Beethoven didn’t need his ears to know his music made sense. He could hear the pitches in his head, but more remarkably he could see his creativity in the math.

Principle 7: The Machine

The "Machine" has nothing to do with the art of music or creativity. It's a simple process that churns out the answer to any question you have when you need it. It is the numerical process for managing music.

The Science of Music is
The Technology That Combines
Numbers and Letters Together

It's goes much further than the Circle of 5ths or Circle of 4ths. When you add context to what the science is designed to do (fuse alpha and numbers), it makes much more sense.

Music is Based On Numbers

Modern-day training does not emphasize this fact enough. We live in a "following" world where we sight read and concentrate on written music over the numerical improvisational engine.

Without a strong "numbers" point of view, you have no basis to build your knowledge to teach yourself to get better.

Alpha Is a False Science

"Alpha" is not a "science" but rather, a way to show (or interpret) written music in a certain style or key. Alpha is very specific to exactness while numbers let you interpret things more broadly in your own way.

The Alpha technology of reading, writing and interpreting music has a lot of baggage. To learn music it is a necessity, but slow. Your progress is based on how well you sightread (and that's usually the weakest link in any player's ability). If you can't read well, it holds you back and that can frustrate you.

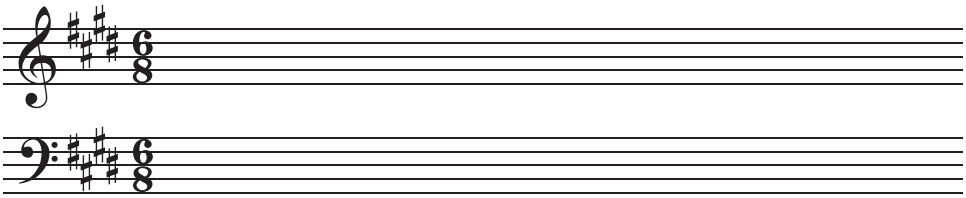
The Alpha Mindset

We develop the "Alpha Mindset" from the start, learning the names of the lines and space and the piano keyboard. Alpha is our first exposure to music and we get too comfortable with it and don't even think about the numbers side.

It's the downfall to becoming a better musician faster. We're comfortable with the idea of "sightreading," and numbers just never get around to being important. Now, you know better.

Major Key Signatures

The key signature is written at the beginning of all staffs behind the clef (treble and bass) . It shows the notes of a particular scales and identifies which notes are to be played sharp (♯) or flat (♭) throughout a song.



Three Things You Must Be Able To Do.

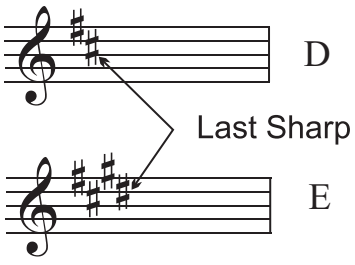
1. Identify the key;
2. Identify the progressive key (sharp or flat); and
3. Identify where to put the next notation (♯ or ♭)

Identifying The Key

Two rules apply:

Sharps (♯): The key is identified by the line or space directly above the last sharp. If there is only one sharp, it is the key of G.

Flats (♭): The key is identified as the second-to-last flat in the key signature. If there is only one flat, it is the key of F.



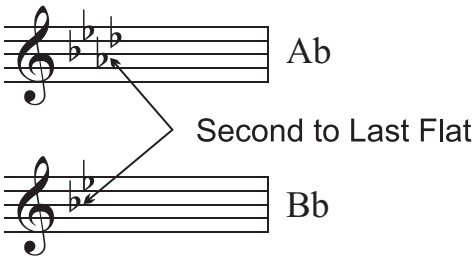
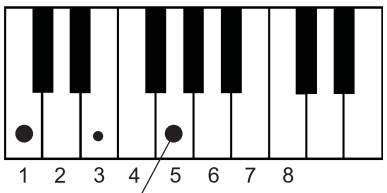


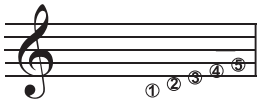
Figure 7.1 the ***"last"*** sharp or flat is the notation the furthest away from the clef.

Determining the Progressive Order of Keys

Sharps: Progressive sharped keys are added in 5ths in a distinct order. Find the next key by mapping out a root position major chord and locating the 5th.

