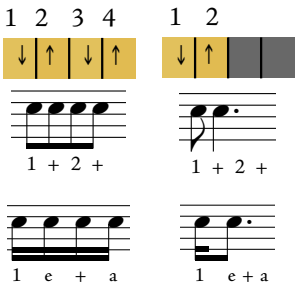
all four / "2-3-4"

all four | "2,3,4"



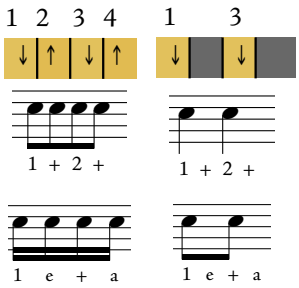
all four / "1-2"

all four | 1 2



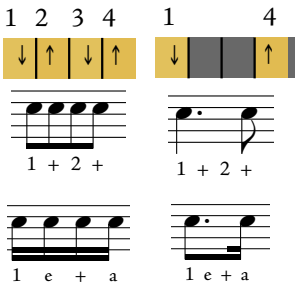
all four / "1-3"

all four | 1 3



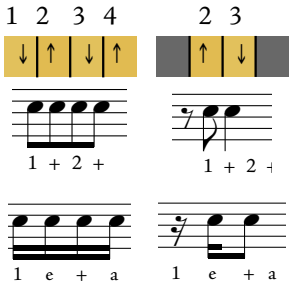
all four / "1-4"

all four | 1 4



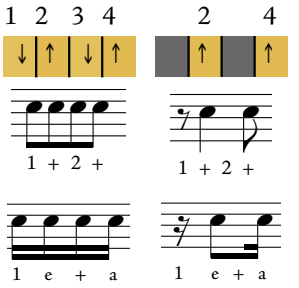
all four / "2-3"

all four | 2 3



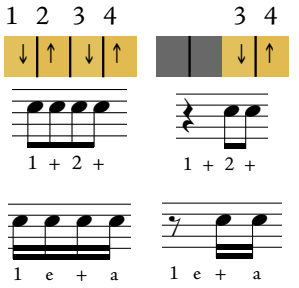
all four / "2-4"

all four | 2 4



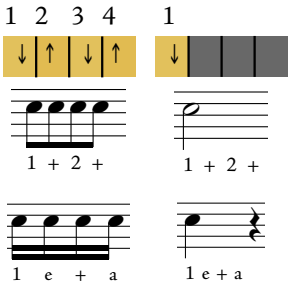
all four / "3-4"

all four | 3 4



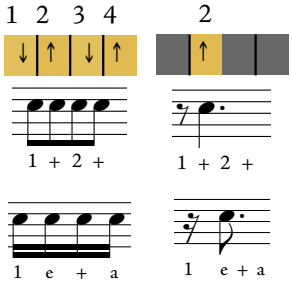
all four / "1"

all four | 1



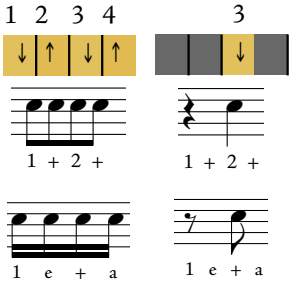
all four / "2"

all four | 2



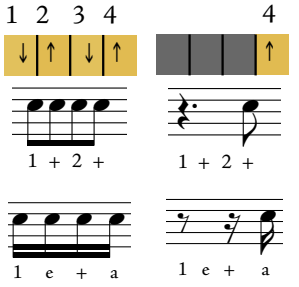
all four / "3"

all four | 3



all four / "4"

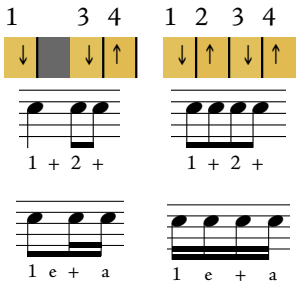
all four | 4



gallop paired with all others (video example are all an A major to D major chord)

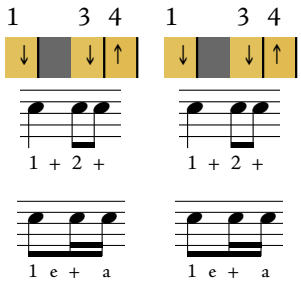
gallop / all four

gallop all four



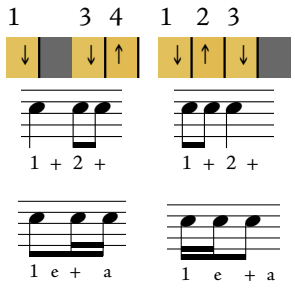
gallop / gallop

gallop gallop



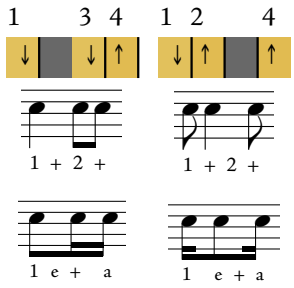
gallop / jingle bells

gallop jingle bells



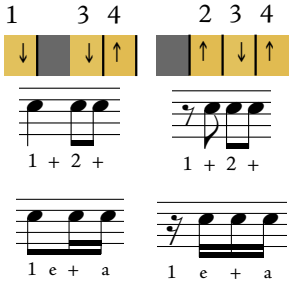
gallop / Creedence

gallop Creedence



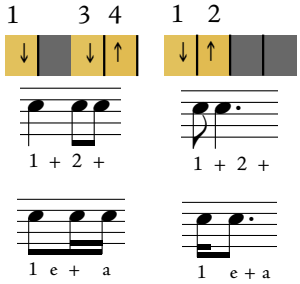
gallop / "2-3-4"

gallop "2-3-4"



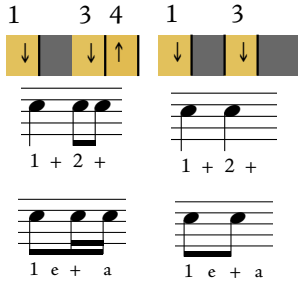
gallop / "1-2"

gallop 1 2



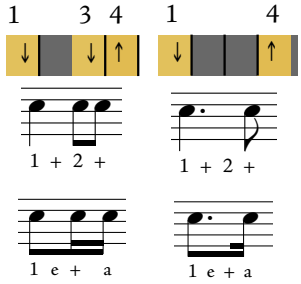
gallop / "1-3"

gallop 1 3



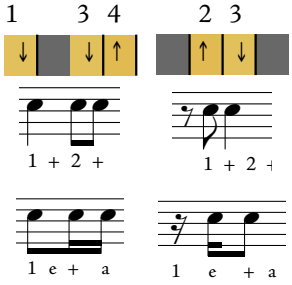
gallop / "1-4"

gallop 1 4



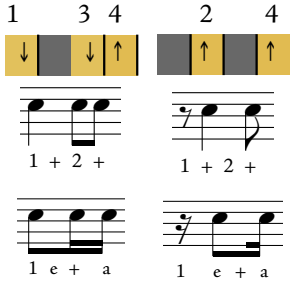
gallop / "2-3"

gallop 2 3



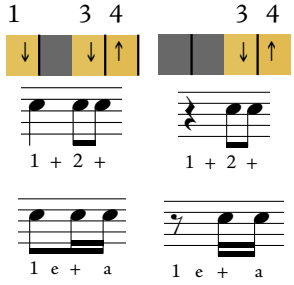
gallop / "2-4"

gallop 2 4



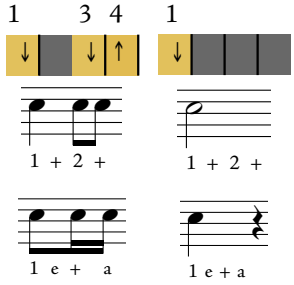
gallop / "3-4"

gallop 3 4



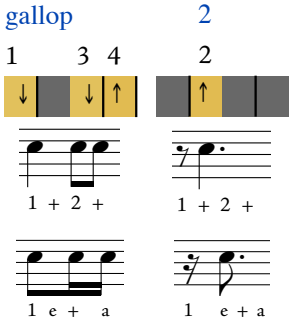
gallop / "1"

gallop 1



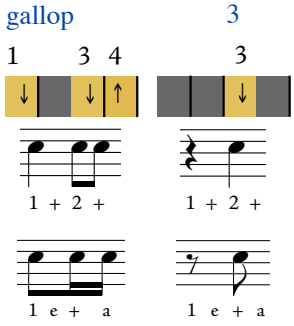
gallop / "2"

gallop 2



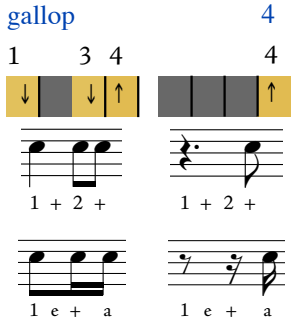
gallop / "3"

gallop 3



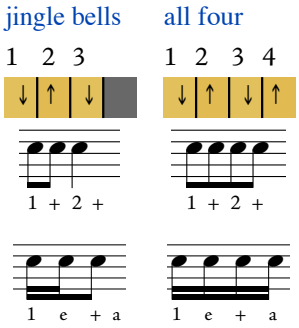
gallop / "4"

gallop 4

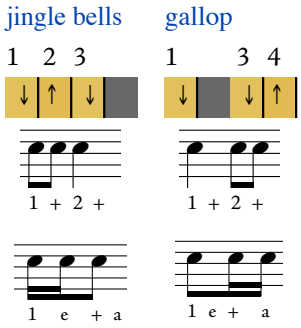


jingle bells paired with all others (video example are all an A major to D major chord)

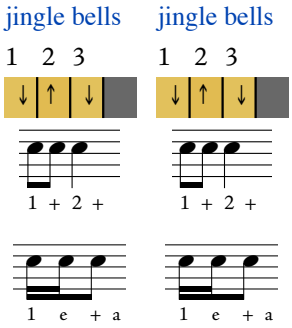
jingle bells / all four



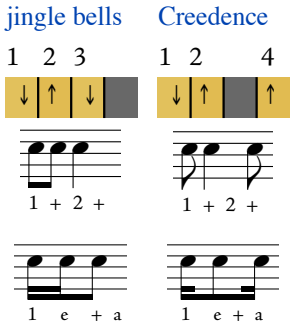
jingle bells / gallop



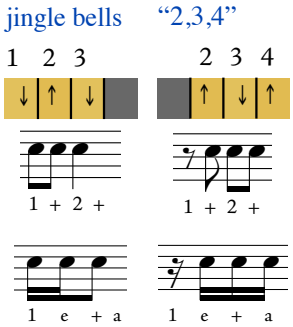
jingle bells / jingle bells



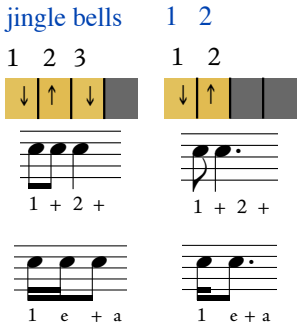
jingle bells / Creedence



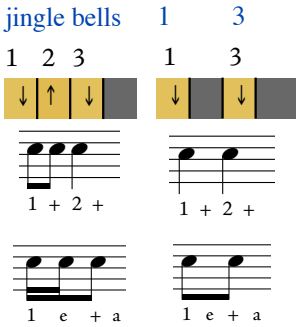
jingle bells / "2-3-4"



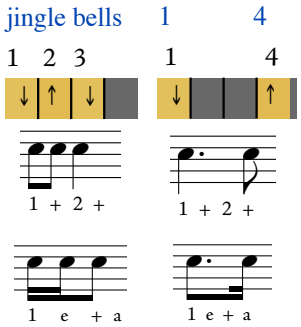
jingle bells / "1-2"



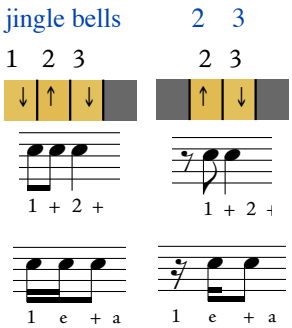
jingle bells / "1-3"



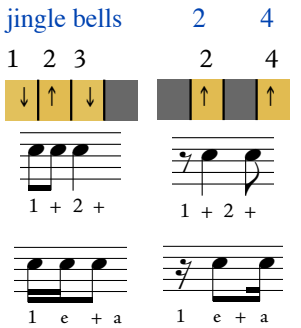
jingle bells / "1-4"



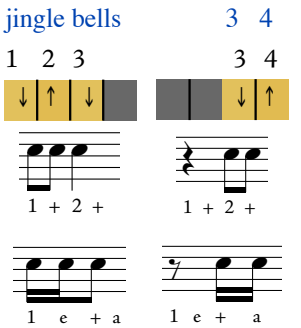
jingle bells / "2-3"



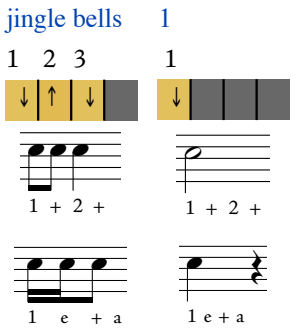
jingle bells / "2-4"



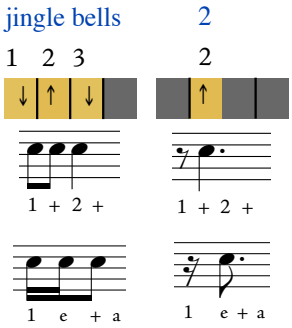
jingle bells / "3-4"



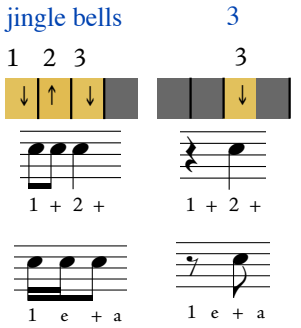
jingle bells / "1"



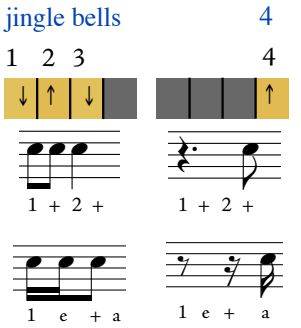
jingle bells / "2"



jingle bells / "3"



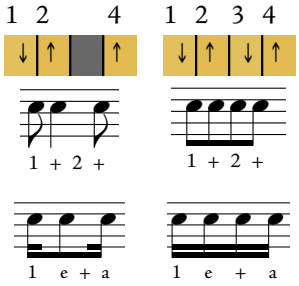
jingle bells / "4"



Creedence paired with all others (video example are all an A major to D major chord)

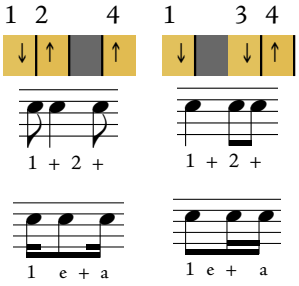
Creedence / all four

Creedence all four



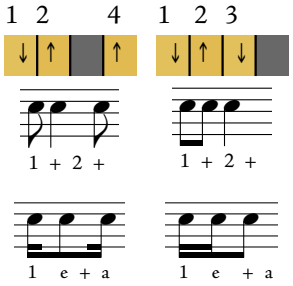
Creedence / gallop

Creedence gallop



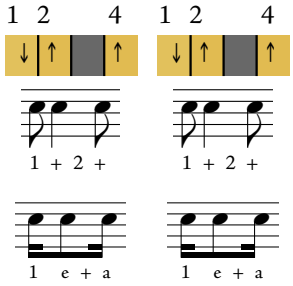
Creedence / jingle bells

Creedence jingle bells



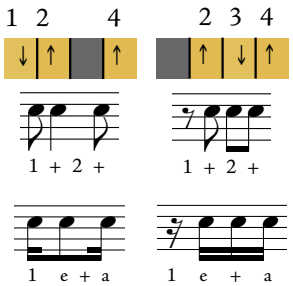
Creedence / Creedence

Creedence Creedence



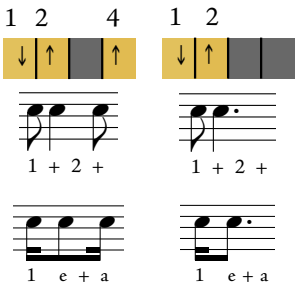
Creedence / "2-3-4"

Creedence "2,3,4"



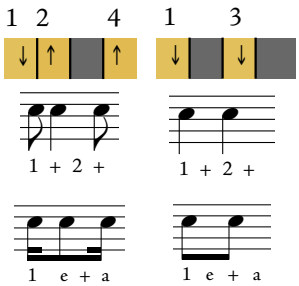
Creedence / "1-2"

Creedence 1 2



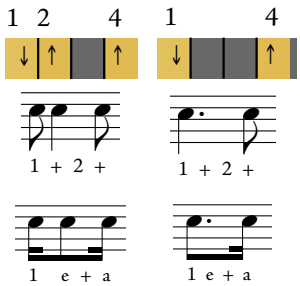
Creedence / "1-3"

Creedence 1 3



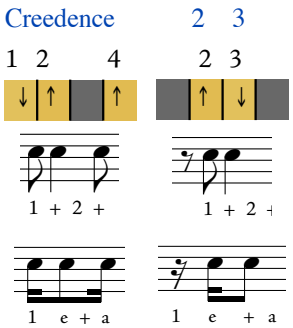
Creedence / "1-4"

Creedence 1 4



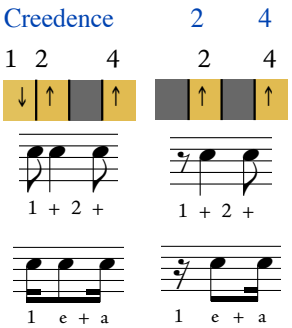
Creedence / "2-3"

Creedence 2 3



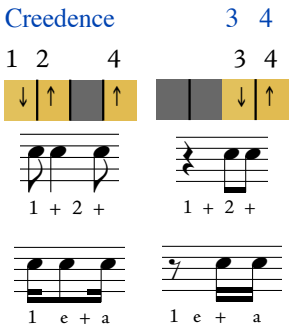
Creedence / "2-4"

Creedence 2 4



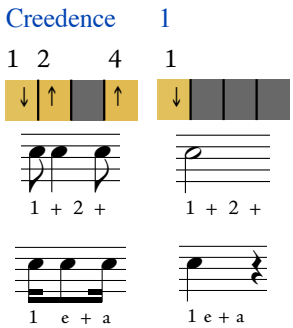
Creedence / "3-4"

Creedence 3 4



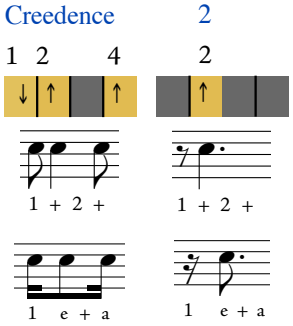
Creedence / "1"

Creedence 1



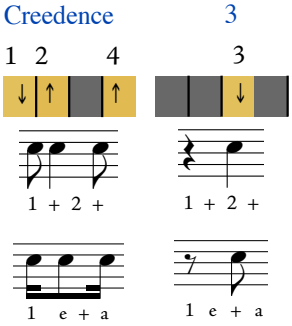
Creedence / "2"

Creedence 2



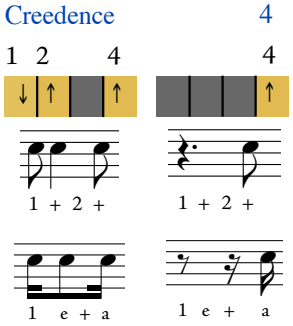
Creedence / "3"

Creedence 3



Creedence / "4"

Creedence 4



songs with four-pulse words

continuous movement (all four)

strum/pick	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑
primary (whole)beats	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
half beats	1	+	2	+	3	+	4	+	1	+	2	+	3	+	4	+
quarter beats	1	e	+	a	2	e	+	a	3	e	+	a	4	e	+	a

contemporary folk/pop strum number 1

↓		↓	↑		↑	↓	↑	↓		↓	↑		↑	↓	↑
1		3	4		2	3	4	1		3	4		2	3	4
1		2	+		+	4	+	1		2	+		+	4	+
1		+	a		e	+	a	3		+	a		e	+	a

contemporary folk/pop strum number 2

↓		↓	↑		↑	↓	↑	↓		↓	↑		↑	↓	
1		3	4		2	3	4	1		3	4		2	3	
1		2	+		+	4	+	1		2	+		+	4	
1		+	a		e	+	a	3		+	a		e	+	

Californication double-time verse (part 1)

↓			↑	↓		↓		↑	↓		↓				↑
1			4	1		3		2	3		1				4
1			+	3		4		+	2		3				+
1			a	2		+		e	+		4				a

Californication double-time verse (part 2)

↓			↑	↓		↓		↑	↓		↓				↓
1			4	1		3		2	3		1				3
1			+	3		4		+	2		3				4
1			a	2		+		e	+		4				+

Flake

↓			↑	↓	↑	↓	↑		↑		↑	↓	↑	↓	↑
1			4	1	2	3	4		2		4	1	2	3	4
1			+	3	+	4	+		+		+	3	+	4	+
1			a	2	e	+	a		e		a	4	e	+	a

In Bloom intro/vamp

↓			↑	↓		↓		↑	↓		↓	↑	↓		
1			4	1		3		2	3		1	2	3		
1			+	3		4		+	2		3	+	4		
1			a	2		+		e	+		4	e	+		

In Bloom verse (part 1)

↓	↑	↓	↑	↓		↑	↓	↑	↓	↑	↓				↑
1	2	3	4	1		4	1	2	3	4	1				4
1	+	2	+	3		+	1	+	2	+	3				+
1	e	+	a	2		a	3	e	+	a	2				a

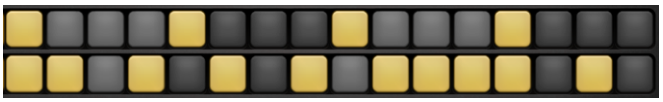
In Bloom verse (part 2)

↓	↑	↓	↑	↓		↑	↓	↑	↓	↑	↓	↑	↓	↑	
1	2	3	4	1		4	1	2	3	4	1	2	3	4	
1	+	2	+	3		+	1	+	2	+	3	+	4	+	
1	e	+	a	2		a	3	e	+	a	4	e	+	a	

Proud Mary intro (part 1)-first row is chord names

C	C		A		A	A		C	C		A		A	A
↓	↑		↑		↑	↓		↓	↑		↑		↑	↓
1	2		4		2	3		1	2		4		2	3
1	+		+		+	4		1	+		+		+	4
1	e		a		e	+		3	e		a		e	+

Proud Mary intro (part 2)-first row is chord names



C	C		A		G		F		F	F	D	F		D
↓	↑		↑		↑		↑		↑	↓	↑	↓		↓
1	2		4		2		4		2	3	4	1		3
1	+		+		+		+		+	2	+	3		4
1	e		a		e		a		e	+	a	4		+

Should I Stay (after learning, strum all down)

	↑	↓	↑	↓	↑	↓	↑	↓
	2	3	4	1	2	3	4	1
	+	2	+	3	+	4	+	1
	e	+	a	2	e	+	a	3

Sweet Child O' Mine verse

↓		↑	↓		↑	↓	↑	↓	↑		↑	↓	↑
1		4	1		4	1	2	3	4		2	3	4
1		+	3		+	1	+	2	+		+	2	+
1		a	2		a	3	e	+	a		e	+	a

Sympathy For The Devil (conga)

↓		↓		↓	↑	↓	↑		↑		↑	↓	↑	↓	↑
1		3		1	2	3	4		2		4	1	2	3	4
1		2		3	+	4	+		+		+	3	+	4	+
1		+		2	e	+	a		e		a	4	e	+	a

Themes Using Four-Pulse Words

continuous movement (all four)

strum/pick	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑
primary (whole)beats	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
half beats	1	+	2	+	3	+	4	+	1	+	2	+	3	+	4	+
quarter beats	1	e	+	a	2	e	+	a	3	e	+	a	4	e	+	a

19th Nervous Breakdown (part 1)

↓		↓		↓	↑	↓	↑		↑	↓		↓	↑	↓	↑
1		3		1	2	3	4		2	3		1	2	3	4
1		2		3	+	4	+		+	2		3	+	4	+
1		+		2	e	+	a		e	+		4	e	+	a

19th Nervous Breakdown (part 2)

	↑	↓		↓	↑	↓	↑		↑	↓		↓	↑	↓	
	2	3		1	2	3	4		2	3		1	2	3	
	+	2		3	+	4	+		+	2		3	+	4	
	e	+		2	e	+	a		e	+		4	e	+	

Cinnamon Girl (part 1)

↓	↑	↓	↑		↑	↓		↓	↑	↓	↑		↑		
1	2	3	4		2	3		1	2	3	4		2		
1	+	2	+		+	4		1	+	2	+		+		
1	e	+	a		e	+		3	e	+	a		e		

Cinnamon Girl (part 2)

	↑	↓		↓	↑	↓	↑		↑	↓	↑	↓	↑	↓	
	2	3		1	2	3	4		2	3	4	1	2	3	
	+	2		3	+	4	+		+	2	+	3	+	4	
	e	+		2	e	+	a		e	+	a	4	e	+	

Day Tripper

↓		↑	↓	↑	↓	↑		↓	↑		↑	↓	↑		
1		4	1	2	3	4		3	4		2	3	4		
1		+	3	+	4	+		2	+		+	4	+		
1		a	2	e	+	a		+	a		e	+	a		

I Feel Fine

↓		↓		↓	↑	↓	↑		↑		↑		↑	↓	↑
1		3		1	2	3	4		2		4		2	3	4
1		2		3	+	4	+		+		+		+	4	+
1		+		2	e	+	a		e		a		e	+	a

Life In The Fast Lane (part 1)

↓	↑	↓	↑	↓		↓	↑	↓	↑	↓		↓
1	2	3	4	1		3	4	1	2	3		1
1	+	2	+	3		4	+	1	+	2		3
1	e	+	a	2		+	a	3	e	+		4

Life In The Fast Lane (part 2)

↓	↑	↓	↑	↓		↓	↑	↓	↑	↓
1	2	3	4	1		3	4	1	2	3
1	+	2	+	3		4	+	1	+	2
1	e	+	a	2		+	a	3	e	+

Life In The Fast Lane (part 3)

↓	↑	↓	↑	↓		↓	↑	↓	↑	↓		↓	↑
1	2	3	4	1		3	4	1	2	3		3	4
1	+	2	+	3		4	+	1	+	2		4	+
1	e	+	a	2		+	a	3	e	+		+	a

Life In The Fast Lane (part 4)

↓	↑	↓	↑	↓	↑	↓		↓
1	2	3	4	1	2	3		1
1	+	2	+	3	+	4		1
1	e	+	a	2	e	+		3

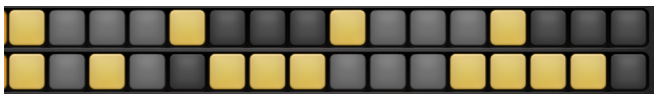
Paperback Writer

↓	↑	↓	↑		↑	↓		↓	↑		↑	↓		↓
1	2	3	4		2	3		1	2		4	1		3
1	+	2	+		+	4		1	+		+	3		4
1	e	+	a		e	+		3	e		a	4		+

Rebel Rebel

↓		↓		↓		↓	↑		↑		↑	↓	↑	↓	↑
1		3		1		3	4		2		4	1	2	3	4
1		2		3		4	+		+		+	3	+	4	+
1		+		2		+	a		e		a	4	e	+	a

Satisfaction



↓		↓		↑	↓	↑		↑	↓	↑	↓
1		3		2	3	4		4	1	2	3
1		2		+	4	+		+	3	+	4
1		+		e	+	a		a	4	e	+

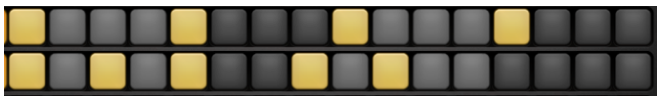
Sunshine Of Your Love

↓	↑	↓	↑		↑		↑		↑	↓		↓
1	2	3	4		2		4		2		4	1		3
1	+	2	+		+		+		+		+	3		4
1	e	+	a		e		a		e		a	4		+

Smoke On The Water (part 1)

↓		↓		↓		↑		↑		↑	↓
1		3		1		4		2		4	1
1		2		3		+		+		+	3
1		+		2		a		e		a	4

Smoke On The Water (part 2)



↓		↓		↓		↑		↑
1		3		1		4		2
1		2		3		+		+
1		+		2		a		e

Suzie Q

↓	↓	↓	↑	↑	↓	↓	↑	↓	↑	↓
1	3	1	2	4	1	3	4	1	2	3
1	2	3	+	+	1	2	+	3	+	4
1	+	2	e	a	3	+	a	4	e	+

Taxman (picking shown for no hammer)

↓	↓	↑	↓	↓
1	1	4	1	3
1	3	+	1	2
1	2	a	3	+

Sweet Home Alabama (part 1)

↓	↓	↓	↑	↑	↓	↓	↓	↑	↑
1	3	1	2	4	1	3	1	2	4
1	2	3	+	+	1	2	3	+	+
1	+	2	e	a	3	+	4	e	a

Sweet Home Alabama (part 2)

↓	↓	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑
1	3	1	4	1	2	3	4	1	2	3	4
1	2	3	+	1	+	2	+	3	+	4	+
1	+	2	a	3	e	+	a	4	e	+	a

Walk This Way (part 1)

↓	↑	↓	↑	↑	↓	↑	↓	↓	↓	↑	↓	↑
1	2	3	4	2	3	4	1	3	1	2	3	4
1	+	2	+	+	4	+	1	2	3	+	4	+
1	e	+	a	e	+	a	3	+	4	e	+	a

Walk This Way (part 2)

↓	↑	↓	↑	↑	↓	↑	↓	↓	↑	↓
1	2	3	4	2	3	4	1	3	4	1
1	+	2	+	+	4	+	1	2	+	3
1	e	+	a	e	+	a	3	+	a	4

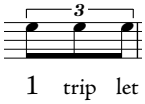
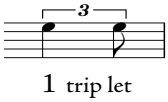
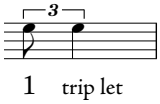
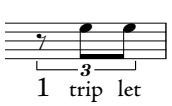
THREE-PULSE RHYTHMIC WORDS

Air Guitar, Count and Clap

See "Air Guitar" Strumming while Speaking and Clap and Count in Four-Pulse Rhythmic words section. The same ideas apply to three-pulse rhythmic words.

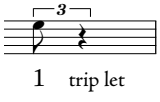
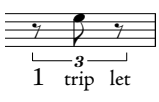
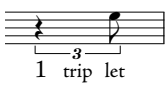
All Possible Three-Pulse Rhythmic Words

At slow tempos, these are based on all-down. At fast tempos, these are based on alternating down-up-down (↓↑ ↓) and up-down-up (↑ ↓↑).

nickname →	all three*	swing	afro-cuban	waltz
2 or 3 selections →	1-2-3*	1-3	1-2	2-3
graphic selections →				
music notation →				
	1 trip let	1 trip let	1 trip let	1 trip let
first half of six	↓ ↑ ↓	↓ ↓	↓ ↑	↑ ↓
last half of six	↑ ↓ ↑	↑ ↑	↑ ↓	↓ ↑
counting by "threes"	1 2 3	1 3	1 2	2 3
one trip let and trip let	1 trip let	1 let	1 trip	trip let

*Sequences of "1-2-3" can be strummed alternating down-up-down (↓↑ ↓) and up-down-up (↑ ↓↑).

one selection

one selection →	1	2	3
graphic selections →			
music notation →			
	1 trip let	1 trip let	1 trip let
first half of six	↓	↑	↓
last half of six	↑	↓	↑
counting by "threes"	1	2	3
one trip let and trip let	1	trip	let

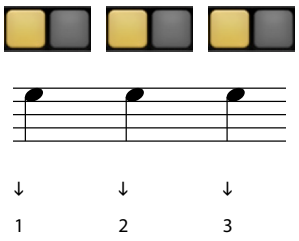
SIX-PULSE RHYTHMIC WORDS

Three Two-Pulse Words

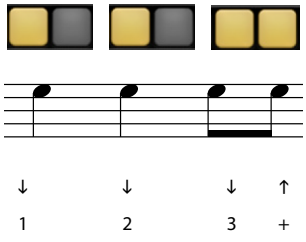
A quarter note on a beat will be called "whole". A pair of eighth notes on a beat is "pair". An eighth rest on the beat and an eighth note on the "and" will be called "and". A quarter note rest on a beat is "rest". The graphics express where the notes are played. Un-played parts of the beat may be rests or sustain.

quarter note ("whole") on the first beat

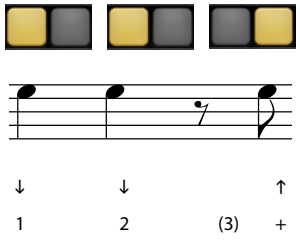
whole, whole, whole



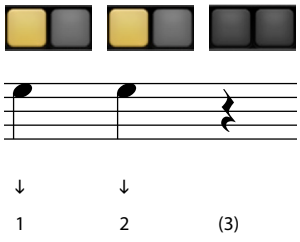
whole, whole, pair



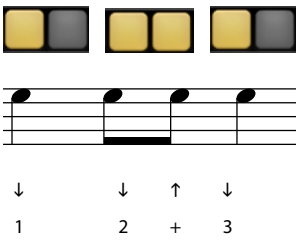
whole, whole, and



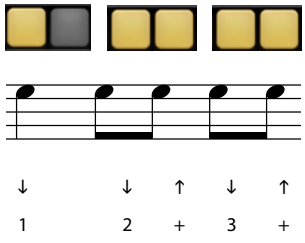
whole, whole, rest



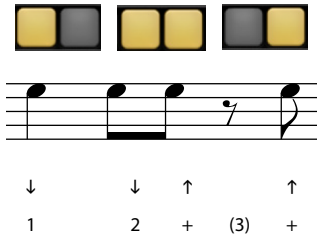
whole, pair, whole



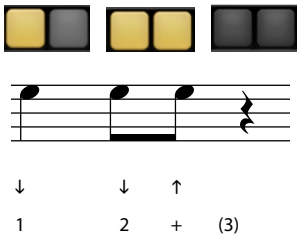
whole, pair, pair



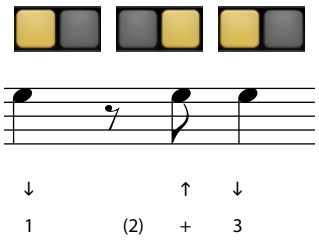
whole, pair, and



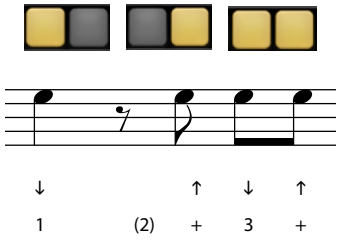
whole, pair, rest



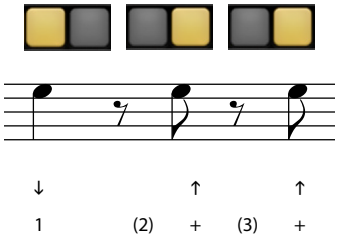
whole, and, whole



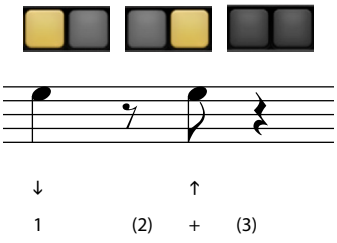
whole, and, pair



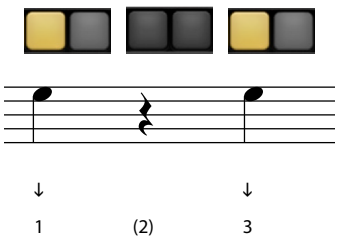
whole, and, and



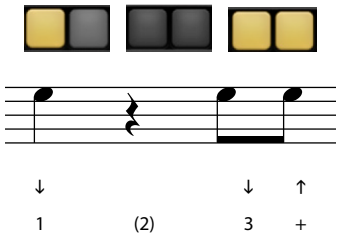
whole, and, rest



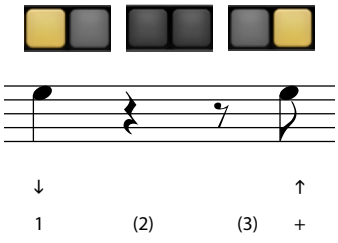
whole, rest, whole



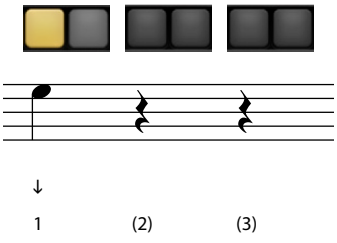
whole, rest, pair



whole, rest, and

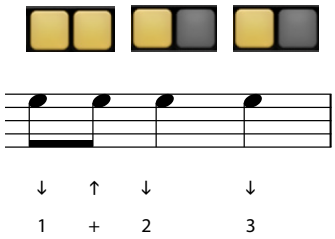


whole, rest, rest

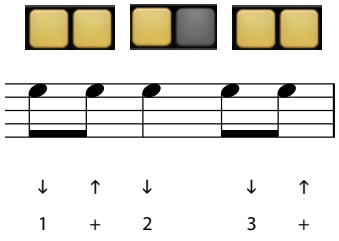


pair of eighth notes ("pair") on the first beat

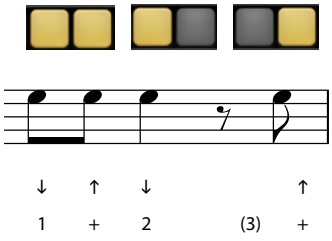
pair, whole, whole



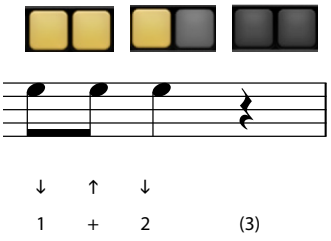
pair, whole, pair



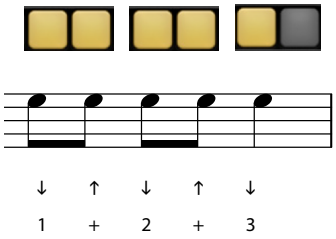
pair, whole, and



pair, whole, rest



pair, pair, whole



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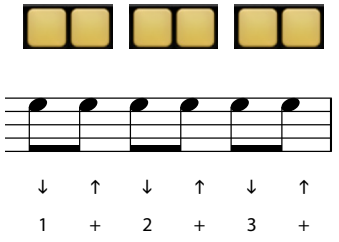

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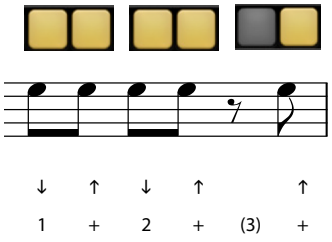

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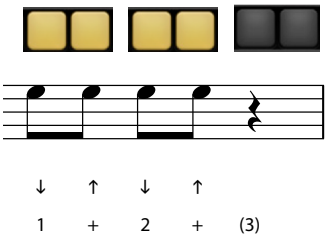
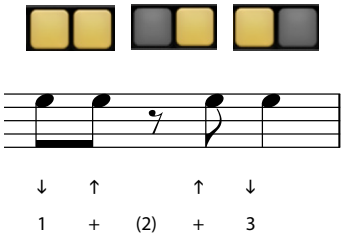
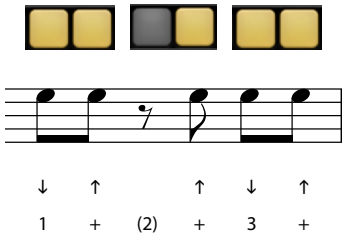


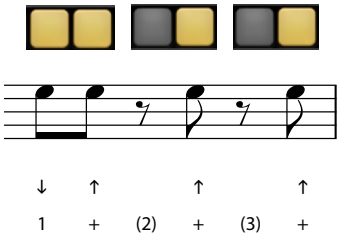
pair, and, whole



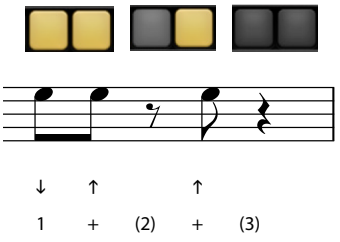
pair, and, pair



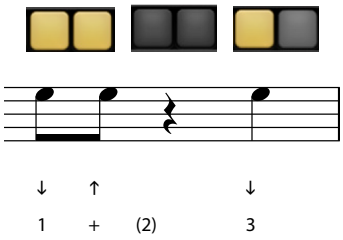
pair, and, and



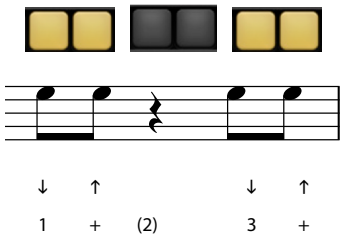
pair, and, rest



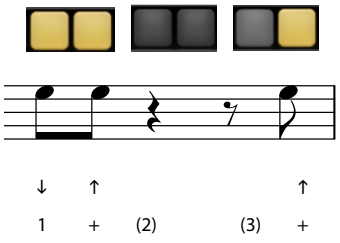
pair, rest, whole



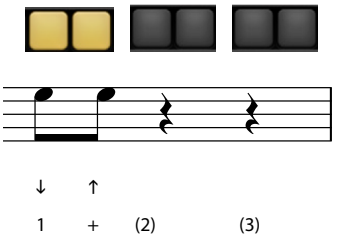
pair, rest, pair



pair, rest, and

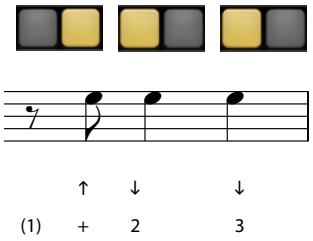


pair, rest, rest

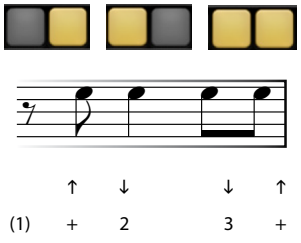


on the "and" of the first beat

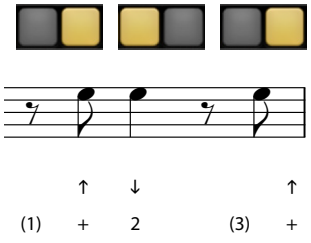
and, whole, whole



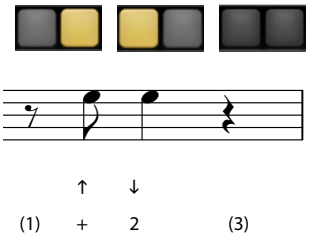
and, whole, pair



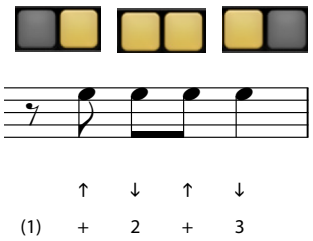
and, whole, and



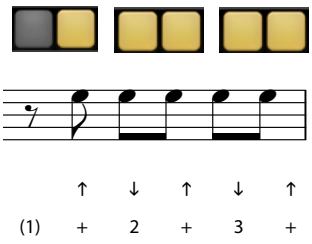
and, whole, rest



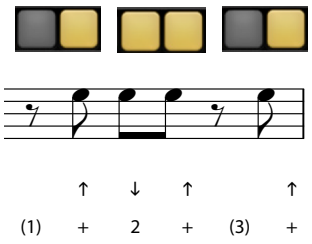
and, pair, whole



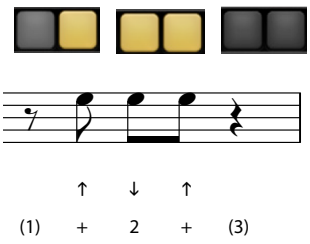
and, pair, pair



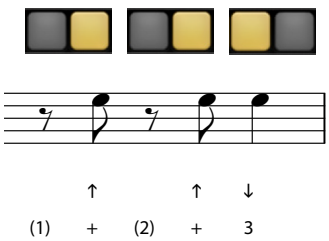
and, pair, and



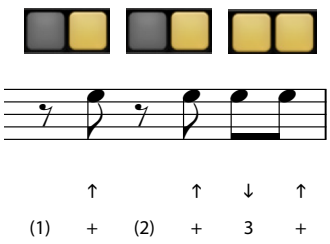
and, pair, rest



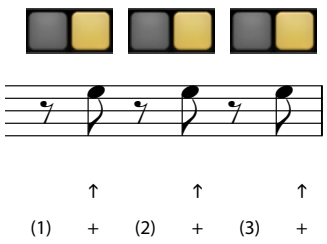
and, and, whole



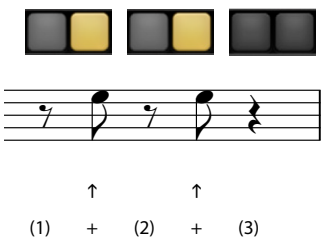
and, and, pair



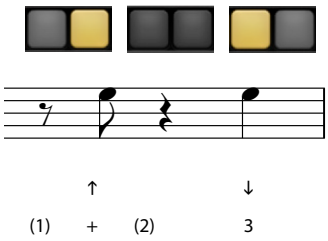
and, and, and



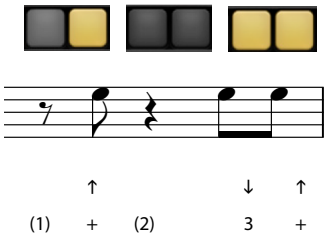
and, and, rest



and, rest, whole



and, rest, pair



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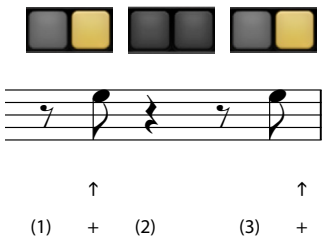
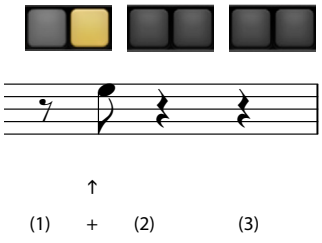
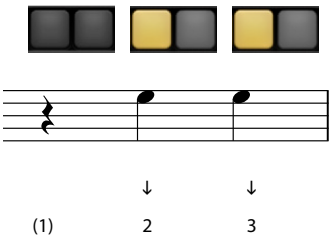


and, rest, rest

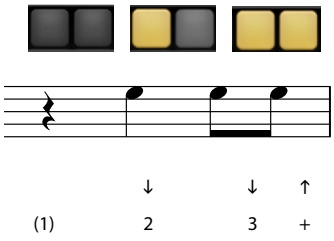


rest on the first beat

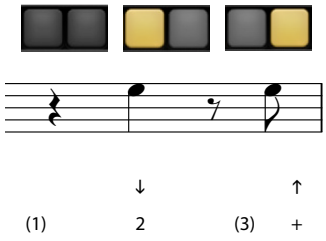
rest, whole, whole



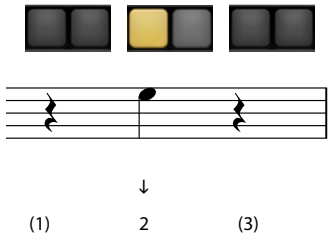
rest, whole, pair



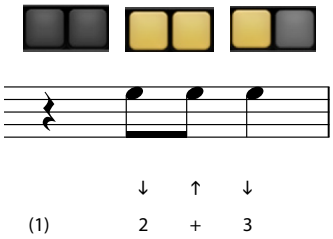
rest, whole, and



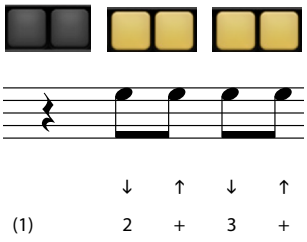
rest, whole, rest



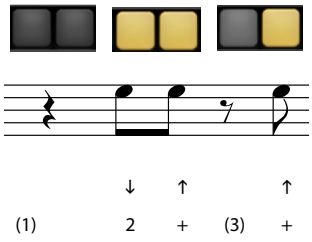
rest, pair, whole



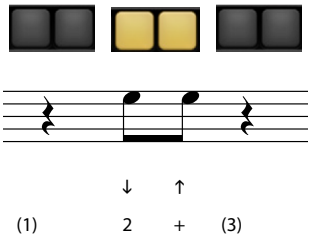
rest, pair, pair



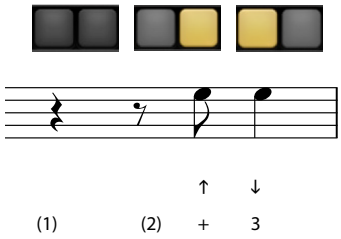
rest, pair, and



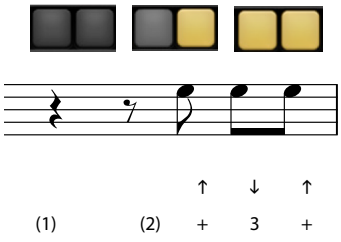
rest, pair, rest



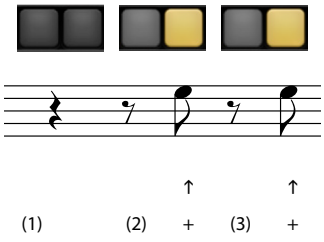
rest, and, whole



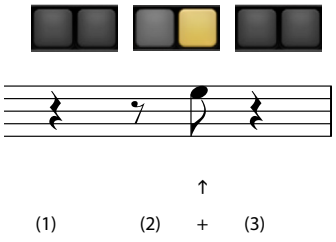
rest, and, pair



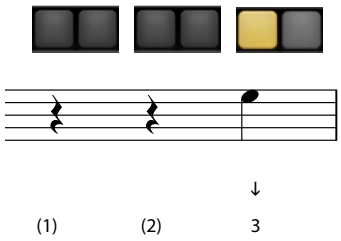
rest, and, and



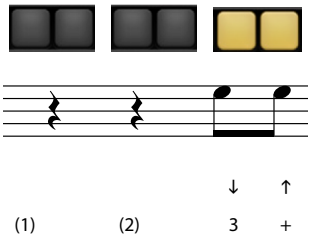
rest, and, rest



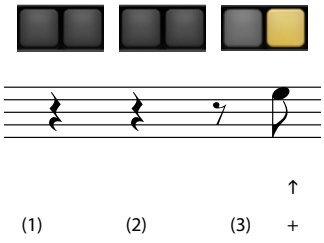
rest, rest, whole



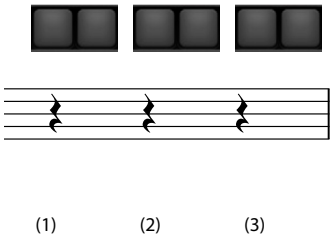
rest, rest, pair



rest, rest, and

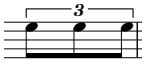
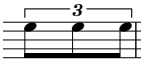


rest, rest, rest



Six-Pulse Words Made with Two Three Pulse Words

At slow tempos, these are based on all-down. At fast tempos, these are based on alternating down-up-down (↓↑ ↓) and up-down-up (↑ ↓↑).

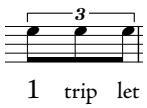
	all three*			all three*		
	123*			123*		
graphic selections →						
music notation →						
	1	trip	let	1	trip	let
all down →	↓	↓	↓	↓	↓	↓
alternating →	↓	↑	↓	↑	↓	↑
count 123 →	1	2	3	1	2	3
count triplets →	1	trip	let	and	trip	let

*Pairs of"123" can be strummed alternating down-up-down (↓↑ ↓) and up-down-up (↑ ↓↑)

triplet with others

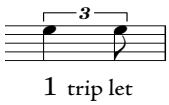
triplet, swing

1-2-3



1	trip	let
↓	↓	↓
↓	↑	↓
1	2	3
1	v	let

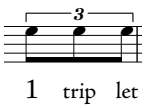
1-3



1	trip let	
↓		↓
↑		↑
1		3
and		let

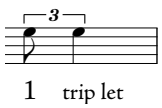
triplet, Afro-Cuban

1-2-3



1	trip	let
↓	↓	↓
↓	↑	↓
1	2	3
1	trip	let

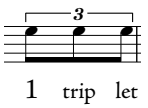
1-2



1	trip let	
↓		↓
↑		↓
1		2
and		trip

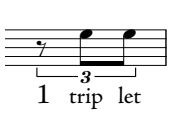
triplet, waltz

1-2-3



1	trip	let
↓	↓	↓
↓	↑	↓
1	2	3
1	trip	let

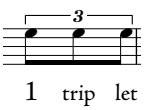
2-3



1	trip	let
	↓	↓
	↓	↑
	2	3
	trip	let

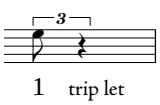
triplet, one

1-2-3



1	trip	let
↓	↓	↓
↓	↑	↓
1	2	3
1	trip	let

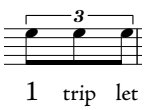
1



1	trip let	
↓		↓
↑		↑
1		3
and		let

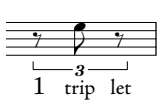
triplet, two

1-2-3



1	trip	let
↓	↓	↓
↓	↑	↓
1	2	3
1	trip	let

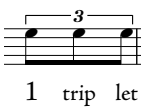
2



1	trip	let
	↓	
	↓	
	2	
	trip	

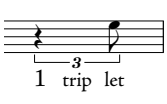
triplet, three

1-2-3



1	trip	let
↓	↓	↓
↓	↑	↓
1	2	3
1	trip	let

3

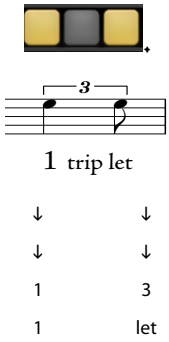


1	trip	let
		↓
		↑
		3
		let

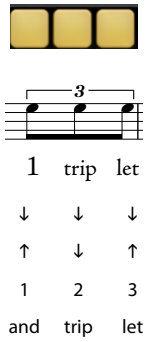
swing with others

swing, triplet

1-3

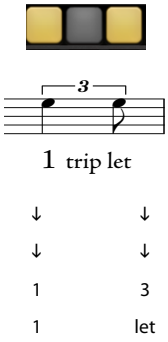


1-2-3

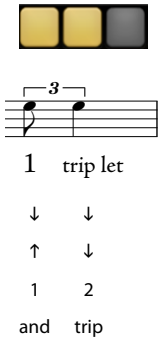


swing, Afro-Cuban

1-3

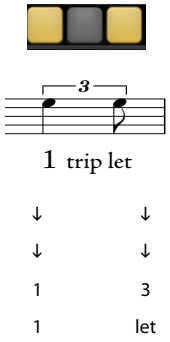


1-2

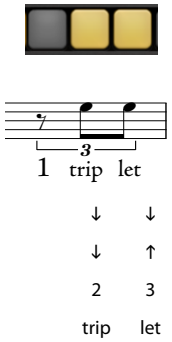


swing, waltz

1-3

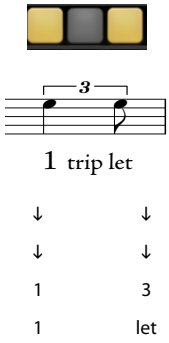


2-3

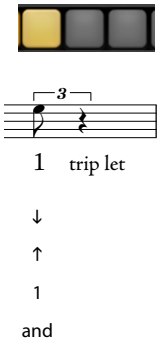


swing, one

1-3

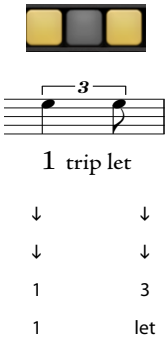


1



swing, two

1-3



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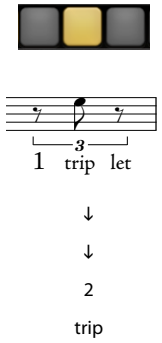
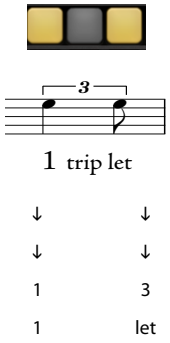


swing, three

1-3



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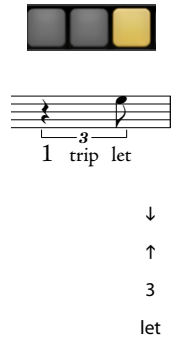
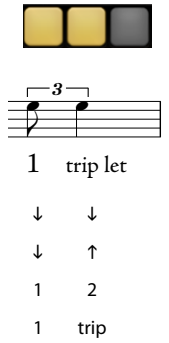


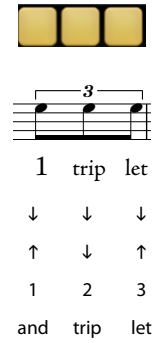
Afro-Cuban with others

Afro-Cuban, triplet

1-2

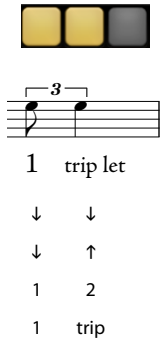


1-2-3

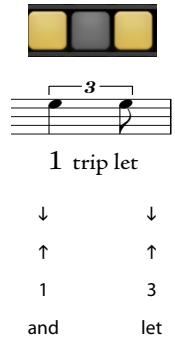


Afro-Cuban, swing

1-2

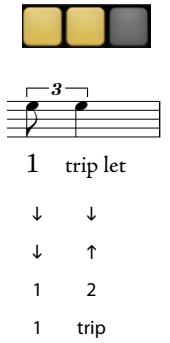


1-3

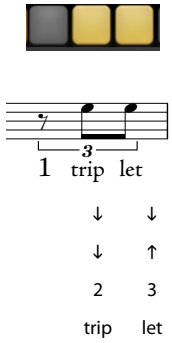


Afro-Cuban, waltz

1-2

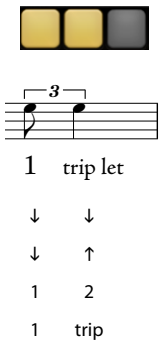


2-3

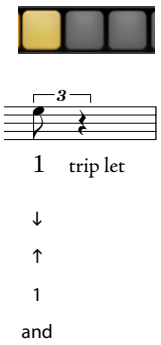


Afro-Cuban, one

1-2

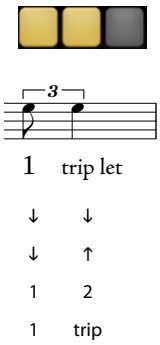


1



Afro-Cuban, two

12



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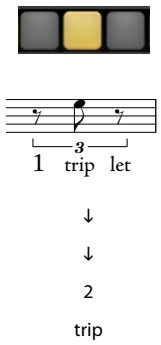
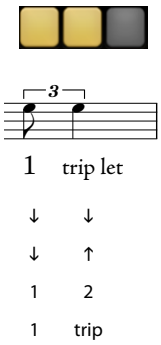


Afro-Cuban, three

1-2



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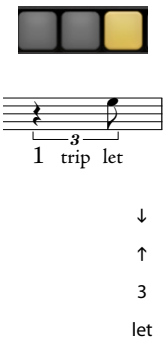
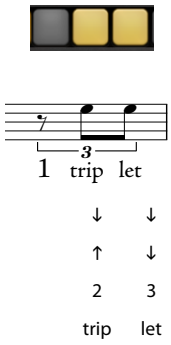


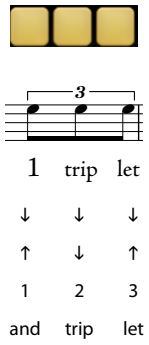
waltz with others

waltz, triplet

2-3

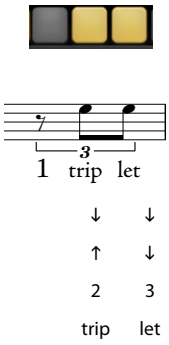


1-2-3

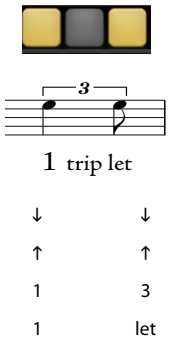


waltz, swing

2-3

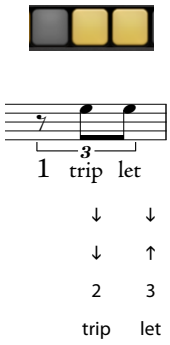


1-3

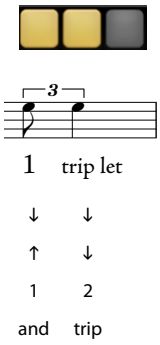


waltz, Afro-Cuban

2-3

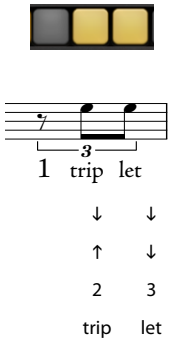


1-2

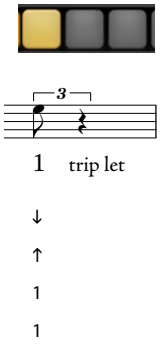


waltz, one

2-3

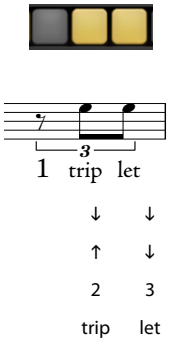


1

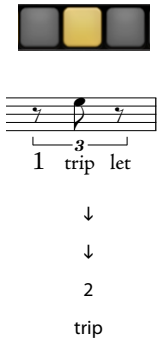


waltz, two

2-3

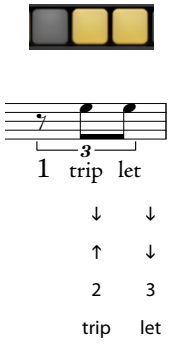


2

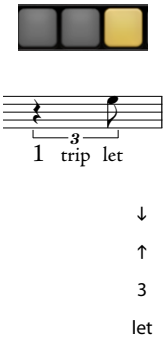


waltz, three

2-3



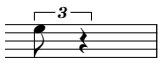
3



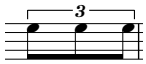
"one" with others

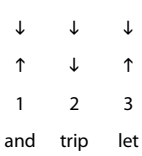
one, triplet

1



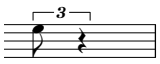
1-2-3



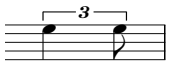


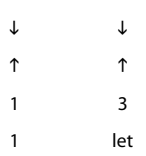
one, swing

1



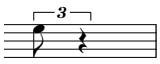
1-3



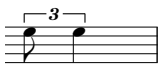


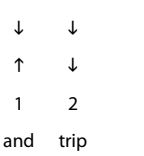
one, Afro-Cuban

1



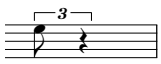
1-2



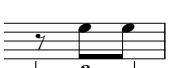


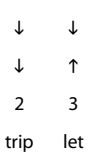
one, waltz

1



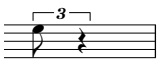
2-3



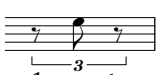


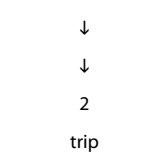
one, two

1



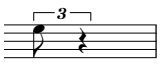
2



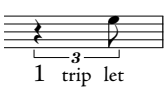


one, three

1



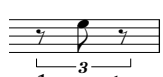
3

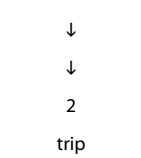


"two" with others

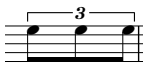
two, triplet

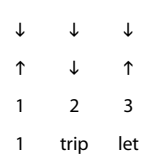
2





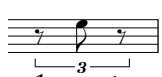
1-2-3

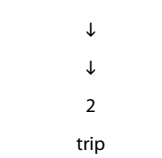




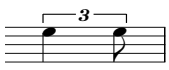
two, swing

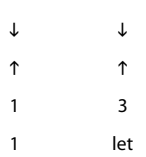
2





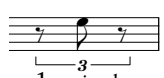
1-3

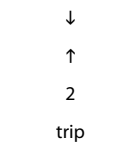




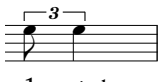
two, Afro-Cuban

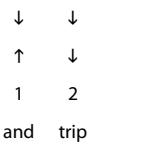
2





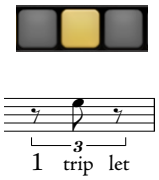
1-2





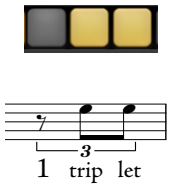
two, waltz

2



↓
↑
2
trip

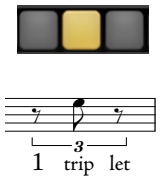
2-3



↓ ↓
↓ ↑
2 3
trip let

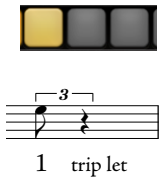
two, one

2



↓
↑
2
trip

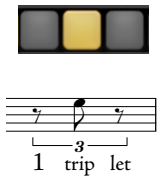
1



↓
↑
1
1

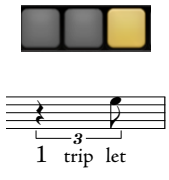
two, three

2



↓
↑
2
trip

3

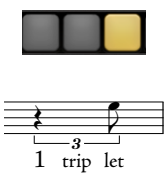


↓
↑
3
let

"three" with others

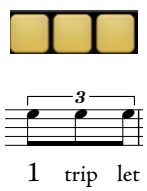
three, triplet

3



↓
↓
3
let

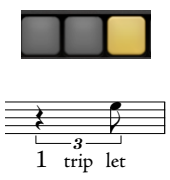
1-2-3



↓ ↓ ↓
↑ ↓ ↑
1 2 3
1 trip let

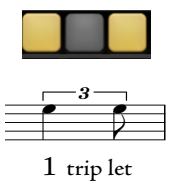
three, swing

3



↓
↑
3
let

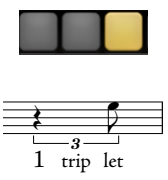
1-3



↓ ↓
↑ ↑
1 3
1 let

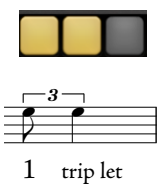
three, Afro-Cuban

3



↓
↓
3
let

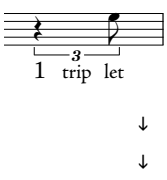
1-2



↓ ↓
↑ ↓
1 2
and trip

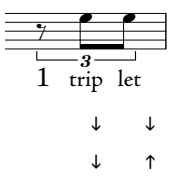
three, waltz

3



↓
↓
3
let

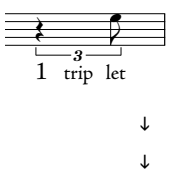
2-3



↓ ↓
↓ ↑
2 3
trip let

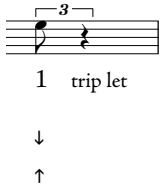
three, one

3



↓
↓
3
let

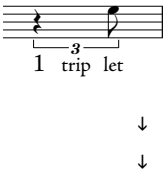
1



↓
↑
1
1

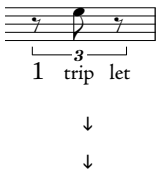
three, two

3



↓
↓
3
let

2



↓
↓
2
trip

HEARING PICKUPS AND PUSHES

Anticipating the Next Beat

Pickups and pushes both anticipate the next beat by playing something at the end of the previous beat.

pickup

In the example below, think of it as four beats, each divided into four parts. The four parts of each beat are numbered in the bottom row, "full groups of four." The fourth division of the second beat anticipates the third beat. This is called a *pickup*.

pickup to beat three

strum/pick	↓				↓			↑	↓				↓			
selecttion	1				1			4	1				1			
full groups of four	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

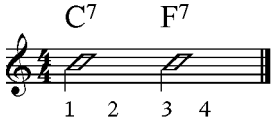
push

The example below is identical to the one above, except it *doesn't* play on beat three. This is called a *push*. This is often done where a chord is expected to begin on a particular beat (like beat three) and it is played early. Pushes make the music more interesting and contradicts the tyranny of the bar line, which can make music too march-like. There is an art to coordinating pushes. See Comping Strategies.

The stroke on the last division *could* be a downstroke, since there are so many un-played pulses. If you replace a downstroke with an upstroke for that reason, you should test your rhythm by selecting from a continuous down-up motion, to make sure you are playing the rhythm correctly (see air guitar strumming").

push beat three

strum/pick	↓				↓			↑							
selecttion	1				1			4							
full groups of four	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
chord changes	C7								F7							



You can also read about pickups and pushes in Comping Rhythm/Varying Rhythm.

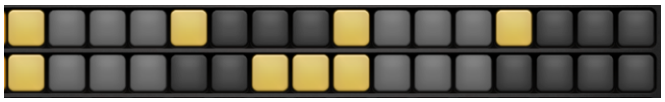
multiple note pickups and pushes

Pickups commonly involve two or more notes of each value at the end of the previous beat. Here are examples of two-note and three-note pickups and pushes:

original: strumming on beats and and three

strum/pick	↓							↓							
selecttion	1							1							
full groups of four	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
chord changes	C7								F7							

two-note pickup to beat three

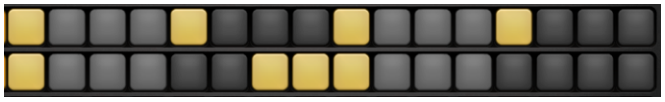


↓				↓		↓	↑	↓							
1				1		3	4	1							
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

two-note push to beat three

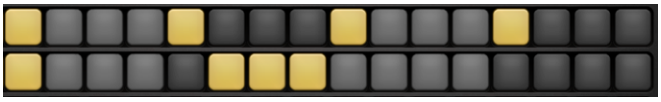
↓						↓	↑								
1						3	4								
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

three-note pickup to beat three



↓				↑	↓	↑	↓								
1				2	3	4	1								
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

three-note push to beat three

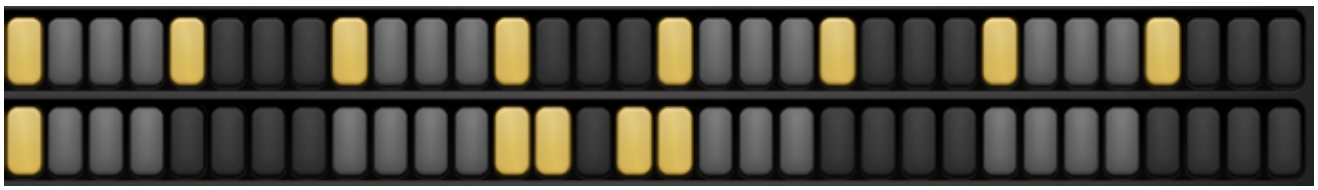


↓				↑	↓	↑									
1				2	3	4									
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

irregular pickups and pushes

Pushes and pickups can also be irregular rhythms, not consecutive pulses. The example of a pickup below occurs on the fifth beat and is the "124" rhythmic word, nicknamed "Creedence".

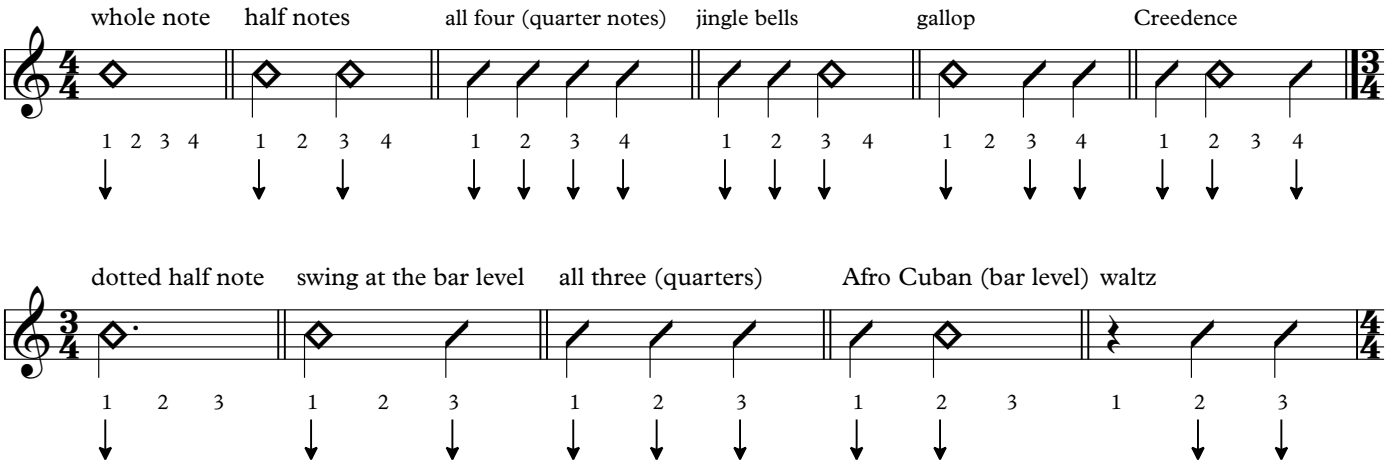
three-note pickup to beat three



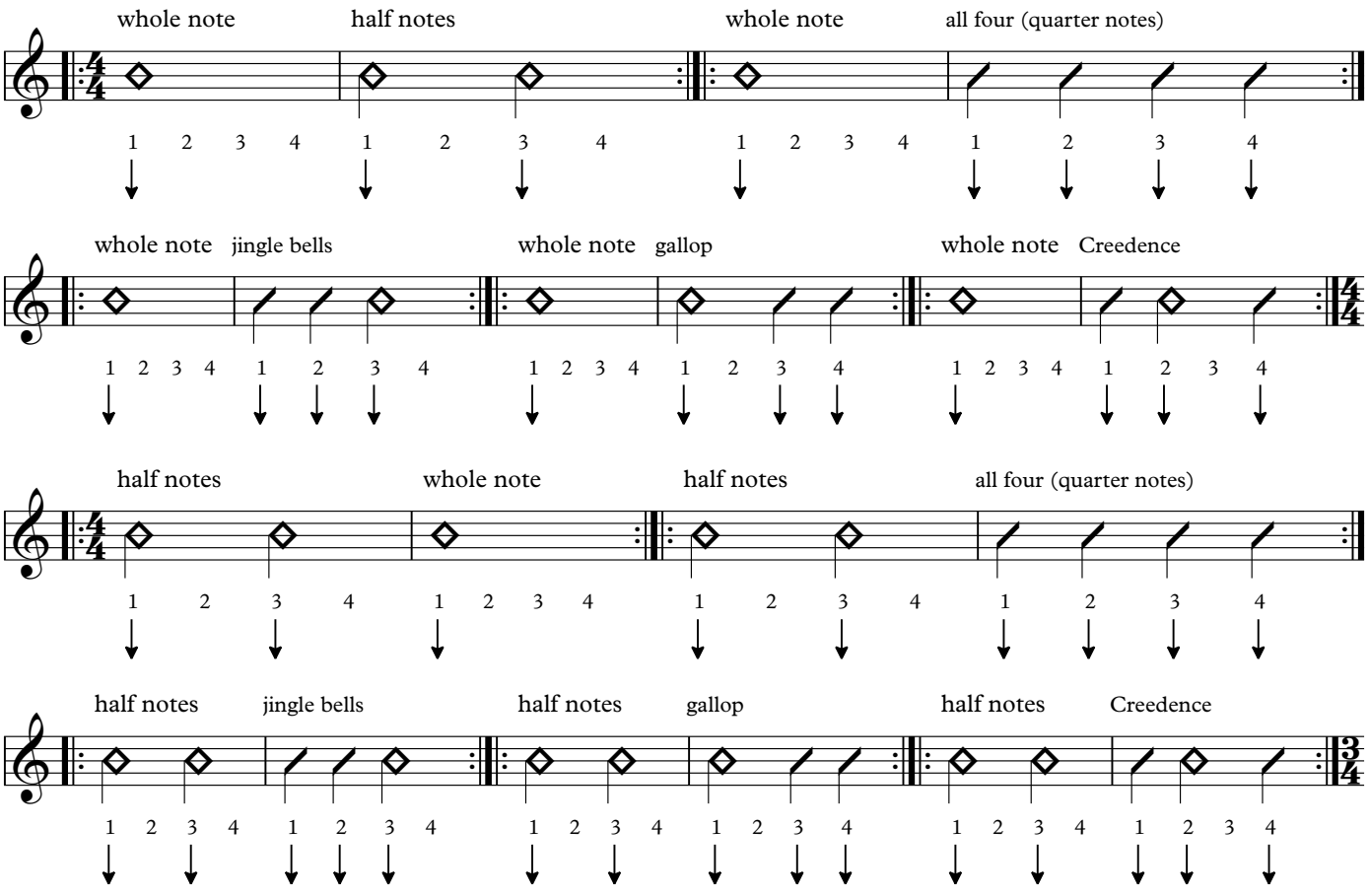
↓												↓	↑		↑	↓												
1												1	2		4	1												
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

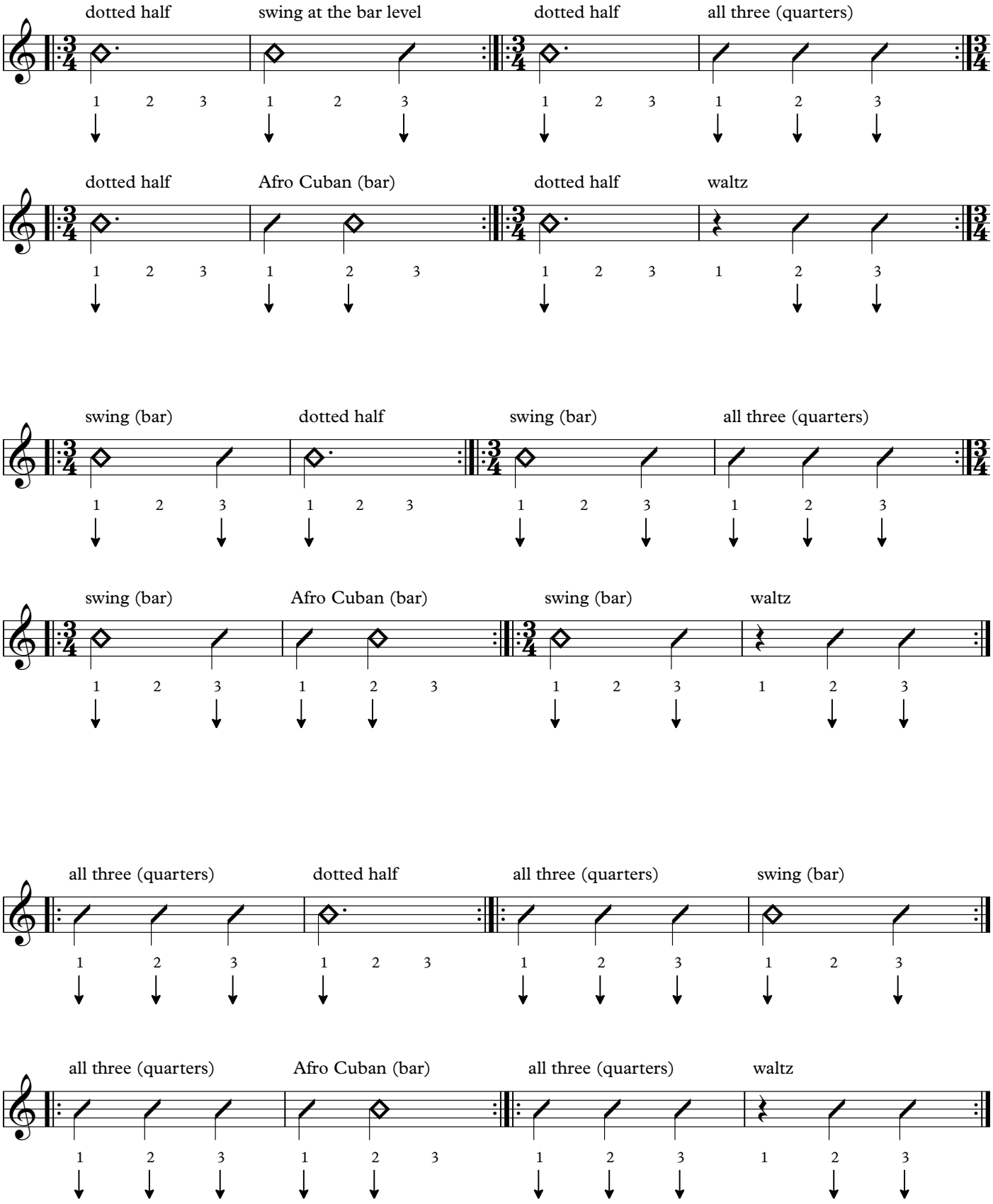
FIRST COMPING RHYTHMS

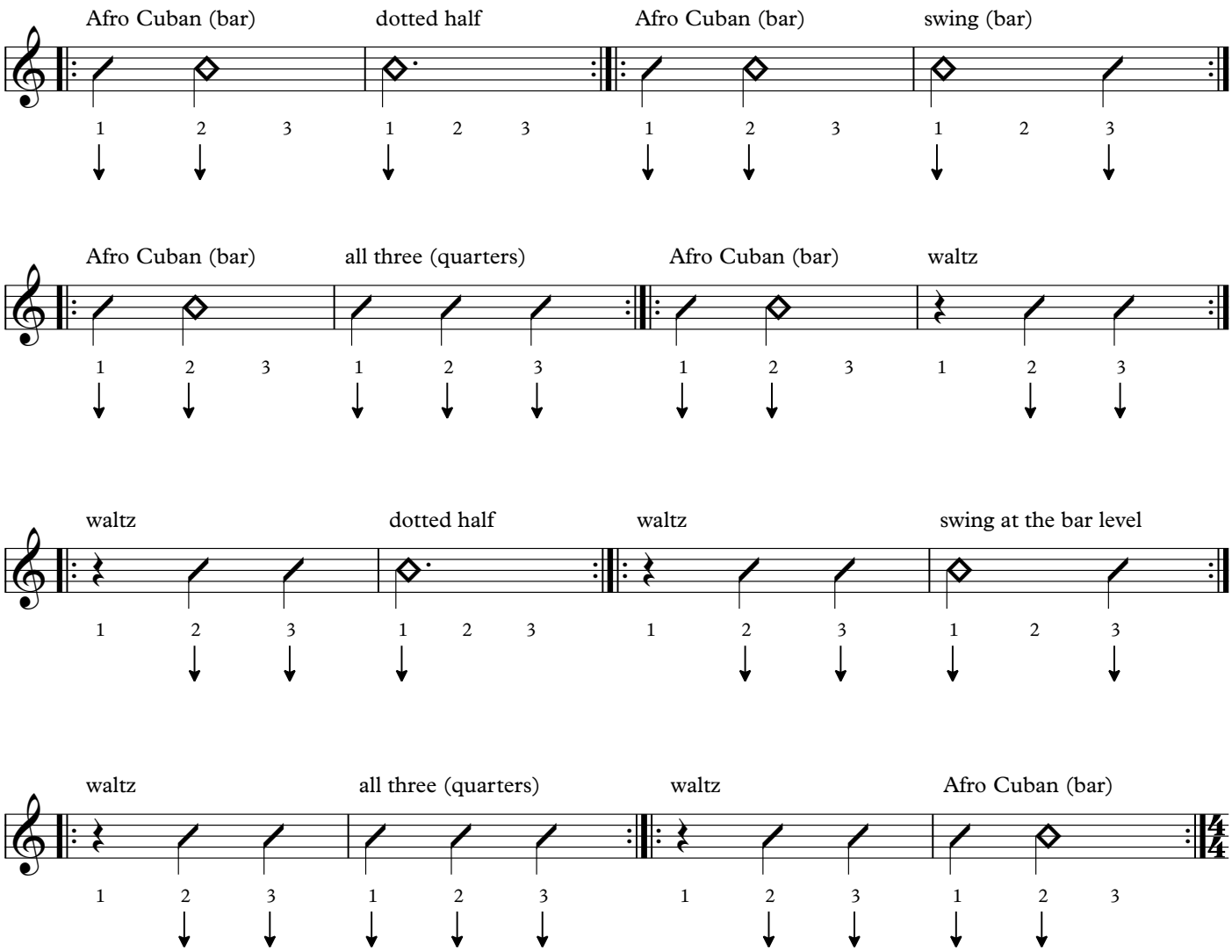
dividing the bar



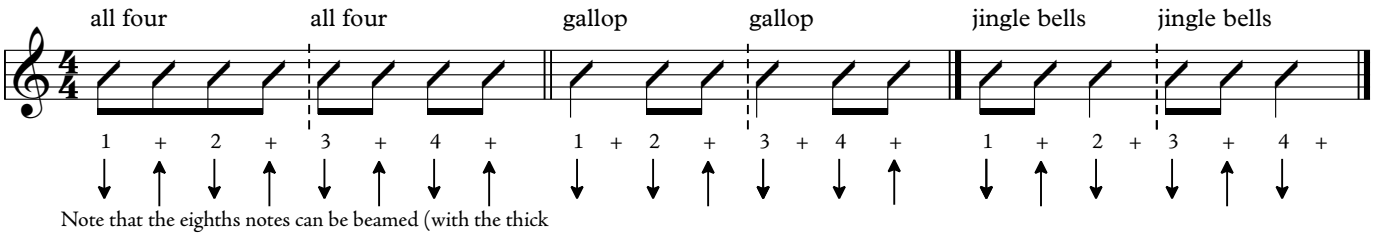
mixing divided bars



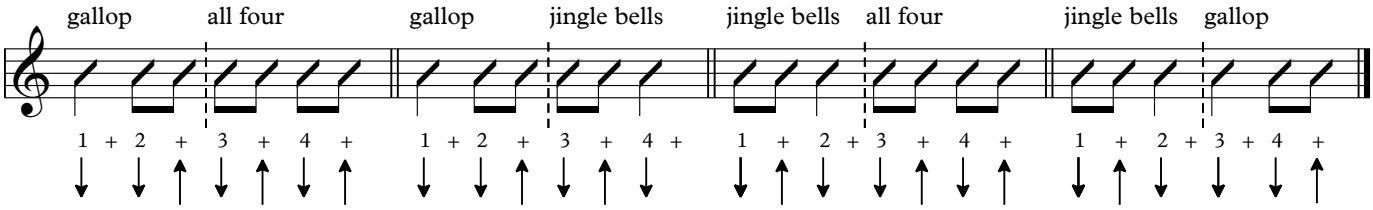


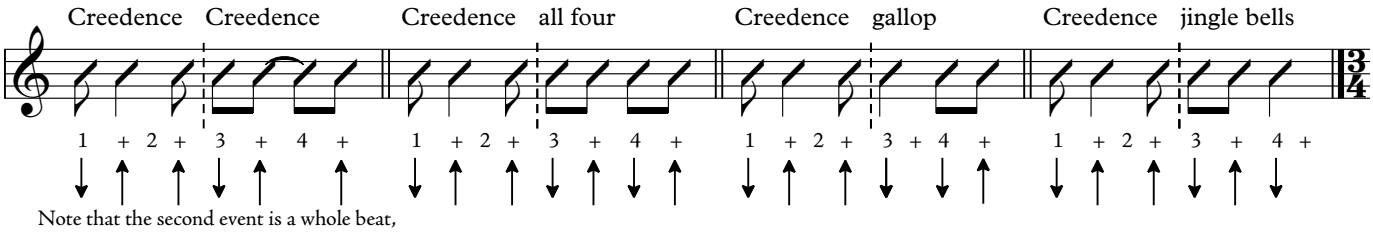


dividing beats



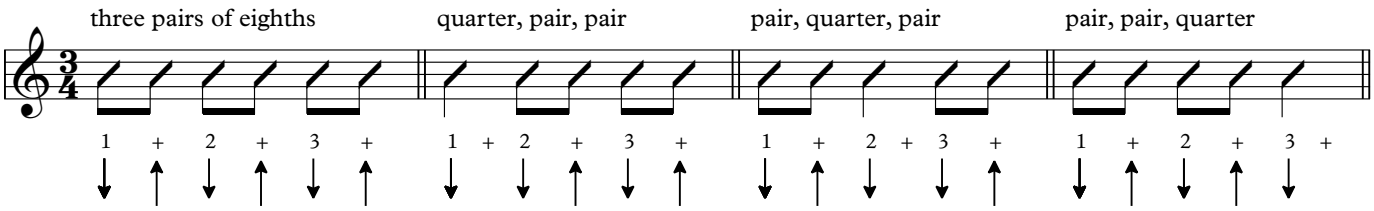
Note that the eighths notes can be beamed (with the thick horizontal line) in pairs or quads. It sounds the same.

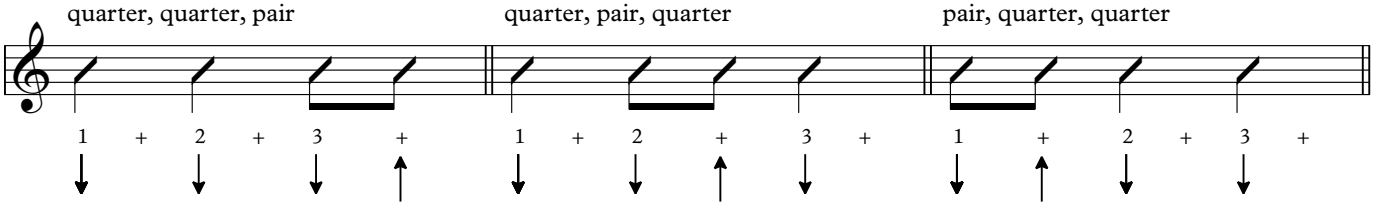


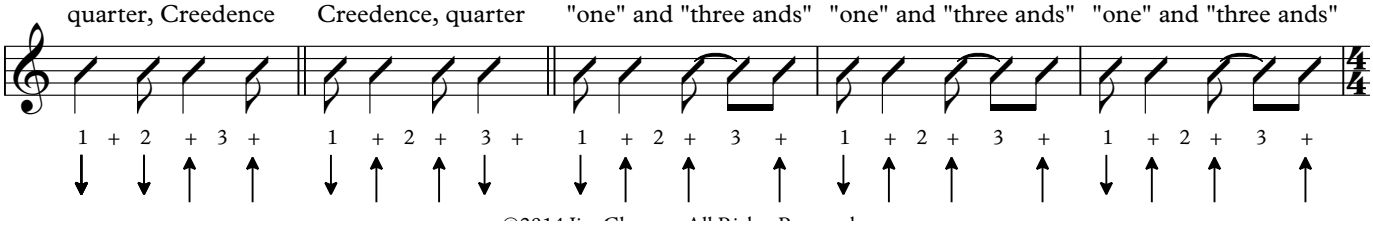


Note that the second event is a whole beat, written as a quarter note or two eighths tied. It sounds the same either way.

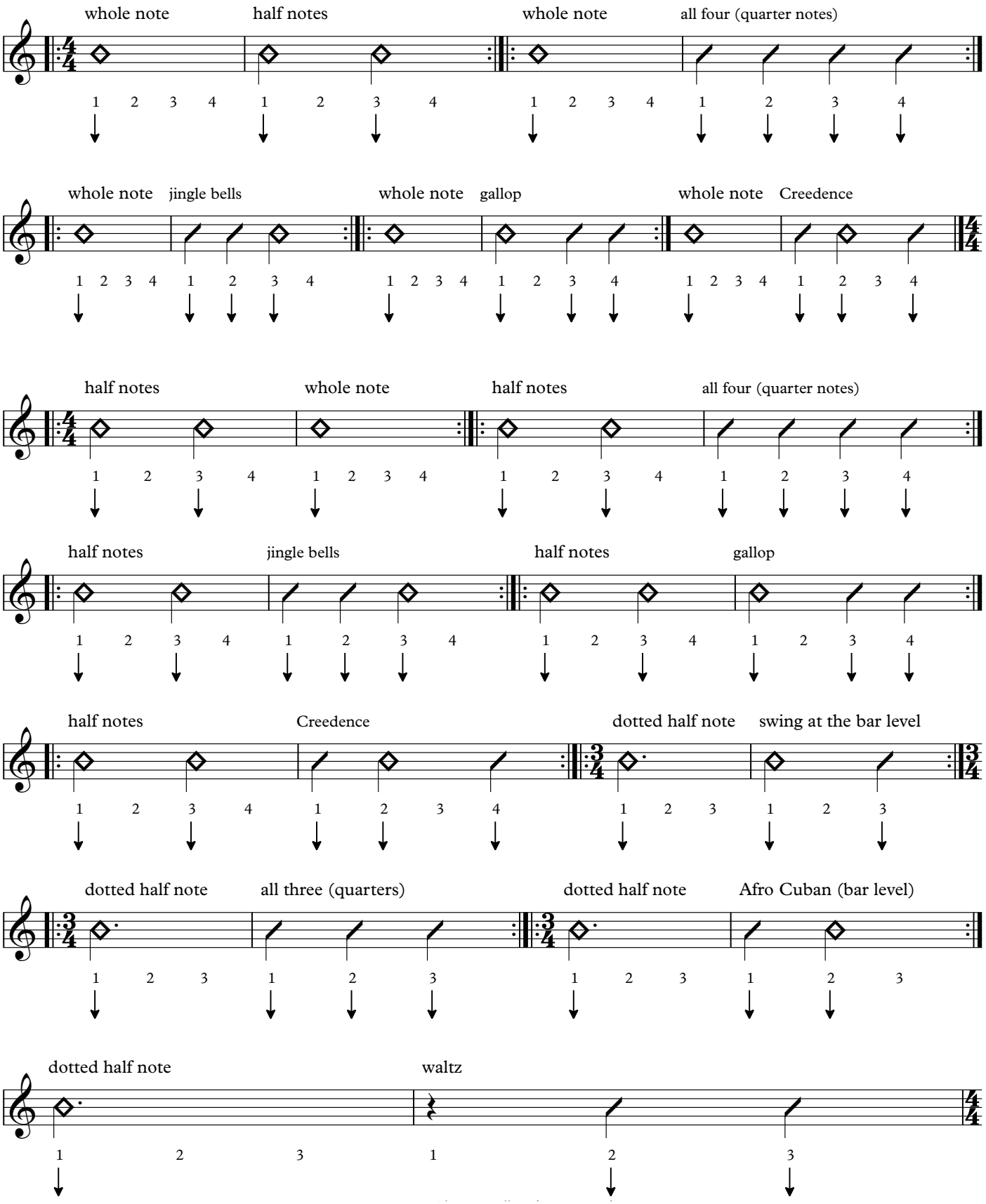
the term "pair" refers to a pair of eighth notes below



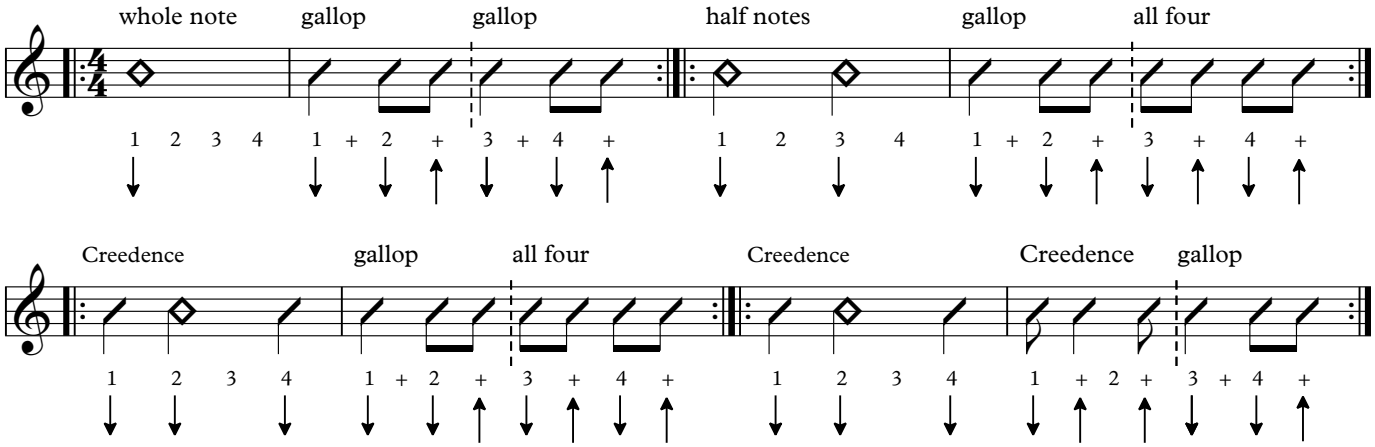




mixing divided bars



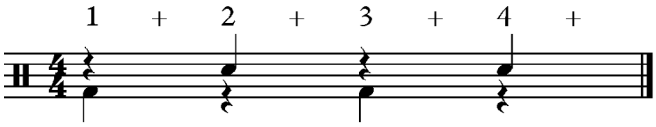
mixing divided bars and divided beats (dual rhythmic levels)



KICK AND SNARE RHYTHMS

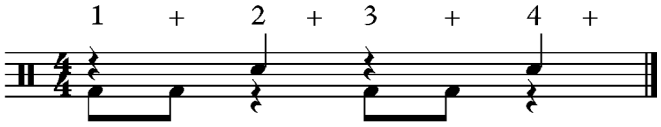
Octopus' Garden verse

Rock And Roll Ain't Noise Pollution (98), The Furor (98), Octopus' Garden verse (90), Enter Sandman theme (122)



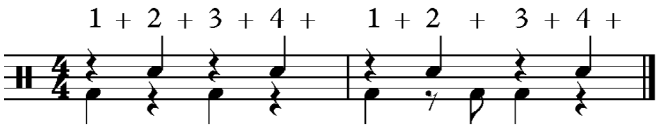
Day Tripper Theme

Day Tripper theme (140), Last Child (87)



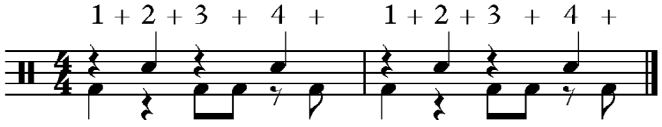
Louie Louie

Louie Louie (123), Pork And Beans (120), If I Fell (110), The Night Before (168)

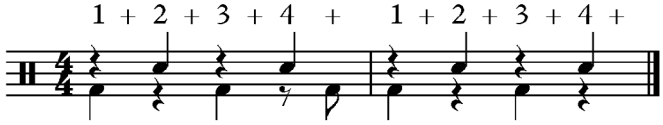


Taxman

Taxman (122)



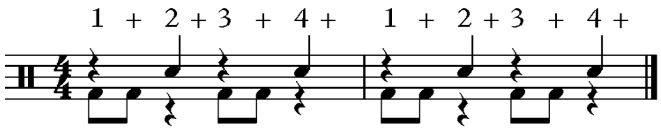
No Sleep Tonight



Smells Like Teen Spirit

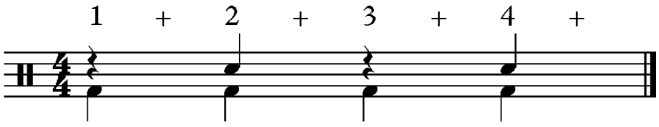
Smells Like Teen Spirit verse (118),

All The Small Things theme & verse (148)



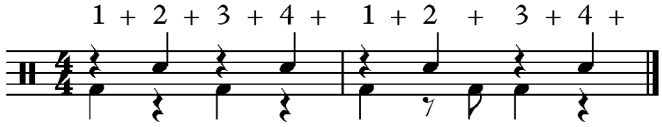
Day Tripper Verse

Day Tripper verse (140)



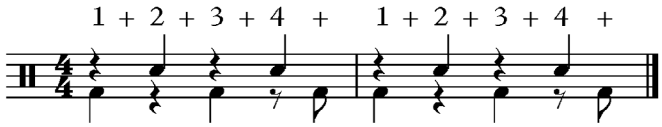
Green River

Green River (140)



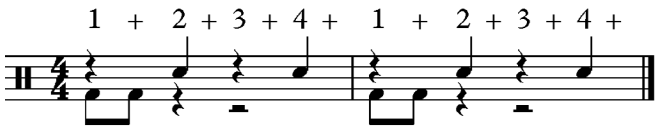
You Shook Me All Night Long chorus

You Shook Me All Night Long chorus (125)



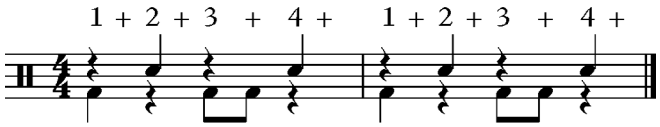
Just a Girl verse

Just A Girl verse (105)

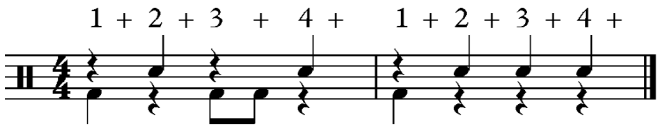


Just A Girl bridge

Just A Girl bridge (210), A Hard Day's Night verse (142), I'll Play The Blues For You (96), Oh! Pretty Woman (106), More Than A Feeling Theme (108), Shake It Up (148), Fortunate Son (134)



Come as You Are



COMPING RHYTHMS

Varying Rhythm

Learn to elaborate rhythms with pushes and pickups; insertions on "empty" beats (in place of rests); replacing quarter notes with pairs of eighth notes or triplets; omitting ties. Where there is enough space in time, use consecutive syncopations. Learn more in Rhythmic Themes and Layers.

push

When a note or chord is played a half beat early, on the "and" before the numbered beat, it is called a *push*. For example, a chord would be played on the "and of 2" before three, instead of on "3", not additionally on "3".

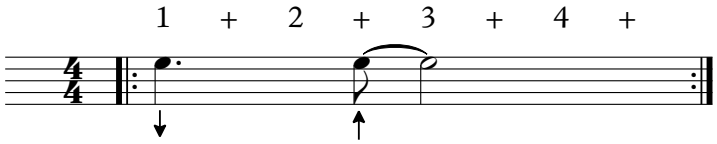
A "rest push" is played before the beat (usually on the "and") where the is a silence on the beat it precedes. A "sustain push" is played before the beat (usually on the "and") and sustains onto the next beat.

accent on 3

push 3

In the "Charleston" example below, the note on the and of two (the "and" after two) pushes the third beat by playing the second note "early" on the and of two. Notice that the beats could be divided evenly with straight eighths or with a two-thirds and one third ratio with swing eighth.

Charleston, Steppin' Out - (straight eighths) Charleston, Steppin' Out *(swing eighths)



pickup

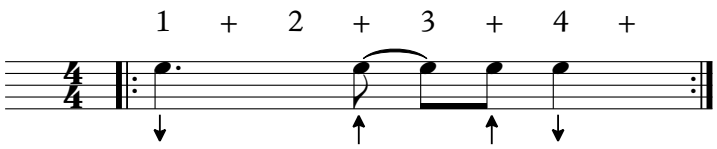
A pickup is similar to a push. They both anticipate the next beat. With the push, you don't play on the next beat. With the picku, you *do* play on the next beat. If a chord is played on the "and of 2" and on "3" as well, it would be called a pickup. So a pickup for beat "2" would play on the "and of 1" and also on "2", while a "push" for beat two would only play on the "and of 1" and not on "2".

pickup to three

pickup to one

Now we'll play before beat "4", as well as on beat "4" in the example below.

