Guitarnomics

Standard Tuning & Fingerboard Organization

Joseph Parisi

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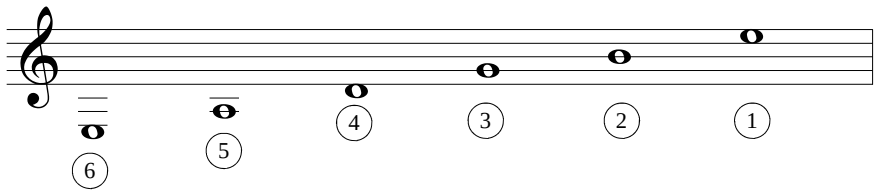
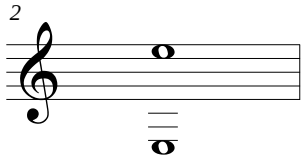
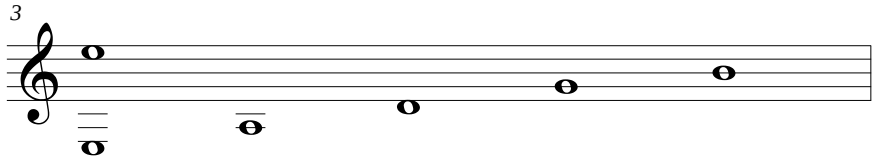
The 6 strings of the Guitar are tuned to 6 different pitches, low to high -
E A D g b e.



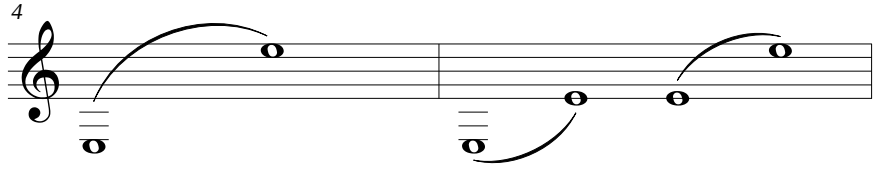
6 pitches but only 5 tones since the outer strings are both tuned to E, not the same pitch of E, but the same tone of E.



The first observation to recognize about Guitar Standard Tuning is -
6 Pitches of 5 Tones - Ee A D g b.



The range of the Tuning from low E to high e, is 2-octaves.



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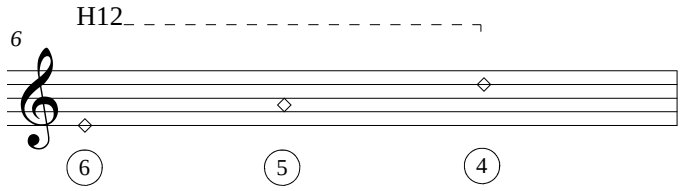
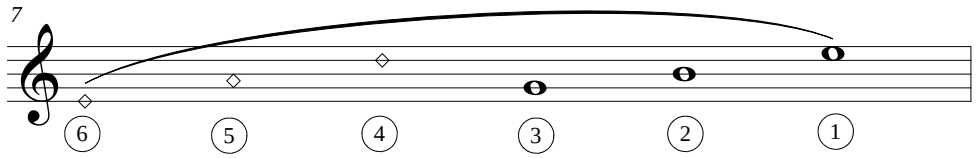
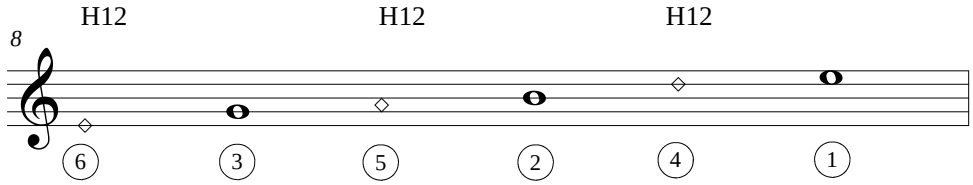
If the range of the Tuning is compressed into 1-octave and sequenced into a scale, something more revealing happens to it. To compress the range into 1-octave, play the lower 3 strings as harmonics at the 12th fret - *e a d*.



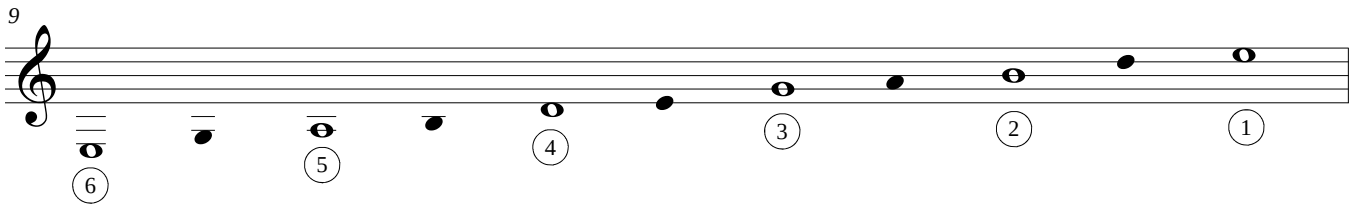
When combined with the upper 3 strings the Tuning is compressed into 1-octave - *e a d* g b e.