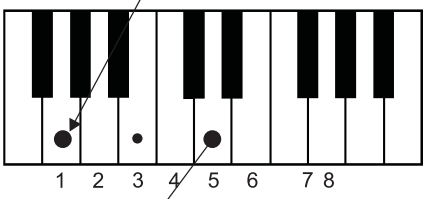
C

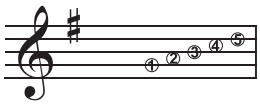




Map out a root position C chord. The 5th of C is G which is the first sharped key.

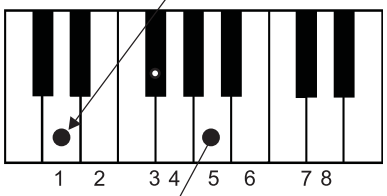
G

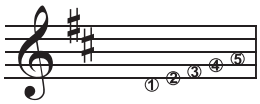




Map out a root position G chord. The 5th of G is D which is the second sharped key.

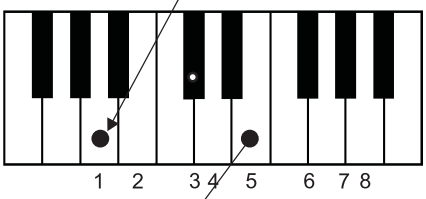
D

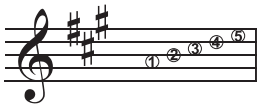




Map out a root position D chord. The 5th of D is A which is the 3rd sharped key.

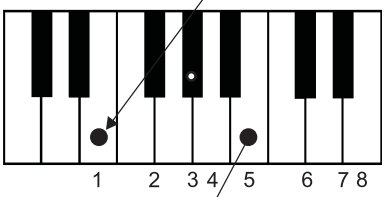
A

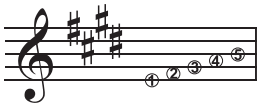




Map out a root position A chord. The 5th of A is E which is the 4th sharped key.

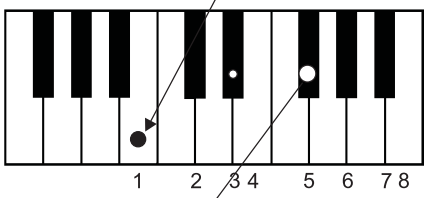
E

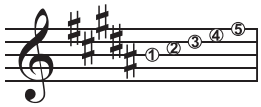




Map out a root position E chord. The 5th of E is B which is the 5th sharped key.

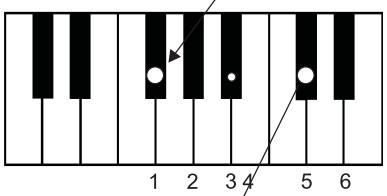
B

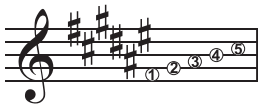




Map out a root position B chord. The 5th of B is F ♯ which is the 6th sharped key.

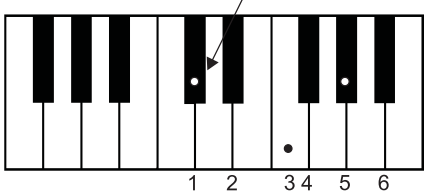
F♯

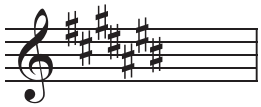




Map out a root position F ♯ chord. The 5th of F ♯ is C ♯ which is the 6th sharped key.

C♯



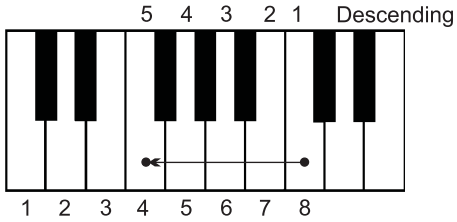


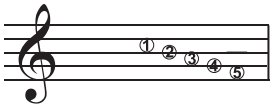
The key of C# is the last key of the Circle of 5ths.

Flats:

Determining the flatted key progression is where things start to get confusing. The Circle of Fifths turns both ways. It ascends by 5ths for sharps and it *descends* by 5ths for flats. While mathematically it makes sense, it's hard to comprehend but here goes. . .

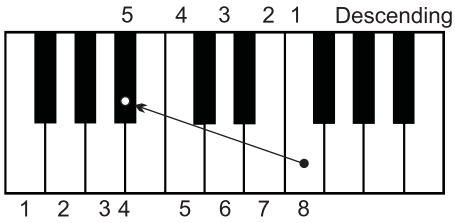
C

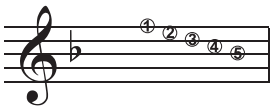




Starting on C, the 5th descending scale tone is F which is the 1st flatted key.