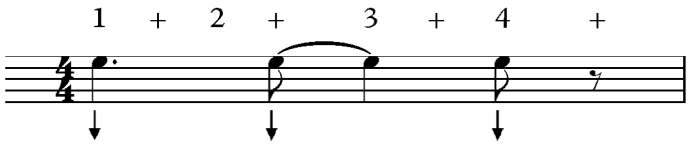
Blues by Five with Pickup To Four (straight eighths) Blues by Five with Pickup To Four (swing eighths)



add a note on an "empty" beat

In the Charleston example above, there is no note on "4". The "Blues By Five" example below adds a note on "four". Like the Charleston, it is shown both with straight eighths and swing eighths.

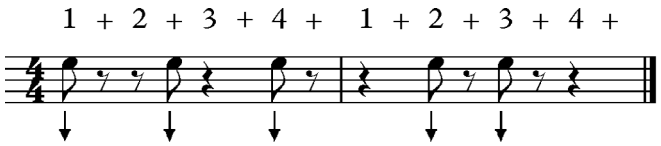
Blues by Five (straight eighths) Blues by Five *(swing eighths)



replacing quarter notes with eighths or triplets

In the clave 3-2 rhythm below, there is a note on the second beat of the second bar.

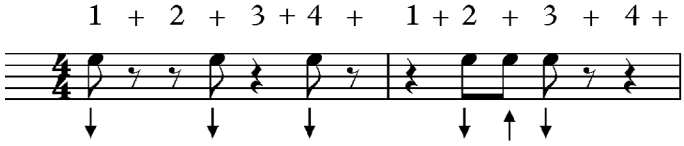
(son) clave 3-2 (straight eighths) (son) clave 3-2 (swing eighths)



Now the quarter note (a one beat note) on the second beat of the second bar is replaced with a pair of eighth notes (a half beat each). This makes the "I Shot The Sheriff chorus" rhythm.

I Shot the Sheriff chorus (3-2 clave var.) *(straight) (clave 3-2 straight eighths with pair of eighths on beat 2 of second bar)

I Shot the Sheriff chorus (3-2 clave var.) (swing) (clave 3-2 swing eighths with pair of eighths on beat 2 of second bar)

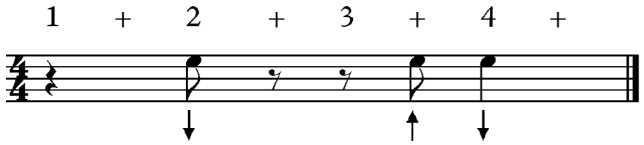


converting pickups to pushes (tie the offbeat to the next beat)

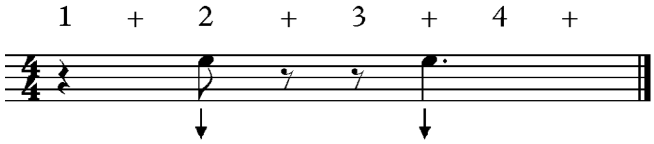
A pickup and a push both anticpate the target beat. In the "Backbeat, Pickup To Four" example below, there is a pickup to the fourth beat. The note on the and of three (the "+" after three) anticipates the the note on the fourth beat. Evil Ways, is similar, but does not play a note on beat four. Instead, it sustains the note from the "and of three" immediately before, onto beat four. So, "Backbeat, Pickup To Four" can be converted to "Evil Ways" by playing on the target beat (four), instead of pushing it.

Evil Ways is written below ending with a dotted quarter note, which begins on the and of three and sustains though beat four.

Backbeat, pickup To four (straight eighths) Backbeat, pickup To four (swing eighths)



Evil Ways chorus *(straight eighths) Evil Ways chorus (swing eighths)

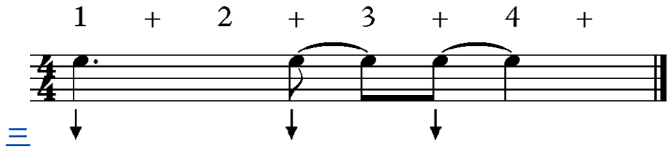


converting pushes to pickups (omit ties)

Remember, a pickup and a push both anticpate the target beat. In the Blues By Five examples below, the push version does not play a note on beat four. Instead, it sustains the note from the "and of three" immediately before, onto beat four. The "pickup to four" version also anticipates beat four, but plays a note on beat four. You could say that the "push four" version was converted to the "pickup to four" version by playing on the target beat (four), instead of pushing it.

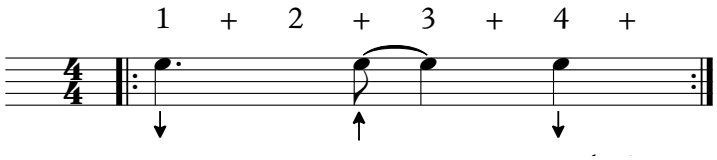
A *tie* is a curved line that connects two notes horizontally in music notation to indicate that they sustain continuously, without an attack on the second note. In other words, they functionally become one note. The Blues By Five Push Four rhythm below has ties both on the "and of two" (the "+" after two sustains to the beginning of beat three) and the "and of three" (the "+" after three sustains through beat four).

Blues By Five, push four (straight eighths) Blues By Five, push four (swing eighths)



By omitting the tie on the "and of three" in the Blues By Five Push Four example, you then play both on the "and of three" and on four, making one note into two (shown earlier). This is shown below.

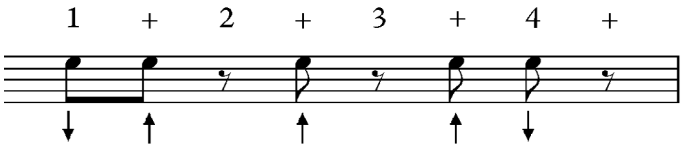
Blues by Five (straight eighths) Blues by Five *(swing eighths)



consecutive syncopations

Syncopation is the most significant rhythmic attribute than African music added to American music. It involves playing on the normally unaccented part of the beat, such as on the "and" or upbeat instead of on the downbeat (numbered beat). Syncopation is a modern (nineteenth century and forward) and "cool" stylization. The Brown-Eyed Girl intro. example below makes this variation on the Charleston rhythm.

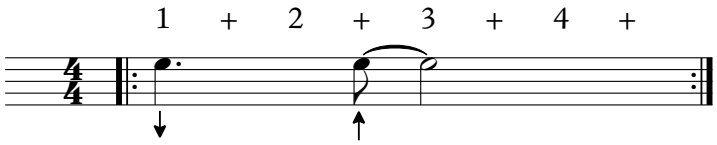
Brown-Eyed Girl intro *(straight eighths) Brown-Eyed Girl intro (swing eighths)



Duple Time Comping Rhythms in Straight and Swing Eighths

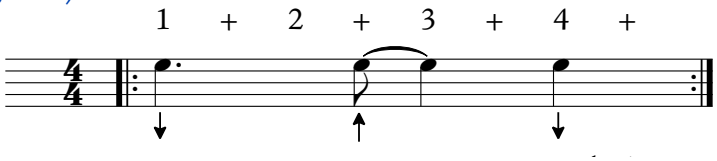
The Charleston Family

Charleston, Steppin' Out - (straight eighths)



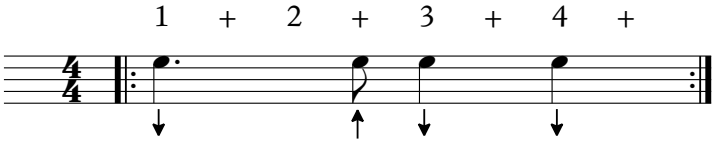
Charleston, Steppin' Out *(swing eighths)

Blues by Five (straight eighths)



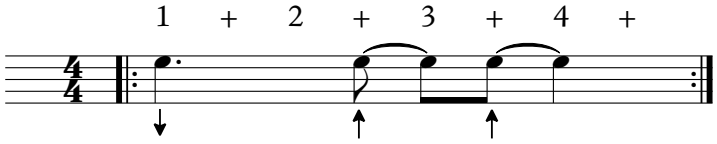
Blues by Five *(swing eighths)

Bomba (Blues by Five, add three) (straight eighths)



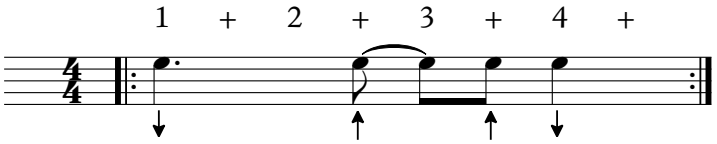
Bomba (Blues by Five, add three) (swing eighths)

Blues by Five with "Push Four" (straight eighths)



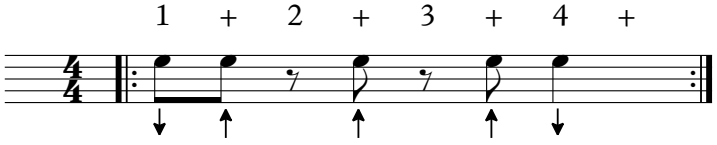
Blues by Five with Push Four (swing eighths)

Blues by Five with Pickup To Four (straight eighths)



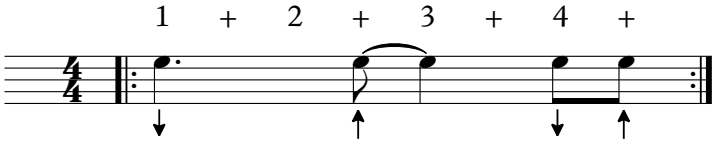
Blues by Five with Pickup To Four (swing eighths)

Brown-Eyed Girl intro *(straight eighths)



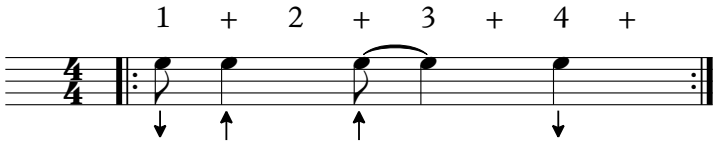
Brown-Eyed Girl intro (swing eighths)

Blues by Five, pair on four (straight eighths)



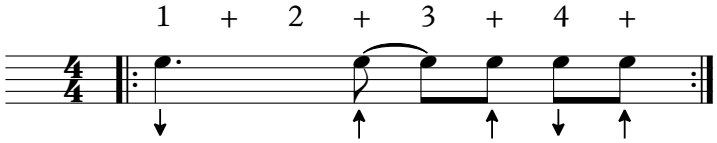
Blues by Five, pair on four (swing eighths)

Blues by Five, Pair on One (straight eighths)



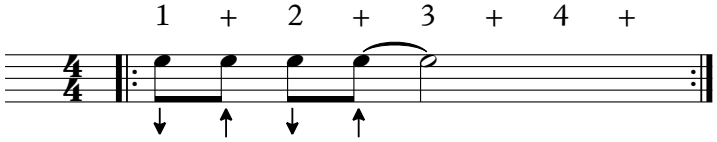
Blues by Five, Pair on One (swing eighths)

Black Magic Woman elec. piano *(straight eighths)



Black Magic Woman elec. piano (swing eighths)

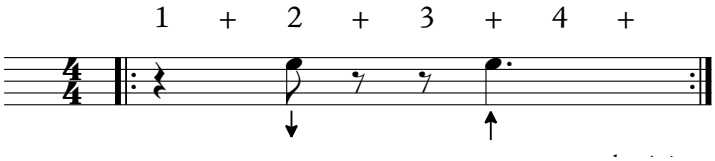
Blue Monk (straight eighths)



Blue Monk *(swing eighths)

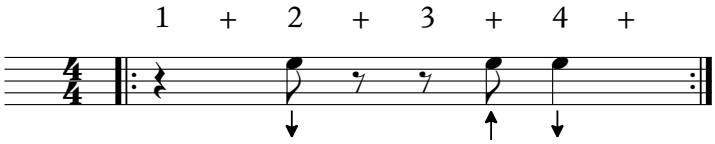
The Evil Ways Family

Evil Ways chorus *(straight eighths)



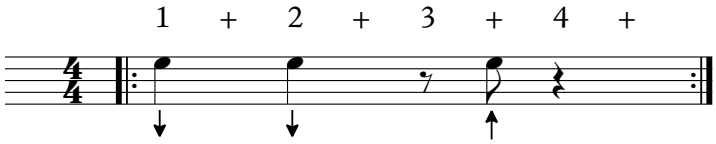
Evil Ways chorus (swing eighths)

backbeat, pickup to four (straight eighths)



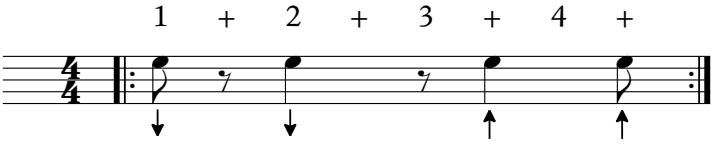
backbeat, pickup to four (swing eighths)

Corcovado, Favela, Once I Loved *(straight eighths)



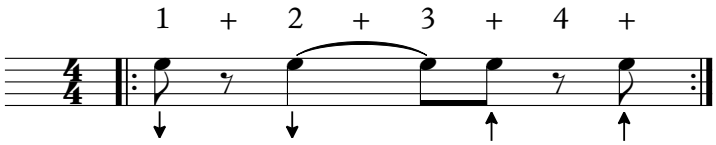
Corcovado, Favela, Once I Loved (swing eighths)

Flintstones (straight eighths)



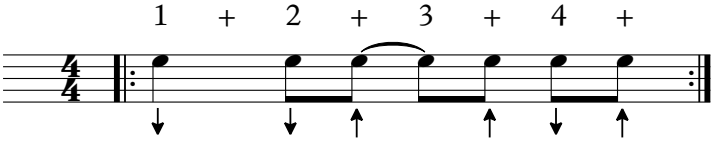
Flintstones *(swing eighths)

Desafinado *(straight eighths)



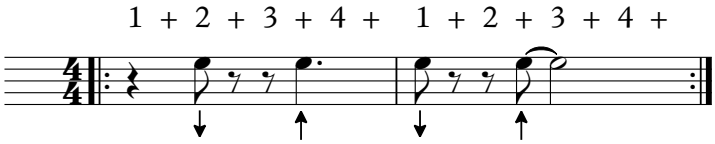
Desafinado (swing eighths)

Time Of Your Life *(straight eighths)



Time Of Your Life (swing eighths)

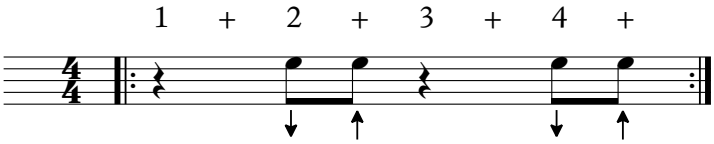
Evil Ways/Charleston *(straight eighths)



Evil Ways/Charleston (swing eighths)

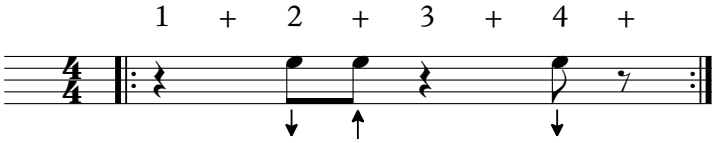
The Reggae Family

reggae guitar *(straight eighths)



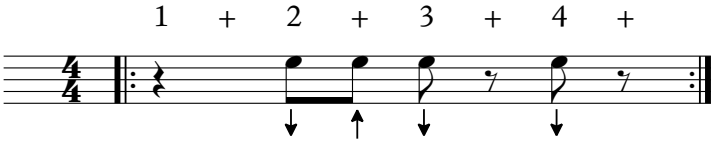
reggae guitar (swing eighths)

D'Yer Ma'ker *(straight eighths)



D'yer Ma'ker (swing eighths)

I Shot the Sheriff verse *(straight eighths)

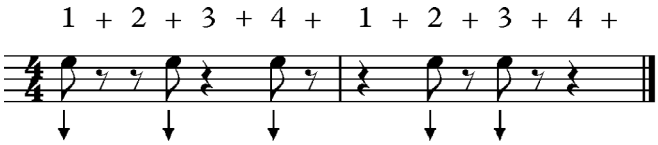


I Shot the Sheriff verse (swing eighths)

The Clave Family

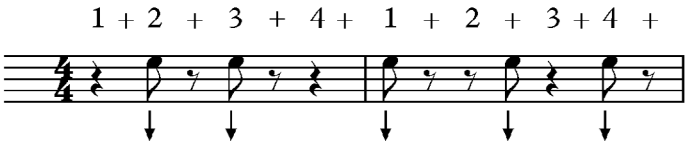
First, learn the (son) clave 3-2. Learn it and with each of its three variations, the rumba clave, the Brazilian clave and "I Shot The Sheriff" learn the "2-3" (or "flipped" in the case of I Shot the Sheriff) version that "trades" the two bars to make a second rhythm.

(son) clave 3-2 (straight eighths)



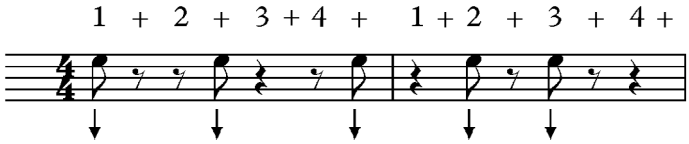
(son) clave 3-2 (swing eighths)

(son) clave 2-3 (straight eighths)
(son clave 3-2 straight eighths with traded bars)



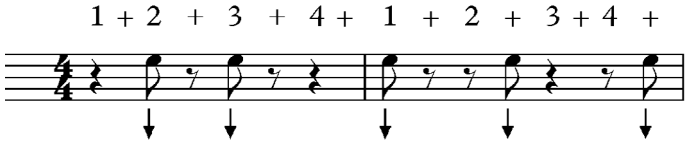
(son) clave 2-3 (swing eighths)
(son clave 3-2 straight eighths with traded bars)

rumba clave 3-2 (straight eighths)
(clave 3-2 straight eighths with third ntoe on "+ of 4")



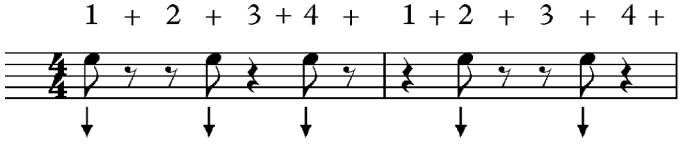
rumba clave 3-2 (swing eighths)
(clave 3-2 swing eighths with third note on "+ of 4")

rumba clave 2-3 (straight eighths)
Palito/Cascara-high part *(straight eighths)
(rumba clave 3-2 straight eighths with traded bars)



rumba clave 2-3 (swing eighths)
Palito/Cascara-high part (swing eighths)
(rumba clave 3-2 straight eighths with traded bars)

Brazilian clave 3-2 (straight)
(clave 3-2 straight eighths with last note on "+ of 3")



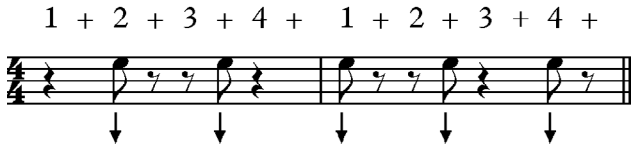
Brazilian clave 3-2 (swing)
(clave 3-2 swing eighths with last note on "+ of 3")

Brazilian clave 2-3 (straight)

(clave 2-3 straight eighths with last note on "+ of 3")

Brazilian clave 2-3 (swing)

(clave 2-3 swing eighths with last note on "+ of 3")

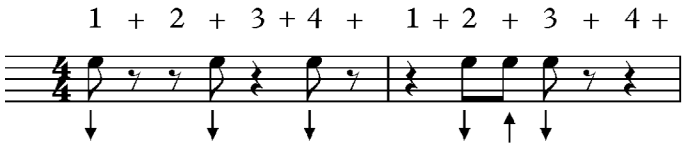


I Shot the Sheriff chorus *(straight eighths)

(clave 3-2 straight eighths with pair of eighths on beat 2 of second bar)

I Shot the Sheriff chorus (swing eighths)

(clave 3-2 swing eighths with pair of eighths on beat 2 of second bar)

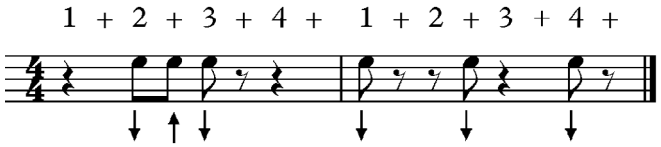


I Shot the Sheriff, "flipped" (straight eighths)

(I Shot the Sheriff choerus, straight eighths with traded bars)

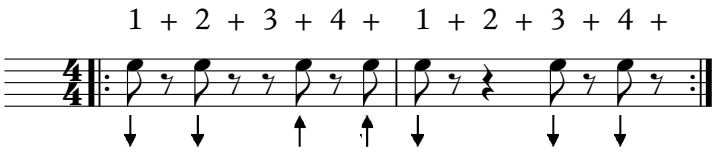
I Shot the Sheriff, "flipped" (straight eighths)

(I Shot the Sheriff chorus, swing eighths with traded bars)



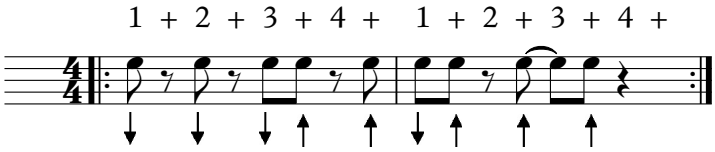
The Bossa Nova Family

Bossa Nova/Samba *(straight eighths)



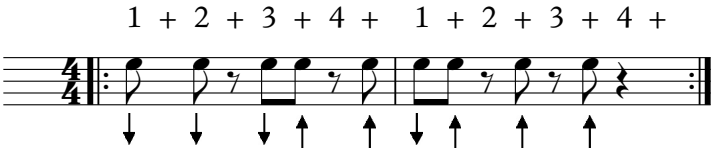
Bossa Nova/Samba (swing eighths)

Wave *(straight eighths)



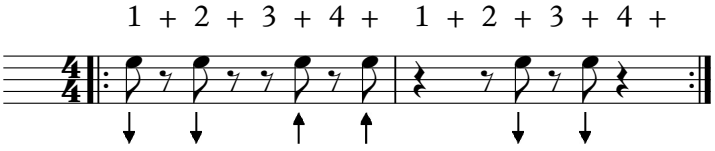
Wave (swing eighths)

Girl from Ipanema *(straight eighths)



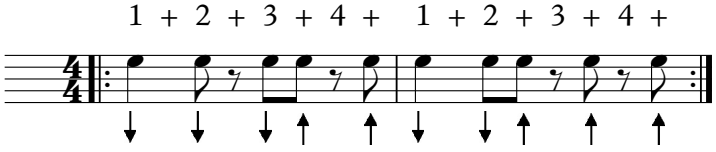
Girl from Ipanema (swing eighths)

Triste, Oye Como Va *(straight eighths)



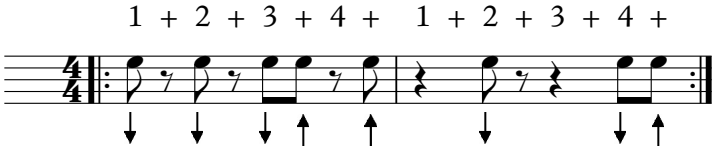
Triste, Oye Como Va (swing eighths)

guaguanco bell *(straight eighths)



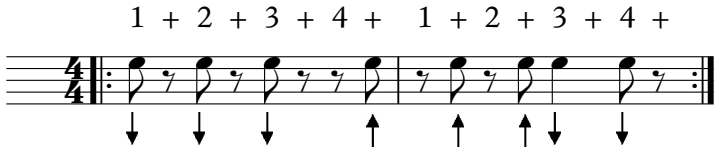
guaguanco bell *(swing eighths)

Cold Sweat (Jimmy Nolan-gtr.) *(straight eighths)

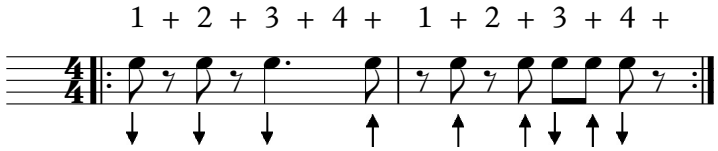


Cold Sweat (Jimmy Nolan-gtr.) (swing eighths)

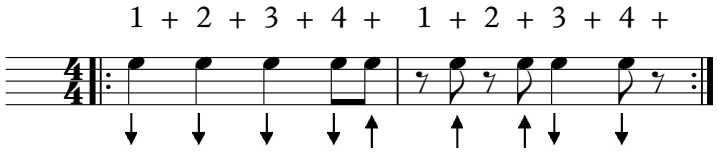
Lust For Life *(straight eighths) Lust For Life (swing eighths)



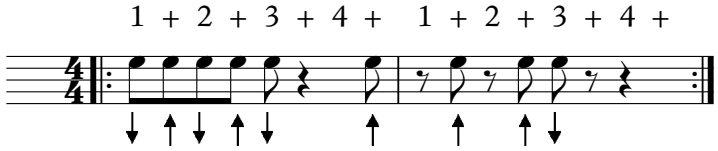
Are You Gonna Be My Girl *(straight eighths) Are You Gonna Be My Girl (swing eighths)



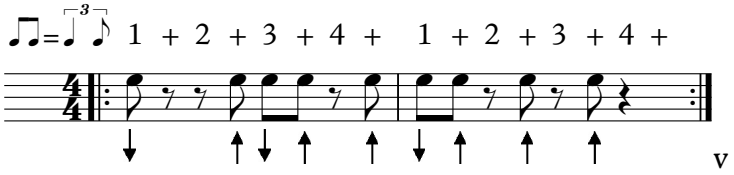
No Sleep Tonight *(straight eighths) No Sleep Tonight (swing eighths)



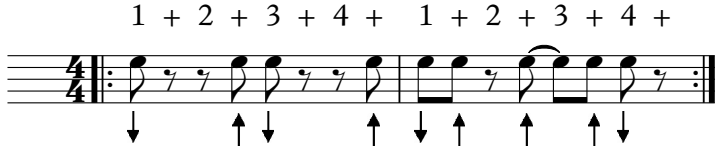
Torn *(straight eighths) Torn (swing eighths)



Look To The Sky *(straight eighths) Look To The Sky (swing eighths)

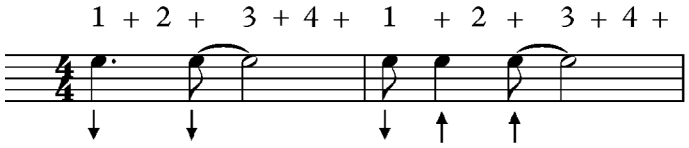


Walk On The Wild Side *(straight eighths) Walk On The Wild Side (swing eighths)



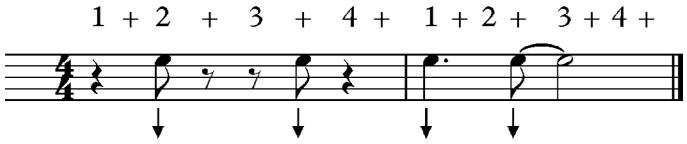
Others

Freefallin' *(straight eighths)



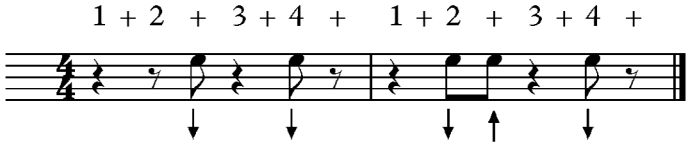
Freefallin' (swing eighths)

I Got Rhythm (straight eighths)



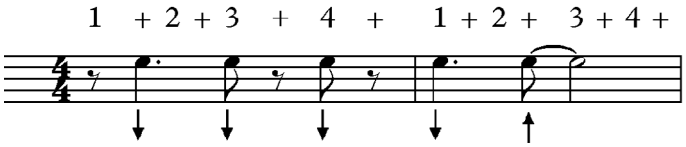
I Got Rhythm *(swing eighths)

Soukous (Congo or Lingala)*(straight eighths)



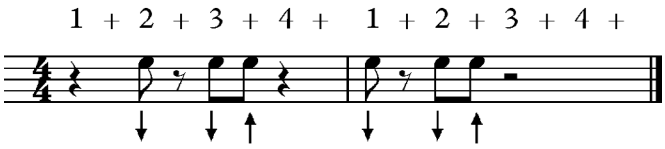
Soukous (Congo or Lingala) (swing eighths)

Seven Come Eleven (straight eighths)



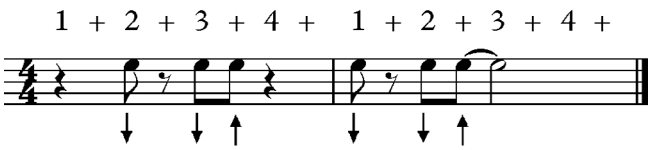
Seven Come Eleven *(swing eighths)

Salt Peanuts (straight eighths)



Salt Peanuts *(swing eighths)

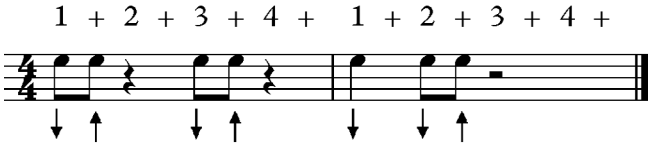
Salt Peanuts - sustain end (straight eighths)



Salt Peanuts - sustain end*(swing eighths)

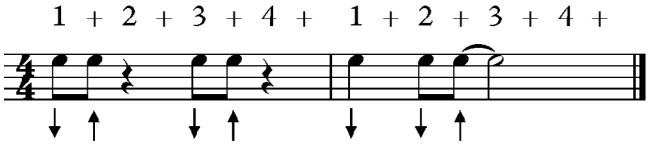
C-Jam Blues (straight eighths)

C-Jam Blues *(swing eighths)



C-Jam Blues - sustain end (straight eighths)

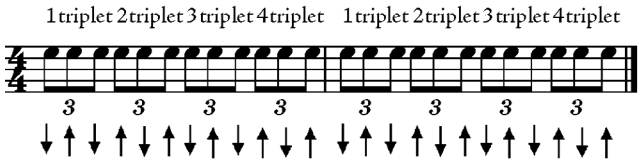
C-Jam Blues - sustain end *(swing eighths)



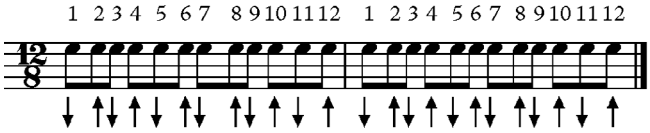
Triple Time Comping Rhythms Shown in 4/4 with Triplets and 12/8

combining triplets and swing eighths

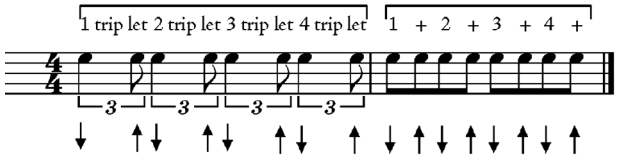
eighth note triplets (4/4 with triplets)



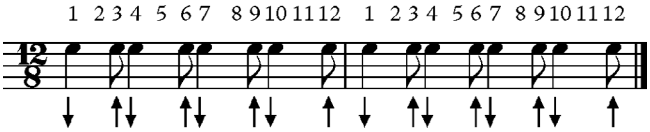
eighth notes in 12/8 (4 sets of 3)



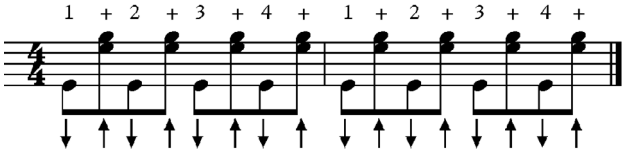
swing eighths (4/4 with triplets)



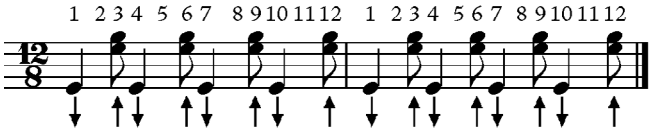
swing eighths equivalent in 12/8



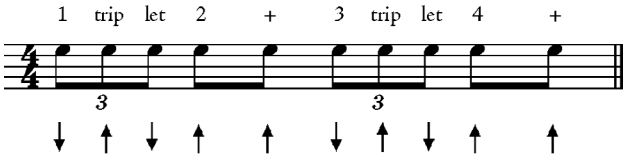
offbeat blues shuffle (4/4 with triplets)



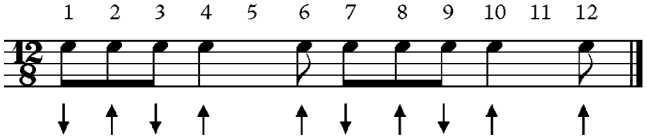
offbeat blues shuffle (12/8)



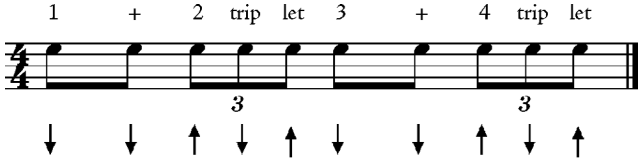
triplets and swing eighths (4/4 with triplets)



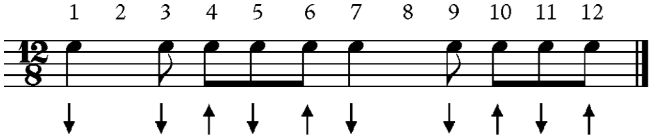
triplets and swing eighths (12/8)



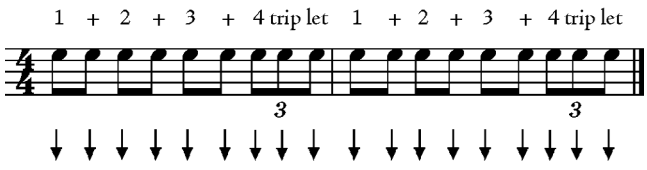
swing eighths and triplets (4/4 with triplets)



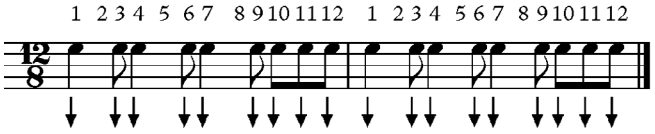
swing eighths and triplets (12/8)



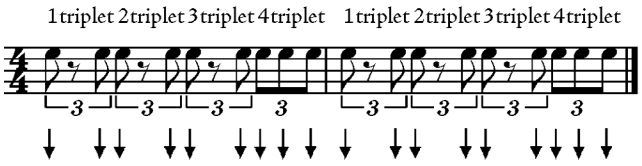
I'm A Man, Roadhouse Blues (4/4 with triplets)



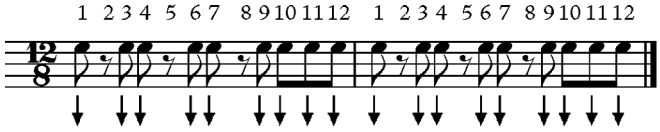
I'm A Man, Roadhouse Blues (12/8)



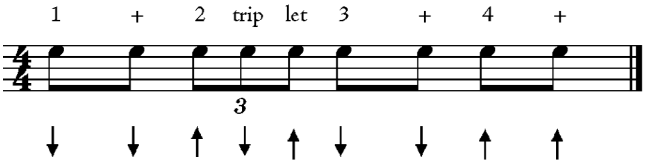
Blues Power (4/4 with triplets)



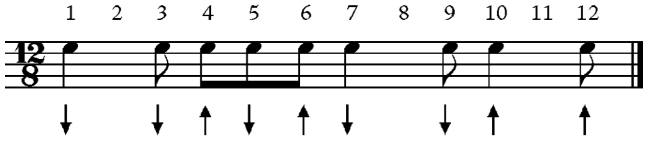
Blues Power (12/8)



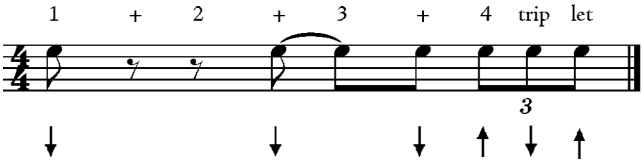
Sex Machine (4/4 swing with triplets)



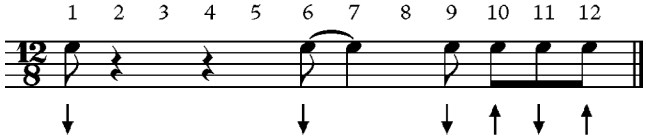
Sex Machine (12/8)



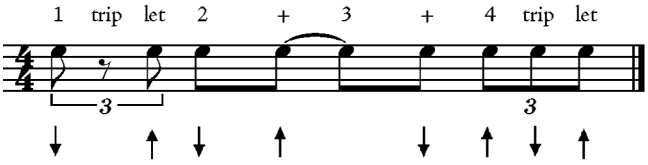
Done Somebody Wrong (4/4 swing with triplets)



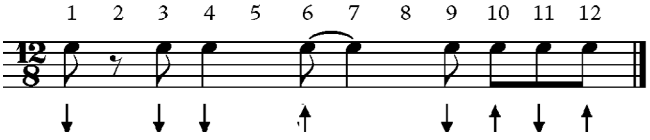
Done Somebody Wrong (12/8)



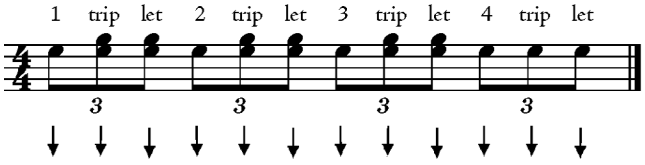
Stormy Monday (4/4 swing with triplets)



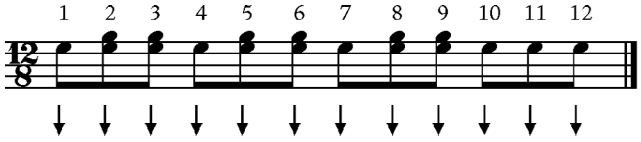
Stormy Monday (12/8)



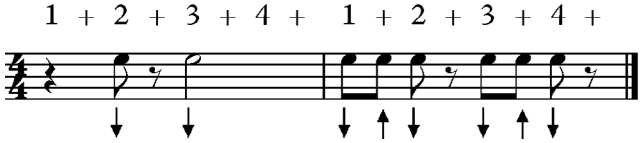
I Put a Spell on You (4/4 with triplets)



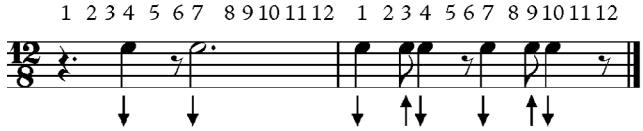
I Put a Spell on You (12/8)



Smokestack Lightning (4/4 with triplets)



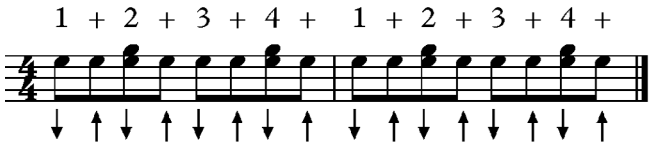
Smokestack Lightning (12/8)



triplets and swing eighths with backbeat

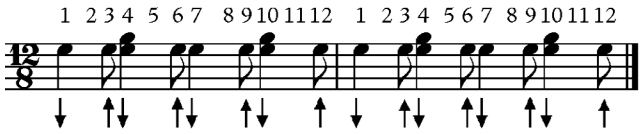
Blues Shuffle With Backbeat (4/4 with triplets)

optionally strum all down for more drive

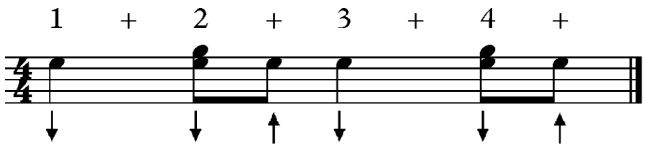


Blues Shuffle With Backbeat (12/8)

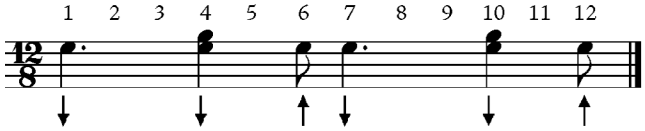
optionally strum all down for more drive



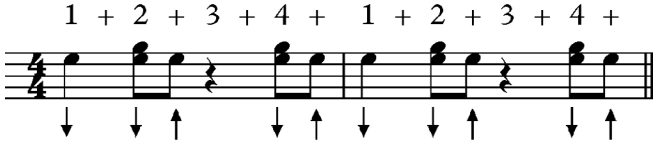
Swing Eighths On Backbeat (4/4 swing eighths)



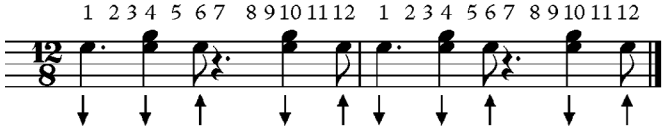
Swing Eighths On Backbeat (12/8)



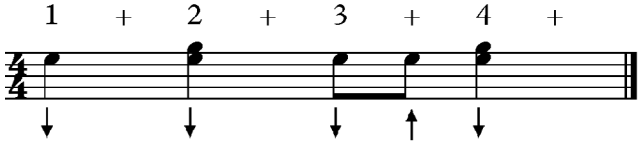
Sparse Shuffle With Backbeat (4/4 with triplets)



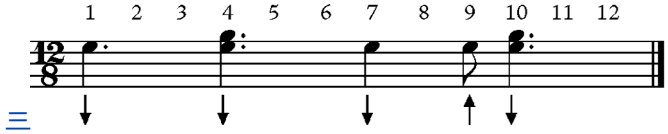
Sparse Shuffle With Backbeat (12/8)



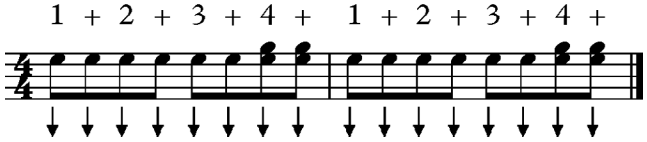
Backbeat, Swing on Three (4/4 with triplets)



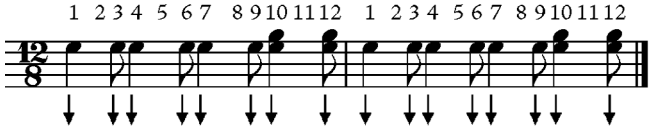
Backbeat, Swing on Three (12/8)



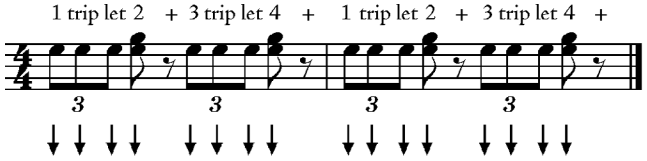
Rock Me Baby (4/4 with triplets)



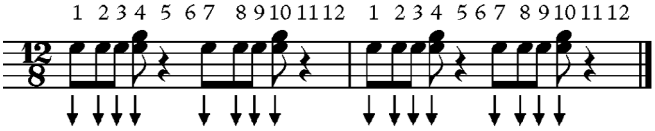
Rock Me Baby (12/8)



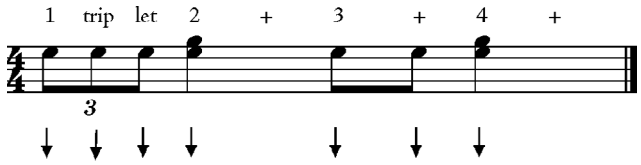
Triplets And Backbeat (4/4 with triplets)



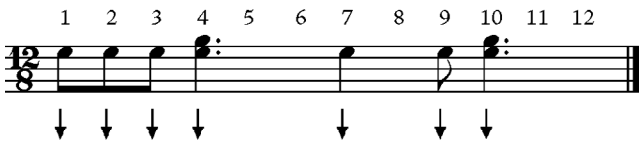
Triplets And Backbeat (12/8)



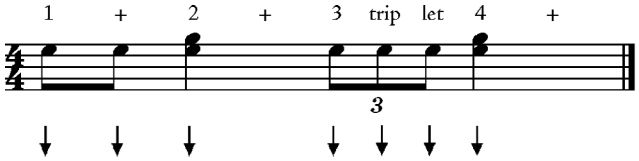
Trip Back, Swing Back (4/4 with triplets)



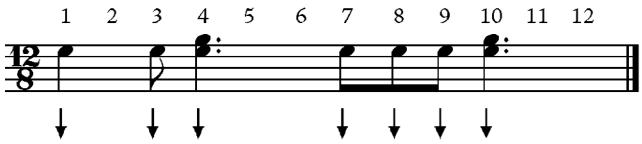
Trip Back, Swing Back (12/8)



Swing Back, Trip Back (4/4 with triplets)

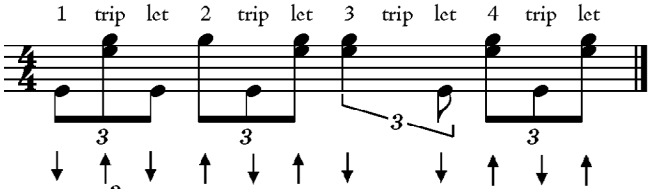


Swing Back, Trip Back (12-8)

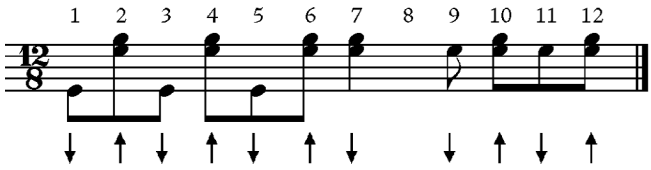


Polyrhythmic Afro-Cuban

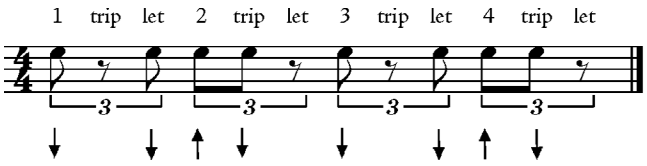
Bernard Purdie Half Time Shuffle (4/4 with triplets)



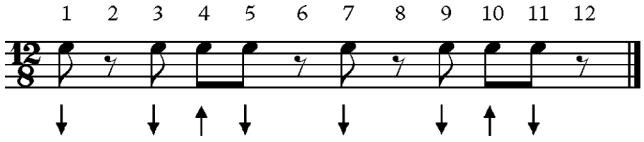
Bernard Purdie Half Time Shuffle (12/8)



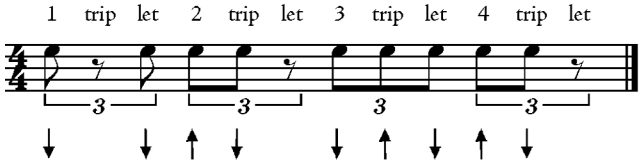
Bembe (4/4 with triplets)



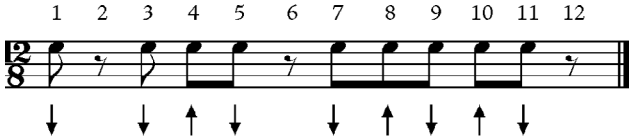
Bembe (12/8)



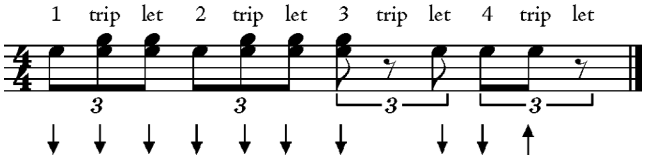
Adowa (4/4 with triplets)



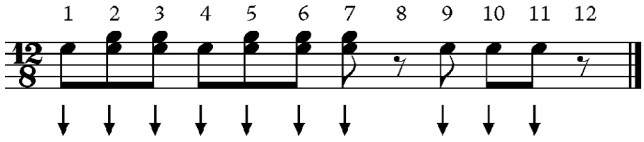
Adowa (12/8)



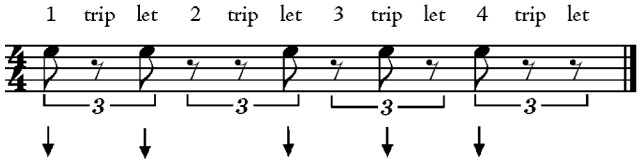
Bikutsi, Abakua (4/4 with triplets)



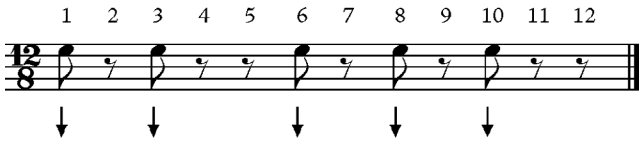
Bikutsi, Abakua (12/8)



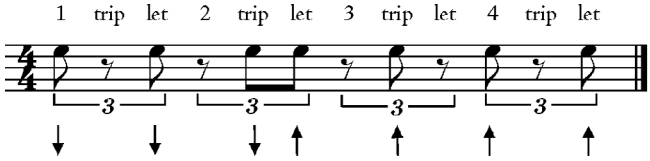
Bembe clave (4/4 with triplets)



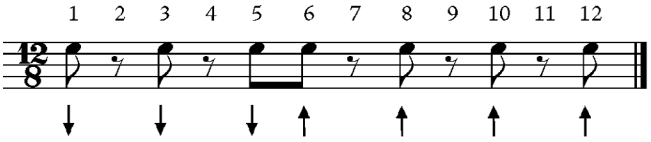
Bembe Clave (12/8)



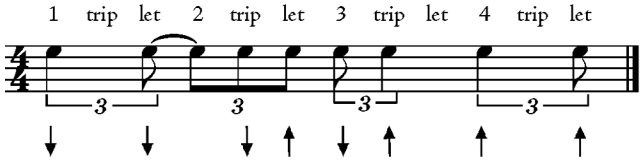
Bembe cowbell (4/4 with tripets)



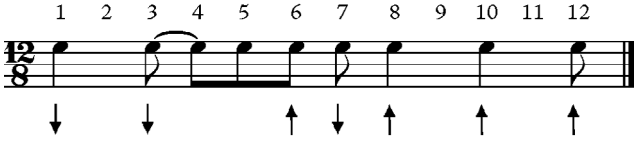
Bembe cowbell (12/8)



six eight feel (4/4 with triplets)

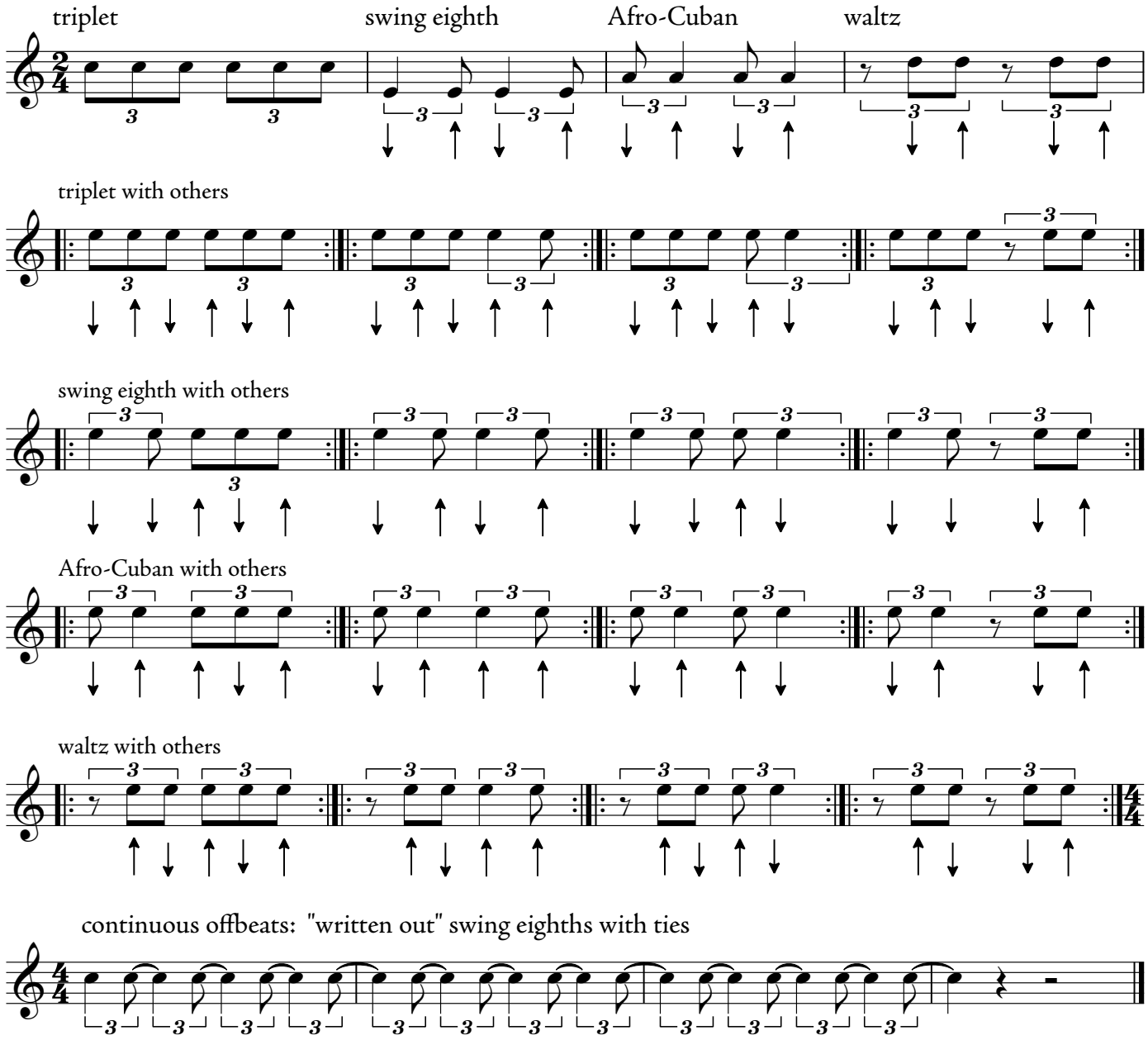


six eight feel (12/8)

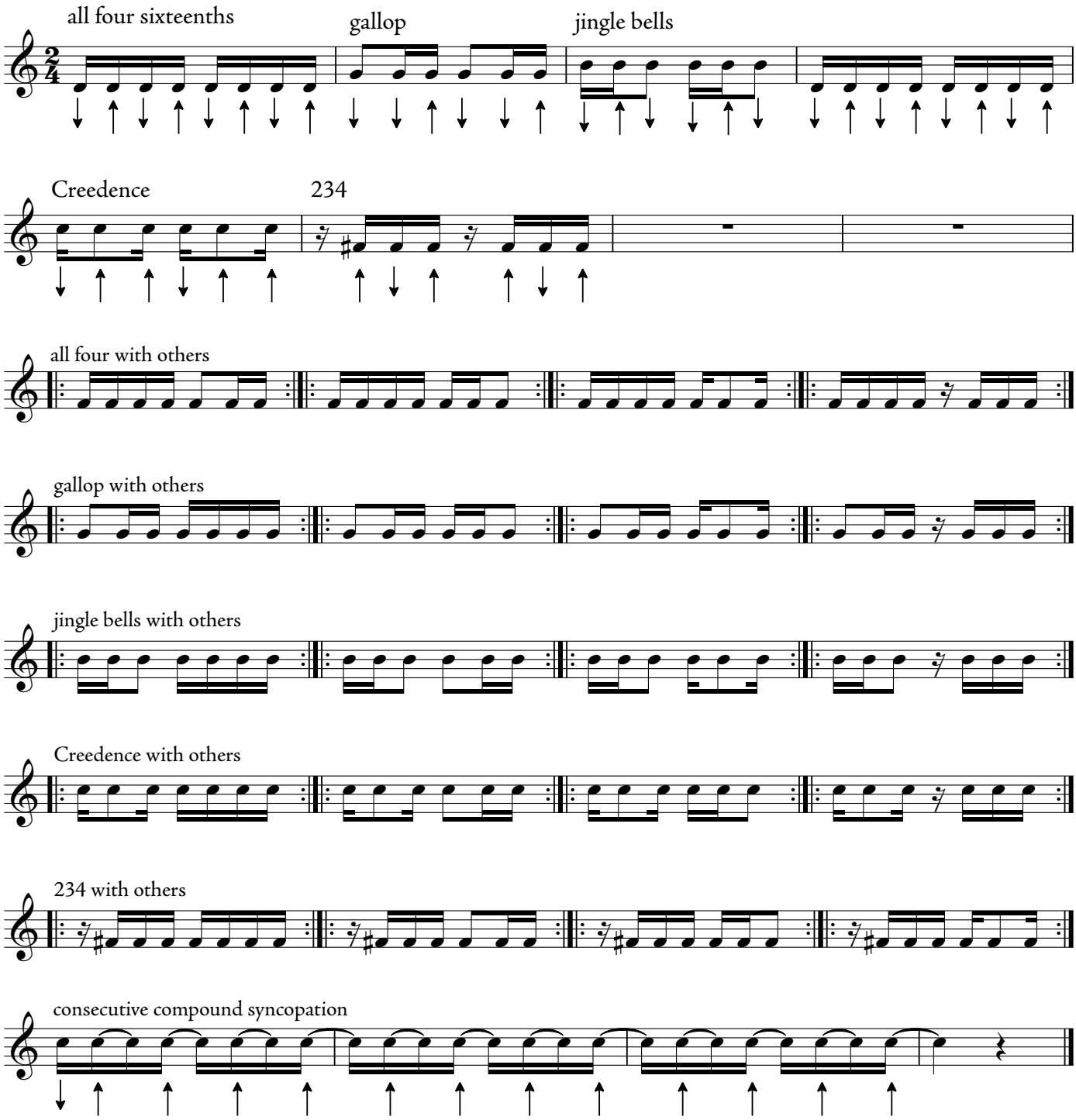


MELODIC RHYTHMS

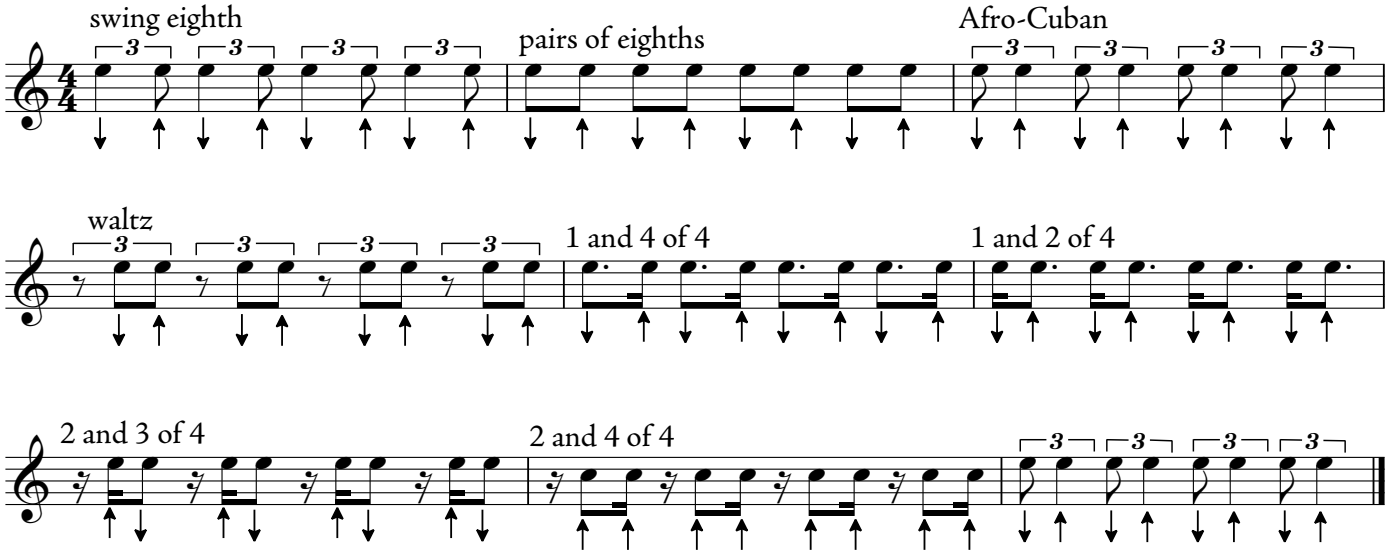
Primary Eighth Note Triplets - play video



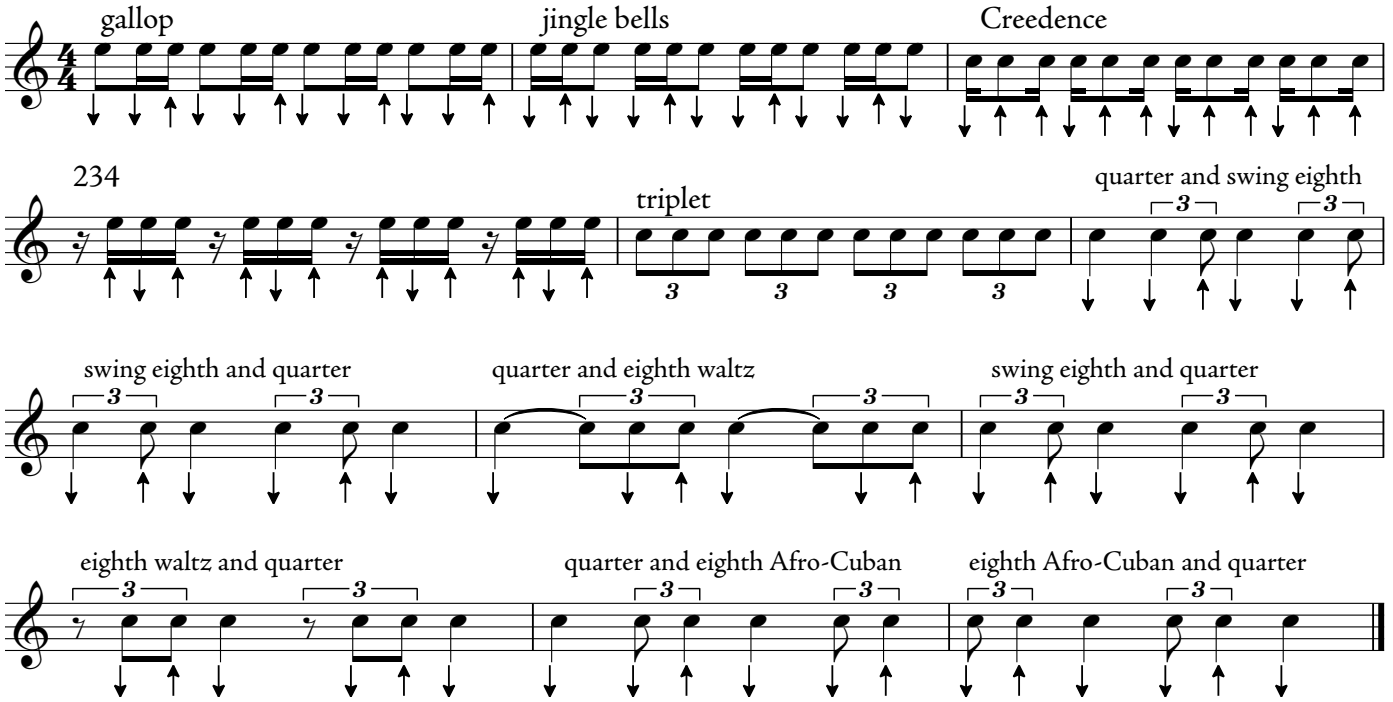
Primary Sixteenth Note Rhythms - play video



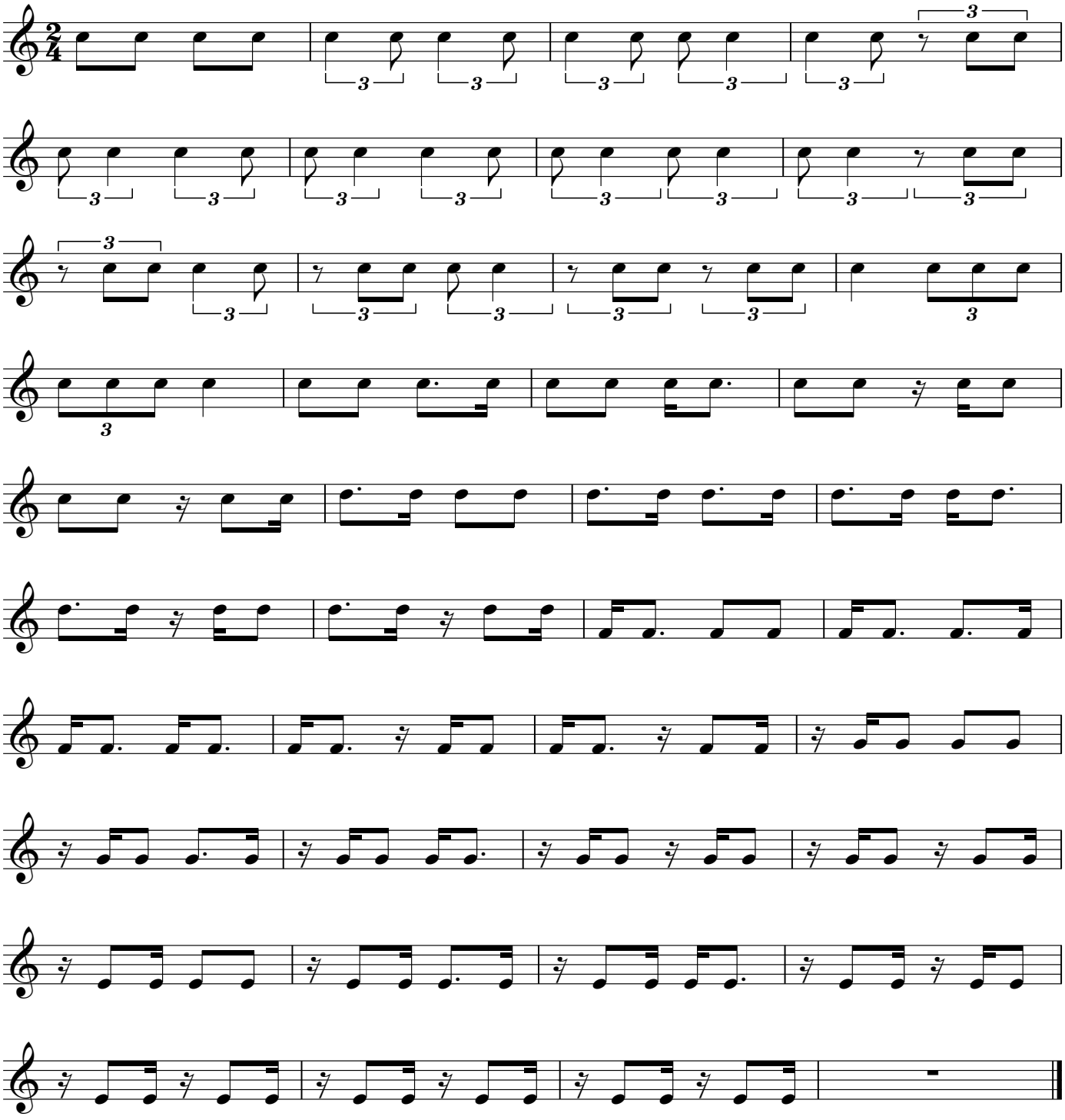
Two-Note Rhythms - play video



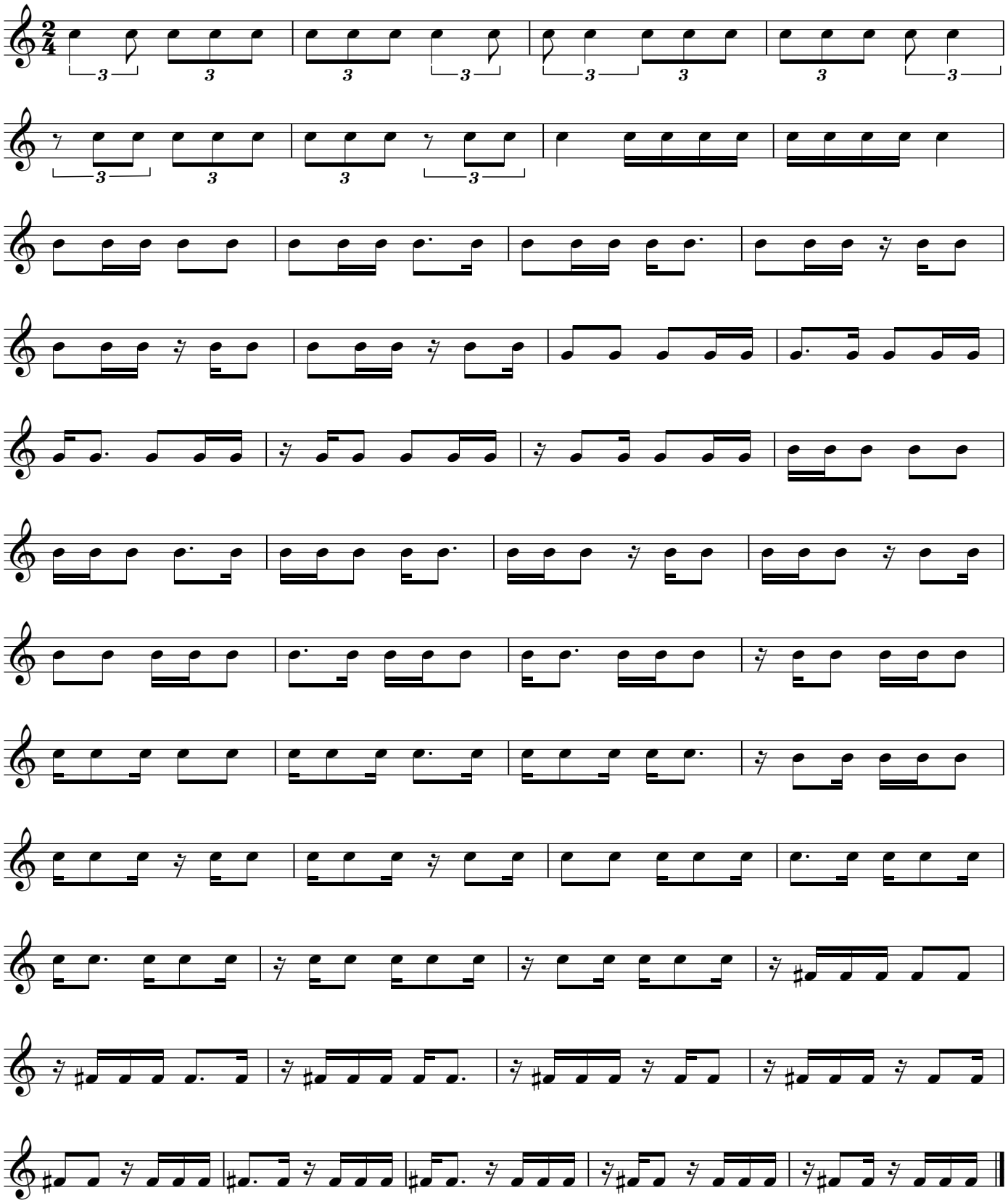
Three-Note Rhythms - play video



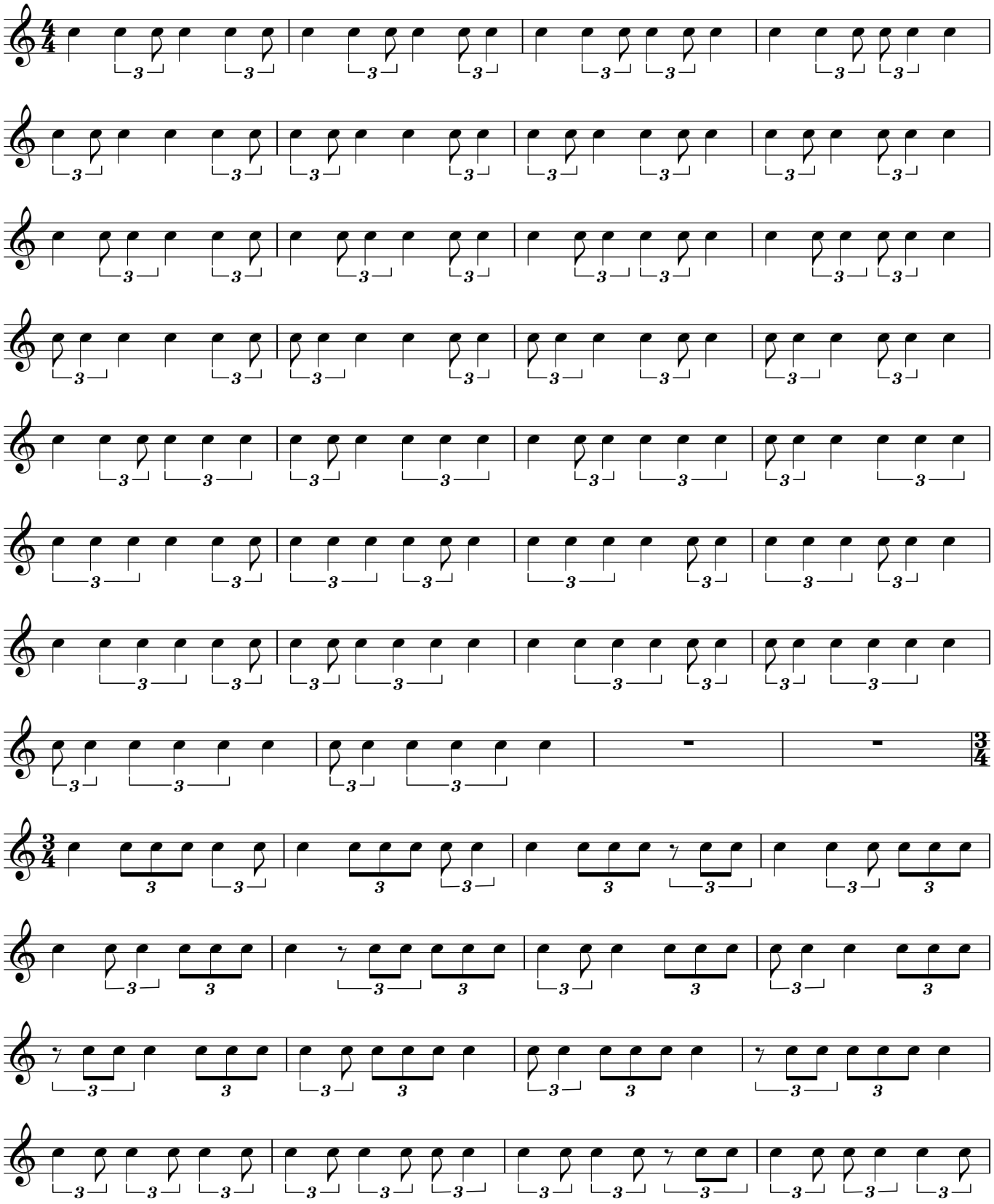
Four-Note Rhythms - play video

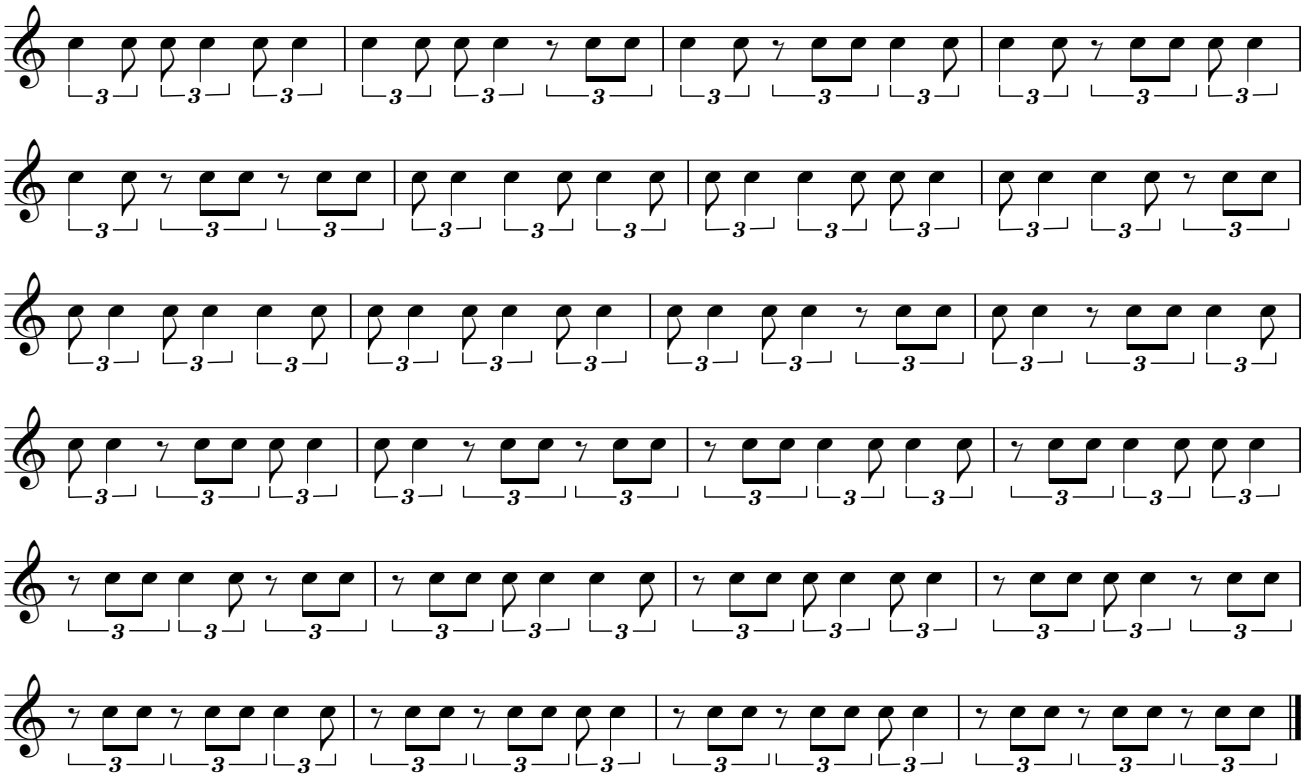


Five-Note Rhythms - play video

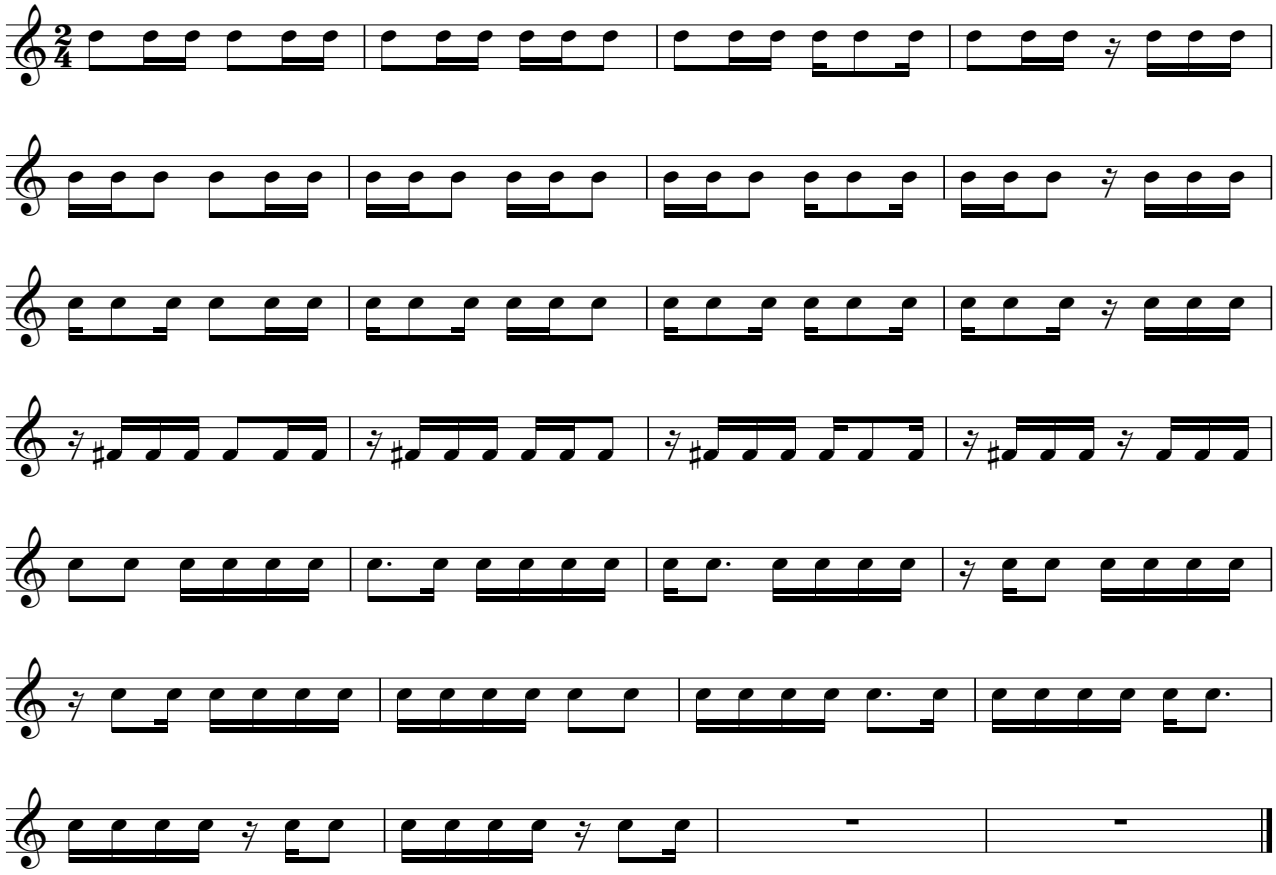


Six-Note Rhythms in Eighth Triplets - play video 1 video 2 video 3

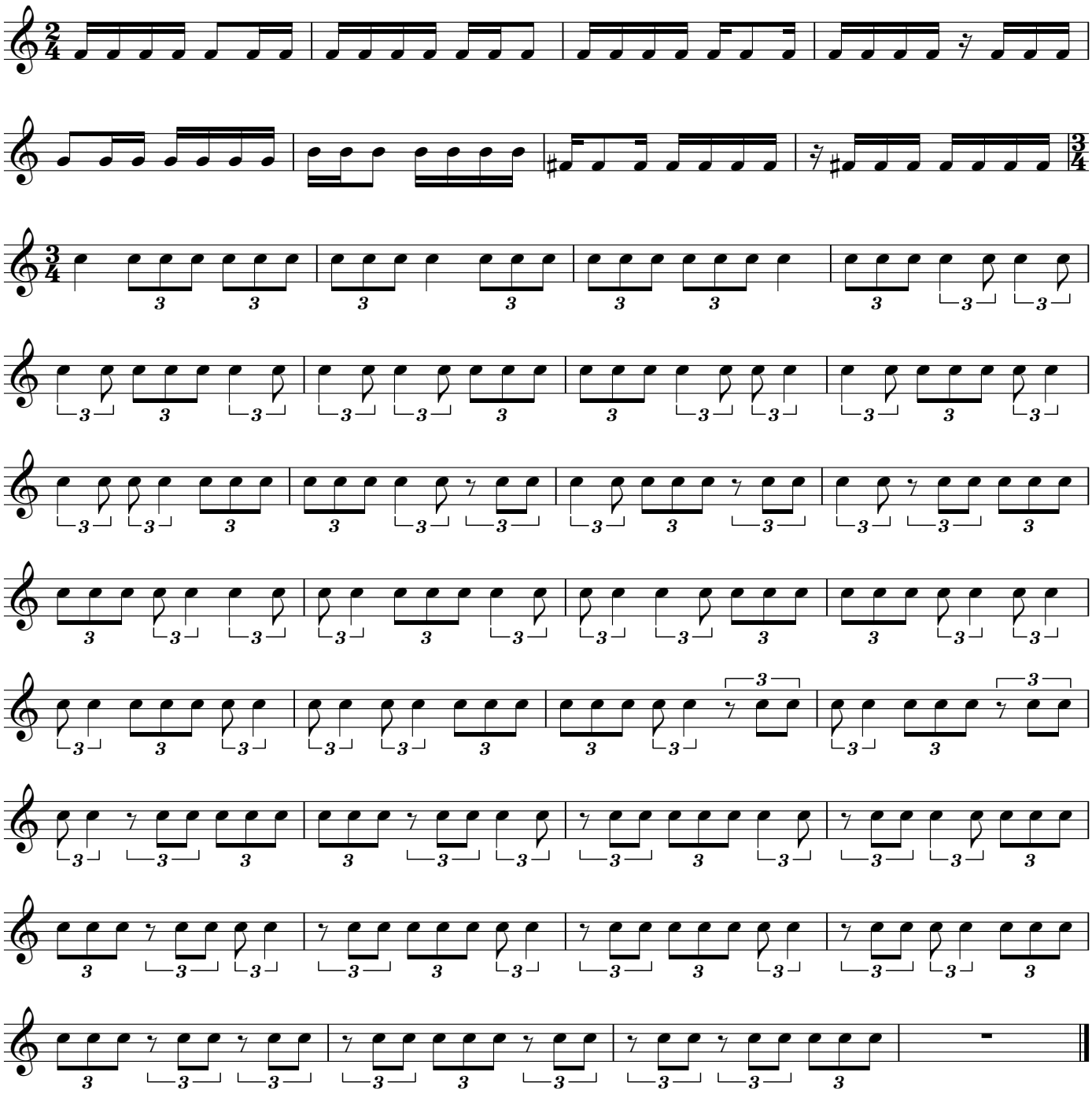




Six-Note Rhythms In Sixteenth Notes - play video

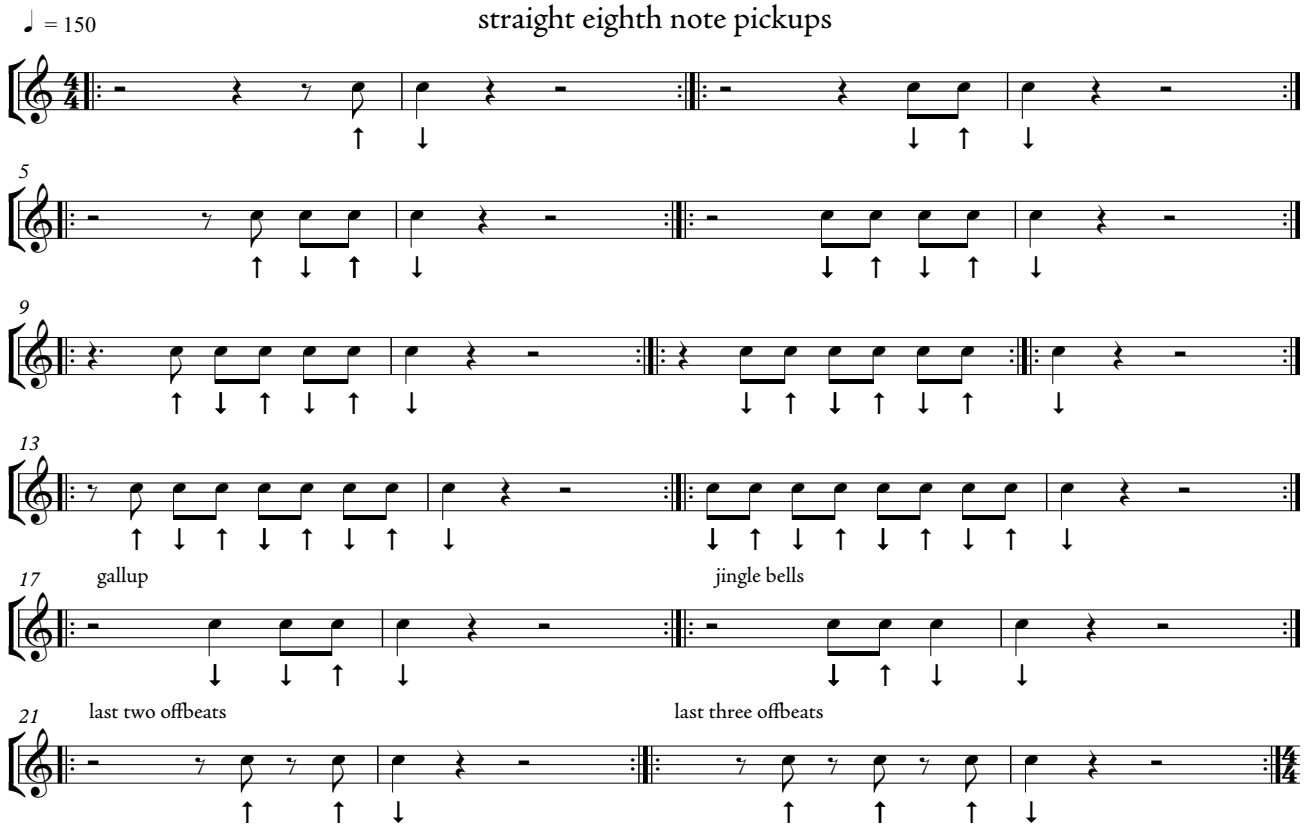


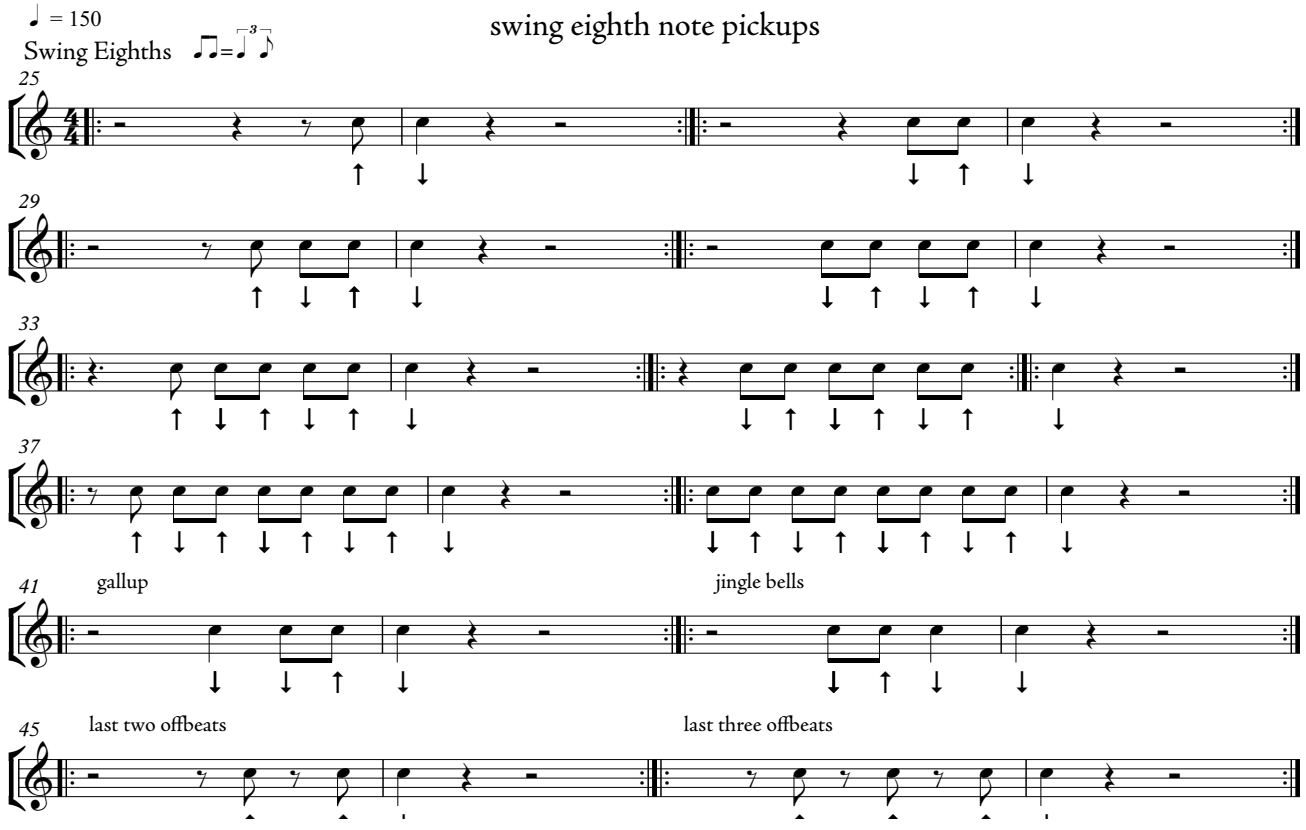
Seven-Note Rhythms - play video



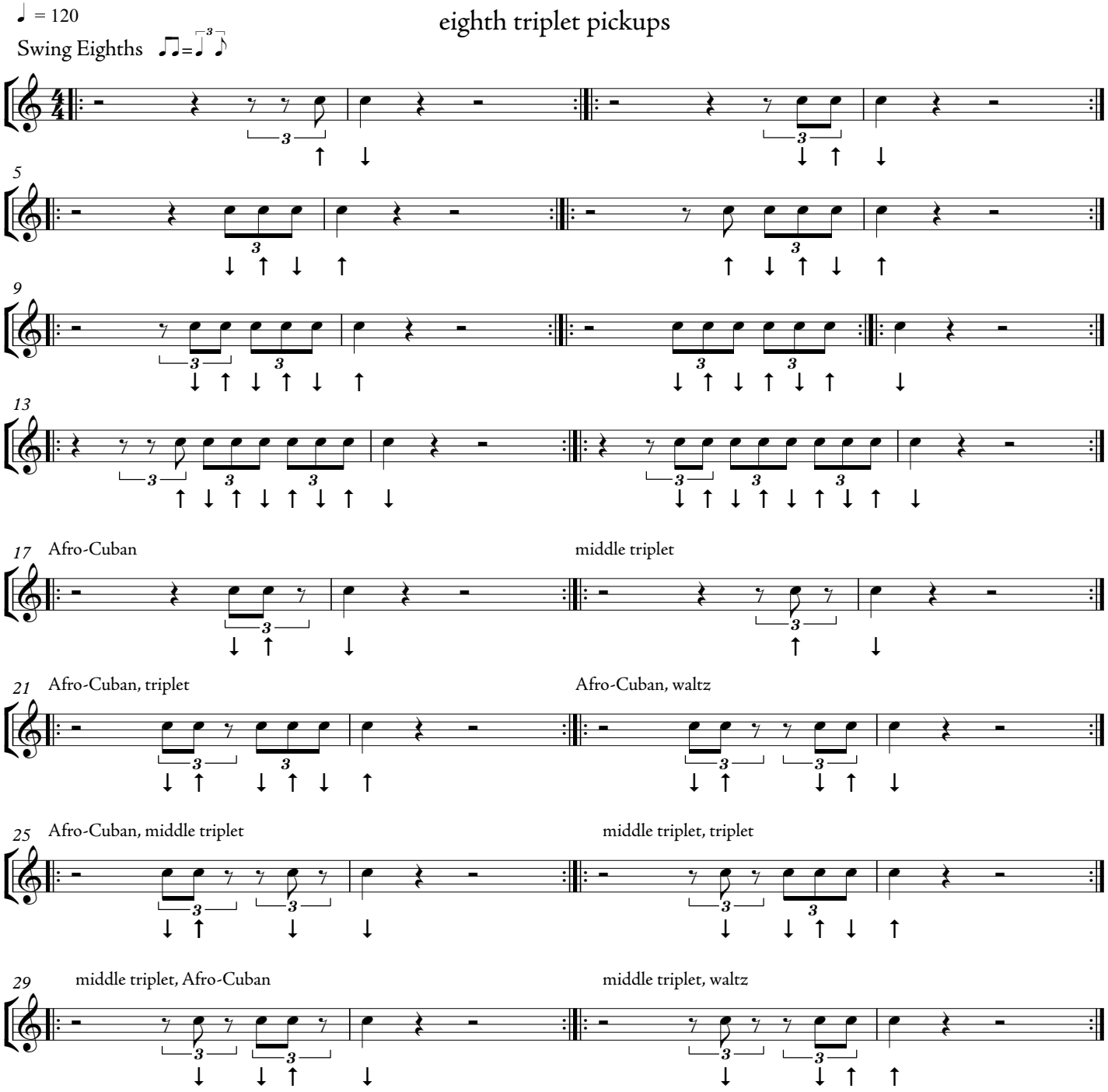
Pickups

eighth note pickups - play video

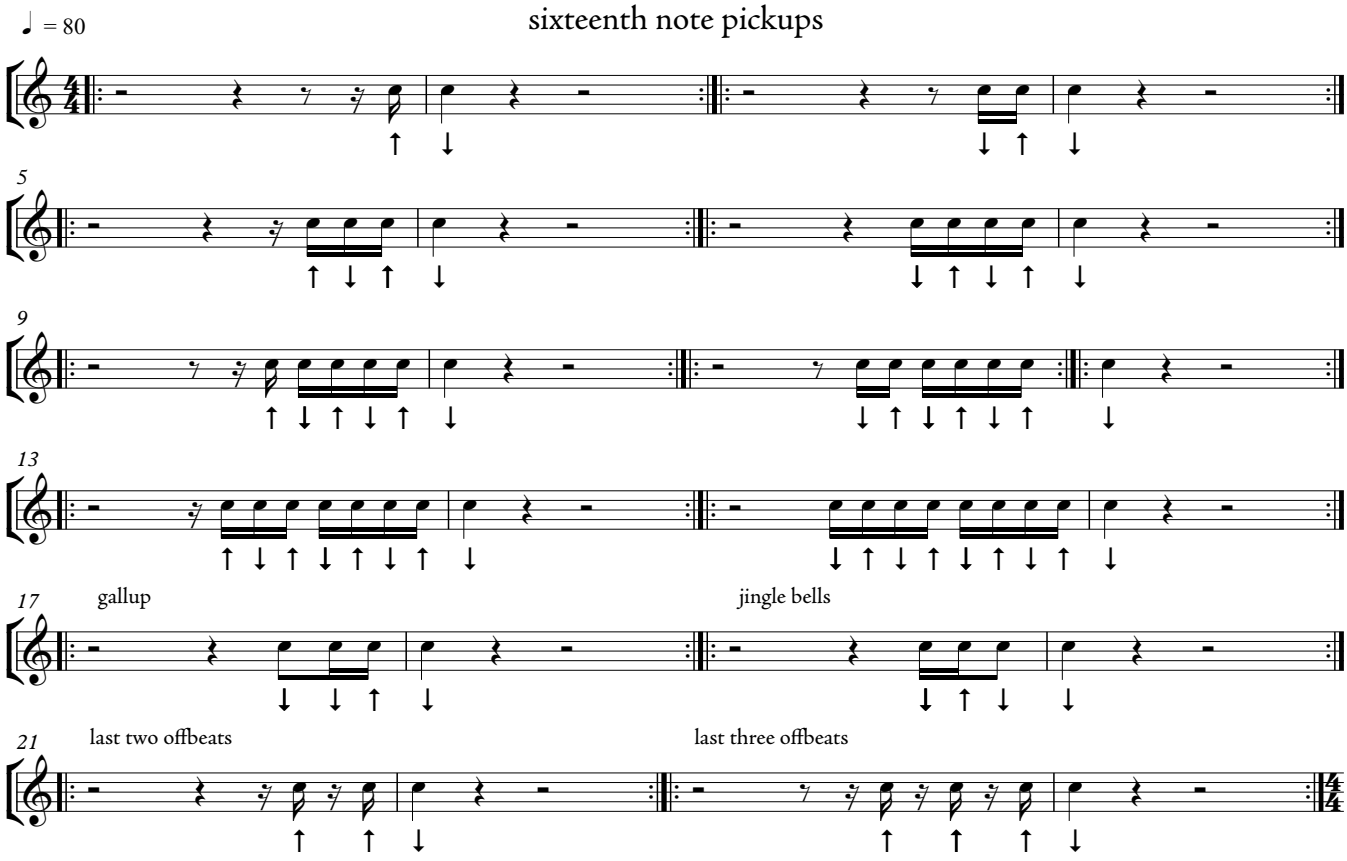


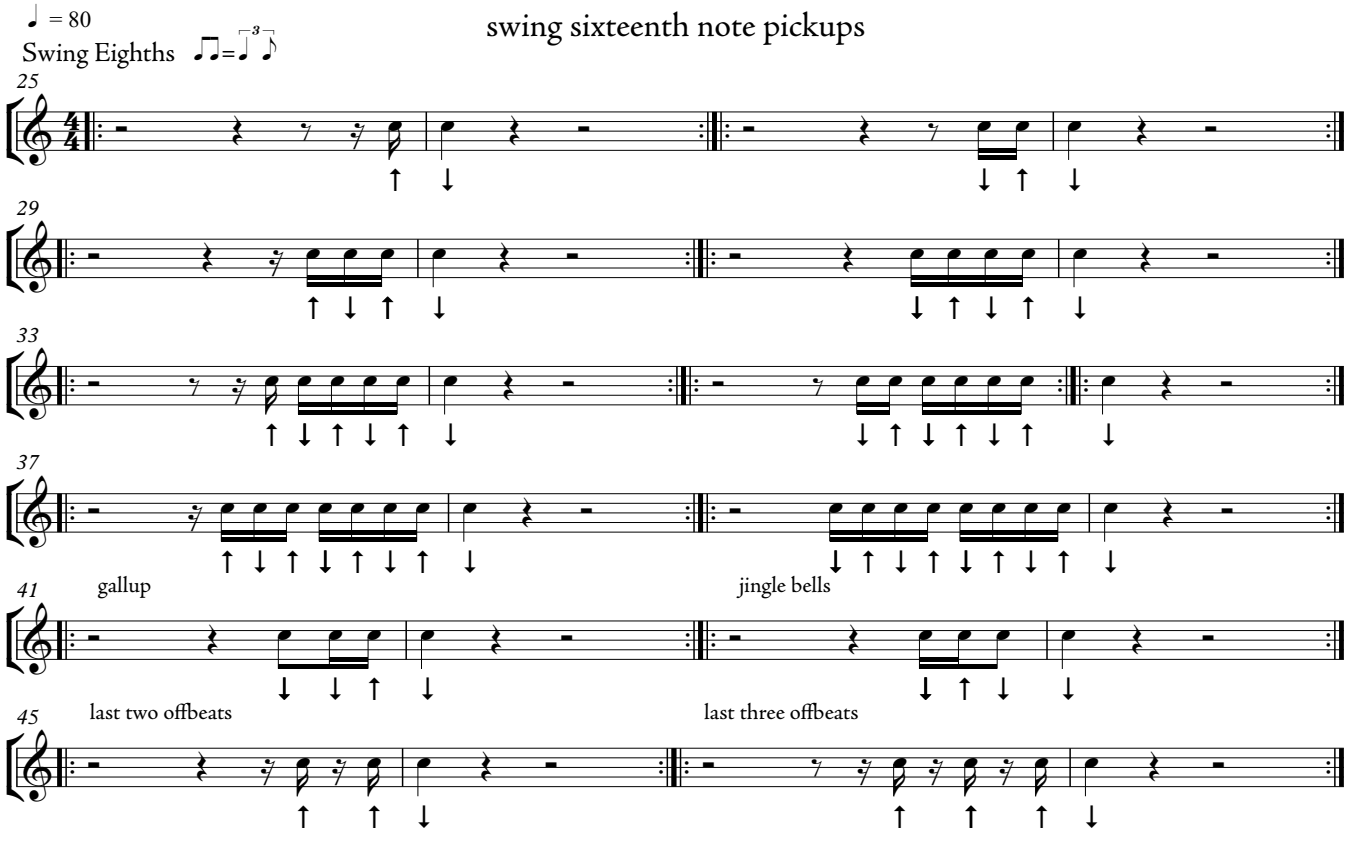


eighth note triplet pickups - play video

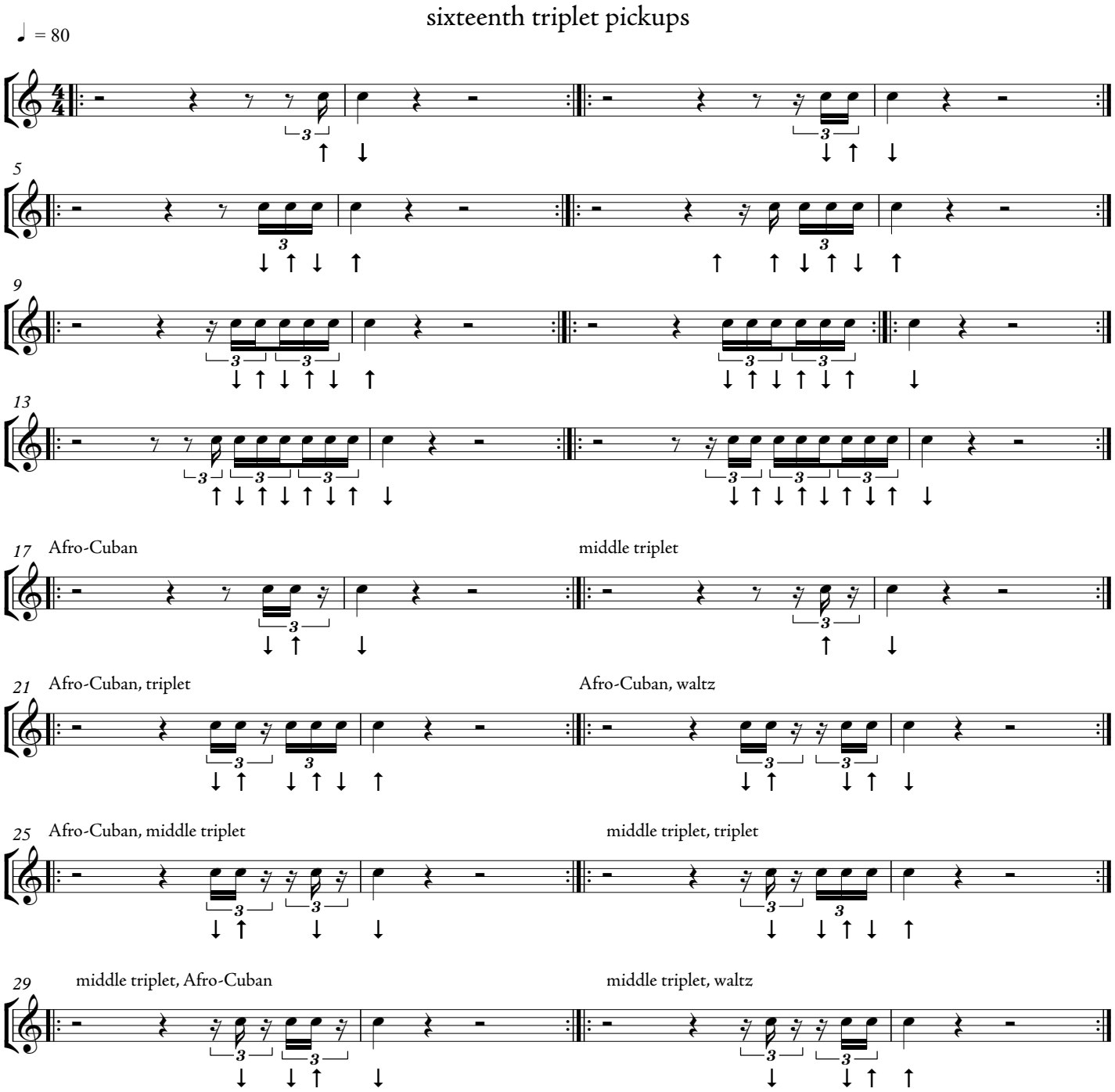


sixteenth note pickups - play video



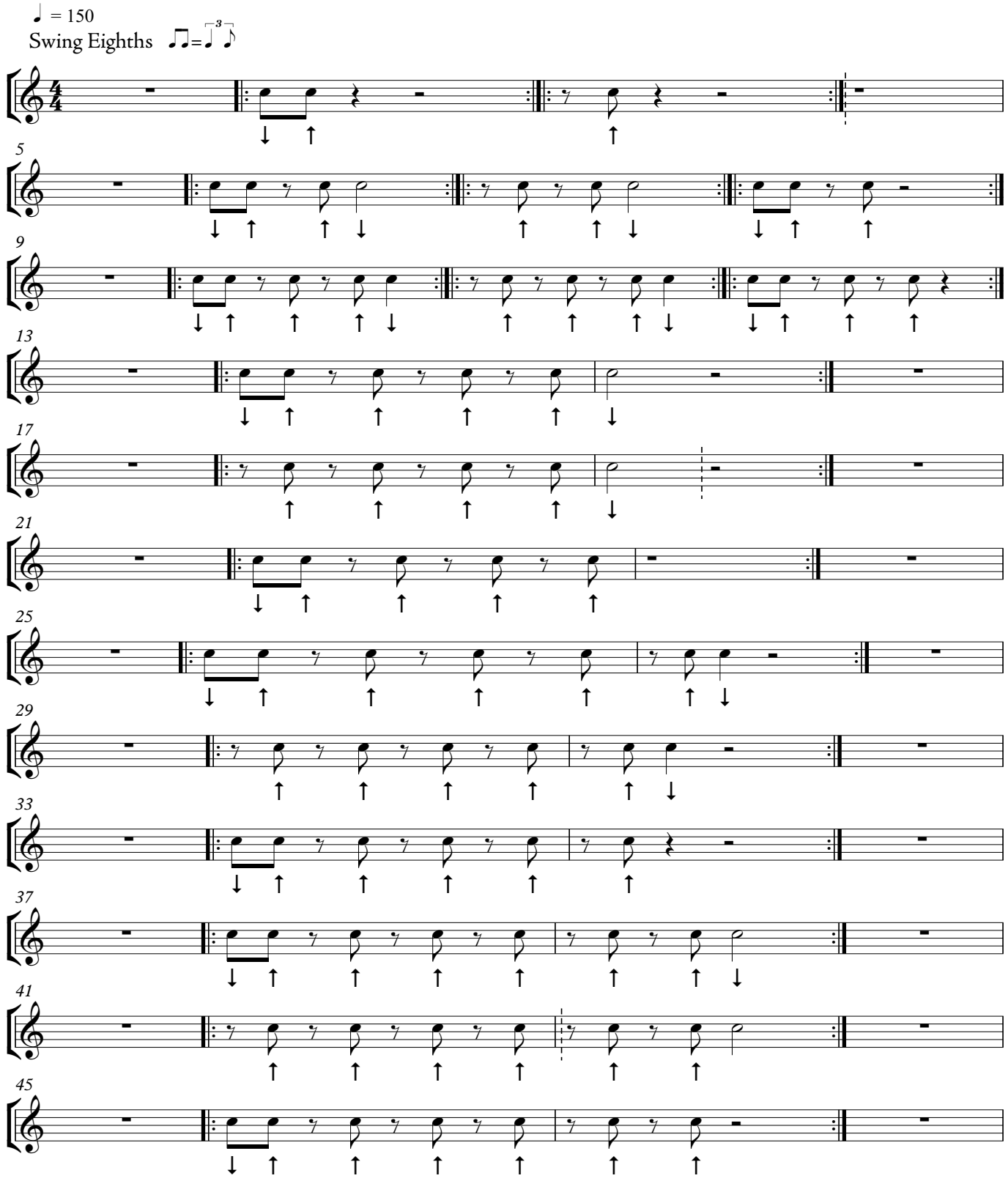


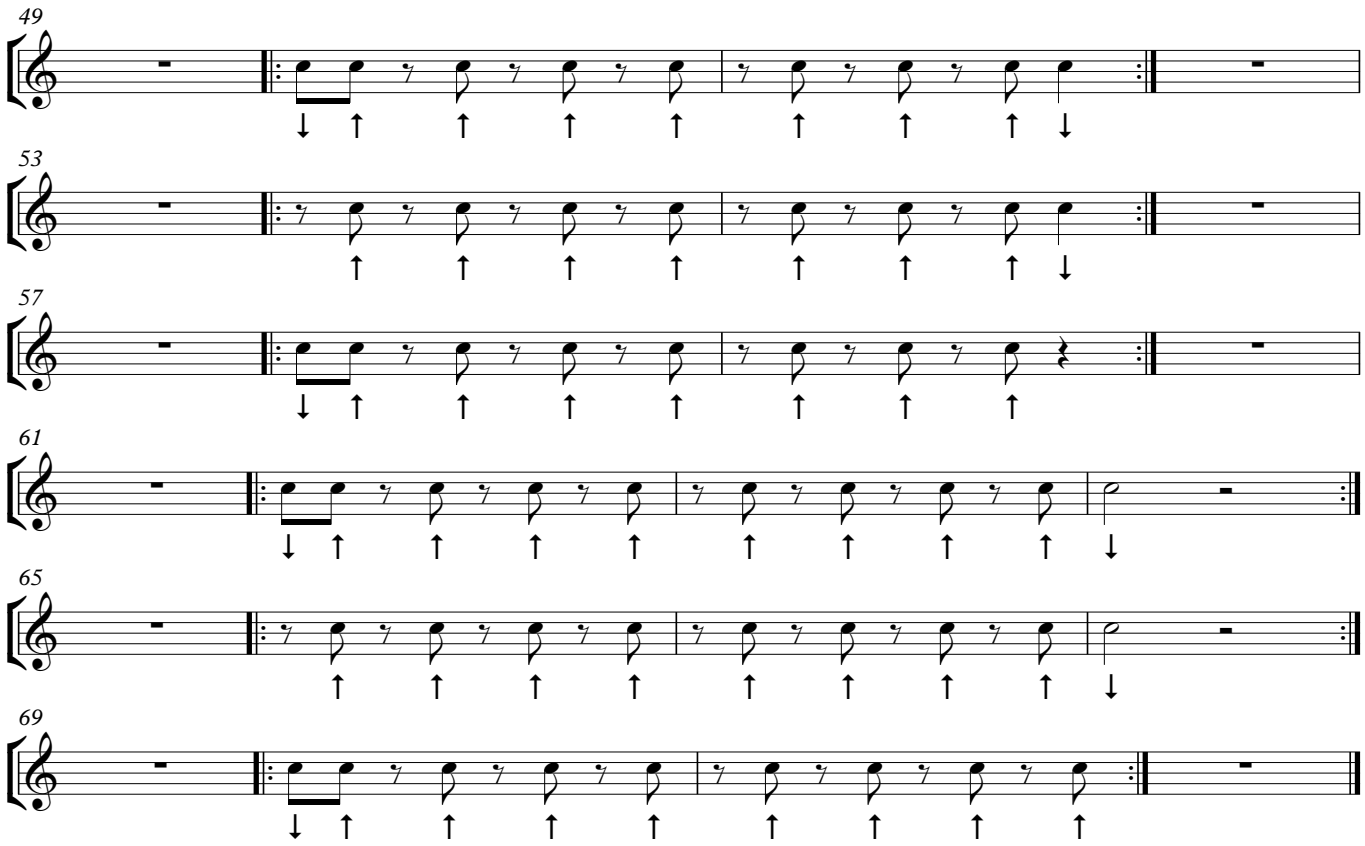
sixteenth note triplet pickups - play video



