The Ukulele Circle of Fifths - Song Structure Lesson

You will learn:

- How the circle of fifths is constructed.
- How the circle of fifths helps you understand the structure of a song.
- How to use the circle of fifths to transpose a song.

You should already know:

- A scale is a collection of pitches arranged in order. The two most common scales are called major and minor.
- A chord is three or more pitches sounded simultaneously. Each chord has a fundamental pitch called the root. Many different types of chords can be built on the same root (for example, major, minor, dominant seventh, diminished).

Key signatures will not be explained.

Why? The circle of fifths is a powerful tool that can be used to help you understand about chord relationships as well as scales. This worksheet focuses on chord relationships. Topics related to scales will not be covered here.

Some analogies about the circle of fifths and its usefulness.

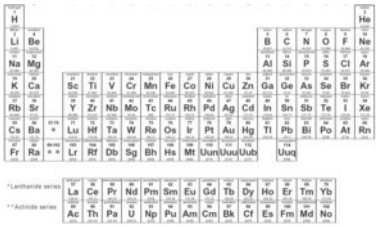


Figure 1: The periodic table.

- **The circle of fifths is like the periodic table (chemistry)**
  Chemists have long known that some elements have similar properties (metals, gases, etc.). Putting the elements in particular order, the periodic table, was key to understanding why these relationships exist. Similarly, the circle of fifths is a useful arrangement for understanding scales and chords.

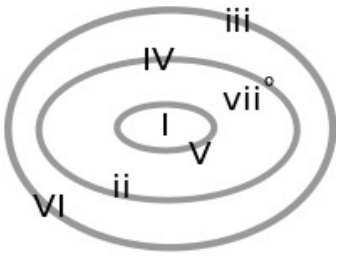


Figure 2: Harmonic solar system

- **The circle of fifths is like the solar system**
  When pitches are arranged in the circle of fifths, the chords that often occur together in songs appear next to each other in the circle, like the inner and outer planets of the solar system.

- **The circle of fifths is like a baseball diamond**
  When using the circle of fifths for harmonic analysis, one particular pitch is the 'root', 'key' or 'tonic'. This is like home plate in baseball. Usually a song starts at the root and progresses through other chords before returning 'home' to the root again.

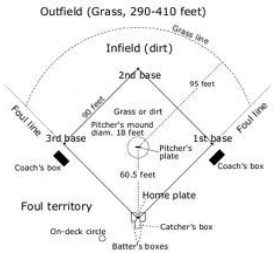
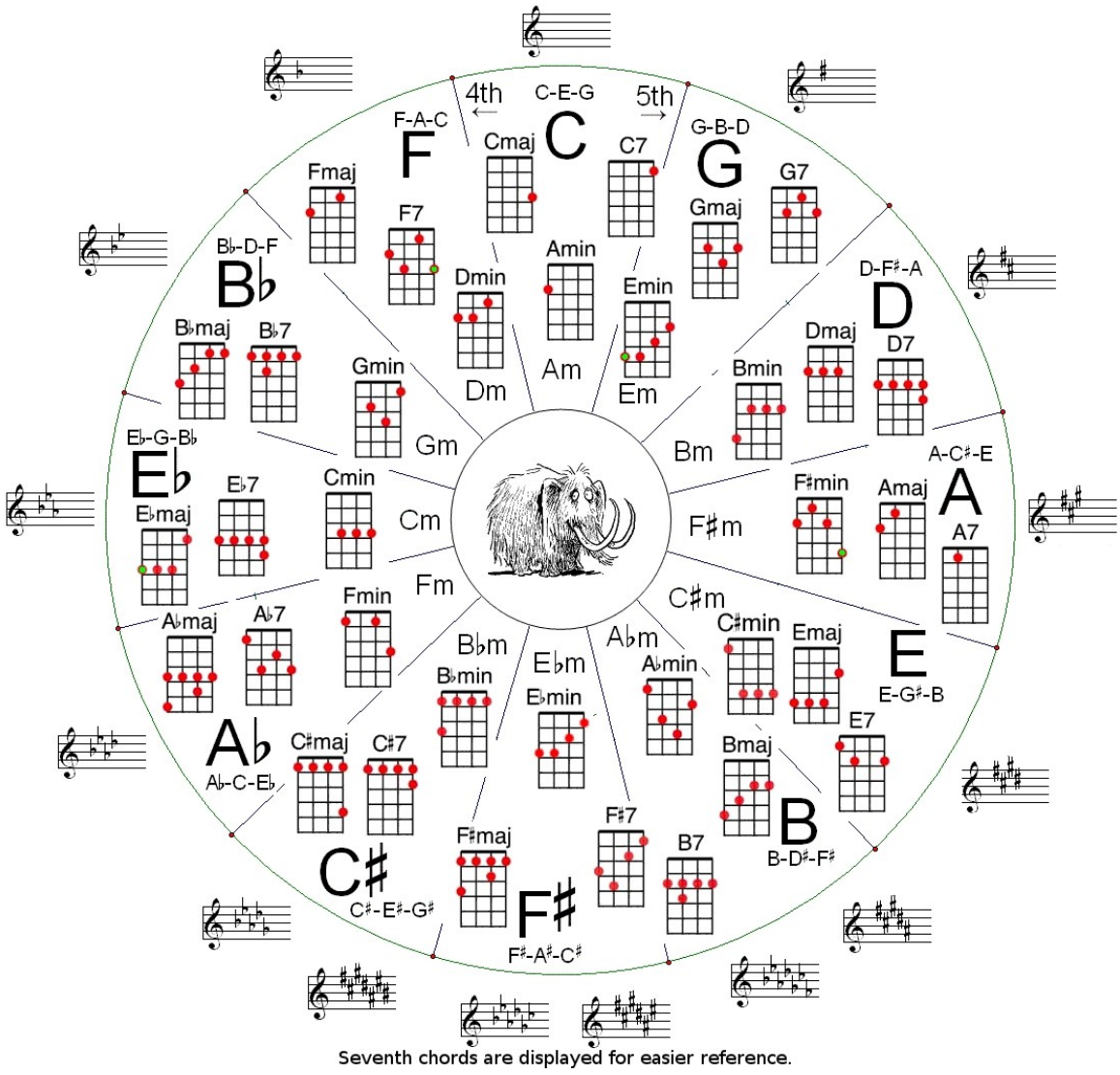