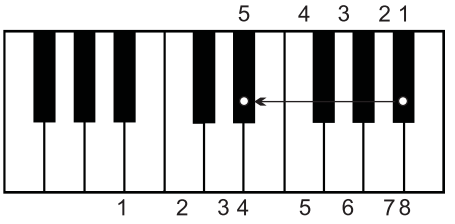
F

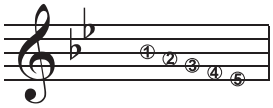




The 5th scale tone down from F is B♭.which is the 2nd flatted key.

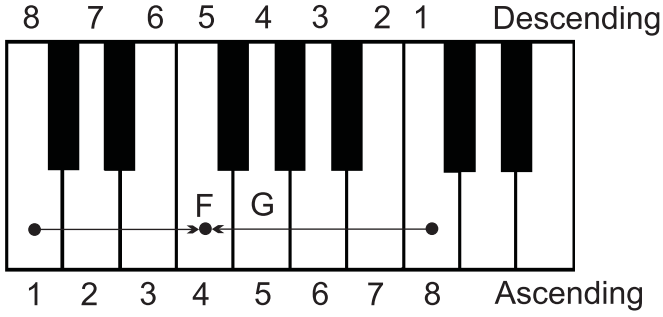
B♭





LET'S STOP RIGHT HERE and examine this traditional backwards thinking.

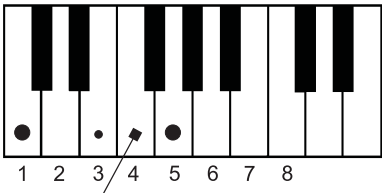
It is awkward to walk, talk or do just about anything backwards. *Descending* 5 scale tones to figure the *progressive* order of flatted keys is very confusing because "descending" and "progressive" are opposite concepts. When you descend by 5ths, you land on the 4th of the key (e.g. C descends to F).

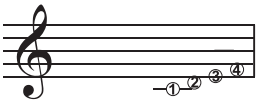


That means you must remember 2 different 5ths in two different directions; one of which is the true 5th of the scale and the other which is the 4th. ***Did you get all that???*** Whew...Going backwards is cumbersome, slow and confusing.

Traditional thinking is based on sharps (♯) being notes ***up*** from C and flats (♭) being notes ***down*** from C. Technically, you add for sharps and subtract for flats. But You can also figure out flats by adding in 4ths using the "Circle of 4ths."

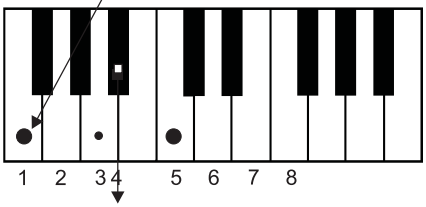
C





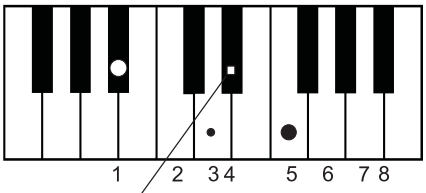
Map out a root position C chord. The 4th of C is F which is the 1st flatted key.

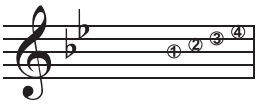
F



Map out a root position F chord. The 4th of F is B♭ which is the 2nd flatted key.

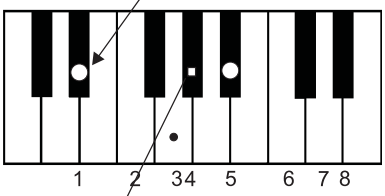
B♭

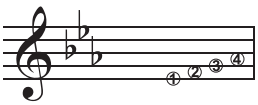




Map out a root position Bb chord. The 4th of B♭ is E♭ which is the 3rd flatted key.

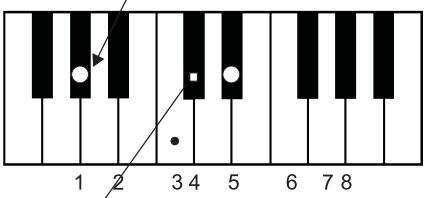
E♭

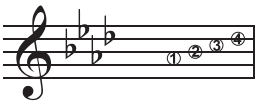




Map out a root position E♭ chord. The 4th of E♭ is A♭ which is the 4th flatted key.