When these pitches are sequenced into a scale - low to high - the Tuning becomes - *e* g *a* b *d* e.



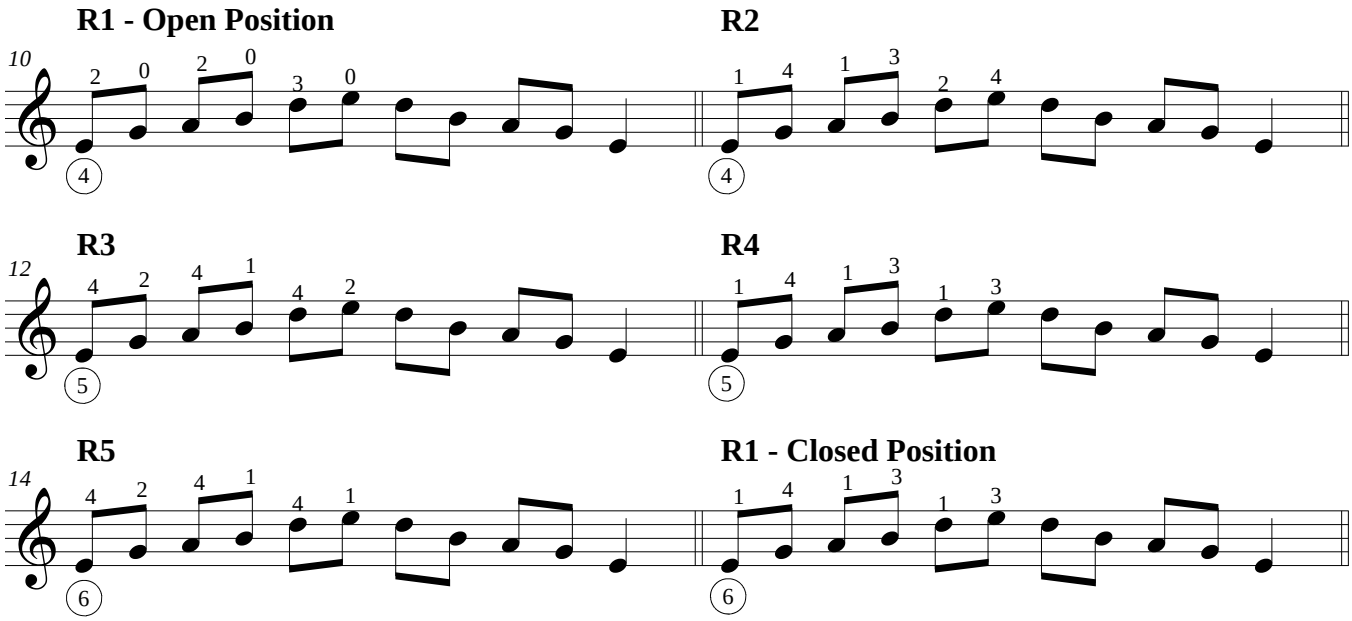
This is an Em Pentatonic Scale.
Guitar Standard Tuning is the tones of an Em Pentatonic scale.
Even the order of the open strings is directly related to this scale.
The string order is every other note of the Em Pentatonic scale in 2-octaves.



Guitar Standard Tuning is undeniably linked to the (Em) **Pentatonic Scale**.

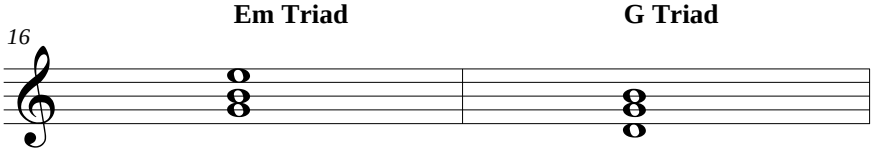
The pitches of the 1-octave Em Pentatonic Scale are playable in 5 locations on the fingerboard within 4 consecutive frets in each location. The 5 locations exist within a range of 12 frets after which they repeat in sequence an octave higher for the remaining length of the fingerboard. The 5 locations from here on will be known as the **5 Regions - R1 R2 R3 R4 R5.** Region 1 - R1 - will be presented two ways, in open postion with open strings and closed postion without open strings.