Figure 3: A baseball diamond

Constructing the circle of fifths

The twelve pitches used in Western music are arranged in a circle. Clockwise the intervals between pitches are 5ths, counter-clockwise they are 4ths.

Ukulele Circle of Fifths from http://www.mammothgardens.com/ukulele/UkuleleCircleofFifths.jpg

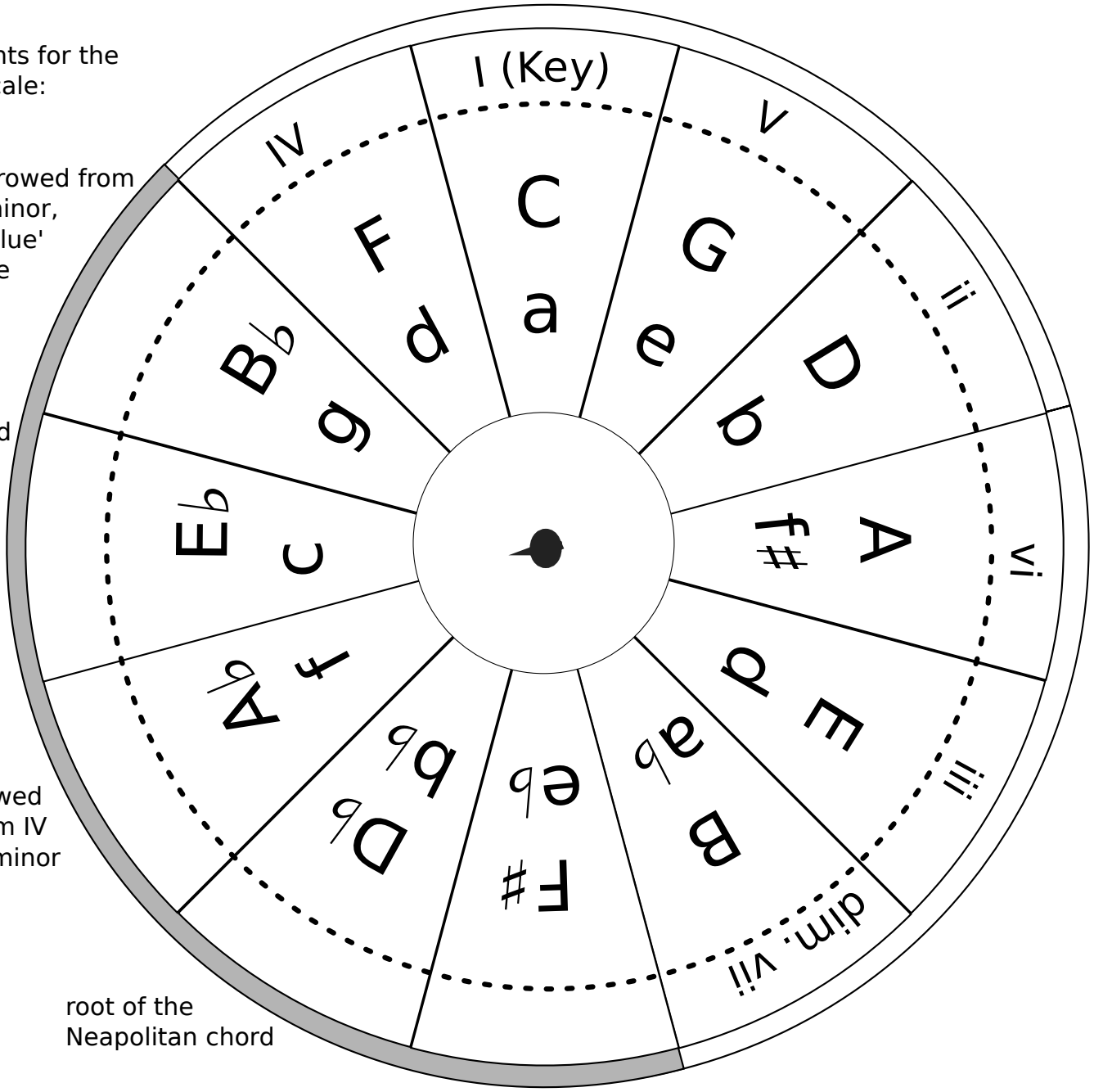


Things to notice about this Ukulele Circle of Fifths.

1. The notes of the major chord are given near the pitch name.
2. A major chord fingering is shown – if you are playing in the major key, look at these.
3. The relative minor is included – if you are playing in the minor key, look at these.
4. Finally, the dominant seventh chord fingering is also shown – this is because the seventh chord is frequently used.