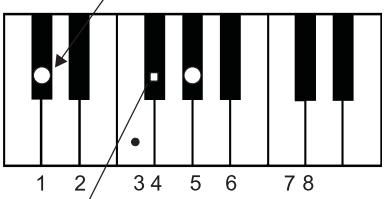
A♭

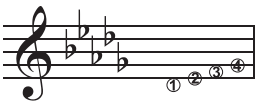




Map out a root position A♭ chord. The 4th of A♭ is D♭ which is the 5th flatted key.

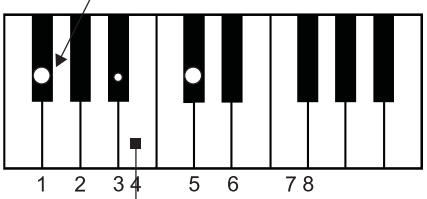
D♭

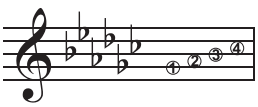




Map out a root position D♭ chord. The 4th of D♭ is G♭ which is the 6th flatted key.

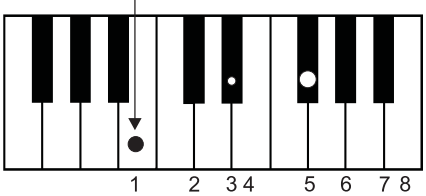
G♭

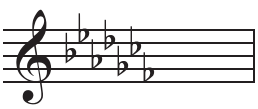




Map out a root position G♭ chord. The 4th of G♭ is C♭ which is the 7th flatted key.