5 Regions of Standard Tuning (Em)



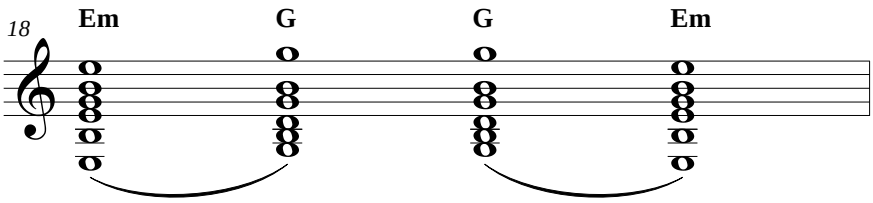
The 1-octave Pentatonic scale of theTuning has begun to identify, divide and organize the fingerboard into 5 core Regions.

The next feature of Standard Tuning relevant to fingerboard organization are the two chords built into it - a minor and major triad. E Minor on the top 3 strings and G Major on the 2nd, 3rd and 4th strings.



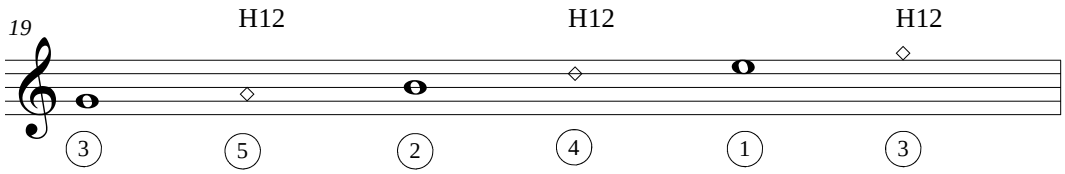
The musical relationship between the keys of E Minor and G Major is known as the **Relative Key**. E Minor is the Relative Minor of G Major and G Major the Relative Major of E Minor. Standard Tuning can be Minor or Major, evident by the Em & G chords, in a **Relative Relationship**.

Relative Major & Minor Relationship



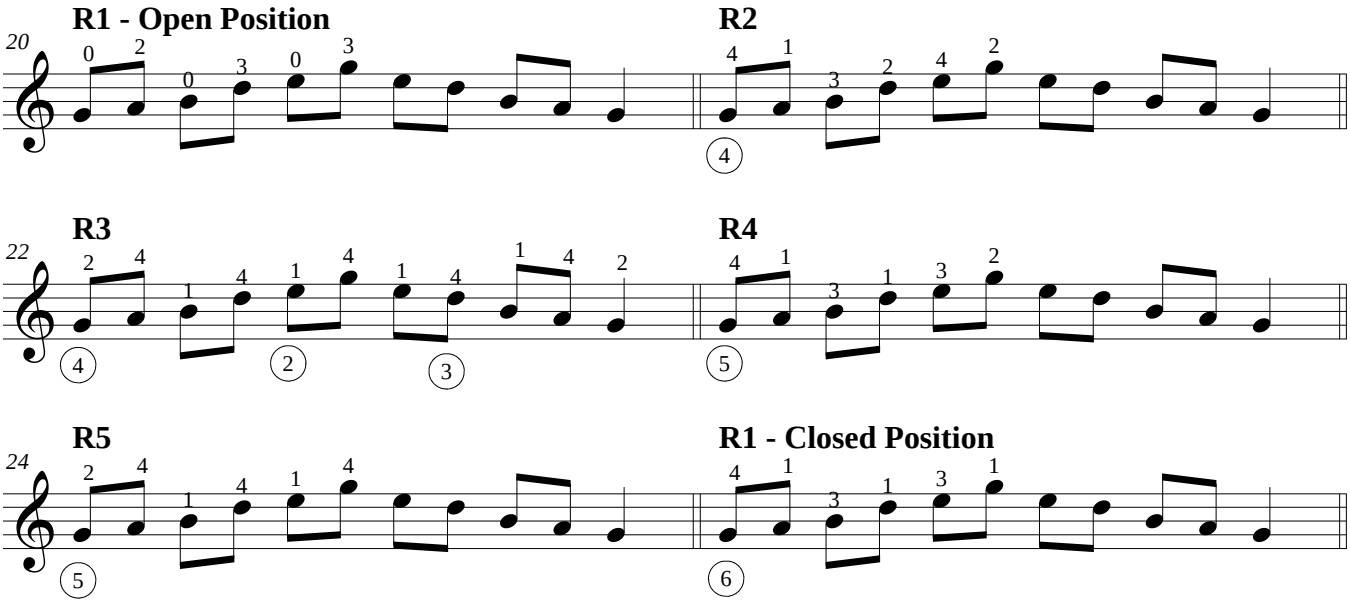
By applying the Relative Relationship of the Tuning to the Pentatonic Scale of the Tuning, a **G Major Pentatonic Scale** is formed by starting from - g - the root of the Major Triad - g *a* b *d* e *g*.