(The key signatures are in there too, but we are ignoring that for now.)

Rotating Circle of Fifths & Roman numeral notation



Outer ring = Position in scale
Middle ring = Major mode (upper case)
Inner ring = Minor mode (lower case)

Upper case Roman numerals indicate major chords
Lower case Roman numerals indicate minor chords

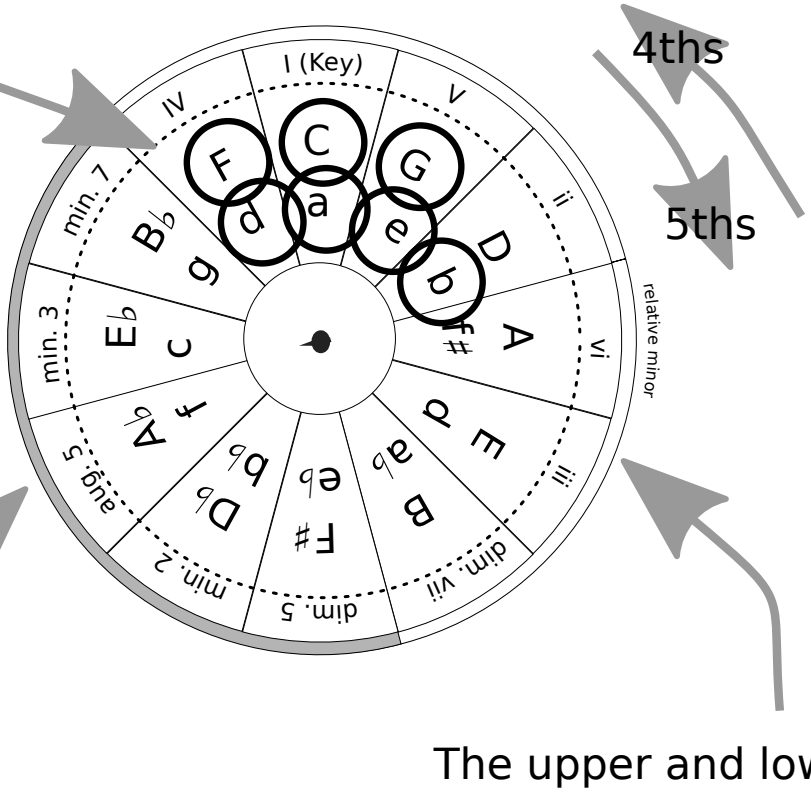
B = C♭
F♯ = G♭
D♭ = C♯
A♭ = G♯

Here's a tip: For a spinning circle, make two copies. Cut the circle along the dotted line. Fasten them together with a brad.

Rotating Circle of Fifths - Notes

The notes of the scale are arranged in a tight pattern on the circle of fifths. Chords can be built on each of these notes.