C♭

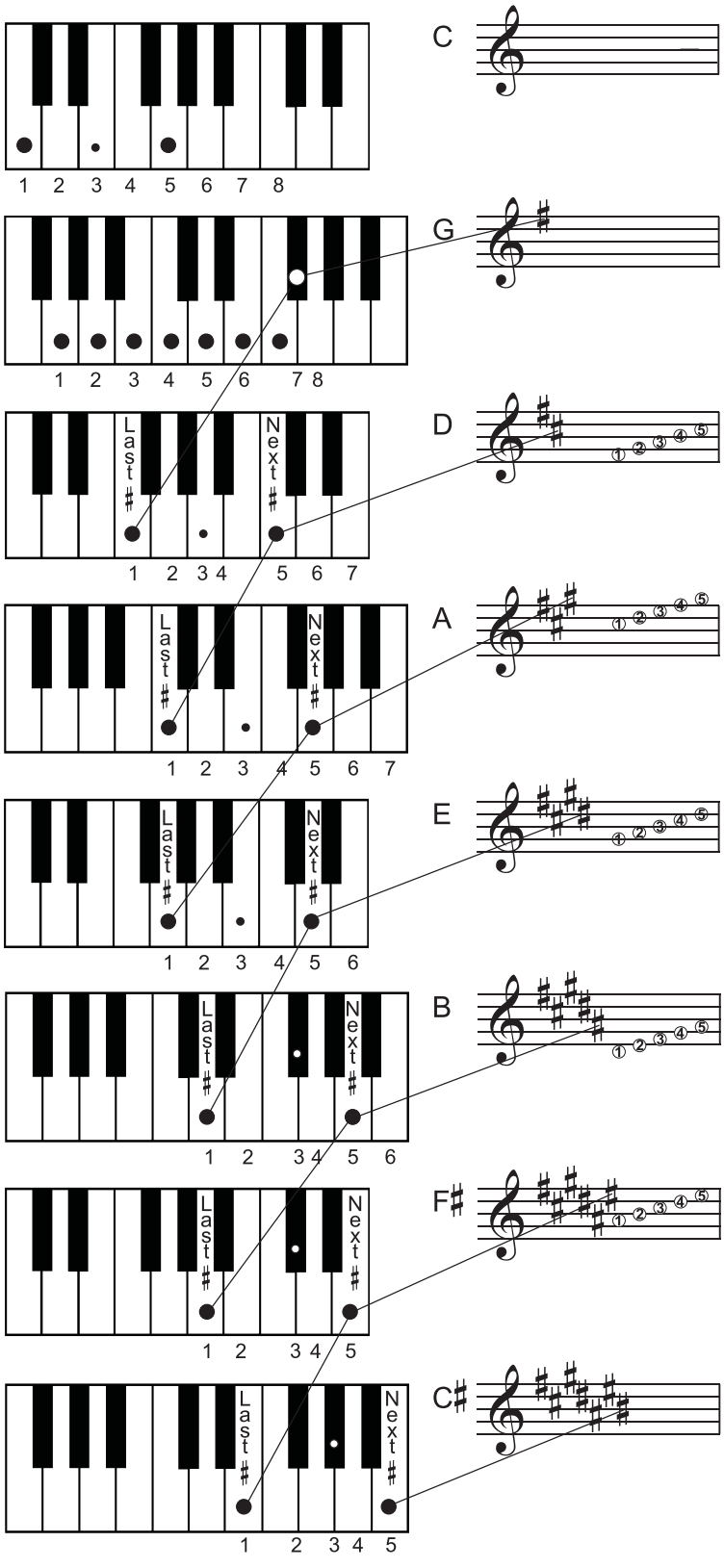




The Key of C♭ is the last key of the Circle of 4ths.

Determining the Progressive Order Of Key Notations

Sharps are added in 5ths. The starting point for each progressive notation is the "last" sharp that has been placed on the staff.



The Key of C is the starting point for all key progressions. The 1st sharped key is G

Counting up the G Major scale, the Key of G has 1 sharp (F) which is notated on the staff.

Map out a root position F chord. The 5th of F is C which is the 2nd notation shown on the staff.

Map out a root position C chord. The 5th of C is G which is the 3nd notation shown on the staff.

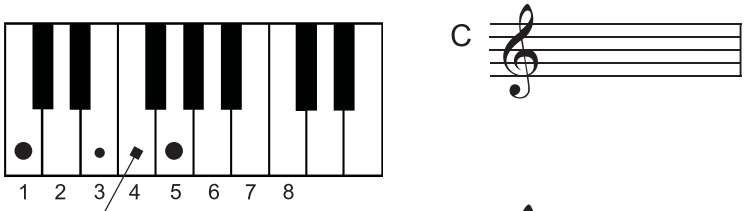
Map out a root position G chord. The 5th of G is D which is the 4th notation shown on the staff.

Map out a root position D chord. The 5th of D is A which is the 5th notation shown on the staff.

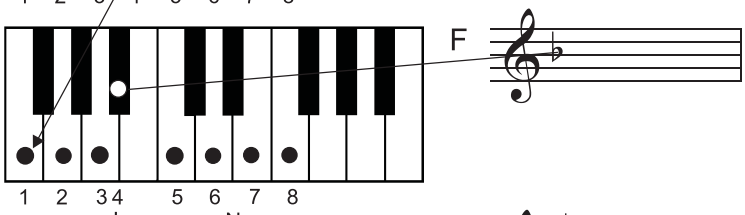
Map out a root position A chord. The 5th of A is E which is the 6th notation shown on the staff.

Map out a root position E chord. The 5th of E is B which is the 7th notation shown on the staff.

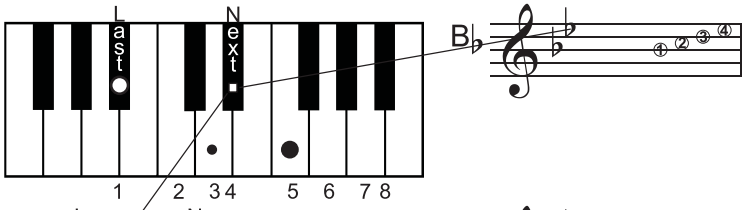
Flats are added in 4ths. The starting point for each progressive notation is the last flat that has been placed on the staff.



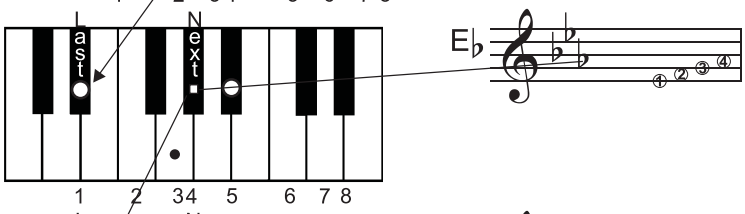
The Key of C is the starting point for all key progressions. The 1st flatted key is F.



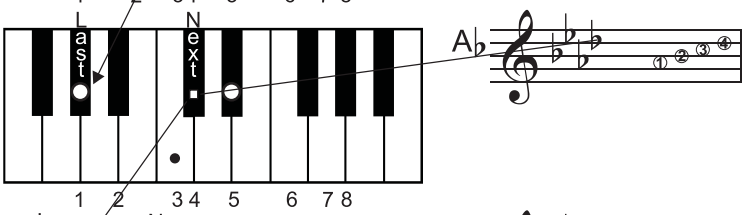
Counting up the F Major scale, the Key of F has 1 flat which is notated on the staff B♭.