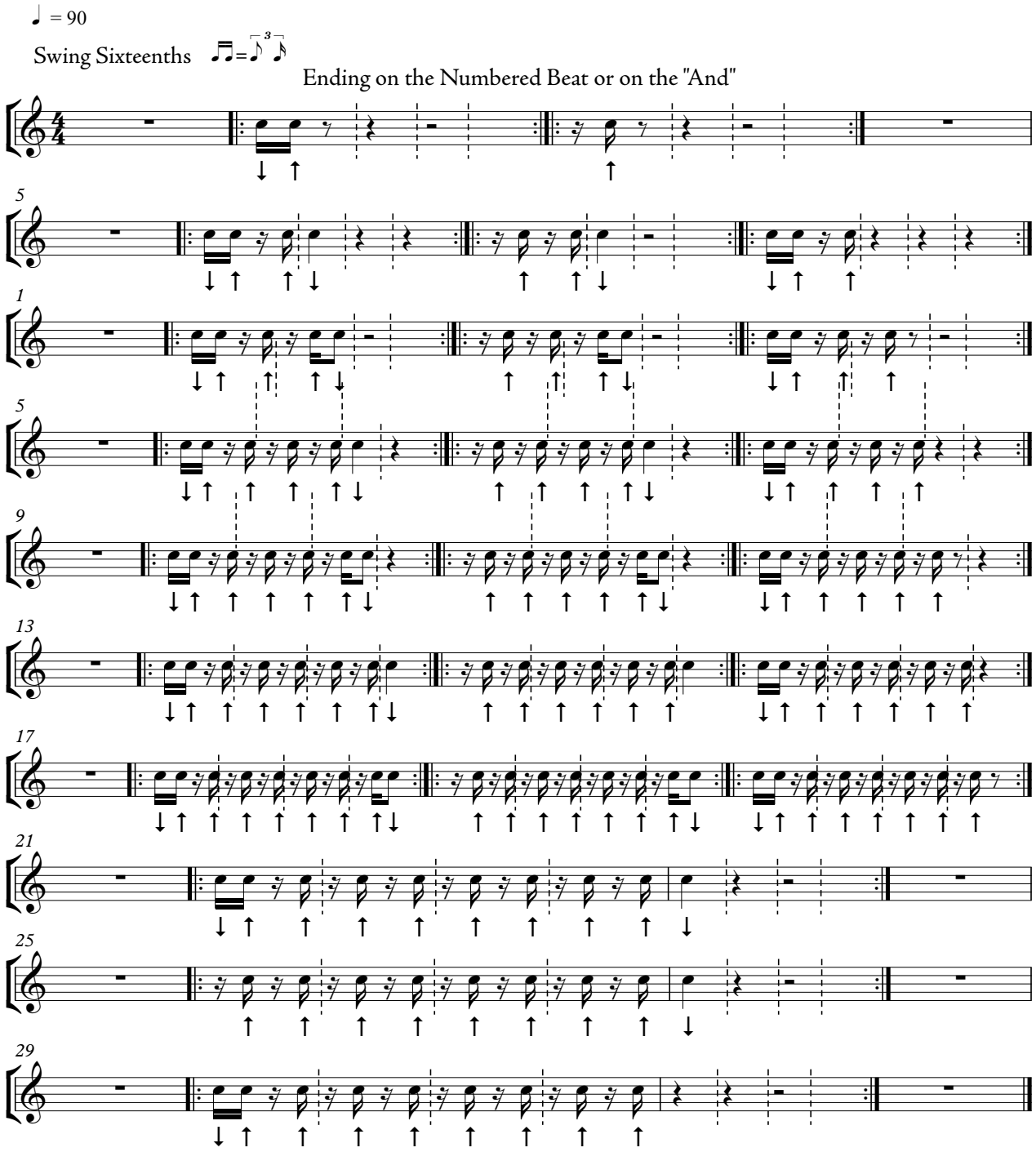
Syncopated Series for Improv

syncopated eighth note series - play video

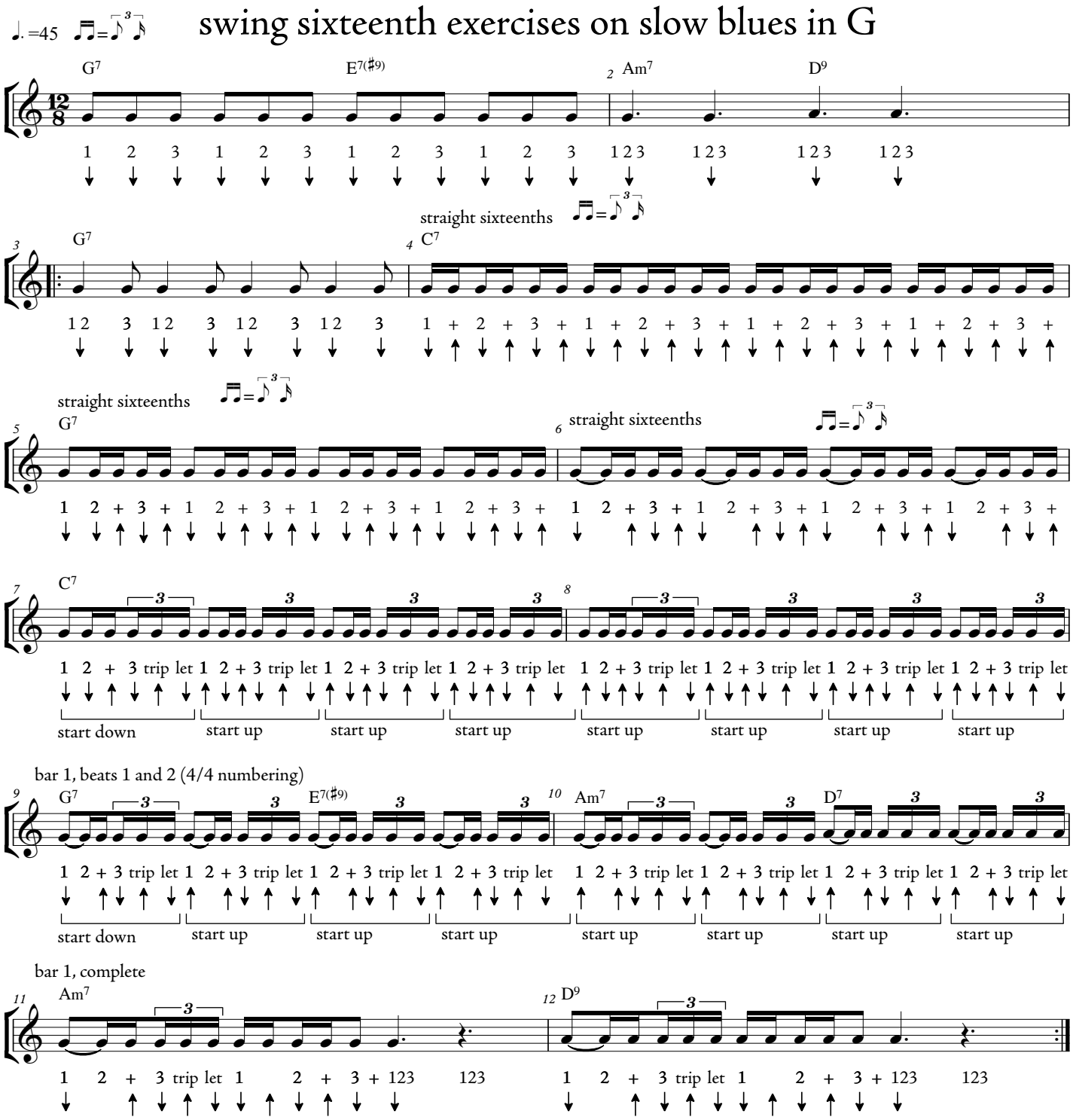




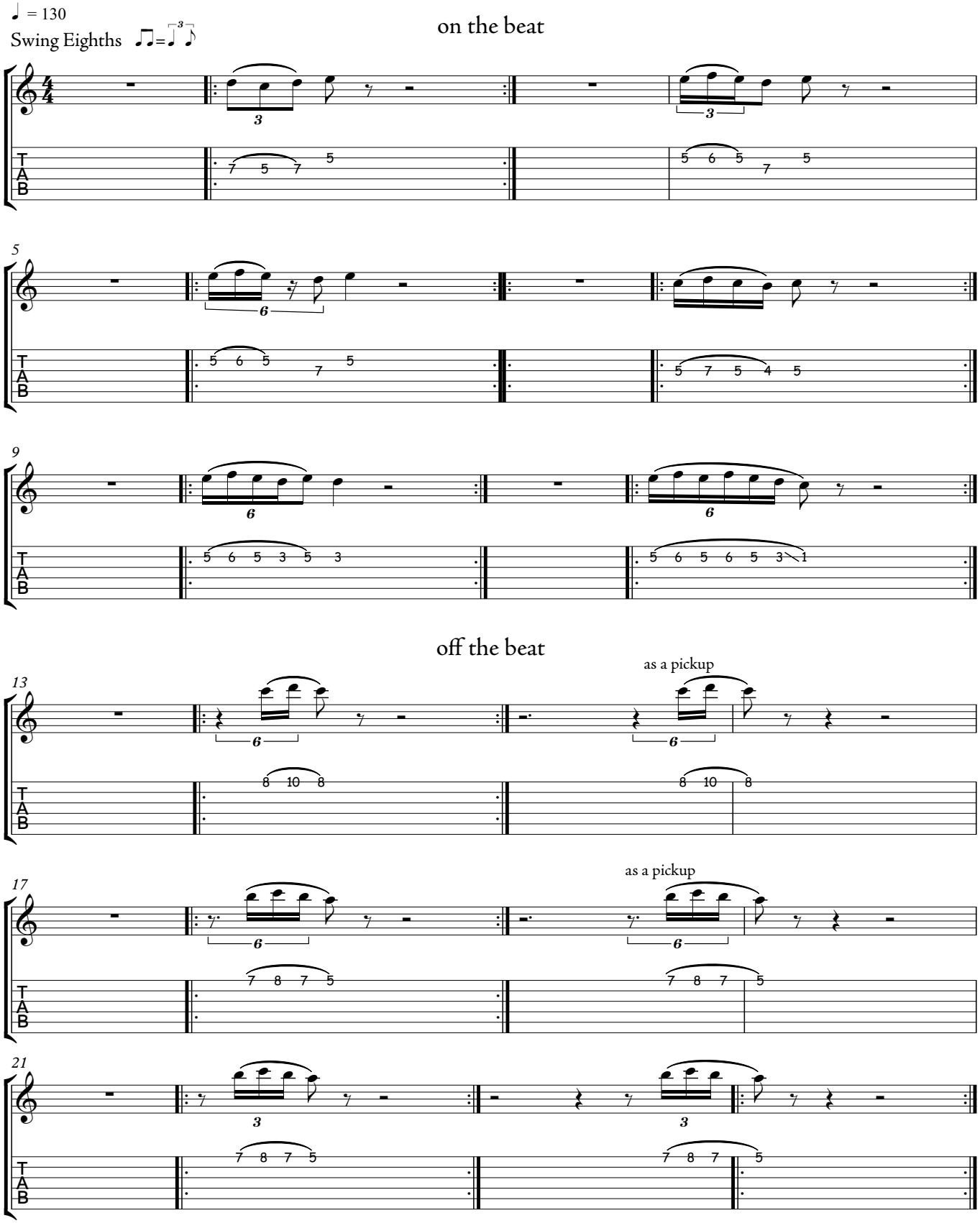
syncopated sixteenth note series - play video

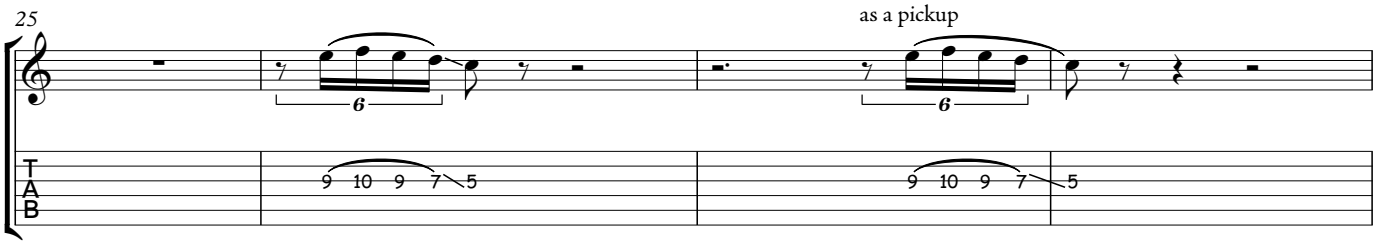


Swing Sixteenths Exercises - play video

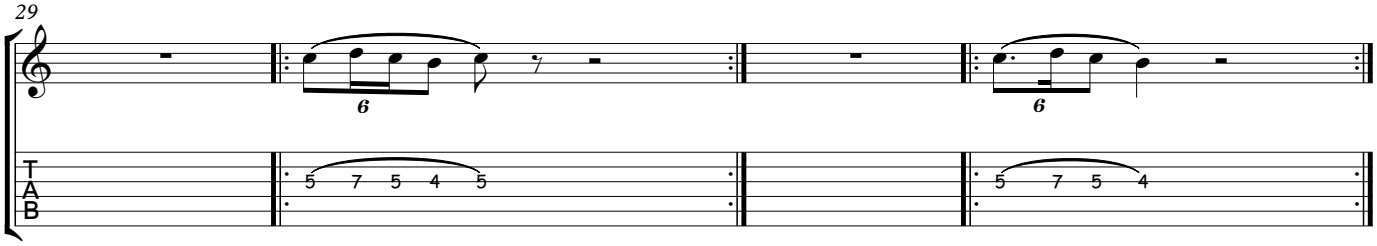


Rhythm in Bebop Ornamentation - play video 100 BPM 130 BPM





in the middle of the beat



8 Chord Progression by Number

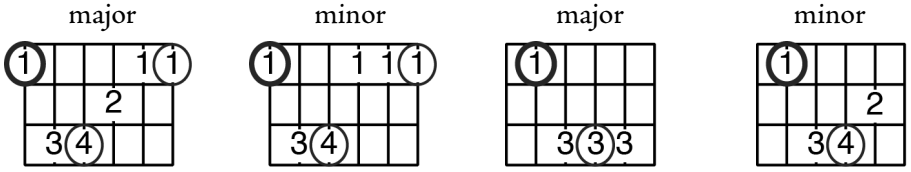
- **Basic Barre and Power Chords**
- **Roman Numerals**
- **Two "I-IV-V" Configurations**
- **Playing I-IV-V Chord Progression**
- **The Major Scale on One String by Number**
- **VI Minor, II Minor and III Minor Chords**
- **Playing I-IV-V and VIm Chord Progression**
- **Scale Tone Chord Progression**

If you don't know the letter names on the fretboard, study the earlier chapter Memorizing Fretboard Letter Names.

BASIC BARRE AND POWER CHORDS

barre chords

With barre chords, a finger is laid across multiple strings on the same fret. The chords below are named after the root shown with the bold circle on the sixth or fifth string. With the sixth string root, there is a major and a minor chord. With the fifth string root, there is a major and a minor chord.



power chords

Power chords sound strong and primal. They are the root of the chord (the note with the letter name that names the chord) and the fifth of a major scale named after the chord root. An "A" power chord includes the note "A" and the fifth step of the A major scale, "E". The root of the power chord is commonly doubled an octave higher, so an "A" power chord would have notes in ascending order "A-E-A". The symbol for a power chord is the letter name followeed by an Arabic "5", such as "A5".

If you are not yet able to fret the barre chords shown above, use the power chords below instead. You will use a single power chord to represent a major or minor chord with its root on the fifth string and another power chord to represent a major or minor chord with its root on the fifth string.

for either of these: use either of these:

for either of these: use either of these:

ROMAN NUMERALS

Combinations of the letters "I", "V" and "X" are used in Roman numerals to represent the numbers one through forty-nine (fifty is "L"). The system is shown below, up to the number 24, generally the highest number needed for guitar notation.

Roman	Arabic
I	1
II	2
III	3

"V" is "5". Subtract one ("I") on the left for "4": IV. Add one, two or three on the right for "6, 7, 8": VI, VII, VIII.

IV	4
V	5
VI	6
VII	7
VIII	8

"X" is "10". Subtract one ("I") on the left for "9": IX.

IX	9
X	10

For 11 through 19, add to the right of X (10):

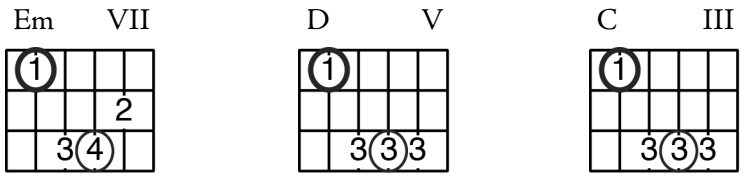
XI	11	(X+I, is 10+1)
XII	12	(X+II, is 10+2)
XIII	13	(X+III is 10+3)
XIV	14	(X+IV is 10+4)
XV	15	(X+V is 10+5)
XVI	16	(X+VI is 10+6)
XVII	17	(X+VII is 10+7)
XVIII	18	(X+VIII is 10+8)
XIX	19	(X+IX is 10+9)

"XX" is "20" (two tens). 19 is X (10) plus IX (9): XIX. For 21 through 24, add to the right of XX (20):

XX	20	
XXI	21	(XX+I, is 10+1)
XXII	22	(XX+II, is 10+2)
XXIII	23	(XX+III is 10+3)
XXIV	24	(XX+IV is 10+4)

fret numbers and chord roots

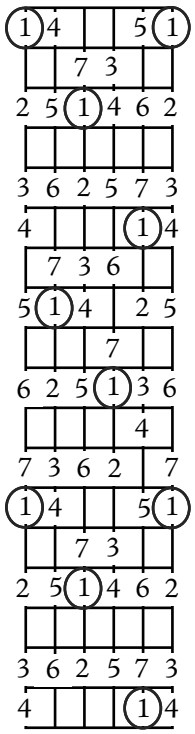
Two things in guitar music are indicated with Roman numerals, positions and chord progression. Positions are indicated with a Roman numeral to the upper right of a chord diagram (below). In that case, the Roman numeral indicates the top fret on the diagram. So, the top fret of the "D" chord below is the fifth fret (also showing the third finger barre the seventh fret on strings four, three and two).



Roman numerals are used to indicate the numbered step of the major scale after which a chord is named. If the first step of the major scale is an "A" note, a "I" chord would be an A chord. Sound complicated? Don't worry we'll take it step by step.

I	II	III	IV	V	VI	VII
1	2	3	4	5	6	7

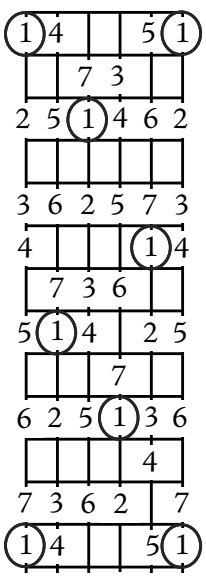
The diagram of major scale tones below is *movable*. Whatever note "1" is placed on names the major scale. If the top fret on the diagram (with "1" on the first and sixth strings) is placed at the fifth fret, the diagram would represent the "A" major scale. At the third fret, it would be "G" major.



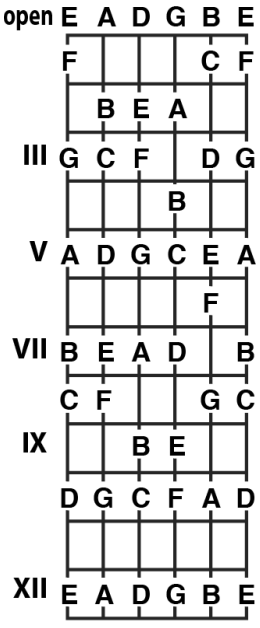
TWO "I-IV-V" ROOT CONFIGURATIONS

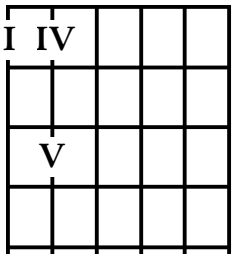
A chord root is the note after which a chord is named. "I-IV-V" will be used as points of reference to build other progressions. "I, IV and V" are each major chords. On the tall diagram labeled "movable", the number "1" can be assigned on *any* note. Imagine the "1" on the sixth string on "A", for example, at the fifth fret. The "2" on the sixth string would then be the seventh fret. The two most important I-IV-V root configurations are:

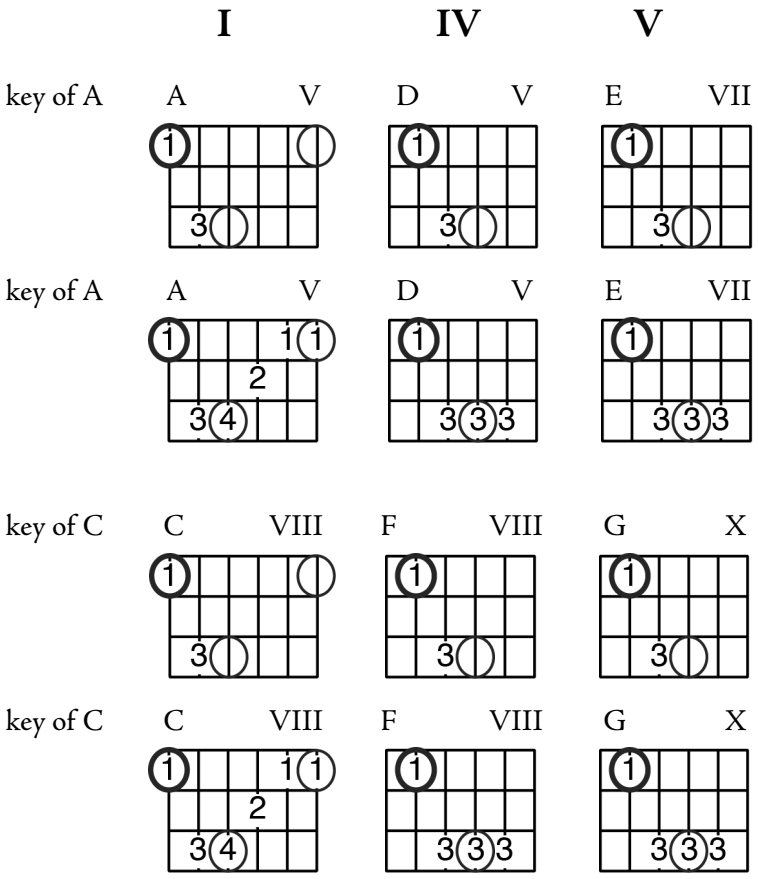
movable

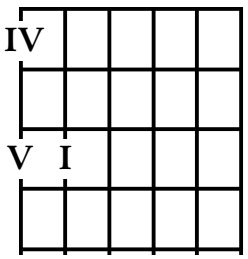


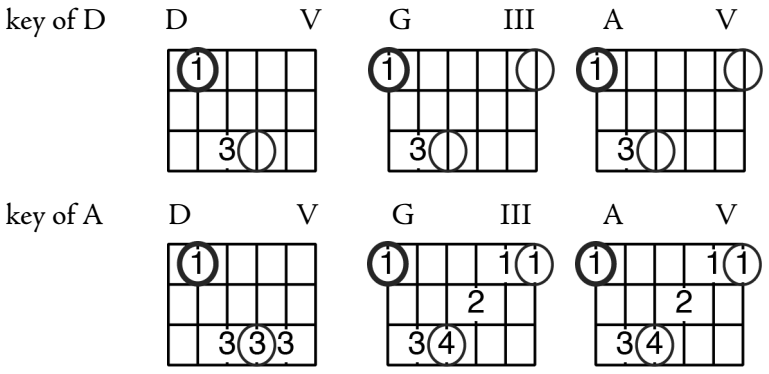
fixed





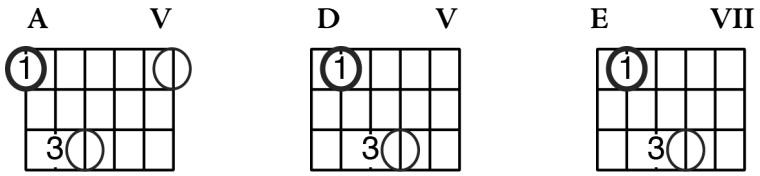






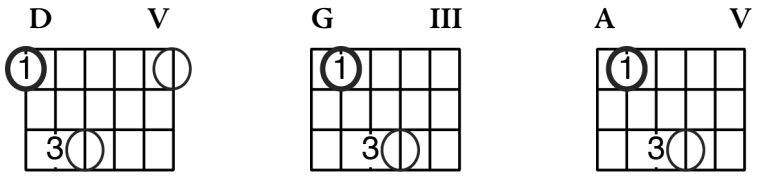
I-IV-V with root on the sixth string

The roots are shown below with the bold circle on the sixth or fifth string. Begin with the root of "I" on the sixth string, then move to "IV" rooted on the fifth string at the same fret. Finally, move up two frets toward the body of the guitar to place the "V" root on the fifth string also.



I-IV-V with root on the fifth string

The roots are shown below with the bold circle on the sixth or fifth string. Begin with the root of "I" on the fifth string, then move two frets toward the head of the guitar to place the "IV" root on the sixth string. Finally, move up two frets toward the body of the guitar to place the "V" root on the sixth string also.



Prepare for Songs by Determining I-IV-V First

If you know what I, IV and V are for a key, each of the other numbered scale steps are only one scale step away from I, IV or V. That makes it easy to determine any other scale step.

With the sequence of perfect fourths (five fret intervals, inclusively) you can determine IV for any key. For whatever is "I", "IV" is the next letter in the perfect fourth series.

perfect fourths

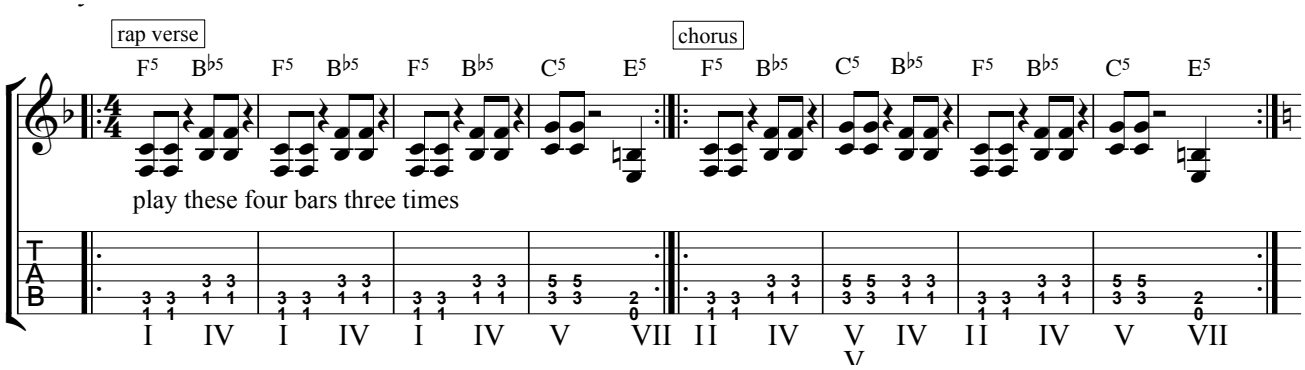
The perfect fourth sequence is the letter sequence B-E-A-D-G-C-F ("bead" go catch fish) three times, first with sharps, then naturals (no sharps nor flats), then with flats.

B#-E#-A#-D#-G#-C#-F#-B-E-A-D-G-C-F-Bb-Eb-Ab-Db-Gb-Cb-Gb

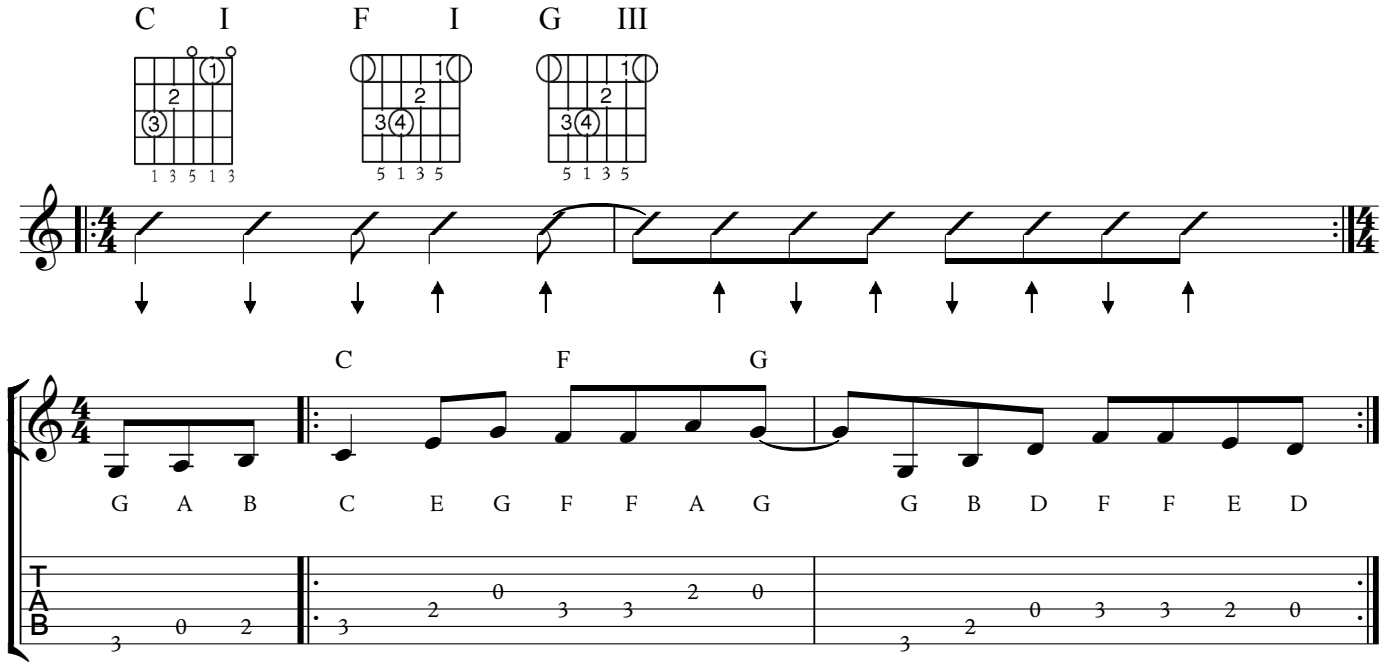
Use them to figure out I-IV-V for any key. Whatever 'I" is, "IV" is the letter in the fourths sequence. Then "V" is the next letter alphabetically (not in the fourths sequence). IV to V should be a two fret interval, inclusively. You'll sometimes need to apply a sharp or flat to make sure IV to V is two frets.

PLAYING I-IV-V CHORD PROGRESSION

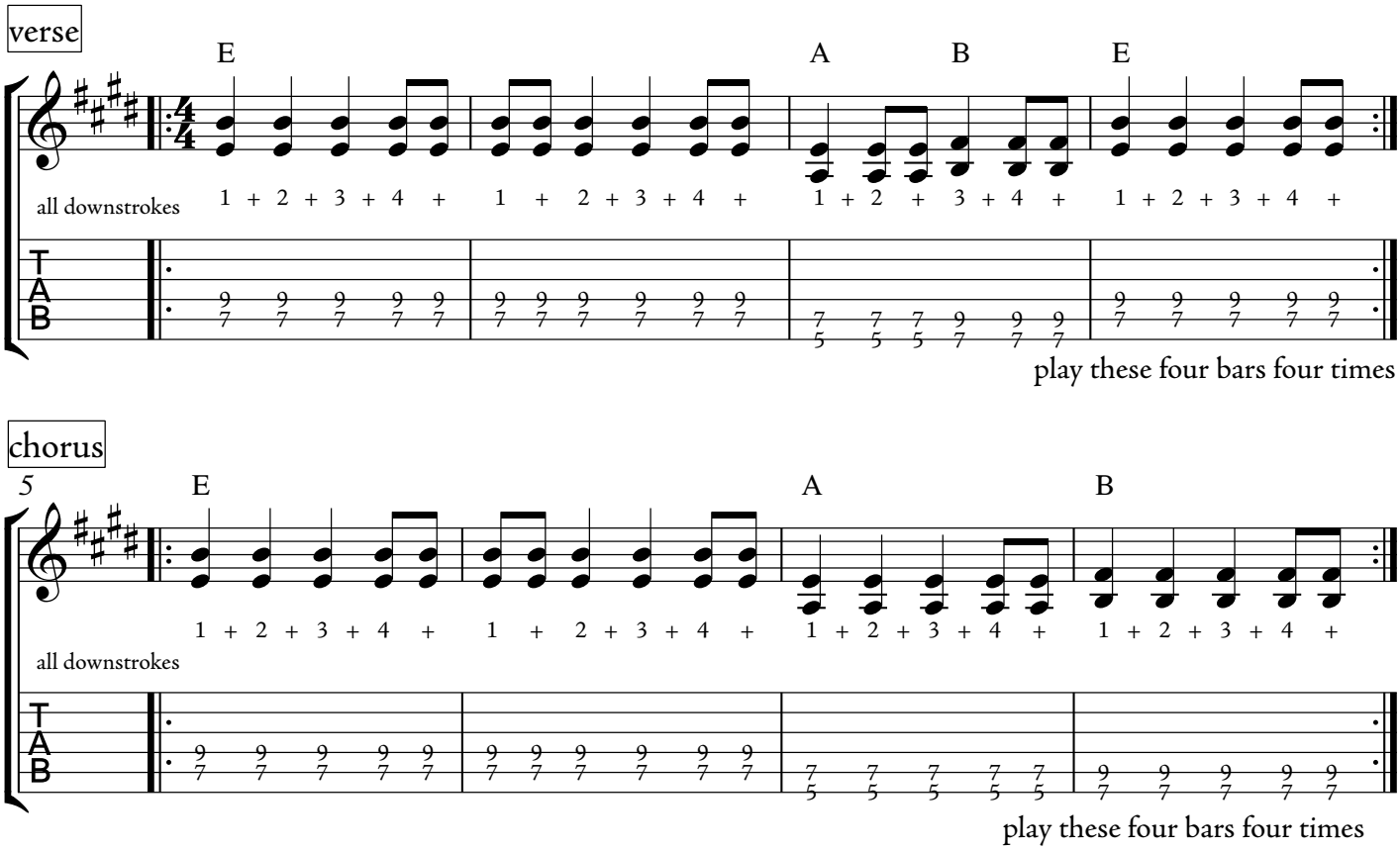
Beverly Hills style: in F, I-IV-V is F-Bb-C



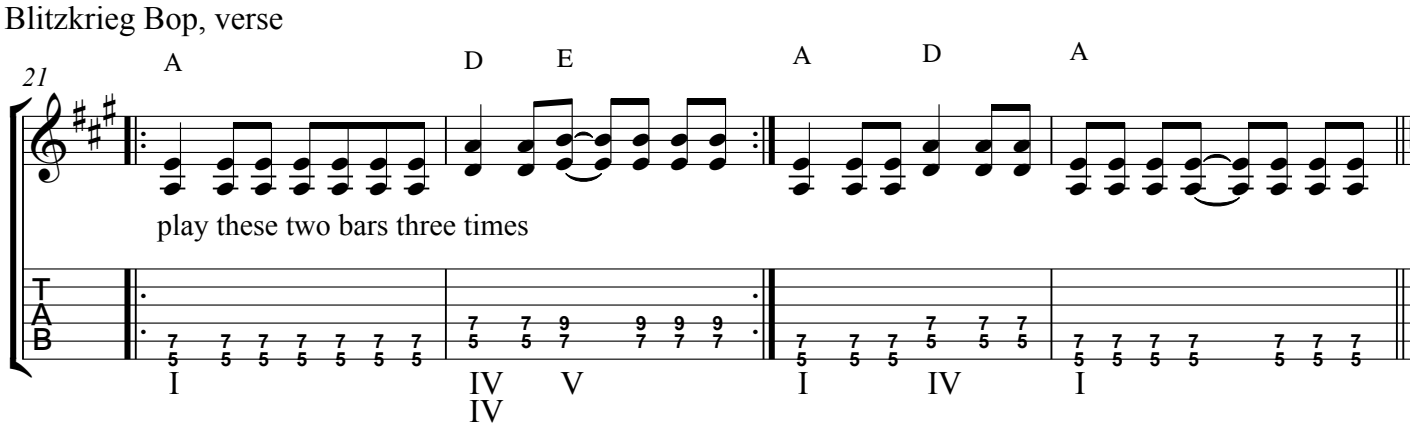
La Bamba style: in C, I-IV-V is C-F-G



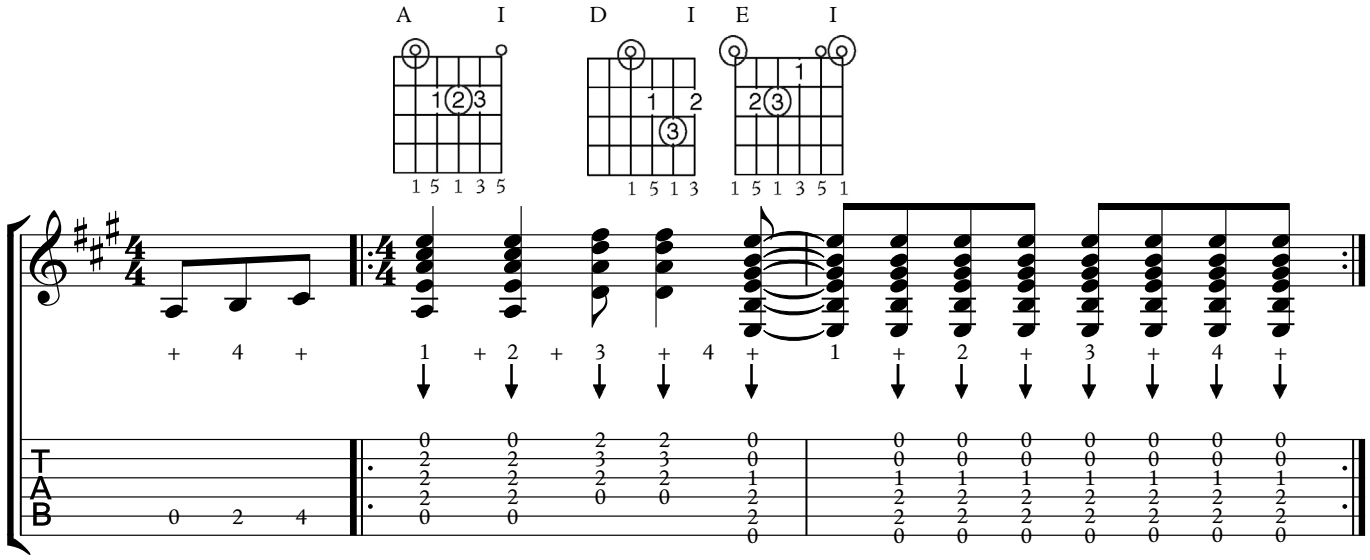
I Would Walk 500 Miles in E, I-IV-V is E-A-B



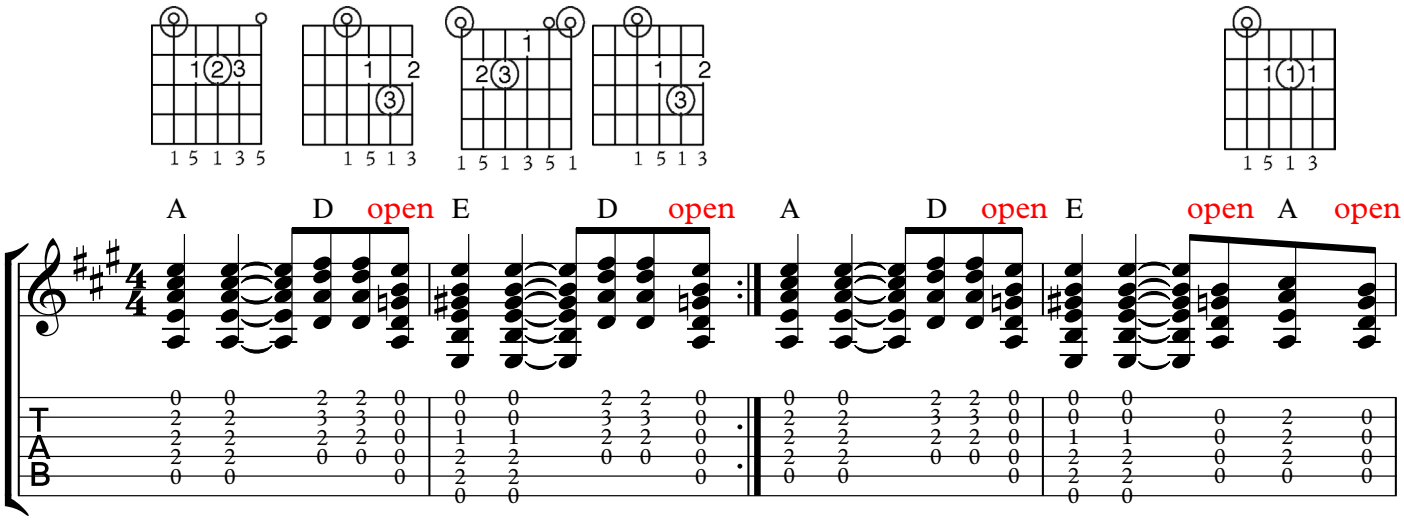
Blitzkrieg Bop style in A, I-IV-V is A-D-E



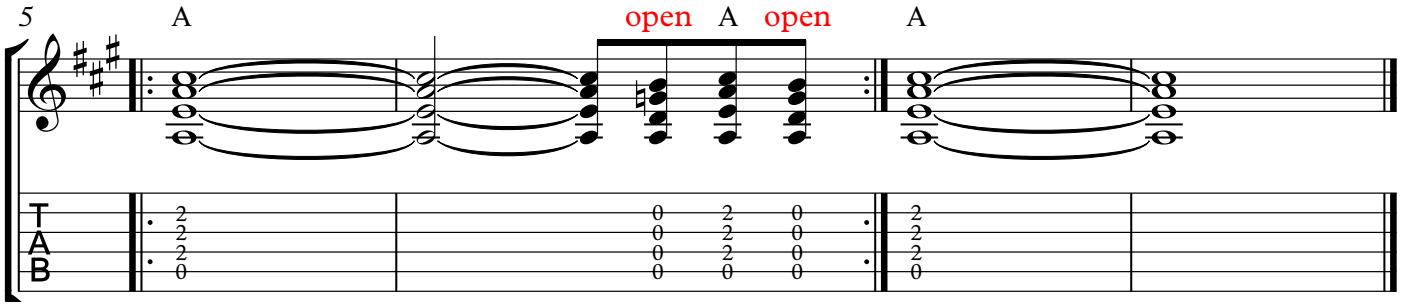
Twist and Shout style: in A, I- IV-V is A-D-E



Wild Thing style: in A, I-IV-V is A-D-E

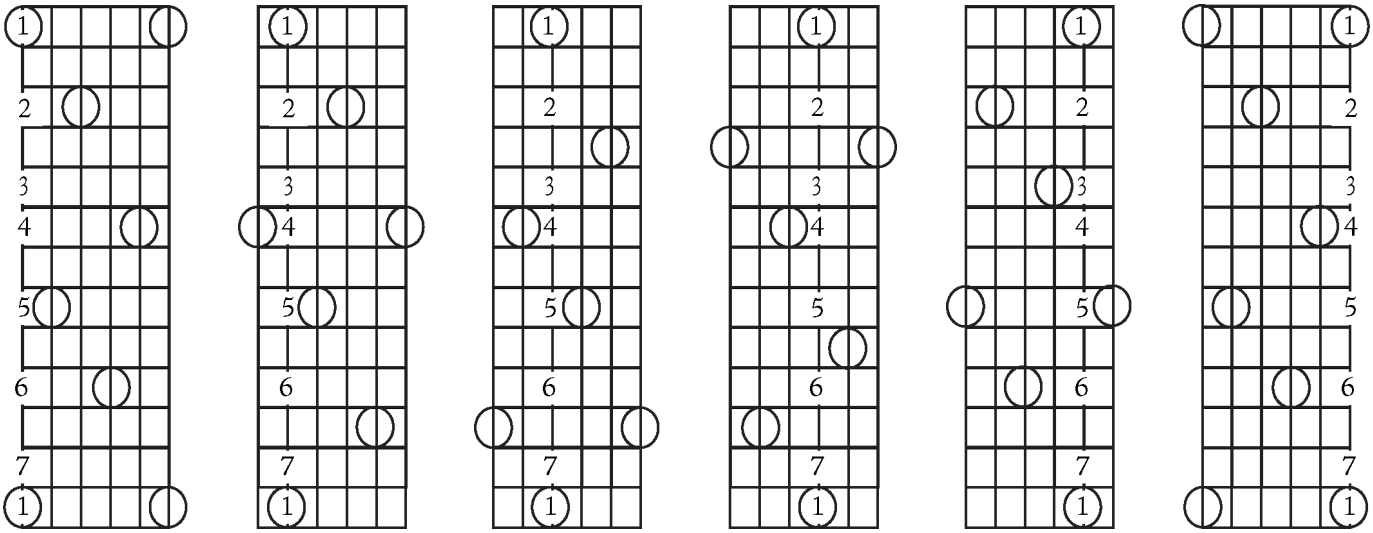


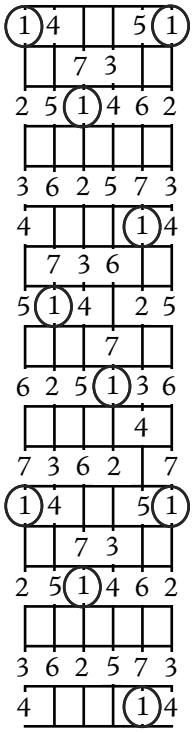
play these two bars three times



THE MAJOR SCALE ON ONE STRING BY NUMBER

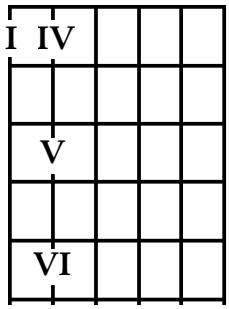
In numbered order, each note in the major scale is two frets apart from the next, except "3" to "4" and "7" to "1" are one fret apart. As you can see below, this is true on any string. "1" may be located at any fret.



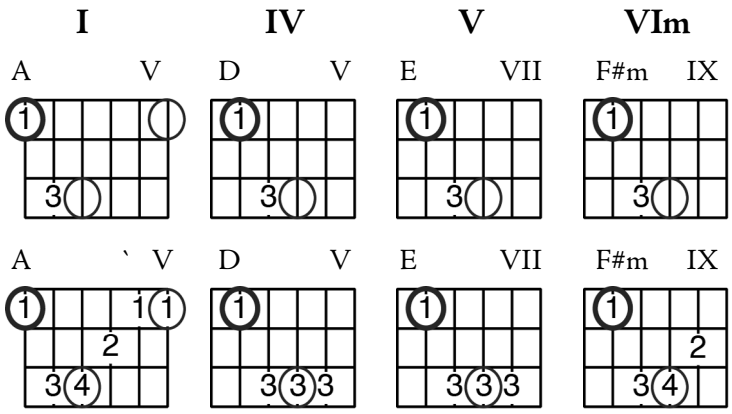


VI MINOR, II MINOR AND III MINOR CHORDS

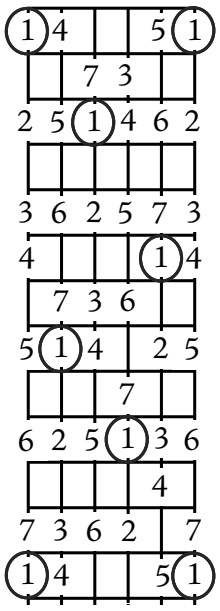
For VIm, the root is two frets toward the guitar body from V



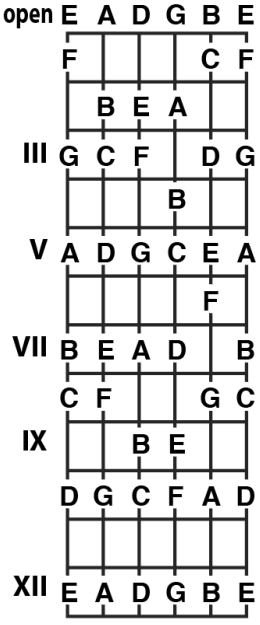
key of A

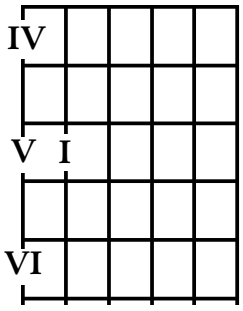


movable

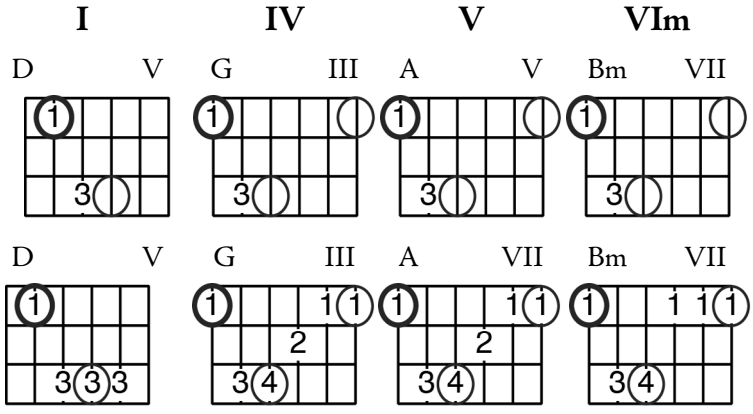


fixed





key of D

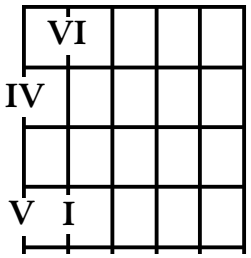


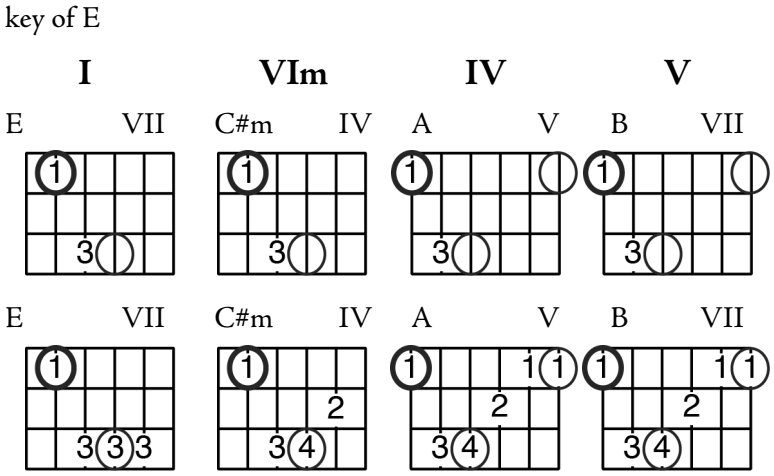
Using I, IV and V as points of reference, you can locate the three minor chords constructed on major scale tones VI, II and III (6, 2, and 3).

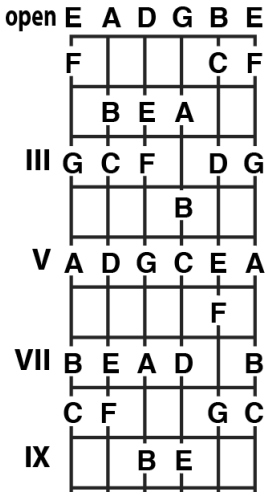
locating VIm chords using I, IV and V as points of reference, VIm is above V or below I. IIm and IIIm are above I and below IV:

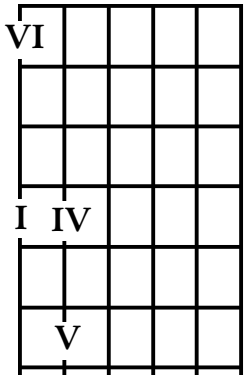
To locate the root of a VIm chord ("six minor"), do one of the following (roman numerals refer to the numbered tone of the major scale after with the chord is named):

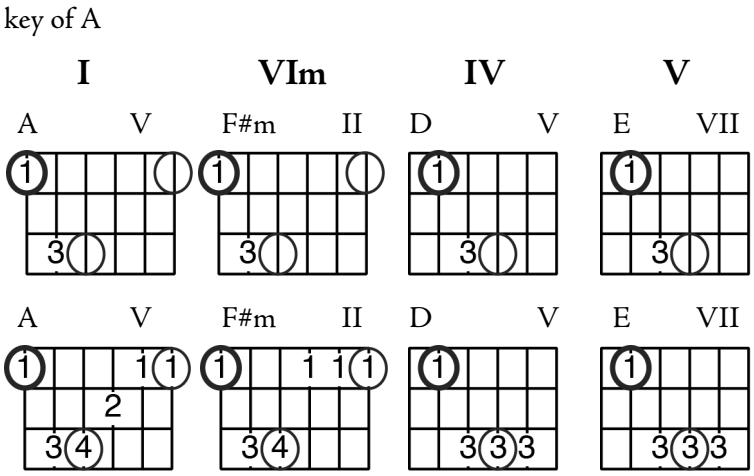
- go up two frets up (toward the body of the guitar) from V to VIm (see the previous page)
- go three frets down (toward the head of the guitar) from I to VIm (one fret from I down to VII, plus two frets from VII down to VI)

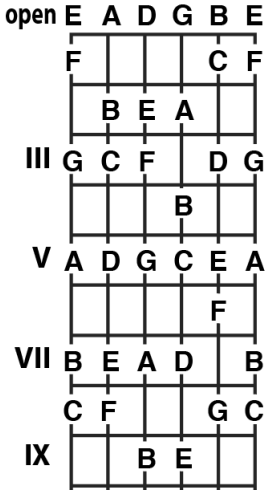












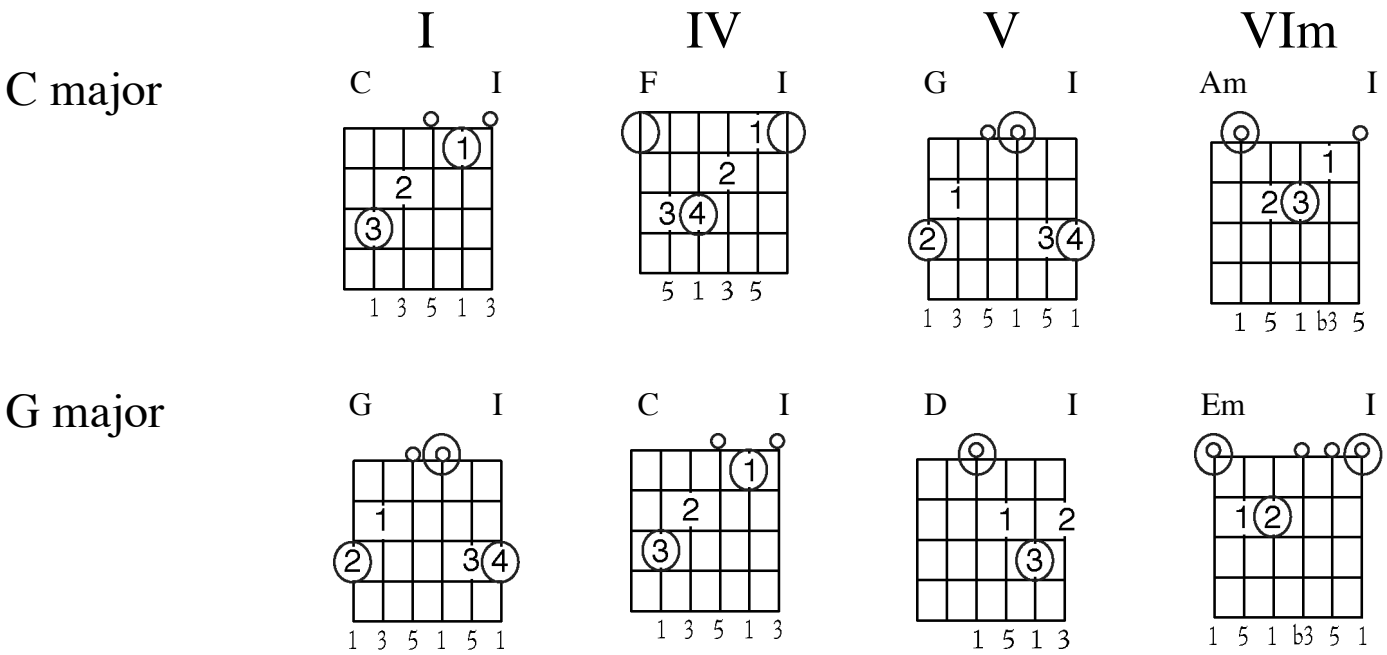
To locate the root of a IIm chord, do one of the following (roman numerals refer to the numbered tone of the major scale after with the chord is named):

- go up two frets up (toward the body of the guitar) from I to IIm
- go three frets down (toward the head of the guitar) from IV to IIm (one fret from IV down to III, plus two frets from III down to II)

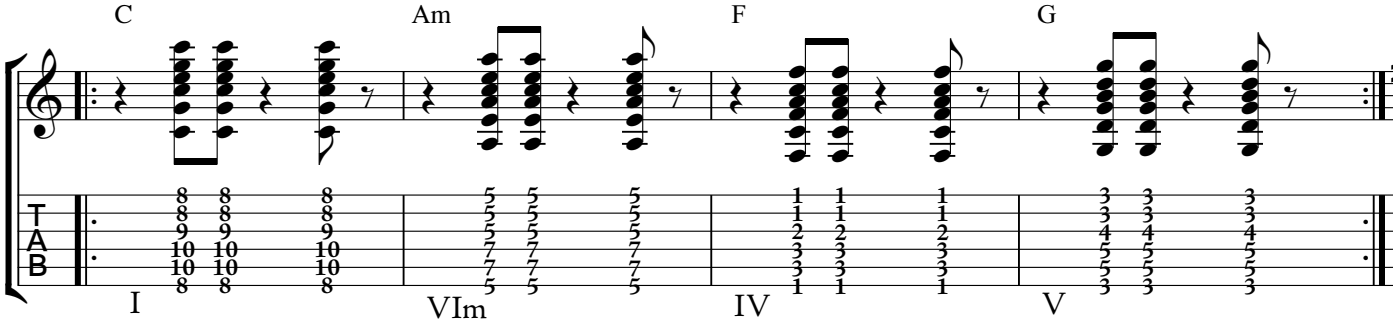
To locate the root of a IIIm chord, do one of the following (roman numerals refer to the numbered tone of the major scale after with the chord is named):

- go up one fret down (toward the body of the guitar) from IV to IIIm
- go four frets up (toward the body of the guitar) from I to IIIm (two frets from I up to II, plus two frets from II up to III)

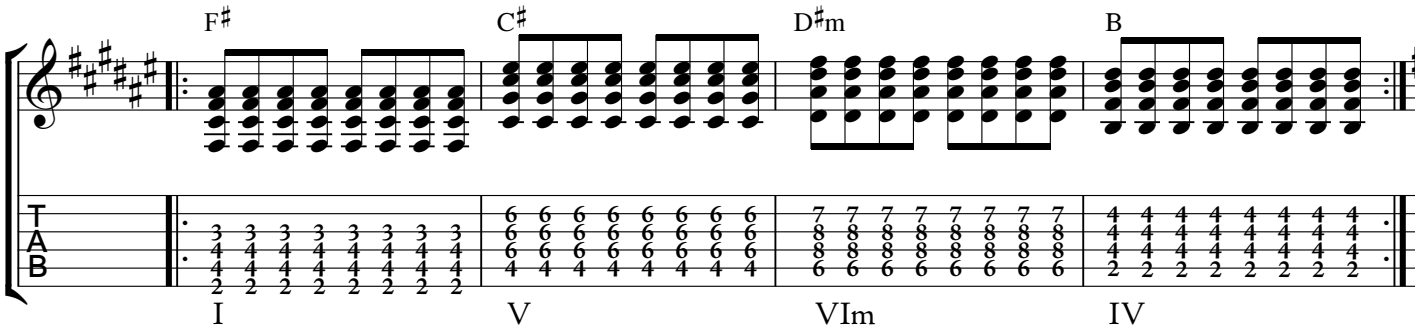
PLAYING I, IV, V AND VIm CHORD PROGRESSION



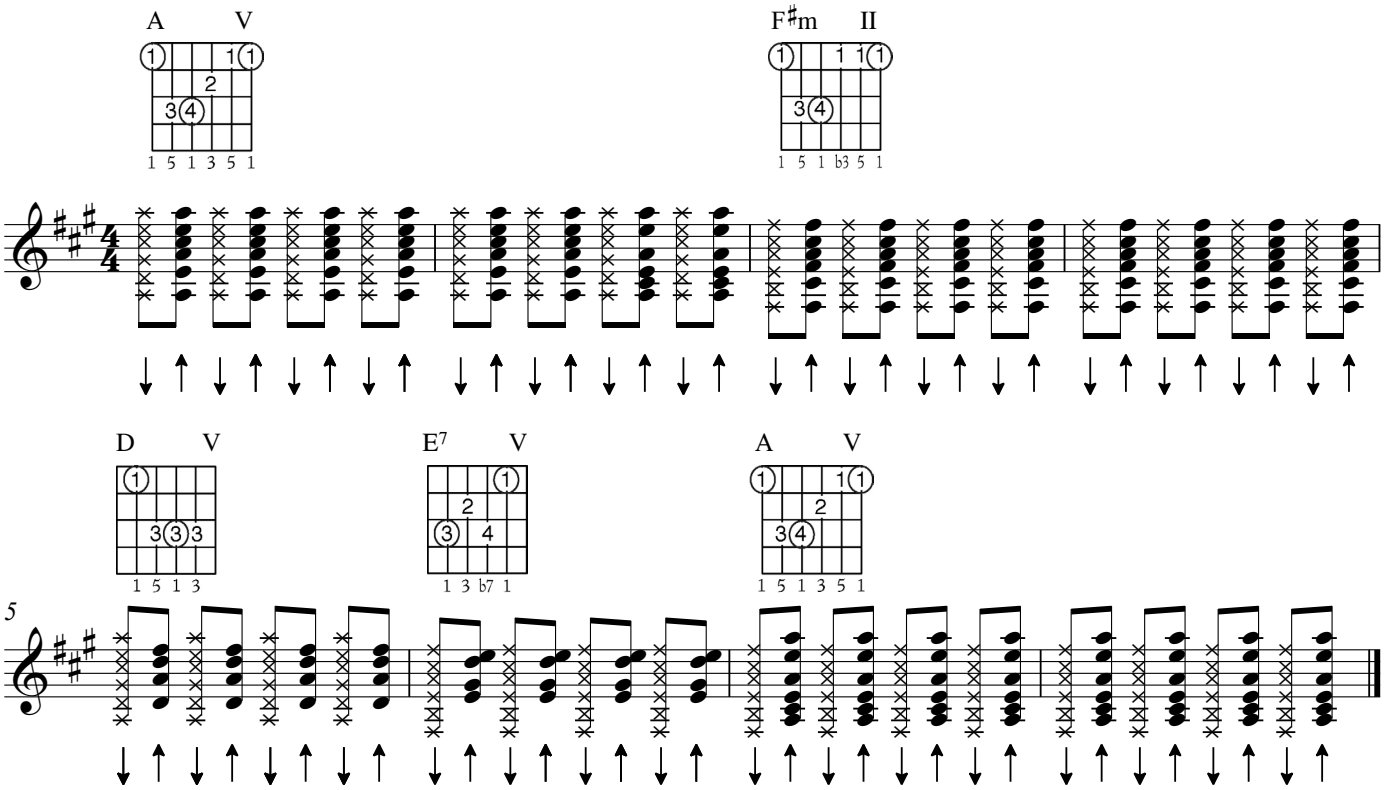
D'Yer Ma'ker style



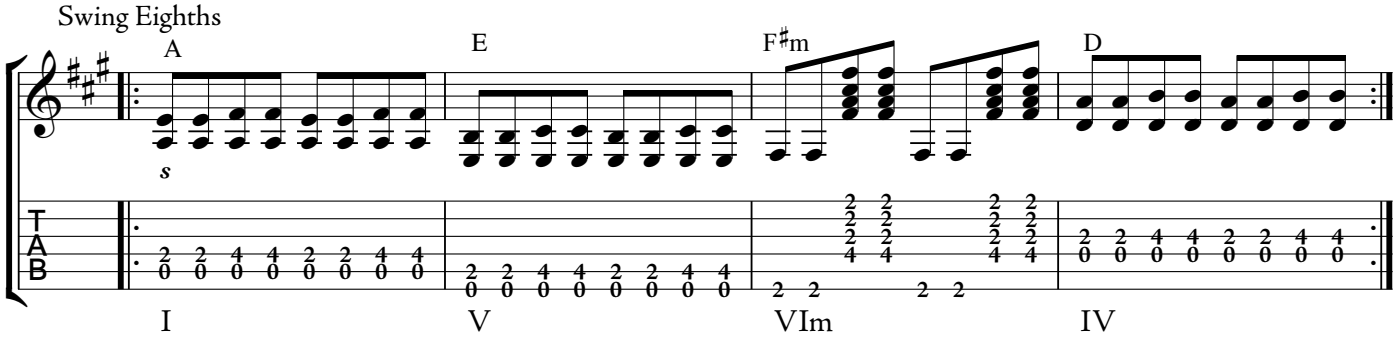
Pork and Beans chorus style



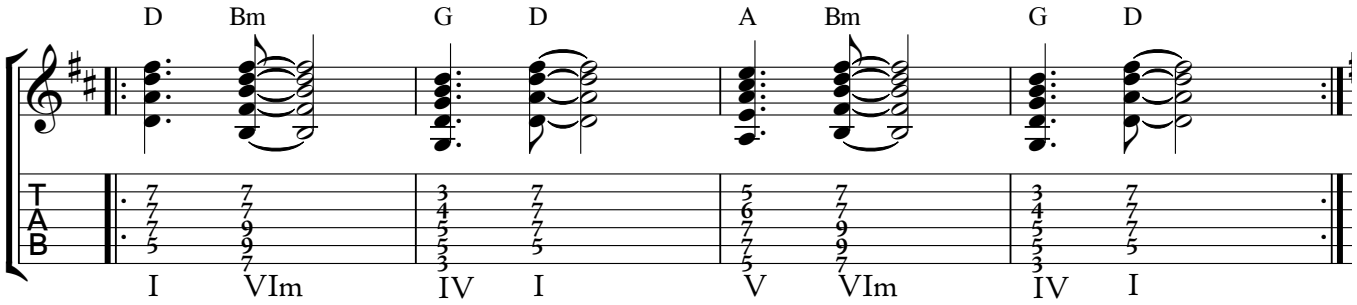
Stand By Me style



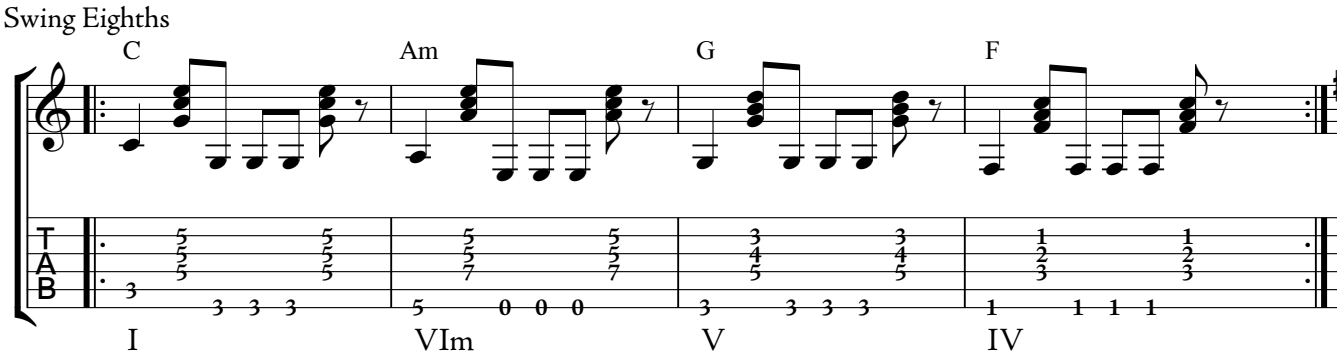
Life by the Drop style



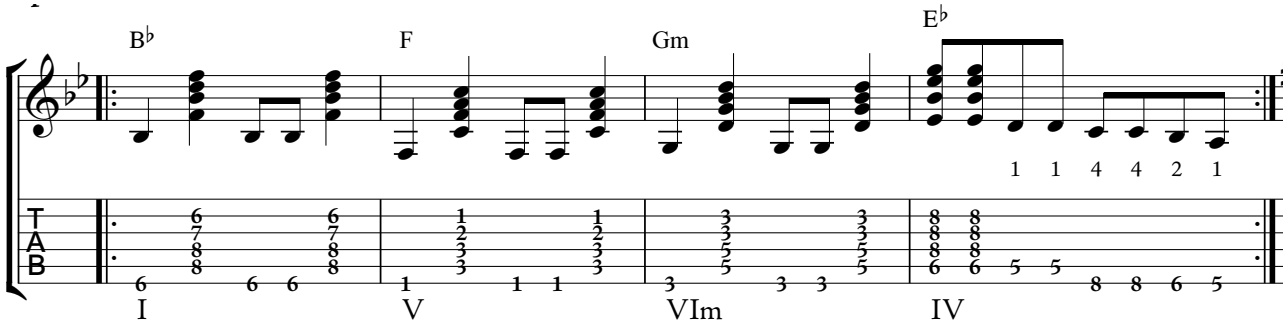
Waiting on The World to Change style



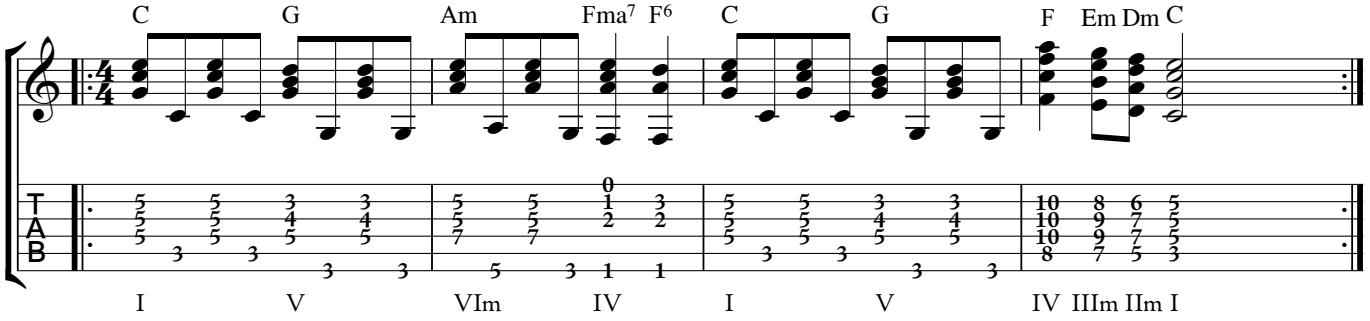
How Sweet It Is verse style

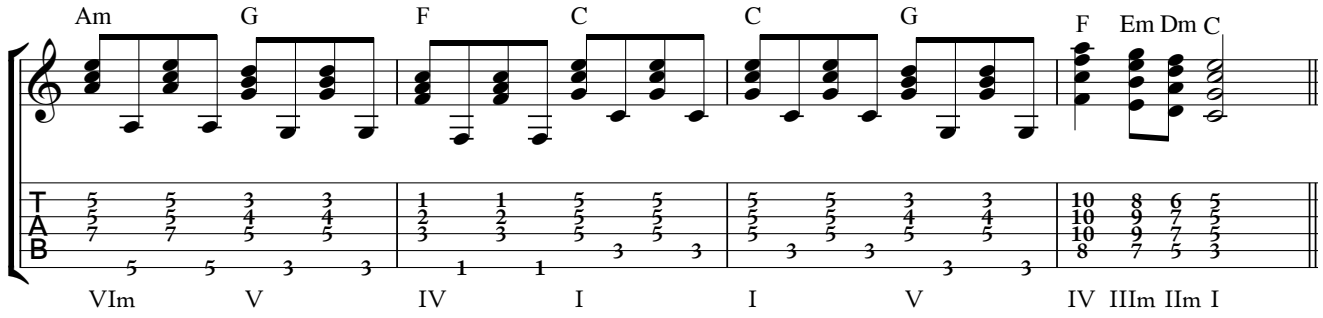


Spiderwebs chorus style

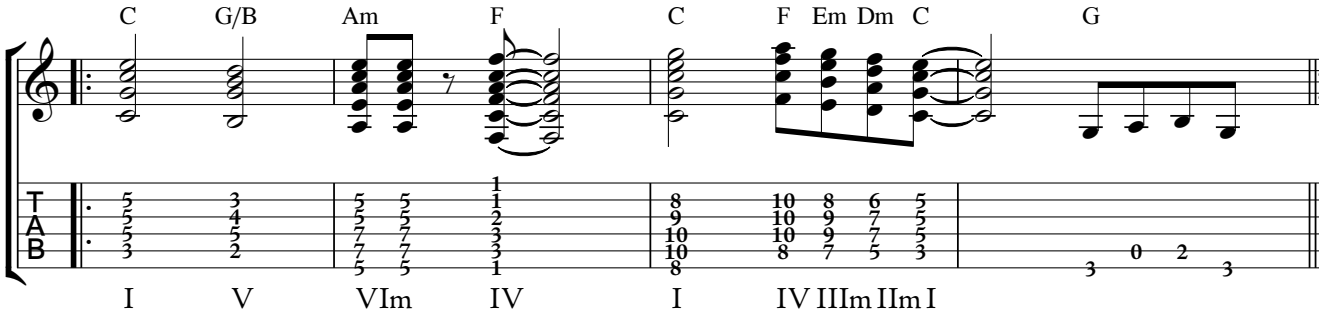


Let It Be style

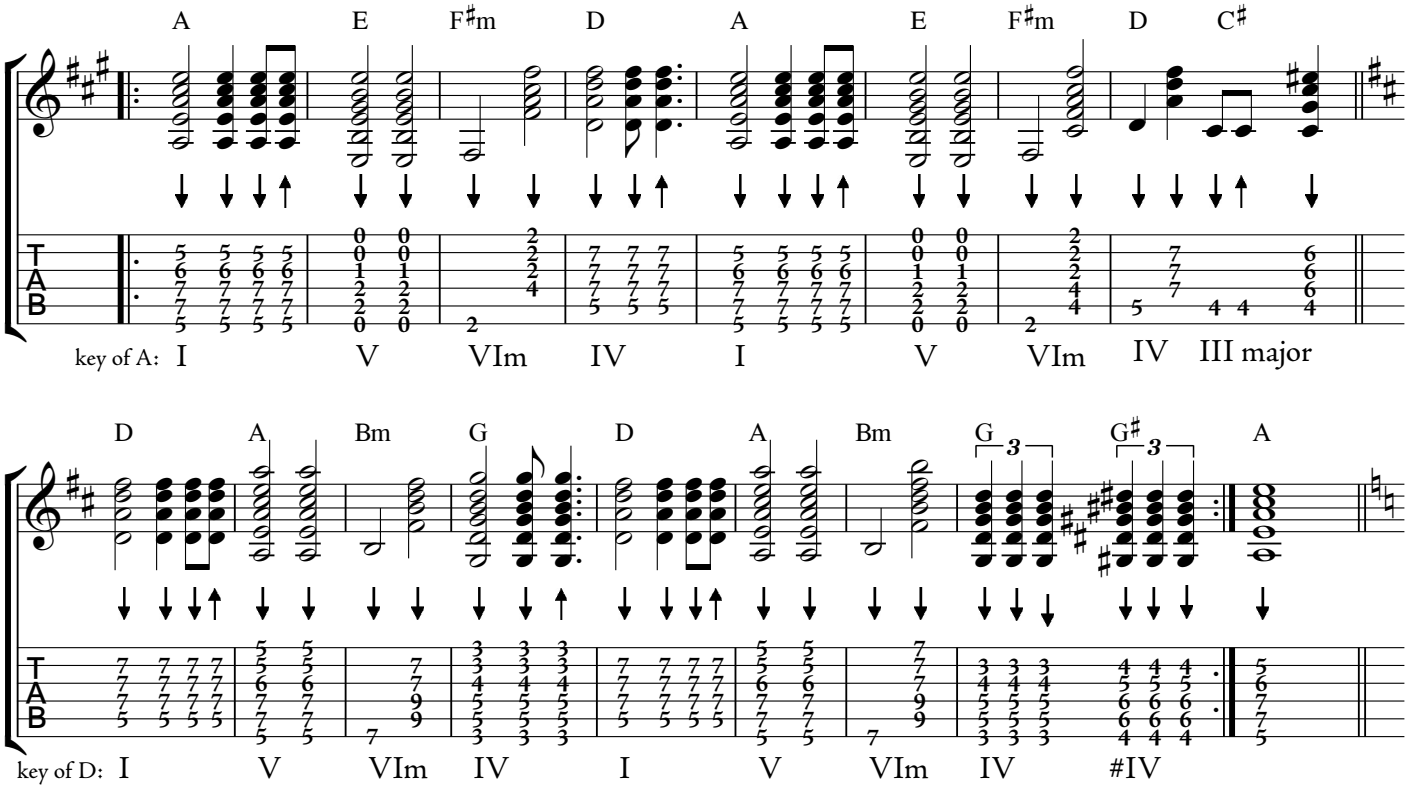




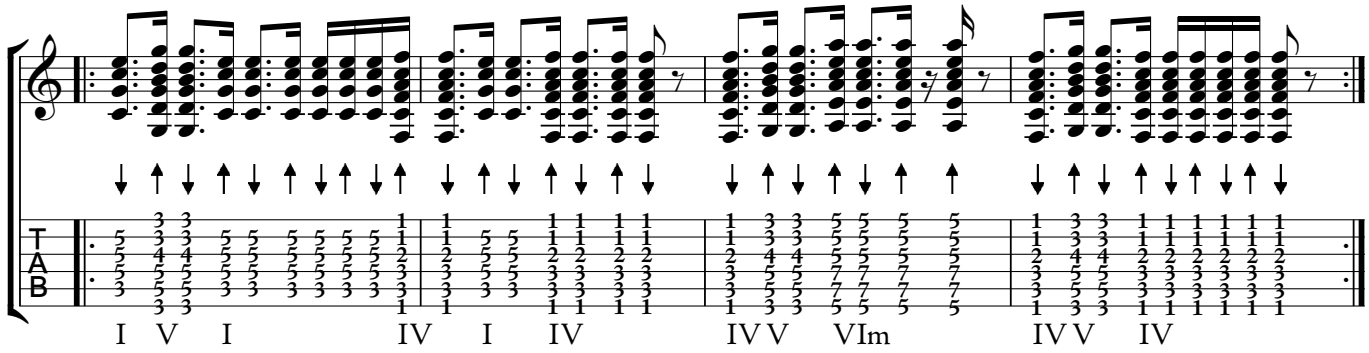
No Woman No Cry style



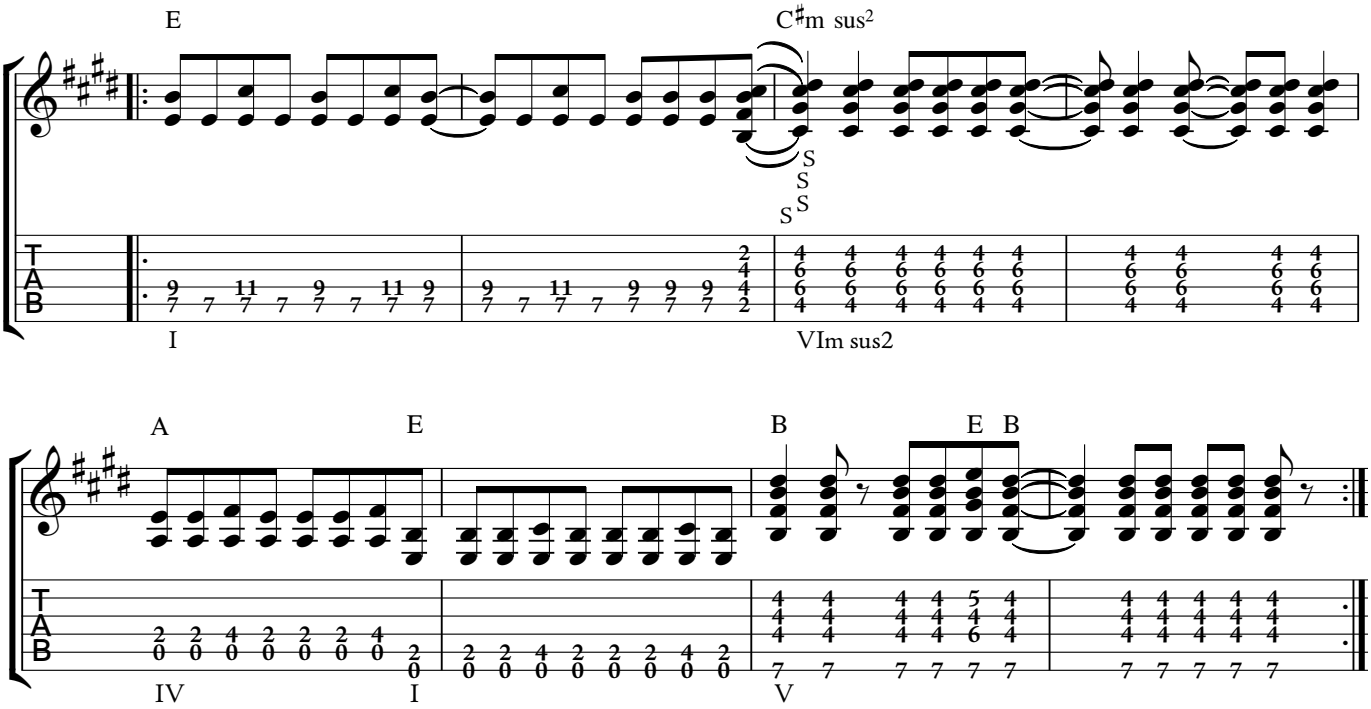
Bold as Love style



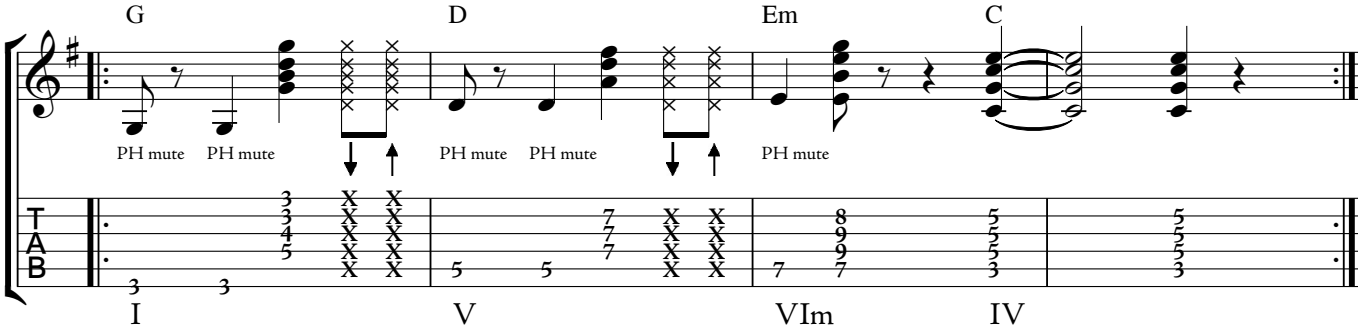
Peace Train style



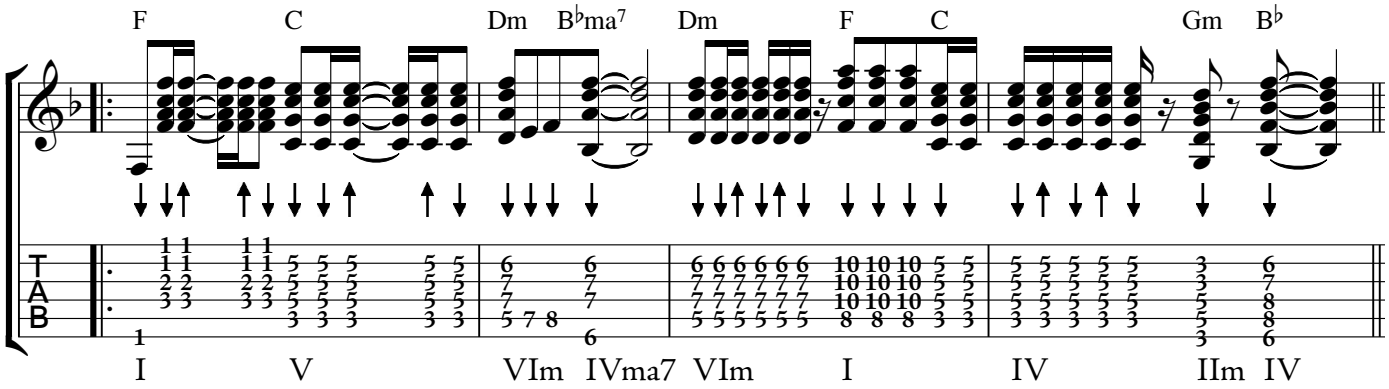
Some Might Say verse style



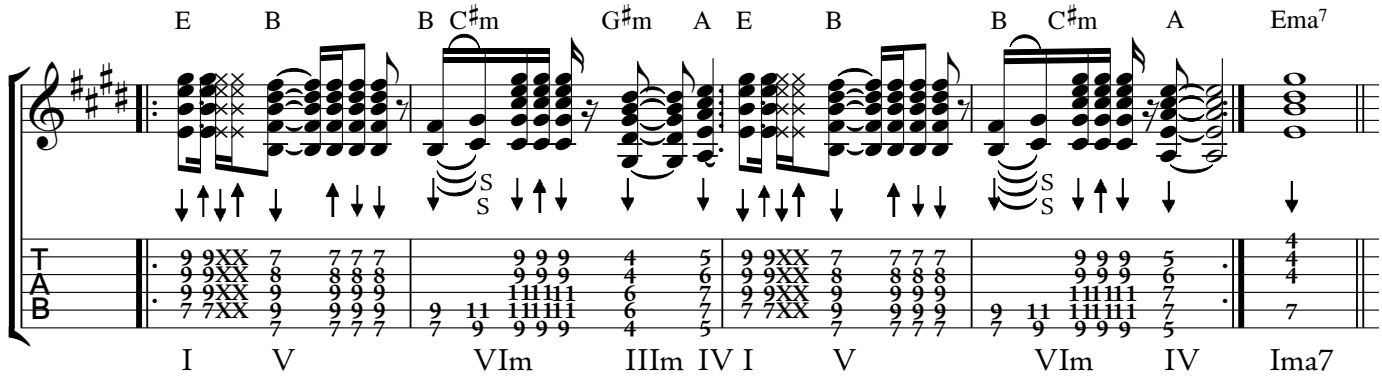
When I Come Around style



Soul to Squeeze style



Under the Bridge verse style



SCALE-TONE CHORD PROGRESSION

Major Scale-Tone Triads By Roman Numeral

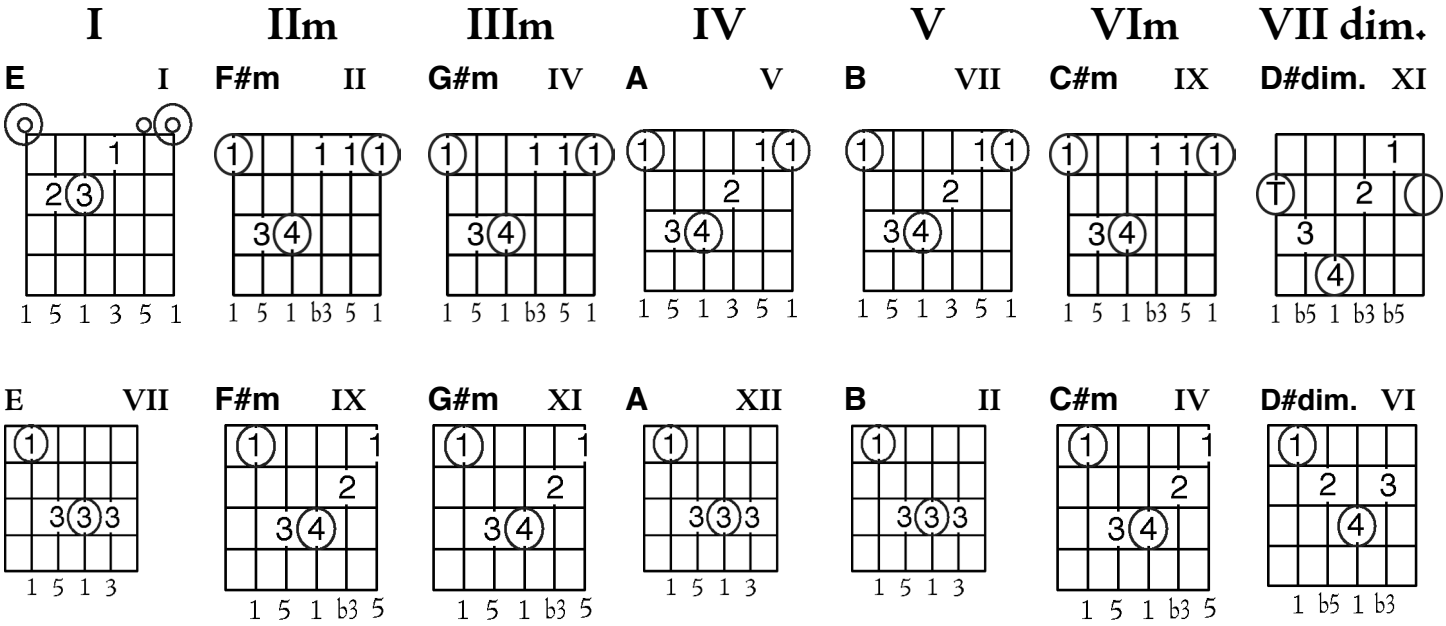
Chords can be built on each step of a major scale. Each chord is usually with every other note of the scale, such as scale tones one, three and five to build a chord on step one. Roman numerals (I, II, III, IV, etc.) are used to number the steps of a major scale on which chords are built. The letter names of chords chooose from the letters A through G in the alphabet, and may be followed by a sharp or flat, indicating its modification up or down a half step (one fret). To make a chord progression transposable (changeable to other keys) and to compare it to other progressions, names are replaced with roman numerals.