G Major Pentatonic Scale



These pitches are also playable in the same 5 Regions.

The 5 Regions of Standard Tuning (G)

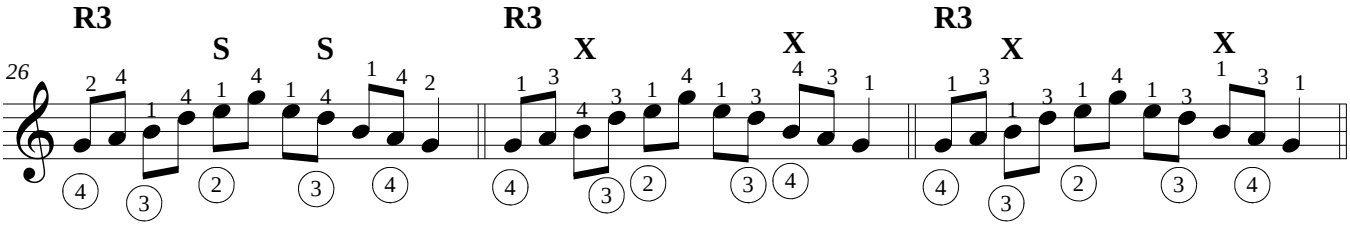


The G Major Pentatonic Scale in Region 3 presents a unique realization about fingerboard organization. No matter how the Major Pentatonic scale is fingered in Region 3, it requires 5 consecutive frets. The Tuning is defining the structure of Regions and Positions.

We naturally think of positions on the guitar fingerboard in 4 consecutive frets due to our 4 fretting fingers, however musically this isn't always possible. A Region and a Position on the guitar fingerboard can be 5 consecutive frets evident by the Major Pentatonic scale in Region 3. The challenge then becomes how to maneuver transversely in 5 consecutive frets with 4 fretting fingers.

There are 2 fundamental techniques to maneuver within 5 consecutive frets with 4 fretting fingers - Shifts (S) and Extensions (X). Three applications are offered below.

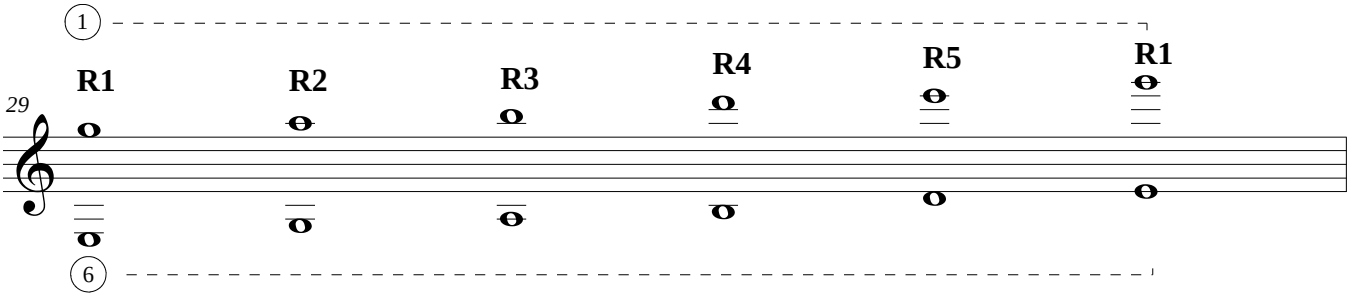
Transverse Maneuvers - 5 Consecutive Frets



While both 1-octave Minor and Major Pentatonic scales of the Tuning have identified each of the 5 Regions, to realize the entire Range of each Region requires going beyond the octave and both scales provide the way to realize this.

The Minor Pentatonic Scale on the 6th-string together with the Major Pentatonic Scale on the 1st-string outline the range for each of the 5 Regions.

Regional Ranges



With the Ranges for the 5 Regions established it is now possible to comlplete them with the 5-tones of the Tuning on the entire fingerboard.