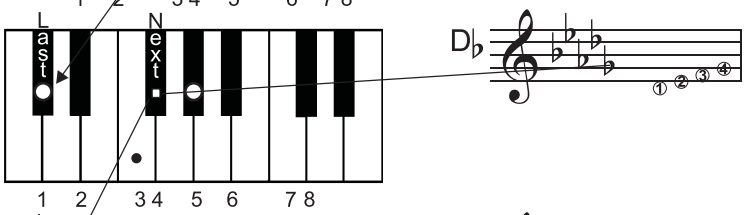
Map out a root position B♭ chord. The 4th of B♭ is E♭ which is the 2nd notation shown on the staff.



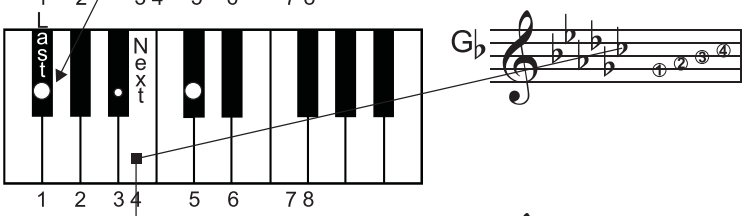
Map out a root position E♭ chord. The 4th of E♭ is A♭ which is the 3rd notation shown on the staff.



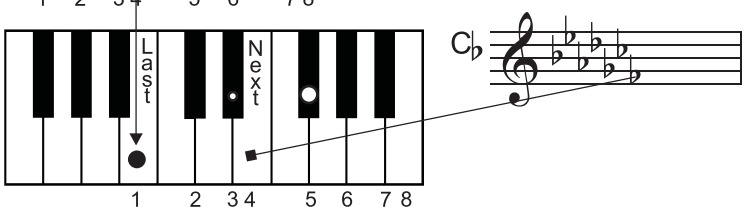
Map out a root position A♭ chord. The 4th of A♭ is D♭ which is the 4th notation shown on the staff.



Map out a root position D♭ chord. The 4th of D♭ is G♭ which is the 5th notation shown on the staff.



Map out a root position G♭ chord. The 4th of G♭ is C♭ which is the 6th notation shown on the staff.



Map out a root position C♭ chord. The 4th of C♭ is F♭ which is the 7th notation shown on the staff.

Circle of 5ths and Circle of 4ths

The procedure for identifying progressive key signatures is traditionally diagrammed using the Circle of 5ths and the Circle of 4ths. Progressive sharp keys rotate clockwise and flatted keys rotate counterclockwise.

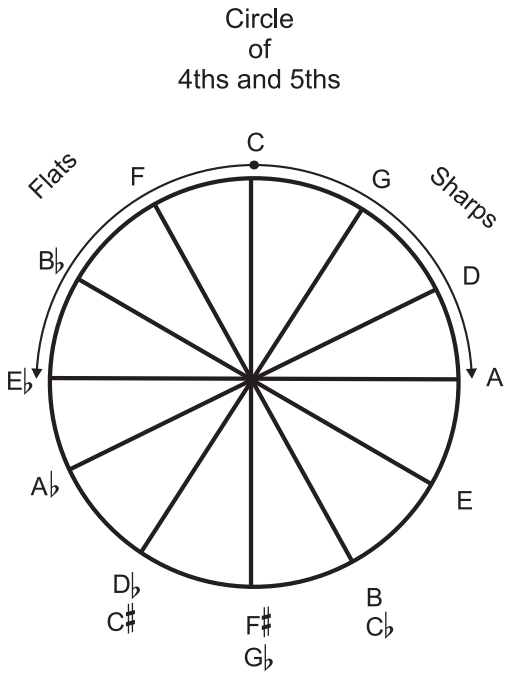


Figure 7.2
TheCircle of 4ths and 5ths; a mathematical miracle.

There is a certain redundancy to a single, inclusive circle that shows both progressions of sharp and flat keys as one in the same.

Broken down, if you increase tones by 5ths (clockwise), all the keys (including flatted keys) fall right in line.

If you increase tones by 4ths (counterclockwise), all the keys (including sharped keys), again fall right in line.

It's amazing how this works out so perfectly.

Progressive sharps are counted in 5ths and progressive flats more easily counted in 4ths. It's interesting how you can reach both major and minor results using either one of the circles. It's amazing symetry considering both are independent of each other. Either one works, your preference.