The description of the chord quality that followed the letter name remains the same. If a letter name such as A, F# or Bb (# is sharp and is part of the letter name, b is flat as is part of the letter name "B flat"). In the key of F (where B♭ is the fourth step of the F major scale), Bbma7♭5 would be written as IVma7♭5. By default, chord are built with every-other scale tone, such as 1,3,5 and 2,4,6.

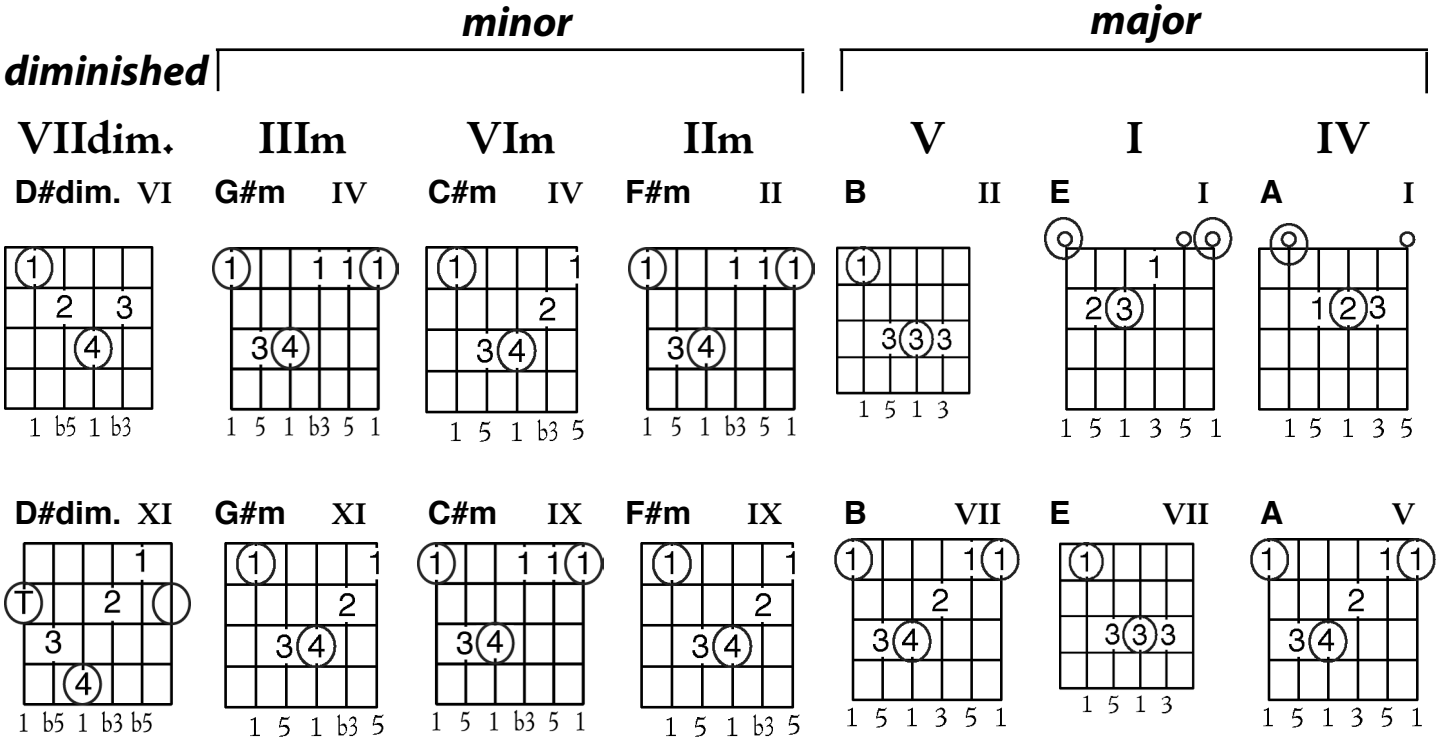
major scale tone	1	2	3	4	5	6	7
scale tones in chord	1, 3, 5	2, 4, 6	3, 5, 7	4, 6, 1	5, 7,2	6, 1, 3	7, 2, 4
quality	major	minor	minor	major	major	minor	diminished
formula on root	1, 3, 5	1,♭3, 5	1,♭3, 5	1, 3, 5	1, 3, 5	1,♭3, 5	1,♭3, ♭5
roman numeral name	I	IIm	IIIm	IV	V	VIm	VIIdim.
literal names in C	C	Dm	Em	F	G	Am	Bdim.
literal names in F	F	Gm	Am	B♭	C	Dm	Edim.
literal names in G	G	Am	Bm	C	D	Em	F♯dim.
literal names in D	D	Em	F♯m	G	A	Bm	C♯dim.
literal names in B♭	B♭	Cm	Dm	E♭	F	Gm	Adim.
literal names in A	A	Bm	C♯m	D	E	F♯m	G♯dim.
literal names in E♭	E♭	Fm	Gm	A♭	B♭	Cm	Ddim.
literal names in E	E	F♯m	G♯m	A	B	C♯m	D♯dim.
literal names in A♭	A♭	B♭m	Cm	D♭	E♭	Fm	Gdim.
literal names in B	B♭	Cm	Dm	E♭	F	Gm	Adim.
literal names in D♭	D♭	E♭m	Fm	G♭	A♭	B♭m	Cdim.
literal names in F♯	F♯	G♯m	A♯m	B	C♯	D♯m	E♯dim.
literal names in G♭	G♭	A♭m	B♭m	C♭	D♭	E♭m	Fdim.
literal names in C♯	C♯	D♯m	E♯m	F♯	G♯	A♯m	B♯dim.

Stepwise E Major Scale-Tone Triads

Bold roman numerals are scale tones. Roman numerals at the upper right of each diagram is the number of the top fret.

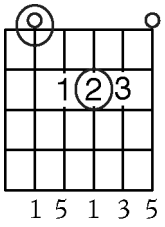
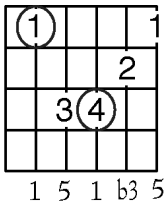
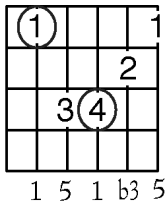
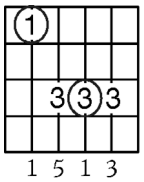
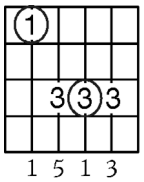
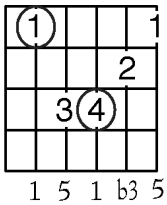
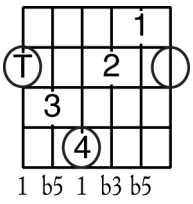
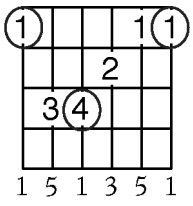
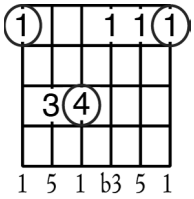
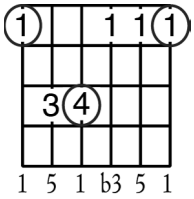
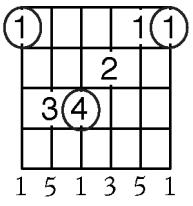
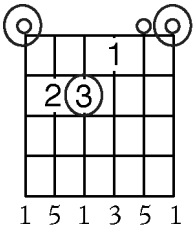
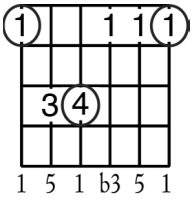
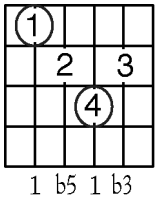


E Major Scale-Tone Triads in Fourths

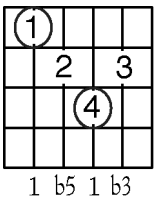
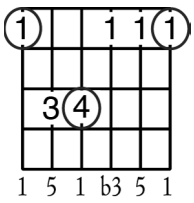
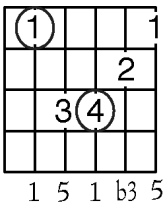
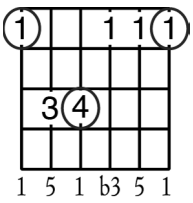
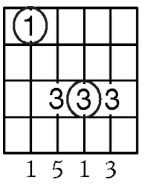
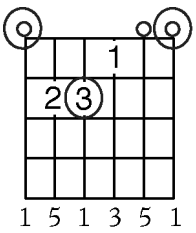
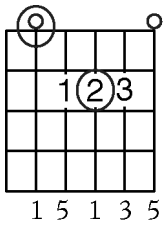
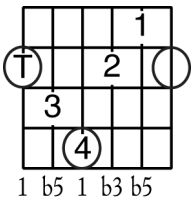
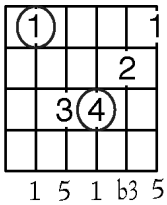
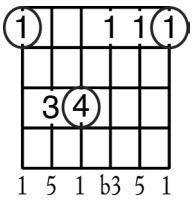
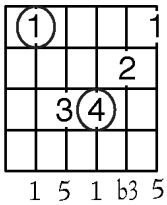
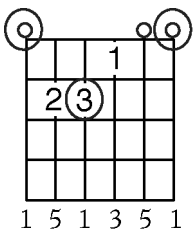
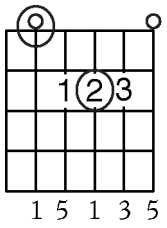
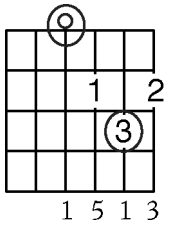


Stepwise A Major Scale-Tone Triads

Bold roman numerals are scale tones. Roman numerals at the upper right of each diagram is the number of the top fret.

I	IIm	IIIm	IV	V	VIm	VIIdim.
A I	Bm II	C#m IV	D V	E VII	F#m IX	G#dim. XI
						
A V	Bm VII	C#m IX	D X	E I	F#m II	G#dim. IV
						

A Major Scale-Tone Triads in Fourths

diminished	*minor*			*major*		
VIIdim.	IIIm	VIm	IIm	V	I	IV
G#dim. XI	C#m IX	F#m IX	Bm VII	E VII	A V	D V
						
G#dim. III	C#m IV	F#m II	Bm II	E I	A I	D I
						

Stepwise F Major Scale-Tone Triads

Bold roman numerals are scale tones. Roman numerals at the upper right of each diagram is the number of the top fret.

I	IIm	IIIm	IV	V	VIm	VIIdim.
F I	**Gm** III	**Am** V	**Bb** VI	**C** VIII	**Dm** X	**Edim.** XI
1 5 1 3 5 1	1 5 1 b3 5 1	1 5 1 b3 5 1	1 5 1 3 5 1	1 5 1 3 5 1	1 5 1 b3 5 1	1 b5 1 b3 b5
F VIII	**Gm** X	**Am** XII	**Bb** I	**C** III	**Dm** V	**Edim.** VII
1 5 1 3	1 5 1 b3 5	1 5 1 b3 5	1 5 1 3	1 5 1 3	1 5 1 b3 5	1 b5 1 b3

F Major Scale-Tone Triads in Fourths

	minor			*major*		
diminished						
VIIdim.	IIIm	VIm	IIm	V	I	IV
Edim. VII	**Am** V	**Dm** V	**Gm** III	**C** III	**F** I	**Bb** I
1 b5 1 b3	1 5 1 b3 5 1	1 5 1 b3 5	1 5 1 b3 5 1	1 5 1 3	1 5 1 3 5 1	1 5 1 3
Edim. XI	**Am** X	**Dm** X	**Gm** X	**C** VIII	**F** VIII	**Bb** VI
1 b5 1 b3 b5	1 5 1 b3 5	1 5 1 b3 5 1	1 5 1 b3 5	1 5 1 3 5 1	1 5 1 3	1 5 1 3 5 1

2 Basic Chord Construction

- **Chord Roots**
- **Two and Three Note Chords (Diad And Triads)**
- **Triad Types**
- **Major Scale-Tone Tertian Triads**
- **Open-Position Triads from Major Scales**
- **Making Major Chords Movable**

CHORD ROOTS

A chord root is the letter name for a chord. The letter may be followed by a flat or sharp which alters the letter. Sharps ("C♯" is "C sharp") indicate a note is one fret higher (toward the guitar body). Flats indicate a note is one fret lower ("D♭" is "D flat"). Naturals (("C♮" is "C natural") cancel previously indicated sharps or flats and bring a note back to its unaltered pitch.

TWO AND THREE-NOTE CHORDS

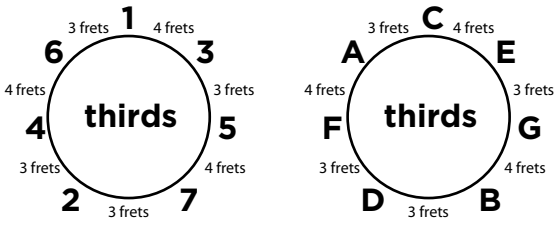
Chords are combinations of two or more notes played at once.

Diads or Intervals: Two-Note Chords

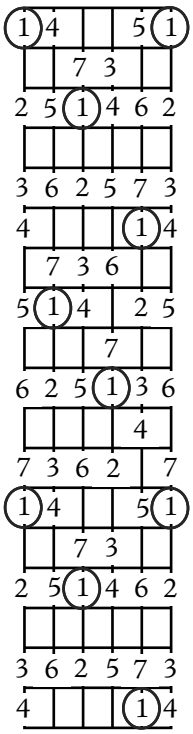
Two note chords are called *diads*. Two notes played at once are commonly named as intervals, such as the combination of the notes C and E ("E" above "C") being called a third (since it is three tones in the C major scale from "C" up to "E" inclusively. *T*here are no formal names for diads as chords, so we use interval names.

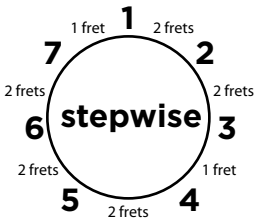
Triads: Three-Note chords

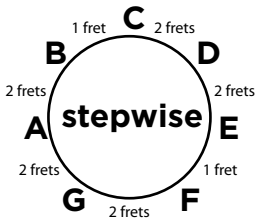
Three-note chords are called *triads*. Any note of a triad may be repeated in the chord, so a triad may be played as a five note chord with three different notes, repeating two of the notes. By default, they use every-other scale tone, each using some version of numbered tones "1", "3" and "5". To work with chord construction, you need to memorize the cycle of numbers and letters from which chords are commonly built, called *thirds*.



Major scale intervals are the same from numbered step to step in every key. In stepwise (numerical) order, they are:

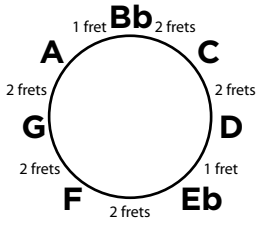


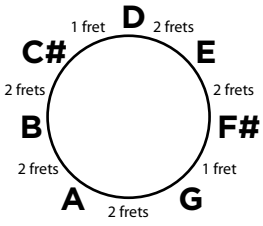


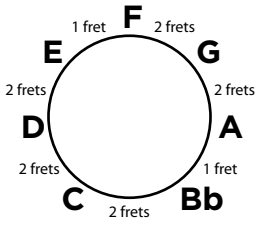


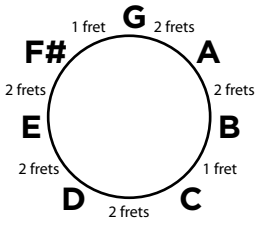
Three to four and seven to one are one fret apart. B to C and E to F are one fret apart. In the C major scale, with no sharps or flats, these correspond. Three to four is one fret and, in C, three to four are E to F, which is one fret. Likewise, seven to one is B to C in the C major scale and B to C is one fret. C major therefore requires no sharps nor flats. All other keys require sharps or flats to adjust the step to step letter pattern so three to four and seven to one are each one fret.

Here is the major scale fret spacing for a few keys. Inspect the adjustments that have been made to conform to the major scale spacing of one fret intervals (called *half steps* or *semi-tones*) between steps three and four and between seven and one. The key signature system provides a method of memorizing these adjustments for all keys.









TRIAD TYPES

Most triads use the numbered tones 1, 3 and 5. Some have alterations to three or five, such as flat three. Suspended triads are the exception, using "1, 4, 5" or "1, 2, 5". Memorize the numbered tones that each triad name implies, as shown on the list below:

triad name	abbreviation	numbered tones of a major scale on the chord root
major	(nothing)	1, 3, 5
minor	m or min.	1, ♭3, 5
diminished	dim. or °	1, ♭3, ♭5
augmented	aug. or +	1, 3, ♯5
suspended fourth	sus. 4 or sus.	1, 4, 5
suspended second	sus. 2	1, 2, 5

By default, chords are major. That is, when a chord name is shown as just the letter name (A, B♭, B, C, C#, etc.), the chord is major.

By default, an indication of a suspended chord without a number (Csus) should be interpreted as a suspended fourth chord. It is clearer to the reader if you elaborate the chord name to specify, using "sus.4" for a suspended fourth chord (Csus4) or "sus2" for a suspended second chord (Csus2).

Avoid using the degree symbol (°) for a diminished triad. The degree symbol (°) is commonly used to represent a diminished seventh chord. So, when you write a diminished seventh chord, it will be more universally understood if you include the "7", writing "°7" for a diminished seventh chord.

MAJOR SCALE-TONE TERTIAN TRIADS

Triads are three note chords. Tertian chords are constructed in the default method of every-other-note of a seven tone scale. Tertian triads use three consecutive notes from the cycle of thirds above.

The intervals derived from the I major chord (1-3-5), the IV major chord (4-6-1) and the V major chord (5-7-2) are the same, which is why they are all called major. Each of them has an interval pattern of two steps, one and a half steps. (four frets, then three frets).

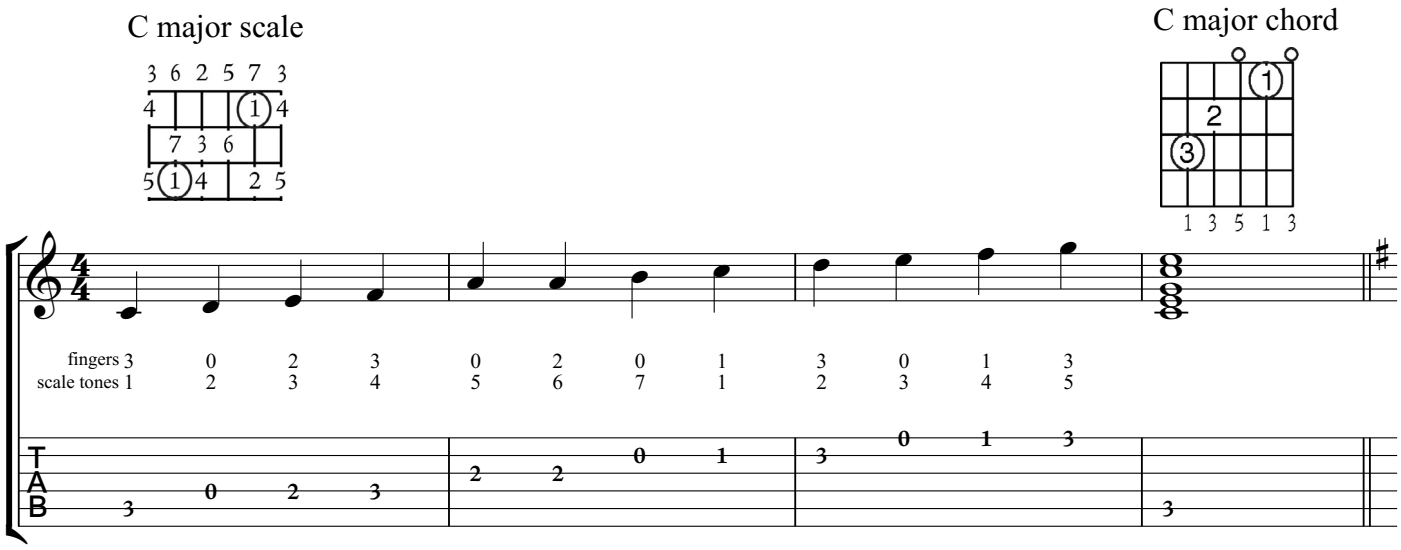
The intervals derived from the VI minor chord (6-1-3), the II minor chord (2-4-6) and the III minor chord (3-5-7) are the same, which is why they are all called minor. Each of them has an interval pattern of one and a half steps, two steps (three frets, then four frets).

The intervals in the VII diminished chord are unique: one and a half steps twice (3 frets, 3 frets). To demonstrate these intervals to yourself, play a major scale up and down a single string and number the scale tones.

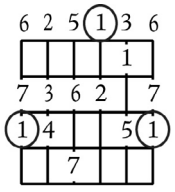
OPEN-POSITION TRIADS FROM MAJOR SCALES

Review the Octave Shapes section in Note Sets, Structures and Design.

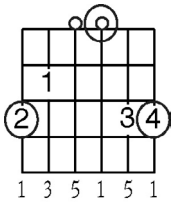
For each of the major scales below, a chord is shown that contains major scale tones one, three and five. Each of these chords is named after the major scale.

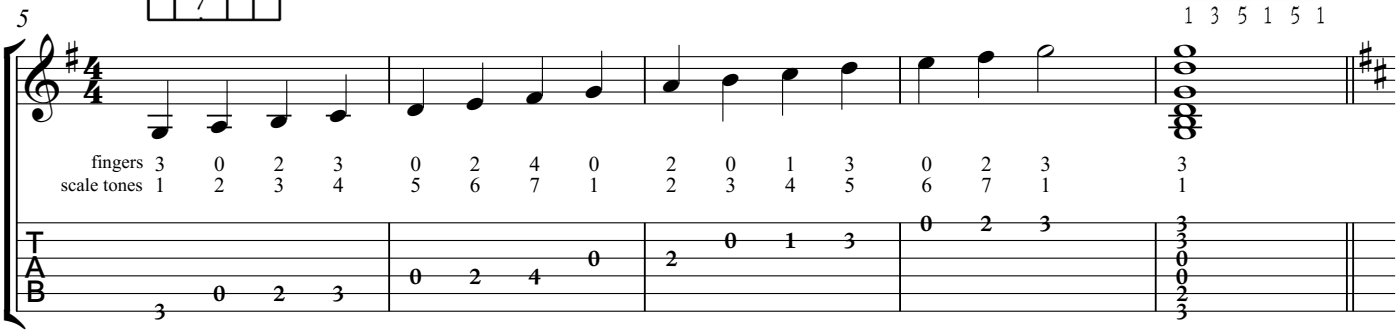


G major scale

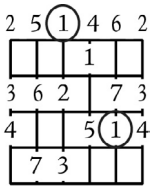


G major chord

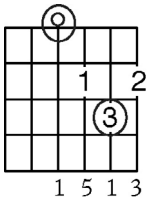


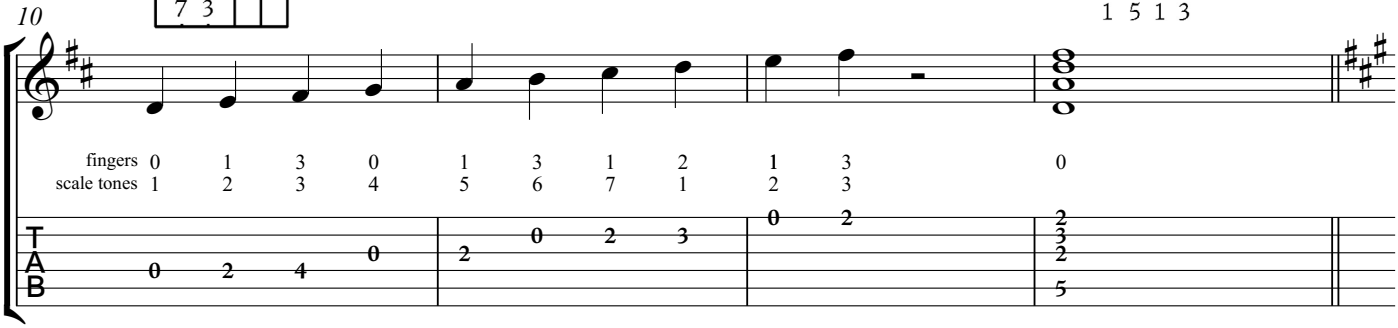


D major scale

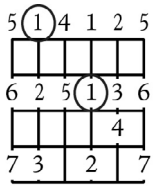


D major chord

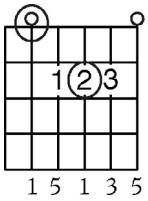


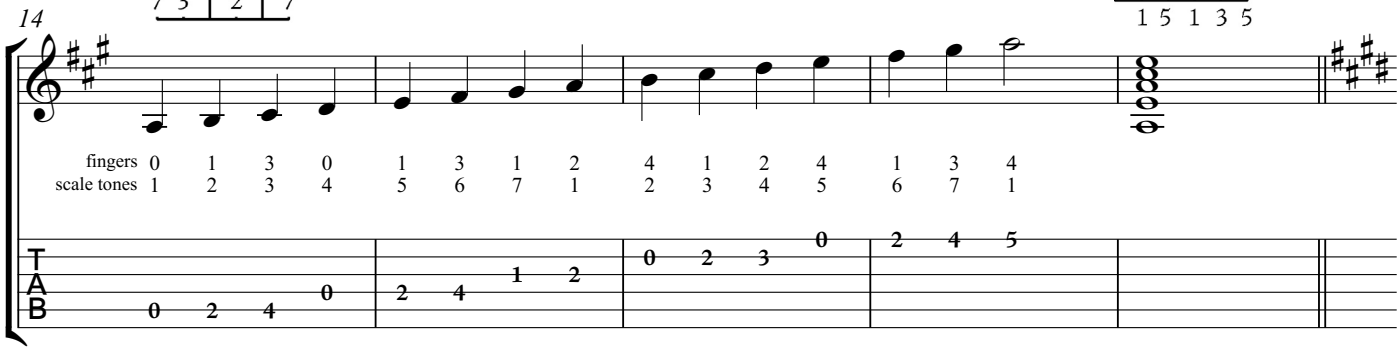


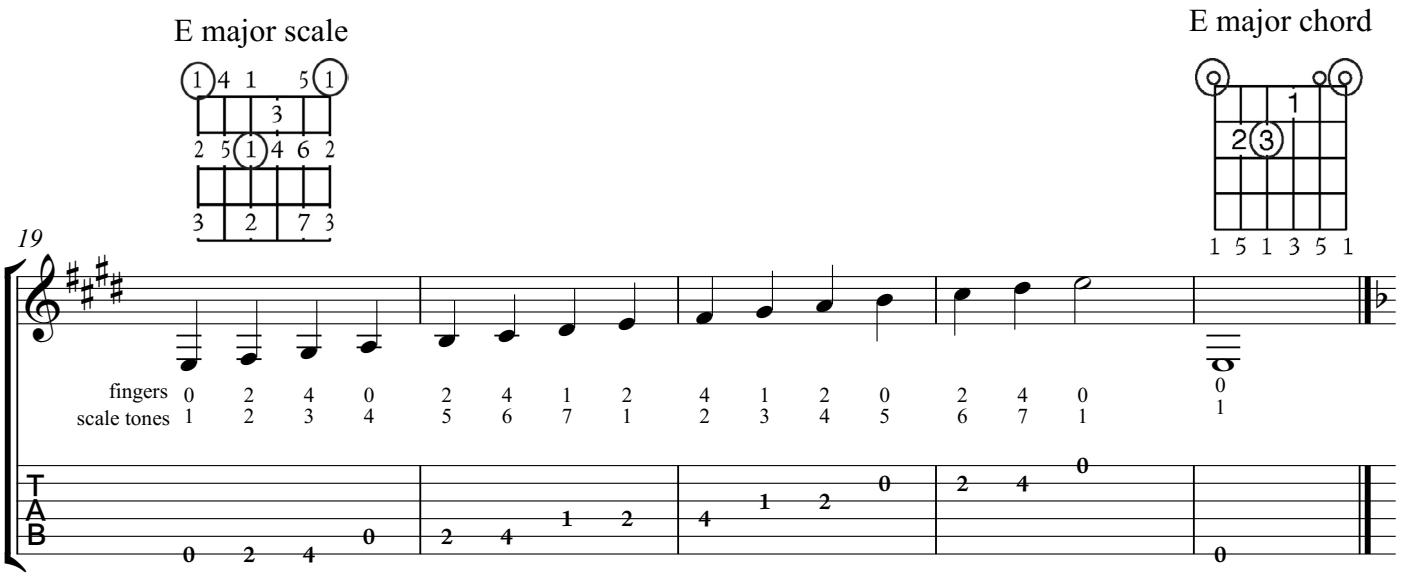
A major scale



A major chord

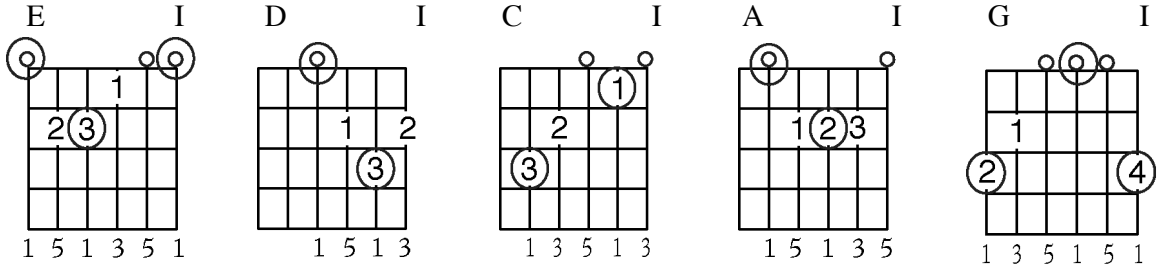




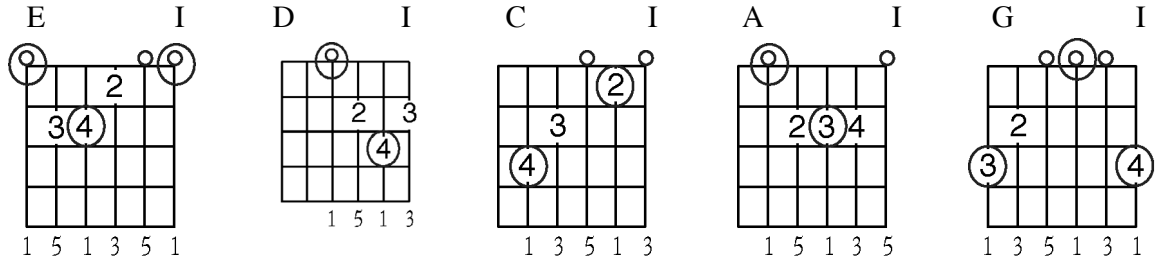


MAKING MAJOR CHORDS MOVABLE

Three-Finger Versions of Open-Position Major Chords



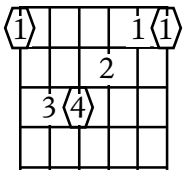
The three-finger versions of open-position major chords are modified below, so the first finger is free to make a barre chord. The first finger will act as a "virtual nut" to make the chord movable and change it to any other key.



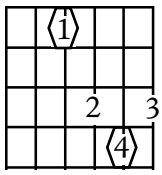
Movable Versions of Open-Position Major Chords

These can be played at any fret. Each chord is named after the note in the hexagon. Usually, you would use the lowest-pitched note as a point of reference (the hexagon on the largest string available). In the "E" shape diagram, you would use the sixth string note as a point of reference. In the "D" shape diagram, you would use the fourth string note as a reference, and so on.

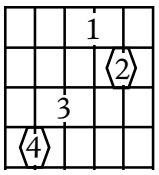
E shape
major chord
finger numbers



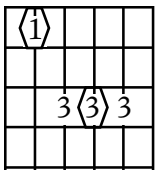
D shape
major chord
finger numbers



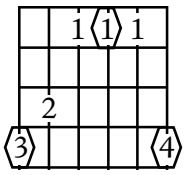
C shape
major chord
finger numbers



A shape
major chord
finger numbers



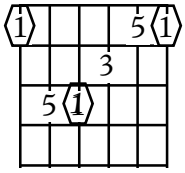
G shape
major chord
finger numbers



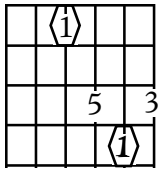
Constructing Major Chords from Movable Major Scales

To construct a major chord from a major scale, number the tones of a major scale and play combinations of scale tones "1, 3, and 5". Notice that the "scale numbers" shown in each major chord diagram below are a subset of the major scale fingerings shown below the chord diagrams.

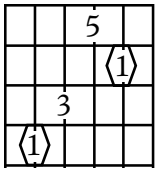
E shape
major chord
scale numbers



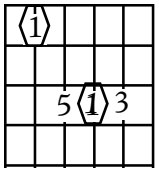
D shape
major chord
scale numbers



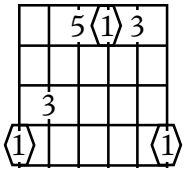
C shape
major chord
scale numbers



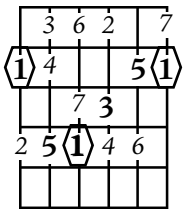
A shape
major chord
scale numbers



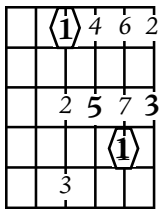
G shape
major chord
scale numbers



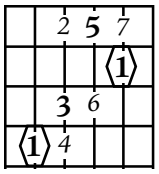
major scale
scale numbers



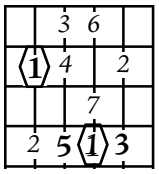
major scale
scale numbers



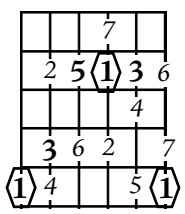
major scale
scale numbers



major scale
scale numbers



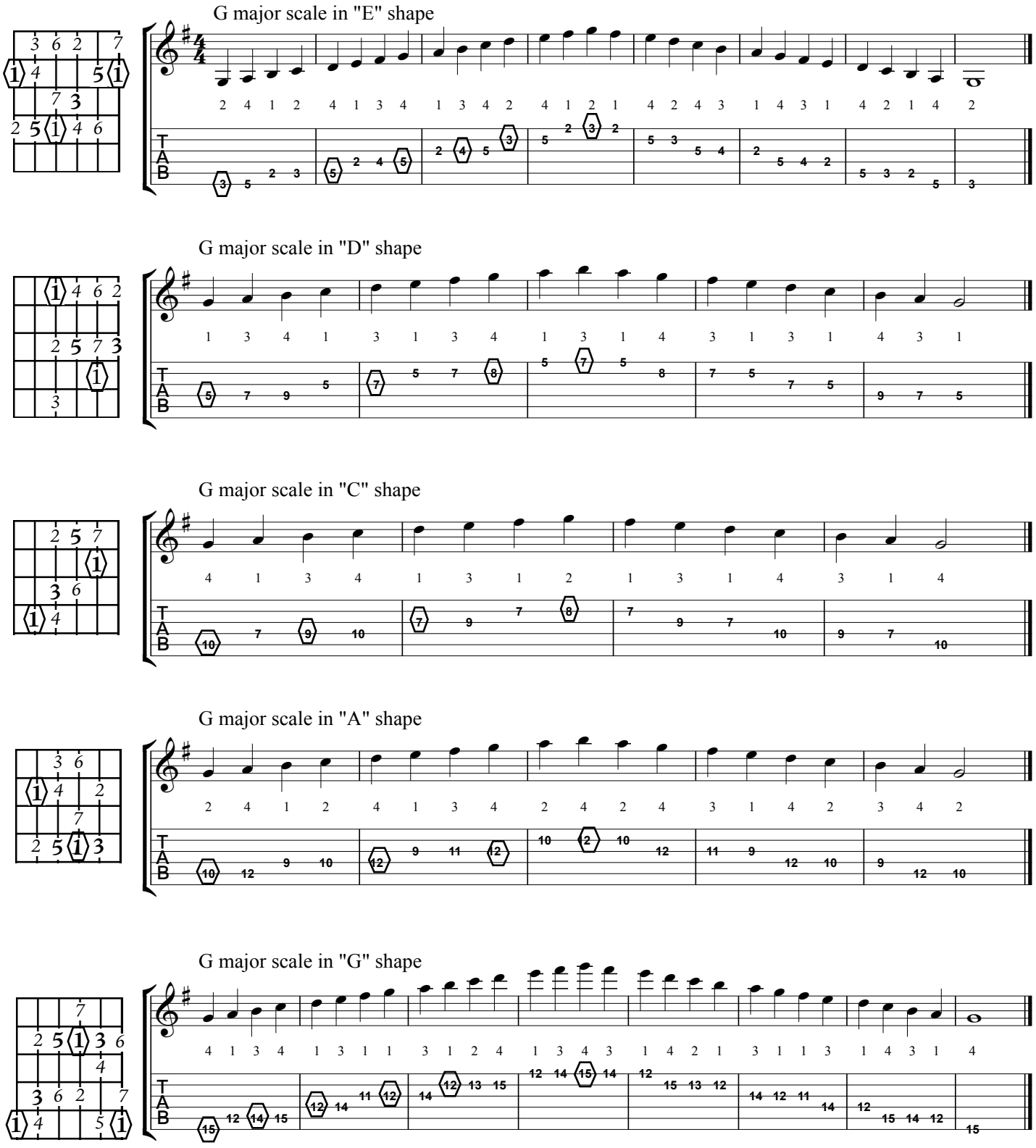
major scale
scale numbers



If you're wondering how to play the major scales shown above, they are shown in the key of G major, below.

"G" major scale in five octave shapes

The tablature notes in hexagons can be played together to form G major chords.



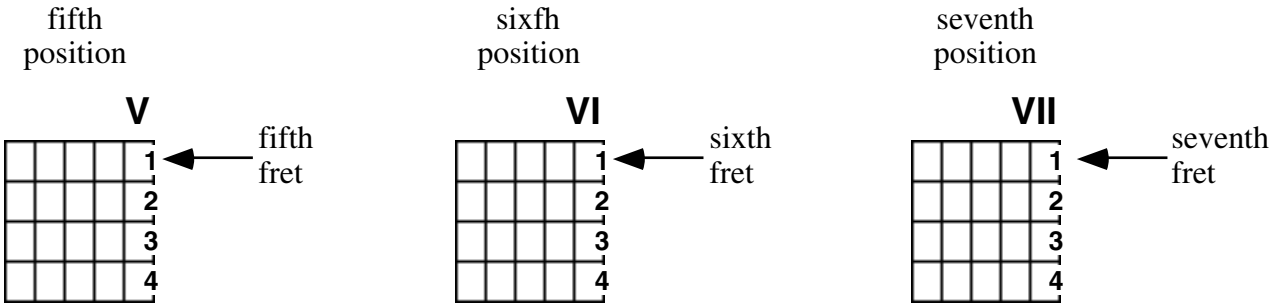
10 Playing in Position

- **Strict Vertical Position**
- **Two Categories of Octave Shapes**
- **Any Key within Three Consecutive Positions**
- **Hey Joe Or Day in the Life in Five Octave Shapes**
- **Identifying an Octave Shape in a Position**
- **Converting Major Chords to Minor Chords**

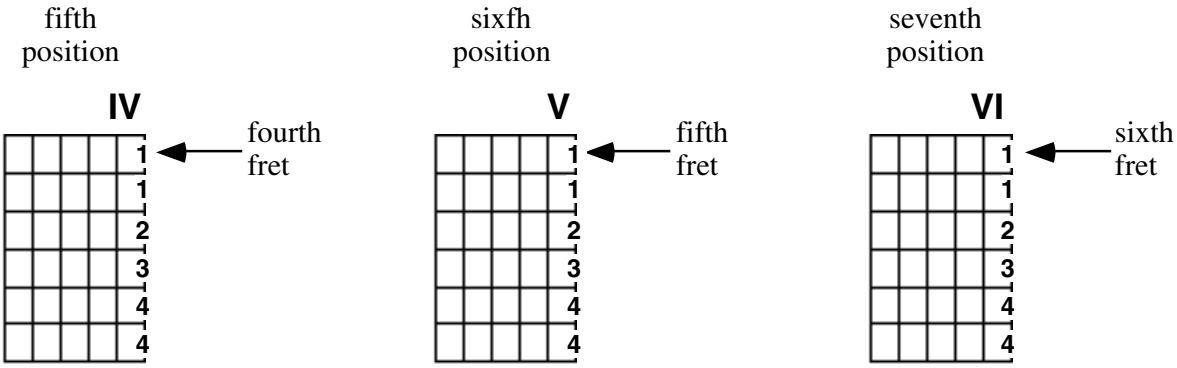
STRICT VERTICAL POSITION

This concept is primarily used for single-note playing. Position is numbered after the fret at which your index finger is placed. In that position, the other three fingers are assigned one of the next three frets in-a-row toward the body of the guitar. In other words, each of the four fingers are assigned to one of four consecutive frets.

The examples below show the first string. The position numbers would be the same, regardless of which string the fingers were placed upon.

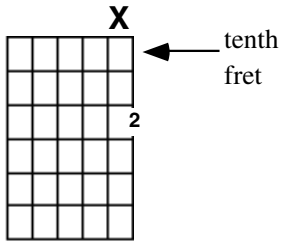


You can also reach one fret out-of-position with the index and little fingers:

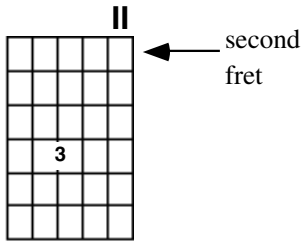


quiz: in what position are each of the examples below?

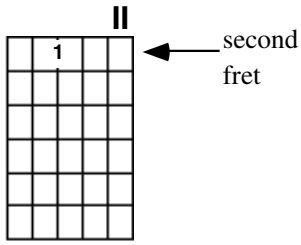
Example 1



Example 2



Example 3



answers: Example 1: eleventh position. Example 2: third position. Example 3: second OR third position.

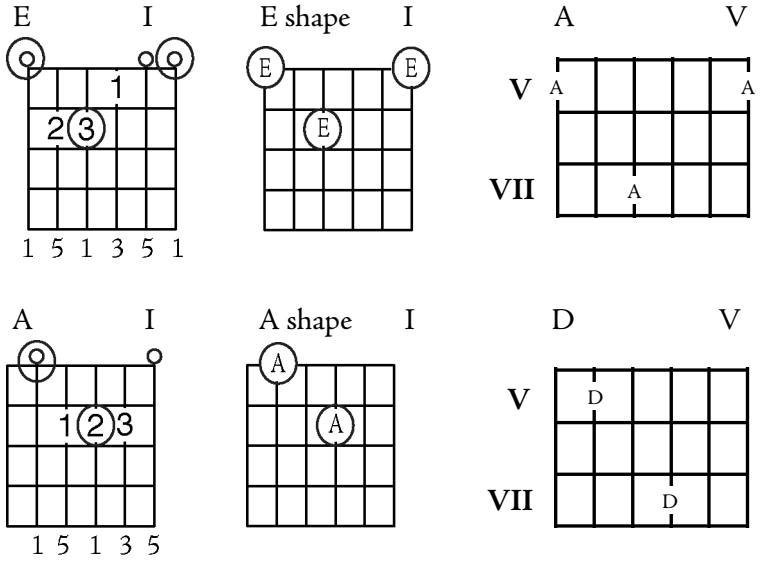
TWO CATEGORIES OF OCTAVE SHAPES

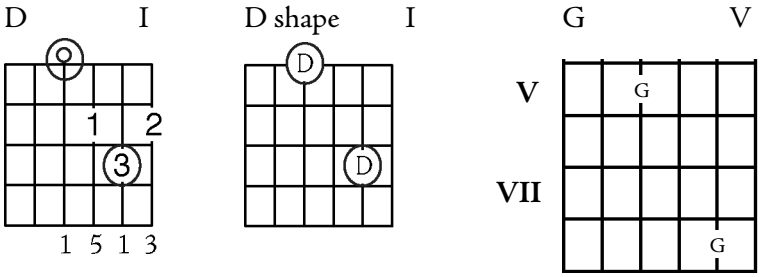
Octave shapes can be placed in two categories: those with the low octave root fretted by the index finger and those with the low octave root fretted by the ring or little finger. These could be called *open-string-origin octave shapes* and *fretted-origin octave shapes*.

The octave shapes whose low-octave root is fretted with the index finger originated with a chord whose low-octave root was an open string. Those are the E shape, A shape and D shape.

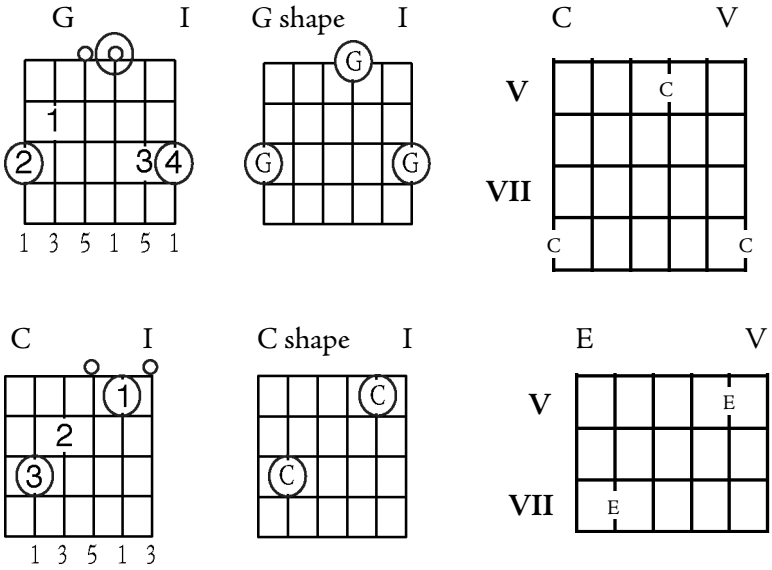
The octave shapes whose low-octave root is fretted with the ring or little finger originated with a chord whose low-octave root was a note on the third fret. Those are the G shape and C shape.

Open-String-Origin Octave Shape - INDEX FINGER CLOSEST TO LOW OCTAVE TONE CENTER





Fretted-Origin Octave Shape LITTLE FINGER CLOSEST TO LOW OCTAVE TONE CENTER



Any Key Within Three Consecutive Positions

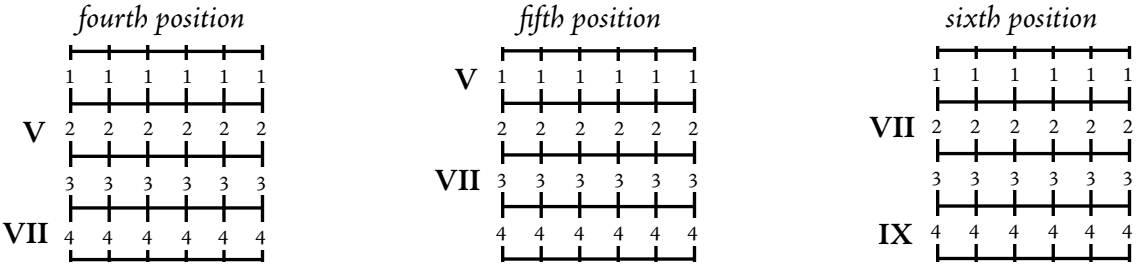
A primary goal on the fretboard is to be able to play in all keys in a small area or one key everywhere.

When a chord has a long duration, you have the opportunity to improvise in a wide range of pitch on the fretboard. When you are improvising on chords of short duration, you need to be able to play in a small area, since you don't have time to move around. When you voice chords to represent a chord progression, you usually make small , conservative movements (for good voice leading) and would tend to play in a small area of the fretboard.

finger assignment in three consecutive positions

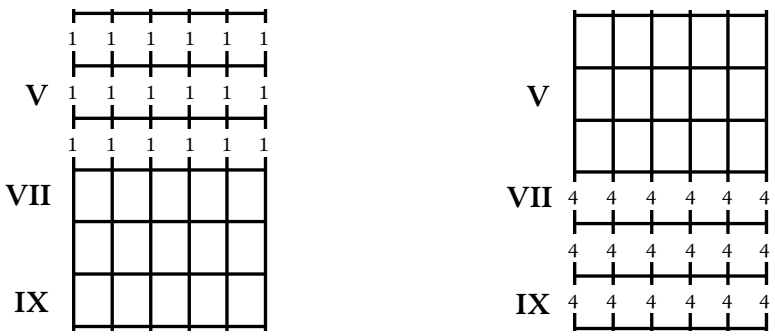
In each position, each finger is assigned to one of four consecutive frets by default. In more advanced definitions of positions for single note guitar parts (as opposed to chords), the index and little fingers can reach one fret out of position, but we won't do that here.

Positions IV, V and VI are shown as an example of three consecutive positions below. If the fifth position was the original position you considered, the fourth position represents the position one fret toward the head of the guitar from the original position and the sixth position represents the position one fret toward the body of the guitar from the original (fifth) position.



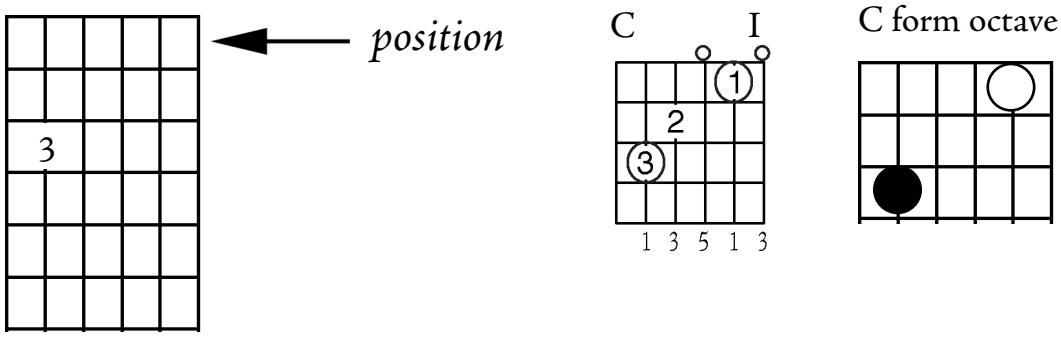
octave shapes with the bass note fretted with the index or little finger

Most octave shapes have their lowest-pitched note fretted with the index or little fingers. One of them is oriented to the ring finger. First look at all of the notes in positions IV, V and VI fretted with only the index and little fingers.



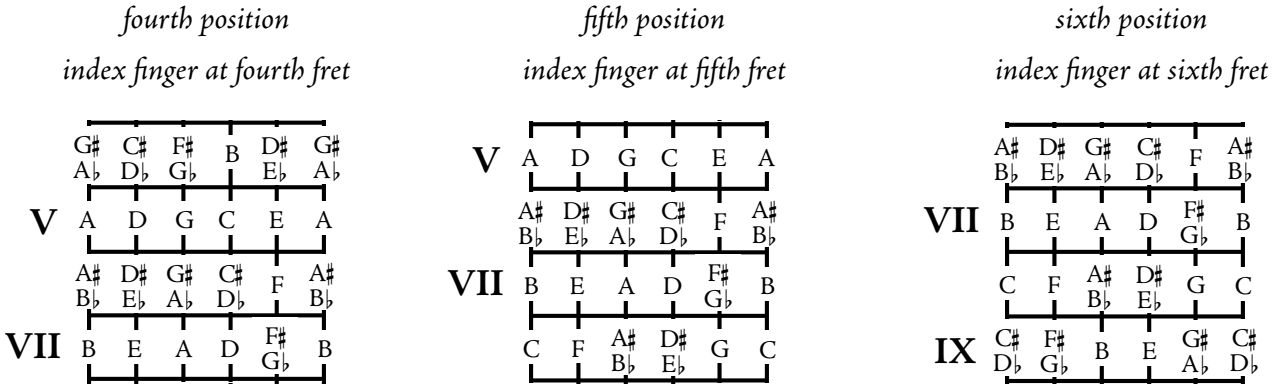
the bass note of "C" octave shape is fretted with the ring finger

The only octave shape that has its lowest-pitched note fretting with the ring finger is the "C" shape. It occurs when you consider the added position one fret toward the head of the guitar from the original position you considered.



all twelve notes within the range of three positions

Any of the twelve different notes can be assigned to an octave shape within the range of three consecutive positions. Consider the note names in IV, V and VI positions.

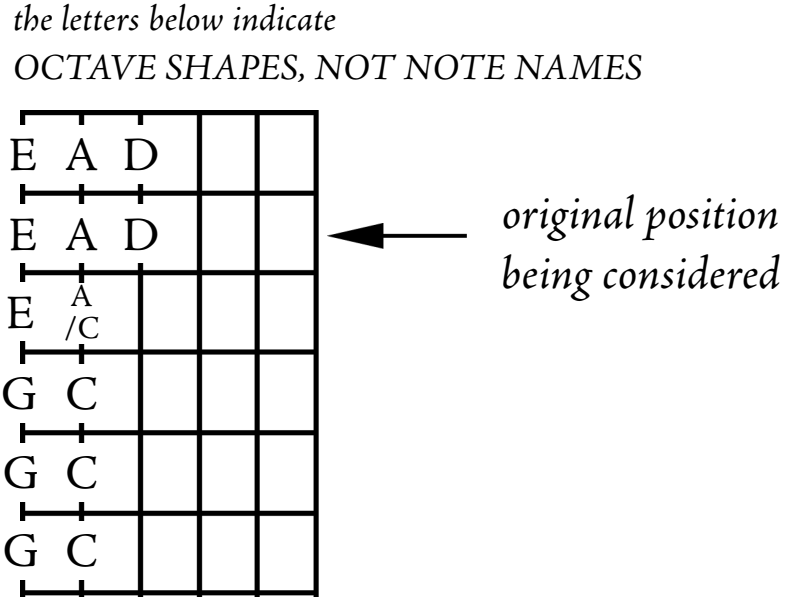


twelve unique bass notes of octave shapes in a single positon

In a given position, you can reach the bass note of an octave shape for every key. These are the twelve bass notes representing all keys for the fifth position. Every other note is a duplicate.

considering a position

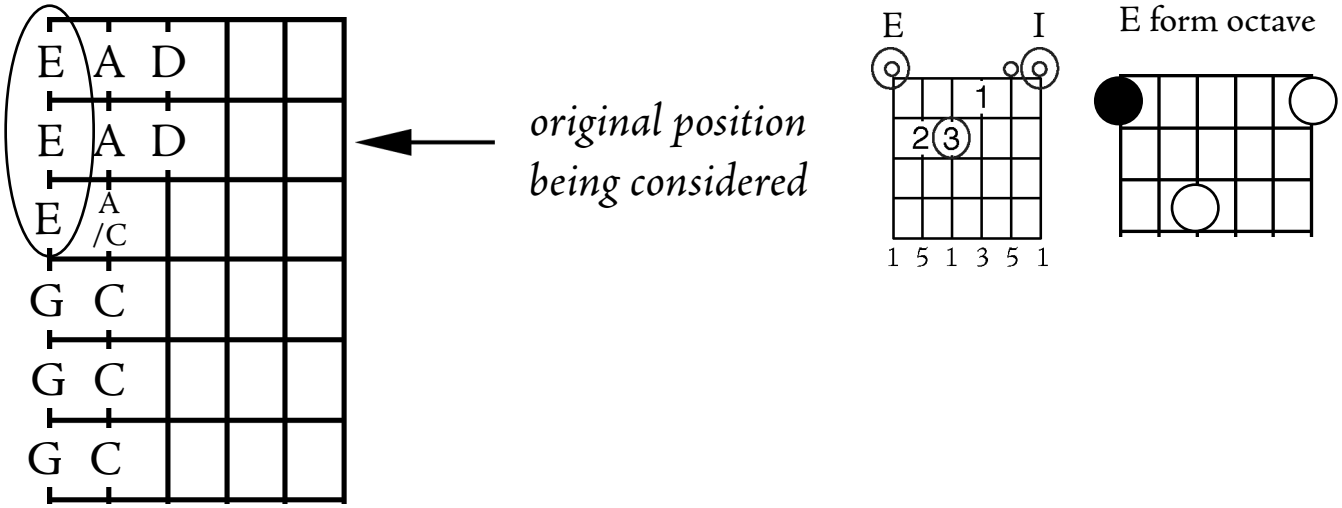
When you consider playing in any particular position, you should include the positions up one fret (toward the guitar body) and down one fret (toward the head of the guitar). Then the octave shape is available for all twelve notes. You will learn how the following octave shapes are determined and how they are assigned to fingers.



"E" shape octaves within the range of three positions

Each of the three notes enclosed in an oval (ellipse) below are in "E" shape. The note in the lowest octave of the "E" shape octave shape is on the sixth string (shown at the right below with a blackened circle).

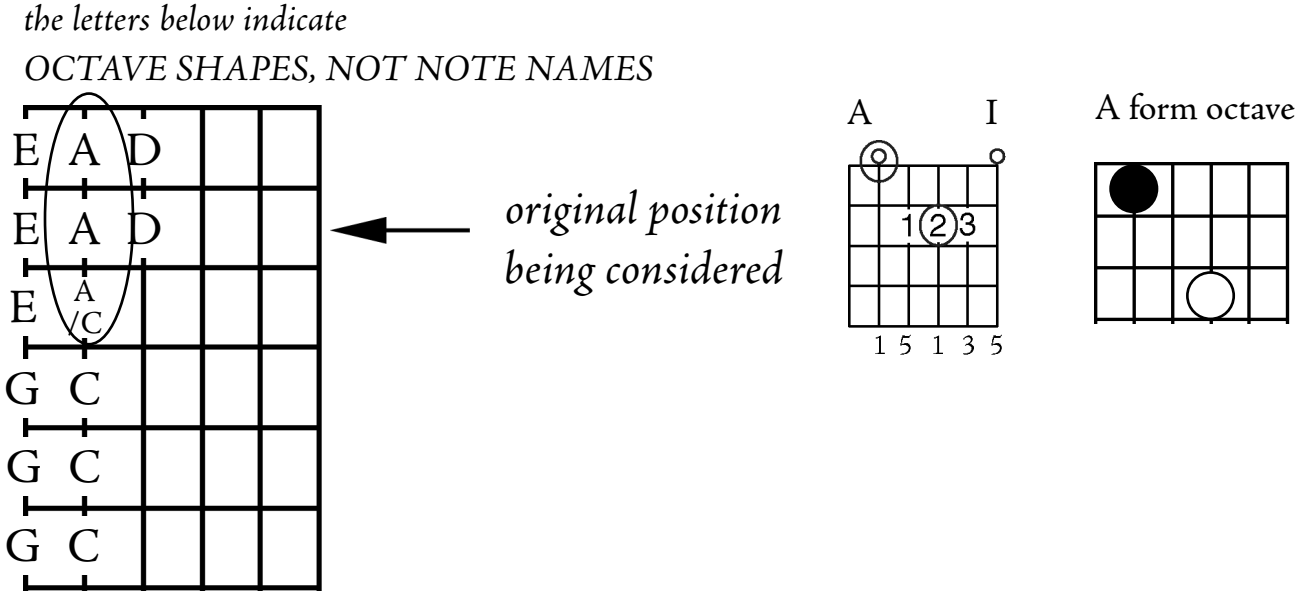
the letters below indicate
OCTAVE SHAPES, NOT NOTE NAMES



"A" shape octaves within the range of three positions

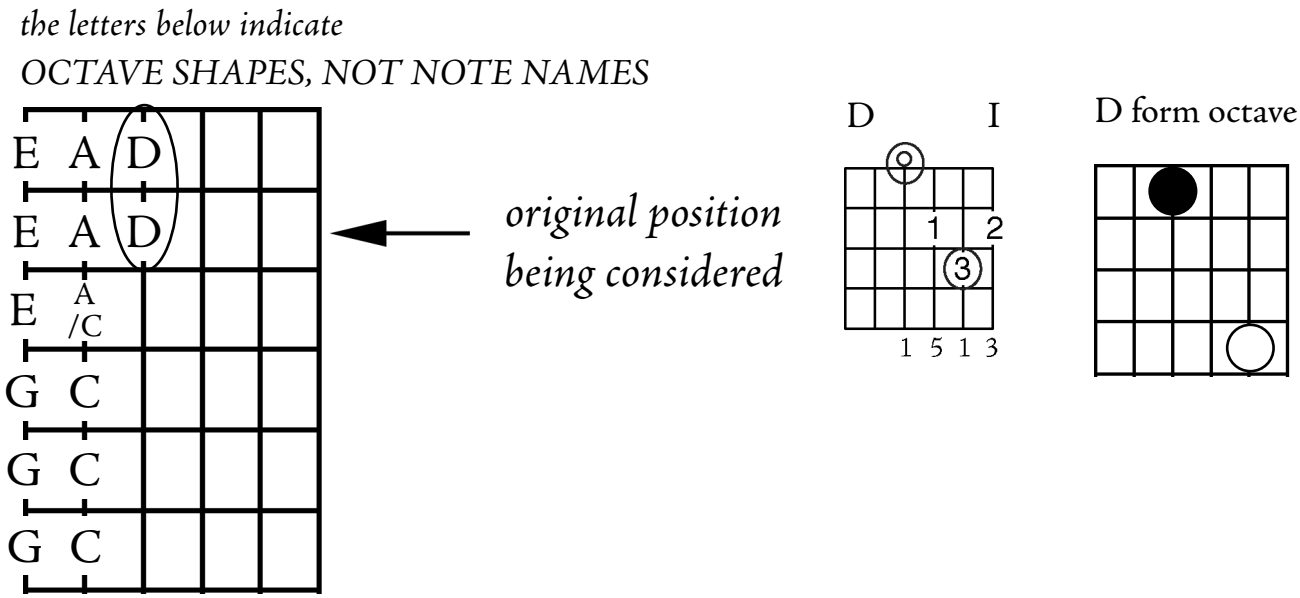
Each of the three notes enclosed in an oval (ellipse) below are in "A" shape. The note in the lowest octave of the "A" shape octave shape is on the fifth string (shown at the right below with a blackened circle).

Notice that one of the notes has two possible octave shapes, shown as "A/C". The "C" shape for that location will be discussed below in "C Shape Octaves Within The Range Of Three Positions".



"D" shape octaves within the range of three positions

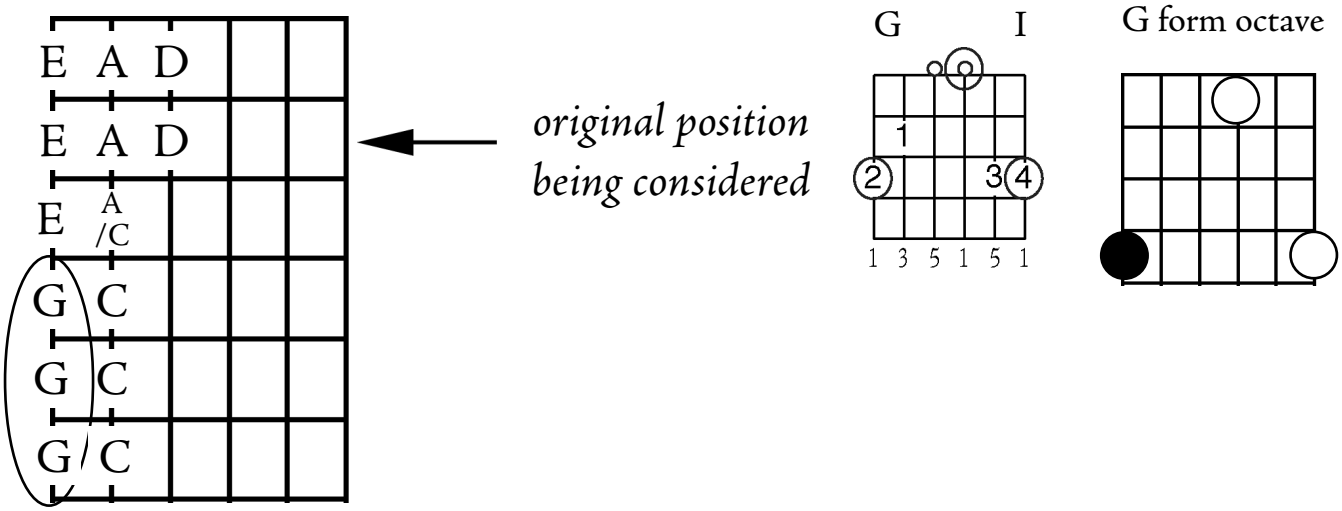
Each of the two notes enclosed in an oval (ellipse) below are in "D" shape. The note in the lowest octave of the "D" shape octave shape is on the fourth string (shown at the right below with a blackened circle). See the section a little later in this document regarding "Unnecessary Duplicate Notes."



"G" shape octaves within the range of three positions

Each of the three notes enclosed in an oval (ellipse) below are in "G" shape. The note in the lowest octave of the "G" shape octave shape is on the sixth string (shown at the right below with a blackened circle).

the letters below indicate
OCTAVE SHAPES, NOT NOTE NAMES

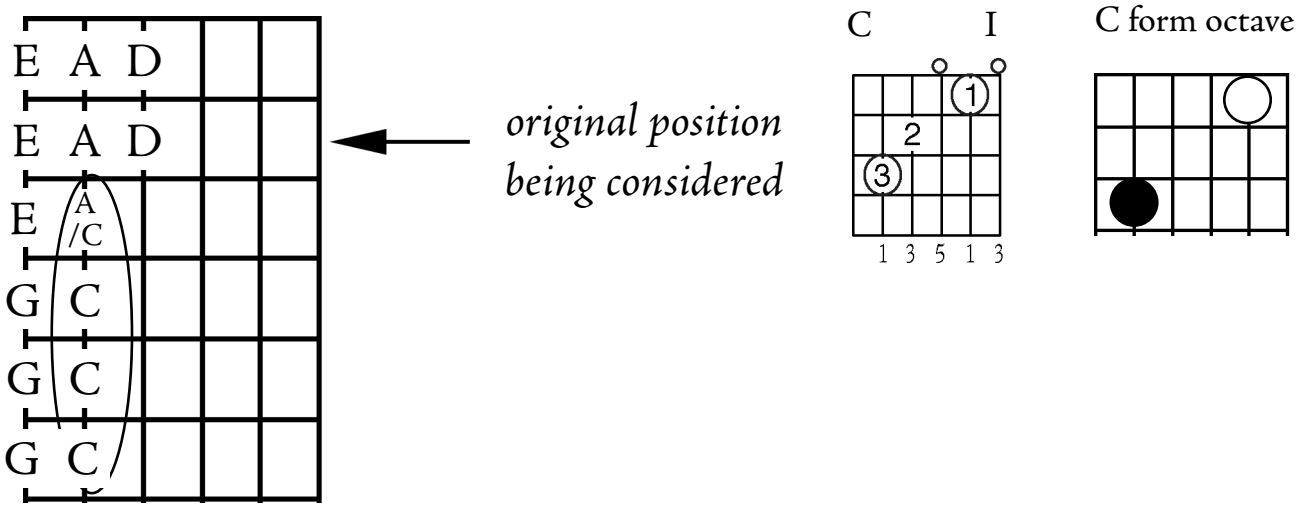


"C" shape octaves within the range of three positions

Each of the four notes enclosed in an oval (ellipse) below are in "C" shape. The note in the lowest octave of the "C" shape octave shape is on the fifth string (shown at the right below with a blackened circle).

Notice that one of the notes has two possible octave shapes, shown as "A/C". The "A" shape for that location was discussed above in "A Shape Octaves Within The Range Of Three Positions".

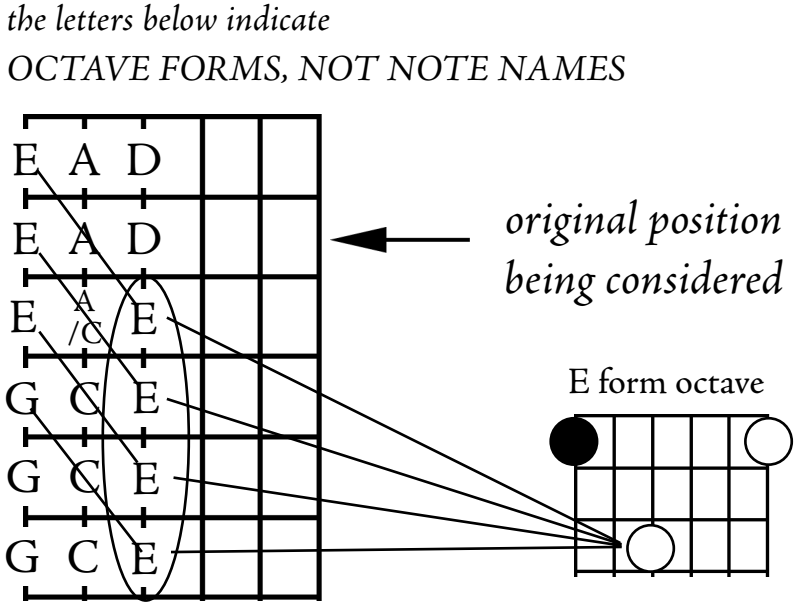
the letters below indicate
OCTAVE SHAPES, NOT NOTE NAMES



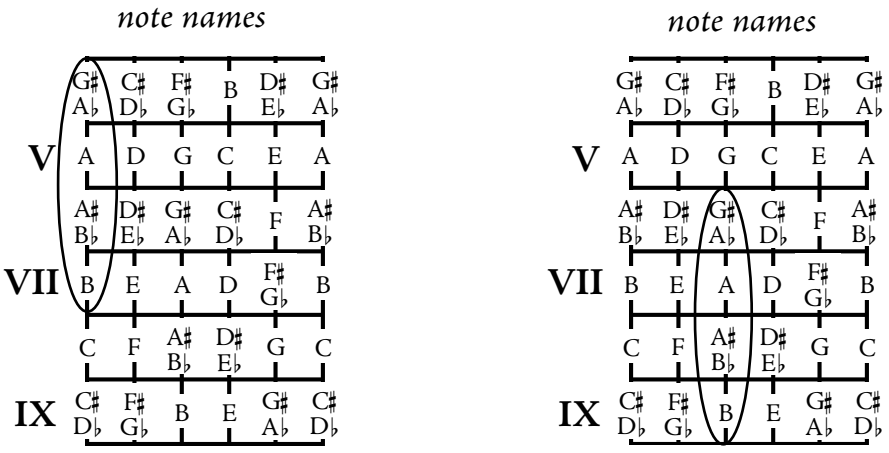
unnecessary duplicate notes

The four notes enclosed in an oval (ellipse) below are in "E" shape, but are not necessary. They are represented by the "E" shape notes on the sixth string which have the same name.

Don't worry if you don't understand this paragraph: it is not critical. Note also that the "E" shape shown on the forth string at the bottom of the diagram below is part of an "E" shape whose sixth string note would be out of the range of positions we are considering (shown as a "G" on the sixth string because that is the shape within the range of considered positions).

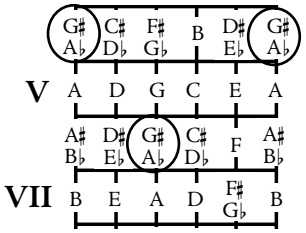


For example, notice that the four notes enclosed in an oval (ellipse) below on each diagram are the same four notes on the other diagram.

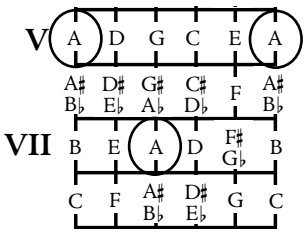


octave shapes for all notes within the ranges of IV, V and VI positions

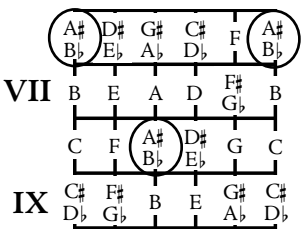
G♯ / A♭ is in E shape



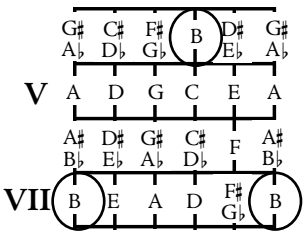
A is in E shape



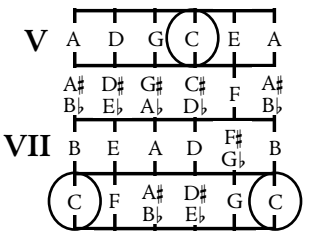
A♯ / B♭ is in E shape



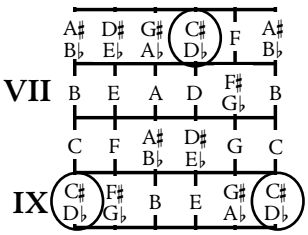
B is in G shape



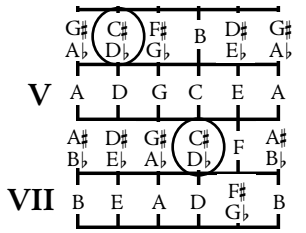
C is in G shape



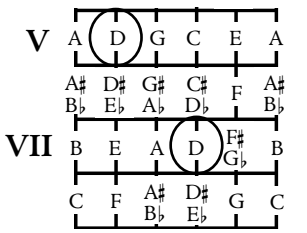
C♯ / D♭ is in G shape



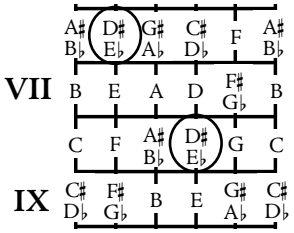
C♯ / D♭ is in A shape



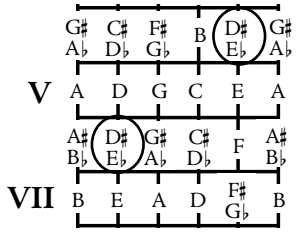
D is in A shape



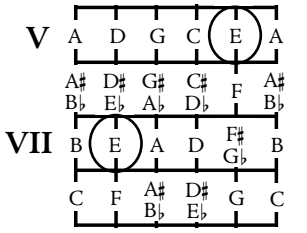
D♯ / E♭ is in A shape



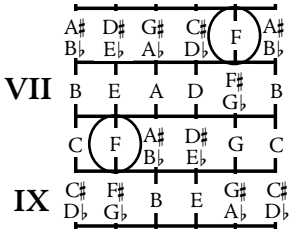
D♯ / E♭ is in C shape



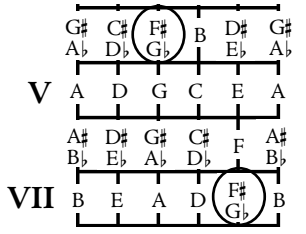
E is in C shape



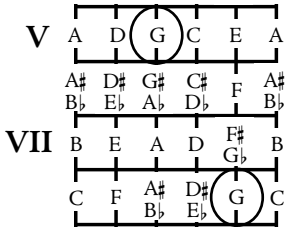
F is in C shape



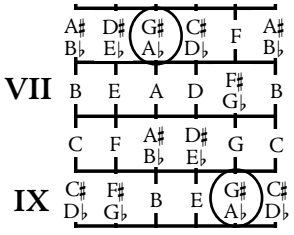
F♯ / G♭ is in D shape



G is in D shape

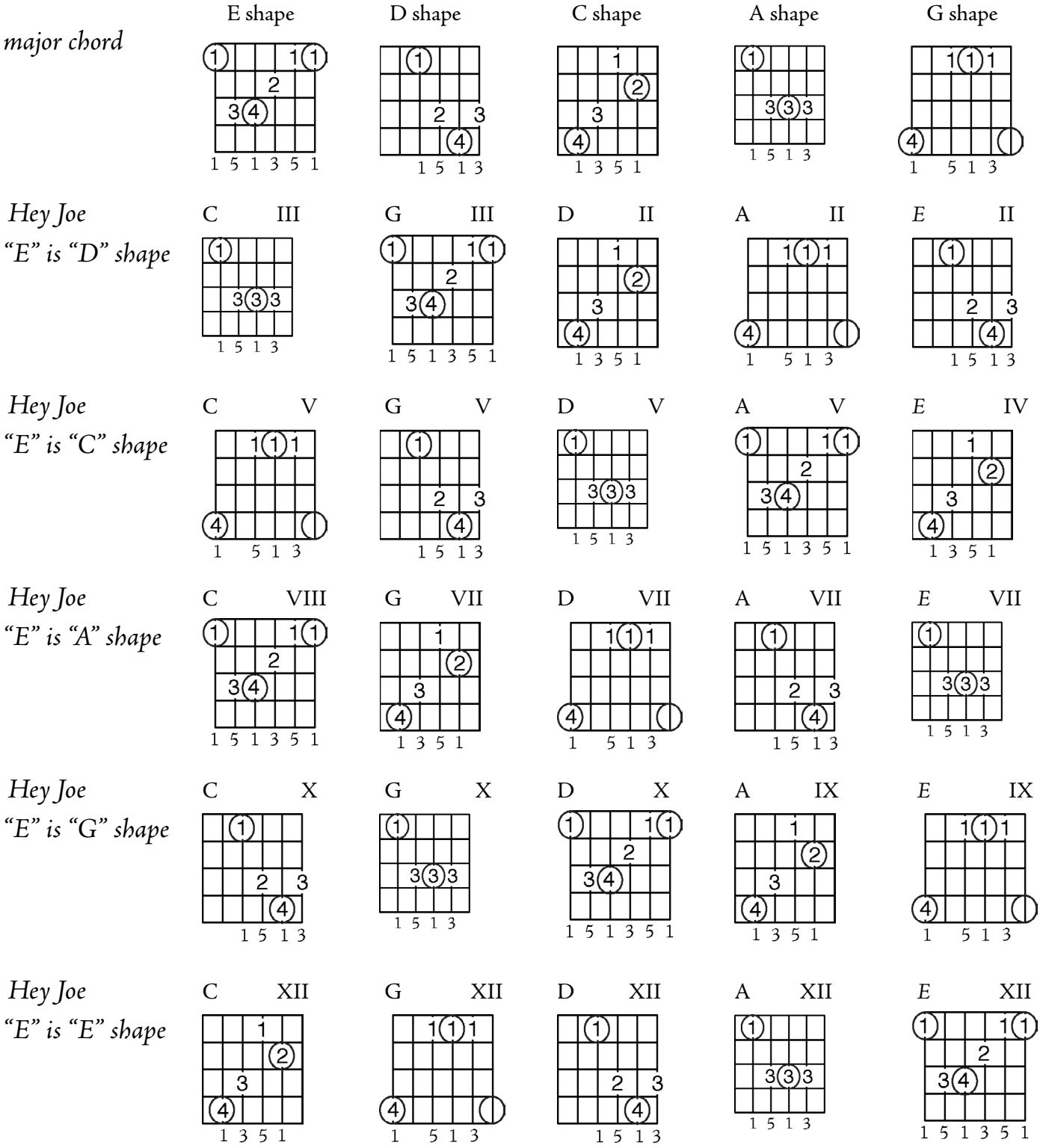


G♯ / A♭ is in D shape



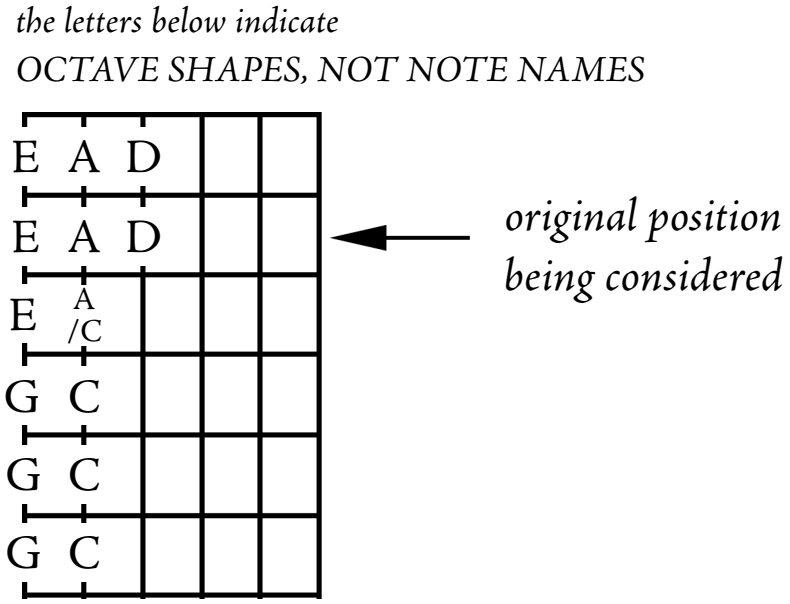
"HEY JOE" OR "DAY IN THE LIFE" IN FIVE OCTAVE SHAPES

Play this chord progression is C-G-D-A-E-E-E-E, one bar each chord. This is a great way to memorize major chord fingerings for each of the five octave shapes.



IDENTIFYING AN OCTAVE SHAPE IN A POSITION

For most chords, think in terms of the low octave root. Choose a starting position. You will consider that position and the positions up a fret (toward the gutiar body) and down a fret (toward the head of the guitar). Within the range of those positions, these octave shapes are available:



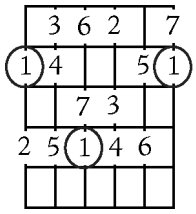
From the original chosen position, if the index finger is nearest the chosen note, use the "E", "A", or "D" shape, depending on the string. The "E" shape is on the sixth string, "A" shape on the fifth string and "D" shape on the fourth string. If the little finger is nearest the chosen note, use the "G" or "C" shape. The "G" shape is on the sixth string and the "C" shape is on the fifth string.

CONVERTING MAJOR CHORDS TO MINOR CHORDS

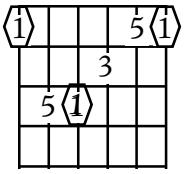
Each major chord is constructed with numbered tones "1", "3" and "5" of a major scale named after the chord. A major scale is shown below for major chords in each of the five shapes. Notice that the numbered tones in each chord diagram are the major scale tones (not fingers) extracted from the major scale fingering above it. Converting the "E", "A" and "D" shape major chords to minor is straightforward. Flat the "3" in each major chord.

E shape

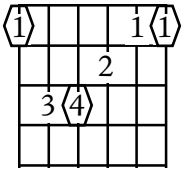
major scale



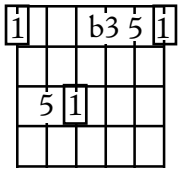
major chord scale numbers



major chord finger numbers

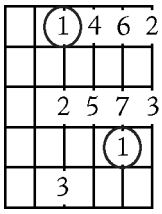


minor chord scale numbers

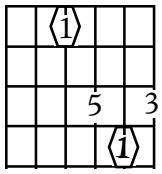


D shape

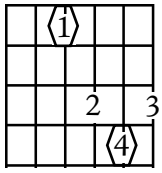
major scale



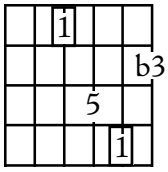
major chord scale numbers



major chord finger numbers

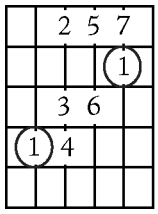


minor chord scale numbers

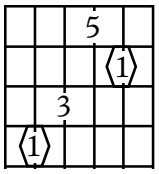


C shape

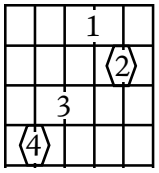
major scale



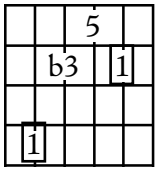
major chord scale numbers



major chord finger numbers



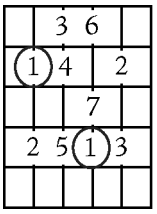
minor chord scale numbers



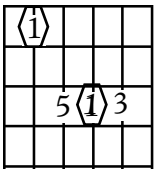
fifth string optional

A shape

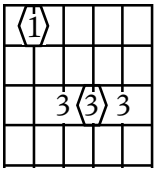
major scale



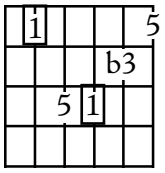
major chord scale numbers



major chord finger numbers

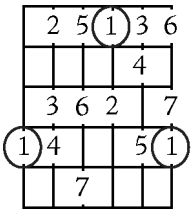


minor chord scale numbers

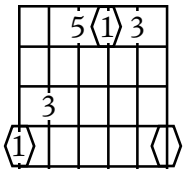


G shape

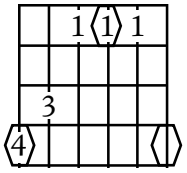
major scale



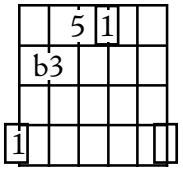
major chord scale numbers



major chord finger numbers

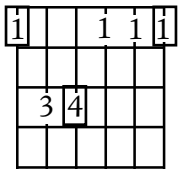


minor chord scale numbers

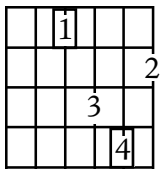


don't sound second string

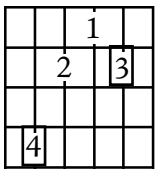
minor chord
finger numbers



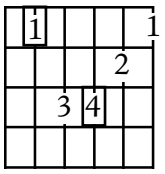
minor chord
finger numbers



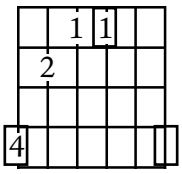
minor chord
finger numbers



minor chord
finger numbers



minor chord
finger numbers



Pentatonic Scales and Octave Shapes

- **What Is a Pentatonic Scale?**
- **Relative Major and Minor Pentatonic**
- **Devices to Memorize Pentatonic Fingerings**
- **Octave Pentatonics**
- **Pentatonic Lines**
- **The Pentatonic Master Pattern**
- **Little Wing Study**
- **Hotel California Study**

WHAT IS A PENTATONIC SCALE?

Common Pentatonic Scales

Pentatonic scales have five tones per octave (not counting the octave). The most common forms are the minor and major pentatonic. Specific names for these scales are minor 7/11 pentatonic and major 6/9 pentatonic, where the scales have been named after the chords which would have the same name.

Chord Roots

A chord root is the note after which a chord is named. It is the letter which begins the chord name and any sharp or flat that may immediately follow it. "B" is the root of a Bm7b5 chord."Bb" (B flat) is the root of a Bbm7b5 chord ("B" flat minor seventh flat five). "F" is the root of a Fma7b5 chord ("F" major seventh flat five). "F#" is the root of an F#ma7b5 chord.

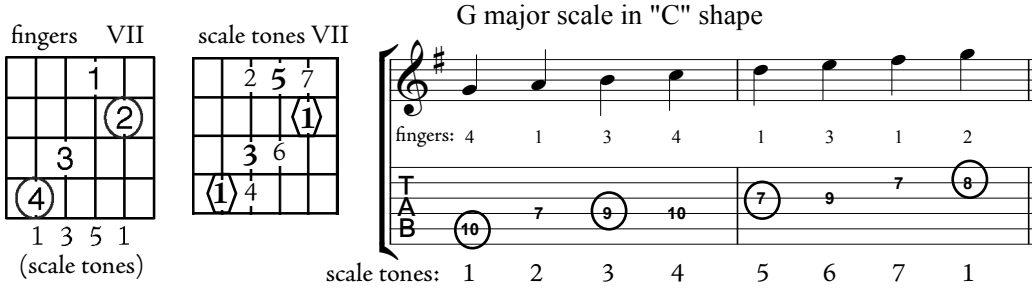
Aurally (in terms of sound), a chord root can also be thought of as the lowest note a listener can imagine during the playing of a chord. If the listener is experienced in recognizing chord inversions (where notes other than the root may be the lowest pitch), they should imagine in terms of root position, where the root is in the bass.

Scale Tone Centers

A tone center is the note after which a scale is named. A classic example of a scale would play the notes consecutively up or down for one octave (eight notes with a major scale), beginning and ending on the tone center.

Chord and Scale Formulas

A formula expresses the notes of a chord or scale in relation to a major scale based on the chords root or the scales tone center. For example, a major chord is combines major scale tones 1, 3 and 5.



A formula may indicate altered tones of the major scale. A flat symbol (♭) placed before any number in a formula indicates a note one half step lower than that numbered tone (one fret toward the head of the guitar). A sharp symbol (♯) placed before any number in a formula indicates a note one half step higher than that numbered tone (one fret toward the body of the guitar). " ♭3 " (flat three) would indicate a note one half step lower than scale tone "3". " ♯4 " (sharp four) would indicate a note one half step higher than scale tone "4".

Major Six Nine Pentatonic Scale

The major 6/9 pentatonic scale has the same notes as a major 6/9 chord. The name may be abbreviated as "6/9", since chord names are major by default. The major 6/9 chord is a major chord with an added sixth and ninth. In a chord, a ninth is the same note as the second, but "nine" implies it is in a higher range of pitch.

The formula for the major 6/9 pentatonic scale is 1-2-3-5-6. That is, a major 6/9 is made up of the first, second, third, fifth and sixth tones of a scale named after the chord root. Those tones of a C major 6/9 pentatonic scale are C, D, E, G and A.

Major 6/9 pentatonic works melodically with most major type chords, but is usually most effective when used against major, sixth or add nine chords (major, 6th, add 9, 6/9).

Minor Seven Eleven Pentatonic Scale

The minor 7/11 chord is a minor seventh chord with an added eleventh. The formula for a minor 7/11 chord is 1-b3-4-5-b7. So, a minor 7/11 chord is made up of the first, flatted third, fourth, fifth and flatted seventh tones of a scale named after the chord root. Those tones (or altered tones) of an A major scale are A, C, D, E and G. The flatted third and flatted seventh each lower the original scale tone by one fret .

Minor 7/11 pentatonic is the most fundamental and common scale in blues music. Major 6/9 is common to American styles of Anglo-Saxon origin, such as bluegrass, ragtime and country music.

Both minor 7/11 and major 6/9 pentatonic scales can be enhanced with the use of chromatics, as shown in a later chapter.

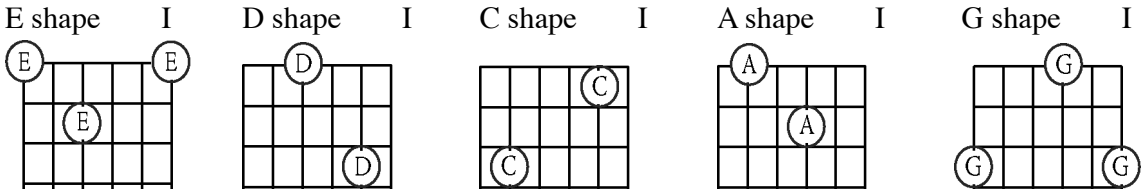
Major 6/9 pentatonic works melodically with most major type chords, but is usually most effective when used against major, sixth or add nine chords (major, 6th, add 9, 6/9).

Minor 7/11 pentatonic works with most minor type chords and/or in a minor key. It is most harmonious with minor seventh types (m7, m9, m11, m7/11). It can also be used against major type chords and/or in a major key, producing a bluesy effect by contrasting the minor scale sound against the major chord or key sound.

Open- Position Chords and Pentatonic Scales

the five octave shapes in open position

octave shapes

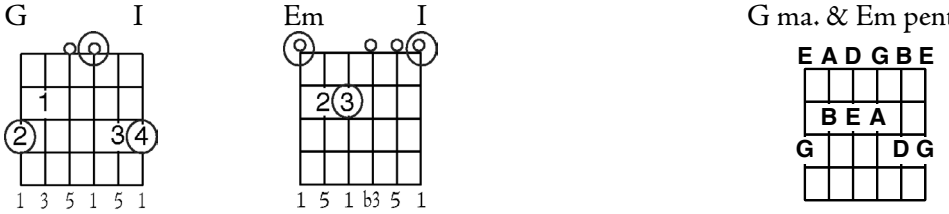


G major and Em pentatonic scales

a G major chord
with "G" shape octaves
(the "G" notes are circled)

an E minor chord
with "E" shape octaves
(the "E" notes are circled)

The G major and E minor pentatonic scales share the same notes. To hear the "G" major pentatonic scale, ascend and descend from "G" to "G". To hear the "Em" pentatonic scale, ascend and descend from "E" to "E".

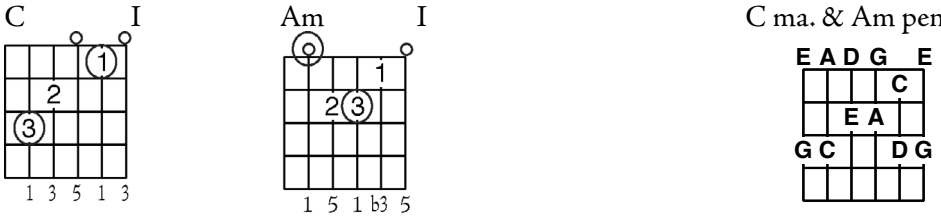


C major and Am pentatonic scales

a C major chord
with "C" shape octaves
(the "C" notes are circled)

an A minor chord
with "A" shape octaves
(the "A" notes are circled)

The C major and A minor pentatonic scales share the same notes. To hear the "C" major pentatonic scale, ascend and descend from "C" to "C". To hear the "Am" pentatonic scale, ascend and descend from "A" to "A".

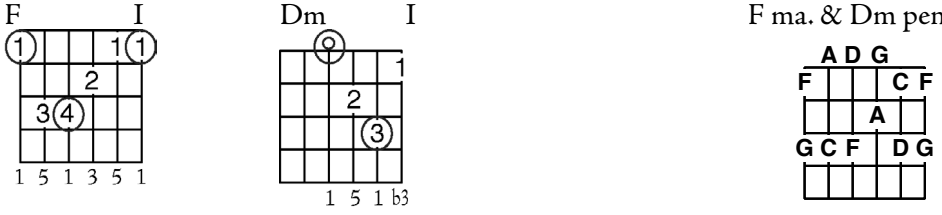


F major and Dm pentatonic scales

an F major chord
with "E" shape octaves -
Open position E and F octaves shapes have the same shape, but "E" is preferred as a name
(the "F" notes are circled, but they make an "E" shape).

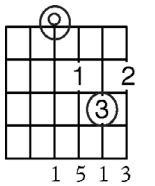
a D minor chord
with "D" shape octaves
(the "D" notes are circled)

The F major and D minor pentatonic scales share the same notes. To hear the "F" major pentatonic scale, ascend and descend from "F" to "F". To hear the "Dm" pentatonic scale, ascend and descend from "D" to "D".

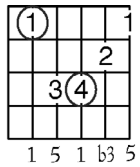


D major and B major pentatonic scales

a D major chord
with "D" shape octaves
(the "D" notes are circled)

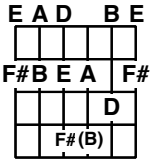


a B minor chord
with "A" shape octaves
(the "B" notes are circled)



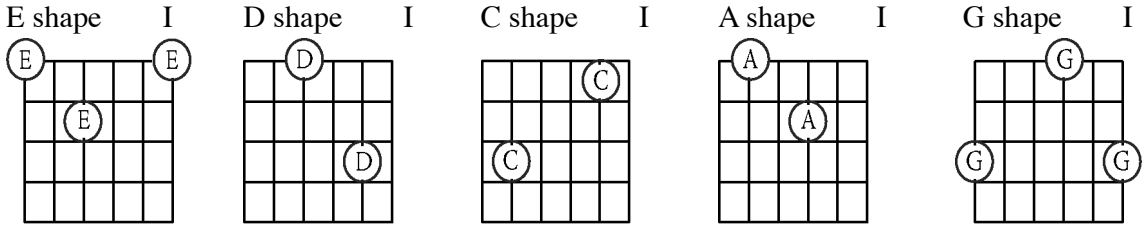
The D major and B minor pentatonic scales share the same notes. To hear the "D" major pentatonic scale, ascend and descend from "D" to "D". To hear the "Bm" pentatonic scale, ascend and descend from "B" to "B". Note the optional fretting for the second string open "B" on the third string fourth fret, shown in parenthesis.

D maj. B min. pent. I

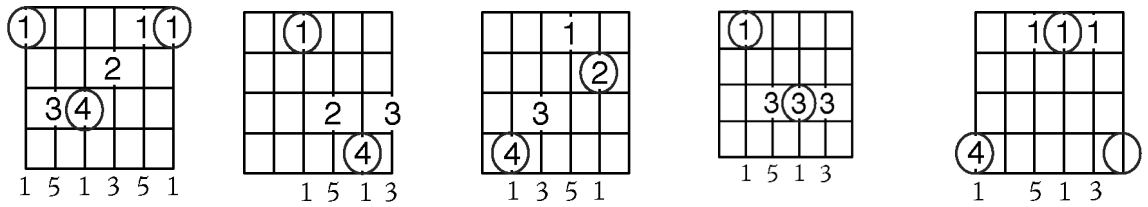


Major Chords and Pentatonic Scales in All Five Octave Shapes

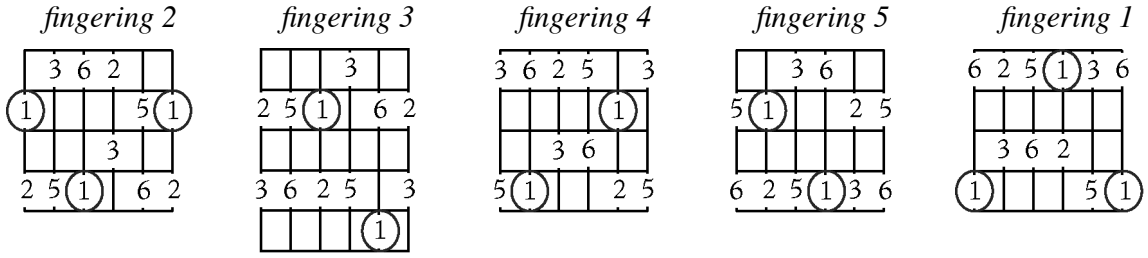
octave shapes



major chord

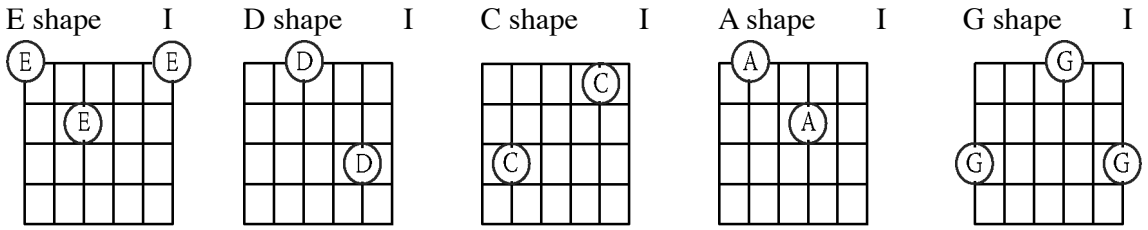


major pentatonic

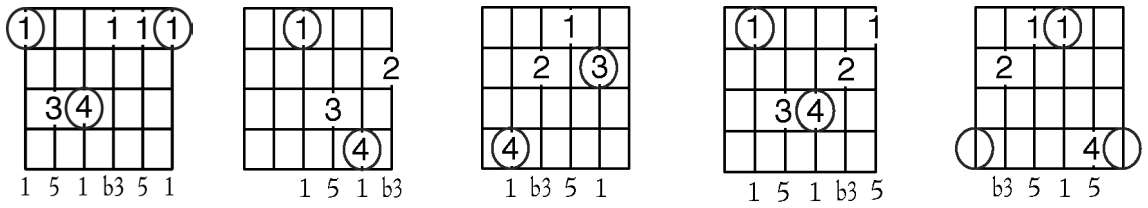


Minor Chords And Pentatonic Scales in All Five Octave Shapes

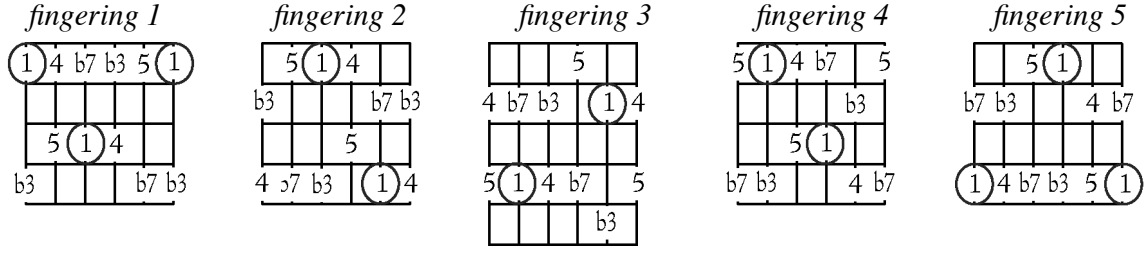
octave shapes



minor chord



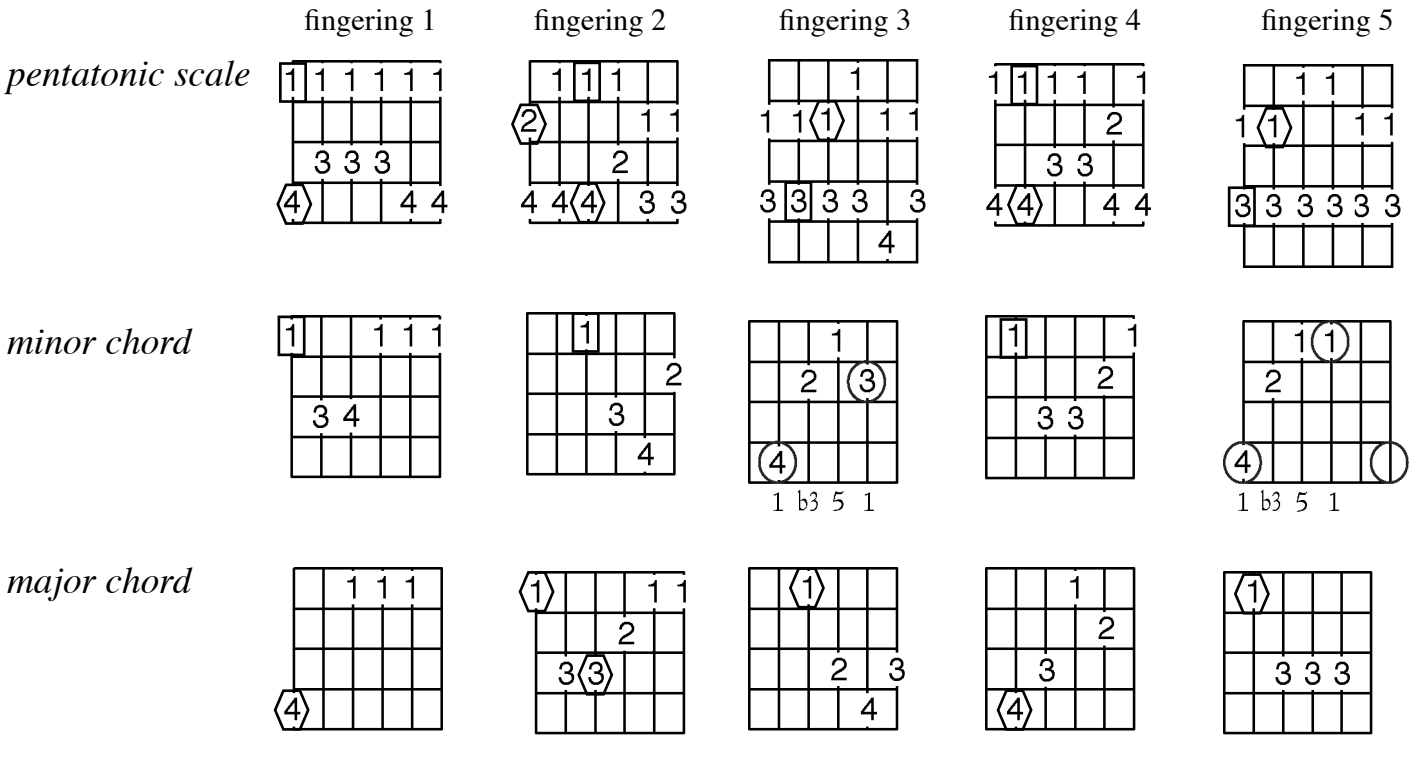
minor pentatonic



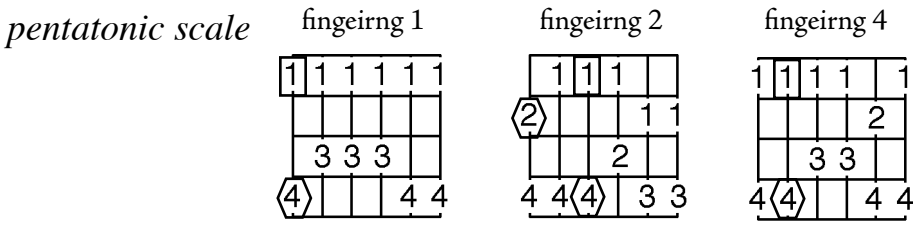
RELATIVE MAJOR AND MINOR PENTATONIC

A tone center names the key of a song, scale or melody. A "B" minor pentatonic scale has the tone center "B". A melody in the key of "D" major has the tone center "D".