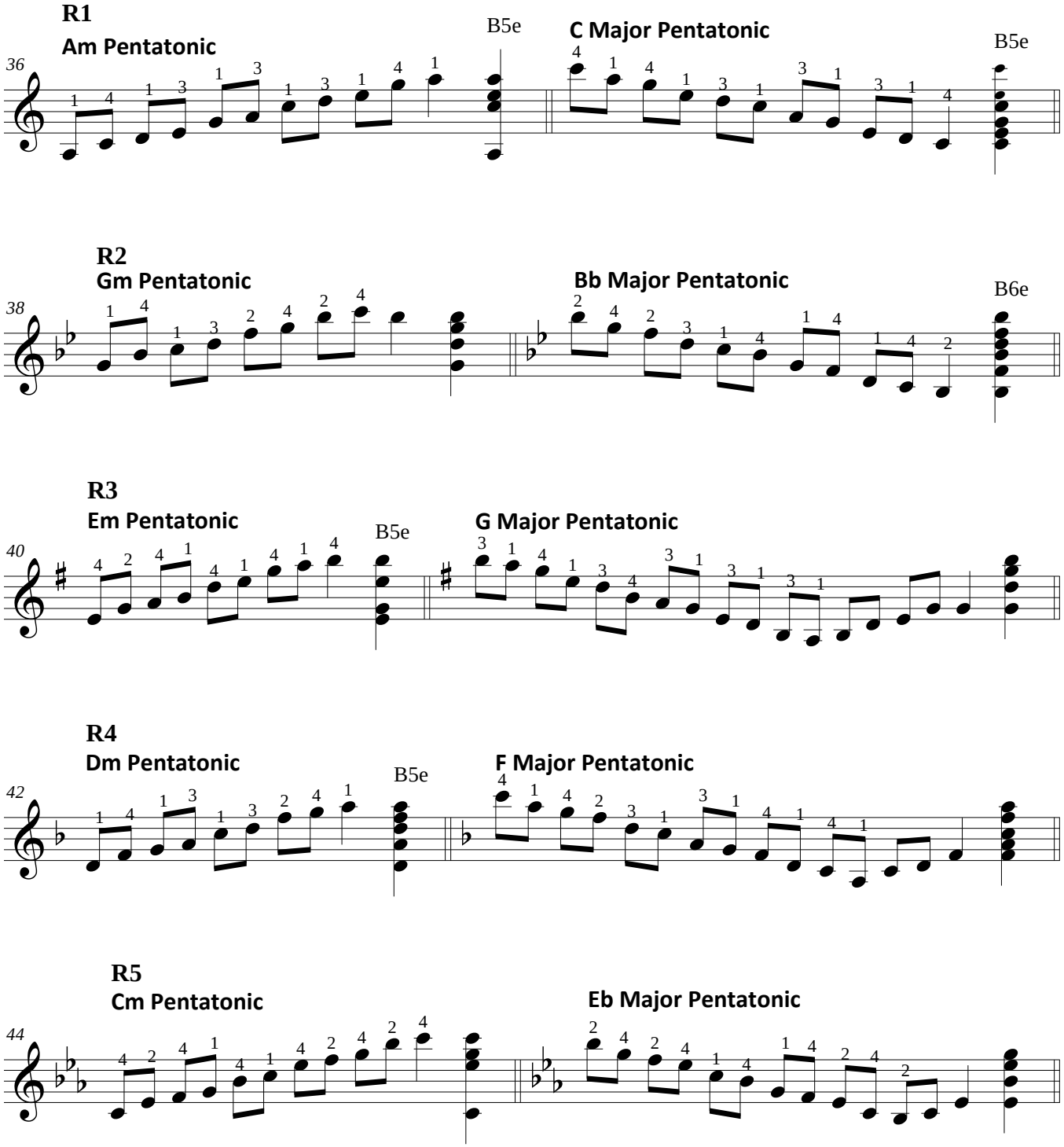
5 Regional Ranges - Standard Tuning - Complete

The 5 Regions of Standard Tuning are **movable structures**, playable in any position on the fingerboard. They allow us to play in 1 tonality and modality on the entire fingerboard or 10 - 5 Major & 5 Minor - in 1 position.

By transposing the 5 Regions of the Tuning to the 5th position (5e) the following **Regional Tonalities** are realized.

R1 - Am/C
R2 - Gm/Bb
R3 - Em/G
R4 - Dm/F
R5 - Cm/Eb

Regional Tonalities - 5th Position (5e)

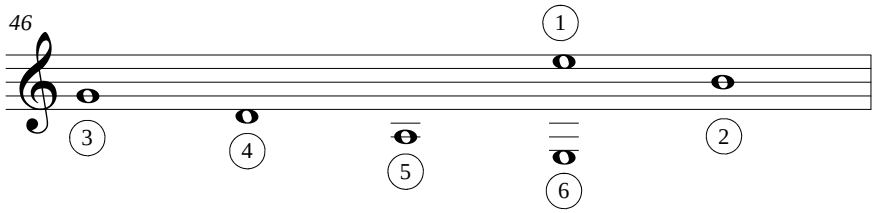


The next feature of Standard Tuning to consider are notions of **symmetry** and **asymmetry**. It has been said that Guitar Standard Tuning is asymmetrical since the 6 strings are pithed apart by more than one interval. Standard Tuning is predominantly pitched in P**erfect 4ths** with a M**ajor 3rd** beween the 3rd and 2nd strings making it asymmetrical. This is true when considering the pitches of the strings themselves, however the relationship between these pitches present another view.