Going clockwise, the intervals between scale degrees are fifths, going counter-clockwise, the intervals are fourths.



The grey border indicates notes that are not members of the diatonic scale. These sometimes appear in songs as 'borrowed' notes.

The upper and lower case Roman numeral indicate major and minor chords for this key. Notice that these match the majors and minors of the circled scale positions.

Don't confuse the Roman numeral name with the extended chord name. In this example (the key of C), the V chord is G which is often played as a “7th” chord (G-B-D-F) this has nothing to do with the vii chord in the key of C which is B.

Roman numeral system for harmonic analysis

When analyzing songs, it is useful to associate the chords which comprise the song with their respective position in the circle of fifths. This is done using the Roman numeral system of chord notation. The rotating circle of fifths makes this easy.

1. Identify the 'key' of the song. Hint: the first and last chord in the song is usually the key.
2. Turn the circle until the key pitch is at the top of the circle (Roman numeral I).

Now the chords of the song have not only their pitch names, but an associated Roman numeral. If you examine a large number of songs, you will notice that certain sequences of Roman numerals appear time and again. These **chord progressions** form the structural basis of the song and are the common “vocabulary” of music.

Music, however, is an expressive art form not an exact science. These chord progressions provide a basic musical structure around which songs are built – it's the changes, additions and modifications to the basic patterns that make each song unique and interesting. So don't expect all songs to follow the example chord progressions exactly.

Common Progressions

Far from an exhaustive list, below are some common chord progressions. As you continue in songwriting, you will want to experiment and alter some of these simpler progressions as you write your own songs. Then again, many, many songs have been written using only these patterns. A V chord commonly includes the seventh because it puts two notes--the third and the seventh--a half step from the tonic triad. The ear loves resolution.

Here are some common 3- and 4-chord major progressions that are repeated in popular and folk music:

I - IV - V_7	I - V - IV
I - bVII - IV	I - ii - V_7
I – $V_{7/vi}$ - IV	I - vi - IV - V
I - ii - IV - V	I - iii - ii_7 - V
I - iii -IV - V	I – V/iii - IV - V
iii - vi - IV - V – I	iii - vi - ii - V - I
I - IV - I – V	

Here are some common minor progressions repeated in popular and folk music:

i - VII - iv	i - VII - iv - V_7
i - VII - iv - VI	i - VI - III - VII
i - III - iv - VI	i - iv – V_7

Textbox 1: From “Song Writing for Regular Folk” http://www.ezfolk.com/writesongs.pdf

About the Dominant

Another name for the V chord is the “Dominant”. The dominant has a special relationship to the root chord (or I chord). In music, the movement from the major V to the major I chord forms a cadence, this cadence becomes even more powerful if the major V is extended to a diminished 7 (for reasons we won't go into here.)

This powerful force of resolution is used in some songs to build a series of 7^{th} chords that ends at the root.
V_7 – I
ii_7 - V_7 - I
or even, vi_7 - ii_7 – V_7 – I

Happy Birthday!

The circle of fifths is also very useful when transcribing music. You may need to transcribe a song if you wish to sing but it is out of your vocal range. Or maybe the original version is in a key that contains difficult chords. You could transcribe the song so that it uses more familiar chords.

The steps to transcribing a song are:

1) Identify the key.
2) Translate the chords into their Roman numeral notation.
3) Choose the key to which you want to transcribe.
4) Write down the new chords associated with the respective Roman numerals.

The rotating circle of fifths is especially useful for this.

As an example, take a look at the song Happy Birthday, in the Hau`oli Strummers Songbook.

Harmonic analysis of some of the songs from our songbook. Chord progressions shown here are examples of phrases, from the song, not complete analysis.

Beyond the Reef – I IV V
Brown Eyed Girl – I IV I V_7
Country Roads –I ii_7 V IV
Hanalei Moon – I ii_7 V_7 I V_7
Hey Soul Sister – I V vi IV
Hukilau Song – I V_7 ii_7 V_7
I Will Follow You Into the Dark – I vi IV I V
Keep on the Sunny Side – I IV I V
Last Kiss – I vi IV V
Leaving on a Jet Plane – I IV I vi V_7
Margaritaville – I V I I_7
My Little Grass Shack – I ii_7 V_7
Rhythm of Love – I V vi V VI
Ring of Fire – I IV I V
Tiny Bubbles – I V_7 I IV
Under the Boardwalk – I V_7 I I_7
Walking After Midnight – I I7 IV ii_7 V_7
Waltzing Matilda – I V_7 vi IV
White Sandy Beach – I IV iv I V_7
You are My Sunshine – I I_7 IV