Minor pentatonic tone centers are indicated below with the rectangle (▭). Major pentatonic tone centers are indicated with the hexagon (⬡). Notice that when the major and minor tone centers are on the same string, the major tone center is three frets above the minor tone center (three frets toward the body of the guitar). In the same octave shape, the major pentatonic fingering number is one *higher* than the minor for the same tone center.

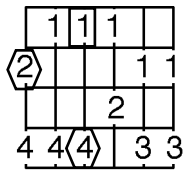


In these three pentatonic scale fingerings, the major tone center (⬡) is three frets above the minor tone center (▭) *on the same string.*

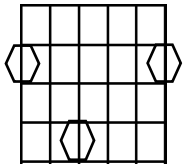


Notice also that in pentatonic scale fingering 2 (below), the major tone center (⬡) is on the fourth and sixth strings: its on the fourth string to show its relationship to the minor tone center (□) *and* on the sixth string to show the lowest octave of the "E" form octave of which it is a part.

fingering 2

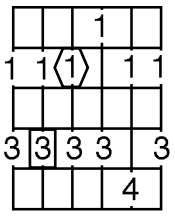


E shape ⬡

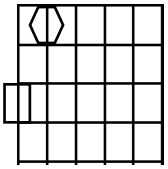


In pentatonic scale fingerings 3 and 5 (below), the major tone center (⬡) is two fret below the minor tone center on the next smaller string (□).

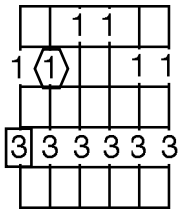
fingering 3



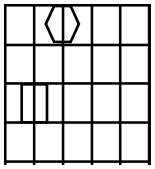
two frets apart, major on the smaller string



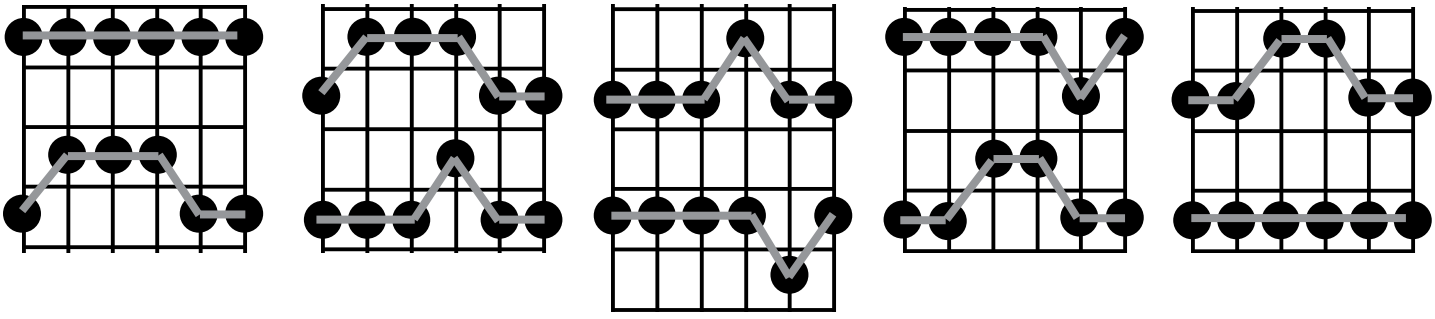
fingering 5



two frets apart, major on the smaller string



Can you identify the minor and major tone centers and play the related minor and major chords for each of these?



DEVICES TO MEMORIZE PENTATONIC FINGERINGS

Octave Pentatonics

This is the best place to start, since you can play melodic themes which usually are contained within one octave. It shows the similarities between the six string fingering patterns.

Pentatonic Lines

By visualizing the full fretboard pentatonic scale pattern, it can be conceived in terms of "lines" of notes that are mostly on a single fret for each line. Deviations from notes being on the same fret are referred to with terms such as "second string high" where all of the notes are on the same fret except a note on the second string is one fret closer to the body of the guitar.

Pentatonic Master Pattern

Ascend (sixth to first strings) two three fret intervals, three two-fret intervals, move one fret toward the head of the guitar to start over. A more detailed description is shown a few pages later.

Major Tone Center Diagonal

At the point where the major third interval occurs in ascending. This is shown at the end of the Pentatonic Lines discussion and within the pentatonic master pattern discussion that follows.

Relative Major And Minor

By memorizing the relative major and minor chords for each pentatonic scale fingering, and thinking of the composite of all their notes, you can "trigger" your memory of the pentatonic scale fingering in which they are contained.

Same Type Pentatonic Up A Fourth Or Fifth

When the same type of pentatonic scale (minor or major) is used up a fourth or fifth at the same fret only one note changes per octave and it changes by one fret.

Recognize the changed note as the necessary one to include all notes of the changed chord (since all notes of the chord have to be in the scale). Remember to change the note in all octaves.

Pentatonic Scales In Fourths, Fifths And Octaves

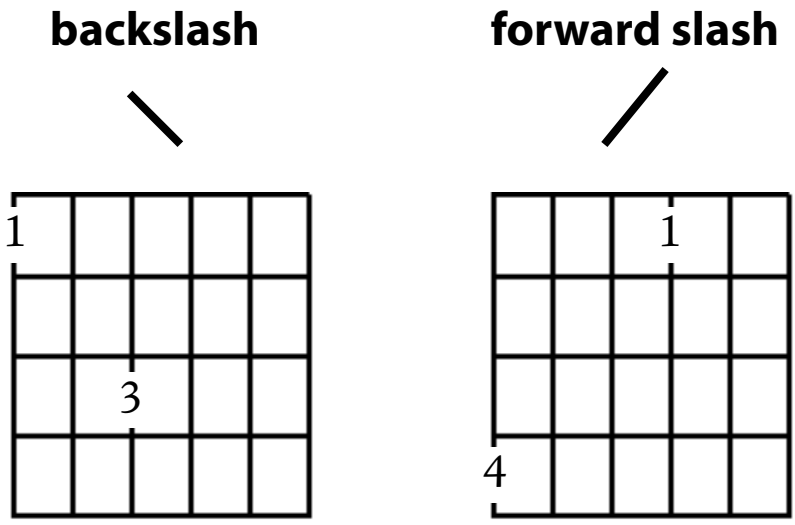
Play the scale in fourths (with one major third above the major tone center), in fifths (with one minor sixth) and octaves. These intervals are generally effective when played in single note parts, but the fourths (with one major third) are also effective played simultaneously as two-note chords.

OCTAVE PENTATONICS

The Arabic numbers 1, 2, 3 and 4 on these diagrams indicate fretting hand fingers. "1" is the index finger, "2" is the middle finger, "3" is the ring finger and "4" is the little finger.

backslash and forward slash octaves

An octave is a span of eight notes in a major scale. There are two archetypal octave shapes on which all other octave fingerings are based:



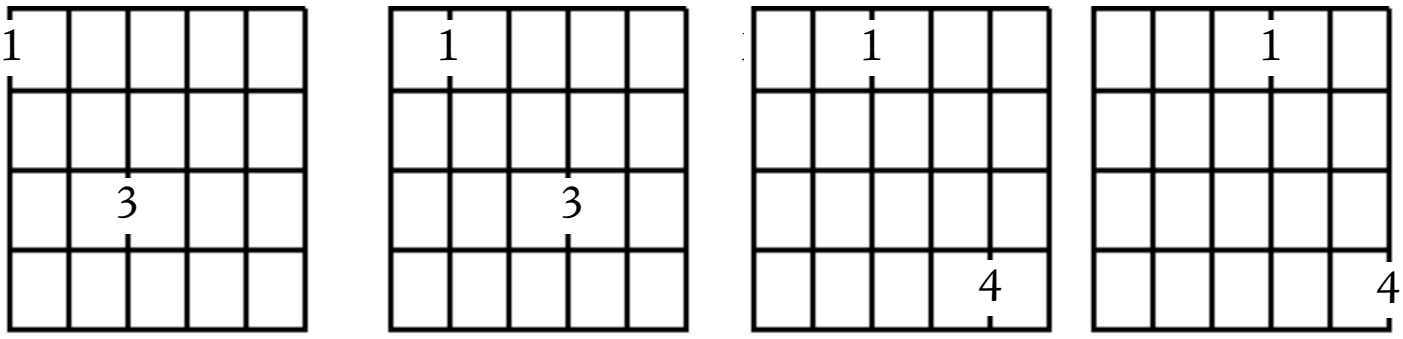
For each of these angles, you will need to memorize a minor pentatonic scale and a major pentatonic scale. A tone center is the note after which a pentatonic scale is named. "F♯" (F sharp) minor pentatonic has the tone center "F#" (F sharp). A rectangle (▯)will be used to designate a minor pentatonic tone center and a circle (◯) will be used to designate a major pentatonic tone center.

flat tuning of the smallest two strings

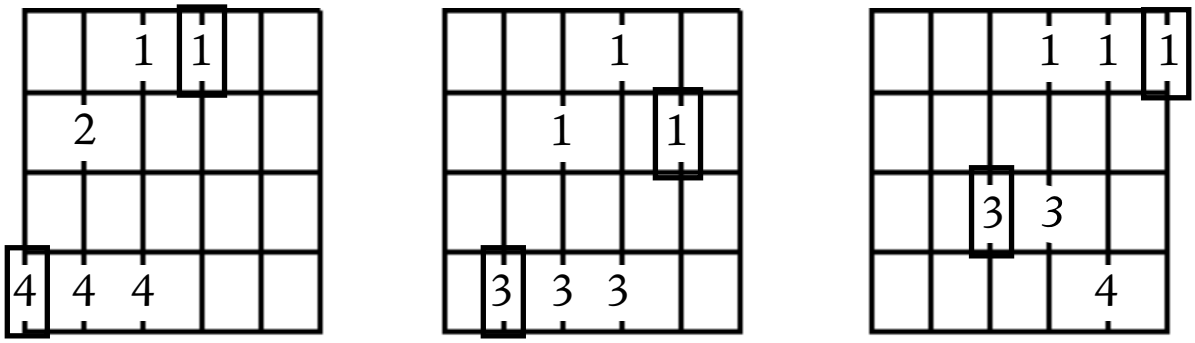
On the fifth fret of each string on the guitar, the pitch is the same as the next smaller string open, *except* the third string fourth fret is the same pitch as the second string open. This causes the pitch of the first two strings (the two smallest strings) to be relatively low by an interval of one fret (a half step).

Therefore, any intervals (such as octaves) that are originally conceived on the four larger strings must be compensated when they include either of the two smallest strings by fretting any note on the first or second (two smallest strings) one fret toward the body of the guitar.

the four instances of the backslash octave

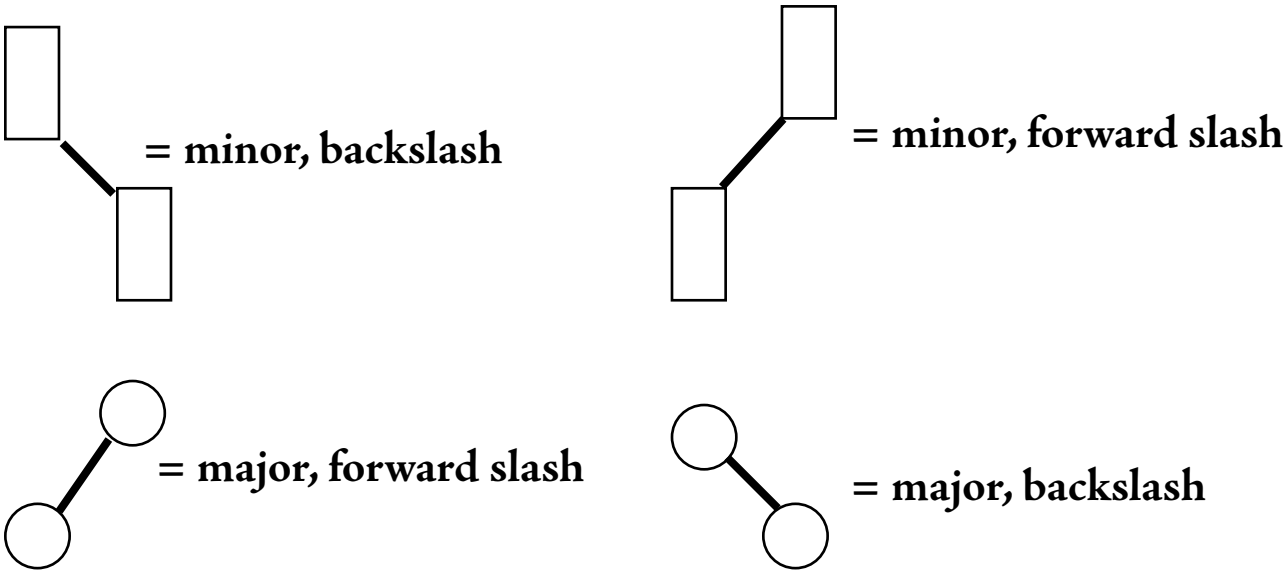


the three instances of the forward slash octave

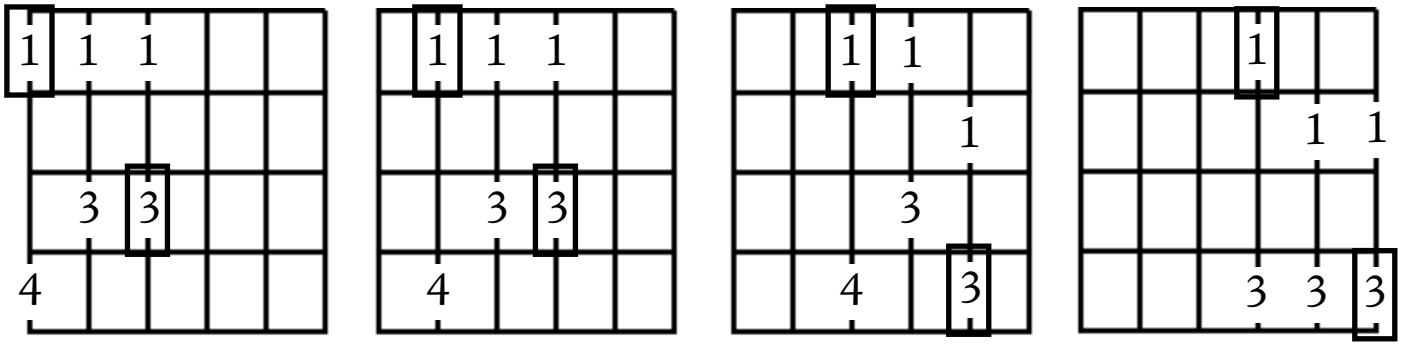


the four configurations combining octave angle, minor and major

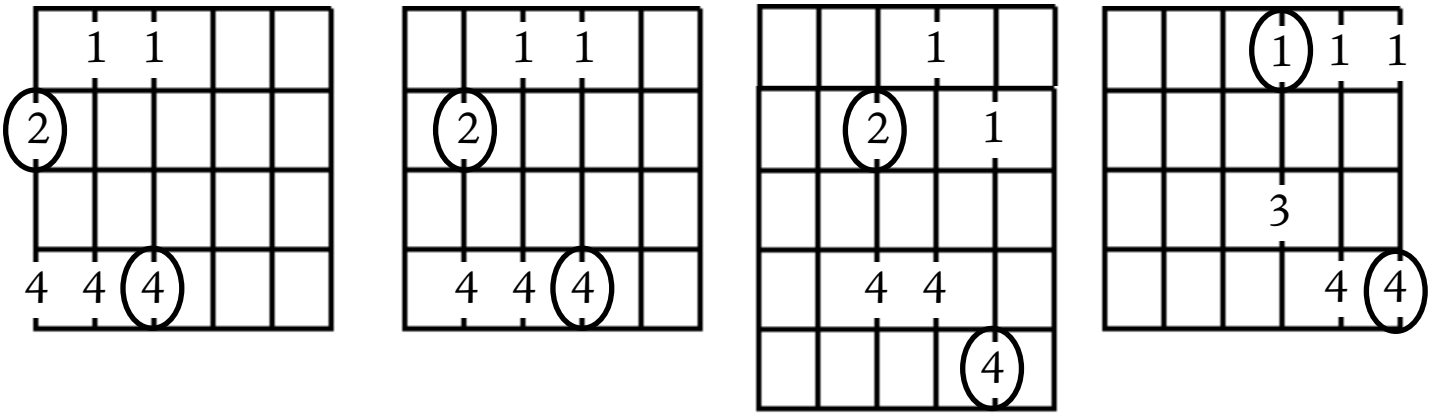
Look for these four configurations on the next page:



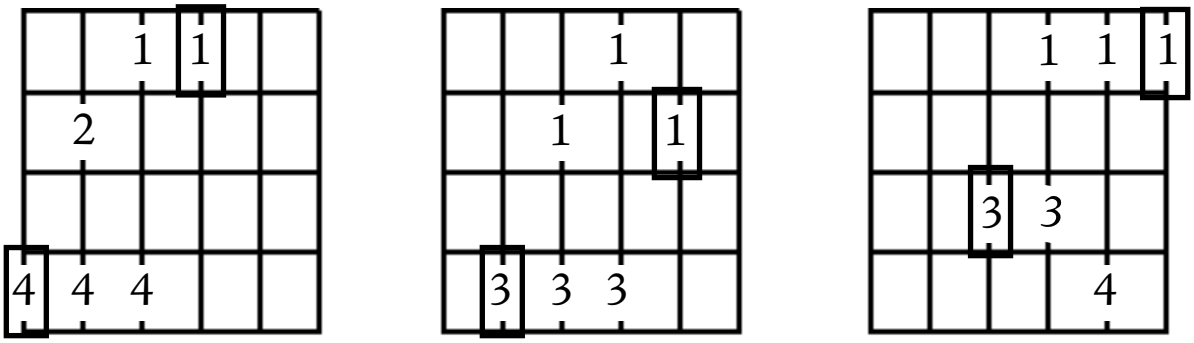
backslash minor pentatonic octaves



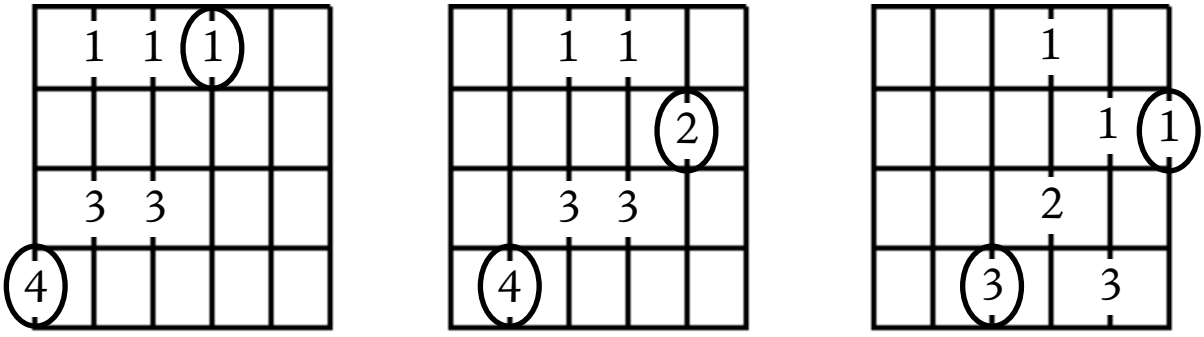
backslash major pentatonic octaves



forward slash minor pentatonic octaves



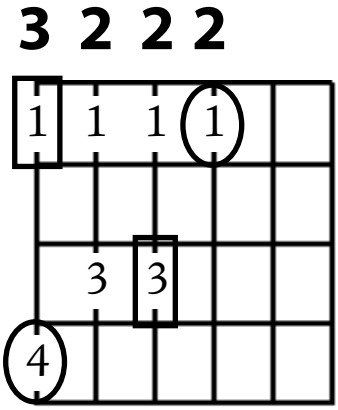
forward slash major pentatonic octaves

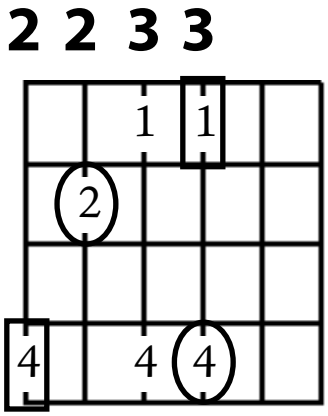


archetypes common to four-string fingering patterns

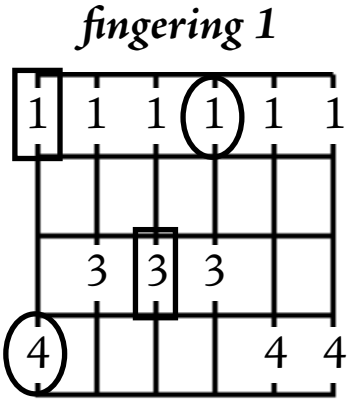
These four-string patterns are parts of six string pentatonic scale fingerings 1 and 5. The "3-2-2-2" fingering pattern has an interval of three frets on the sixth string and two frets on the fifth, fourth and third strings. The "2-2-3-3" fingering pattern has an interval of two frets on the sixth and fifth strings and an interval of three frets on the fourth and third strings.

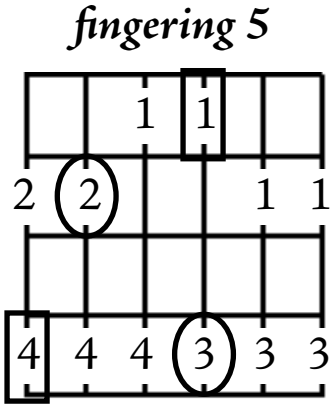
Backslash minor and forward slash major octave pentatonics are common to the "3-2-2-2" fingering. Forward slash minor and backslash major octave pentatonics are common to the "2-2-3-3" fingering.





six-string pentatonic fingerings

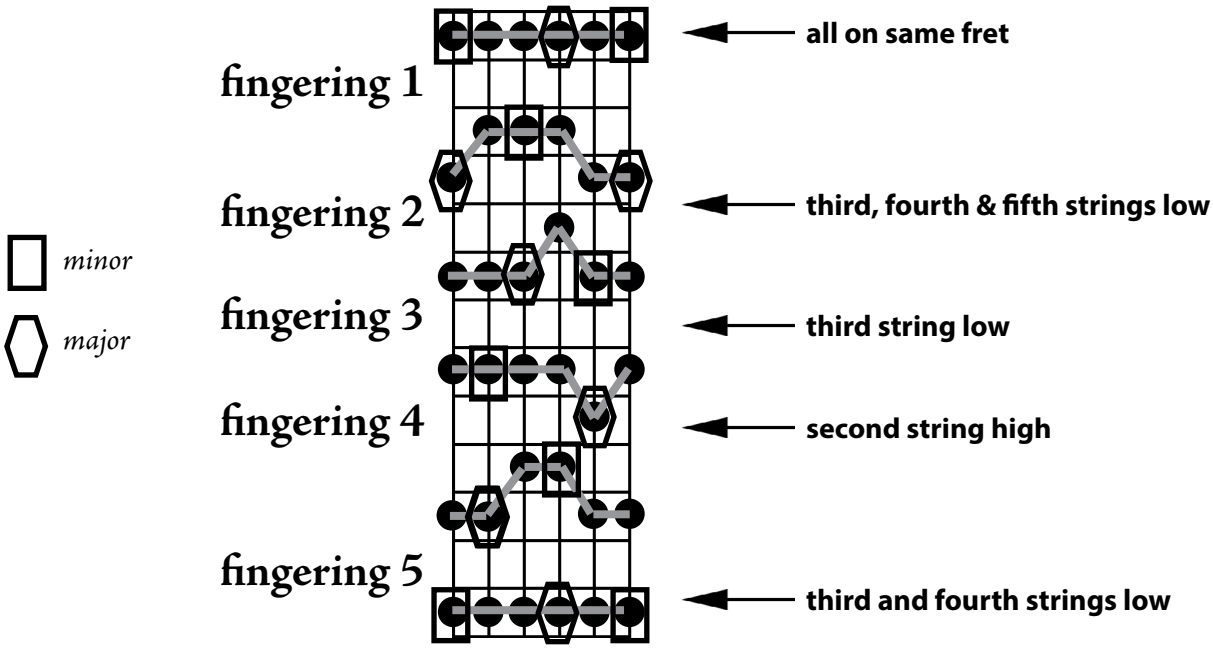




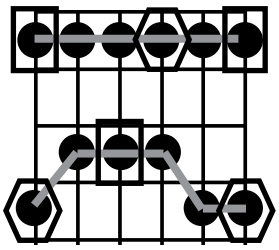
PENTATONIC LINES

The common pentatonic scale, used for minor and major pentatonic can be conceived in lines to aid recollection of the five fingerings. The five unique lines are identified in the movable full-fretboard at the right of the diagram below.

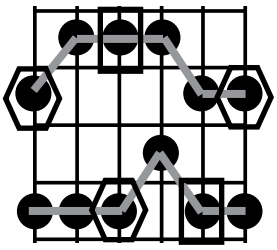
The lines are depicted in relation to notes all on the same fret by noting exceptions where some of the notes are one fret low (toward the head of the guitar) or high (toward the guitar body). "Low one five, four, three" indicates the notes on the third, fourth and fifth strings are one fret "low" in relation to the other notes on that line.



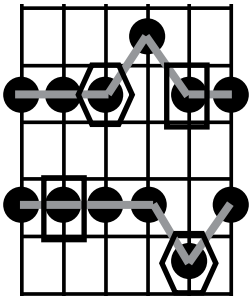
fingering 1
all same fret
3, 4, 5 low



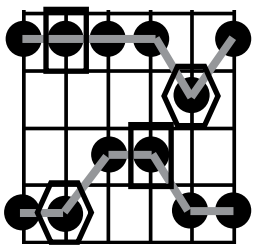
fingering 2
3, 4, 5 low
third low



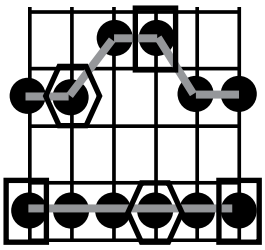
fingering 3
third low
second high

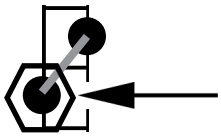


fingering 4
second high
third & fourth low



fingering 5
third & fourth low
all same fret

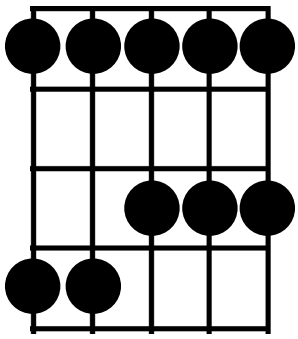




"Major Tone Center Diagonal". Notice that the major pentatonic tone center is at the left of this diagonal pair, except when it is on the third string.

THE PENTATONIC MASTER PATTERN

The number of strings in a master pattern for a note set is usually the same as the number of notes in the note set. A five-note (pentatonic) scale, usually has five notes in its master pattern. *The master pattern needs to be modified before applying it to the guitar.* The master pattern for the common major and minor pentatonic scale reads left to right as ***two three-fret intervals, then three two-fret intervals***:

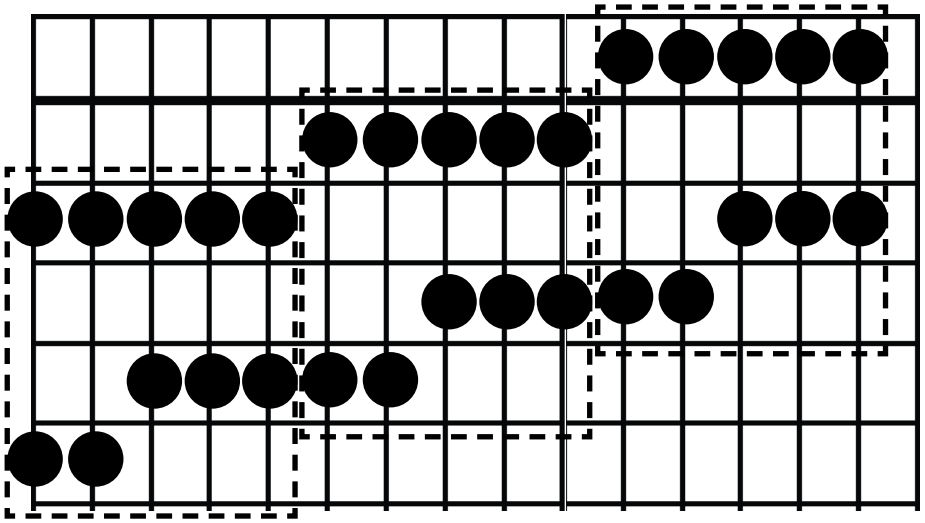


two adjustments need to be made to apply this pattern to the guitar

1. Flat-Tuned Strings Two and One 1. Any notes on string one and two (the two smallest strings) need to be moved up one fret, toward the body of the guitar. Relative to the other strings, these strings are tuned one fret (a half step) low in pitch.

2. When the master pattern repeats, it reoccurs one fret toward the head of the guitar.

imagine the master pattern on infinite strings and infinite frets



Each time the pattern re-occurs, it is shifted, one fret toward the head of the guitar (which is up on the diagram). View any set of six consecutive strings (six consecutive vertical lines) on the infinite string and fret grid above. Imagine the last two strings on the right shifted one fret toward the body of the guitar, which is down on the diagram. Each set of six stings with the right two "dropped" will produce one of the five pentatonic scale fingerings.

Pentatonic Fingering 1 ascends to the right on the diagram, reading left to right, by string number:

string 6 - the last of the two three-fret intervals

strings 5, 4 and 3 - three two-fret intervals

string 2 -the master pattern starts over where it would move one fret toward the head of the guitar but, since it is string 2, the compensation is cancelled out since flat-tuned strings require moving one fret toward the body of the guitar.

string 1 - plays the last of the two three fret intervals

Pentatonic Fingering 2 ascends to the right on the diagram, reading left to right, by string number:

string 6 - the last of the three two-fret intervals

strings 5 - moves one fret toward the head of the guitar to re-start the master pattern with a three fret interval

string 4 -the last of the two three fret intervals

strings 3, 2 and 1 are the three two-fret intervals, but the pattern must move one fret toward the body of the guitar on strings 2 and 1, to compensate for them being flat-tuned.

Pentatonic Fingering 3 ascends to the right on the diagram, reading left to right, by string number:

string 6, 5 and 4 - the three two-fret intervals

strings 3 - moves one fret toward the head of the guitar to re-start the master pattern with a three fret interval

string 2 -the last of the two three fret intervals must move one fret toward the body of the guitar to compensate for the flat-tuned second string

string 1 - the first of the three two-fret intervals

Pentatonic Fingering 4 ascends to the right on the diagram, reading left to right, by string number:

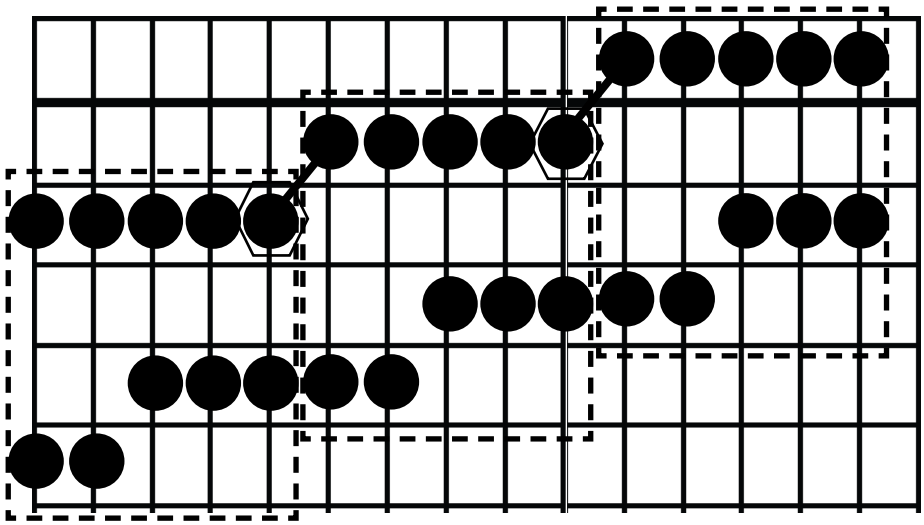
string 6 and 5 - the two three-fret intervals

strings 4, 3 and 2 - three two fret intervals, moving one fret toward the body the guitar the flat-tuned second string

string 1 - the pattern starts over, moving one fret toward the head of the guitar

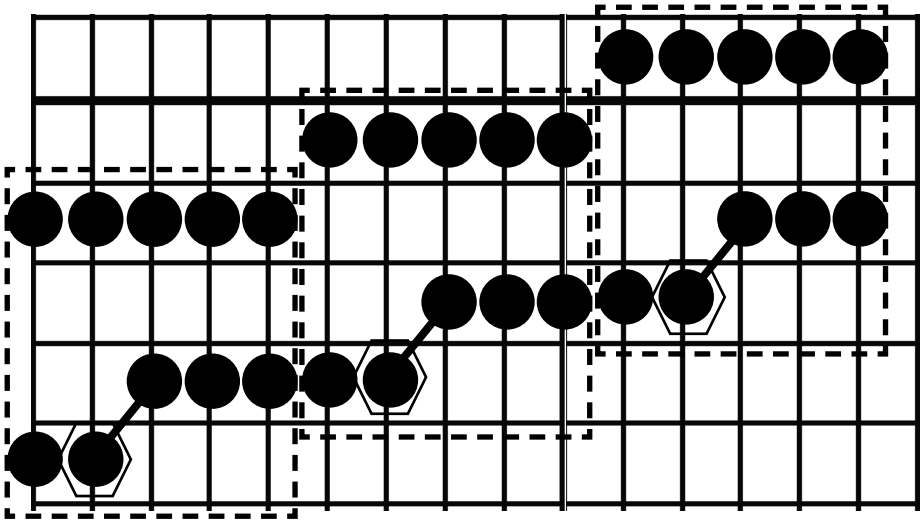
the diagonal where the master pattern re-occurs is the major tone center

It is noted below with the major tone center in a hexagon (⬡) and a diagonal line connecting it to the beginning of the next pentatonic master pattern.



the diagonal where the pattern changes from "three-fret" to "two-fret".

It is noted below with the major tone center in a hexagon (⬡) and a diagonal line connecting it to the note that begins the sequence of three "two-fret" intervals.

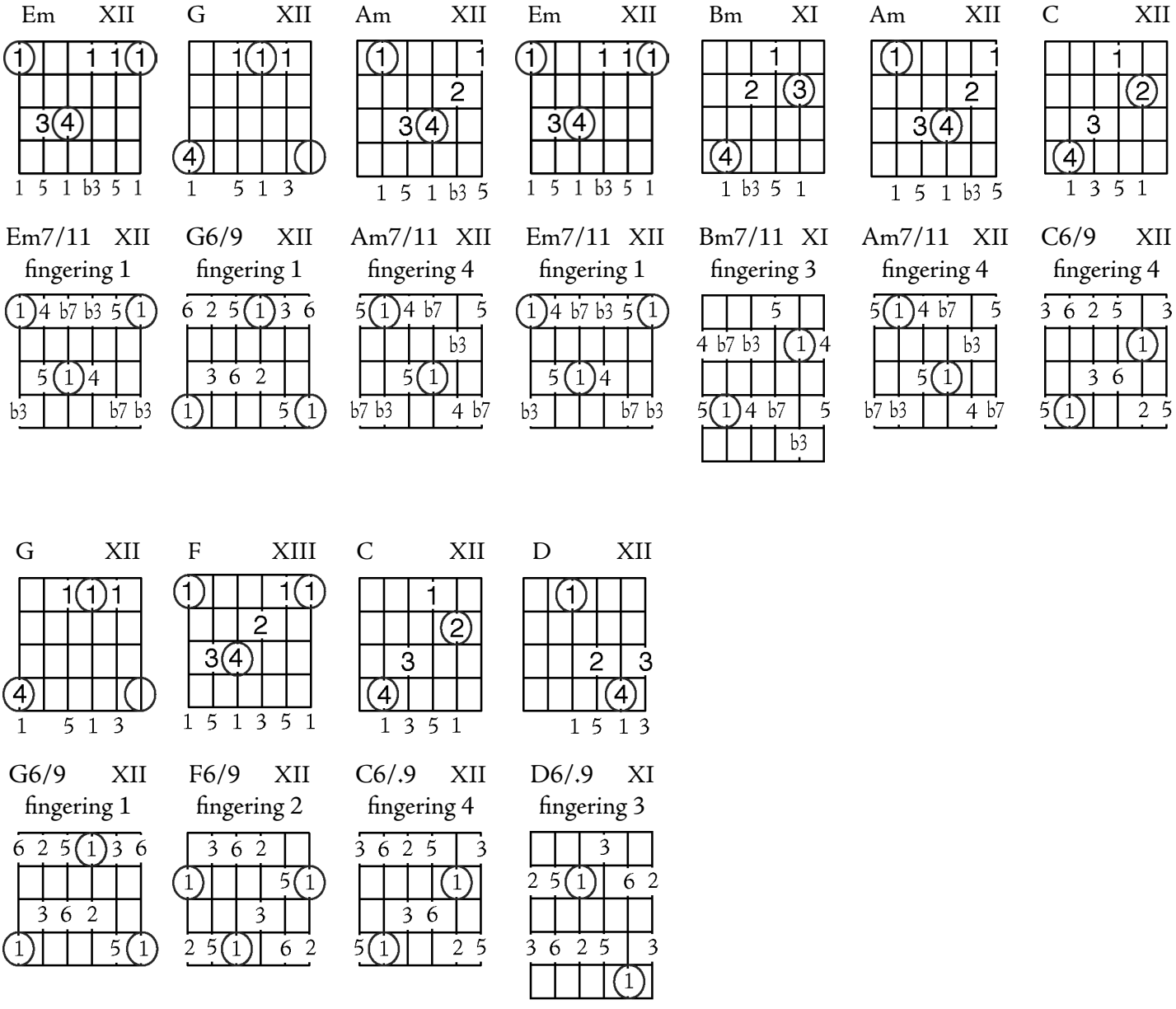


LITTLE WING STUDY

For each chord in this progression, play the chord, then the matching pentatonic scale shown below it. This is a very effective preparation for full-fretboard improvisation. First learn to play in each of the five octave shape areas for the key of "Em" shown below. Then, combine adjacent areas for each chord. With this purpose in mind, the octave shapes are shown in order, moving up the fretboard. The "D" shape example on the next page could also be played twelve frets higher, so it is adjacent to the "E" shape octave area shown below.

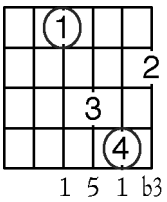
The chord progression is: ||: 4/4: Em | G | Am | Em | Bm | Am C | G F | 2/4 C | 4/4 D | D :|| Em
Most of the bars are 4/4, four beats each bar. Where two chords occur in the same bar, they are two beats each. Notice the 2/4 bar of only two beats.

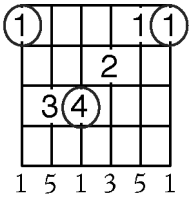
key of Em, with "E" in the "E" shape octave



Little Wing Study (continued)

key of Em, with "E" in the "D" shape octave

Em II


G III


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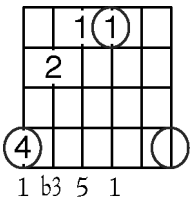
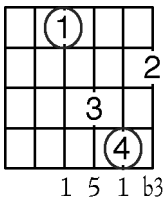


Em II


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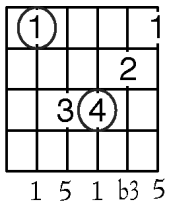
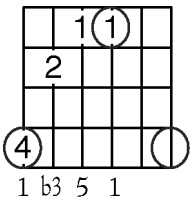
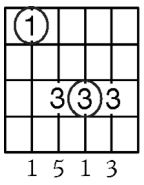
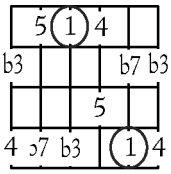
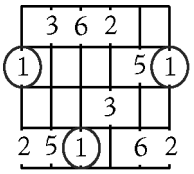
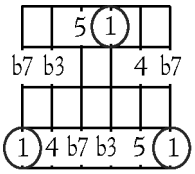


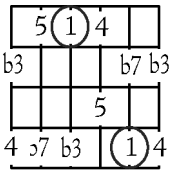
Am II


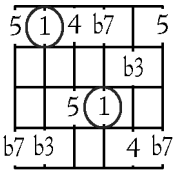
C III


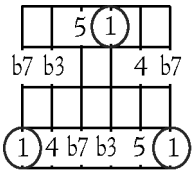
Em7/11 II
fingering 2


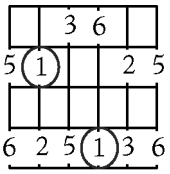
G6/9 II
fingering 2


Am7/11 II
fingering 5


Em7/11 II
fingering 2


Bm7/11 II
fingering 4


Am7/11 II
fingering 5


C6/9 II
fingering 5


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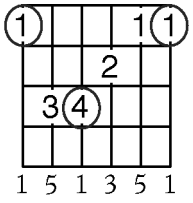

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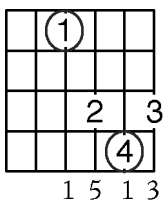

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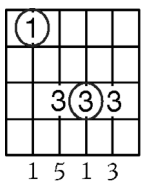

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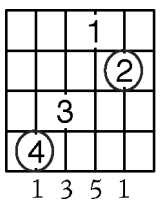
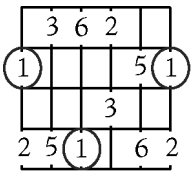
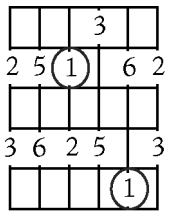
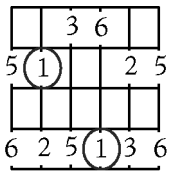
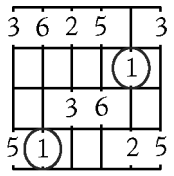


G6/9 II
fingering 2


F6/9 II
fingering 3


C6/.9 II
fingering 5


D6/.9 II
fingering 4


Little Wing Study (continued)

key of Em, with "E" in the "C" shape octave

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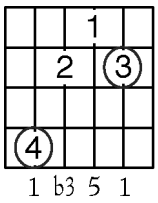
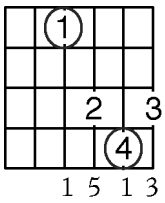


G V


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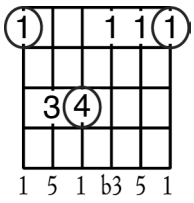

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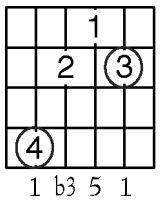
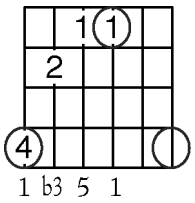
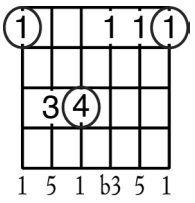
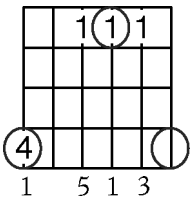
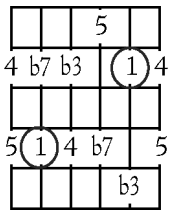
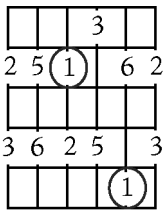


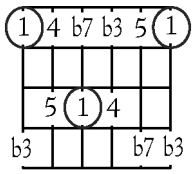
Bm IV


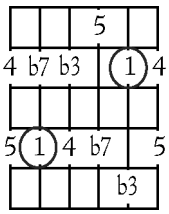
Am V


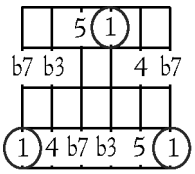
C V


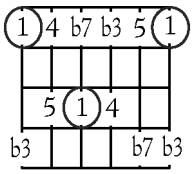
Em7/11 IV
fingering 3


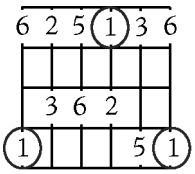
G6/9 IV
fingering 3


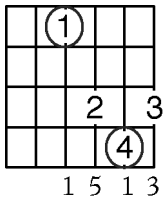
Am7/11 V
fingering 1


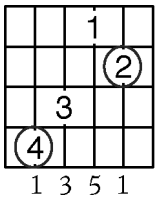
Em7/11 IV
fingering 3


Bm7/11 IV
fingering 4


Am7/11 V
fingering 1


C6/9 V
fingering 1


G V


F V


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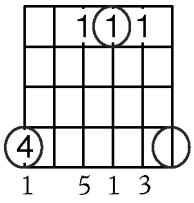

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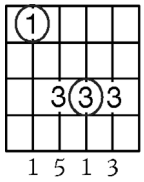

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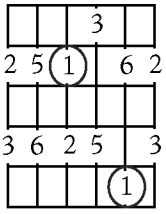

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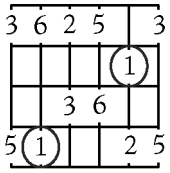

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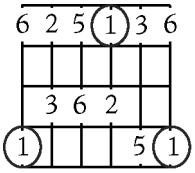

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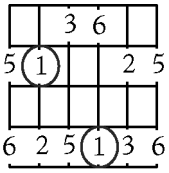
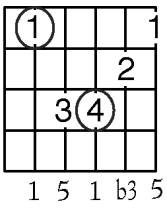


Little Wing Study (continued)

key of Em, with "E" in the "A" shape octave

Em VII



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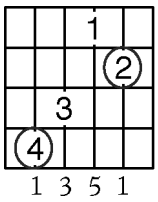
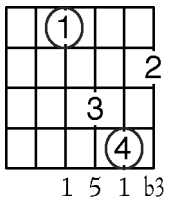
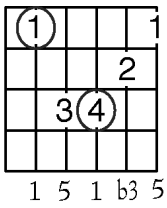


Am VII



Em VII



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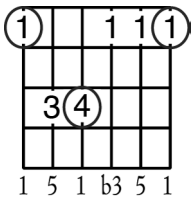

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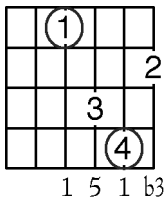

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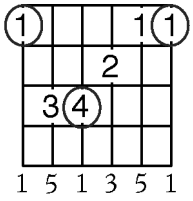

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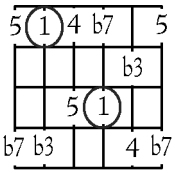

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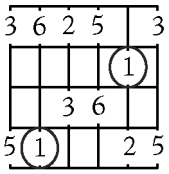
fingering 4



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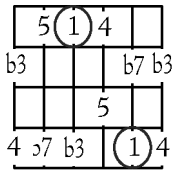

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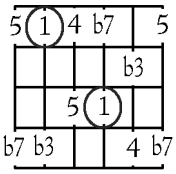
fingering 4



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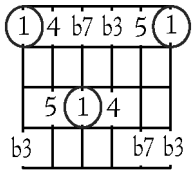
fingering 1



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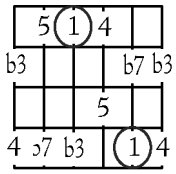

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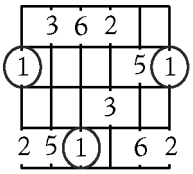

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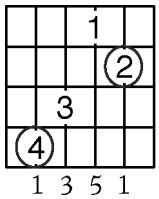

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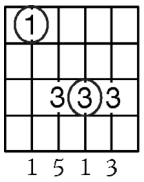

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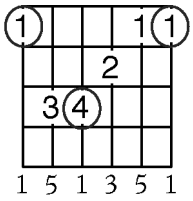

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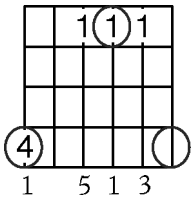
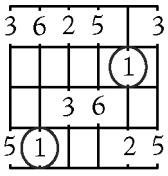
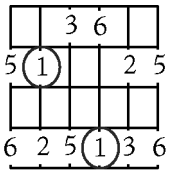


G6/9 VII
fingering 4



F6/9 VII
fingering 5



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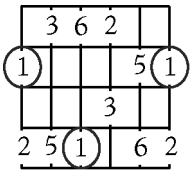
fingering 2



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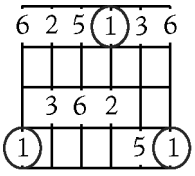
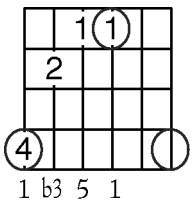
fingering 1



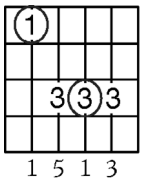
Little Wing Study (continued)

key of Em, with "E" in the "G" shape octave

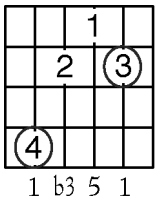
Em IX



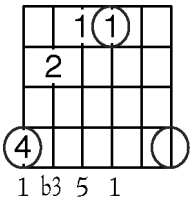
G X



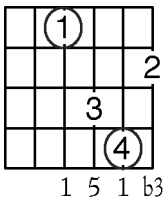
Am IX



Em IX



Bm IX



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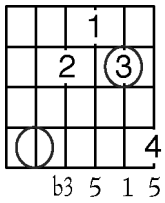

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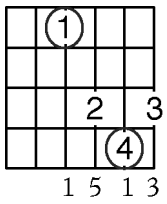
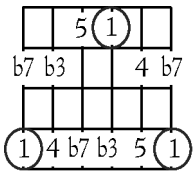
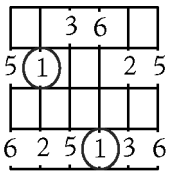


Em7/11 IX
fingering 5



G6/9 VII
fingering IX



Am7/11 IX
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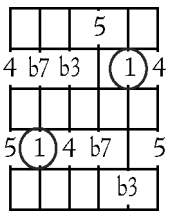

Em7/11 IX
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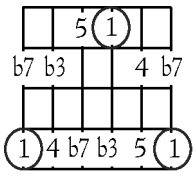

Bm7/11 IX
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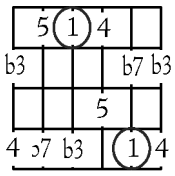
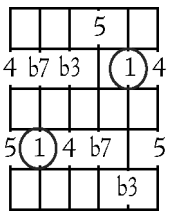
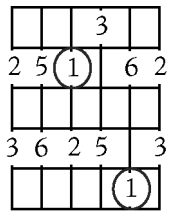


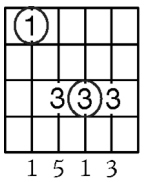
Am7/11 IX
fingering 3



C6/9 IX
fingering 3



G X



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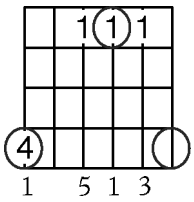

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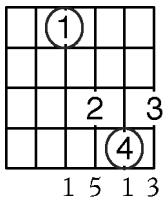

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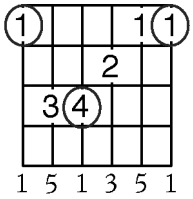
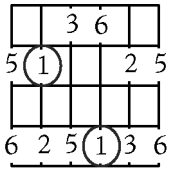
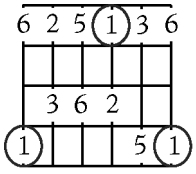


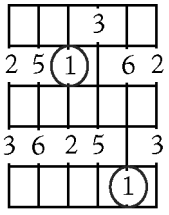
G6/9 IX
fingering 5



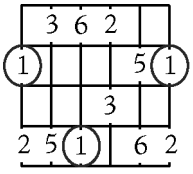
F6/9 X
fingering 1



C6/.9 IX
fingering 3



D6/.9 IX
fingering 2



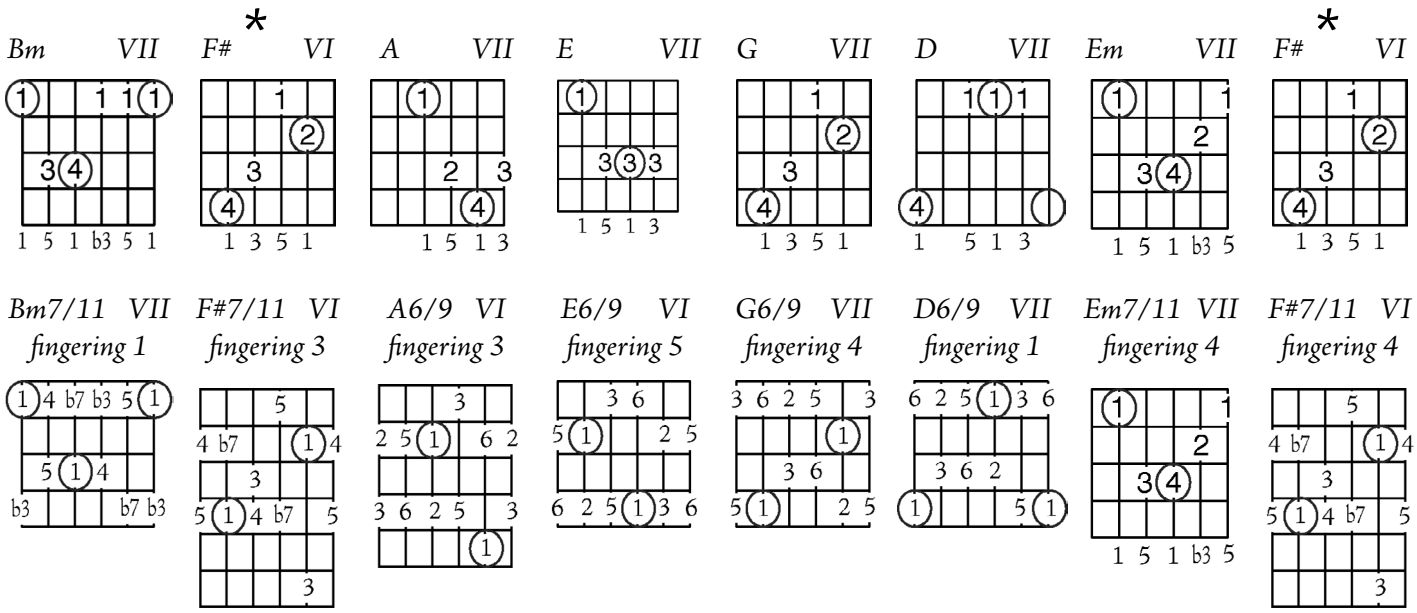
HOTEL CALIFORNIA STUDY

For each chord in this progression, play the chord, then the matching pentatonic scale shown below it. This is a very effective preparation for full-fretboard improvisation. First learn to play in each of the five octave shape areas for the key of "Em" shown below. Then, combine adjacent areas for each chord. With this purpose in mind, the octave shapes are shown in order, moving up the fretboard. The "D" shape example on the next page could also be played twelve frets higher, so it is adjacent to the "E" shape octave area shown below.

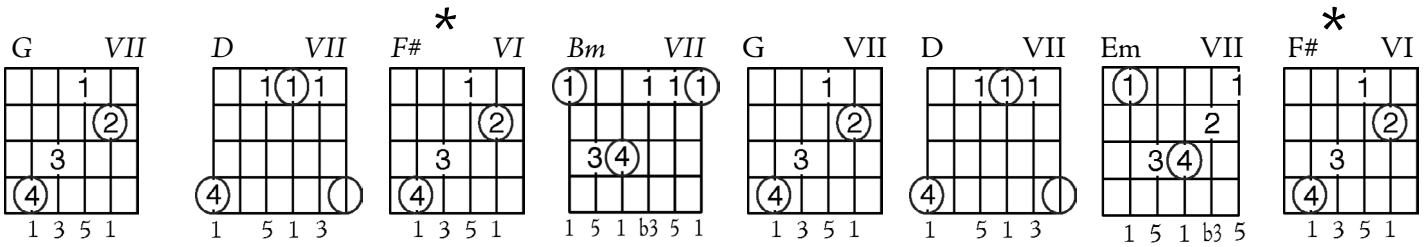
This study includes a new pentatonic scale, based on the minor pentatonic. The dominant seven eleven pentatonic (7/11) has the same notes as minor pentatonic, but with a major third. The same note that is the relative major tone center is moved up one fret (toward the body of the guitar).

key of Bm, with "B" in the "E" shape octave

verse



chorus



the pentatonic scale fingerings are shown in the verse chord progression below each chord with the same name

* F#7/11 pentatonic (F# dominant 7/11 pentatonic) = 1-3-4-5-b7

Use minor pentatonic, changing only the finger necessary for the ♮3. The changed note is the relative major tone center, being moved up 1 fret (so the former minor pentatonic has a ♮3).

12 Blues Rock Cells and Swing Blues Cells

- **Melodic Cells Defined**
- **Open E Minor Pentatonic Cells**
- **Minor Pentatonic Blues Rock Cells**
- **Major Pentatonic Swing Blues Cells**
- **Blues Rock Cell Development Exercises**

MELODIC CELLS DEFINED

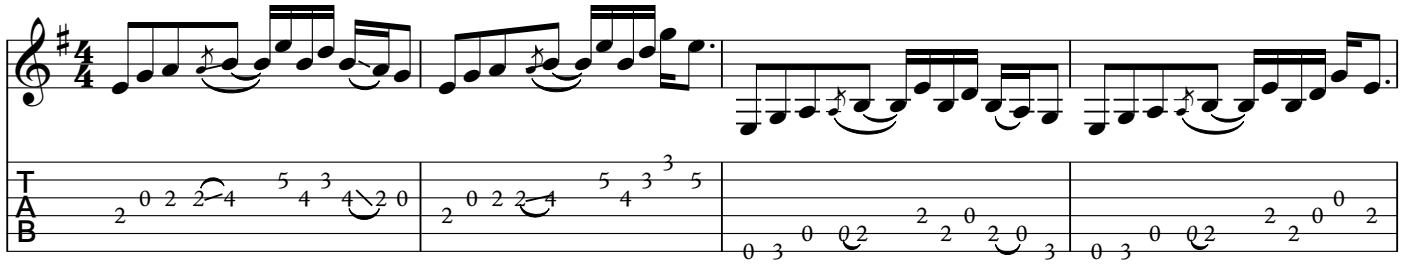
Cells are the smallest units of melodic design. They are made with structures like scales, arpeggios, intervals and chromatics. Cells usually are used with various expressive design elements involving technique, phrasing, rhythm, dynamics, etc. Melody is the designed repetition of cells.

See the chapter Melodic Cells.

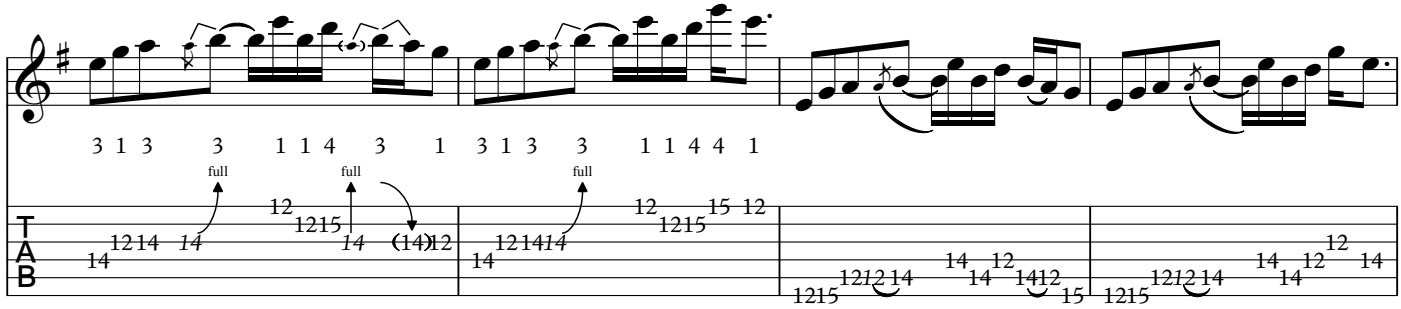
OPEN E MINOR PENTATONIC CELLS

E minor open position

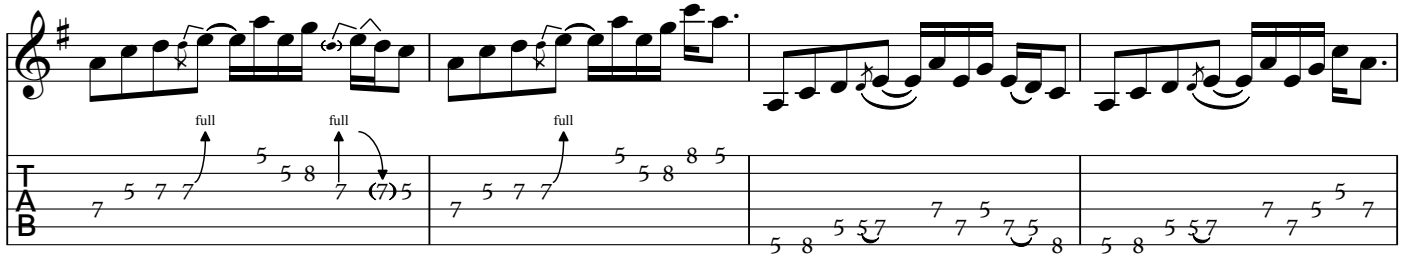
1 b3 4 5



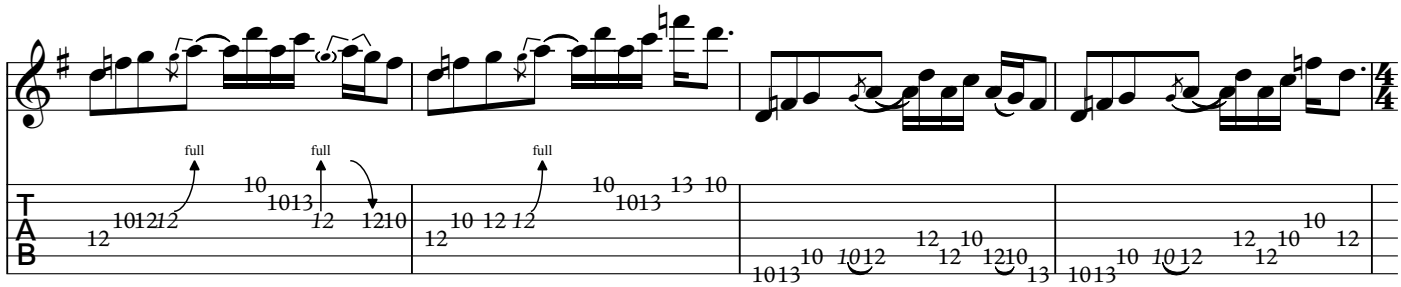
E minor XII position



A minor V position

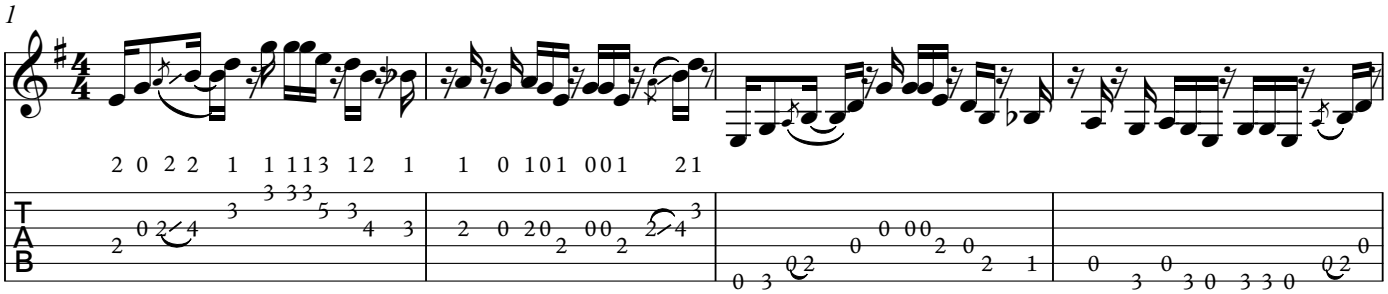


D minor X position



1 b3 5 b7

E minor open position



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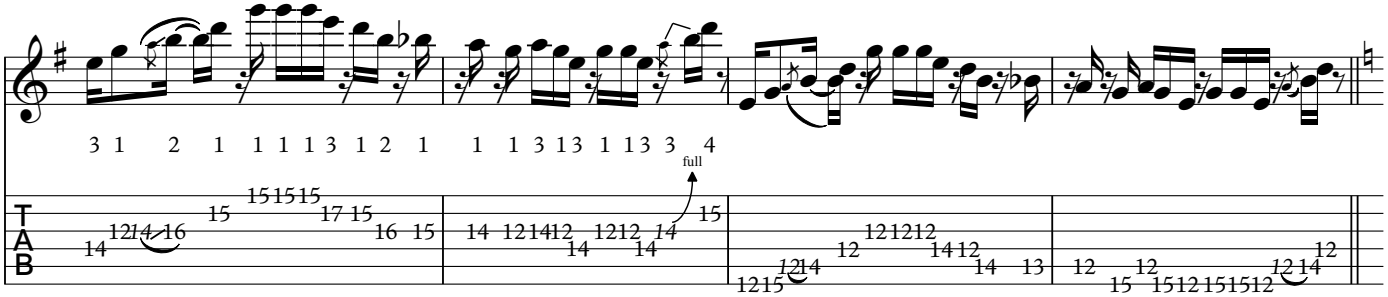

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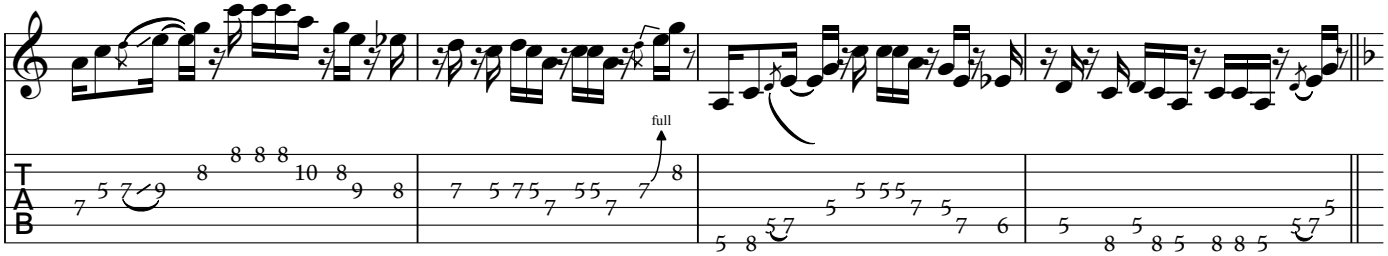

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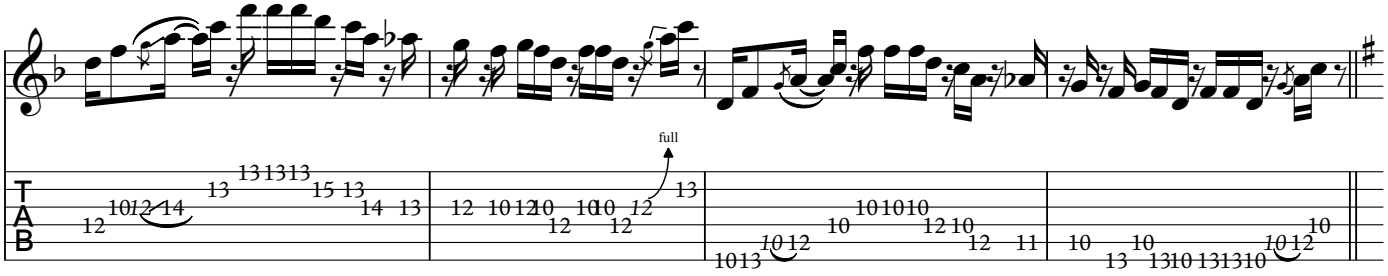
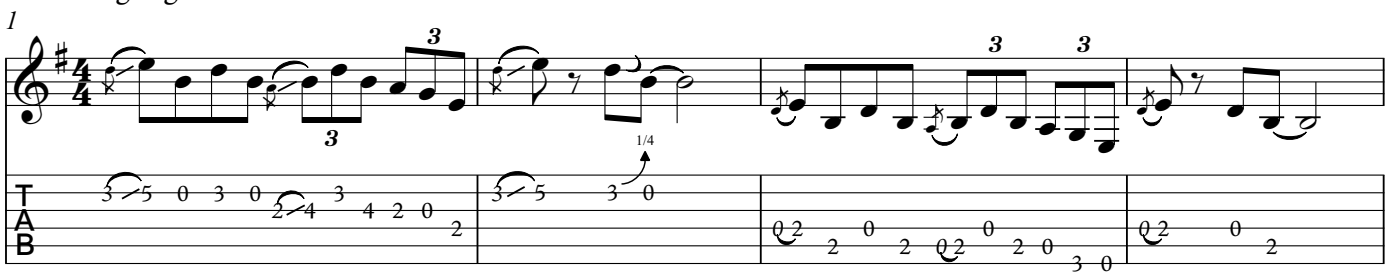


E minor open position
Swing Eighths

1 5 b7 5



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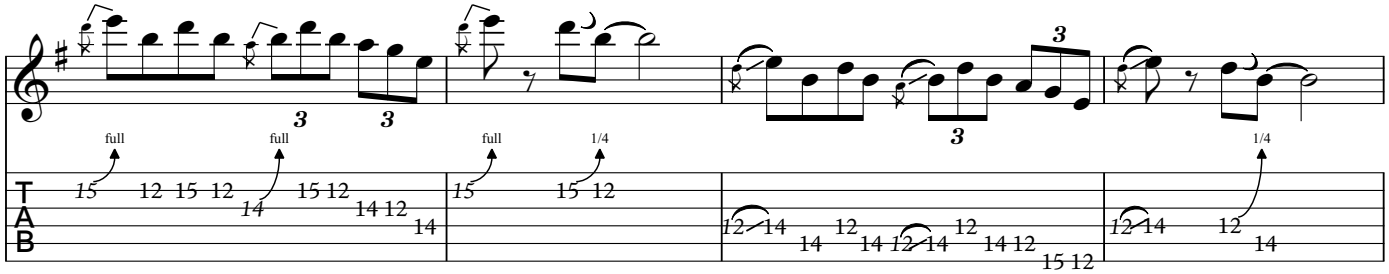

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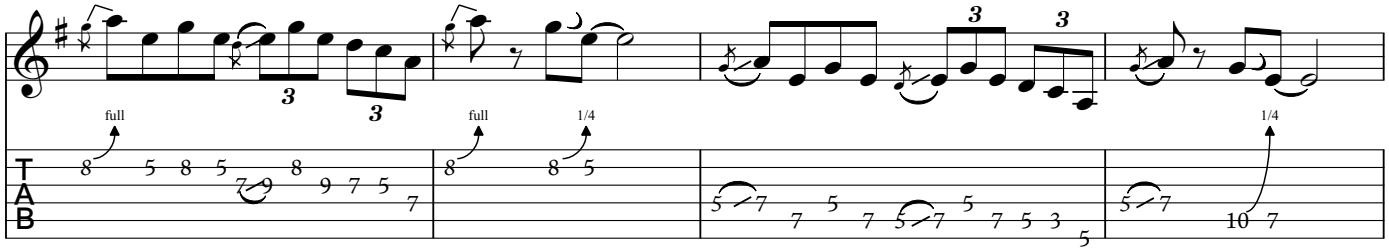

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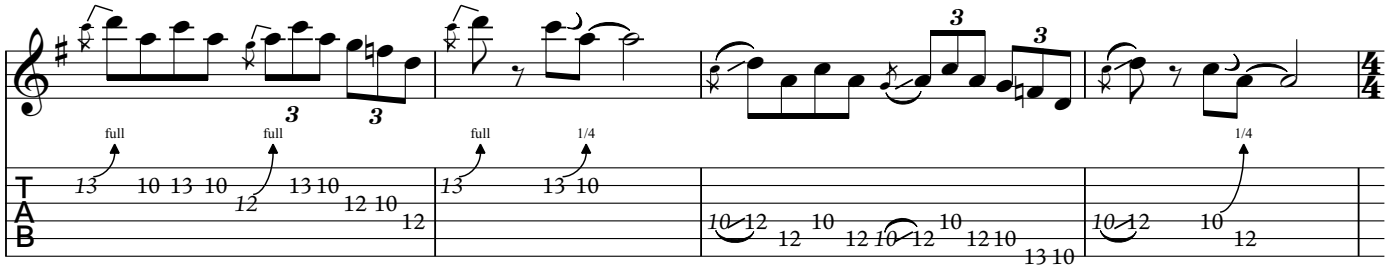
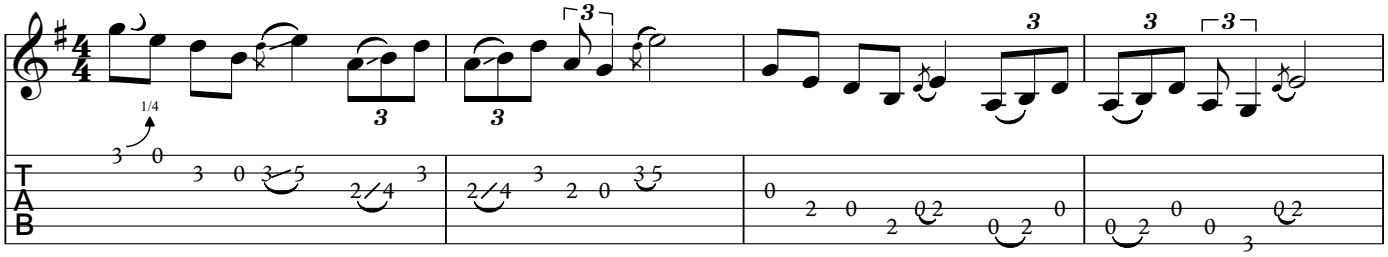


b3 1 b7 5

E minor open position
Swing Eighths



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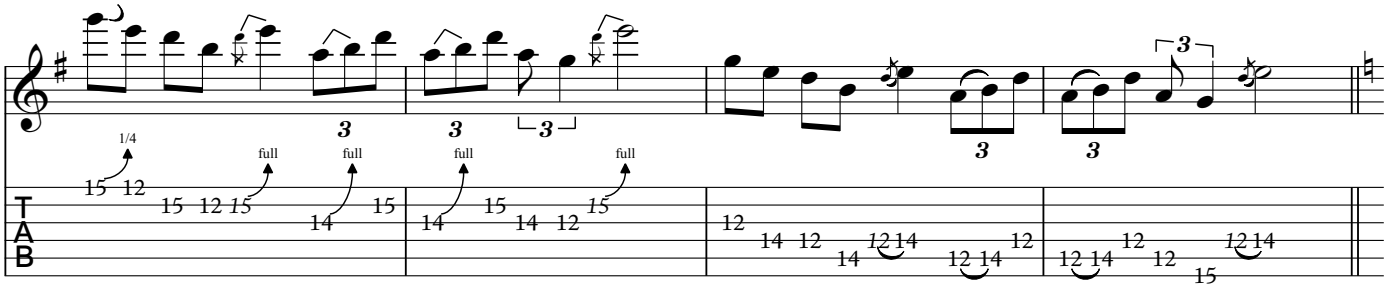

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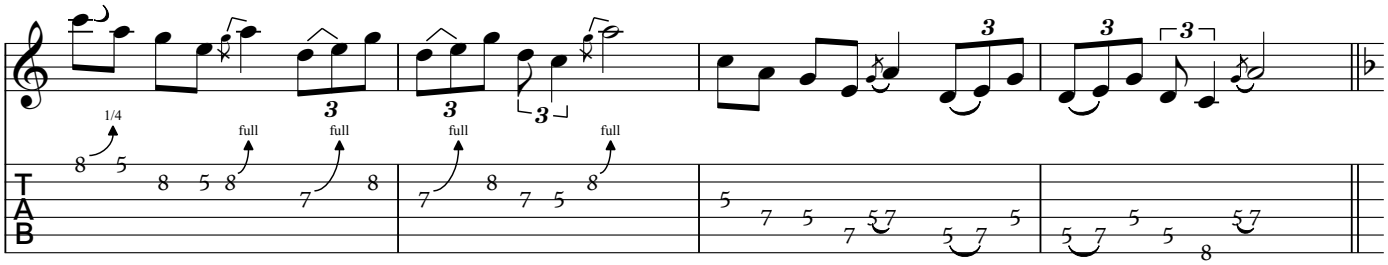

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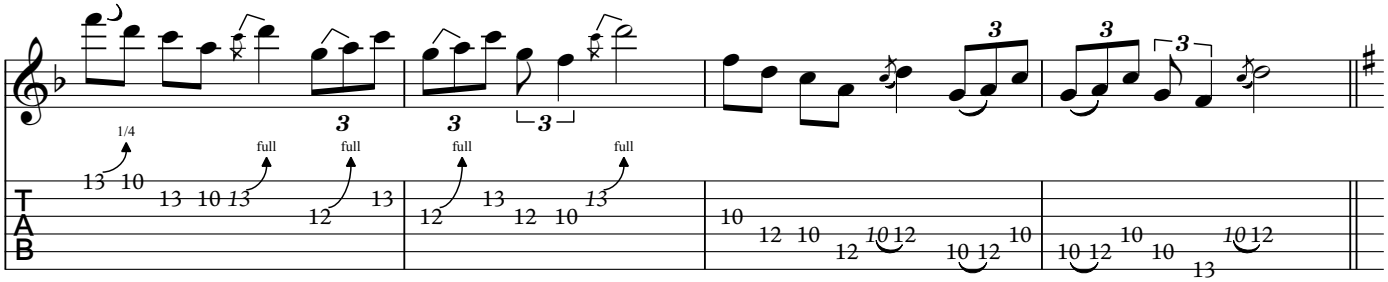

b3 4 5 b3

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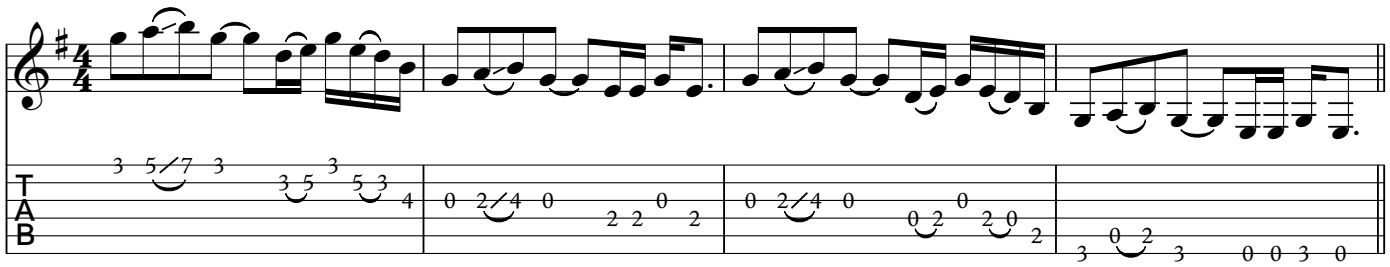

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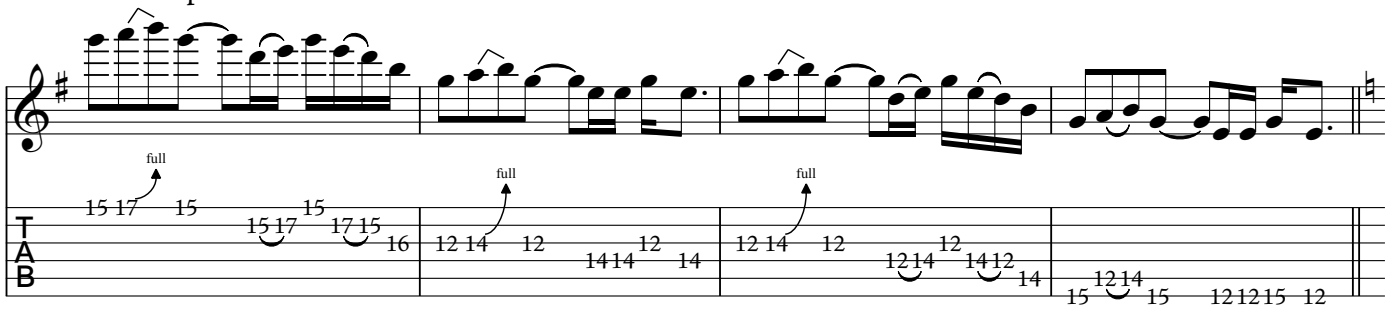

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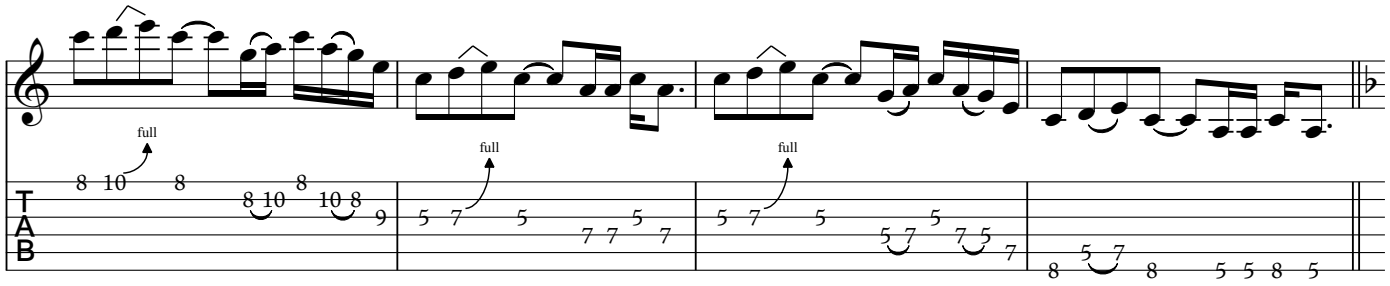

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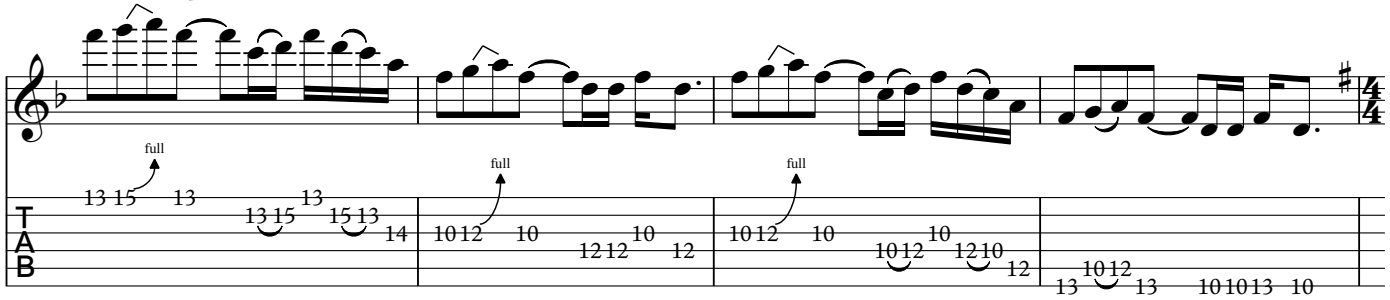
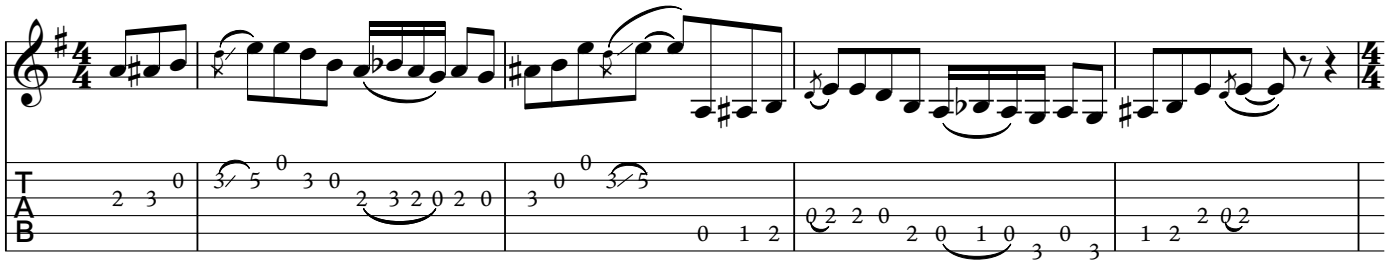


4 #4 5 1

E minor open position



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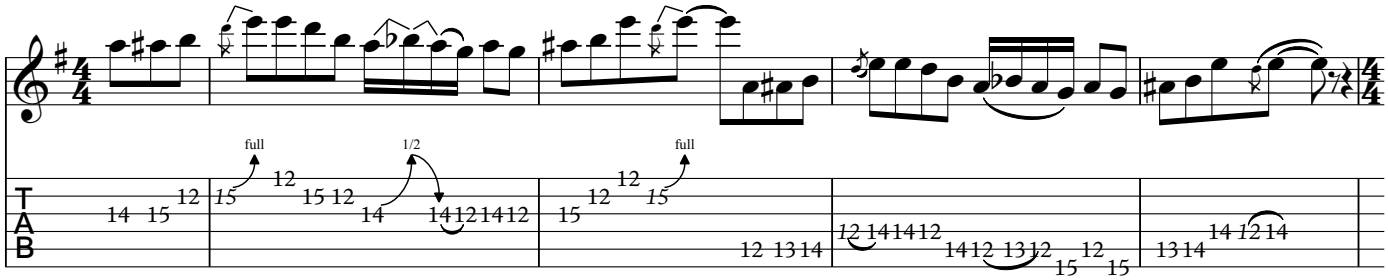

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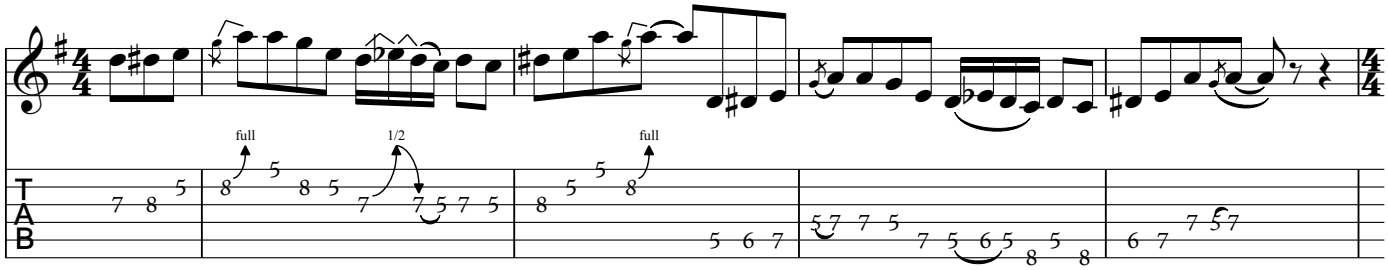

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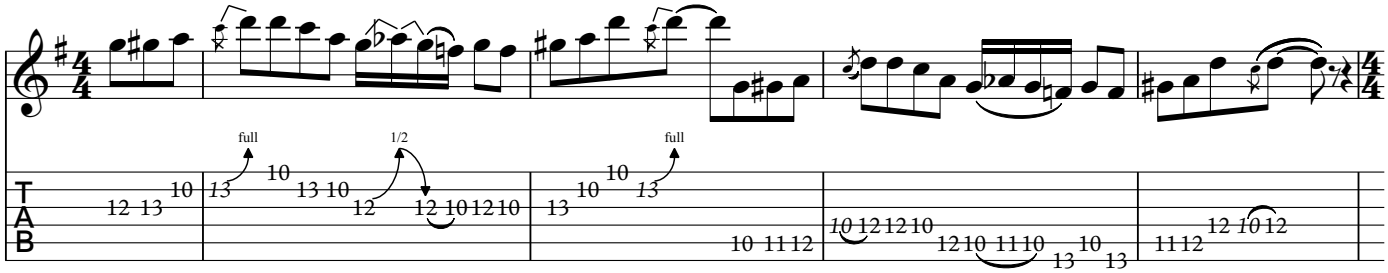
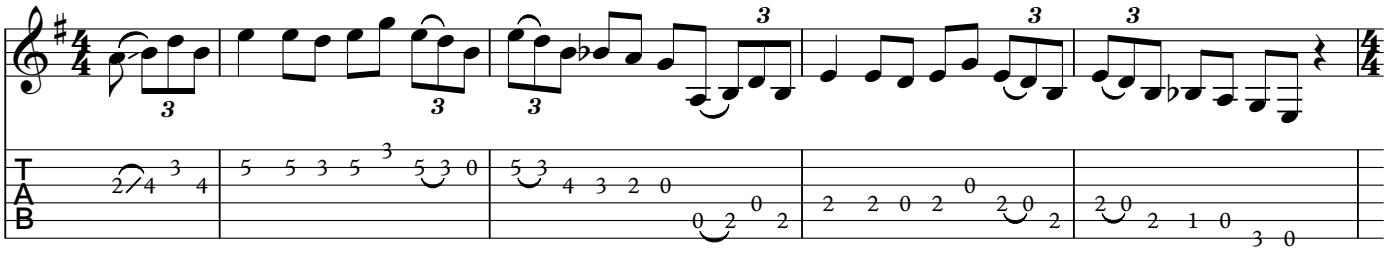


4 5 b7 5

E minor open position
Swing Eighths



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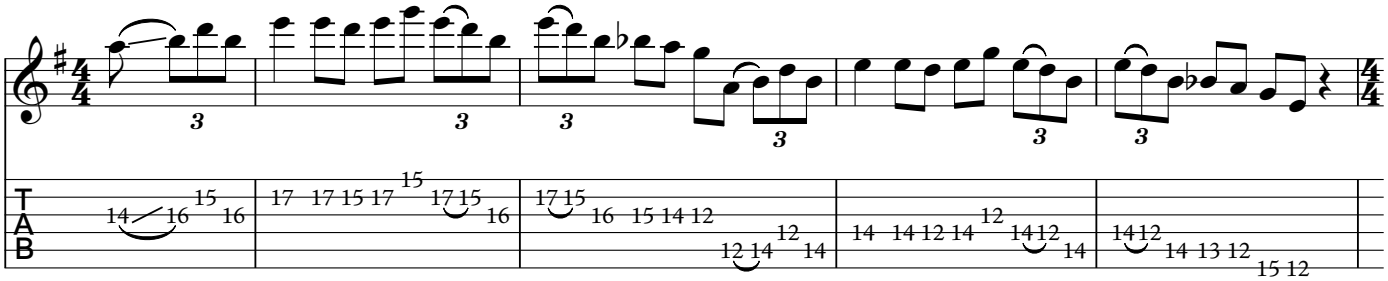

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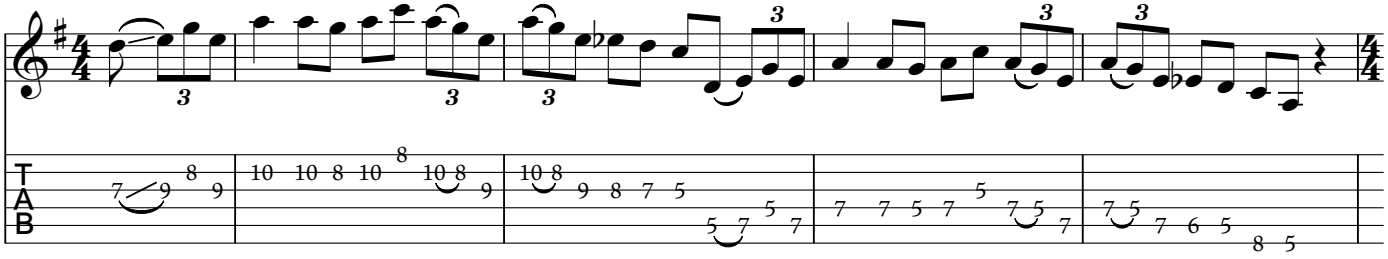

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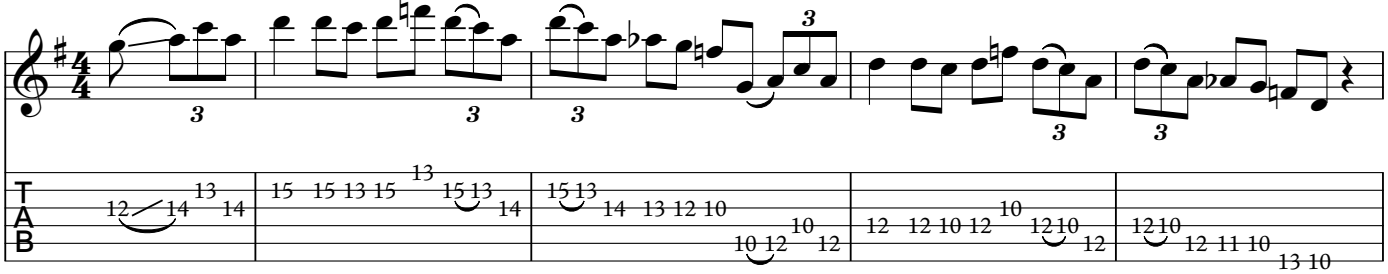

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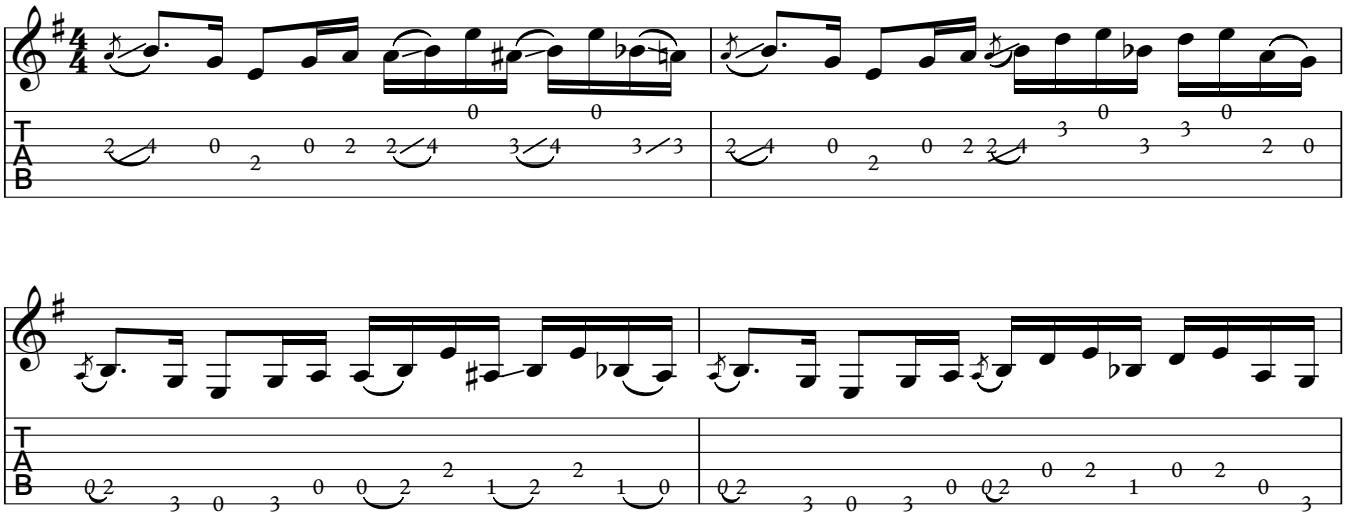

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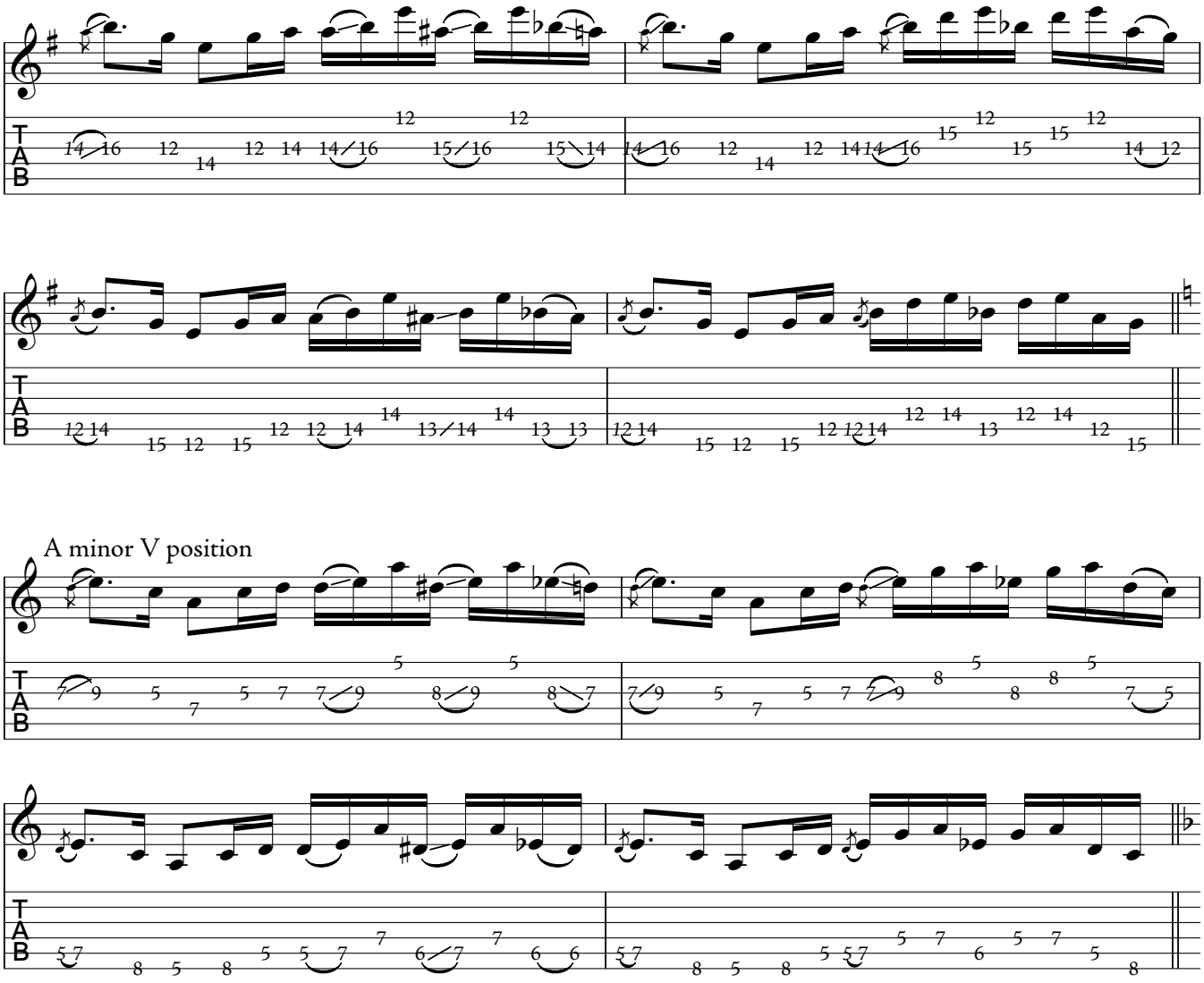
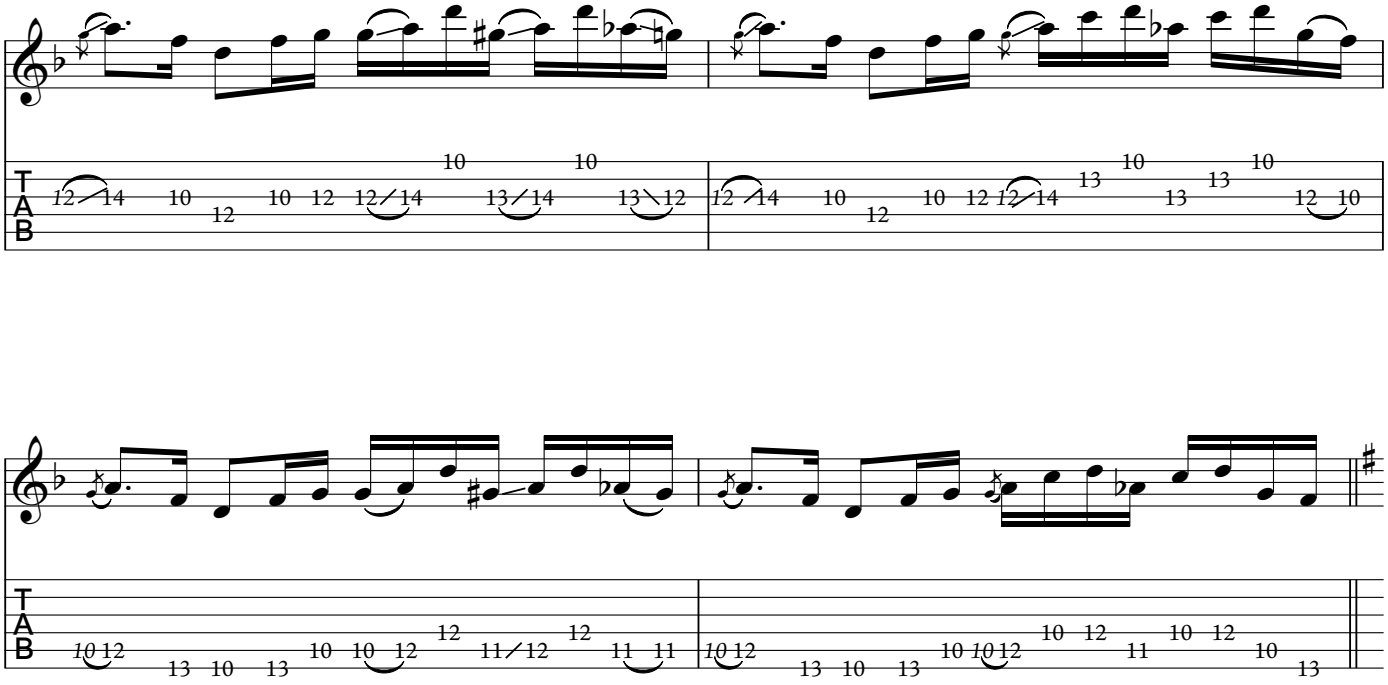