One way to build a Pentatonic Scale is to sequence a series of Perfect 5ths. Sequencing a series of Perfect 5ths from the g-string produces the same 5 tones of Standard Tuning - G D A E B - a **6-string Cycle of Fifths in 5 tones**.

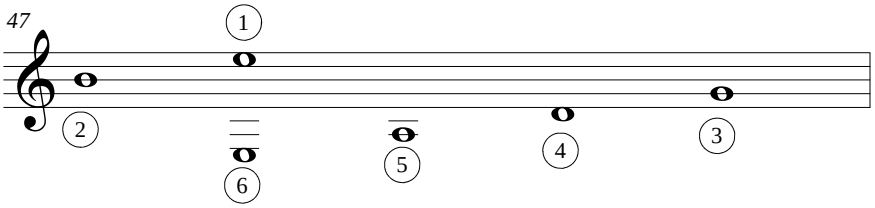
The 5 tones of Guitar Standard Tuning are related to each other through the **Cycle of 5ths**.

5-Tone Cycle of Fifths - Ascending 5ths



The Cycle of Fifths is also eveident in reverse as descending fifths from the b-string - B E A D G.

5-Tone Cycle of Fifths - Descending 5ths

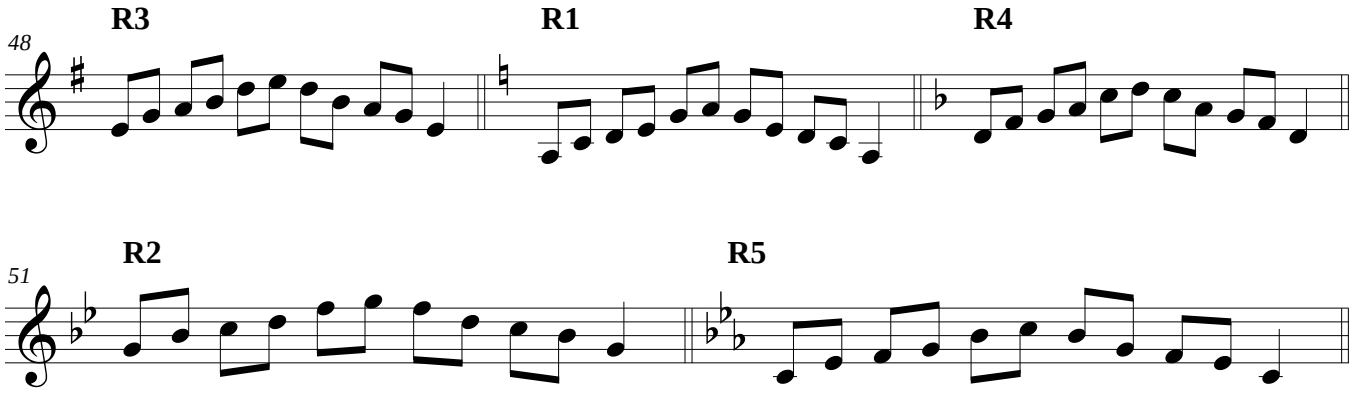


Standard Tuning is **asymmetrical in pitch** and **symmetrical in relationship**. It means the 5 Regions also have a Cycle of 5ths sequence. The Major 3rd of the Tuning is created by the repitition of the Cycles.