A minor V position

D minor X position



5 5 1 1

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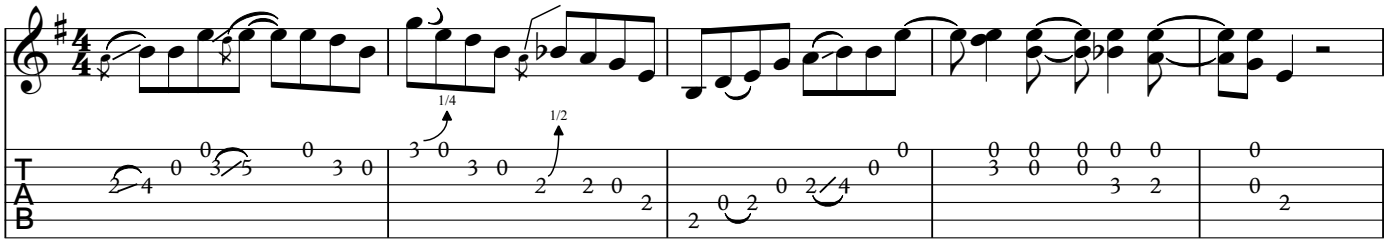

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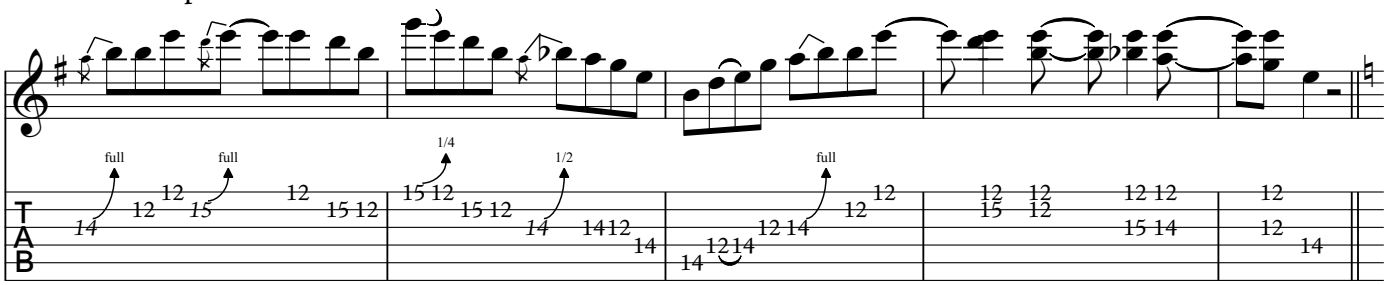

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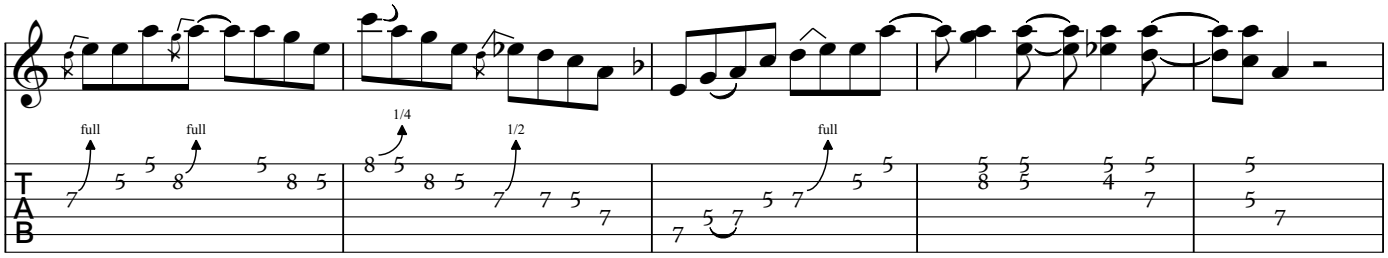

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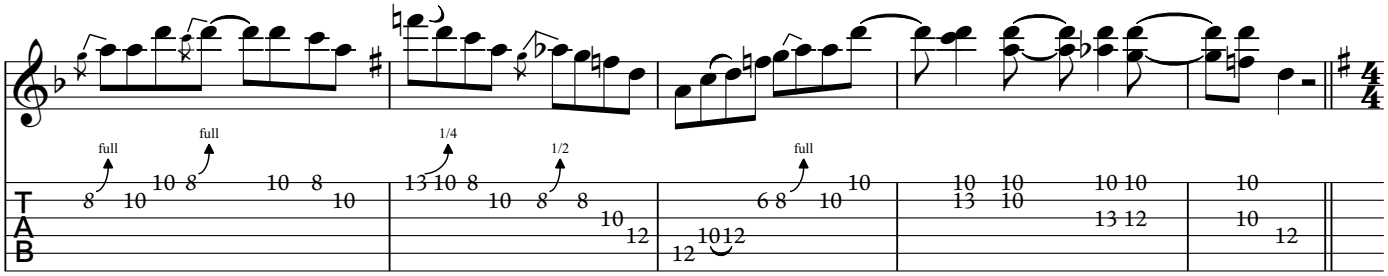
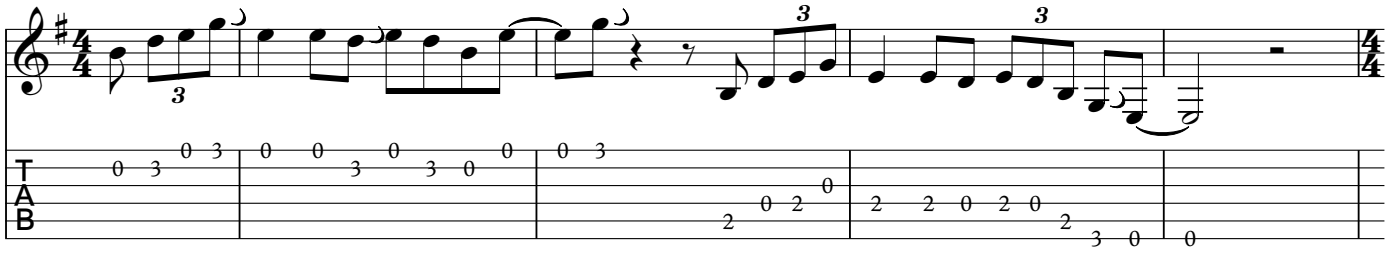
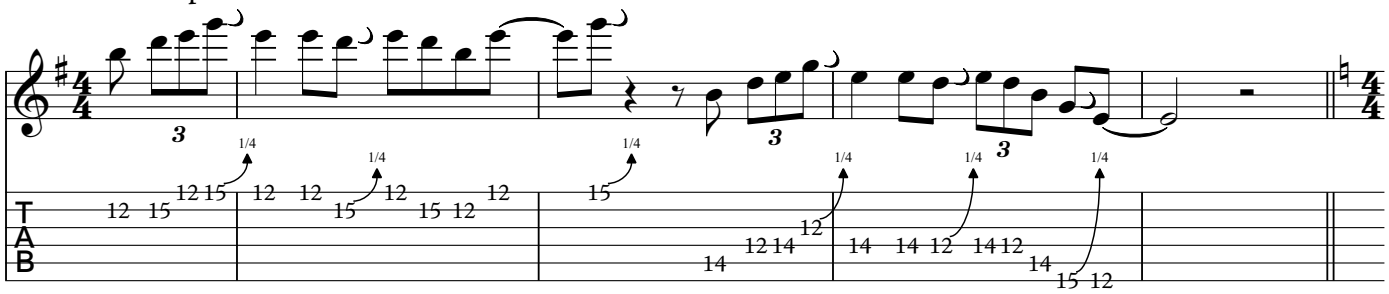


5 b7 1 b3

E minor open position



E minor XII positon



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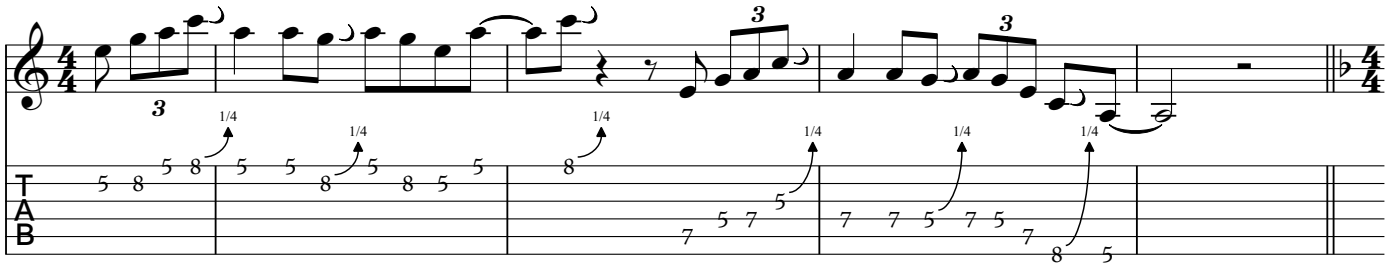
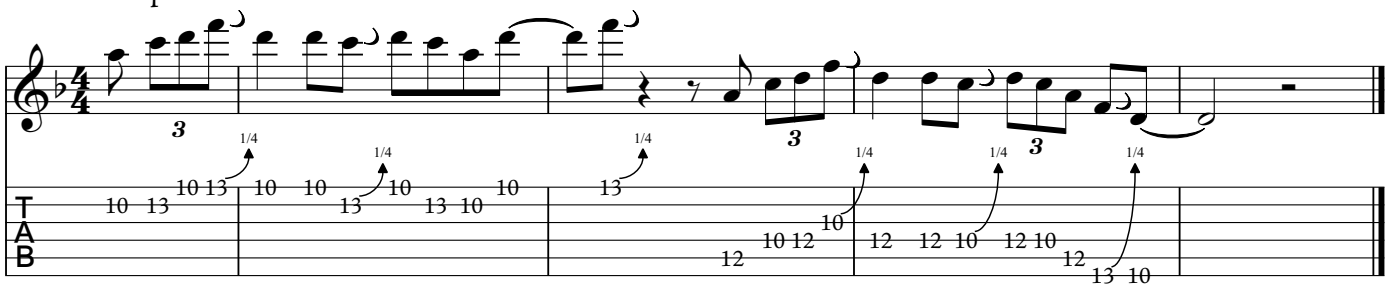
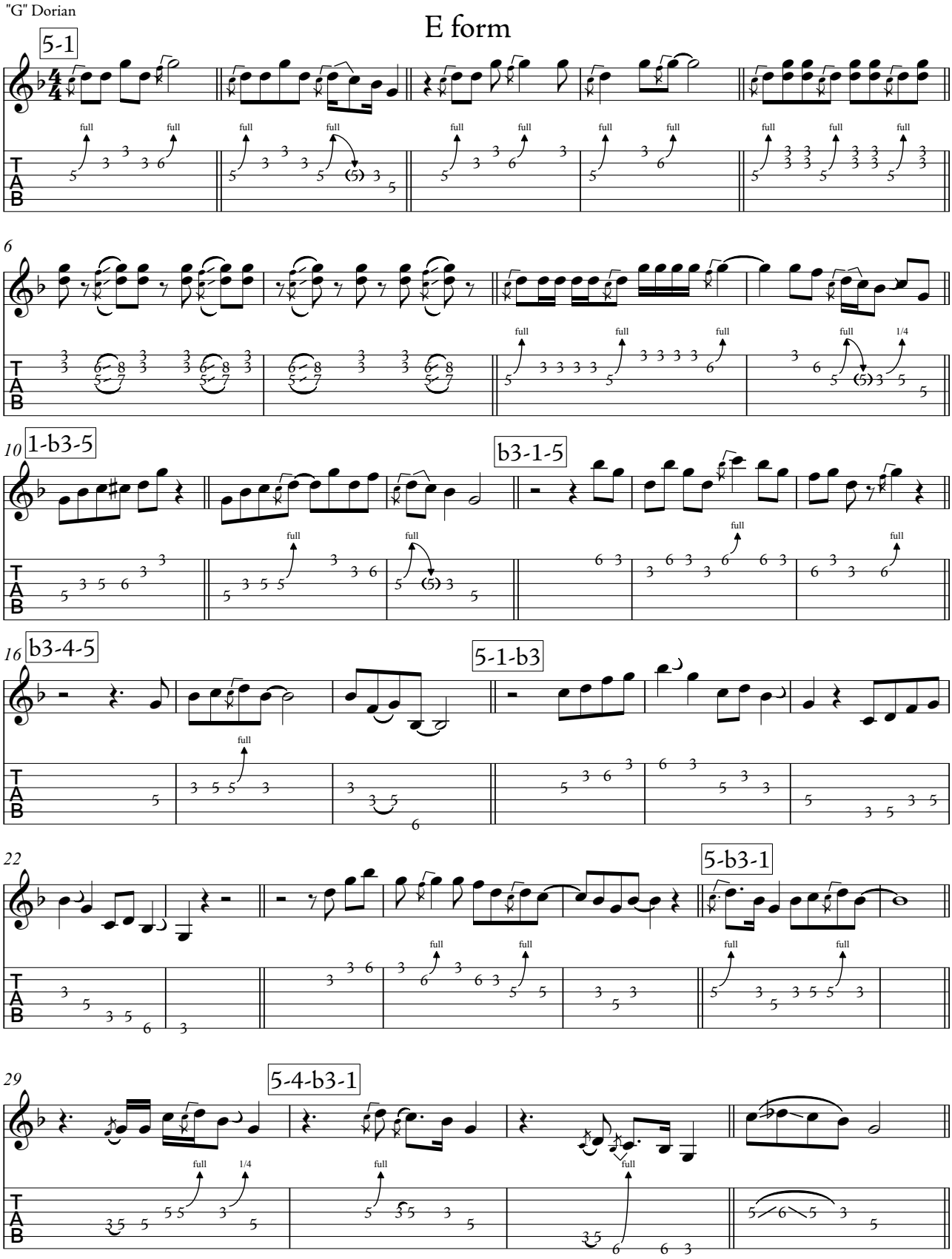
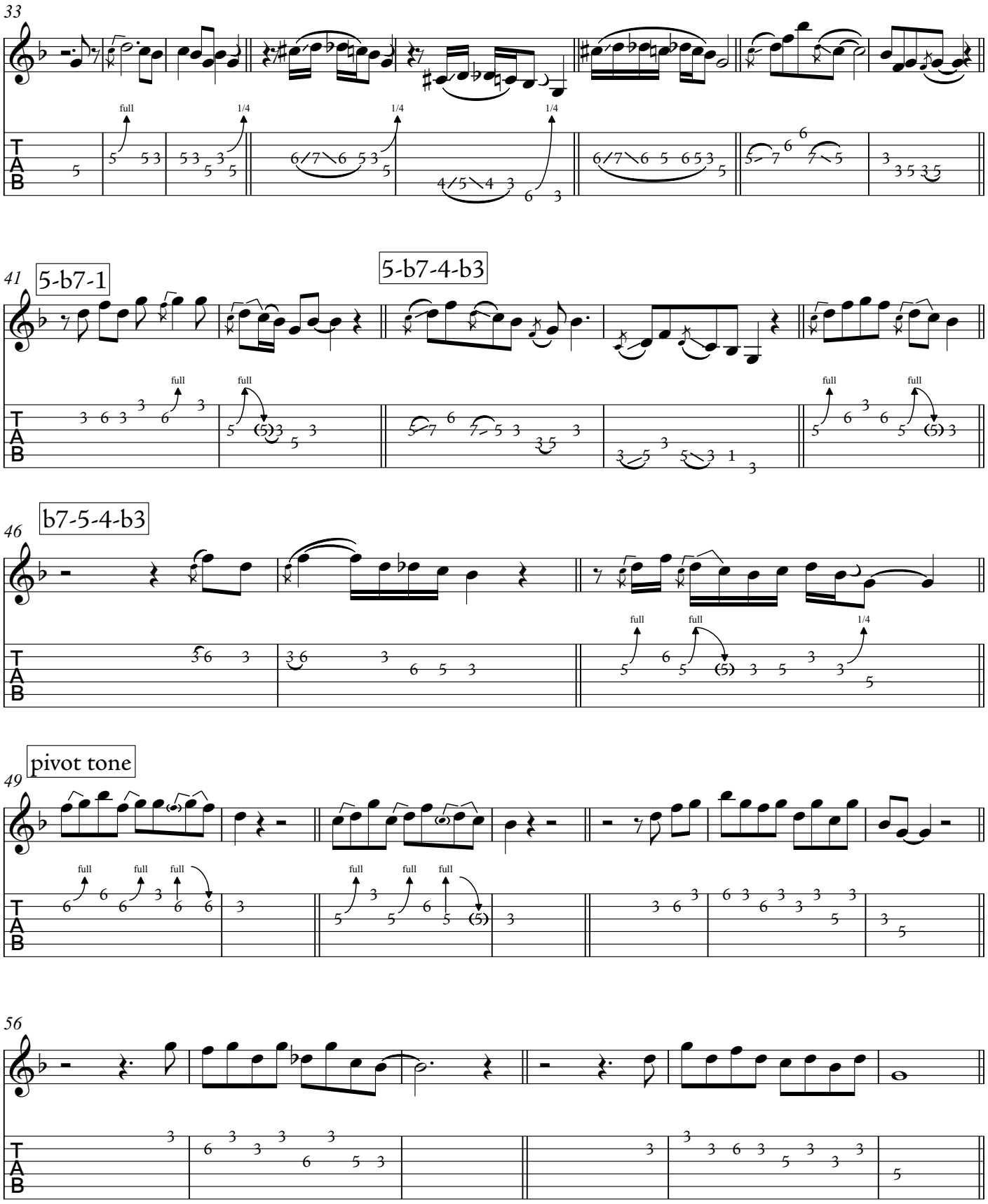


D minor X positon

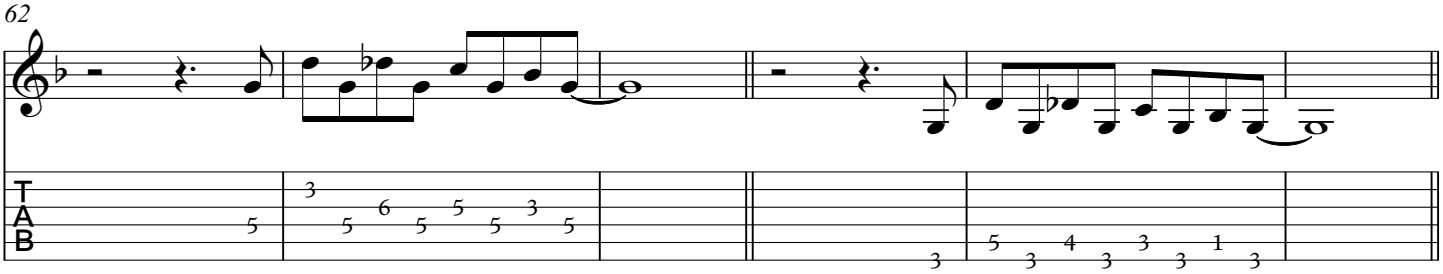


MINOR PENTATONIC BLUES ROCK CELLS



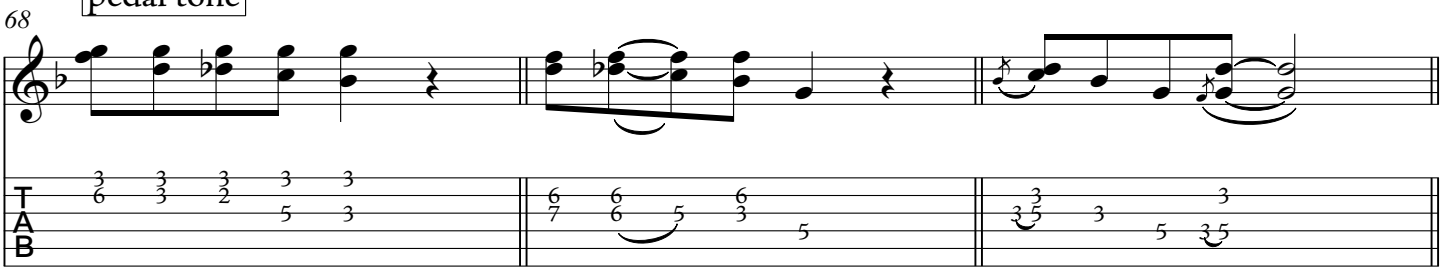


62



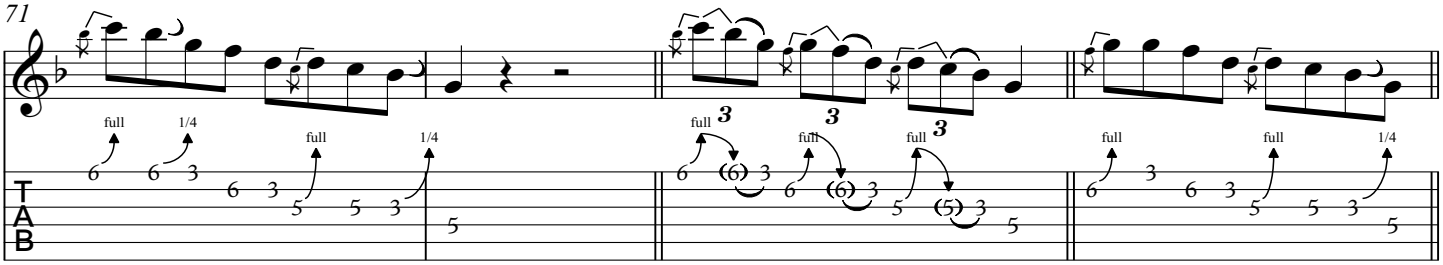
pedal tone

68



scalar descent

71



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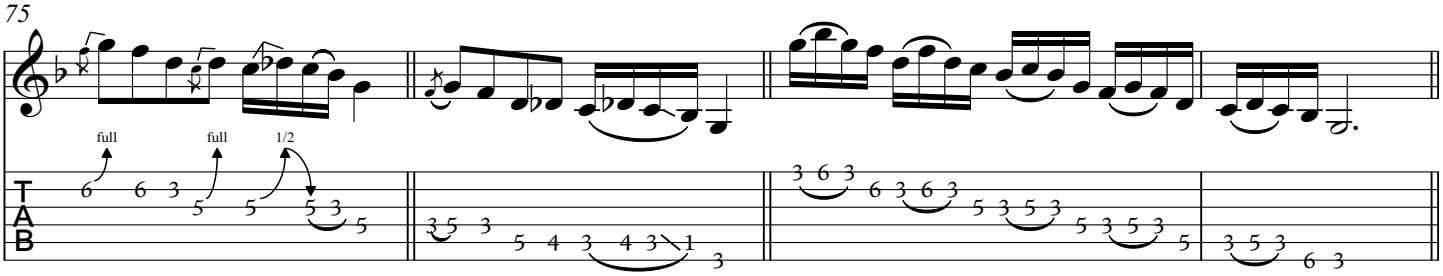
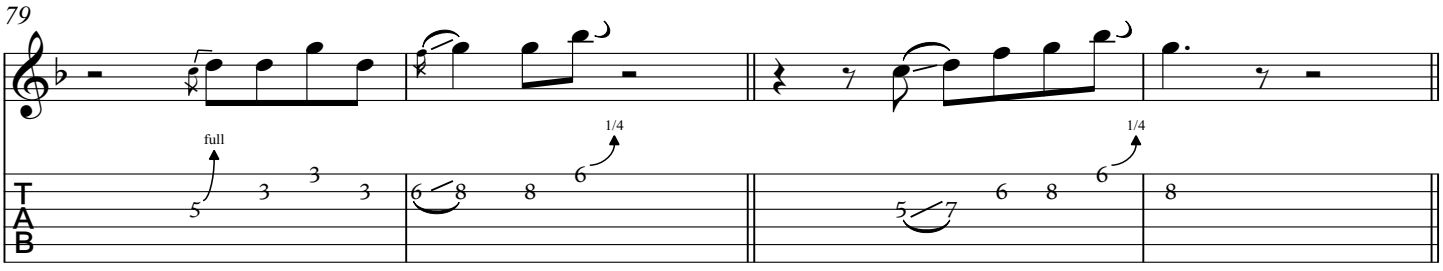
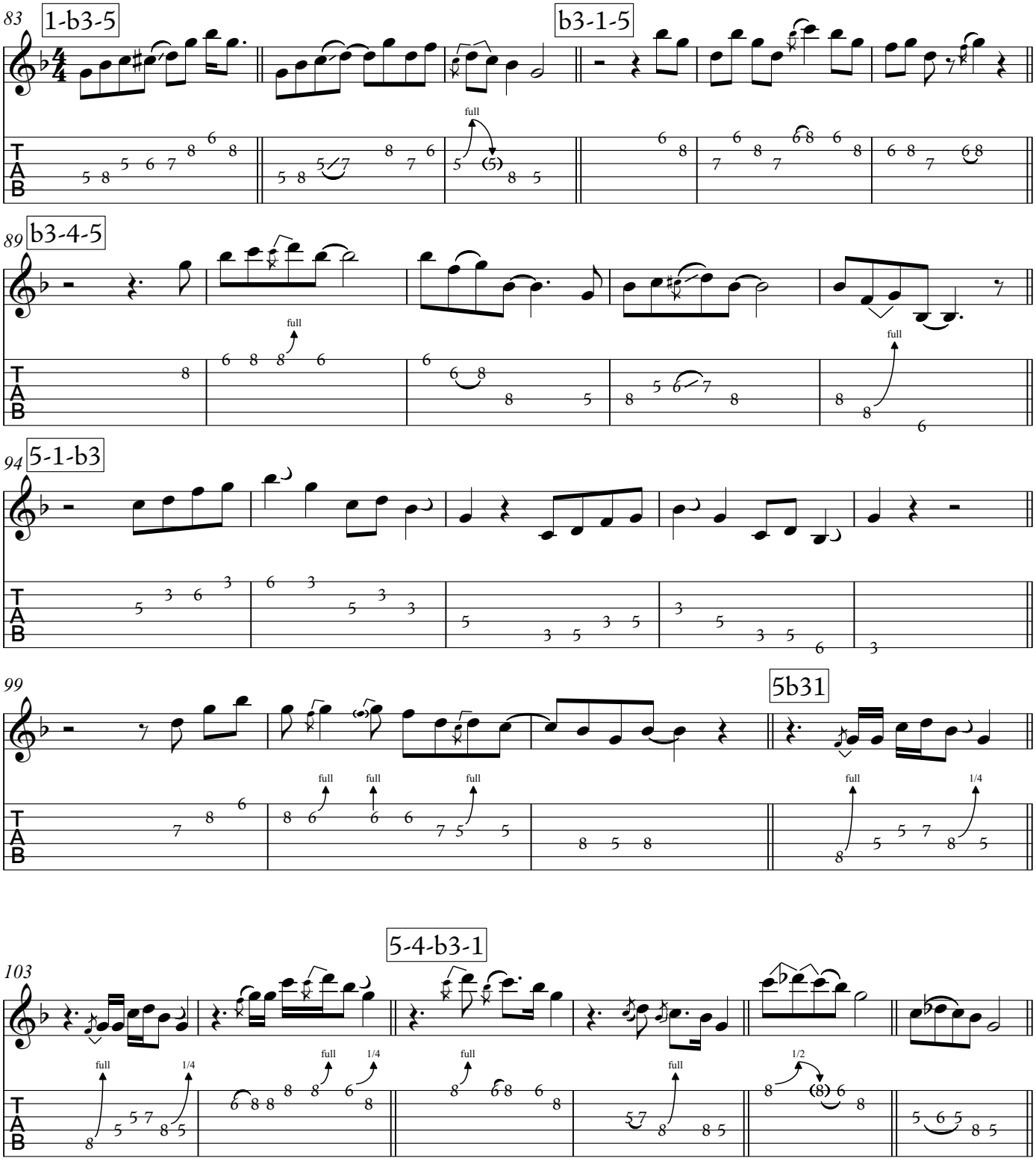