Regional Cycle of Fifths - 5th Position Tonalities

R5 - Cm / Eb
R2 - Gm / Bb
R4 - Dm / F
R1 - Am / C
R3 - Em / G

Minor Tonality Cycle - Descending Fifths - 5th Position

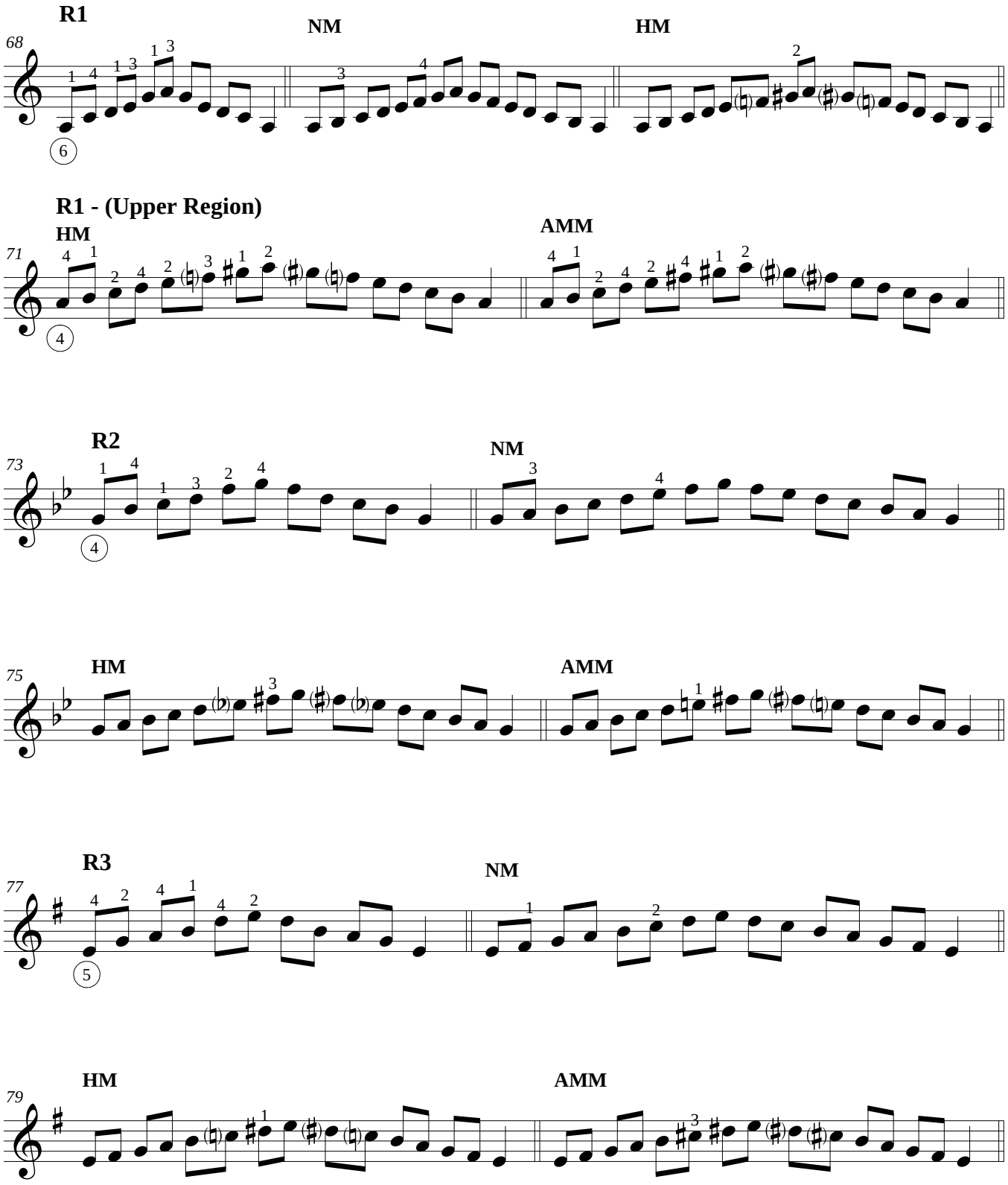


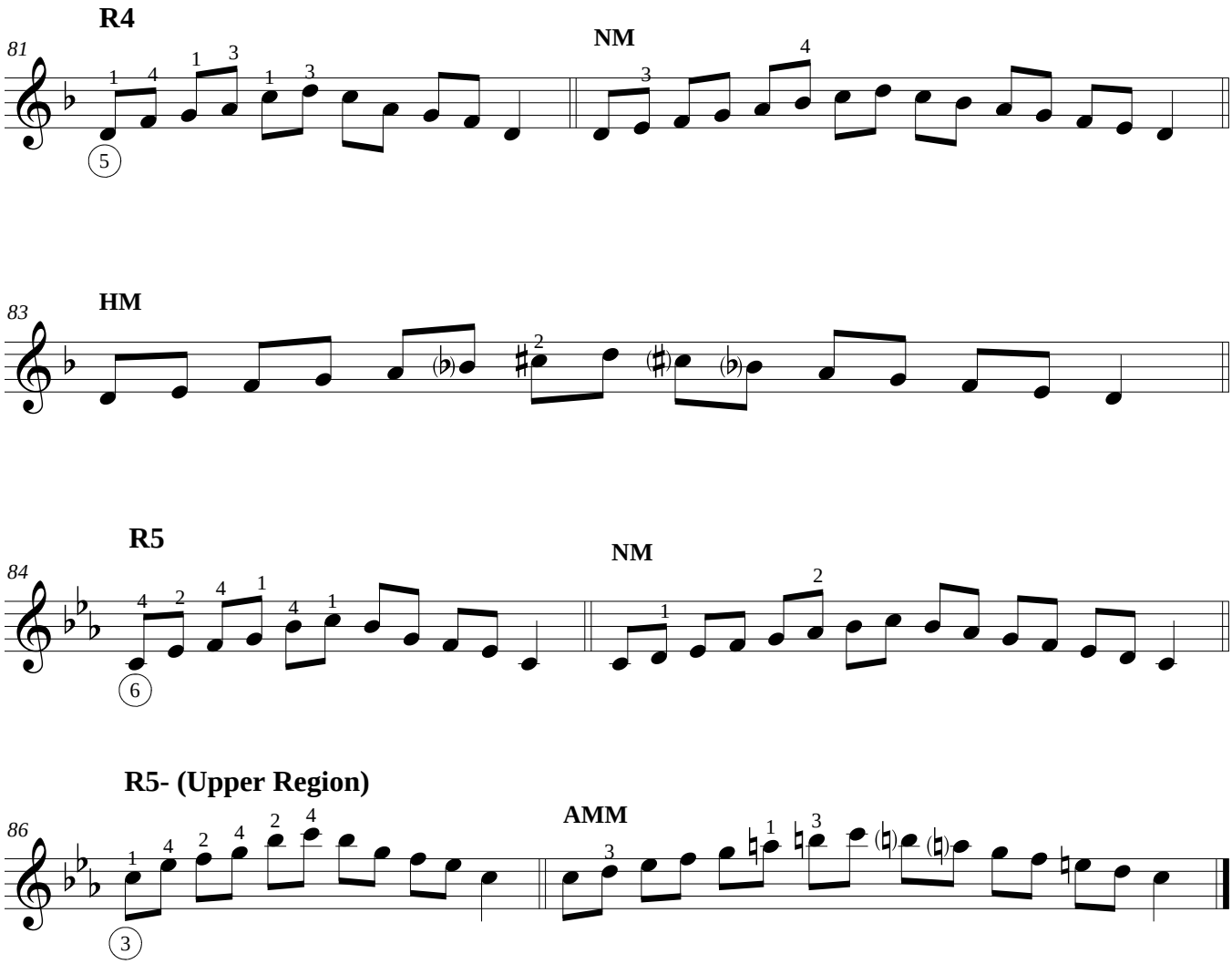
Major Tonality Cycle - Descending Fifths - 5th Position