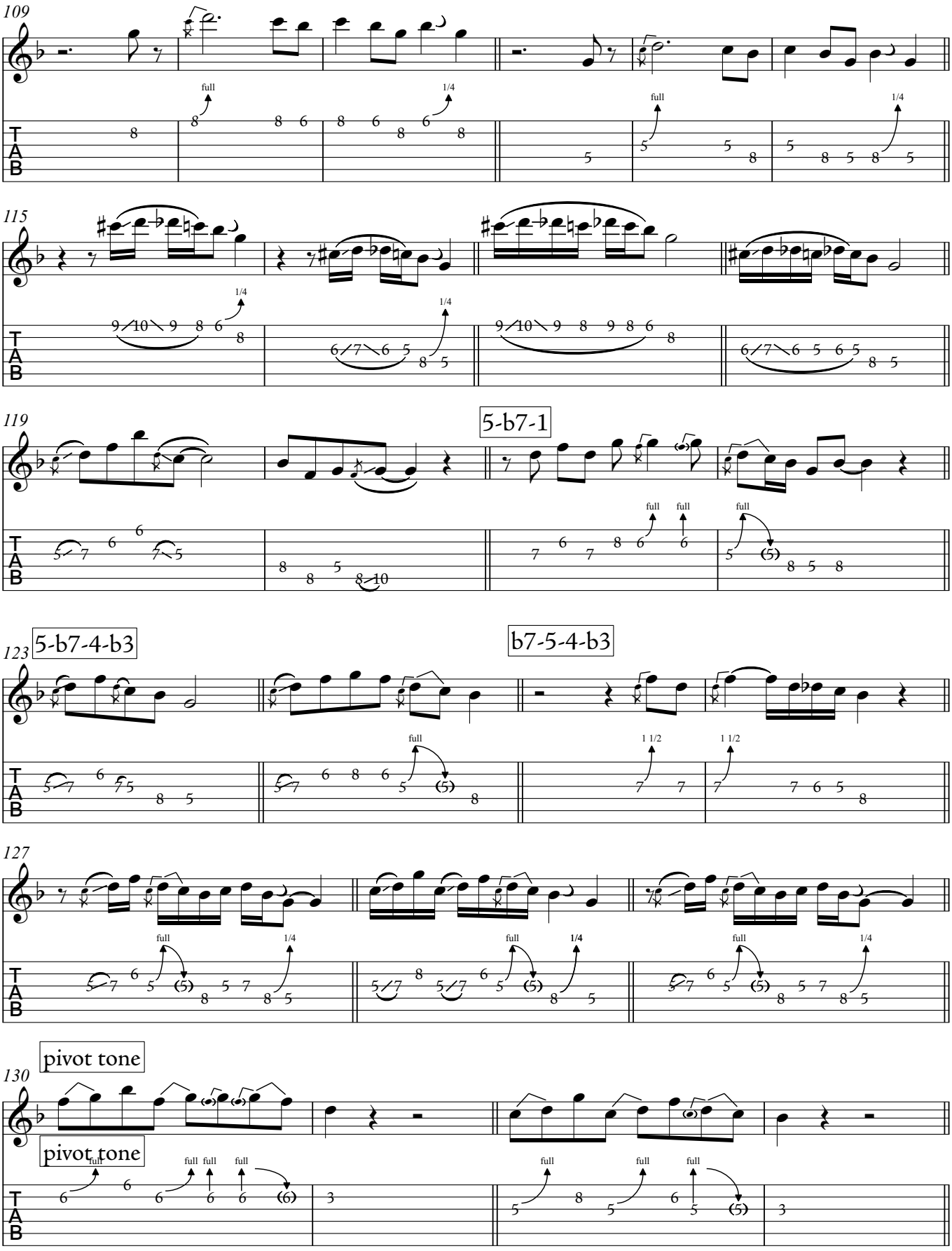
connect to fingering 2

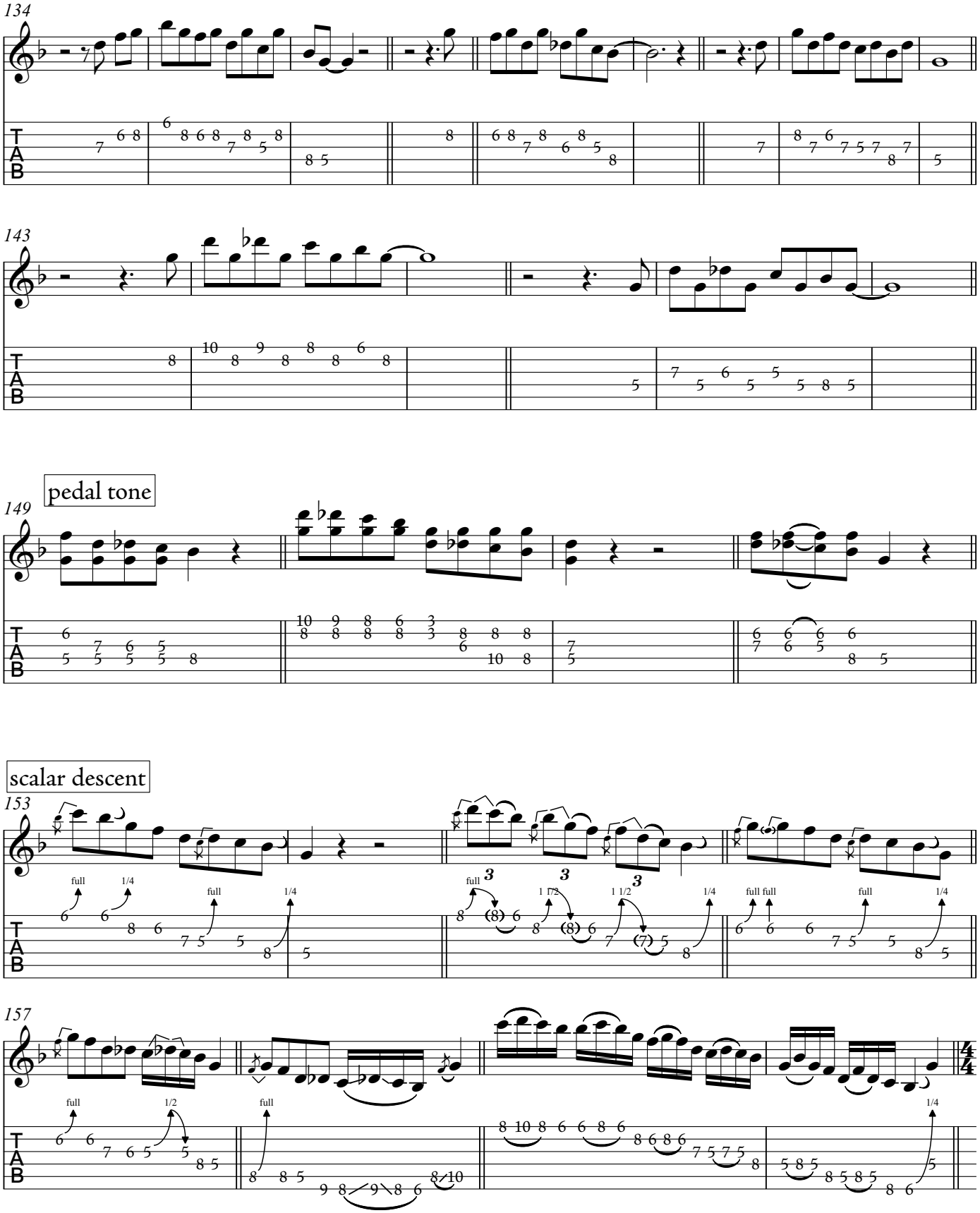
79



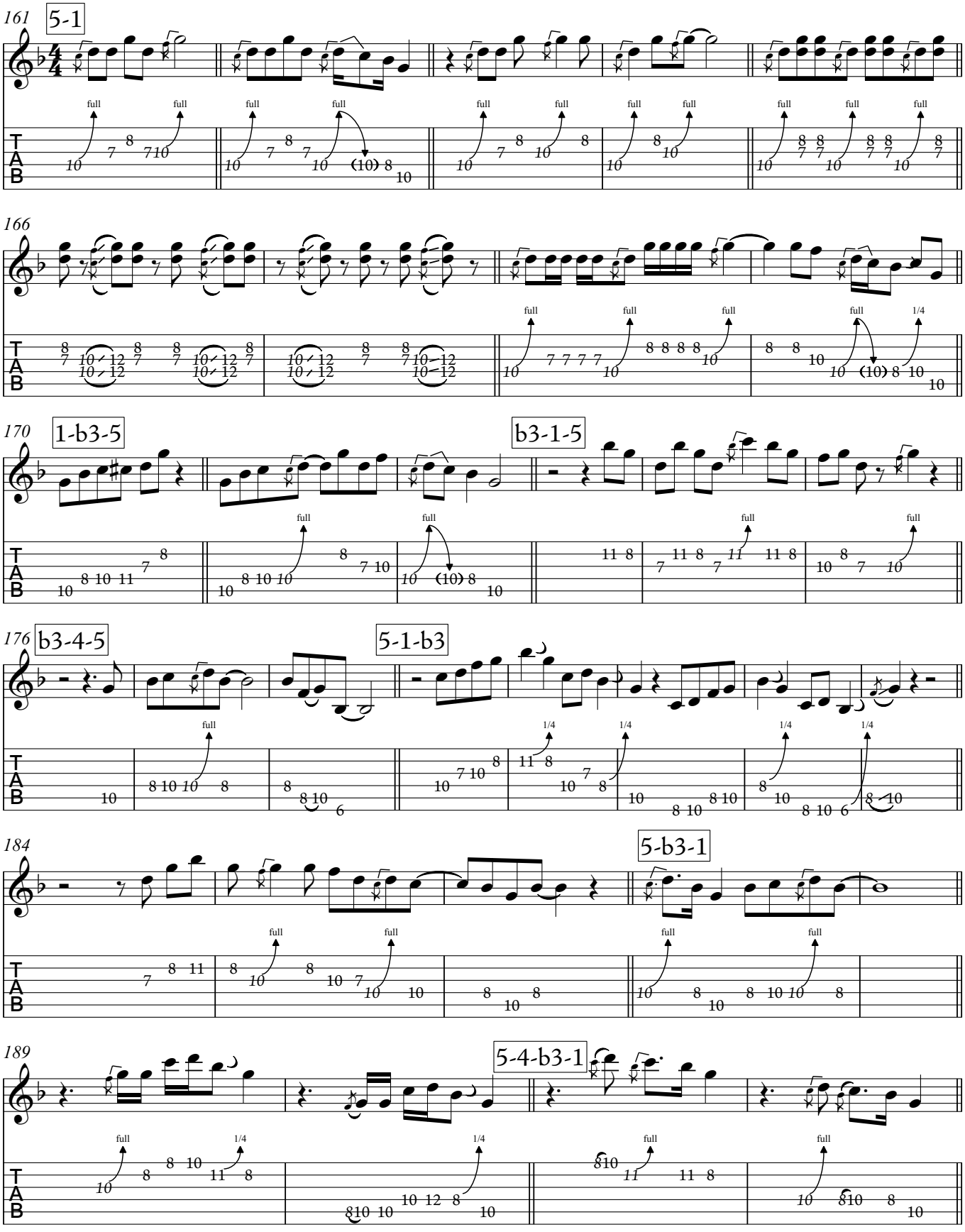
D form

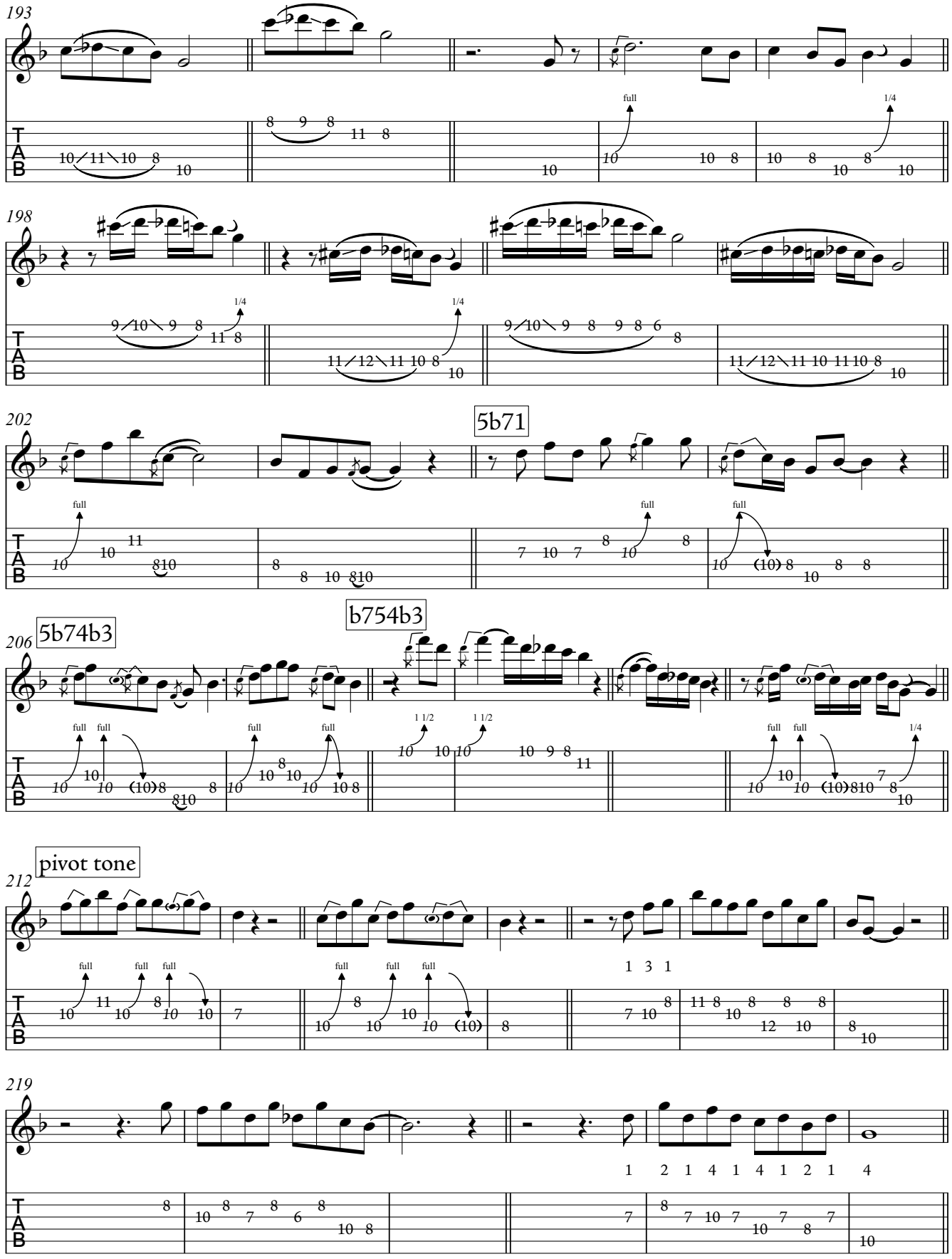


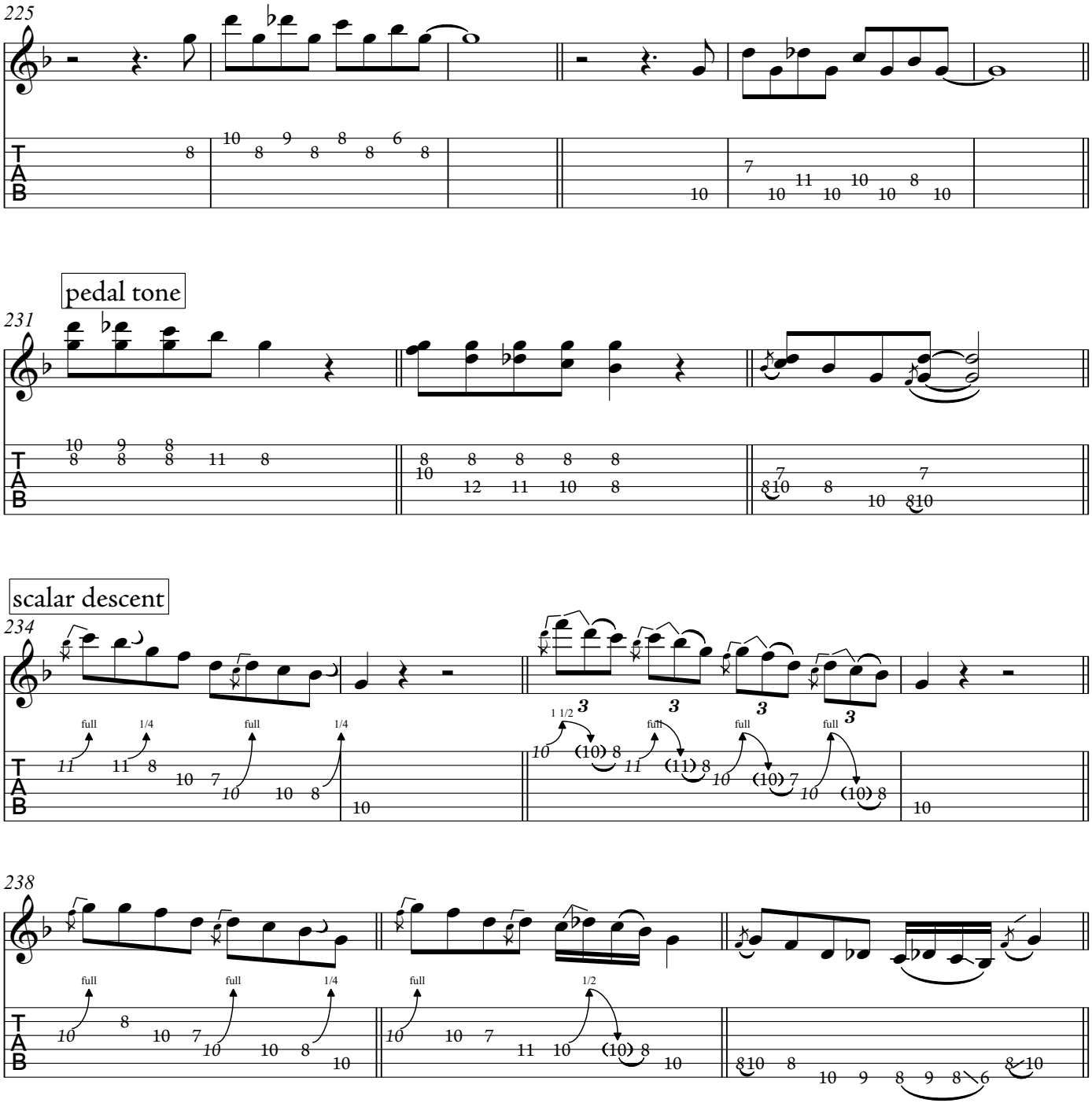




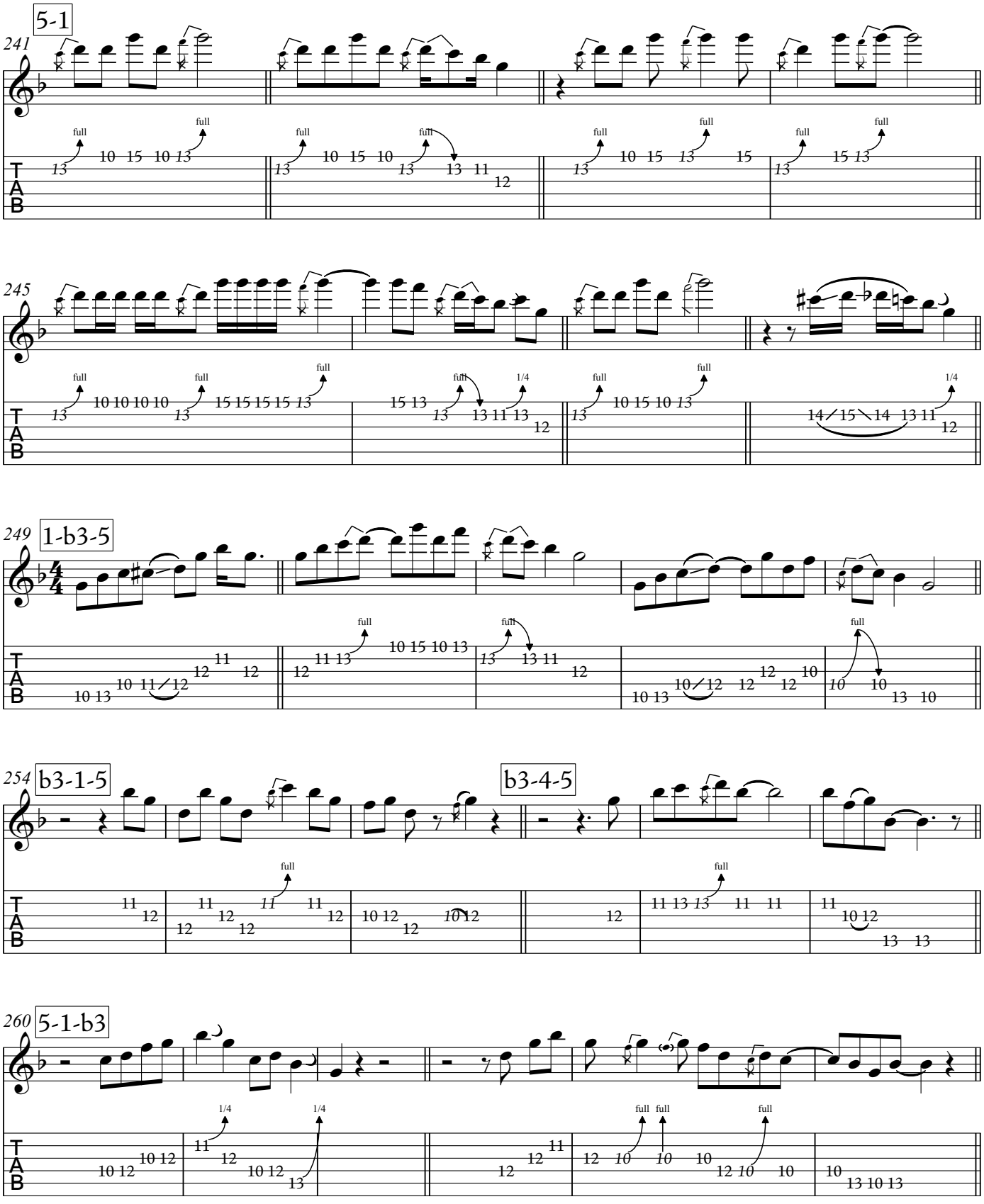
C form

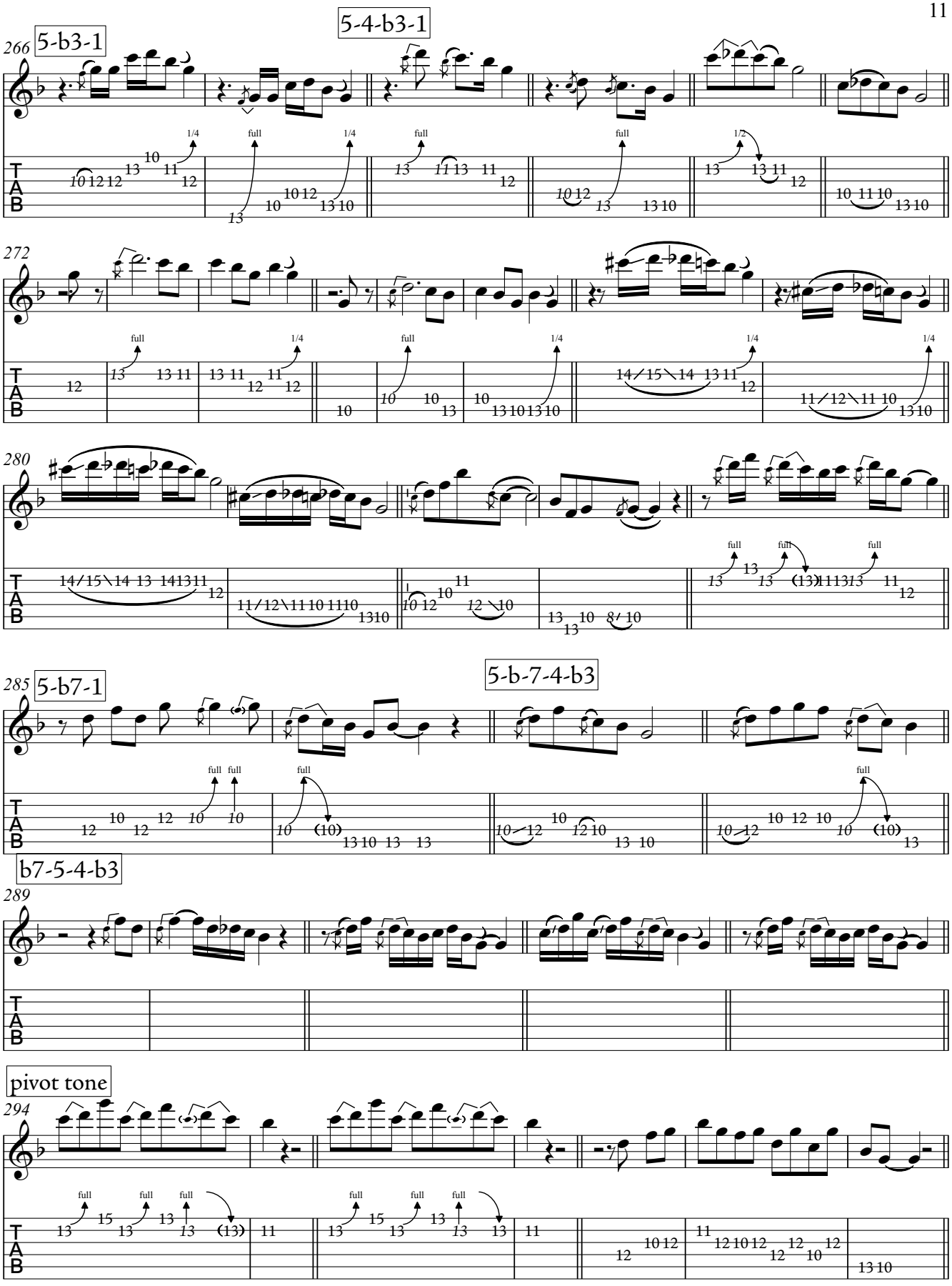


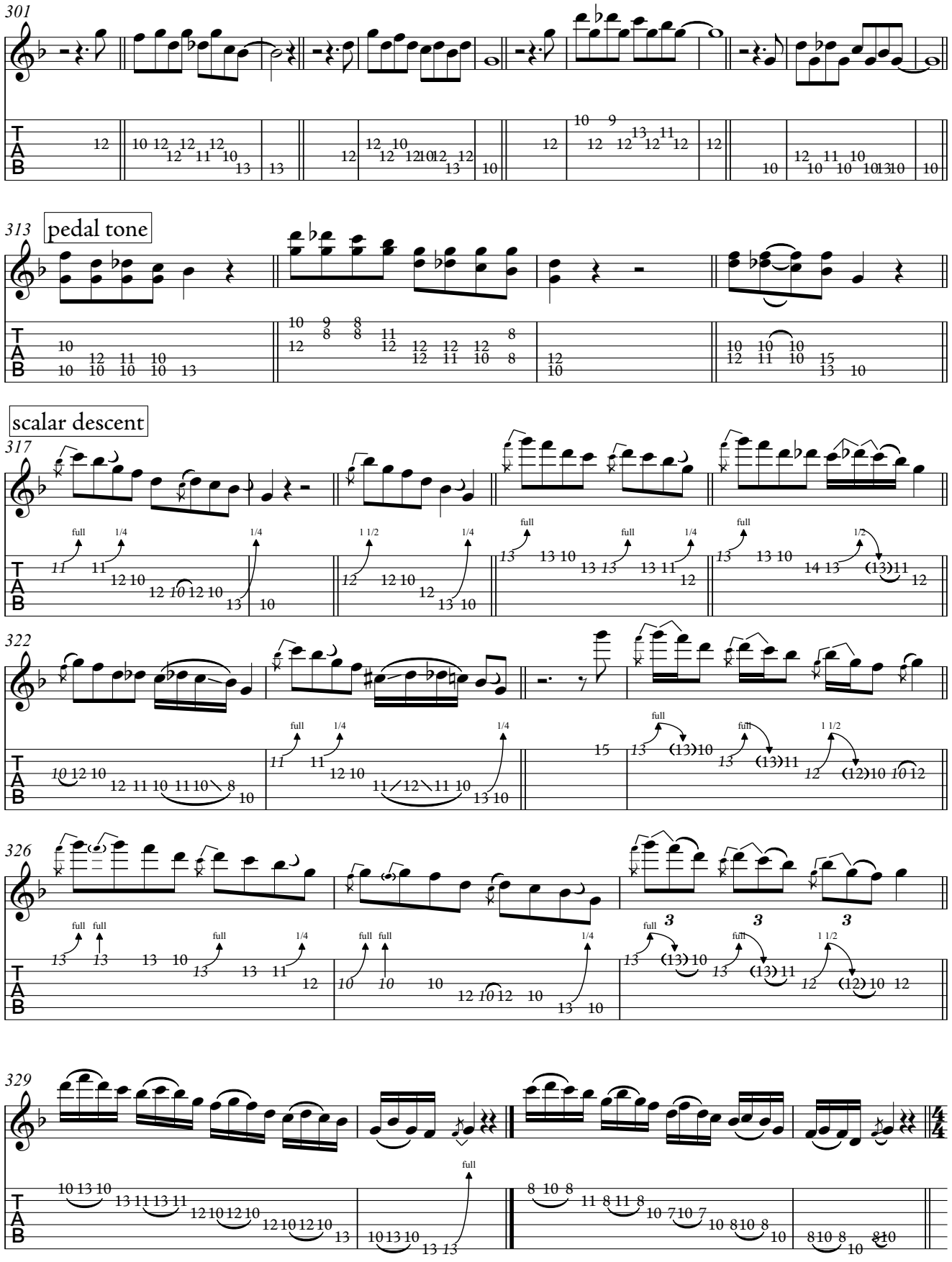




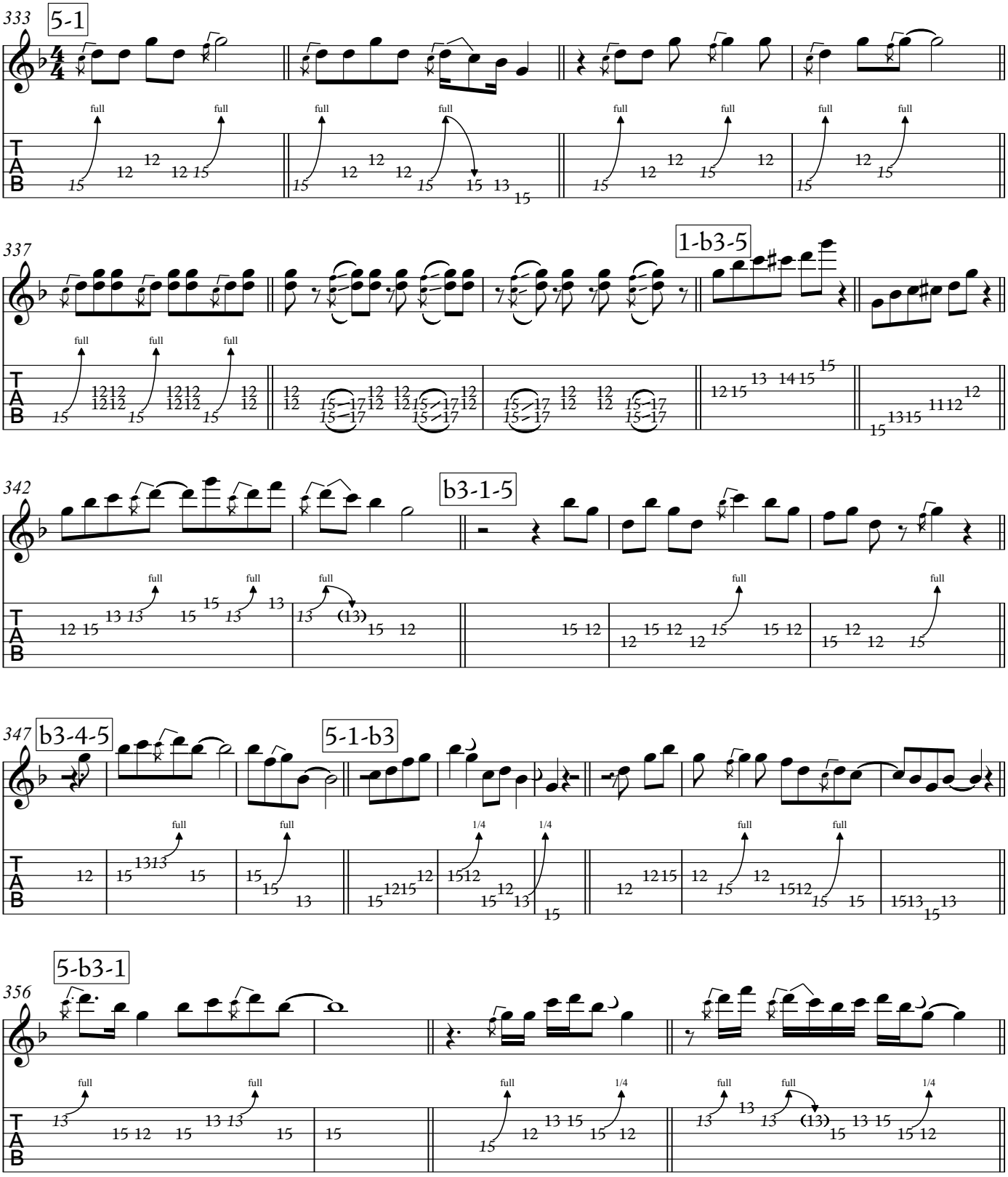
A form

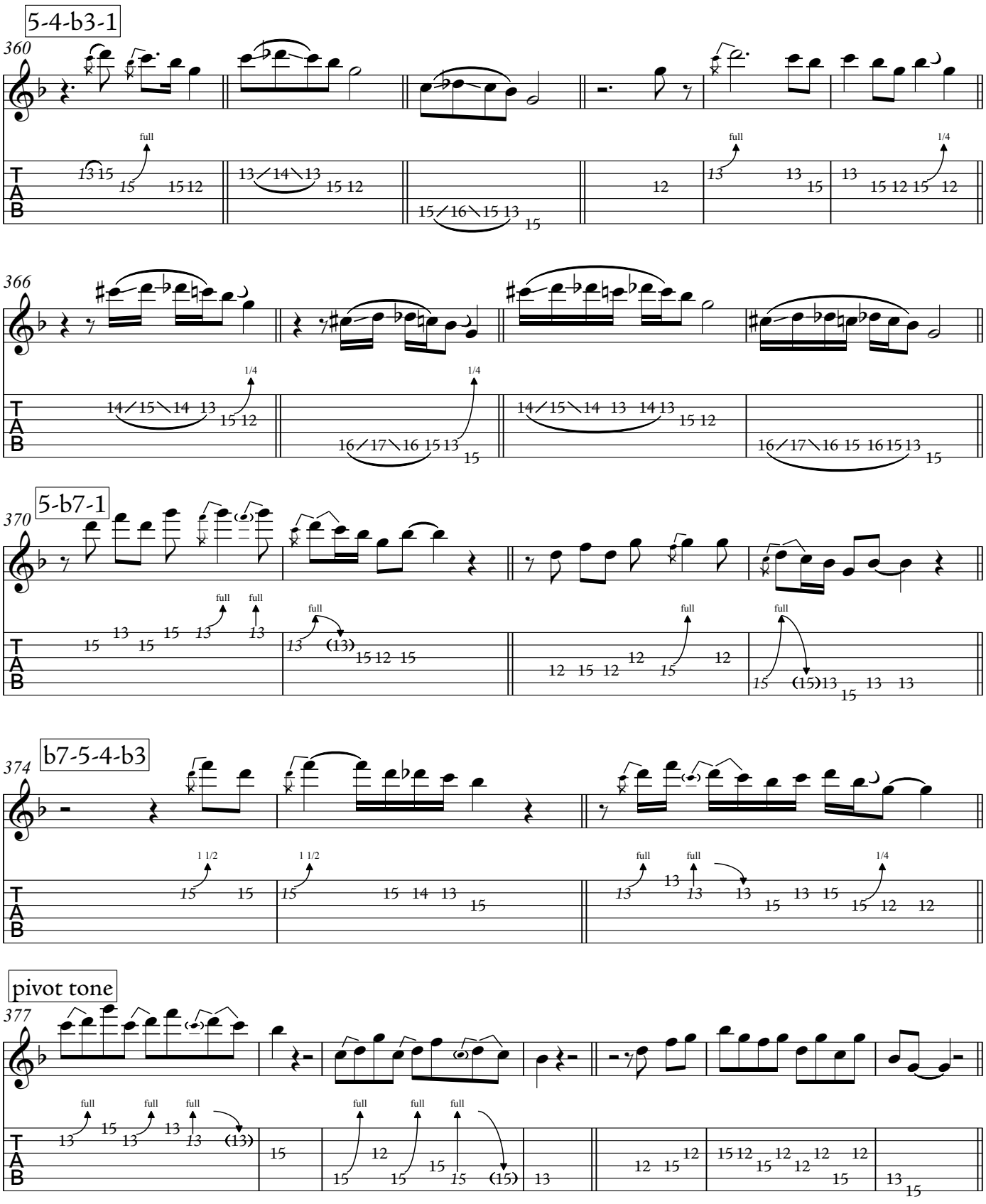


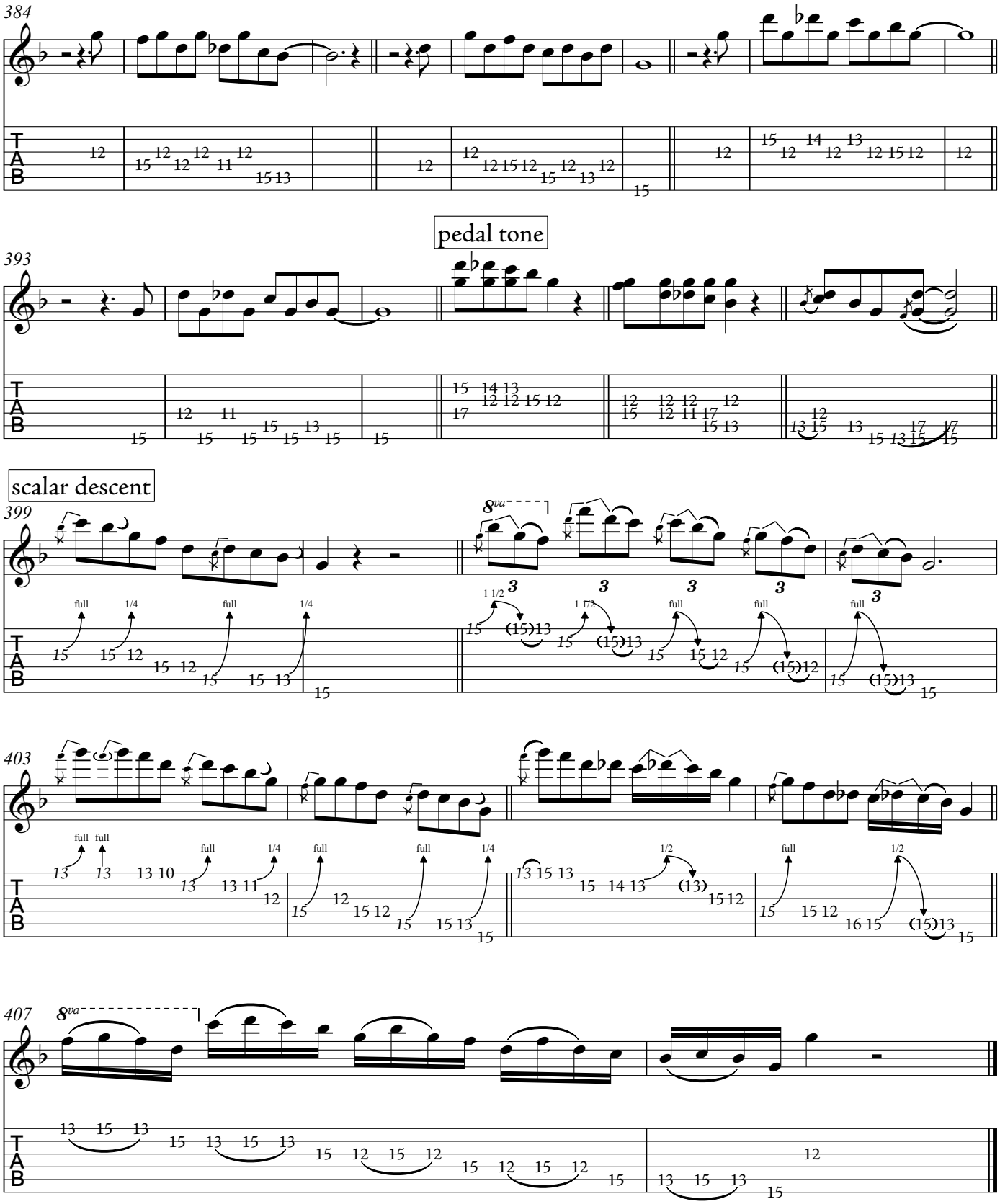




G form



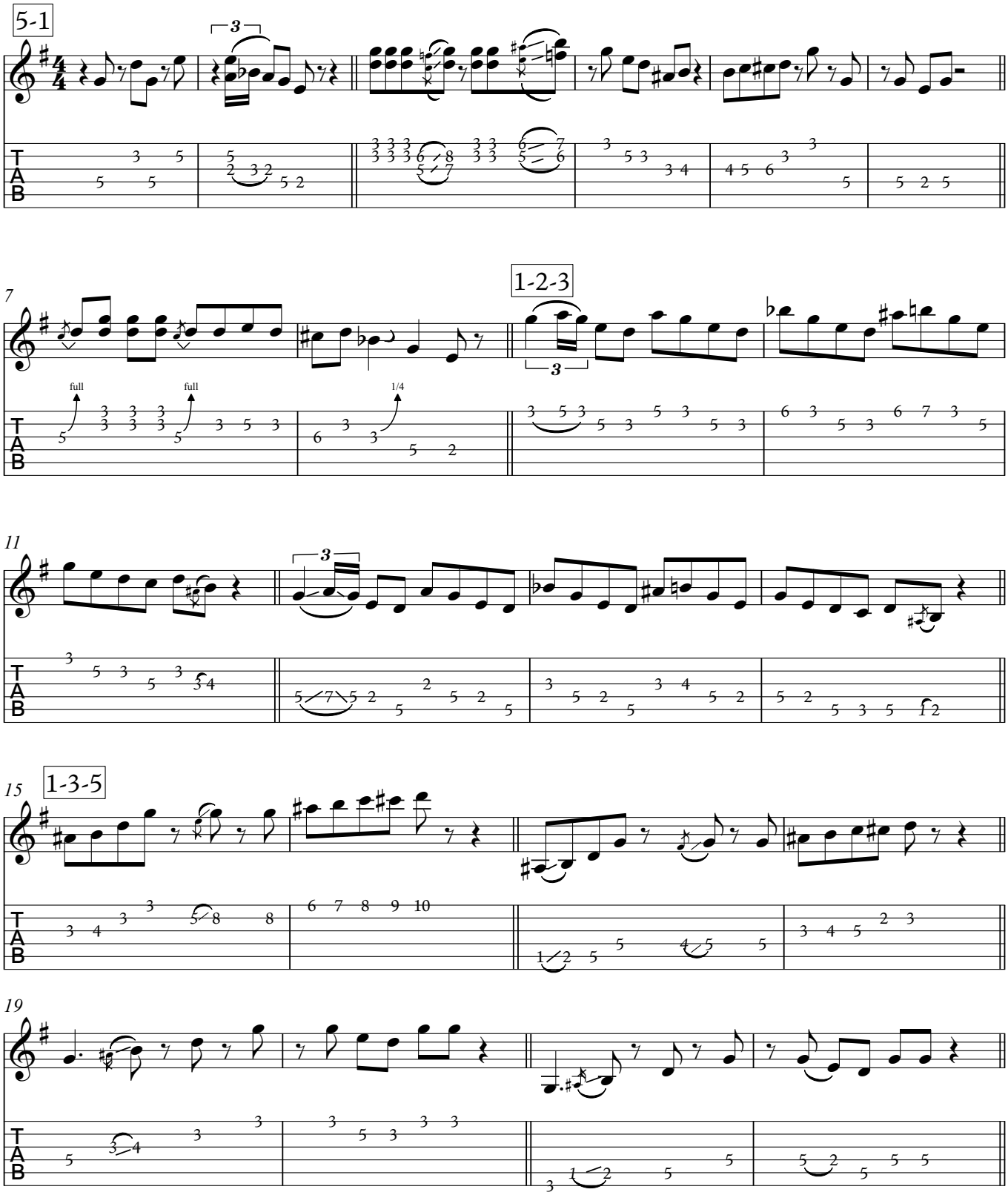


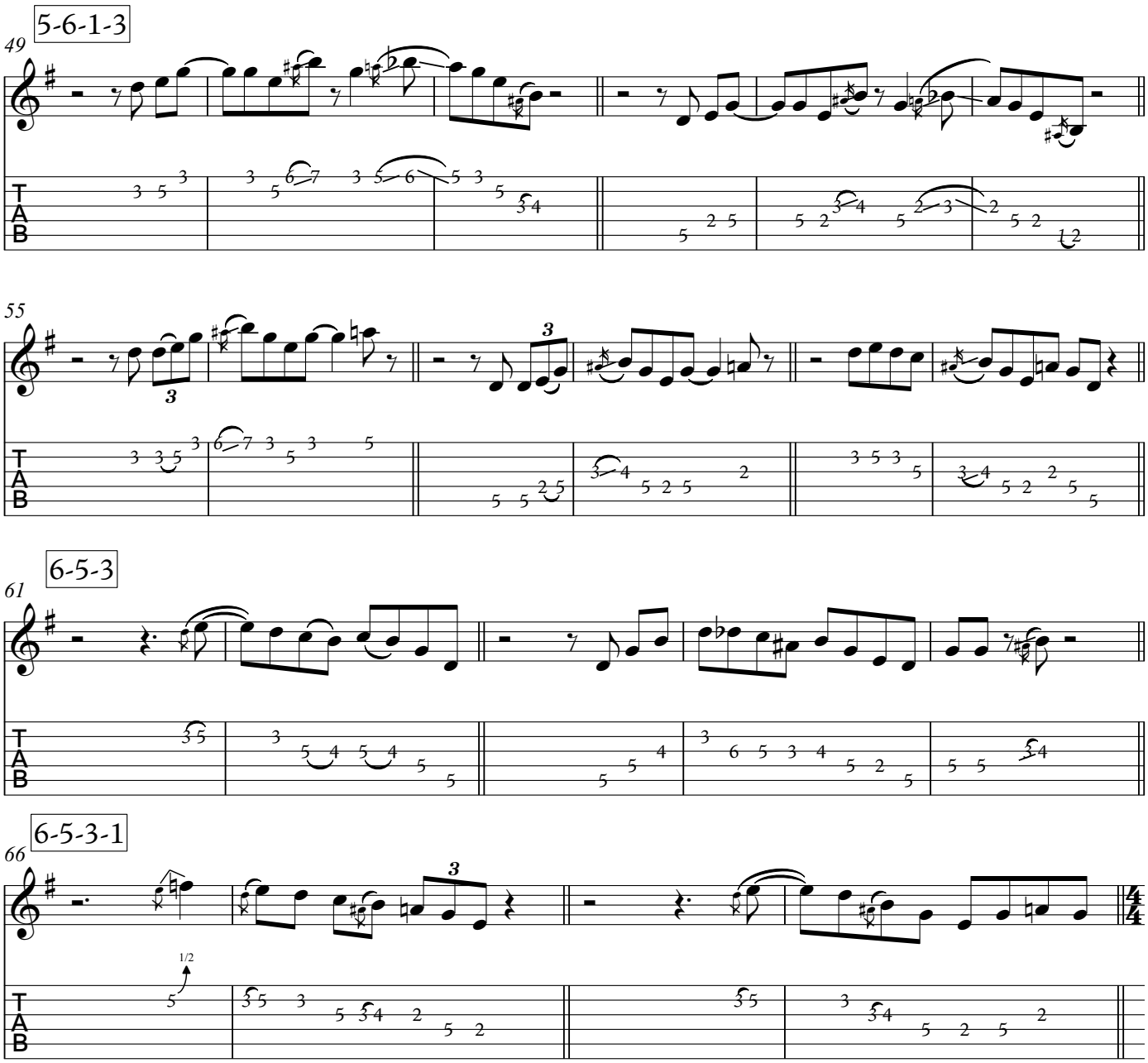


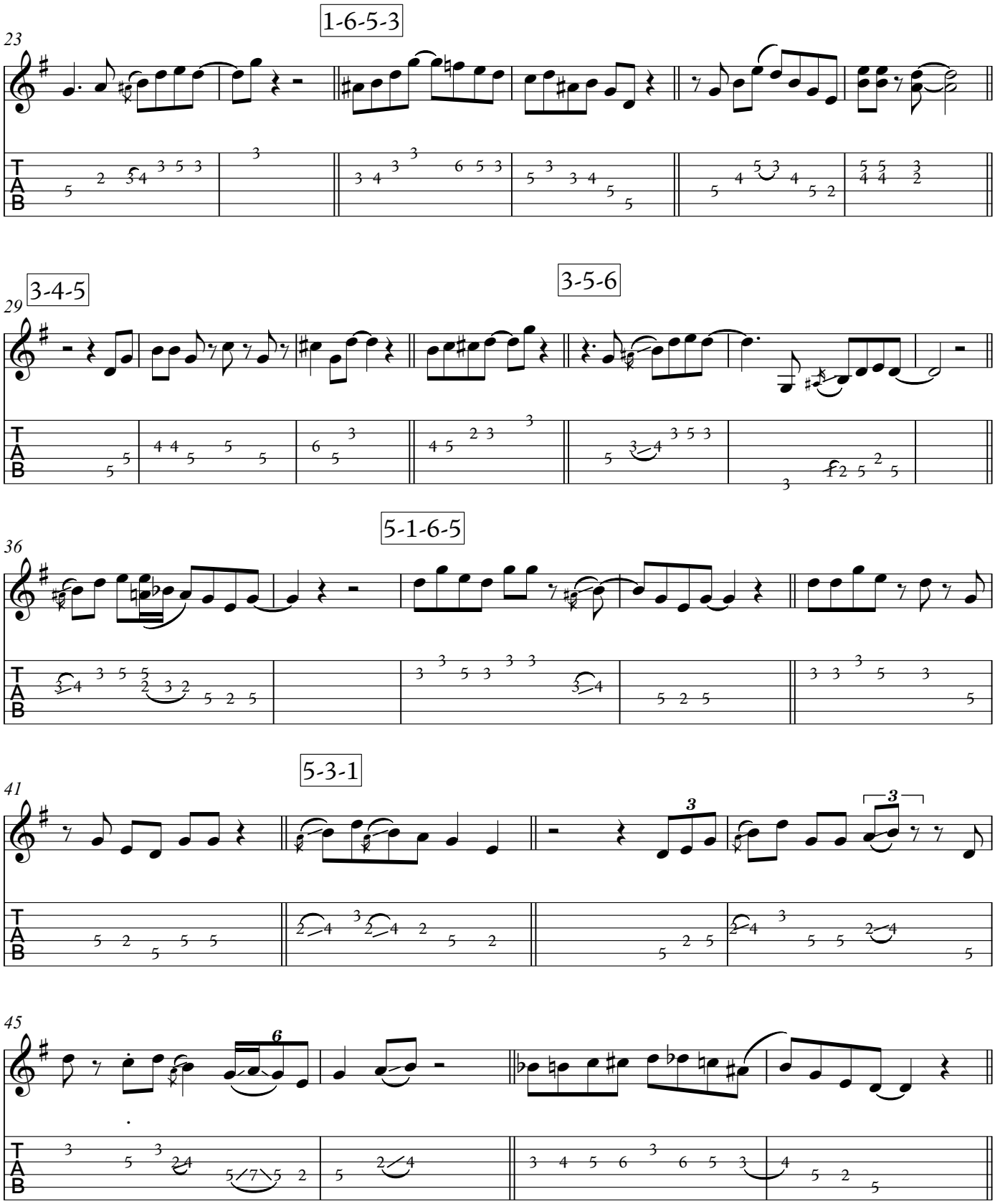
MAJOR PENTATONIC SWING BLUES CELLS

E form

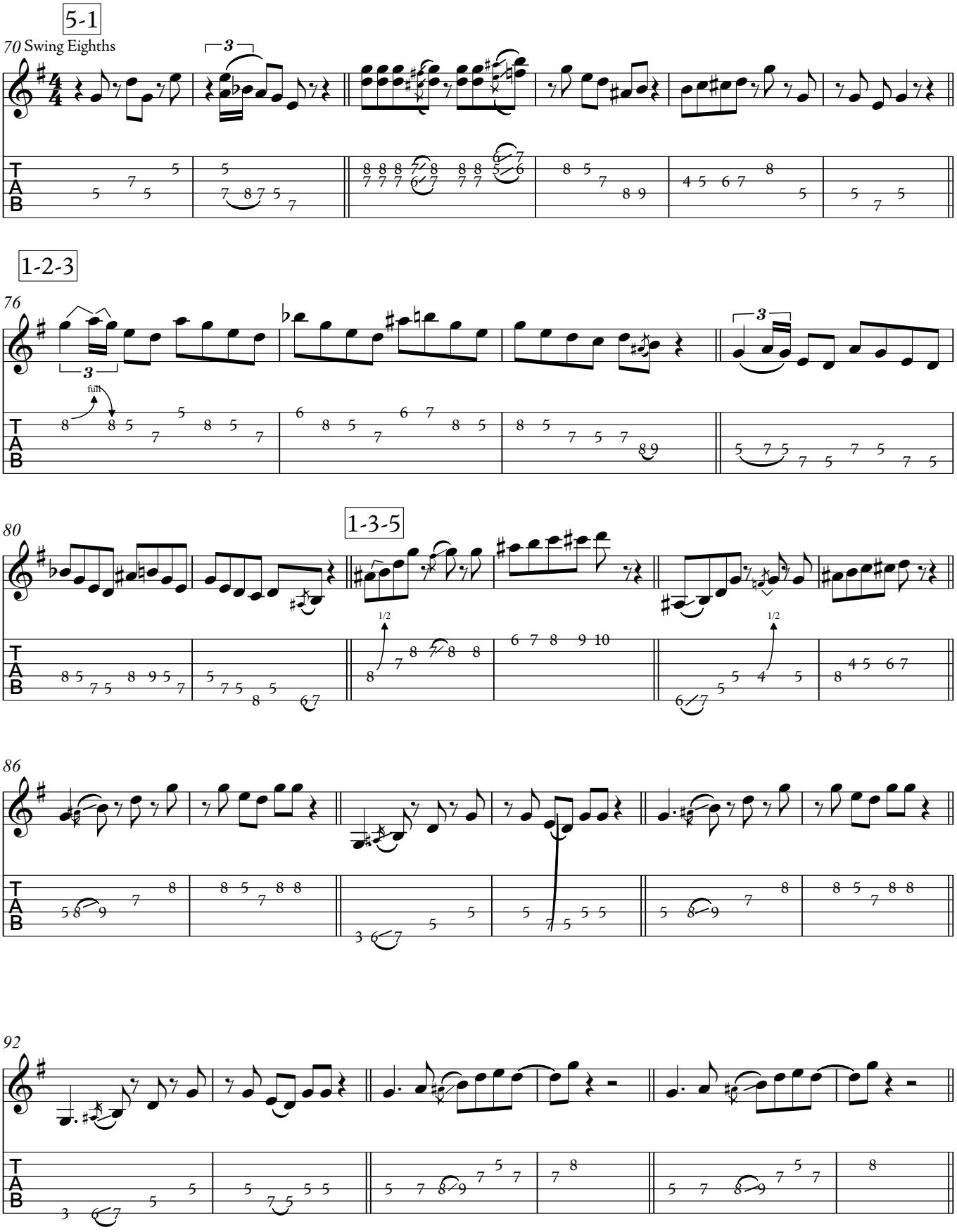
Swing Eighths

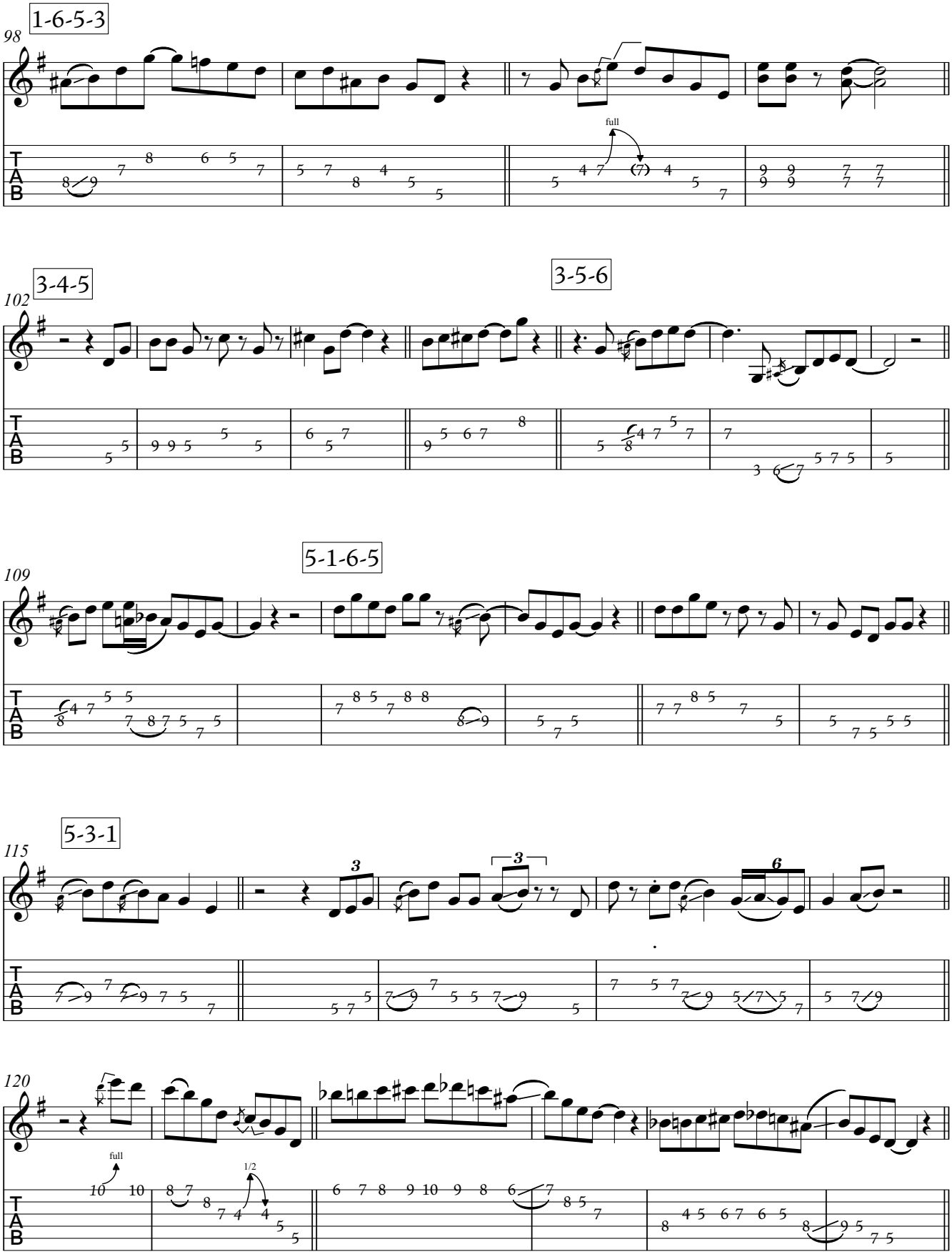




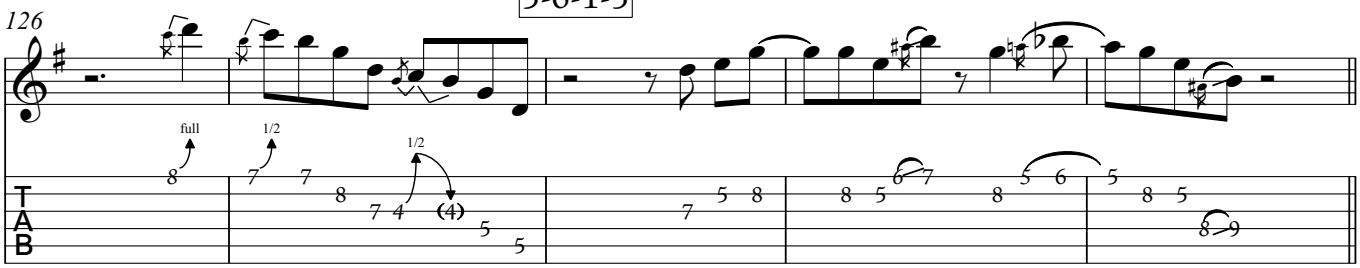


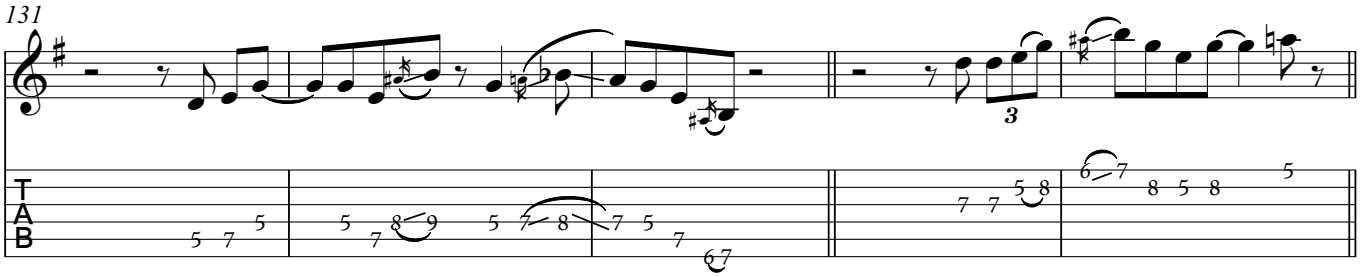
D form

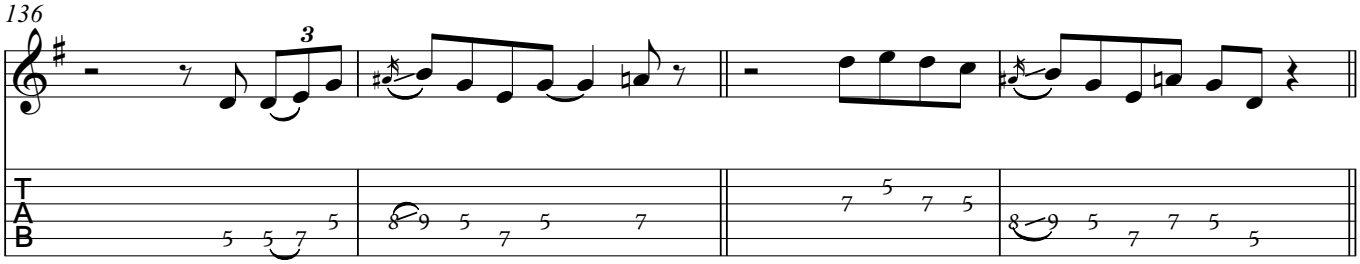




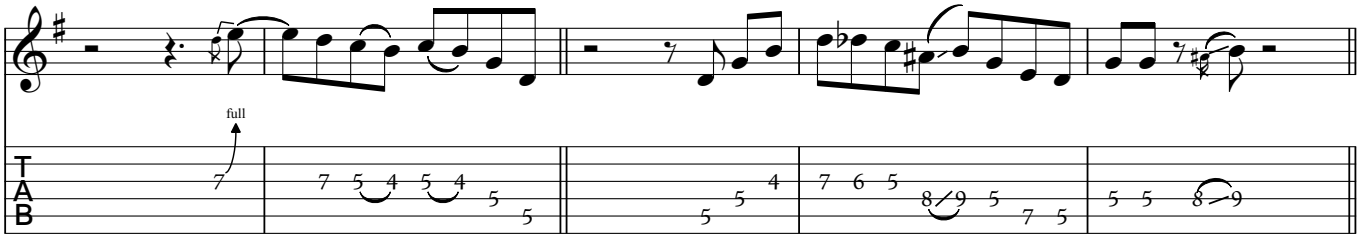
5-6-1-3



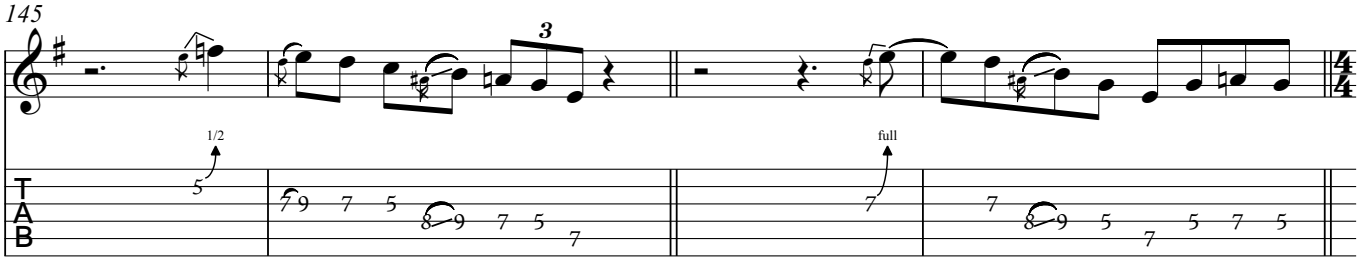




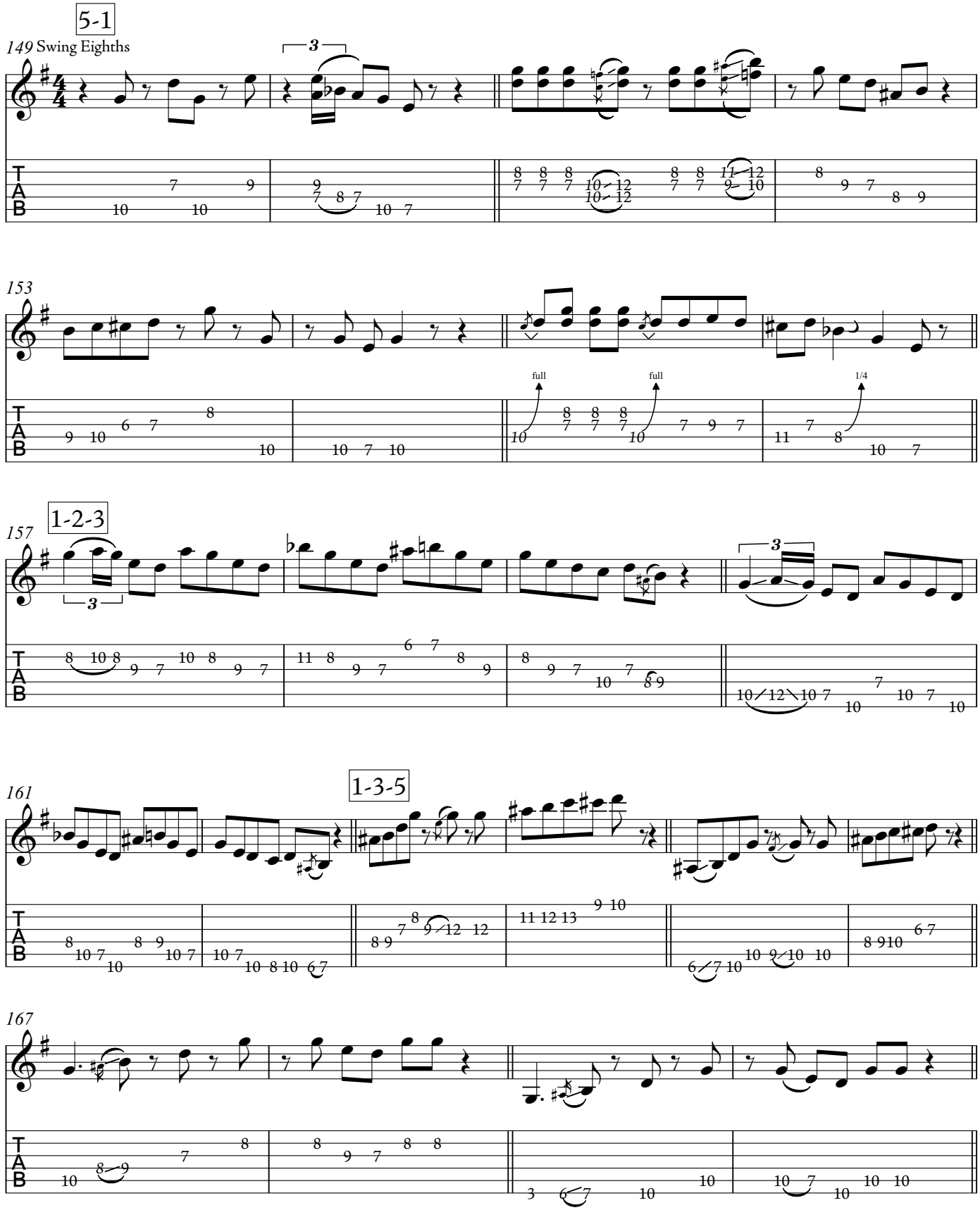
6-5-3



6-5-3-1

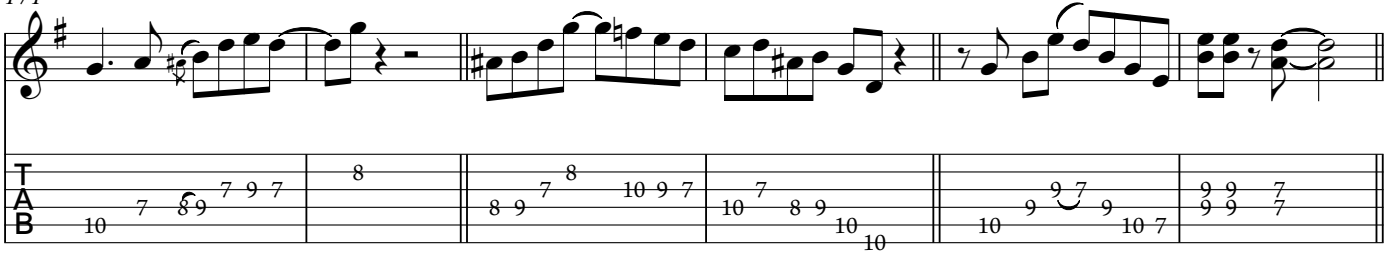


C form



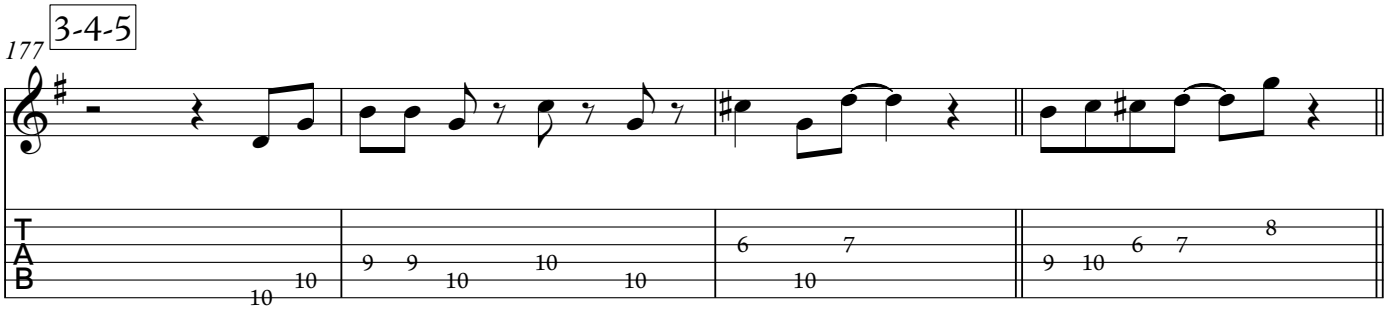
1-6-5-3

171



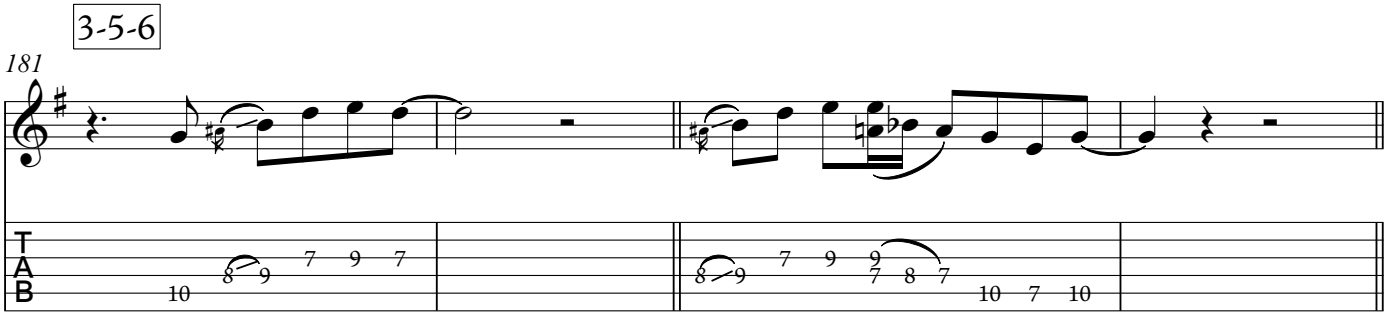
3-4-5

177



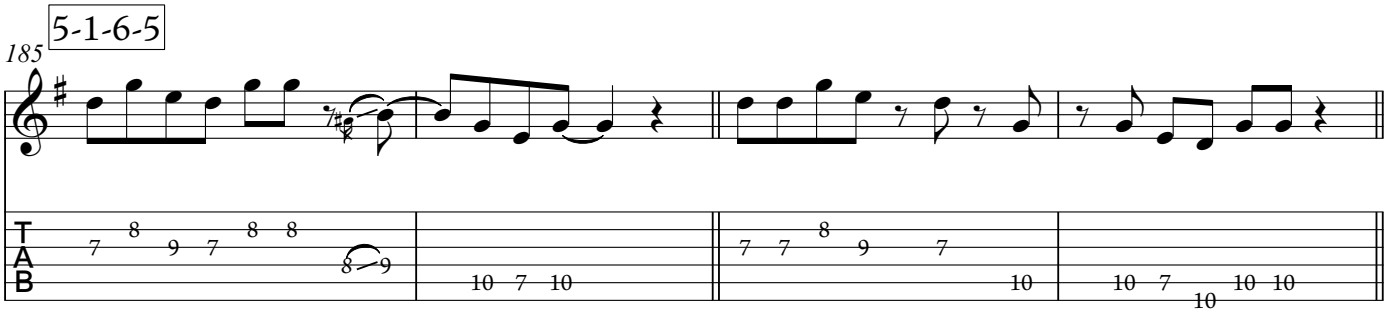
3-5-6

181



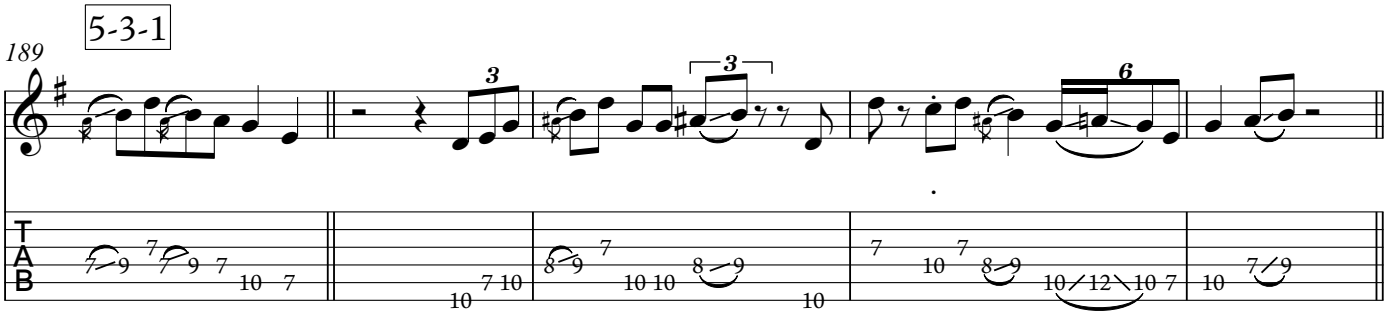
5-1-6-5

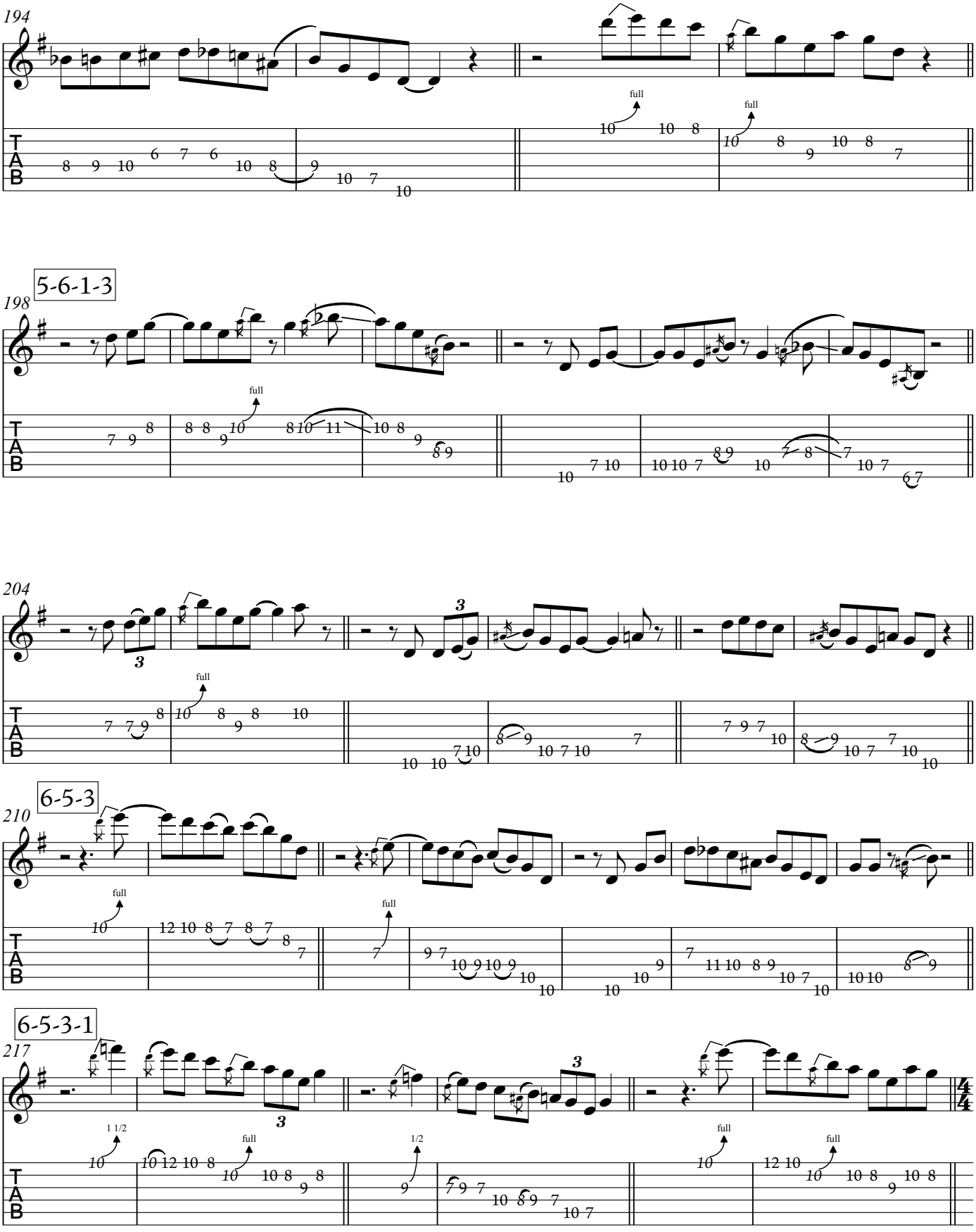
185



5-3-1

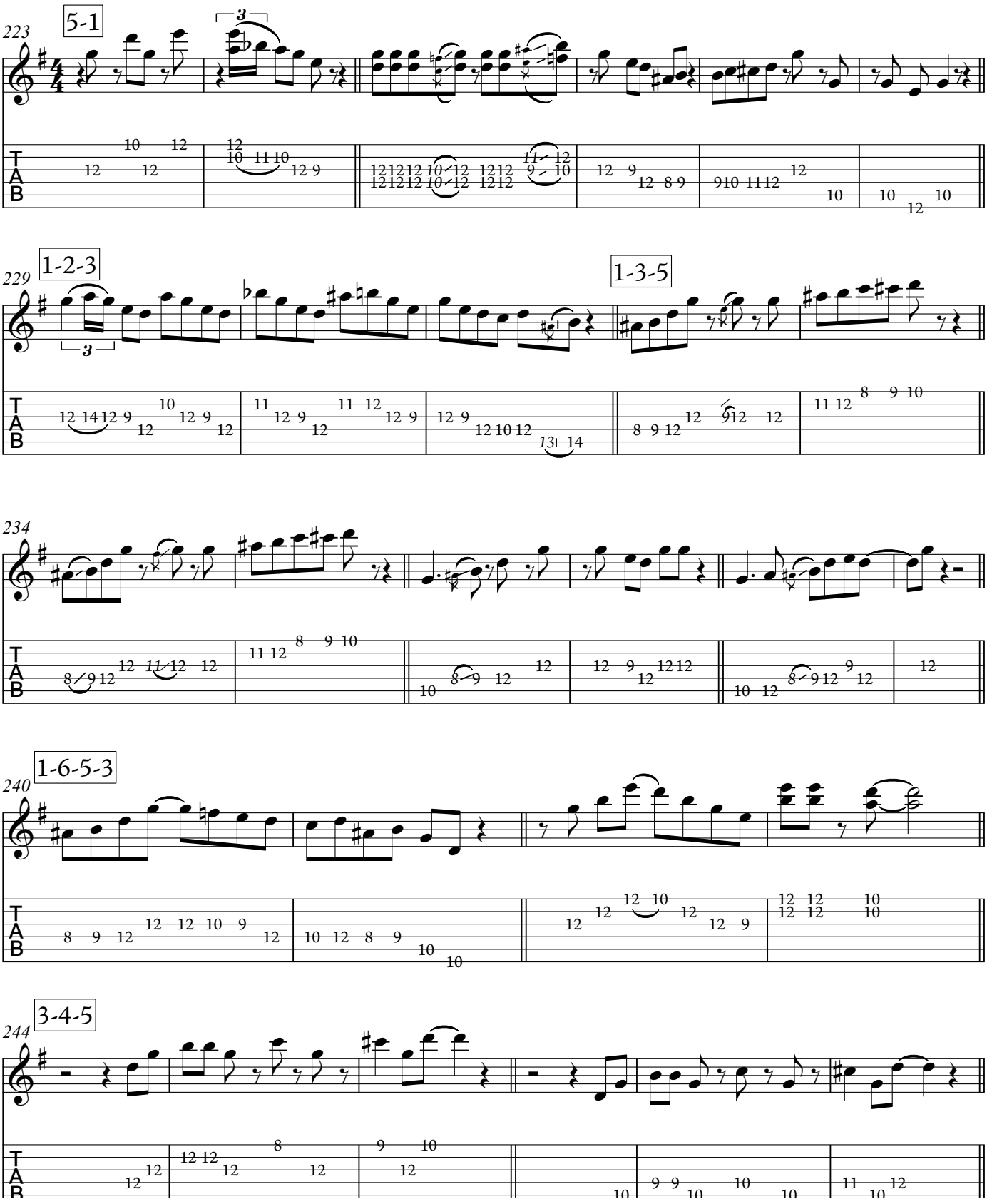
189

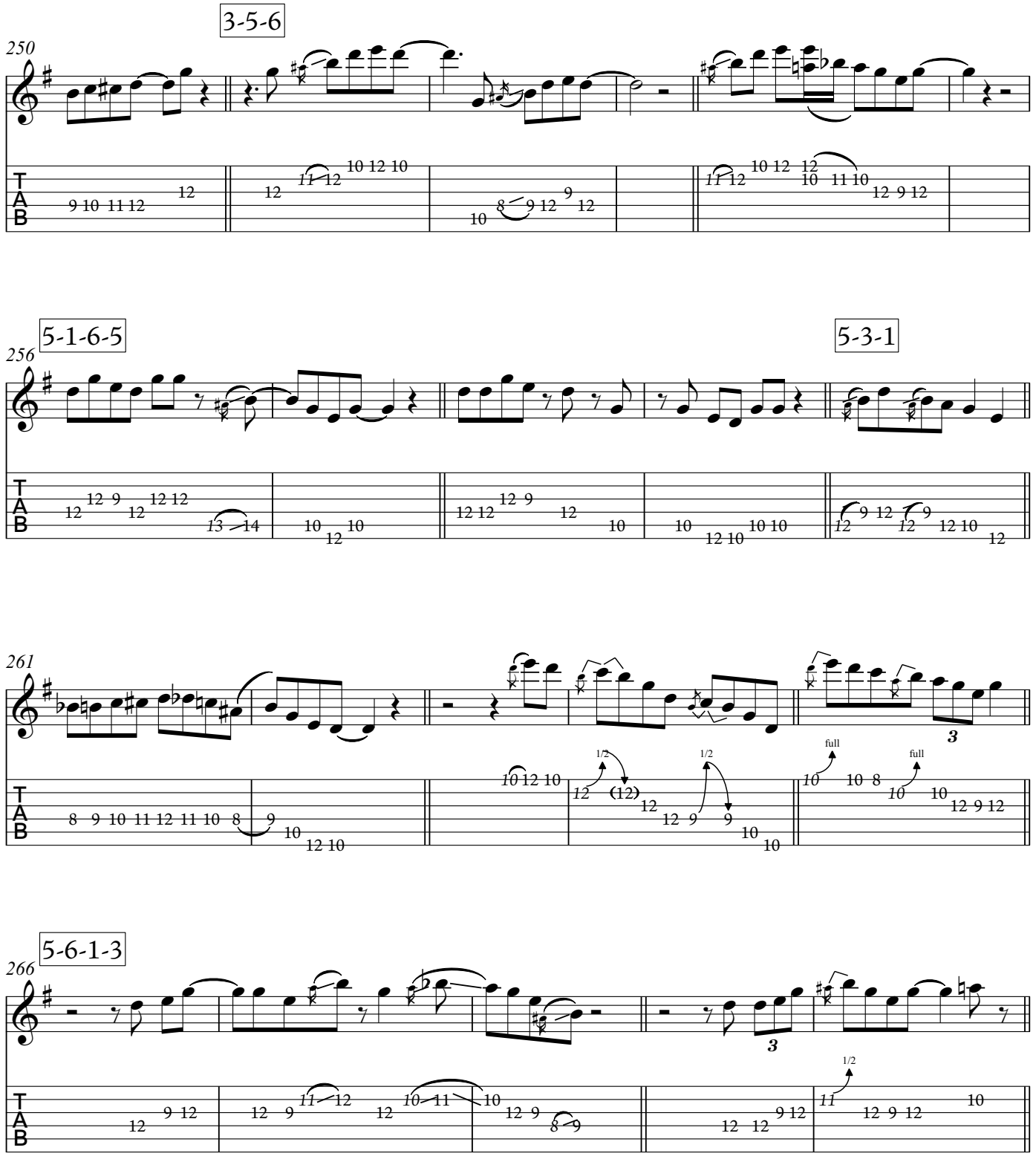


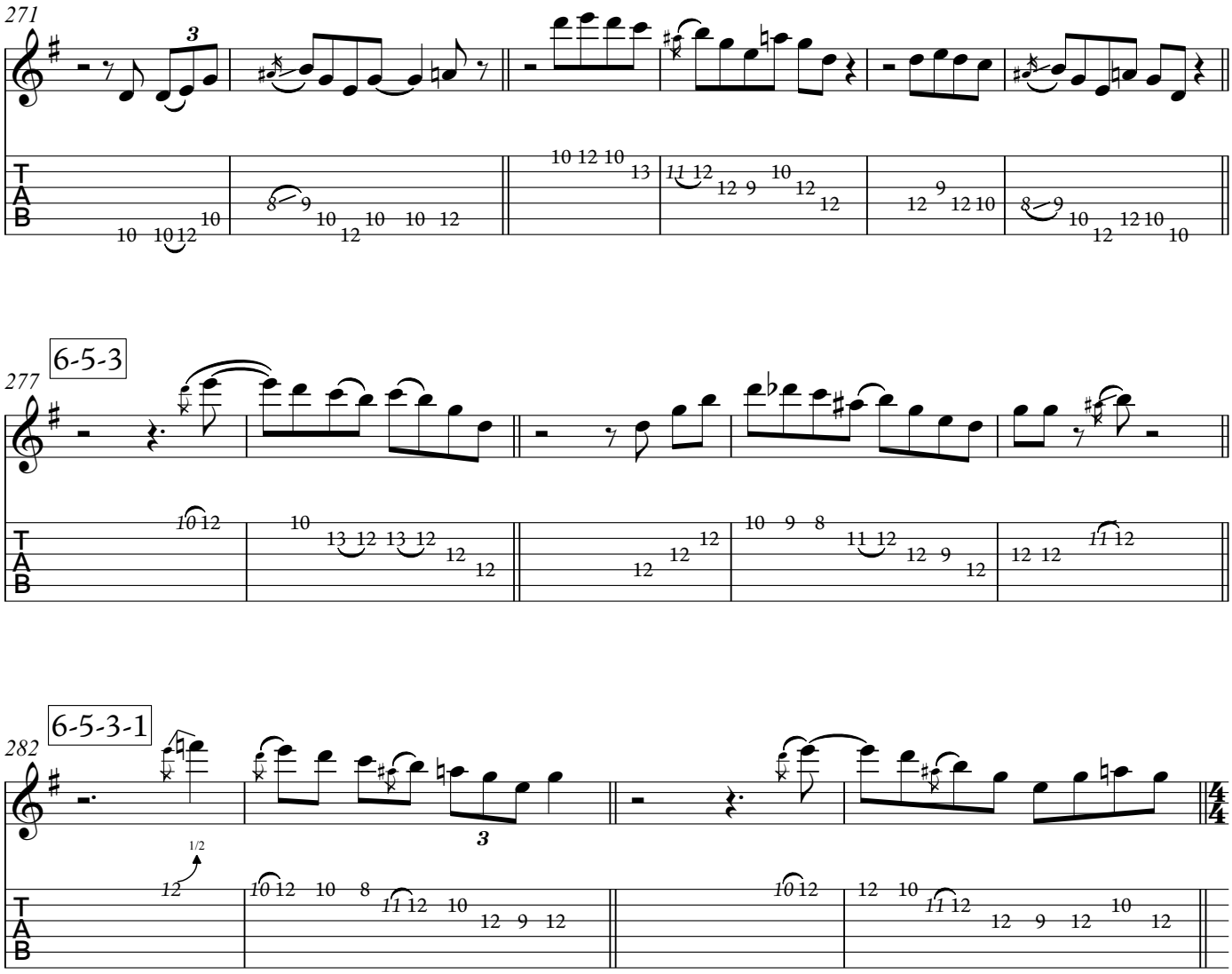


A form

Swing Eighths

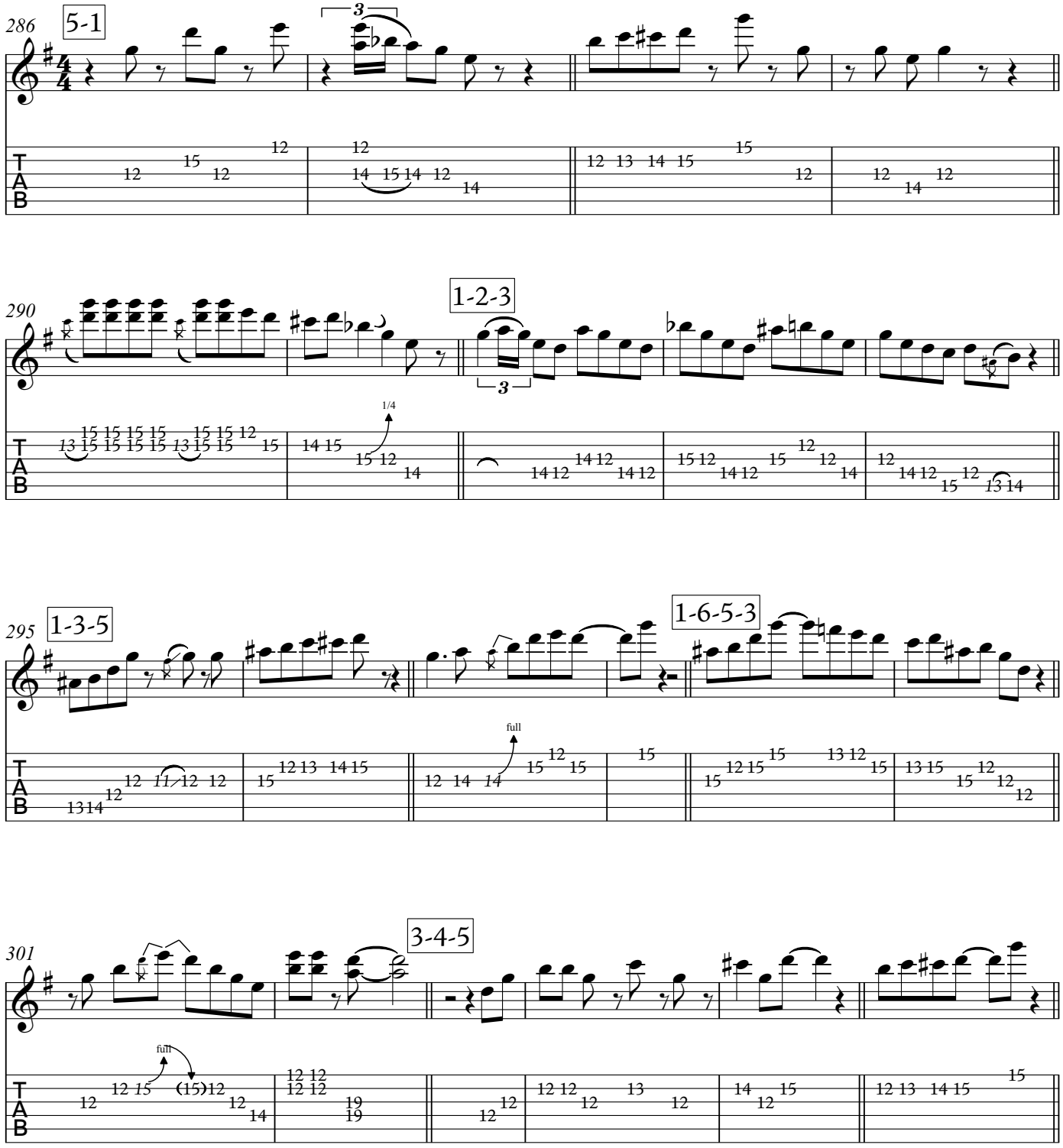


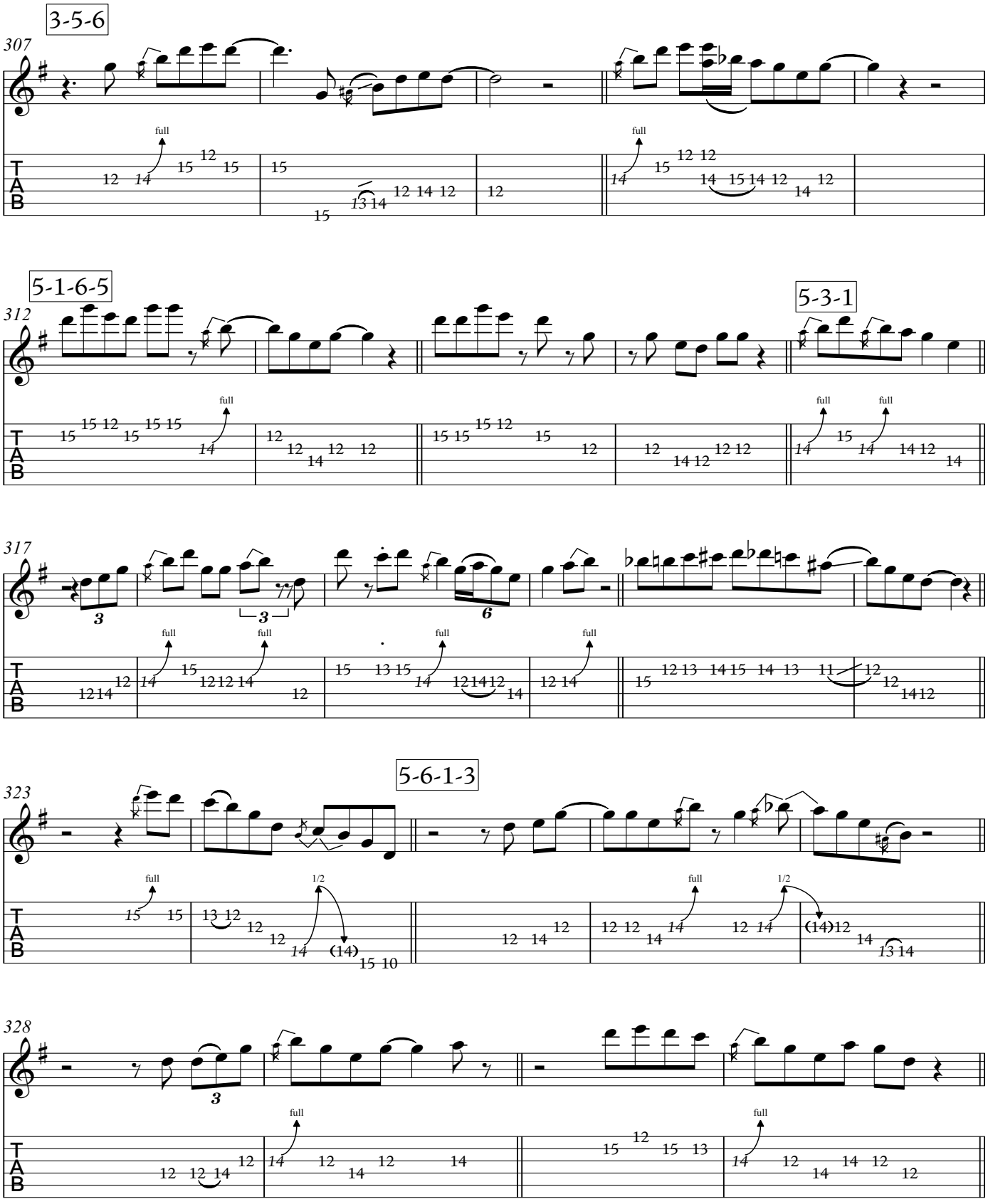


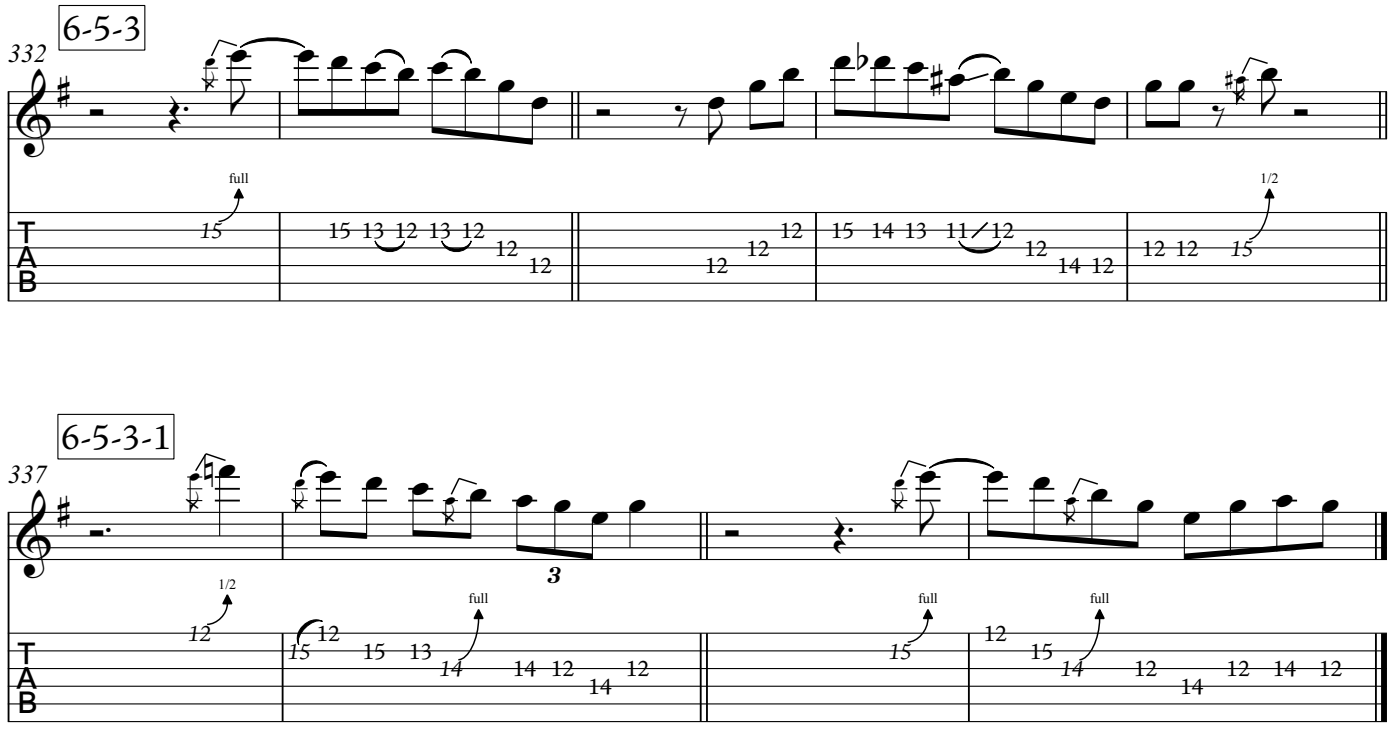


G form

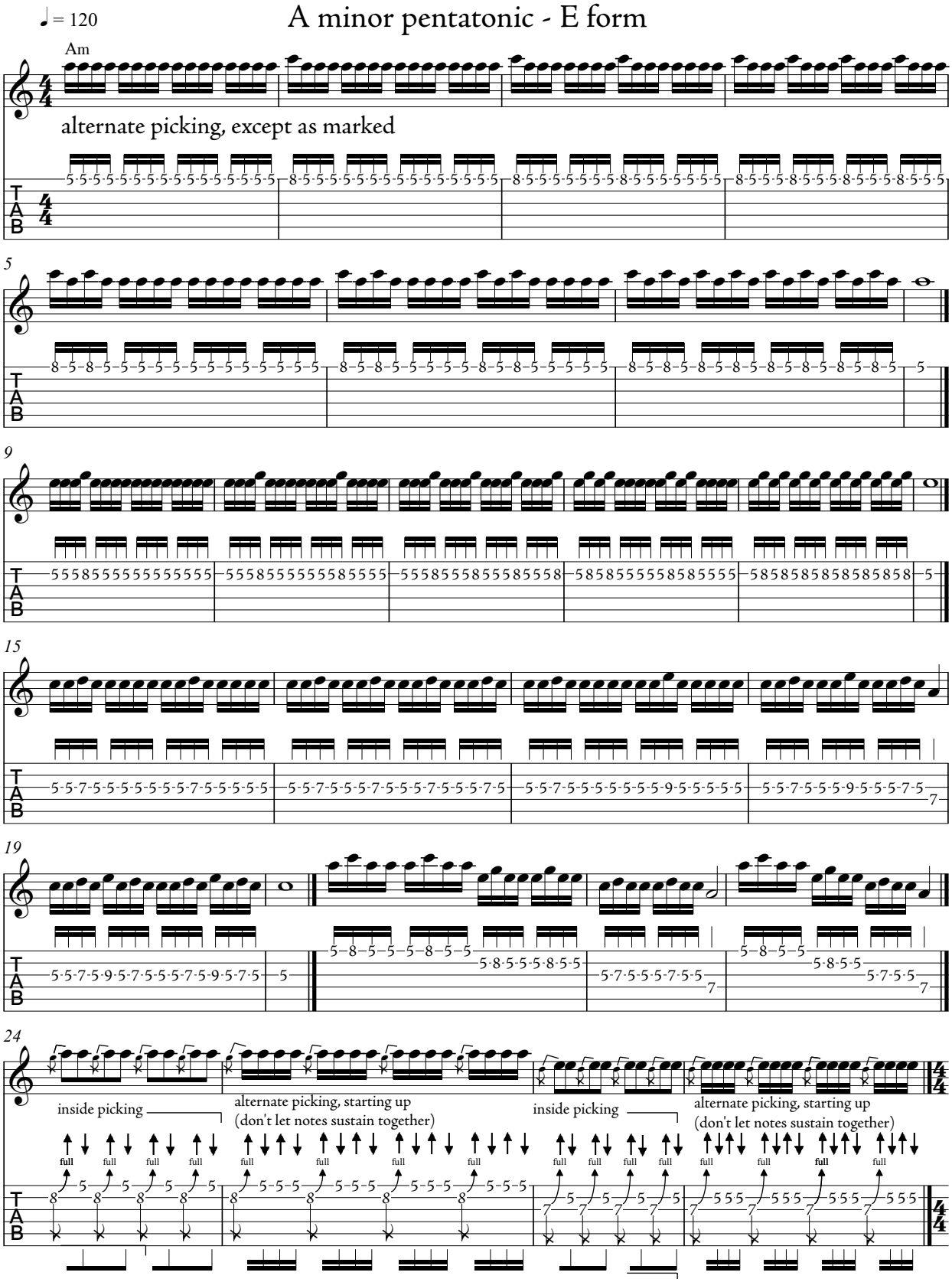
Swing Eighths

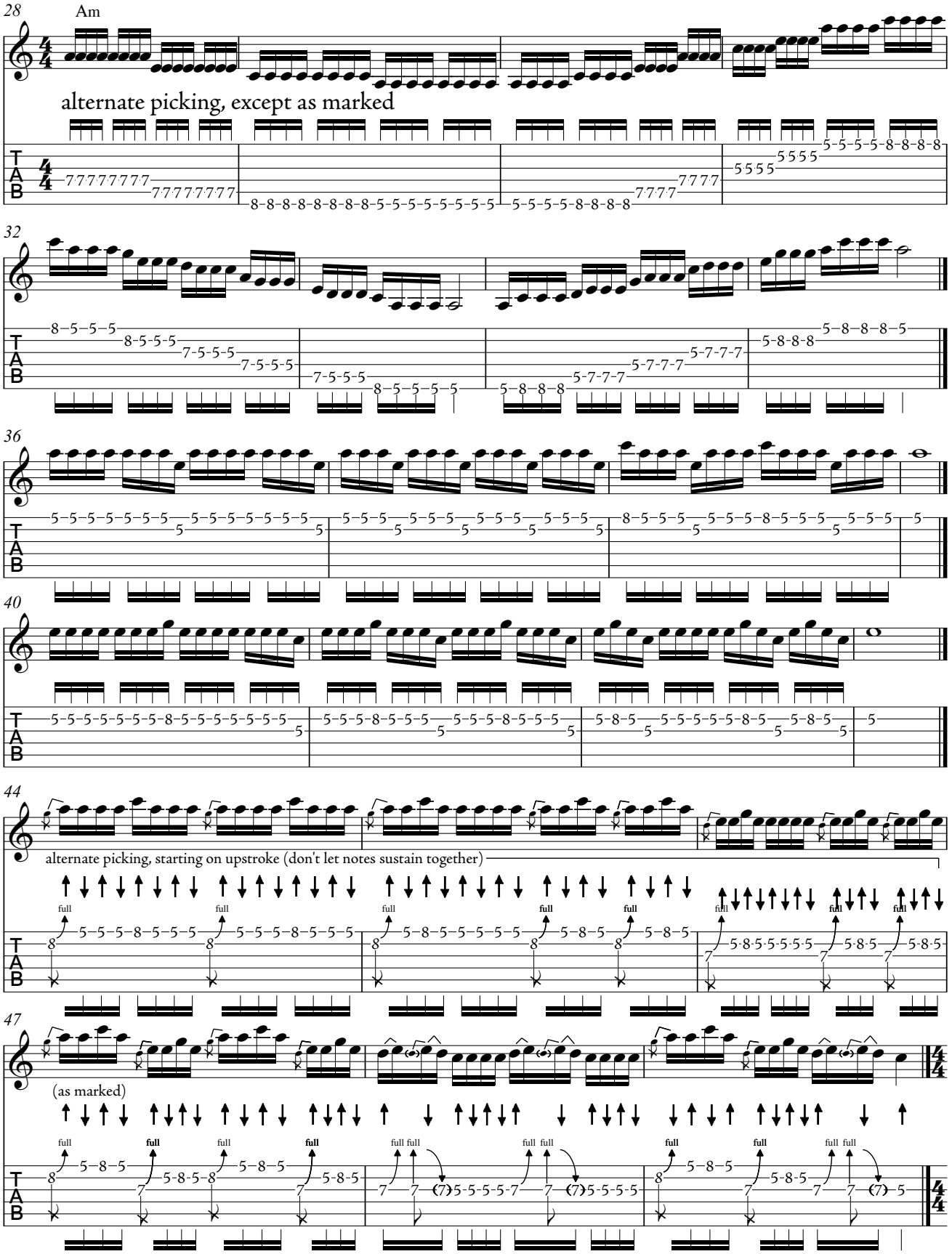


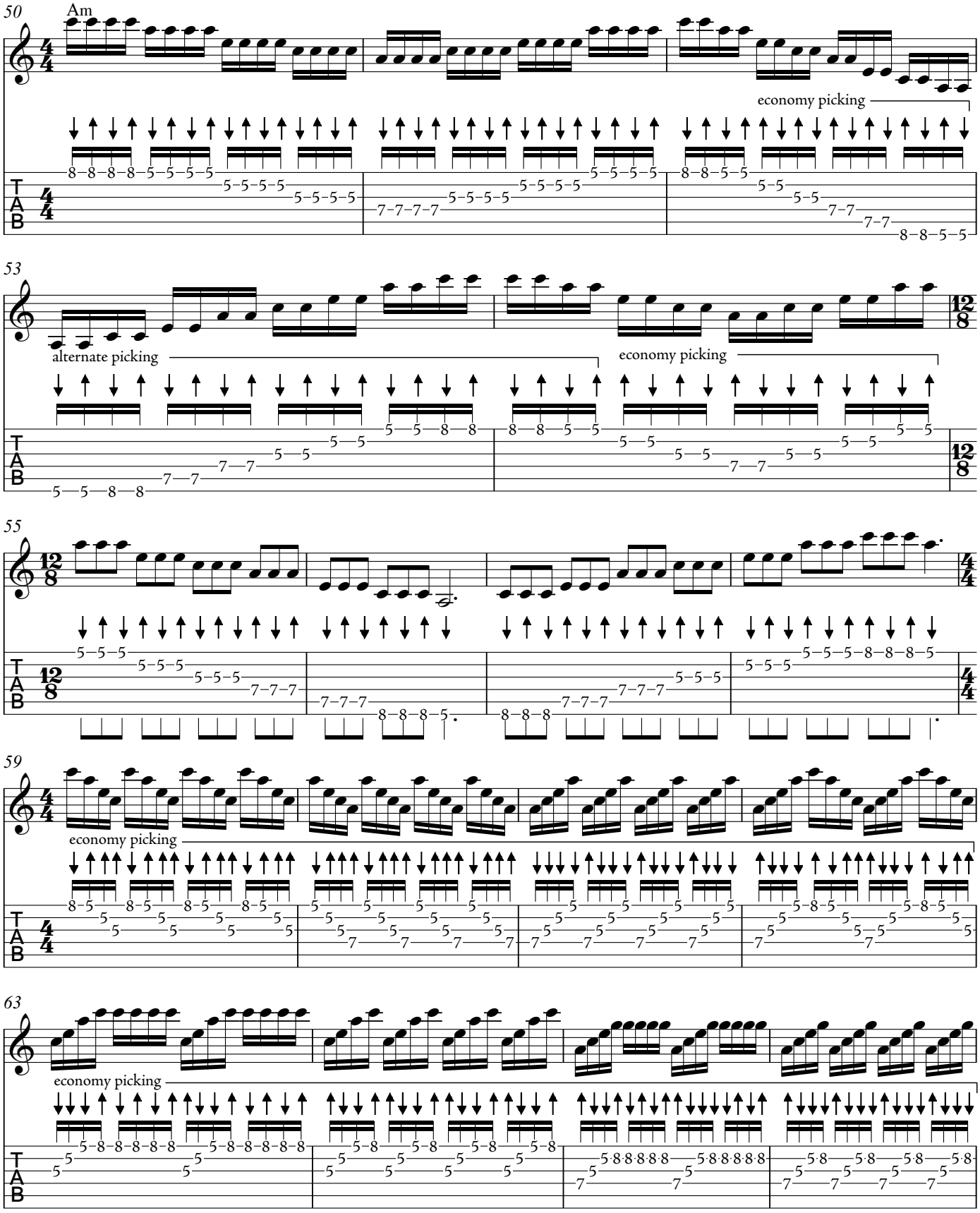


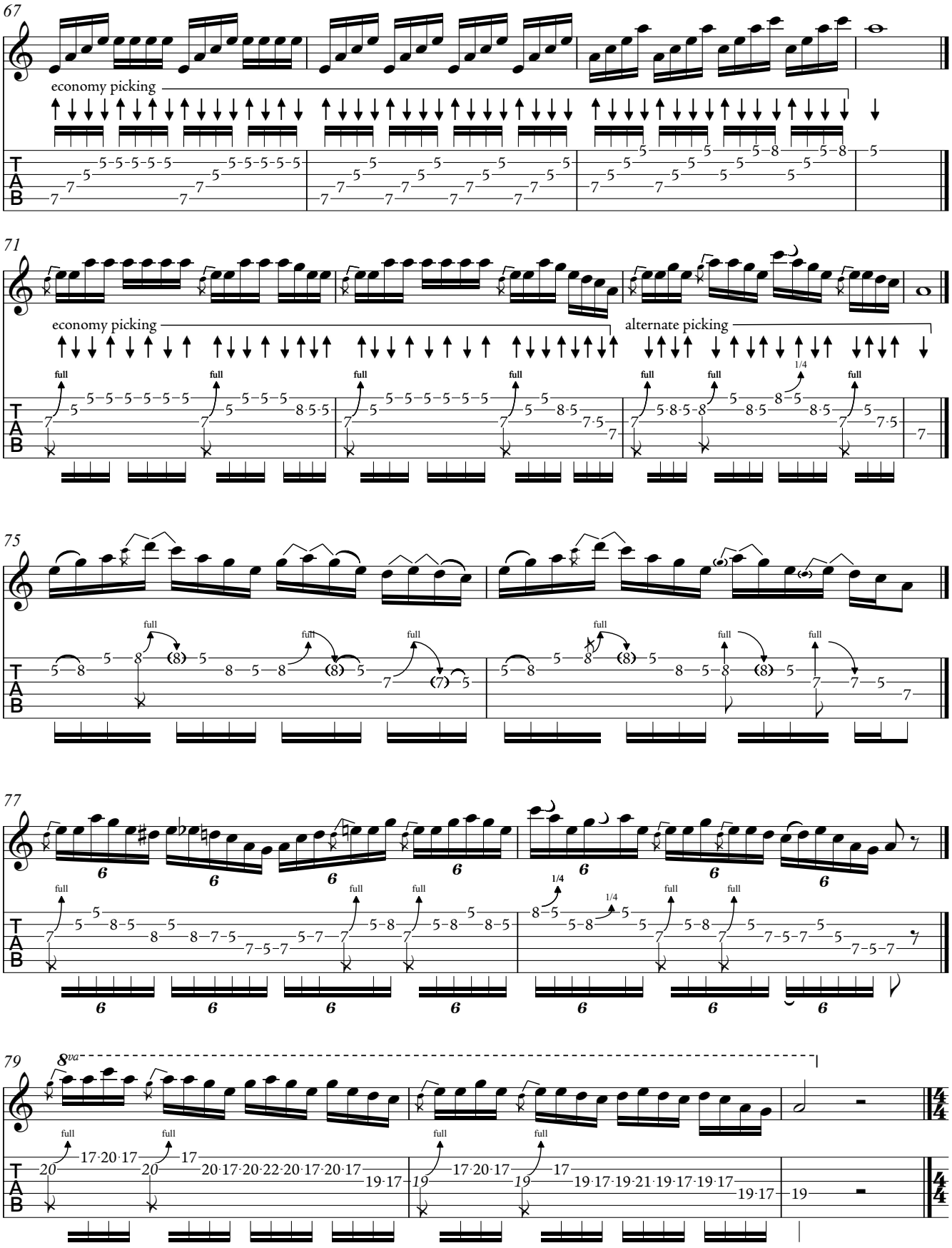


BLUES ROCK CELL DEVELOPMENT

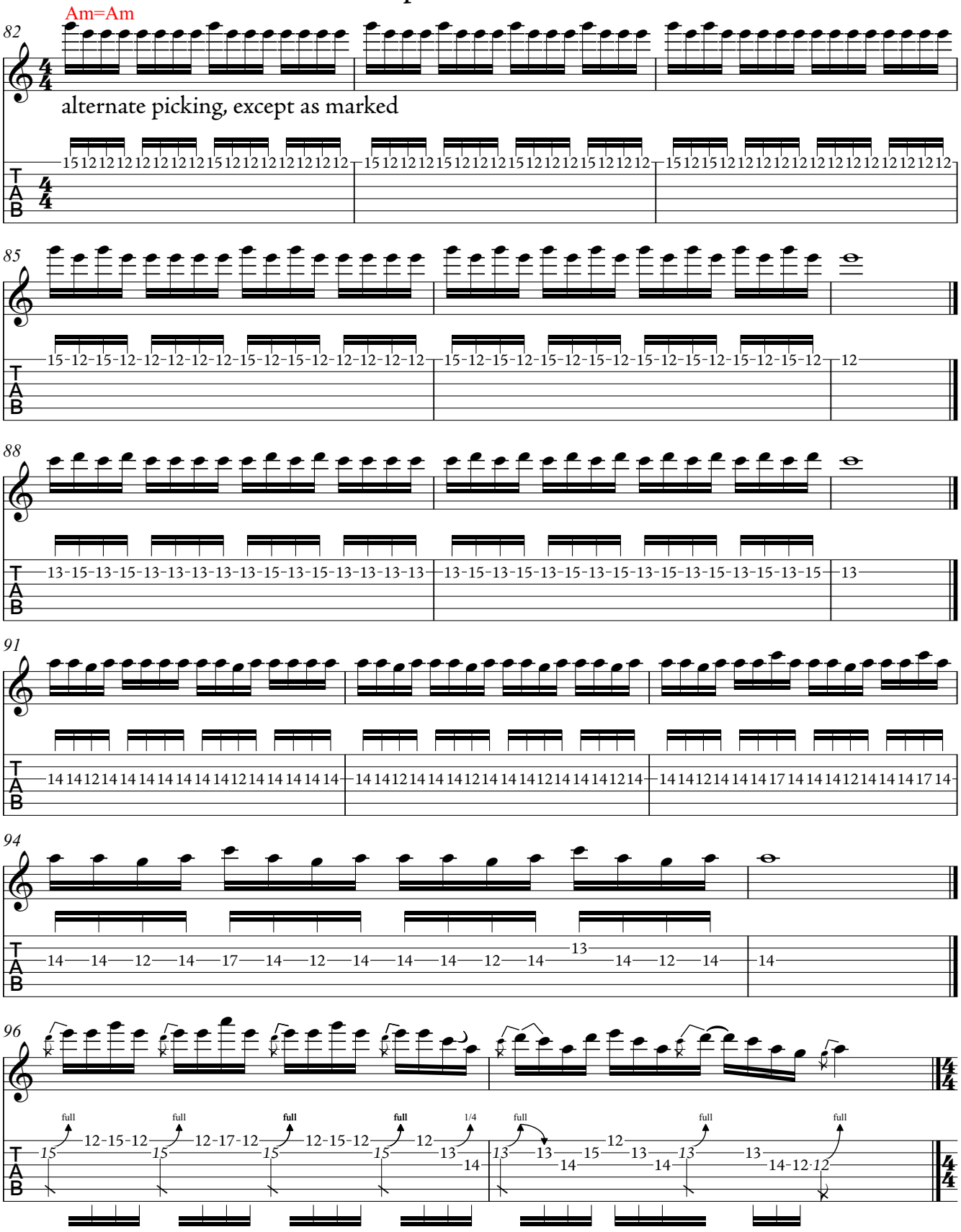


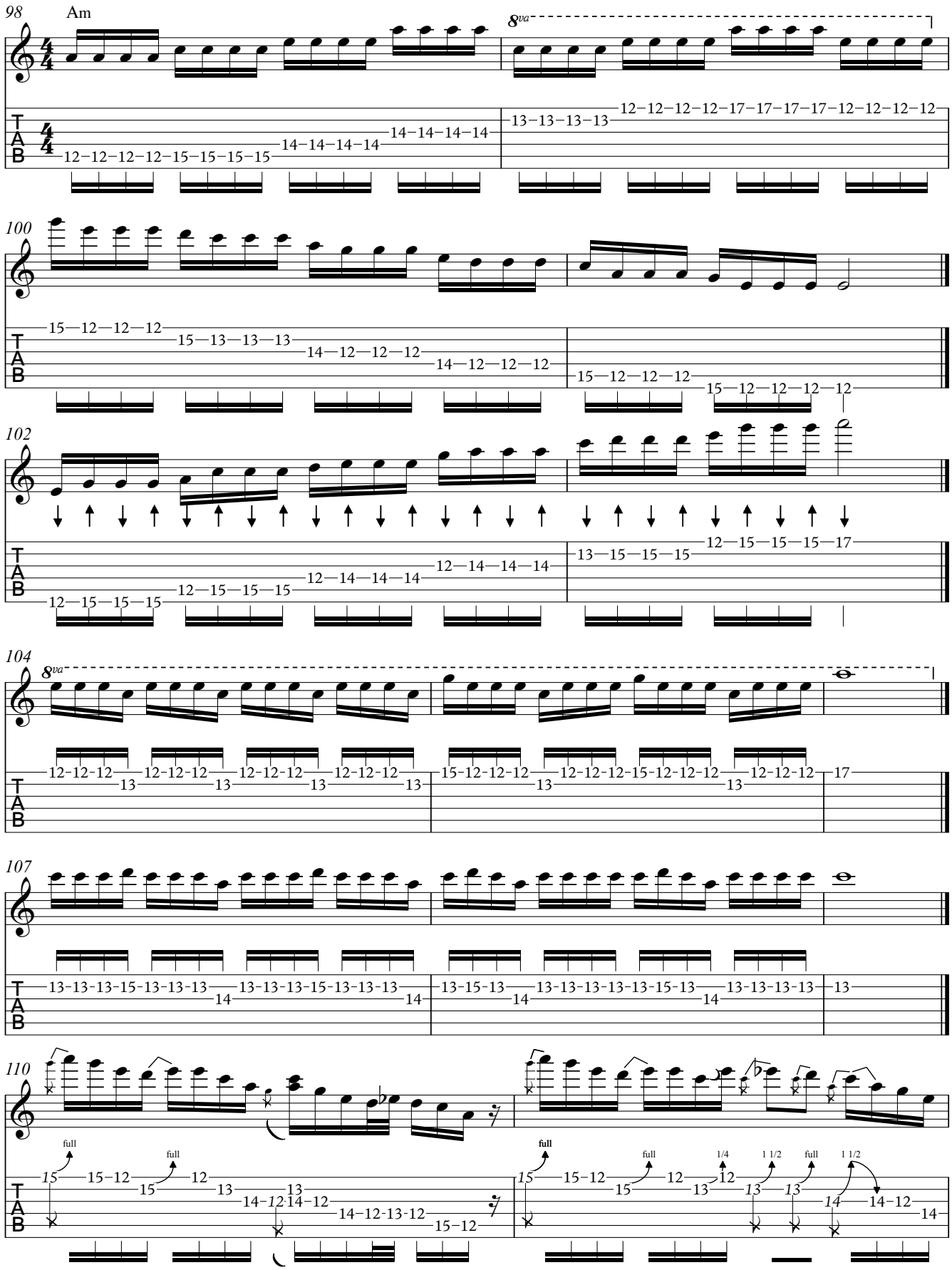


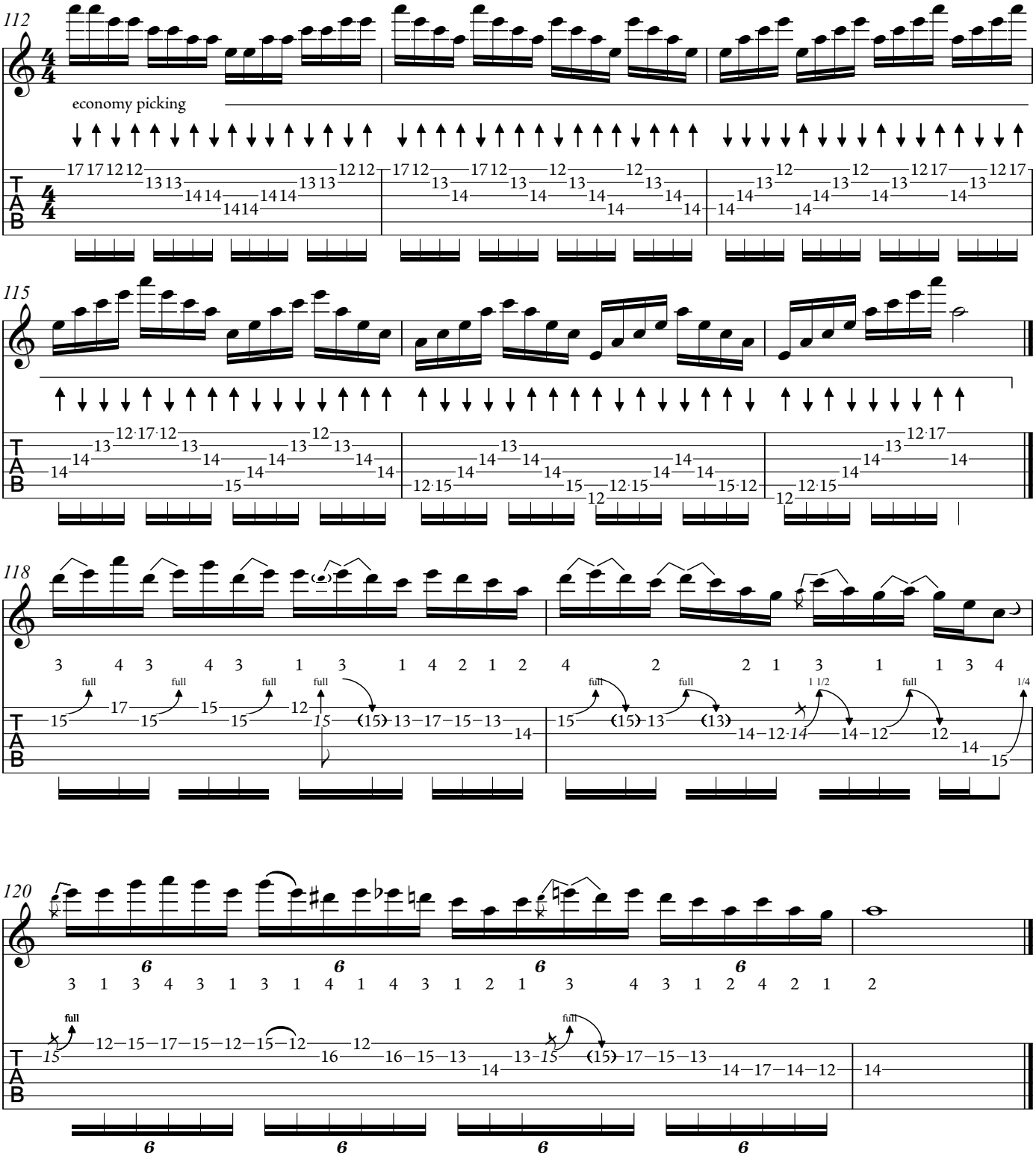




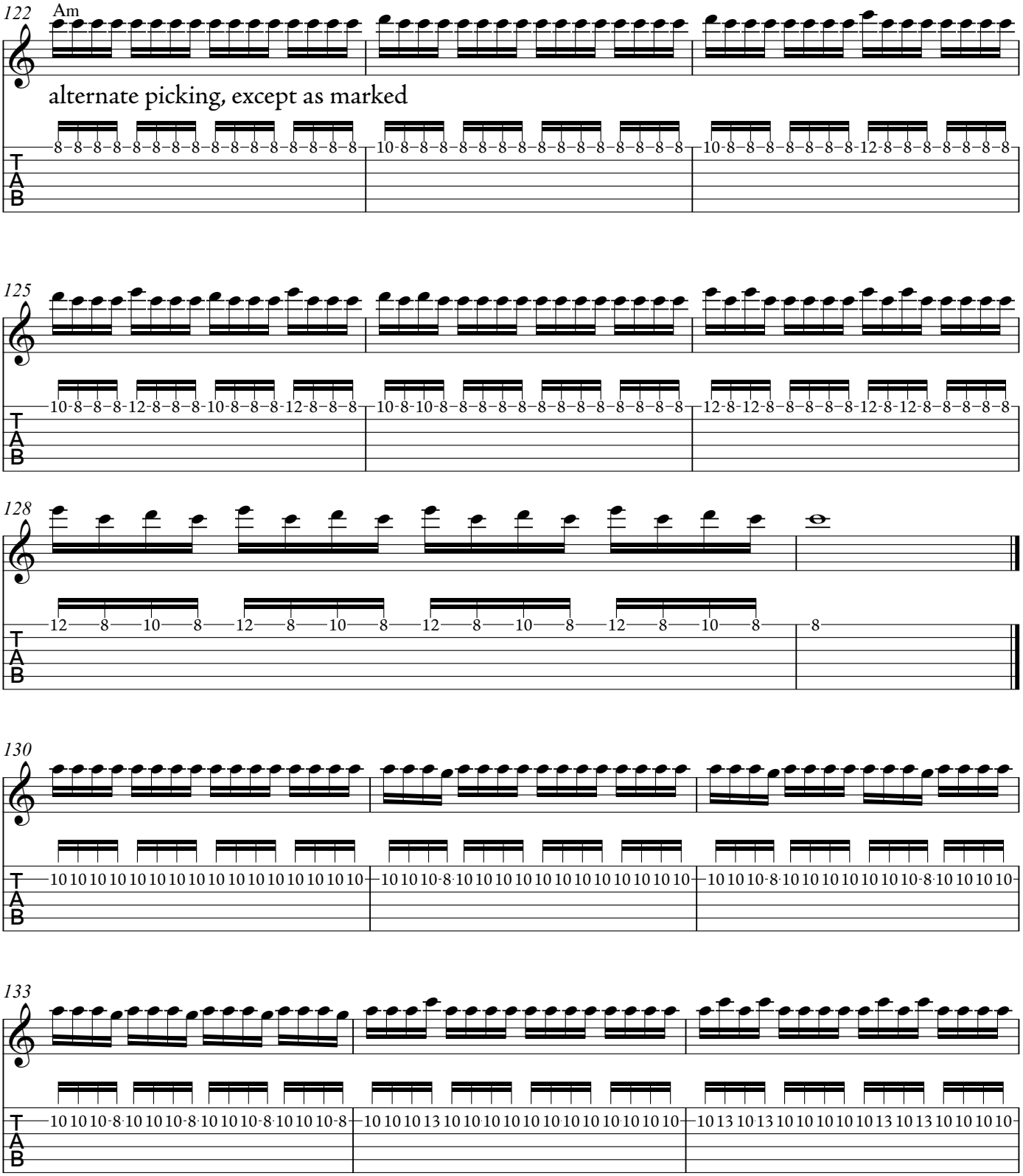
A minor pentatonic - A form







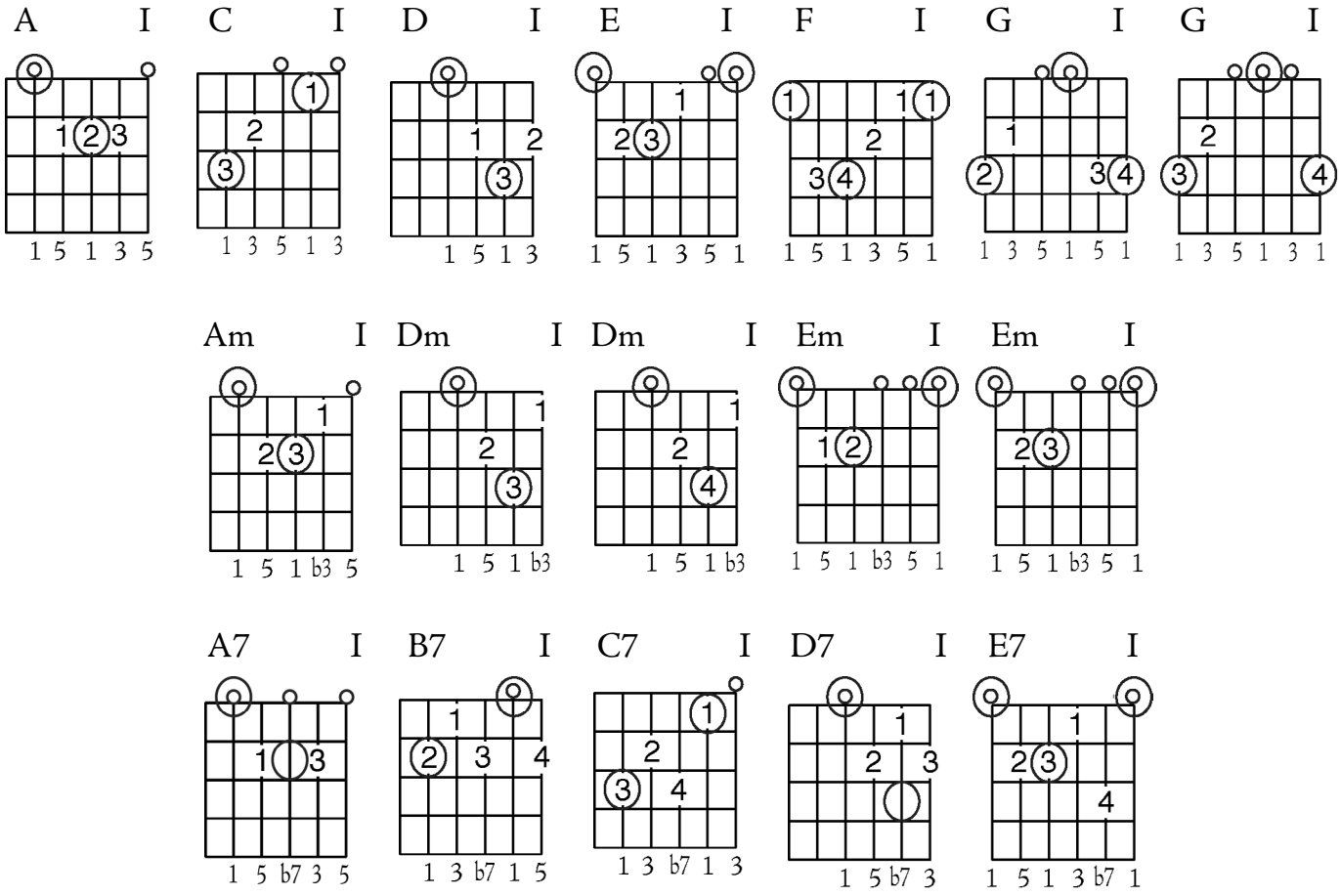
A minor pentatonic - D form



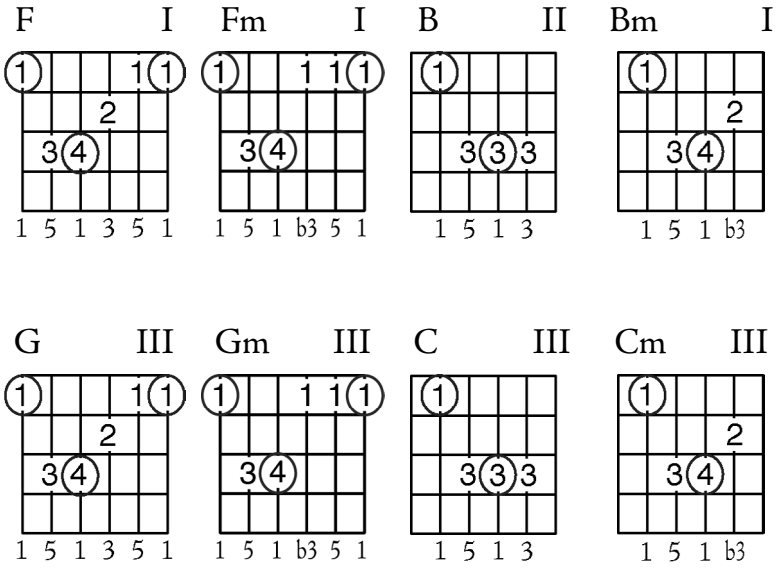
13 Fingering Common Chords

- First 19 Chords
- First 35 Chords
- First 53 Chords
- First 78 Chords
- First 93 Chords
- Common Chords by Octave Shape
- Three-Note Chords
- Essential Blues Chords
- First Jazz Chords

FIRST 19 CHORDS

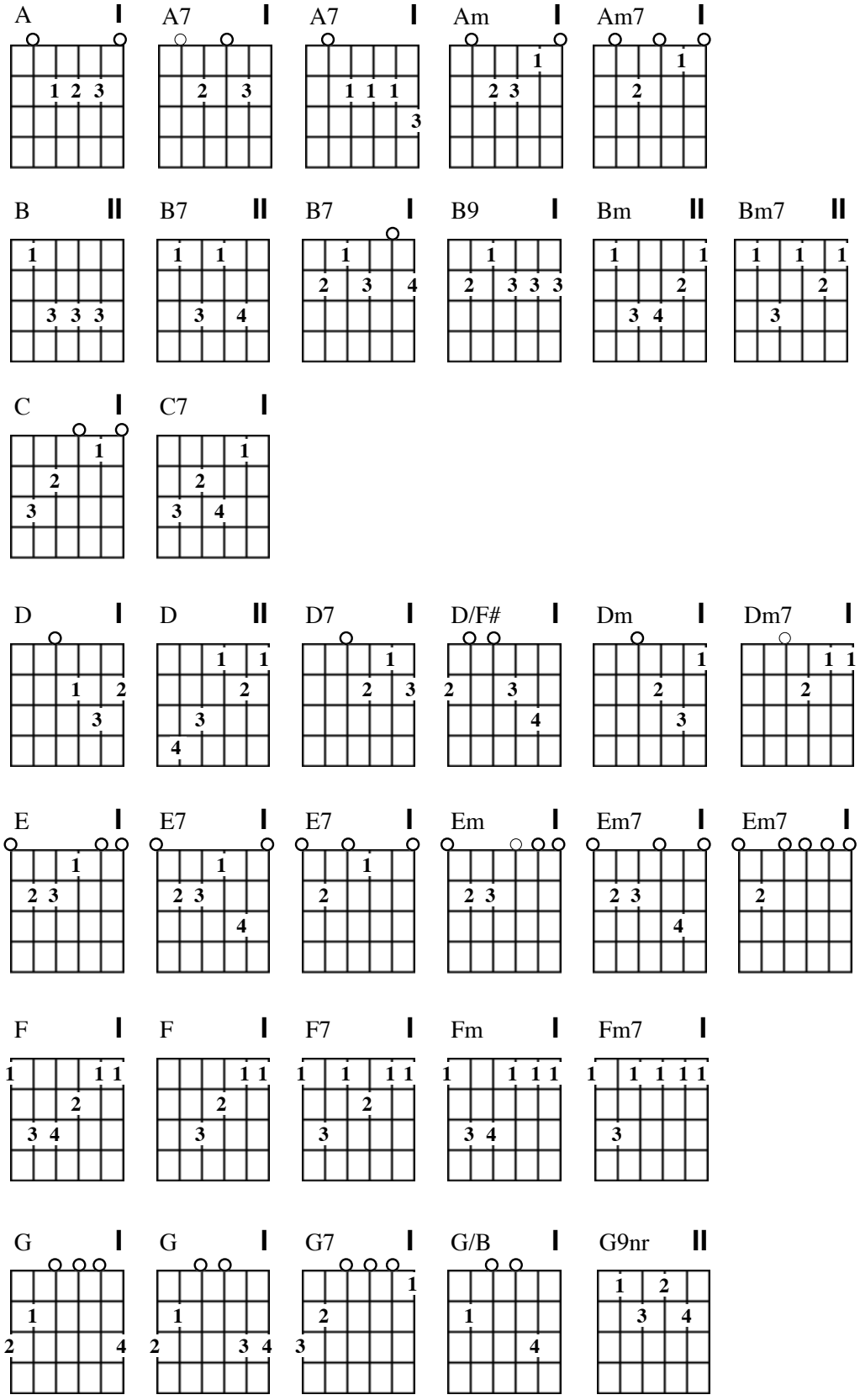


The chords below are movable, each named after its circled note. We usually use the circled note on the largest string available for reference. Learn to construct these chords in Octave Shapes/ED CAGE.



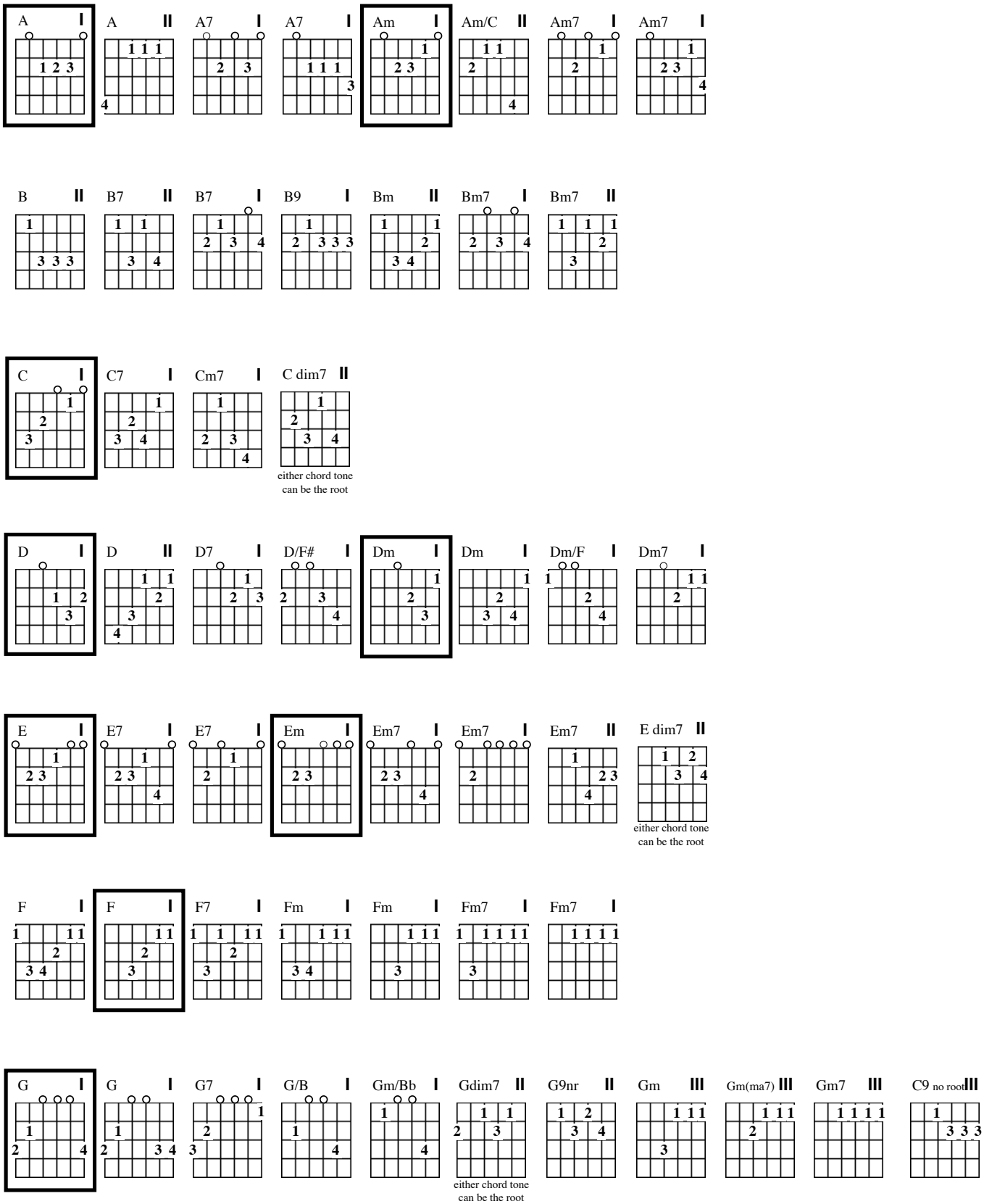
FIRST 35 CHORDS

Learn to construct moveable chords in Octave Shapes/ED CAGE.



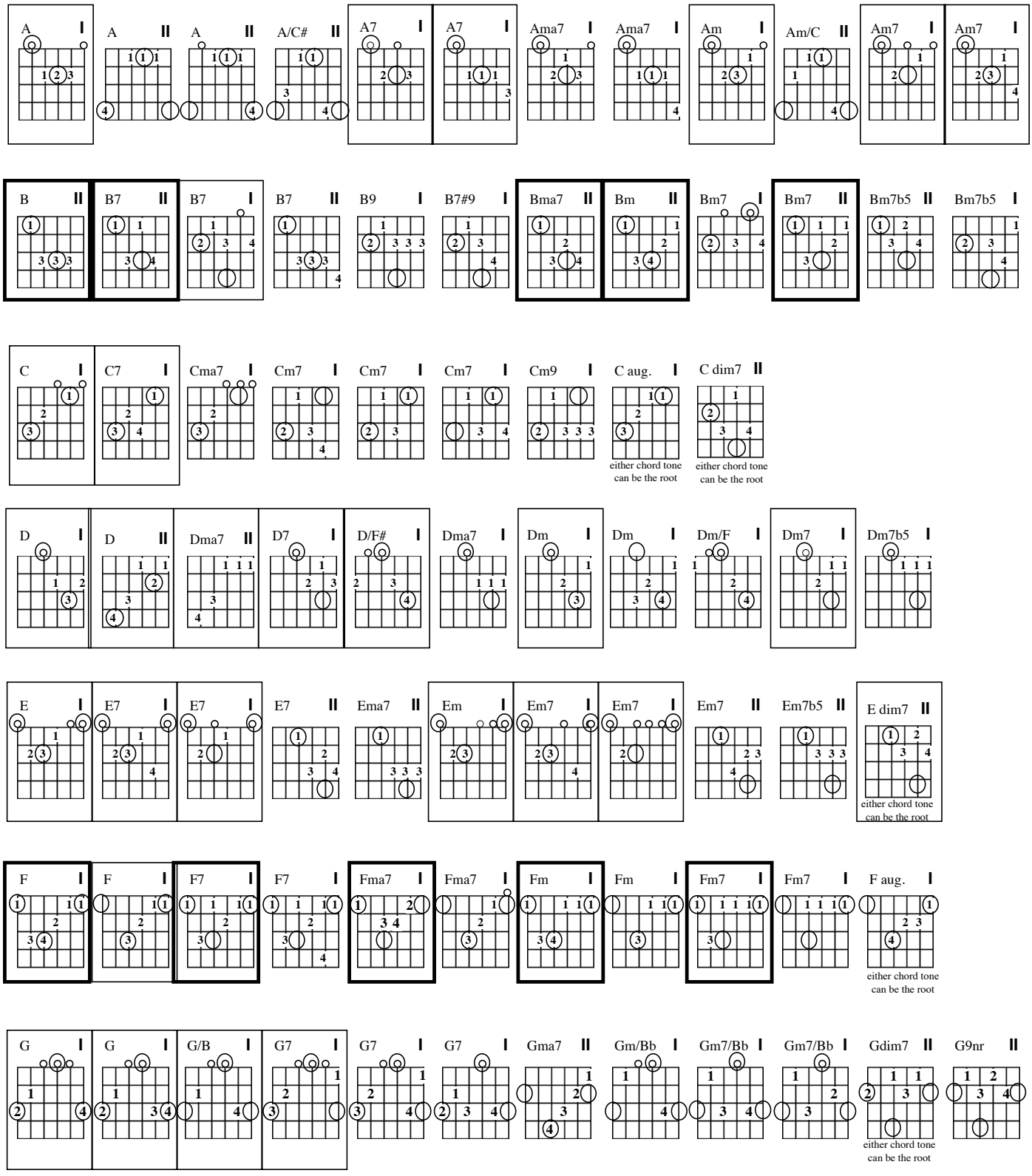
FIRST 53 CHORDS

Learn to construct moveable chords in Octave Shapes/ED CAGE.

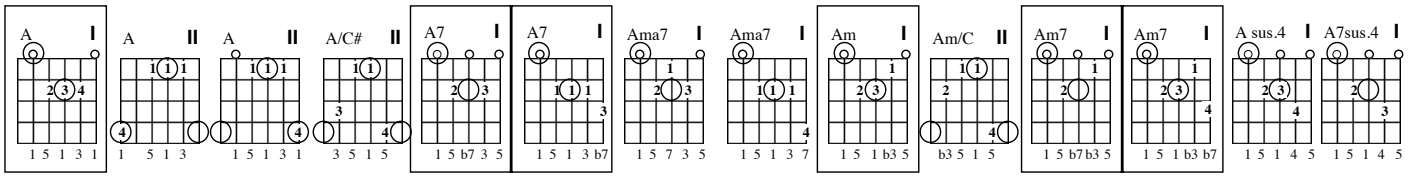


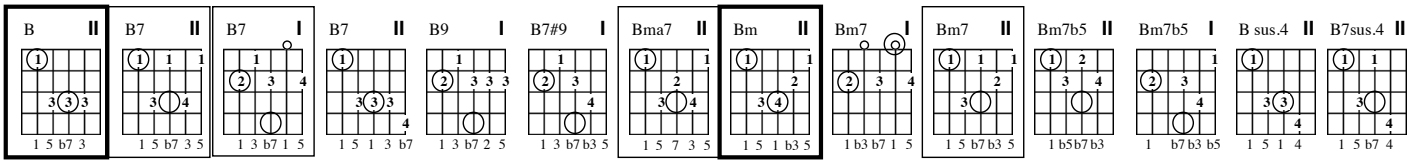
FIRST 78 CHORDS

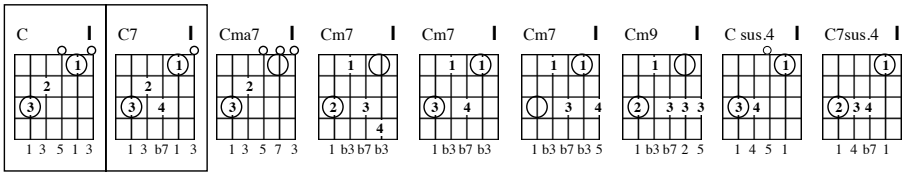
Learn to construct moveable chords in Octave Shapes/ED CAGE.

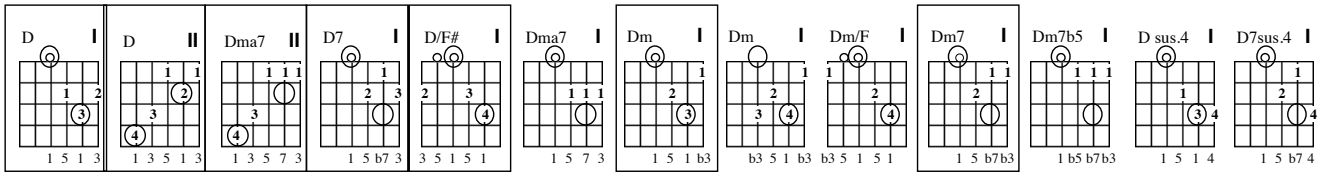


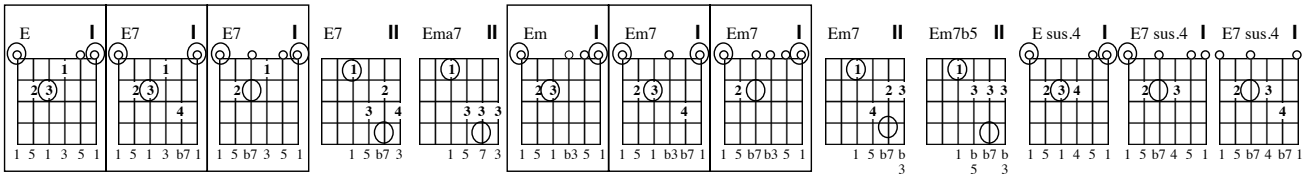
FIRST 93 CHORDS

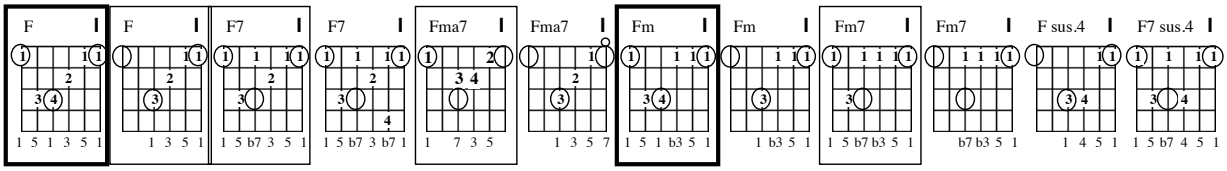


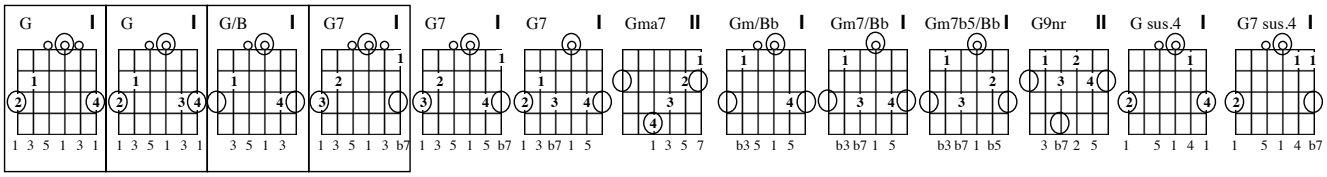


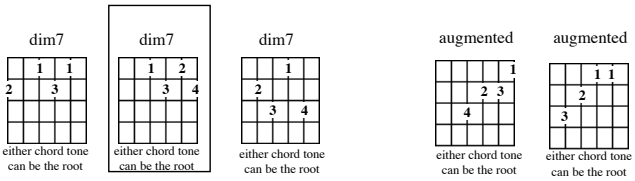








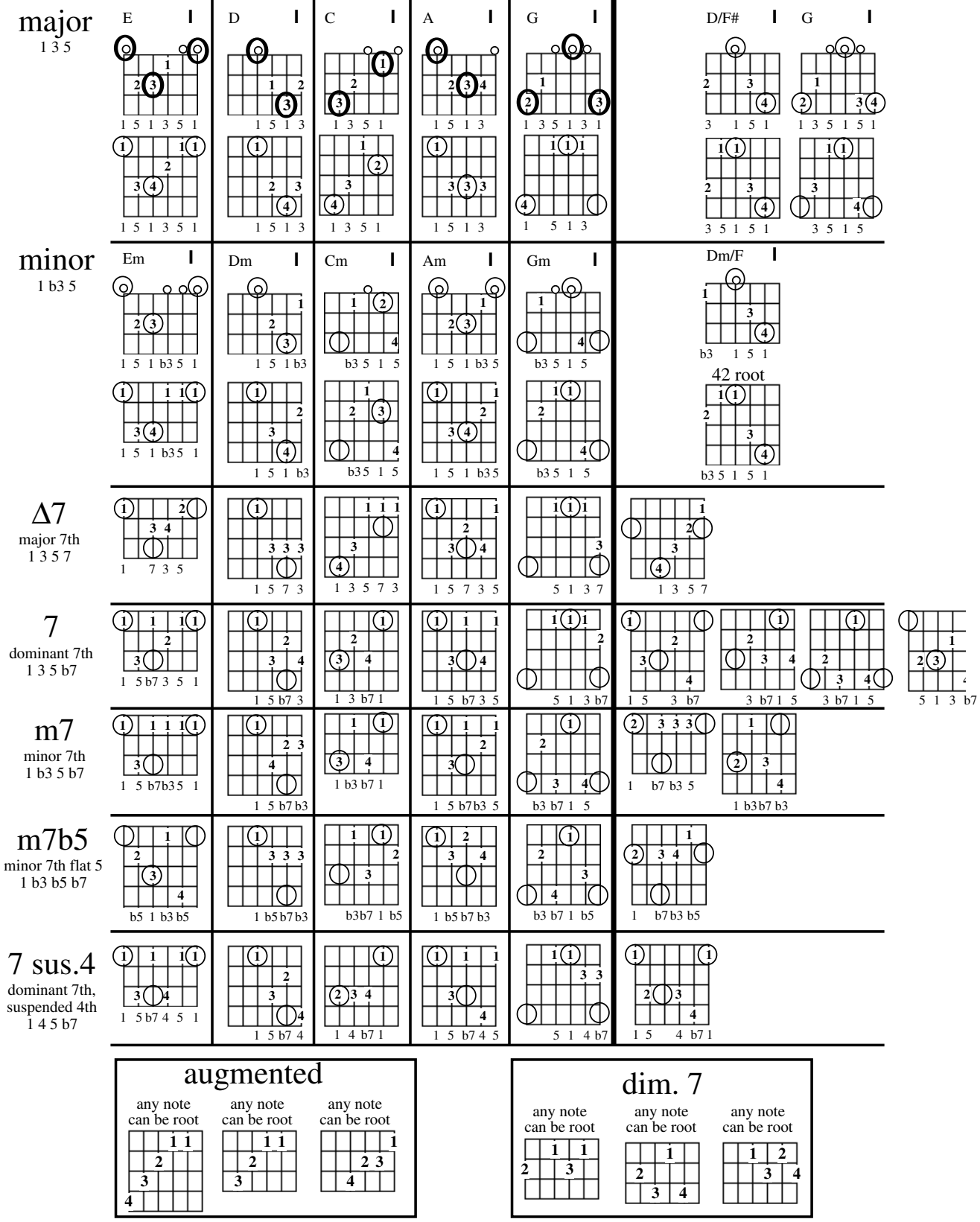




COMMON CHORDS BY OCTAVE SHAPE

same type across each row

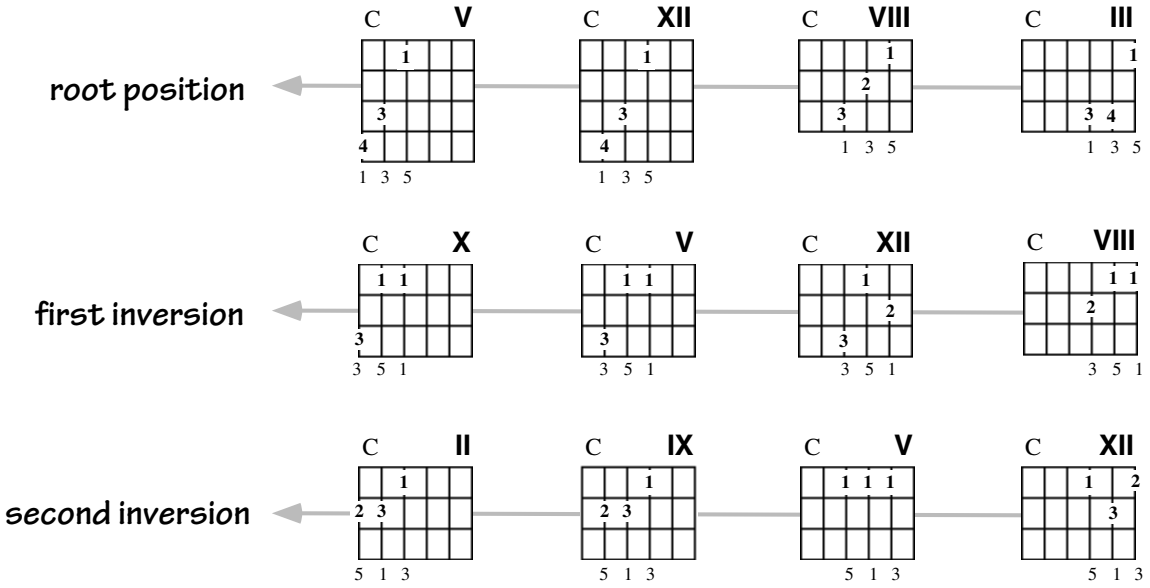
same octave shape down each column



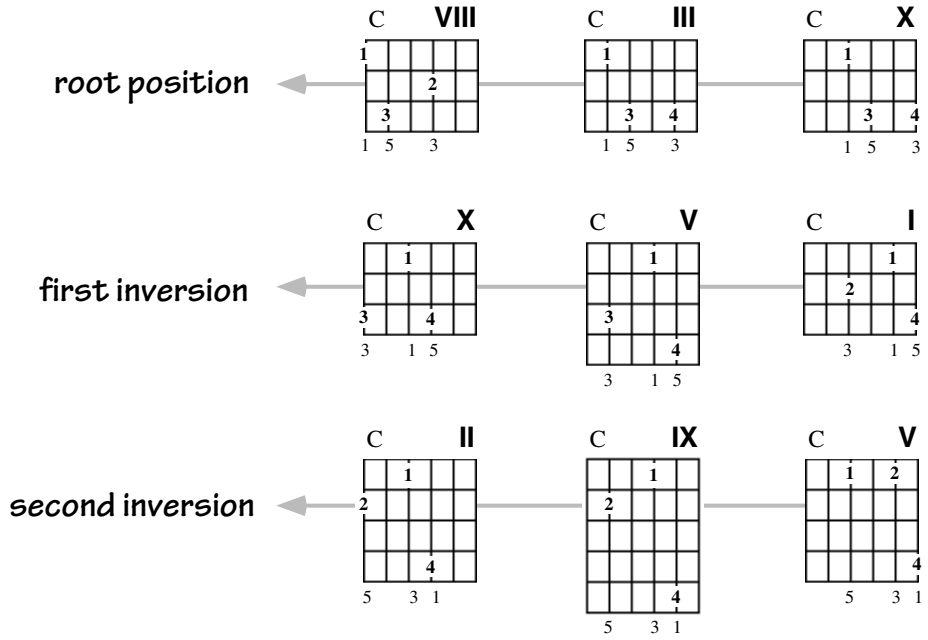
THREE-NOTE CHORDS

Introduction to Three-Note Major Chords

three note close-voiced major triads



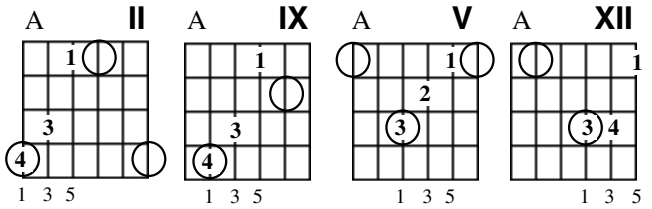
three-note open-voiced major triads



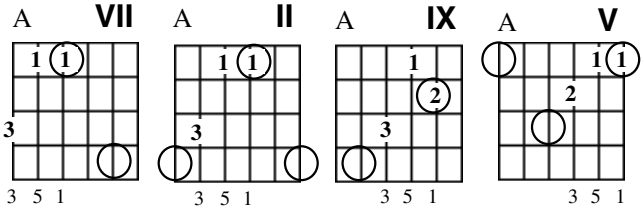
Three Note Close-Voiced Triads

three-note close-voiced major

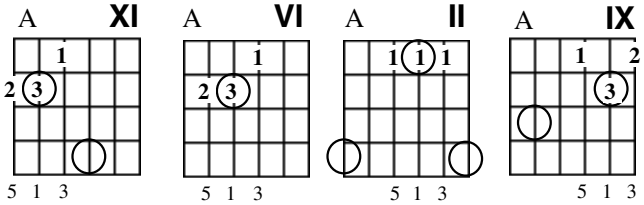
root position



third in bass

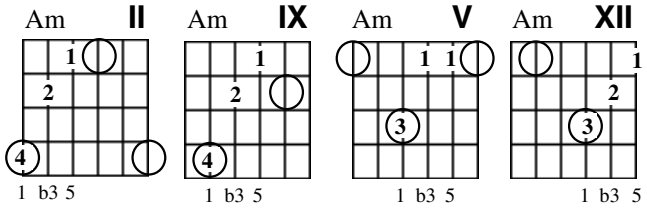


fifth in bass

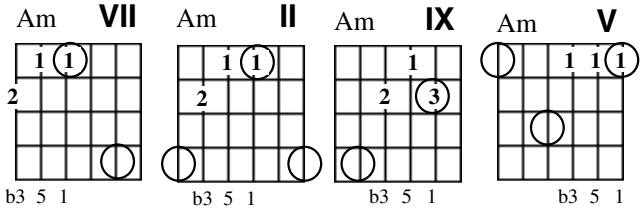


three note close-voiced minor

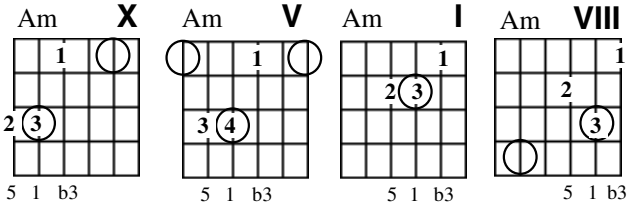
root position



~ third in bass

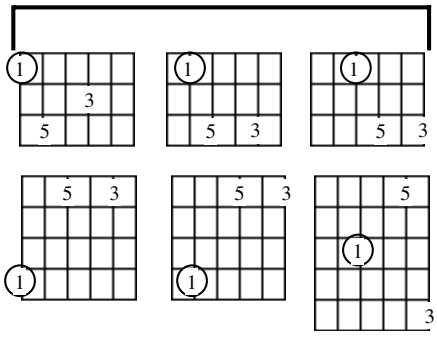


fifth in bass

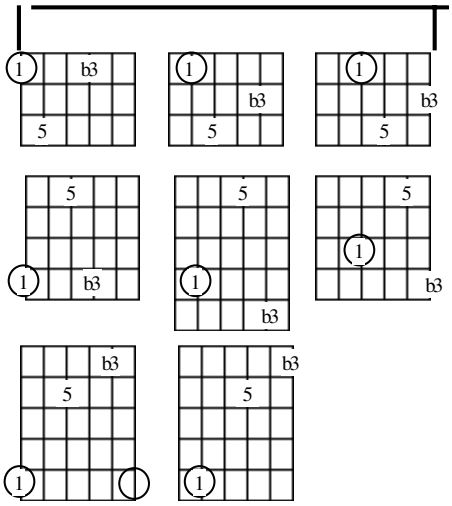


Three Note Open-Voiced Triads

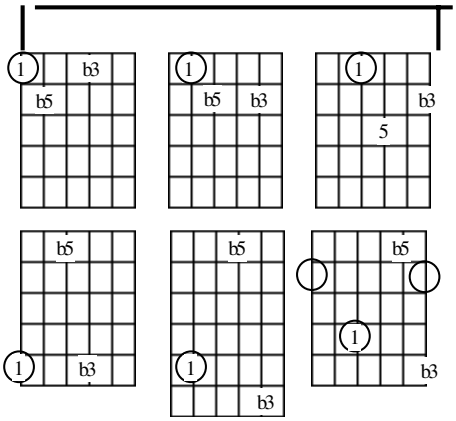
major, root position



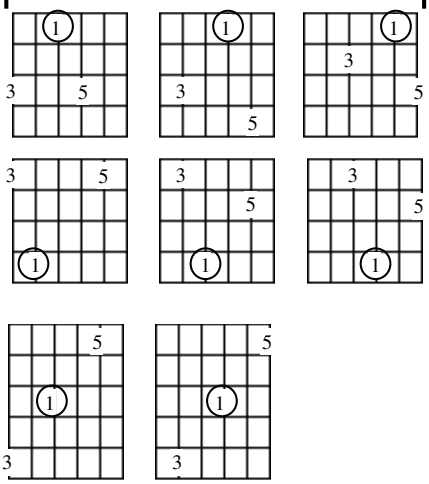
minor, root position



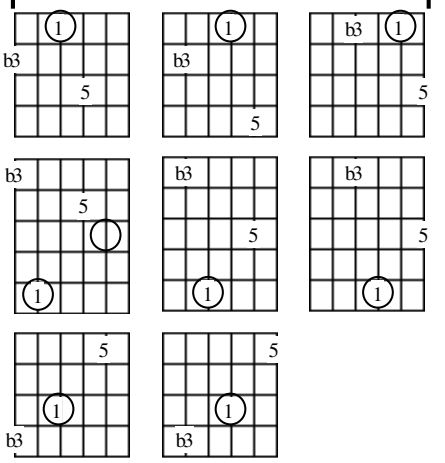
diminished, root position



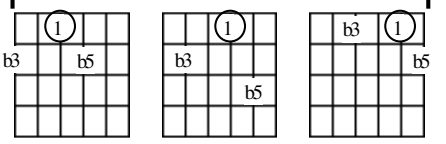
major, first inversion



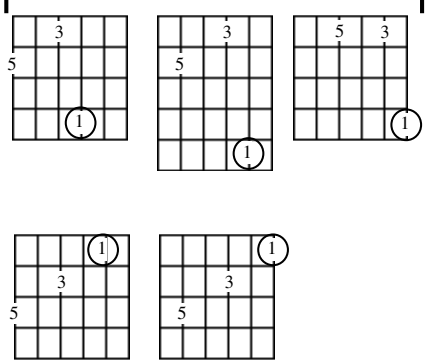
minor, first inversion



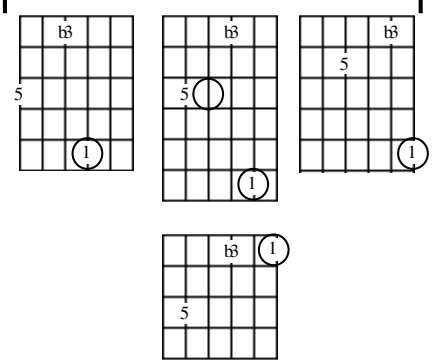
diminished, first inversion



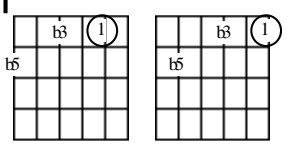
major, second inversion



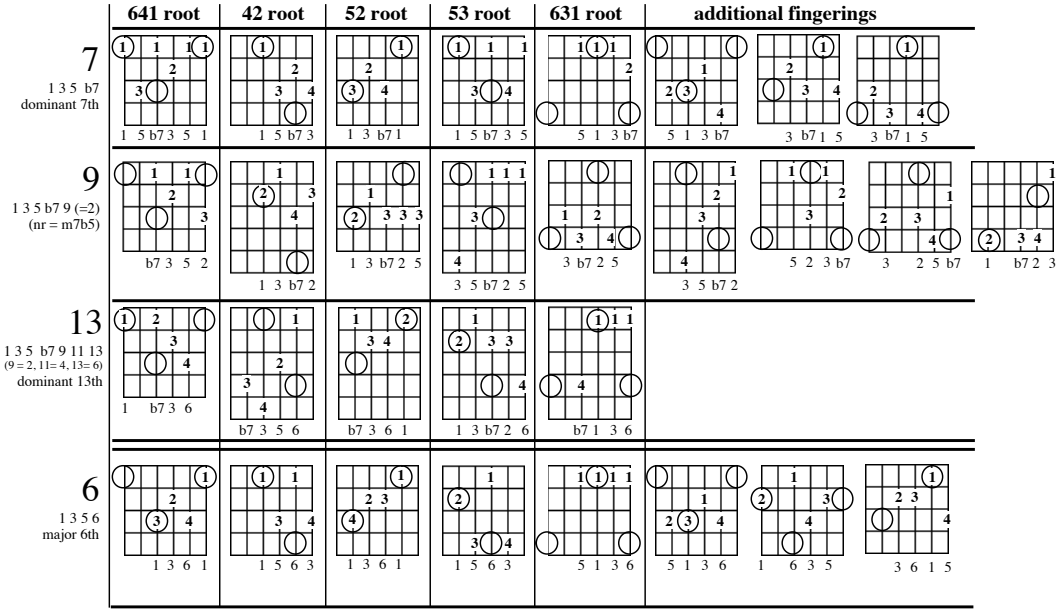
minor, second inversion

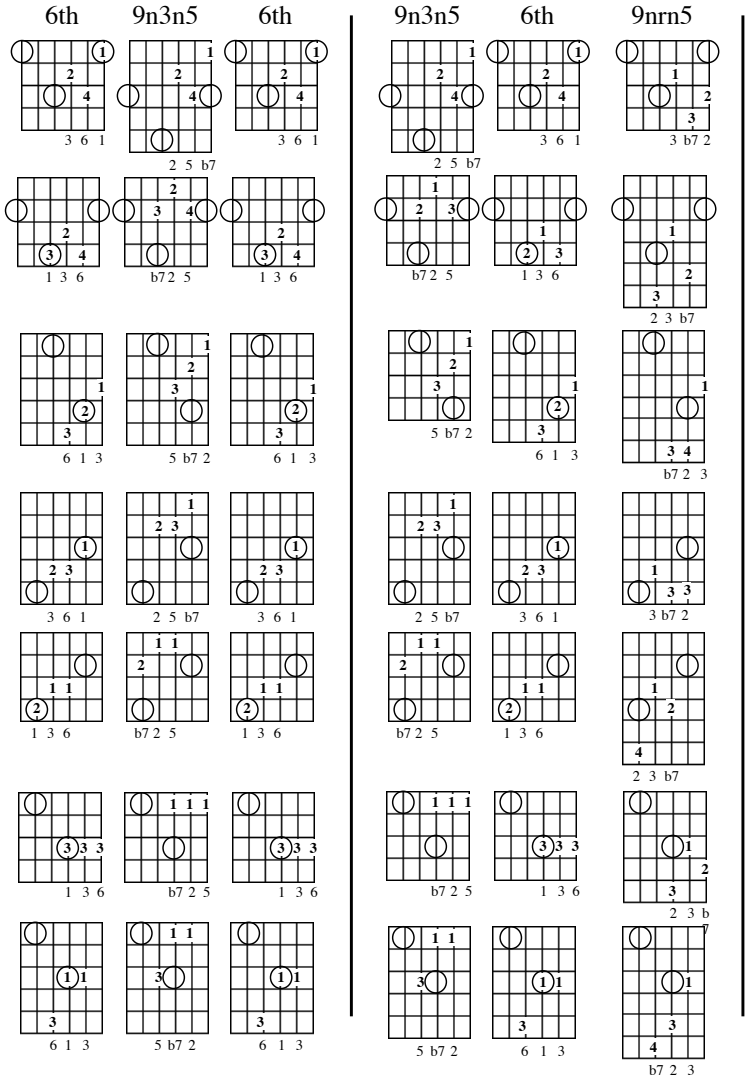


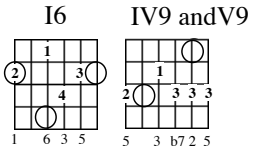
diminished, first inversion

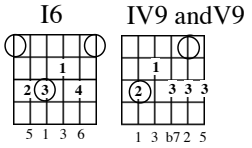


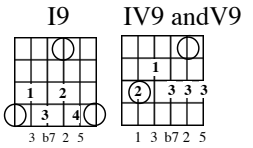
ESSENTIAL BLUES CHORDS

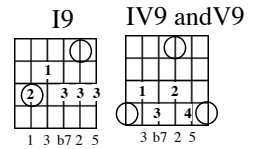


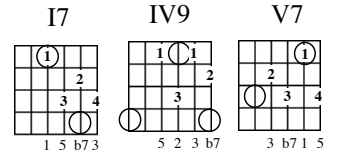


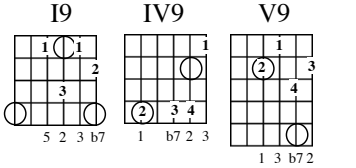




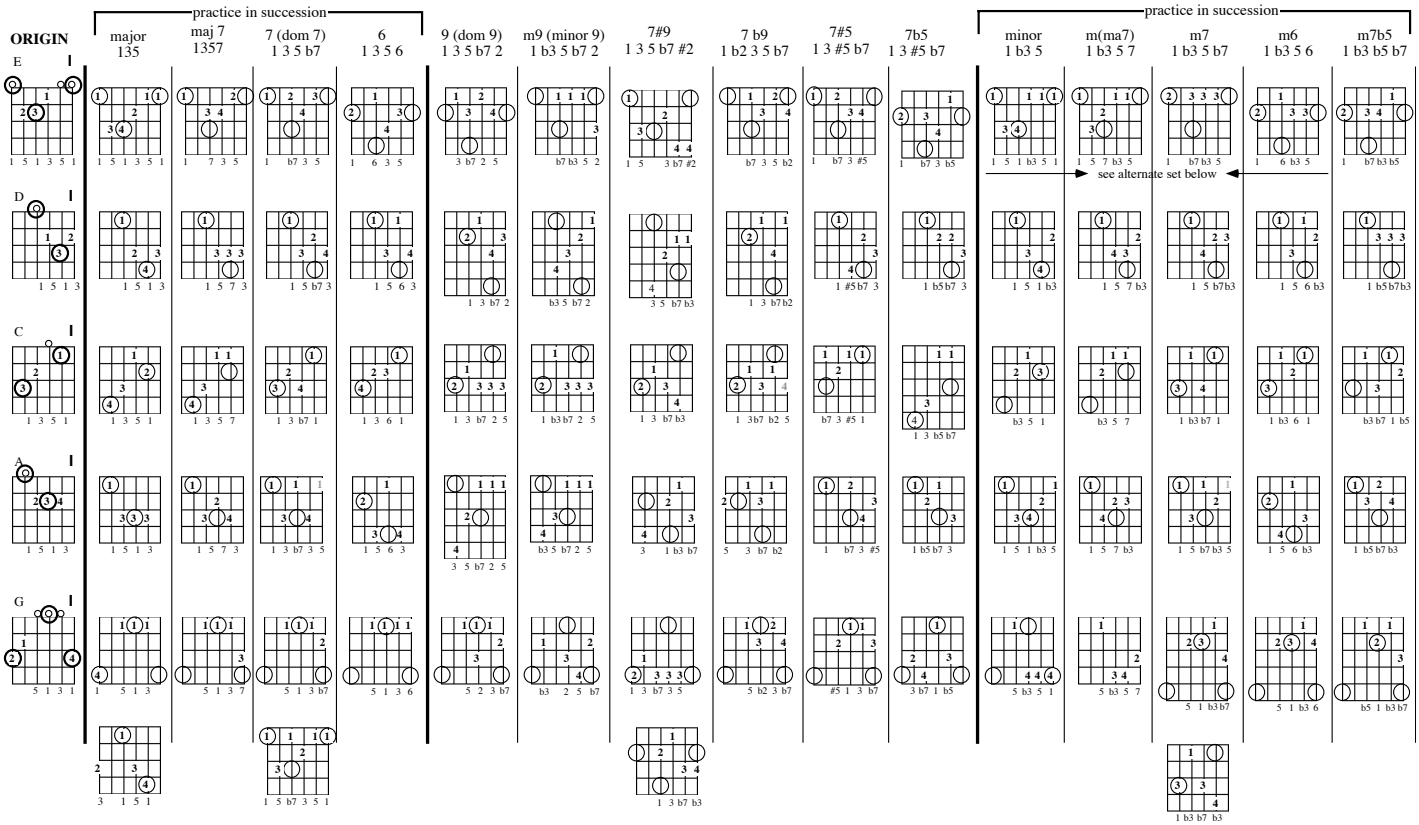






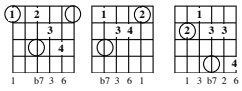


FIRST JAZZ CHORDS

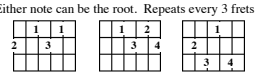


Essential chord tones are the third, the seventh (if involved) and any note mentioned in the chord name.
augmented = "+" = aug. = major #5 = 1 3 #5
°7 = diminished seventh = 1 b3 b5 6 (bb7)
Ø7 = m7b5 = half diminished = 1 b3 b5 b7
Δ7 = major 7 = maj 7 = M7 = 1 3 5 7
"-7" = minor 7 = m7 = min7 = 1 b3 5 b7
"alt" = any combination of #5, b5, #9, b9 that sounds appropriate
min(ma7) = m(ma7) = m (♮7) = minor, major seventh= 1 b3 5 7

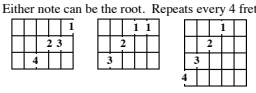
13
(1) (2) 3 (5) 6 b7

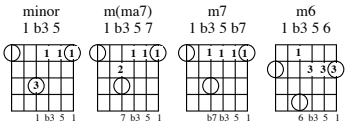


diminished seventh (°7) 1 b3 b5 bb7 (6)
Either note can be the root. Repeats every 3 frets.



augmented **1 3 #5**
Either note can be the root. Repeats every 4 frets.