The Pentatonic Regional Structure of Standard Tuning is the underlying foundation of fingerboard organization. It provides a path to approach, develop and organize musical and technical development. This is immediately realized in the transition of **Pentatonic to Diatonic scales**.

Major Pentatonic to Major Diatonic Scales - 5th Position
4 Consecutive Frets

Minor Pentatonic to Natural, Harmonic & Ascending Melodic Minor Scales - 5th Position 4 Consecutive Frets





Note that Ascending Melodic Minor Scales in Region 4 and Harmonic Minor Scales in Region 5 are not possible within 4 consecutive frets. They are possible within 5 consecutive frets and require the same Transverse Maneuvers introduced on page 6 regarding the 1-octave Major Pentatonic Scale in Region 3. This is true for the entire range of most Regional Diatonic Scales and is addressed in the Regional Scale Manual. The purpose here is to illustrate how to begin to build on the Pentatonic Regional Structure of Standard Tuning.

If we take a moment to observe the **starting string and finger** for each Regional Scale, we begin to see the formation of a **Guitar Fingering Culture**.

	Starting String/Finger	
Region	Major Scales	Minor Scales
1	6/4	6/1
2	6/2 or 4/4	4/1
3	4/2 or 4/1	5/4
4	5/4	5/1
5	5/2	6/4

From this observation it appears that **Major** modalities favor the **2nd** and **4th** starting fingers, while **Minor** favor the **1st** and **4th**. This is not the end, but the beginning of Guitar Fingering Culture, a place to start.

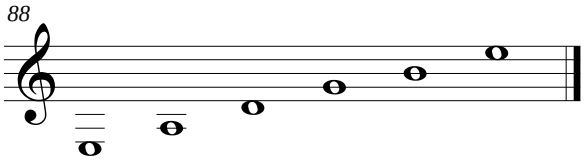
Coda

The intrinsic features of **Guitar Standard Tuning and Fingerboard Organization** presented in this manual may be summarized accordingly:

1. **The Tuning is 6 pitches of 5 tones - E A D G B.**
2. **The 5 tones form Minor & Major Pentatonic Scales in a Relative relationship.**
3. **The Pentatonic Scales organize the Fingerboard in 5 Regions.**
4. **The 5 Regions are movable stuctures in 2 modalities and 5 tonalities - 10 in all.**
5. **The Tuning is organized by the Cycle of 5ths.**

Understanding these features and applying them to the fingerboard is transcending. They will not only develop and enhance Fingerboard Organization but musical and physical technique, fingering, manuevering, sight-reading, confidence and overall performing.

6-strings, 19-frets (or more) and 4-fretting fingers. What to do? Where do you begin? The task of learning, organizing and getting around the guitar fingerboard can seem overwhelming even mind boggling. Standard Tuning provides an answer to this, a unique and intrinsic answer to build on. The path is and has always been there.

Happy Fretting,

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2015