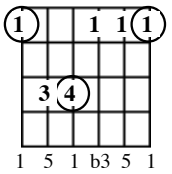
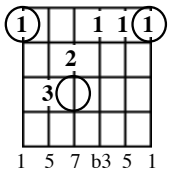
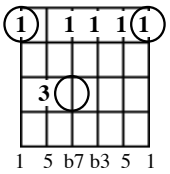
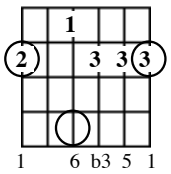
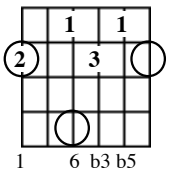
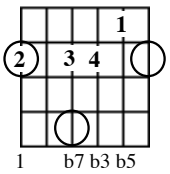
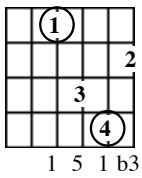
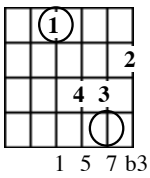
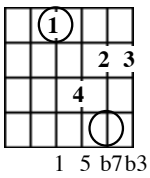
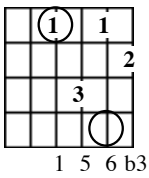
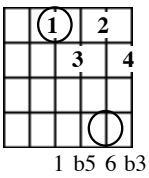
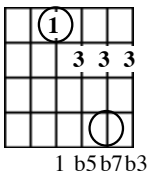
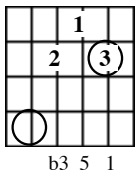
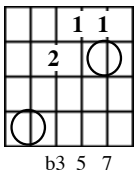
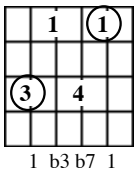
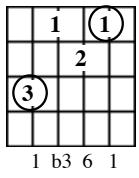
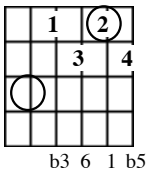
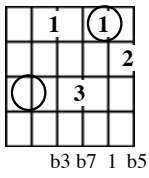
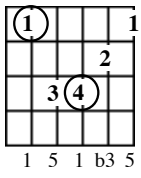
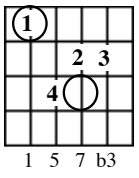
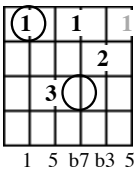
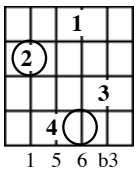
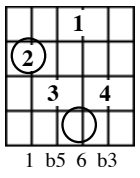
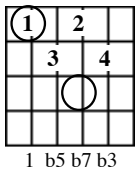
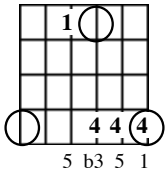
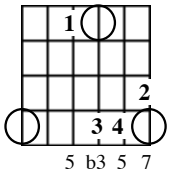
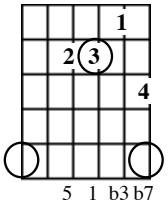
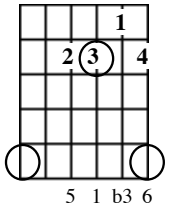
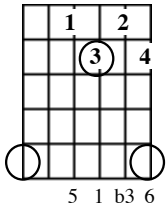
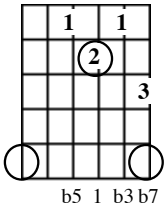
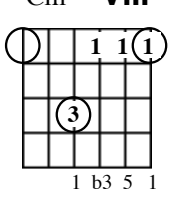
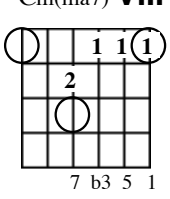
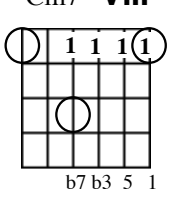
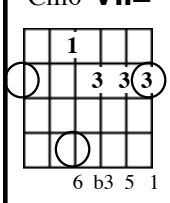
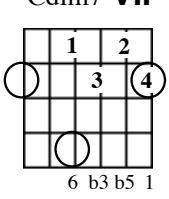
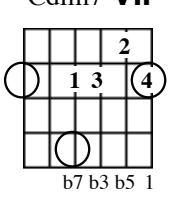


* any note of a diminished seventh chord (°7) can be the root

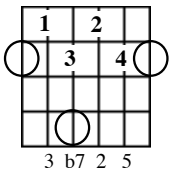
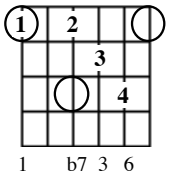
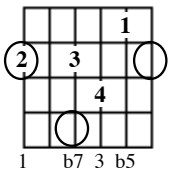
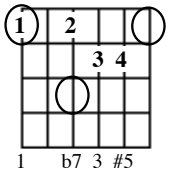
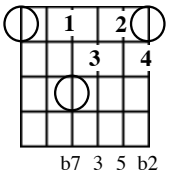
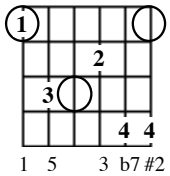
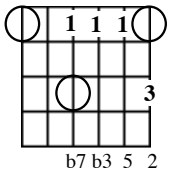
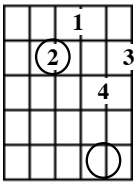
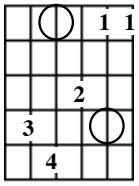
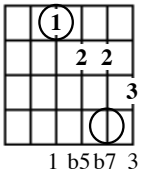
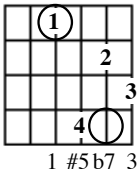
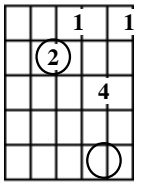
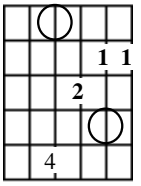
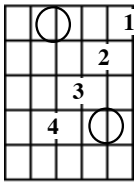
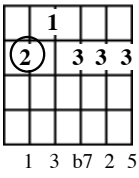
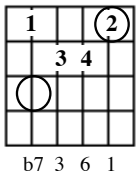
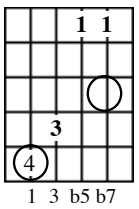
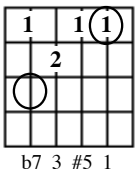
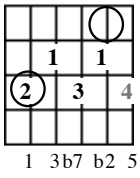
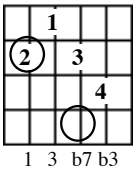
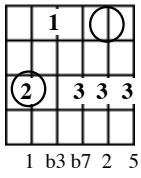
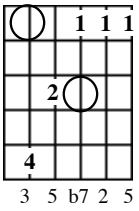
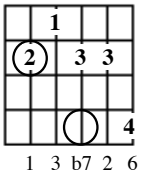
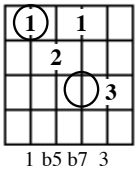
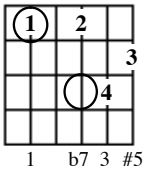
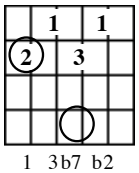
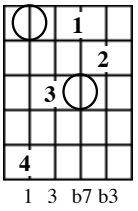
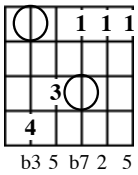
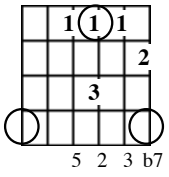
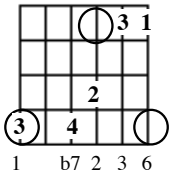
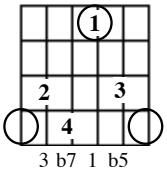
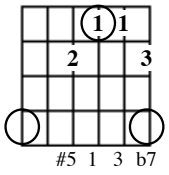
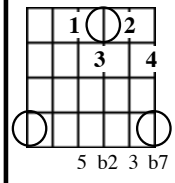
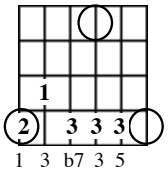
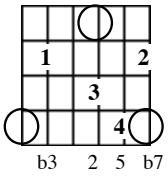
practice in succession

ORIGIN	major 135	maj 7 1357	7 (dom 7) 1 3 5 b7	6 1 3 5 6	
E I	C VIII	Cma7 VIII	C7 VIII	C6 VII	C aug. VI
D I	C X	Cma7 X	C7 X	C6 X	C aug. X
C I	C XII	Cma7 XII	C7 XIII	C6 XIII	C aug. XIII
A I	C III	Cma7 III	C7 III	C6 II	C aug. III
G I	C V	Cma7 V	C7 V	C6 V	C aug. IV
additional fingerings	C X		C7 VIII		

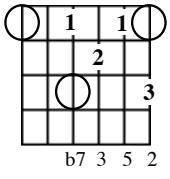
practice in succession

minor 1 b3 5	m(ma7) 1 b3 5 7	m7 1 b3 5 b7	m6 1 b3 5 6	°7 (dim 7)* 1 b3 b5 6	m7b5 1 b3 b5 b7
Cm **VIII**  1 5 1 b3 5 1	Cm(ma7) **VIII**  1 5 7 b3 5 1	Cm7 **VIII**  1 5 b7 b3 5 1	Cm6 **VII**  1 6 b3 5 1	C dim7 **VII**  1 6 b3 b5	Cm7b5 **VII**  1 b7 b3 b5
Cm **X**  1 5 1 b3	Cm(ma7) **X**  1 5 7 b3	Cm7 **X**  1 5 b7 b3	Cm6 **X**  1 5 6 b3	C dim7 **X**  1 b5 6 b3	Cm7b5 **X**  1 b5 b7 b3
Cm **XII**  b3 5 1	Cm(ma7) **XII**  b3 5 7	Cm7 **I**  1 b3 b7 1	Cm6 **I**  1 b3 6 1	C dim7 **I**  b3 6 1 b5	Cm7b5 **I**  b3 b7 1 b5
Cm **III**  1 5 1 b3 5	Cm(ma7) **III**  1 5 7 b3	Cm7 **III**  1 5 b7 b3 5	Cm6 **II**  1 5 6 b3	C dim7 **II**  1 b5 6 b3	Cm7b5 **III**  1 b5 b7 b3
Cm **V**  5 b3 5 1	Cm(ma7) **V**  5 b3 5 7	Cm7 **IV**  5 1 b3 b7	Cm6 **IV**  5 1 b3 6	C dim7 **IV**  5 1 b3 6	Cm7b5 **IV**  b5 1 b3 b7
Cm **VIII**  1 b3 5 1	Cm(ma7) **VIII**  7 b3 5 1	Cm7 **VIII**  b7 b3 5 1	Cm6 **VII=**  6 b3 5 1	Cdim7 **VII**  6 b3 b5 1	Cdim7 **VII**  b7 b3 b5 1

*any note of a diminished 7 chord can be the root

9 (dom 9) 1 2 3 5 b7	13 (1) (2) 3 (5) 6 b7	7b5 1 3 #5 b7	7#5 1 3 #5 b7	7 b9 1 b2 3 5 b7	7#9 (1) #2 3 (5) b7	m9 (minor 9) 1 2 b3 5 b7
C9nr **VII**  3 b7 2 5	C13 **VIII**  1 b7 3 6	C7b5 **VII**  1 b7 3 b5	C7#5 **VIII**  1 b7 3 #5	C7b9 **VIII**  b7 3 5 b2	C7#9 **VIII**  1 5 3 b7 #2	Cm9nr**VIII**  b7 b3 5 2
C9 **IX**  1 3 b7 2	C13 nr **IX** 	C7b5 **X**  1 b5 b7 3	C7#5 **X**  1 #5 b7 3	C7b9 **IX**  1 3 b7 b2	C7#9 **IX**  3 5 b7 b3	Cm9nr **X**  b3 5 b7 2
C9 **XIV**  1 3 b7 2 5	C13 **XIII**  b7 3 6 1	C7b5 **XI**  1 3 b5 b7	C7#5 **I**  b7 3 #5 1	C7b9 **I**  1 3b7 b2 5	C7#9 **II**  1 3 b7 b3	Cm9 **XIII**  1 b3 b7 2 5
C9nr **III**  3 5 b7 2 5	C13 **II**  1 3 b7 2 6	C7b5 **III**  1 b5 b7 3	C7#5 **III**  1 b7 3 #5	C7b9 **II**  1 3b7 b2	C7#9 nr **II**  1 3 b7 b3	Cm9nr **III**  b3 5 b7 2 5
C9nr **V**  5 2 3 b7	C13 **V**  1 b7 2 3 6	C7b5 **V**  3 b7 1 b5	C7#5 **V**  #5 1 3 b7	C7b9nr **V**  5 b2 3 b7	C7#9 **V**  1 3 b7 3 5	Cm9nr **V**  b3 2 5 b7

C9nr **VIII**



b7 3 5 2

The **essential chord tones** are the third, the seventh (if involved) and any note mentioned in the chord name.

augmented = "+" = aug. = major #5 = 1 3 #5

°7 = diminished seventh = 1 b3 b5 6 (bb7)

Ø7 = m7b5 = half diminished = 1 b3 b5 b7

Δ7 = major 7 = maj 7 = M7 = 1 3 5 7

"-7" = minor 7 = m7 = min7 = 1 b3 5 b7

"alt" = combinations of #5, b5, #9, b9 that sound well

min(ma7) = m(ma7) = m (♮7) = minor, major seventh= 1 b3 5 7

14 Improv Level 1: Improv by Ear

GETTING STARTED

- Mojo Voodoo Blues, an Intro to Minor Pentatonic
- Bo's Clave, an Intro to Major Pentatonic
- How to Choose a Scale or Arpeggio For Improv
- Finding the Key
- Determining the Scale Type
- Sense the Chord Tones
- Prepare the Core Melody by Learning Arpgeggios
- Altering Pentatonic Scales

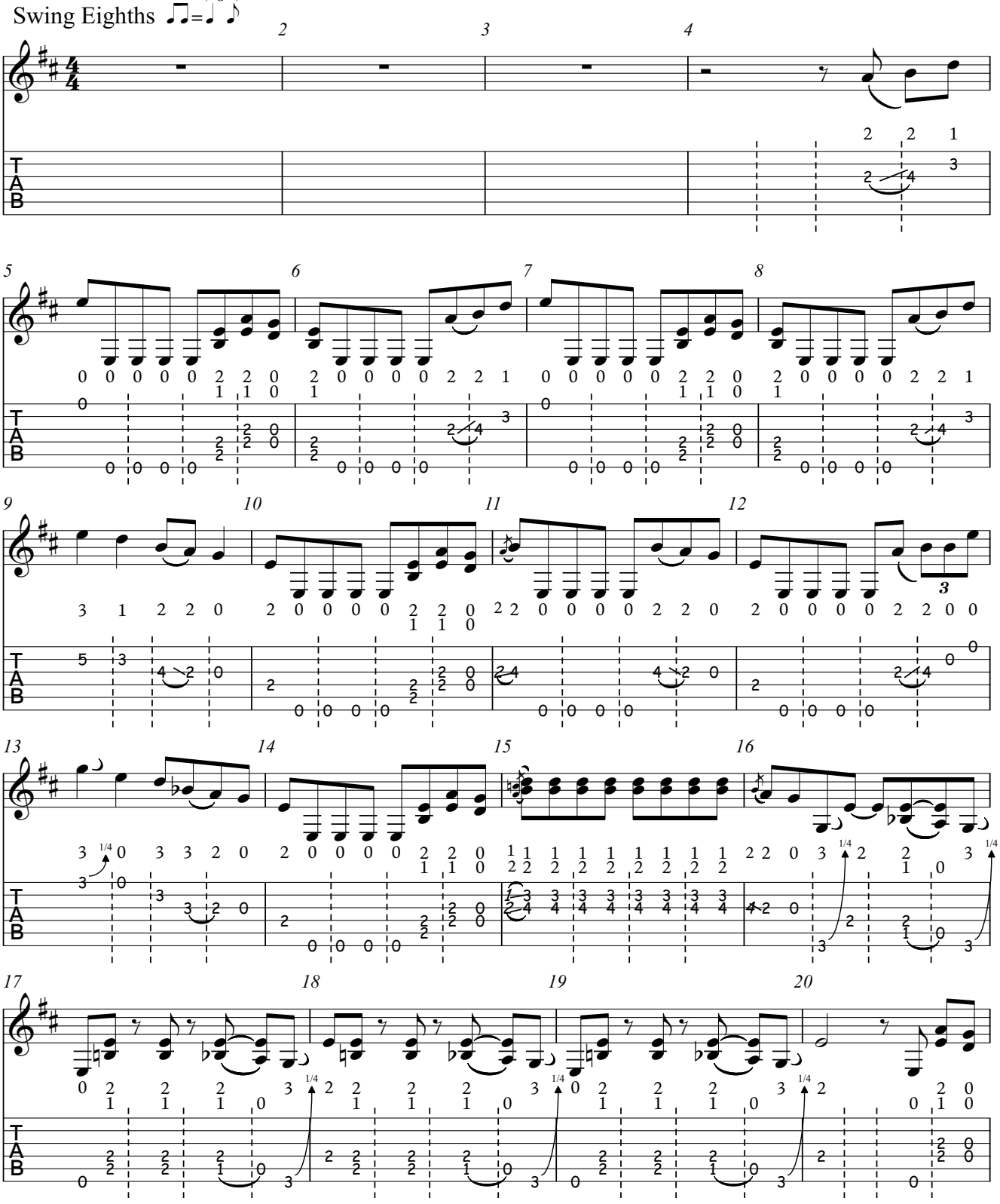
PREVIEWS OF ADVANCED STUDIES

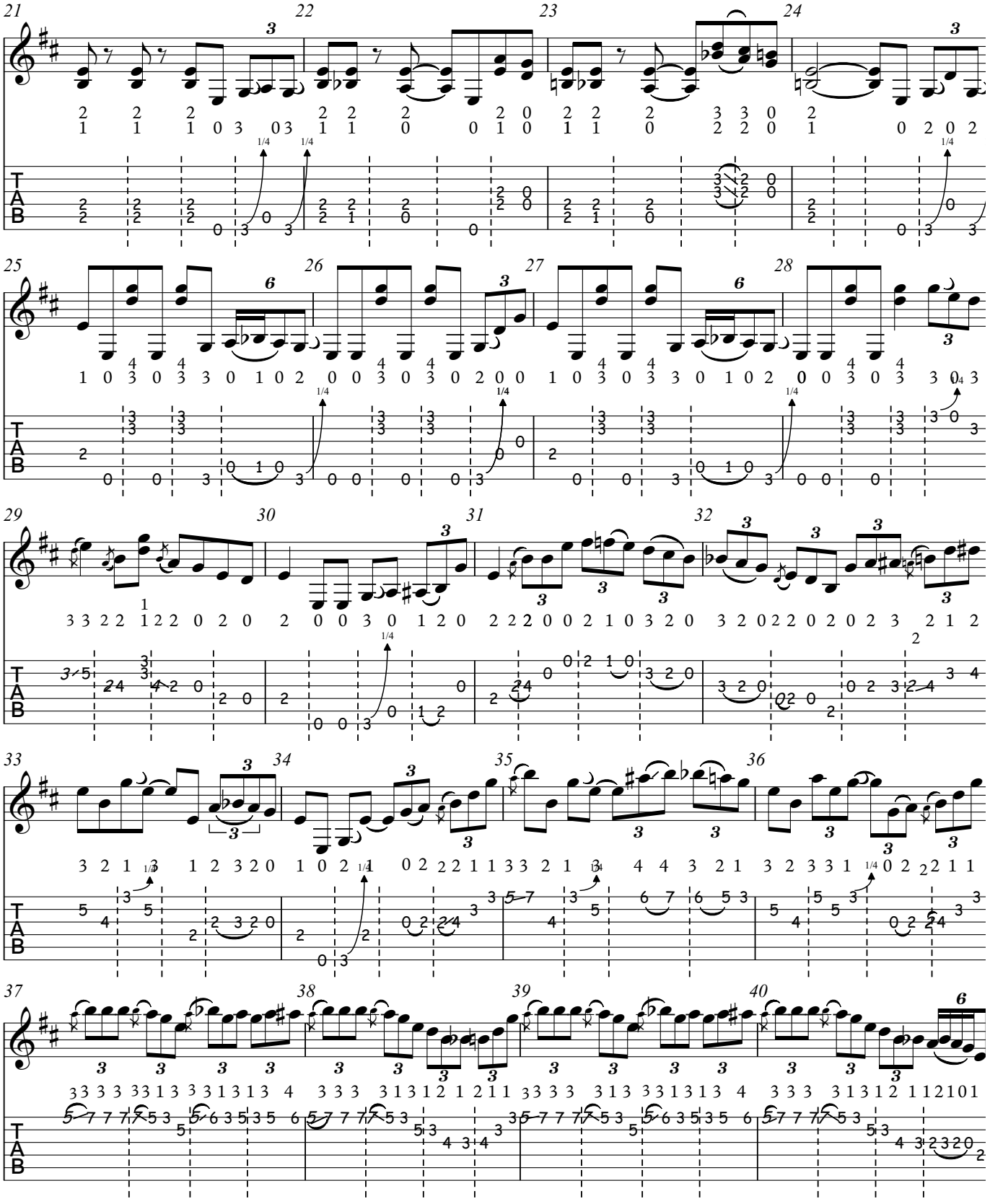
- Determining Chords In the Accompaniment
- Deciding How You Will Depict the Chords

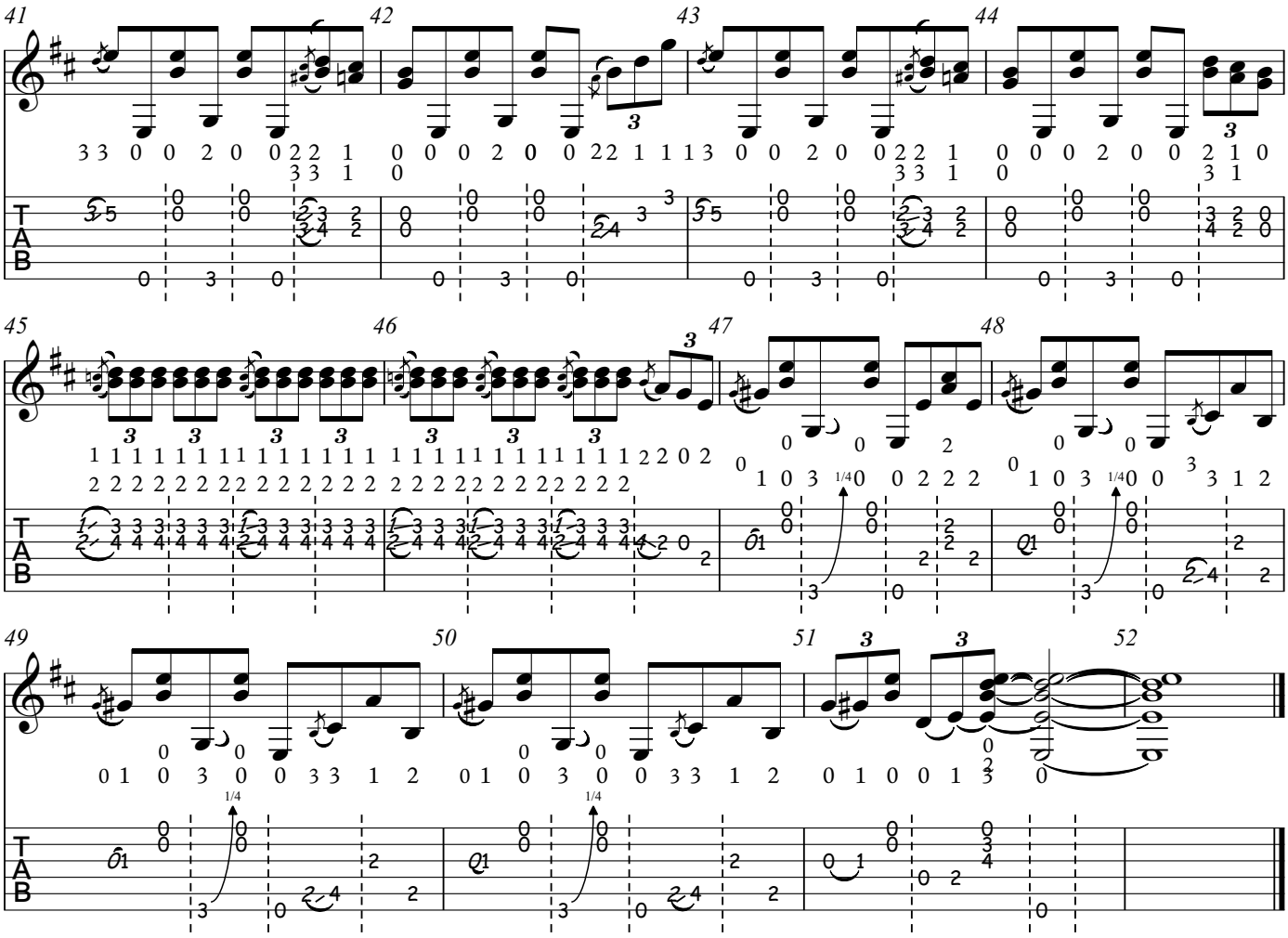
MOJO VOODOO BLUES, an intro. to minor pentatonic

audio rhythm track: http://guitarencyclopedia.com/zzRTMojoVoodoo.mp3
full audio track: http://guitarencyclopedia.com/zzSEMojoVoodoo.mp3

Swing Eighths ♫=♩³♪







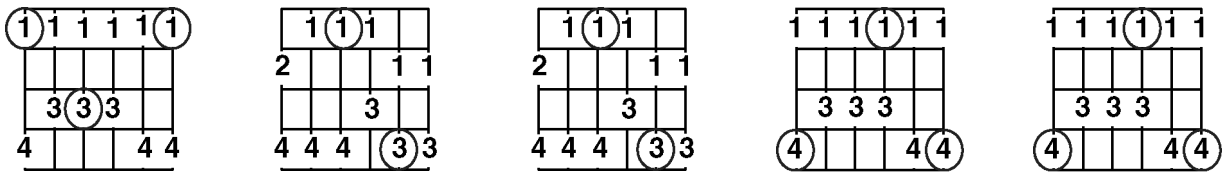
BO'S CLAVE, an intro. to major pentatonic

audio rhythm track: http://guitarencyclopedia.com/zzRTBosClave.mp3
audio basic solo track: http://guitarencyclopedia.com/zzSEBosClaveBasicSolo.mp3
audio intermediate solo track: http://guitarencyclopedia.com/zzSEBosClaveIntermediateSolo.mp3

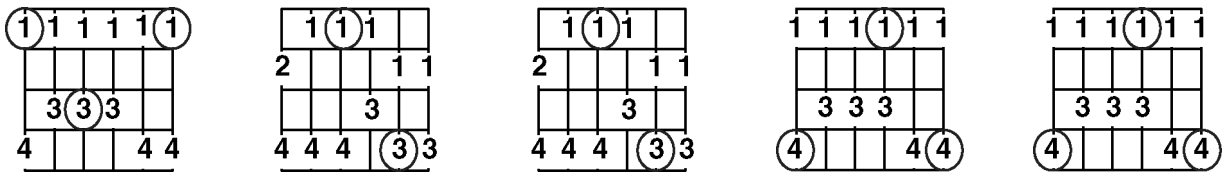
"Bo" is Bo Diddley. He incorporated variations of the clave 3-2 rhythm in his music.

Improvisation examples in "Bo's Clave" use the pentatonic (five-tone) scales shown below. Practice each of them by playing from the note on the lowest-numbered fret on the sixth string through the highest-numbered fret on the first string, in order of pitch. Then play back down the scale, from highest to lowest pitch.

A minor pent. V A minor pent. VII A minor pent. XII A major pent. II A major pent. IV



A minor pent. V A minor pent. VII A minor pent. XII A major pent. II A major pent. IV

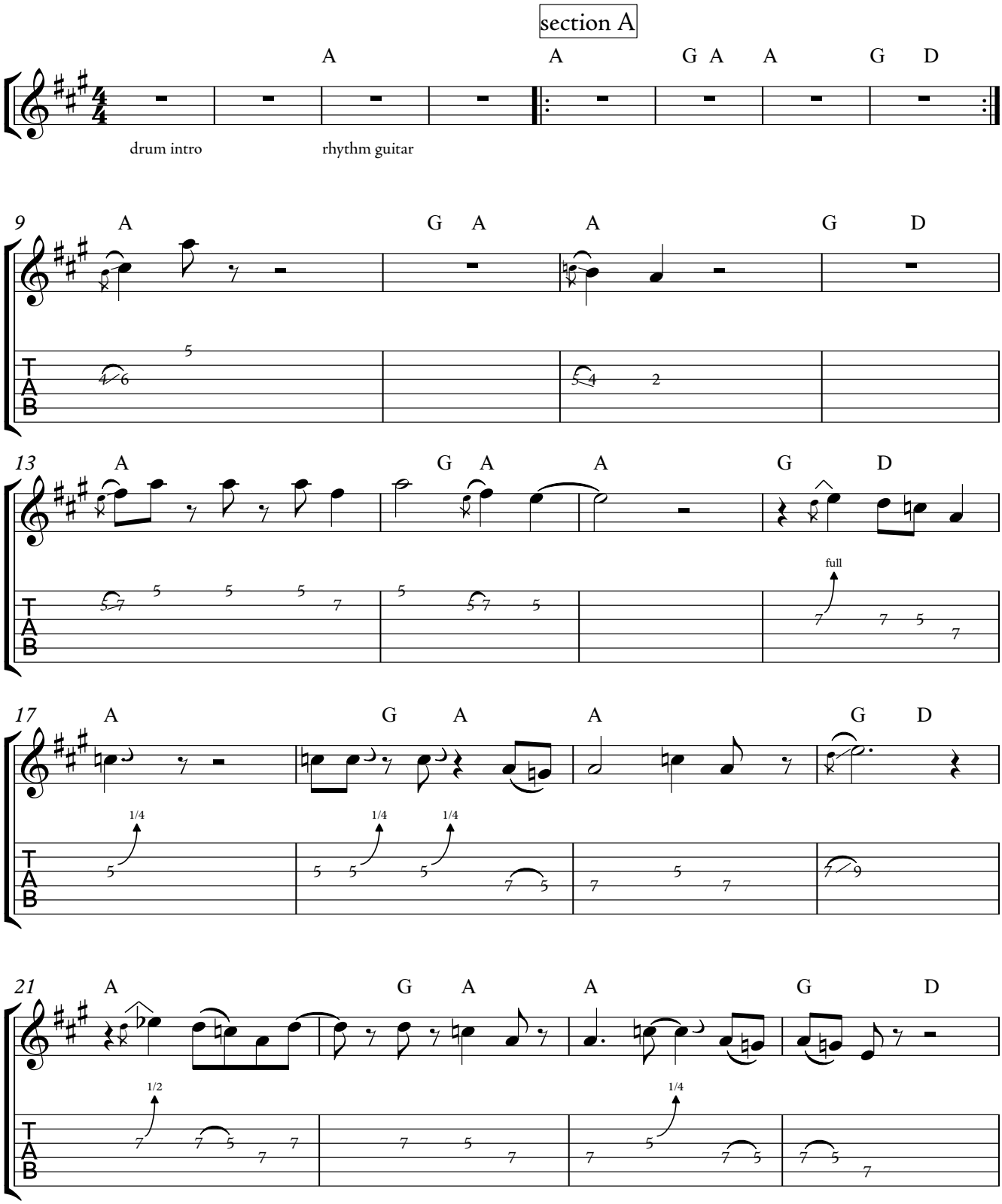


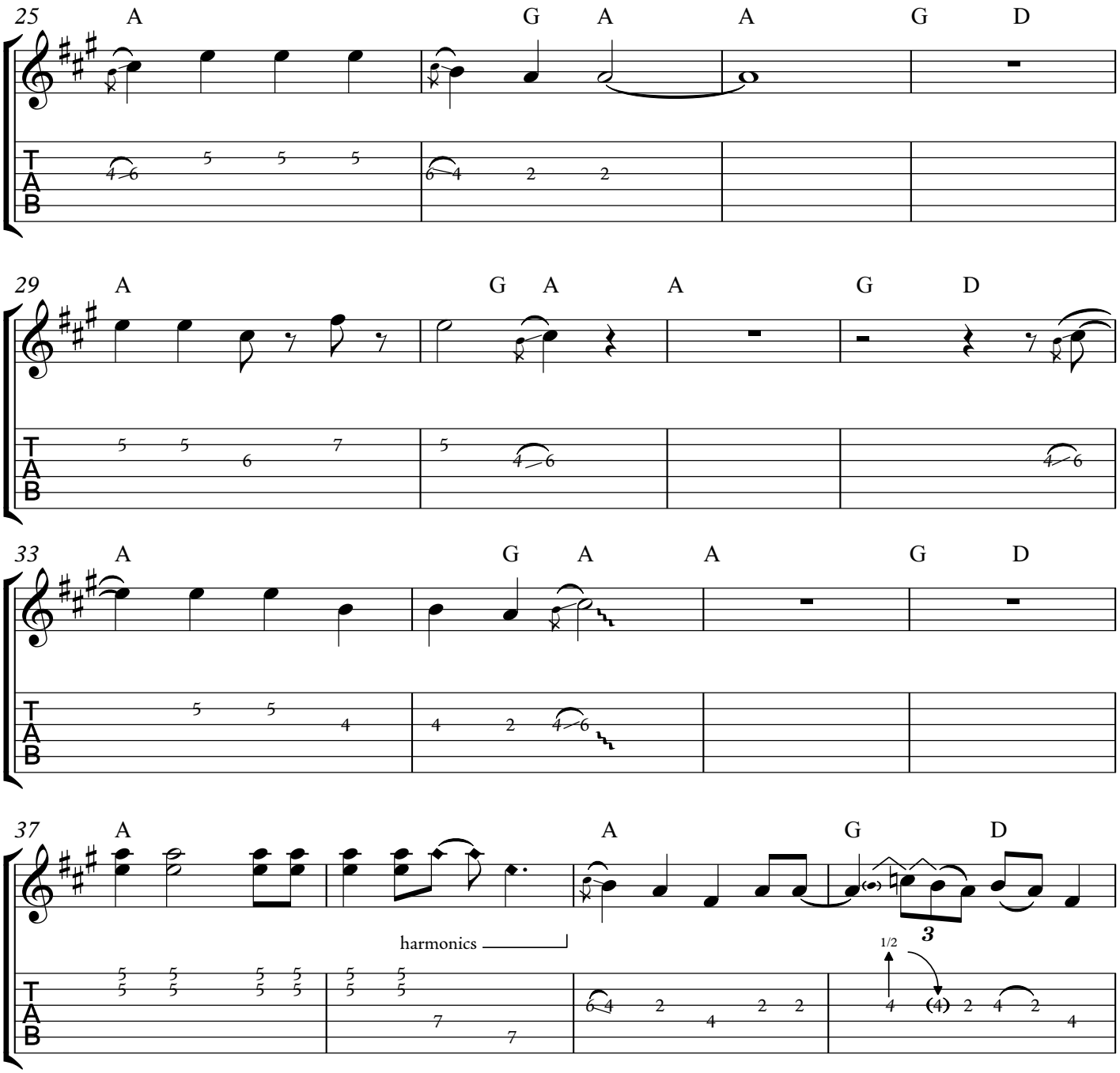
Basic and Intermediate Solo Versions

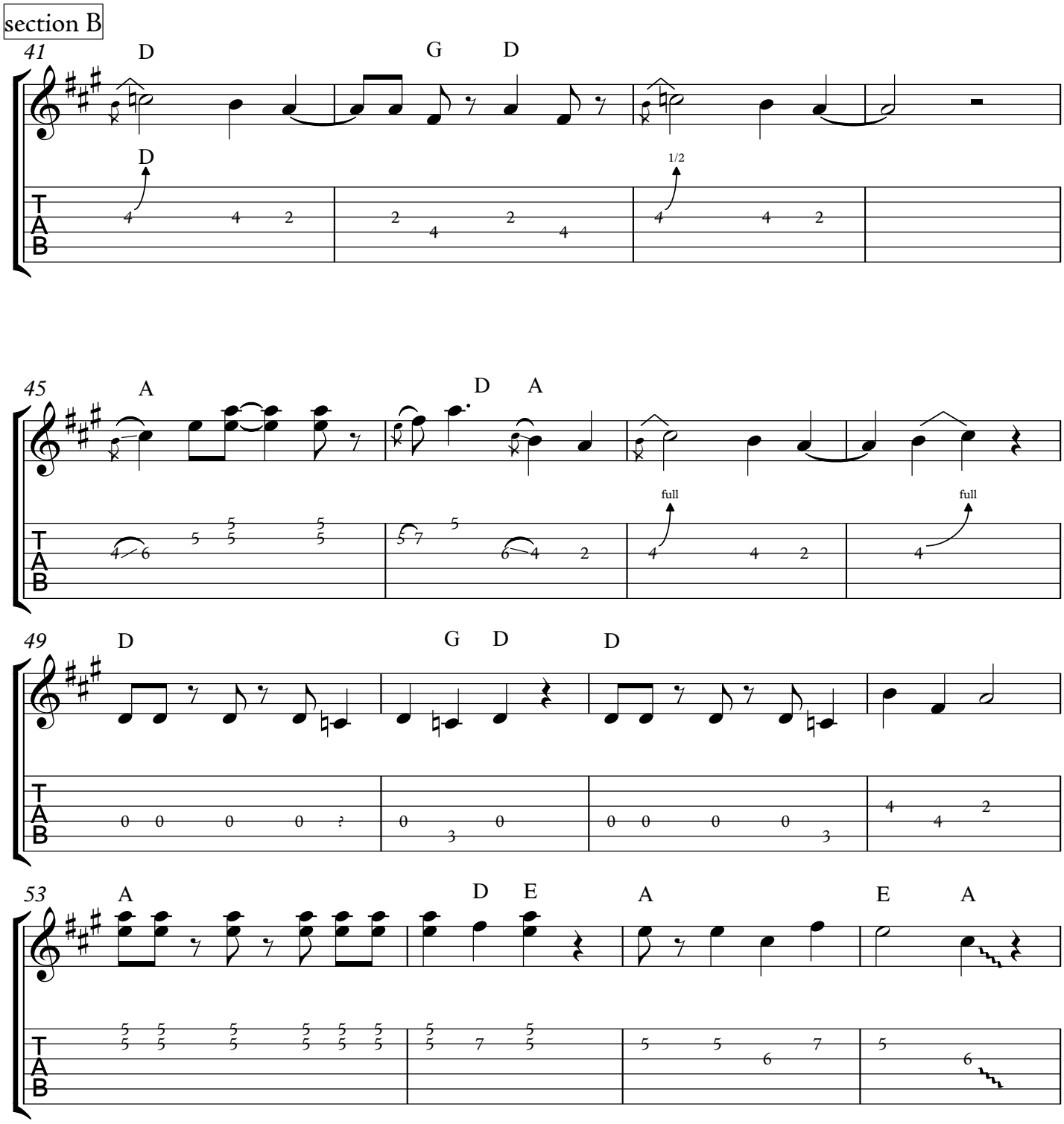
To make this solo study available to more users, there are two solo versions, one basic and one intermediate. They are written on the following pages.

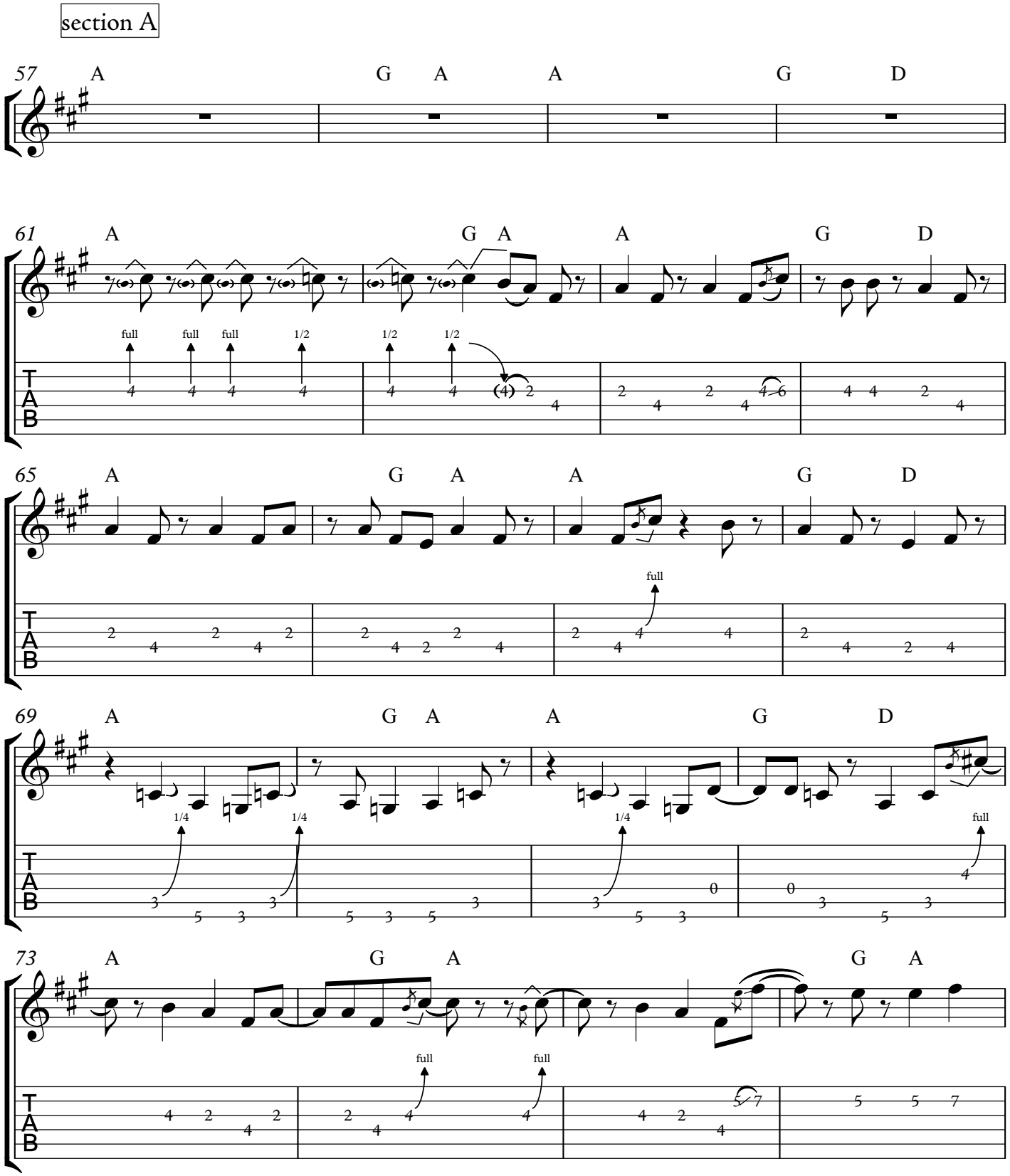
Bo's Clave Basic Solo

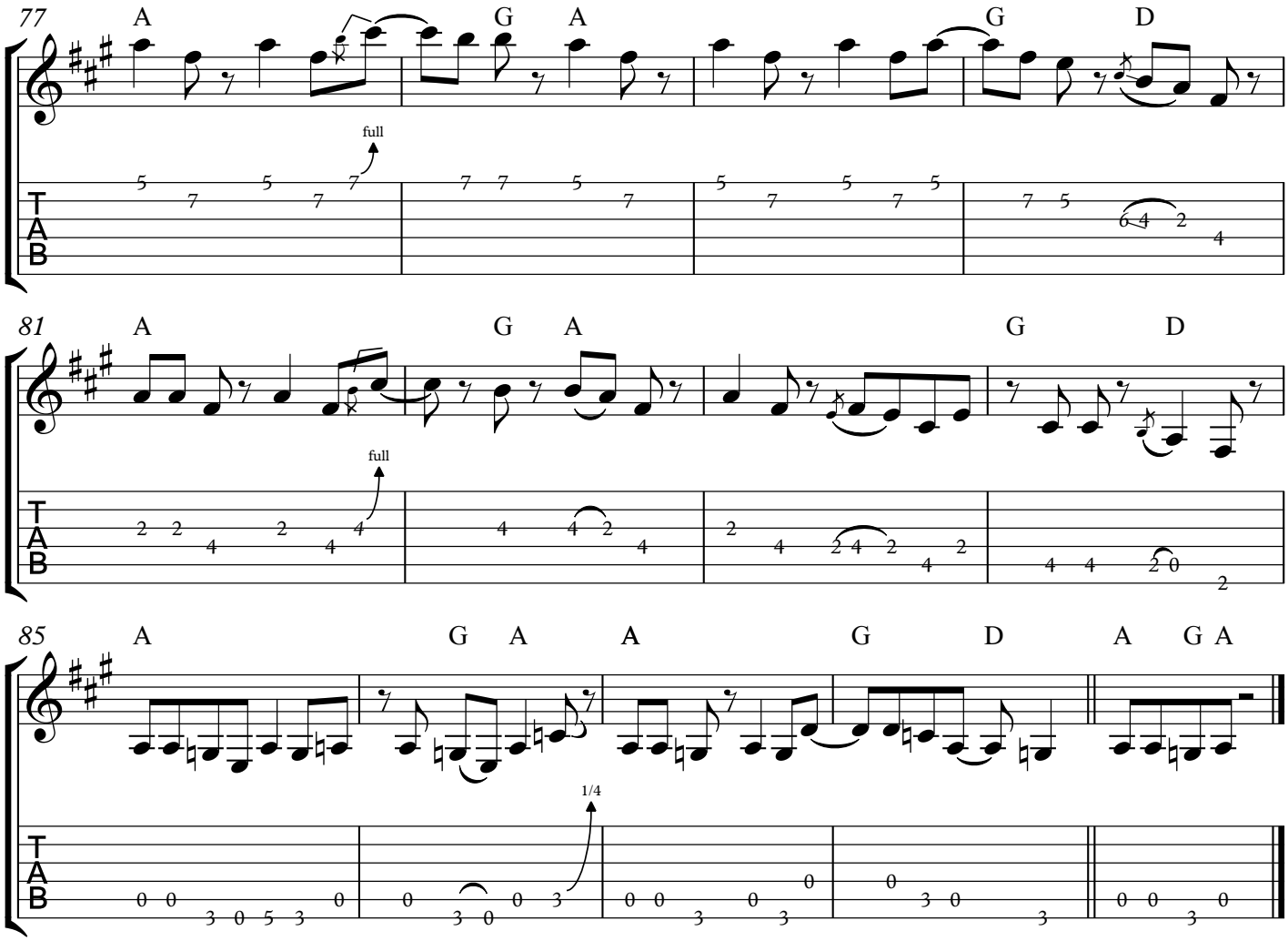
audio rhythm track: http://guitarencyclopedia.com/zzRTBosClave.mp3
audio basic solo track: http://guitarencyclopedia.com/zzSEBosClaveBasicSolo.mp3





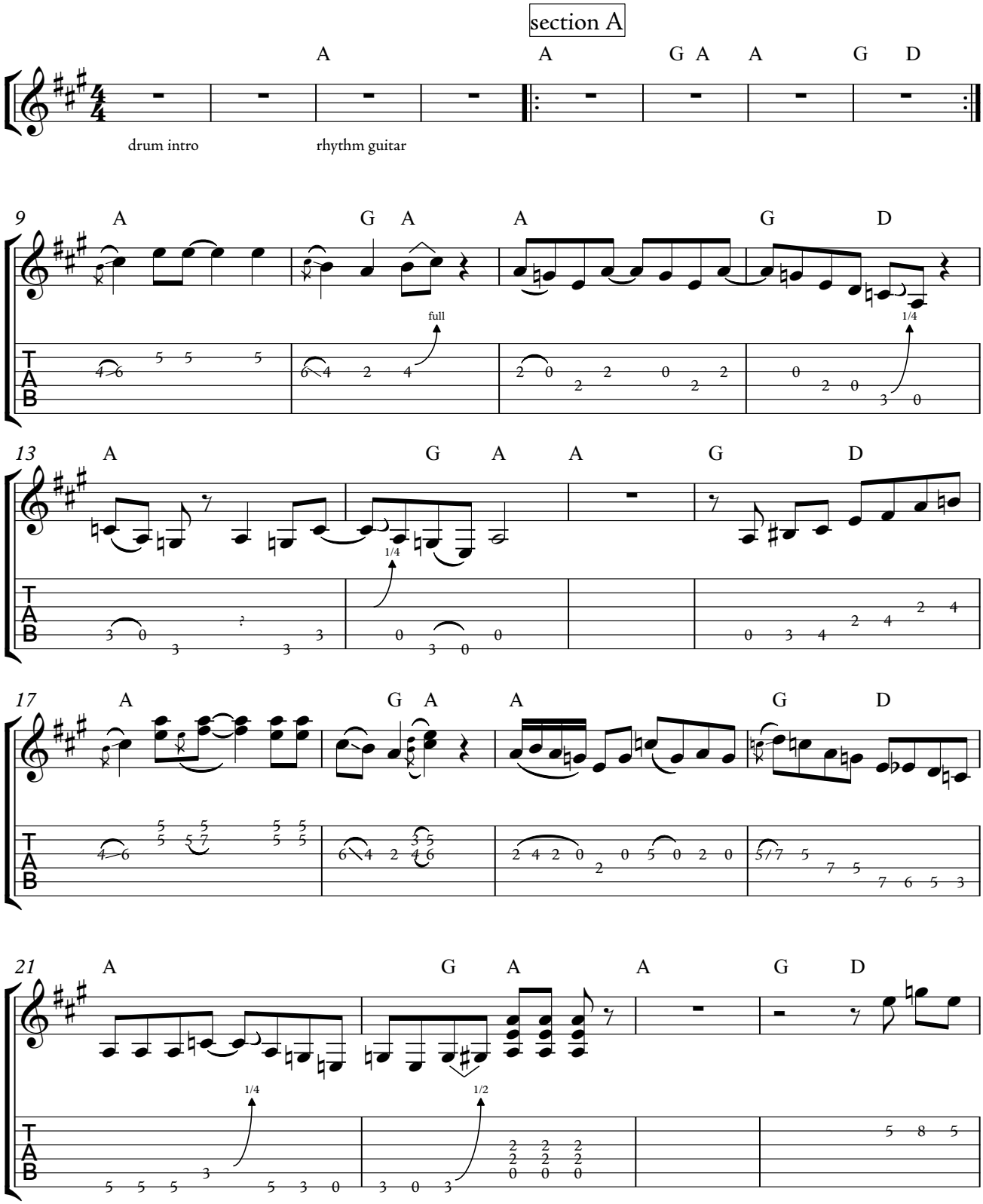


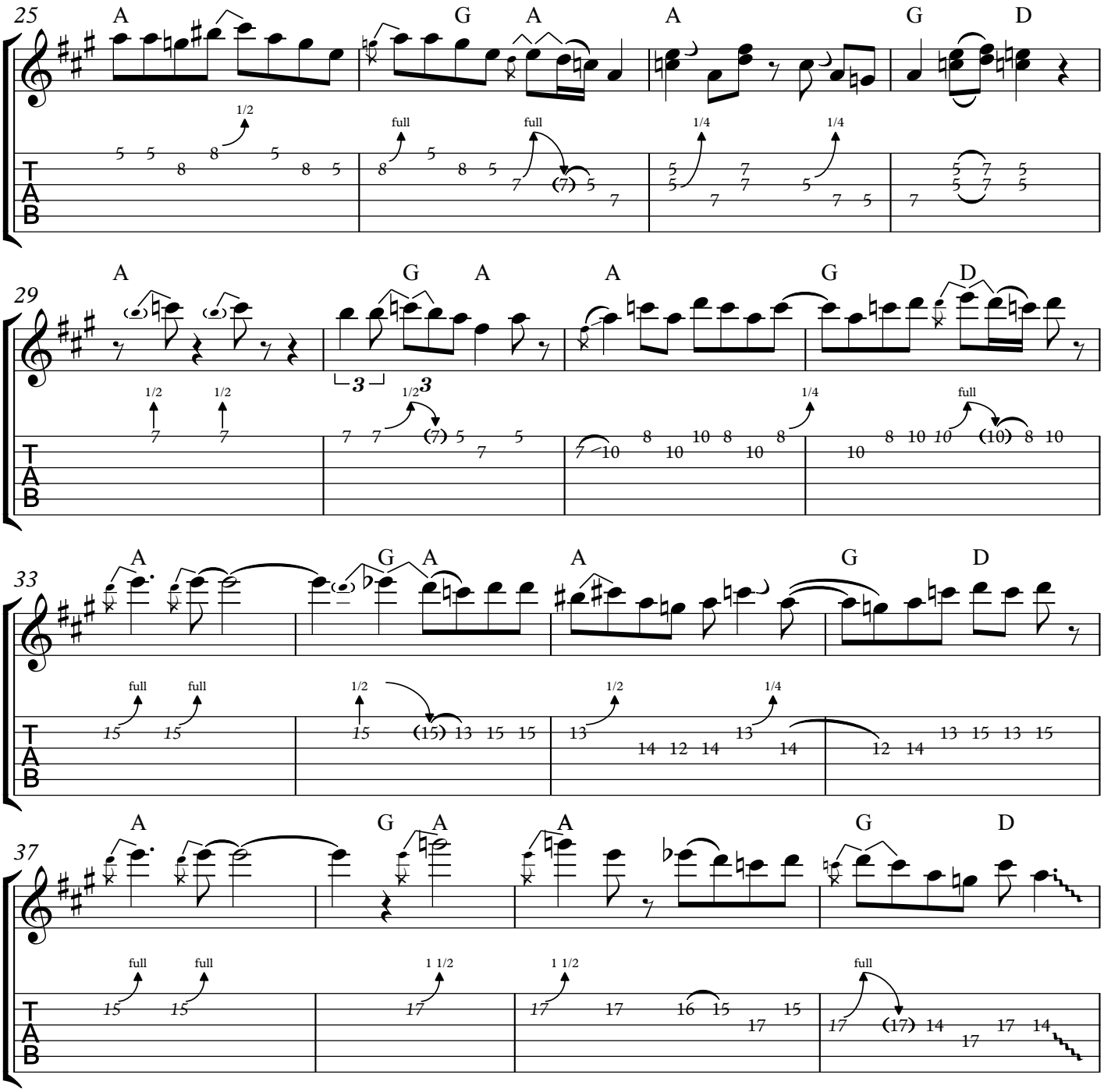


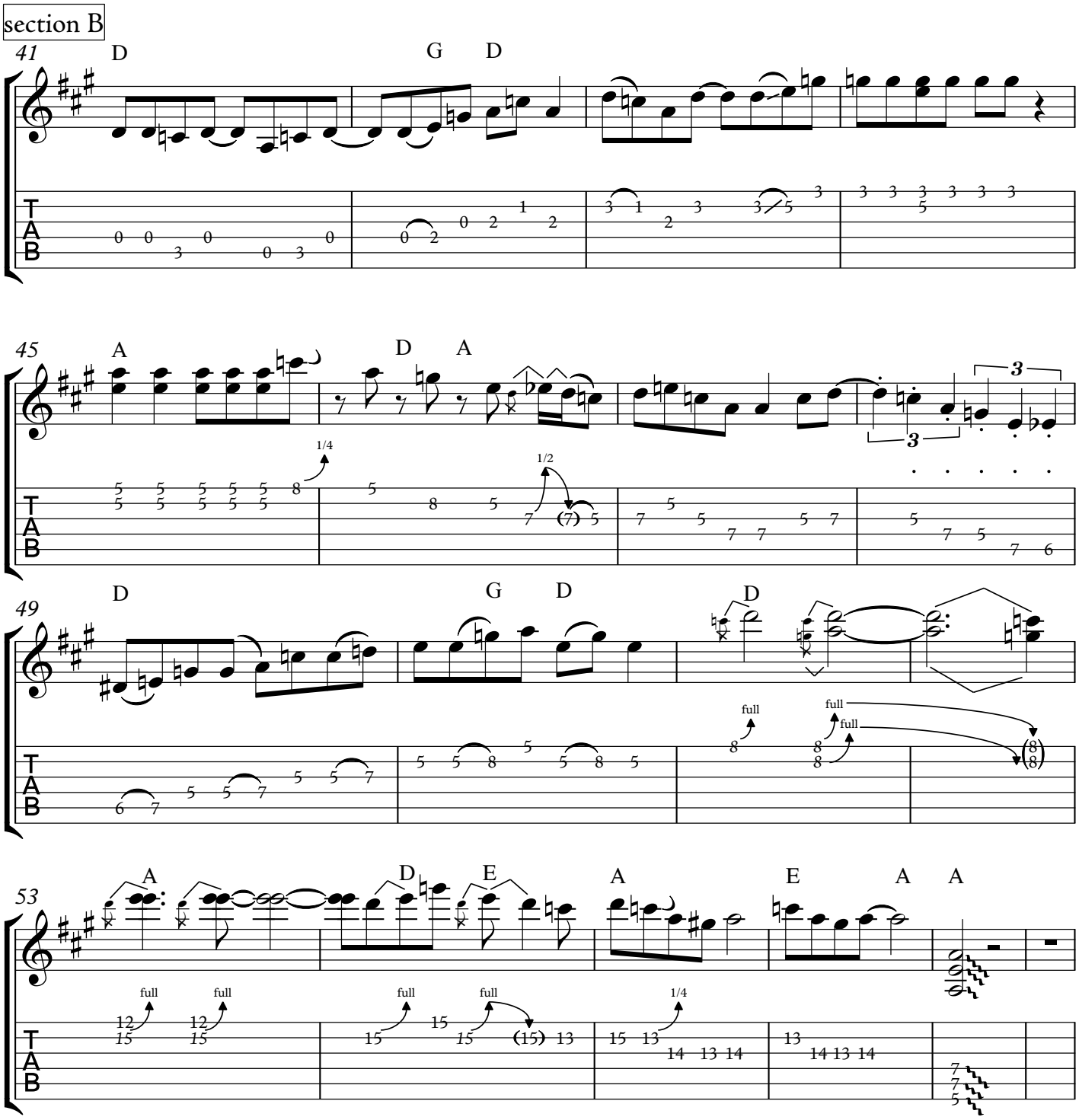


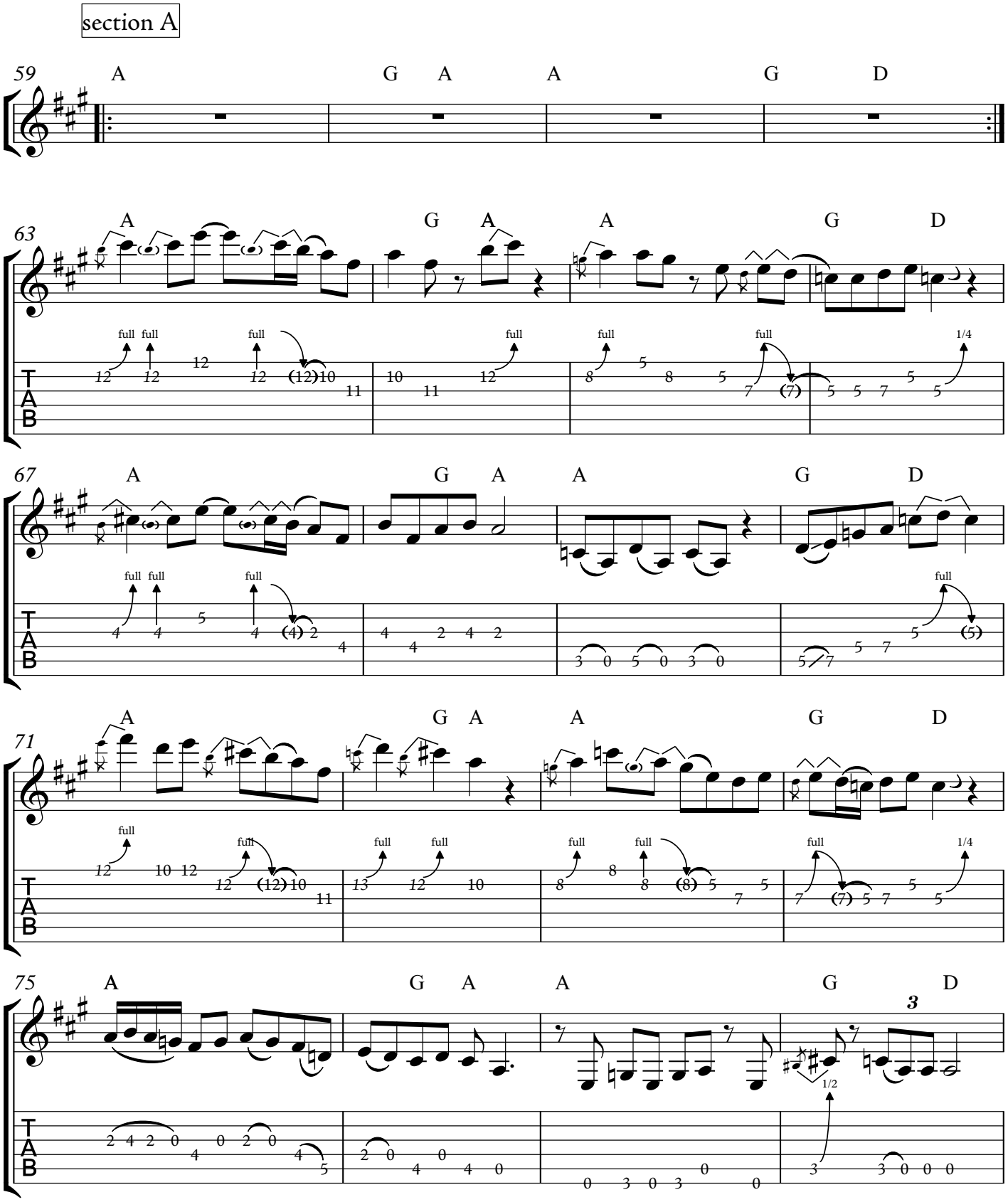
Bo's Clave Intermediate Solo

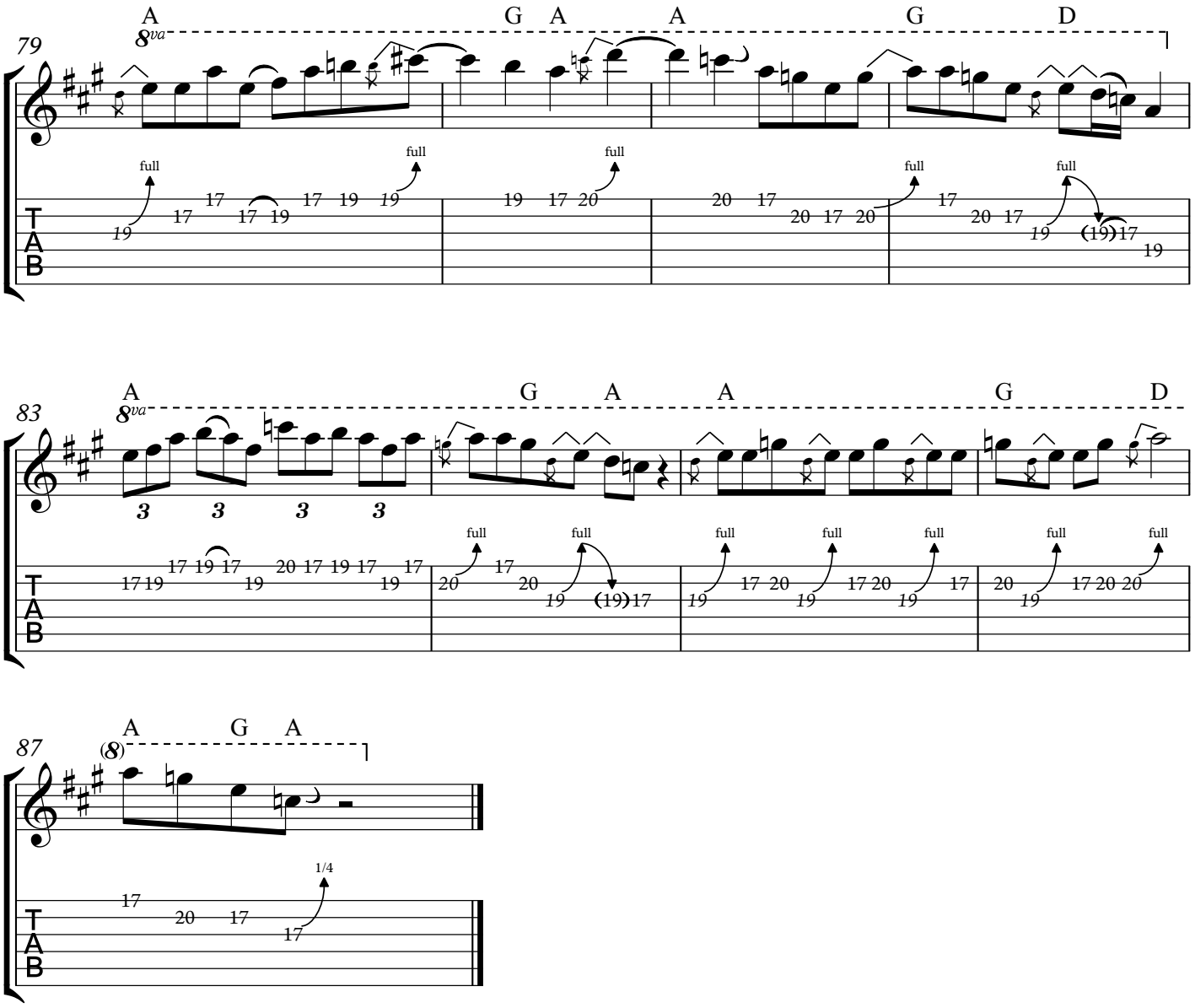
audio rhythm track: http://guitarencyclopedia.com/zzRTBosClave.mp3
audio intermediate solo track: http://guitarencyclopedia.com/zzSEBosClaveIntermediateSolo.mp3











HOW TO CHOOSE A SCALE OR ARPEGGIO FOR IMPROV

What qualifications does a scale or chord need for it to work in improvisation?

1. having many or all of the same notes as in the current chord
2. being a darkened version of the current chord or key (appropriate to the style)
3. supporting the key (often in theme and variation)
4. anticipating the next chord by introducing its sound early
5. creating a cadence (familiar short chord progression) that leads to a target chord. Any chord sound used in a cadence that does not agree with the accompaniment should sound for less than one second and should be followed by resolution to the target chord.

Pentatonic scales have occurred independently in most world cultures, since they are constructed with the most basic musical interval in all cultures, the fifth. Five notes "stacked" in perfect fifths constitute the pentatonic scale (any five notes in the series F♭-C♭-G♭-D♭-A♭-E♭-B♭-F-C-G-D-A-E-B-F♯-C♯-G♯-D♯-A♯-E♯-B♯).

Common major and minor pentatonic scales serve as common denominators. They typically have a such a high percentage of tones compatible with each of the chords in a progression that a single pentatonic can be used throughout many or all of the chords in a progression. This has promoted their use in the various cultures and that common use has established them as a familiar, likeable element.

FINDING THE KEY

Play along with recordings to build your sense of key and scale type. Choose easy songs first, in a genre you like.

In less than five minutes per song:

determine the key

decide whether the pentatonic scale should be major or minor

find as many scale fingerings as you can in the remaining time

Determine the Key

determine the key first by ear

You will have plenty of opportunity to exercise your logical/mathematical left brain in figuring out the key. Since the logic of the left brain *is directed by the intuitive sense of the right brain*, we should start with the right brain and learn to sense the key by ear. "If it sounds good, it is good", well said by Duke Ellington. "Music lives in the imagination", another gem from Aaron Copland.

Find *the tone center on the sixth or fifth string with a single note*. Listen for the note you imagine would be the lowest tone of the chord the piece should end on. You could, for example stop the recording abruptly after hearing a cycle of chords (usually four, eight or twelve bars) and immediately playing a note you suspect to be the tonic (note that names the key). If it is the tonic, you should get a sense of finality.

The sense of key in each song is usually established by multiple criteria. The weight of each criteria in its contribution to establishing the key differs in each song. Those criteria include:

Frequent occurrence of a particular chord.

Beginning or ending a phrase of chord progression. A phrase is typically four, eight or twelve bars long.

Lowest note. The chord containing the lowest pitch

Drone. a repeated note (especially in the bass)

Cadence, a short, familiar chord progression that we are used to hearing establish a key

One song may establish its key more through frequent occurrence, another more through cadences. A combination of some criteria may suggest 40% of the sense of key on one note, while the remaining criteria suggests 60% of another. The one with 60% wins, of course. If its 50/50, it is ambiguous, and is a matter of opinion.

common misconceptions in determining the key

Trust your instinct after listening to the whole piece (or a lot of it). Just because a chord is prominent, or if a chord begins or ends a chord progression, doesn't necessarily mean it is the tonic chord that names the key.

Pieces can be ambiguous and subjective. The tonic chord can be a matter of opinion. If a major chord and its relative minor are equally established as the key, one person may prefer the happy major outcome and another person the sad minor outcome.

You may be hear the correct tonic chord, but focus on another note in the chord and name it after the lowest note you hear instead of the lowest note you can imagine.

DETERMINE THE SCALE TYPE

Major or Minor

Decide whether you should play major or minor pentatonic in the key, or a mix of both. Play as many of the pentatonic scale fingerings as you can in under five minutes. You'll eventually be able to play all of them in under a minute. If a song gives you trouble, move on to another.

The key is named after the note that names the chord you expect the piece to end on, which is the lowest imaginable note in that chord.

common misconceptions concerning the scale type

If other attributes of the song are lively and happy, you may be tricked into thinking the tonic chord would be major, when it is minor. Fast tempo, swing eighths and high incidence of major chords other than the tonic can all contribute to the sense that the tonic chord would be major.

Attributes can trick you into thinking the tonic chord would be minor, when it is minor, including slow tempo, dissonant intervals, a sad lyric and high incidence of minor chords other than the tonic can all contribute to the sense that the tonic chord would be minor.

Chords with four or more notes, built by default in thirds are commonly called seventh chords. Each seventh chord has two triad subsets, one built on its root and one built on its third. So, a major seventh chord has a major triad on its root and a minor triad on its third (Cma7 contains C major triad on its root and Em triad on its third). A minor seventh chord has a minor triad on its root and a major triad on its third.

When you hear a major seventh chord that has the minor triad part of it conspicuously voiced (making the notes of the minor triad very audible and apparent), you may be duped into thinking the chord is minor, but it has a major basis. The triad on root should be thought of as the basis of the chord.

When you hear a minor seventh chord that has the major triad part of it conspicuously voiced, you may be think the chord is minor, but it has a minor basis. Again, the triad on root should be thought of as the basis of the chord.

common pentatonic scales

Minor pentatonic has tones 1, ♭3, 4, 5 and ♭7 of a major scale. It can be called minor 7/11 pentatonic scale, which defines it according to universal chord-naming conventions. It is a minor triad (1, ♭3, 5 of a major scale) with a whole step below the root and fifth.

Major pentatonic has tones 1, 2, 3, 5 and 6 of a major scale. It can be called major 6/9 pentatonic scale, according to naming conventions. It is a major triad (1, 3, 5 of a major scale) with a whole step above the root and fifth.

See "Locating Pentatonic Scales".

SENSE THE CHORD TONES

Once you have determined the key and whether you are using major or minor pentatonic scale (or both), listen to the effect of the scale you are playing against the chords in the song. When you come across a note in the scale that seems to harmonize with the current chord, sustain or repeat the note. If a note seems foreign to a chord, de-emphasize it by moving up or down the scale to another note In playing repeatedly along with the recording, you are likely to memorize some of the "sweet" notes that harmonize with chords. I call those notes *target tones*. They are notes that are both in the scale and in the current chord (or are a pleasing addition to a chord).

sing each note you play and listen to your imagination

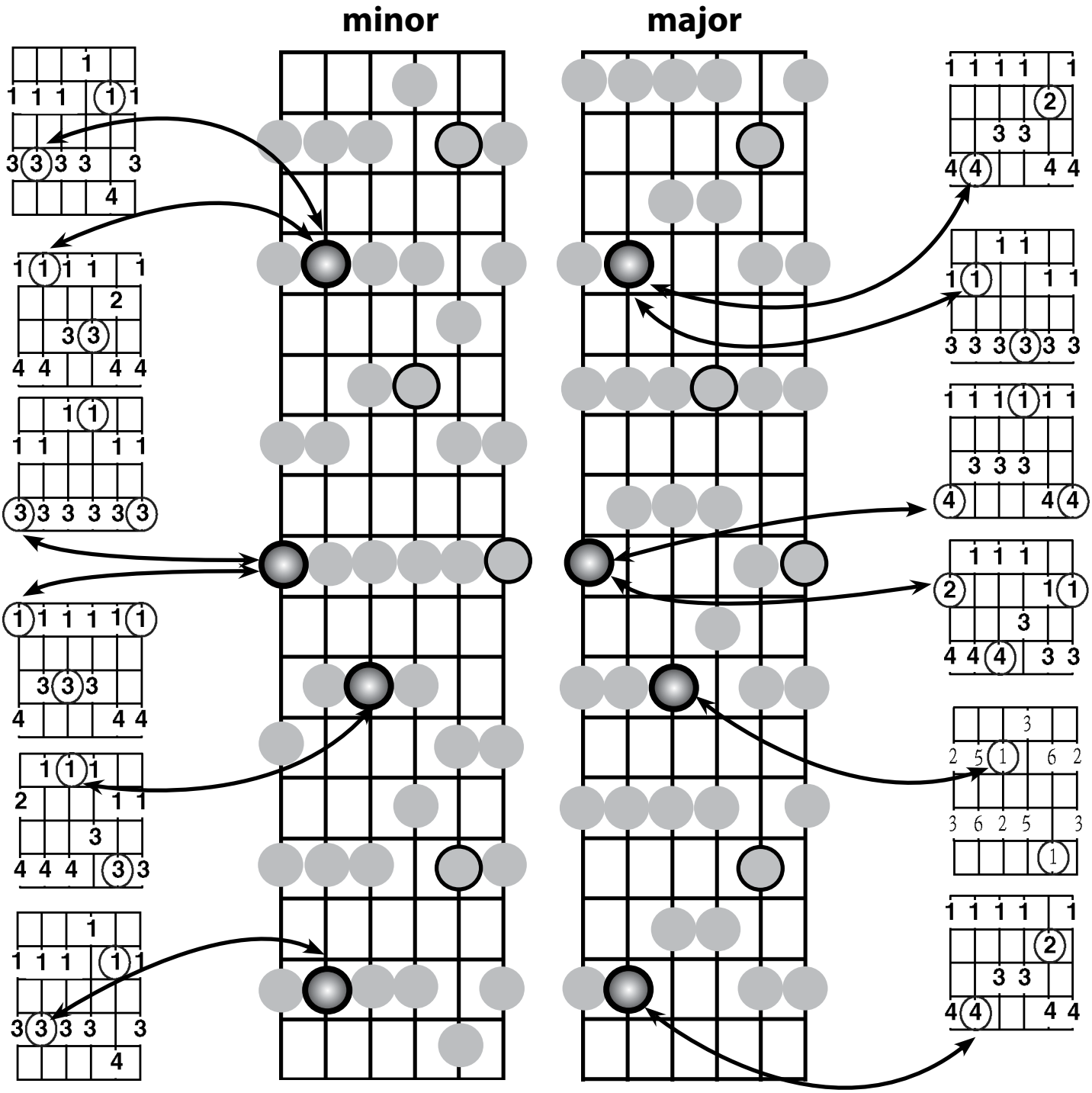
Sing each note as you play it. After a while, you will be able to predict the sound of each note. Later, you'll be able to predict the emotive content of each note. If you have listened to a lot of music, you are likely to also begin imagining groups of notes called *melodic cells*. Listen to your imagination and you'll be able to put sequences of these cells together in structures involving repetition and variation, When that happens, you are beginning to improvise!

PREPARE THE CORE MELODY BY LEARNING ARPEGGIOS

The core melody is the skeletal structure on which melody is built. It is made with *target tones*, which are notes common to the current chord *and* scale.

Play arpeggios and pentatonic scales for easy songs (three or four chords, one bar or more each) where you know the chords, for under ten minutes each song. Don't dwell on one octave shape. Challenge yourself to move through all five octave shapes, *not* in order up and down the fretboard. Randomize the EDCAGE order first, then finish by play*ing in order. Try to keep it under ten minutes a song, so you challenge your ability to locate the arpeggios and pentatonic scales. If a song gives you trouble, move on to another.*

Locating Pentatonic Scales



ALTERING PENTATONIC SCALES

purposeful bending

There are three common reasons to bend a note:

- to produce a vibrato with a slight bend, usually about an eighth of a tone (1/4 way to the next fret)
- to bend to the next higher scale tone
- to bend halfway or less (sometimes 75%) to a major third (E on a C chord), perfect fifth (G on a C chord) or major seventh (B on a C chord) above the bent note, called a *microtonal bend*

If not bending for one of these purposes, you may encounter a problem. Bending part of the way toward a note that is not in the current chord nor in a tonic chord (the chord after which the key is named) usually sounds wrong.

If you begin to bend a note without forethought, you *may* be able to "save it" by purposing it to one of the three types listed above.

- If you haven't bent it too far, you could repeatedly bend and release it an eighth of a tone an produce a vibrato.
- If a bend to the next higher scale tone is practical with the finger you have chosen, you could do that. You shouldn't try to bend to the next higher scale tone if it is three frets higher with the index finger, though.
- If a major third, perfect fifth or major seventh of the chord is a half step (one fret) above the fretted note, it can be bent as a microtonal bend (see below).

basic microtonal bends

Microntonal bends suggest a chord tone one fret higher by bending slightly toward it. The most common microtonal bends are the next higher or next lower note in the minor (minor 7/11) pentatonic scale. They should be bent a half a fret to a fret in pitch (an eighth to a quarter tone) and should not end on the released pitch. After bending a note microtonally up in pitch, end by abruptly releasing the pressure so you don't hear the lowered pitch.

You can bend up microtonally and release repeatedly, making a *microtonal vibrato*, but the last sound should be the bent note, not the released note.

In the major pentatonic, the second note above the tone center is the third. That third can be flatted to darken the mood. The flatted third of the major pentatonic (minor 6/9 pentatonic) can be treated as a microtonal bend, also.

microtonal bend exercises with the A minor pentatonic scale

A minor pentatonic scale (pdf)

A minor pentatonic scale (video)

advanced microtonal bends

If a major third, perfect fifth or major seventh of the chord is a half step (one fret) above the fretted note, it can be bent expressively from zero to about 75% toward the tone up a half step, with a preferred maximum of about 60%. Bending around 90% to the chord tone sounds flat.

If you are fretting a chord tone that is a minor third (♭3), diminished fifth (♭5) or minor seventh (♭7), you can *hint* the raised version of the note by bending less than a quarter tone (1/2 fret), usually better as an eighth of a tone (1/4 fret). These can be used with any scale appropriate to the style, but are typically used in blues-related styles.

minor pentatonic with flat five (minor 7/11♭5)

When you have determined that you should use minor pentatonic, consider using the minor pentatonic with a flat five wherever you want a darker mood. This works particularly well on IV or IV7 (F or F7 in the key of C) or bVI or bVI7 (Ab or Ab7 in the key of C). Typical of blues music.

major pentatonic with flat three (minor 6/9)

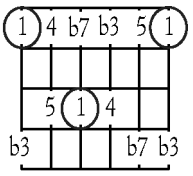
When you have determined that you should use major pentatonic, try it with a flat three wherever you want a darker mood. This works particularly well on IV or IV7 (F or F7 in the key of C). Typical of swing music.

Pentatonic Scales by Octave Shape

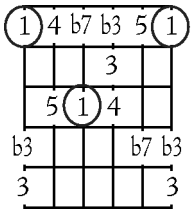
E shape pentatonic scales

7/11 type | *= IV9* | *6/9 type*

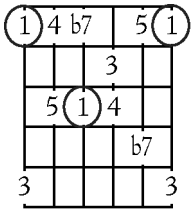
minor 7/11 — *fingering 1*



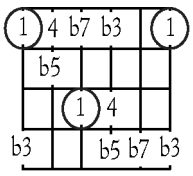
m7/11 add ♮3 — *fingering 1*



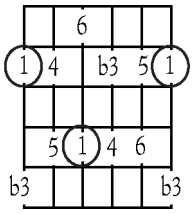
7/11 — *fingering 1*



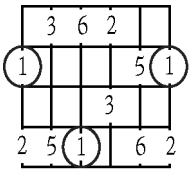
minor 7/11♭5 — *fingering 1*



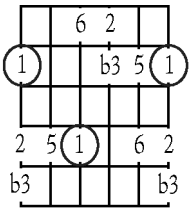
minor 6/11 — *fingering 1*



major 6/9 — *fingering 2*



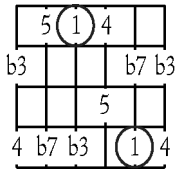
minor 6/9 — *fingering 2*



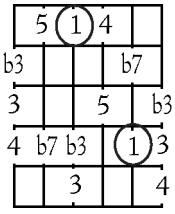
D shape pentatonic scales

7/11 type | *= IV9* | *6/9 type*

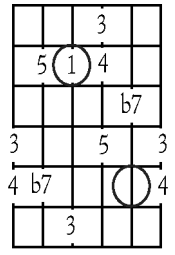
minor 7/11 — *fingering 2*



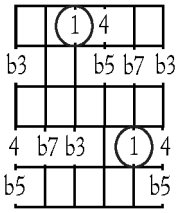
m7/11 add ♮3 — *fingering 2*



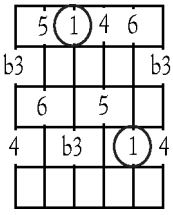
7/11 — *fingering 2*



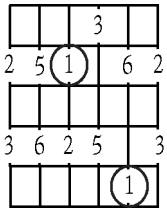
minor 7/11♭5 — *fingering 2*



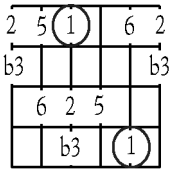
minor 6/11 — *fingering 2*



major 6/9 — *fingering 3*



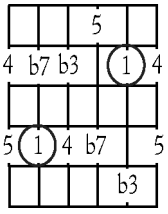
minor 6/9 — *fingering 3*



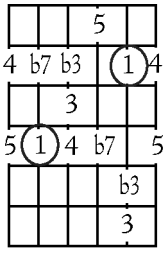
C shape pentatonic scales

7/11 type | *= IV9* | *6/9 type*

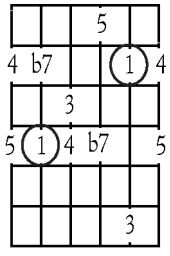
minor 7/11 — *fingering 3*



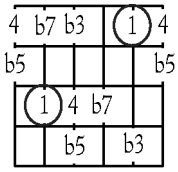
m7/11 add ♮3 — *fingering 3*



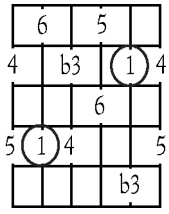
7/11 — *fingering 3*



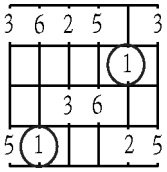
minor 7/11♭5 — *fingering 3*



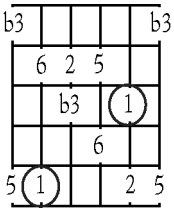
minor 6/11 — *fingering 3*



major 6/9 — *fingering 4*



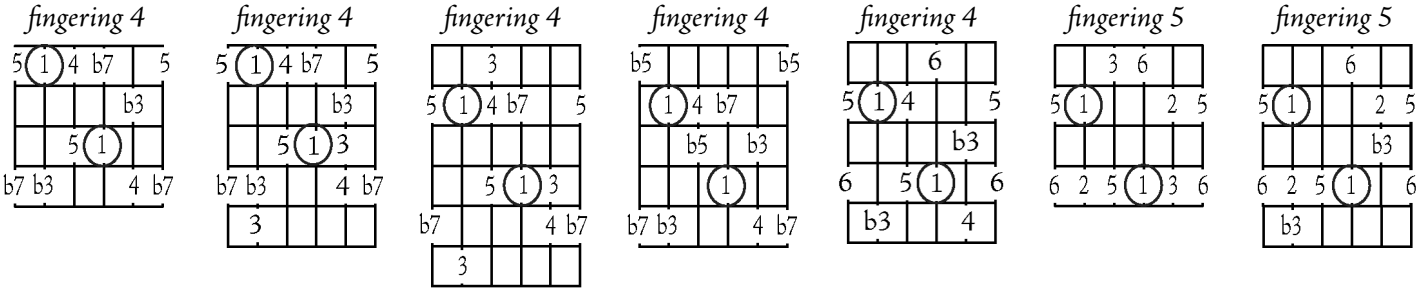
minor 6/9 — *fingering 4*



A shape pentatonic scales

7/11 type = *IV9* *6/9 type*

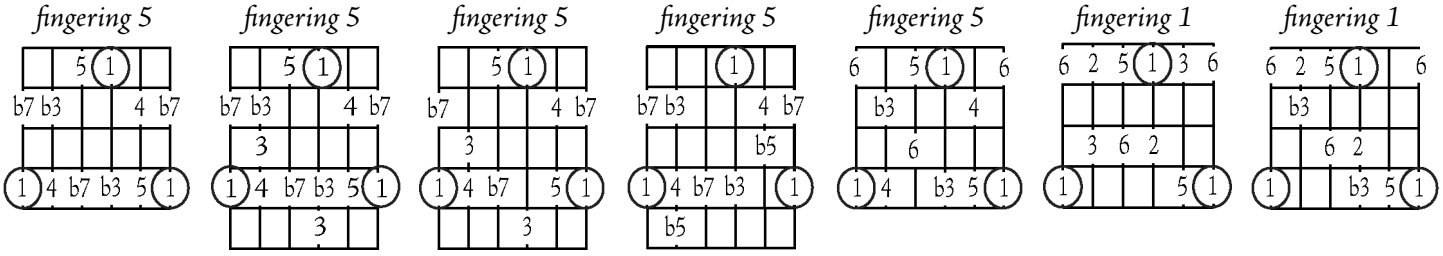
minor 7/11 *m7/11 add ♮3* *7/11* *minor 7/11♭5* *minor 6/11* *major 6/9* *minor 6/9*



G shape pentatonic scales

7/11 type = *IV9* *6/9 type*

minor 7/11 *m7/11 add ♮3* *7/11* *minor 7/11♭5* *minor 6/11* *major 6/9* *minor 6/9*

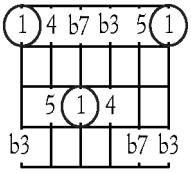


Pentatonic Scales by Fingering Number

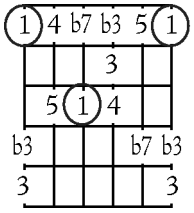
fingering 1

7/11 type = *IV9* *6/9 type*

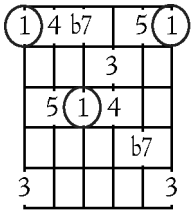
minor 7/11 *fingering 1*



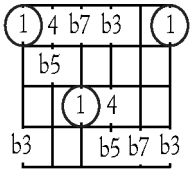
m7/11 add ♮3 *fingering 1*



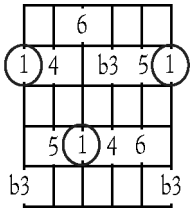
7/11 *fingering 1*



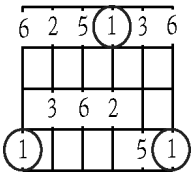
minor 7/11♭5 *fingering 1*



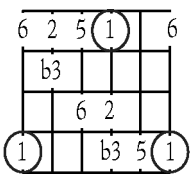
minor 6/11 *fingering 1*



major 6/9 *fingering 1*



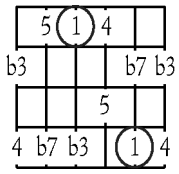
minor 6/9 *fingering 1*



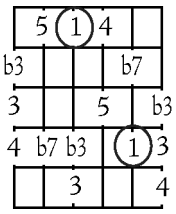
fingering 2

7/11 type = *IV9* *6/9 type*

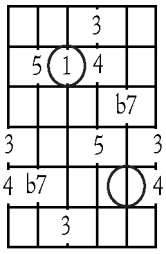
minor 7/11 *fingering 2*



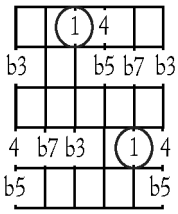
m7/11 add ♮3 *fingering 2*



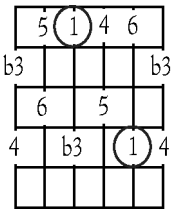
7/11 *fingering 2*



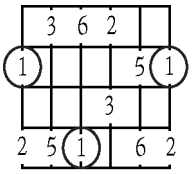
minor 7/11♭5 *fingering 2*



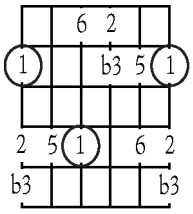
minor 6/11 *fingering 2*



major 6/9 *fingering 2*



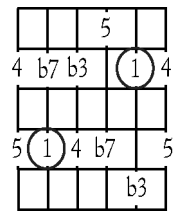
minor 6/9 *fingering 2*



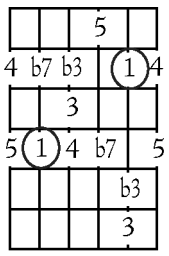
fingering 3

7/11 type = *IV9* *6/9 type*

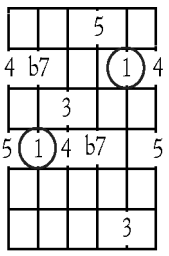
minor 7/11



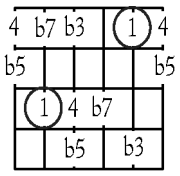
m7/11 add ♮3



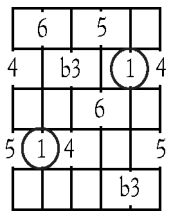
7/11



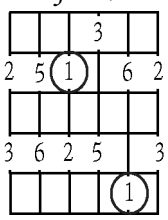
minor 7/11♭5



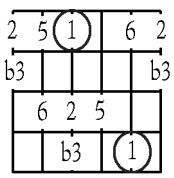
minor 6/11



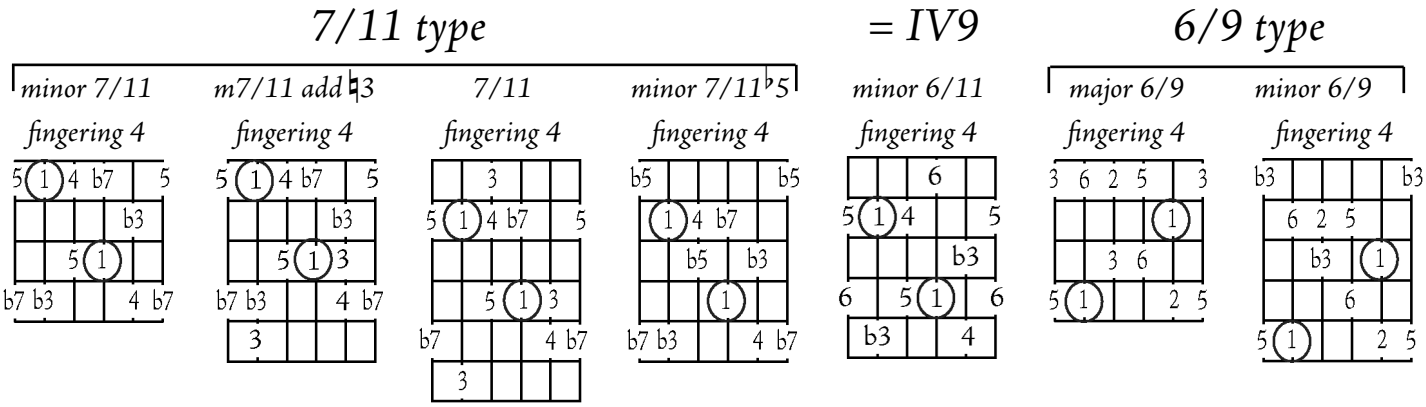
major 6/9



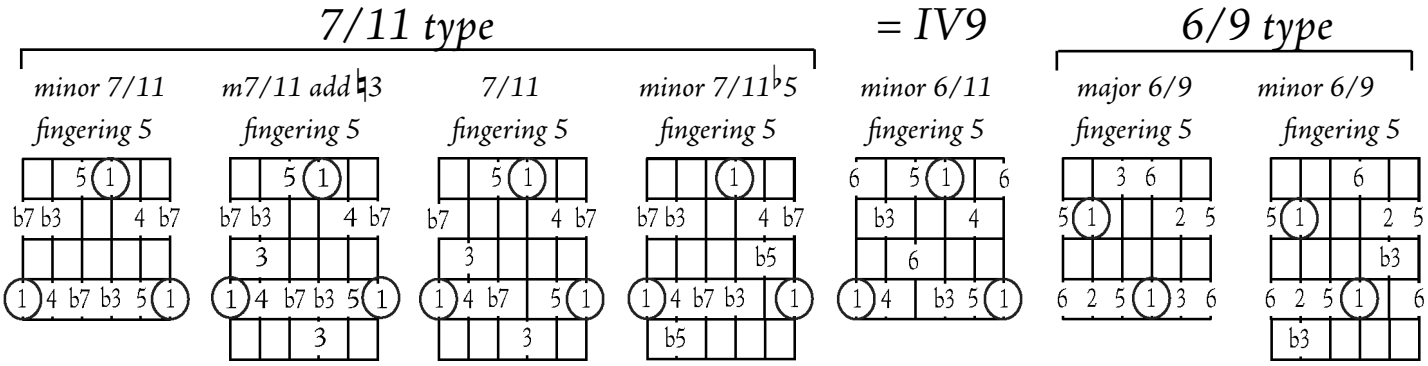
minor 6/9



fingering 4



fingering 5



DETERMINING THE CHORDS IN THE ACCOMPANIMENT

Learn the Emotive Sound of the Five Triad Types

Major (1-3-5) sounds happy. Minor (1-♭3-5) sounds sad. Diminished (1-♭3-♭5) sounds depressed. Suspended (suspended fourth is 1-4-5 and suspended second is 1-2-5) sounds heavenly. Suspended fourth is the default and more common version. Augmented (1-3-♯5) sounds tormented.

Listen to the Bass

Most chords begin in popular music with the root (the note that names the chord) in the bass. If you can determine the bass note at the beginning of a chord, listen for the basic quality of the chord.

Learn about Chord Progression

First study Learning Keys with Chord Progression. Then the chapters later in this course on chord progression and chord voicing.

DECIDING HOW YOU WILL DEPICT THE CHORDS

Abbreviating the Progression with Region Chords

An arpeggio could be used for each chord, but it is usually advantageous for both the player and the listener to cut down on the number of chords. *Region chords* are specialized substitute chords. Two or more chords in the accompaniment can be represented with a single *region chord* in the melody when the mood and color of the chord is compatible. Region chords do require more discretion, since all their tones don't match every tone in each accompaniment chord.

Region chords are created using chord synonyms and secondary roots. Chord synonyms are used were versions of chords are conceived with the tones common to both chords. Secondary roots consider versions of chords where the assignment of the root can be changed to another chord tone, commonly the third or sixth.

The *chord scale* is the synonym scale named after the root of the chord. A *chord region scale* is named after the root of the chord region chord.

Elaborating the Progression with Cadences and Voice Leading

Each chord can be preceded with one of a variety of chords that will lead to it. The chord being preceded in such a manner is a *target chord*. The chord played before the target chord is the *setup chord*.

Playing a dominant seventh type chord (1-3-5-♭7) before a target chord is common to both classical and jazz music (the idea originated in classical, of course). These are called *secondary dominants*. The movement from the root of the secondary dominant to the target chord is up a perfect fourth. The root is the letter name that begins the chord name, which may include a flat or sharp after it, such as "Bb".

In jazz, the dominant chords may be altered and have added ninths, elevenths (usually sharp eleven) and thirteenths. Flat five substitutes in jazz are synonyms of secondary dominants that occur on flat two of the target (which is a flatted fifth away from the fifth of the target). See Flat Five Substitute Chord Progression.

Scale tone chords built on the next higher or next lower scale tone from the target can lead to the target by moving all their notes in parallel to the target. This type of progression has a processional quality, since all the notes are moving to or away from the target in tandem.

Scale tone chords built on roots up or down a fourth from the target will typically retain one or two notes and change two notes in moving to the target, producing a pivotal quality.

conflicting with the current chord

Melodically suggesting a secondary dominant or other setup chord immediately before the target chord is not the same as the current chord (the one played in the accompaniment immediately before the target chord), there can be a conflict. If the duration of the setup chord is much over one second in duration, the listener has the time to contemplate its disagreement with the current chord. Certainly in two seconds, the listener could sense this conflict. So, to avoid the sense of disagreement, play any setup chord that is not the same as the current chord for one second or less. At 120 beats per minute, the most common tempo in popular music, this would be two beats.

See the chapter on Voice Leading.