THE MUSIC STAFF
and some other stuff

Up to now, several elements, particularly the music "staff" have been used without explanation. The assumption has been that you already are familiar with a staff, particularly the "grand" staff more commonly known simply as piano music.

If you are not fully comfortable navigating around the staff, please review "Reading a music staff" in the file "theory reading the staffs.pdf". The following is a very brief summary.

The treble and bass clefs consist of 5 lines and thus 4 spaces each assigned a specific note.

Treble clef lines are:	E-G-B-D-F,	spaces:	F-A-C-E.
Bass clef lines are:	G-B-D-F-A,	spaces:	A-C-E-G

The position of a note on the staff or on one or more ledger lines indicates the pitch or octave in which it is sounded. Technically there is only one ledger line between the treble and bass staff and that is "middle C" but it is common to use addition ledger lines below the treble staff or above the bass staff simply to avoid changing clefs within the score. That is done sometimes but it is a little unusual.

A stylized letter "G" is used in the treble clef to designate the second line as the "G" note. The curled part of the "G" is around the second line for this purpose. In a similar fashion, the two dots in the Bass clef designate the F line. Note that if you move either up from the F clef or down from the Treble clef through middle C that there is continuity of the note name and line positions. For example starting on the Bass clef top line which is A, the space above is B, then the ledger line C, above that the space is D which is the first space below the Treble clef. From D to E, F, and G on the second line of the Treble clef.

INTERVAL NAMES, DEFINITIONS, AND QUALIFIERS

Time for some interval nomenclature. Up to now the terms Third, Fifth, etc. have been used with casual abandon but there are strict definitions and these just have to be memorized.

There are two parts to the name of an interval, the letter count determines the "number", i.e. third, fifth, second, etc, as counted from the starting note, then the qualifier.

The first part is easy, simply count the number of letters in the scale (don't worry about # or b) between two notes and that is the "interval". Because you are counting "things", you count all of the notes. If you were to count all the apples in a bowl, you would count the first one you take out as well as all the others. Same with intervals.

Example: Starting on "C", count up to "F": C=1, D=2, E=3, and F=4 thus the interval between C and F is a fourth. Counting from C to F# or Fb is also a fourth because this is just a count of the LETTERS/notes. In a moment qualifiers will be added to account for the difference in sound.

The following chart shows the intervals which occur naturally in a Major scale <u>when counting from the tonic</u>.

Note: While "C" is used for illustrative purposes, the same type, half step and character qualities will be found when using any other Major key. Keep in mind that the two right colums are ONLY

applicable when the interval starts on the tonic. Should you "start" on another note within the scale, the "TYPE" will remain consistent as that is only a physical count of the notes involved but the other two columns will change according to the half steps involved.

NATURAL INTERVALS WITHIN A MAJOR SCALE using "C" as an example			
INTERVAL	TYPE	HALF STEPS	QUALIFIER
C-D	Second	2	Major
C-E	Third	4	Major
C-F	Forth	5	Perfect
C-G	Fifth	7	Perfect
C-A	Sixth	9	Major
C-B	Seventh	11	Major
C-C	Eighth	12	Octave

Since there are only 8 notes in a scale, one might assume there are only 8 intervals, or are there?

Yep, there are more. You don't have to stop at 8. These do occur particularly in Jazz where you will see 9th, 11th, and 13ths. Now starting with C a 9th will be D, not the D next to C where you started, but the one 9 letters higher. So what? Is not that the same as a second? Technically yes, but C and D played next to each other (second) are extremely dissonant; the sound is horrid, but when the D is an octave (8 notes) higher (ninth), well that is different. Sort of ethereal, floating, wandering.

So that's all there is to it. The number of an interval is simply the count of all notes between and including the starting and ending note.

But wait! There's more!

Qualifiers

How about all this Major, Minor, Perfect, Diminished stuff? Those are qualifiers and to make it very confusing these qualifiers precede the interval name as in Major third, Perfect fourth. minor seventh..

Today's music did not spring into being one lovely Saturday morning. One of the earliest discoveries was that a third played as C-E, four half steps, had a distinctively different tonality and "feeling" from a third played as C-Eb, three half steps. Both are thirds because there are three letters. Remember, the # or b doesn't matter for the interval which is just the letter count. Because the tonal character of these two thirds were so different the first was called a "Major third" and the second a "minor third". This same major/minor concept was found to be equally applicable to 2nd, 6th and 7th intervals (along with the higher numbers) as well as they had the same tonal difference. This approach is based partly on the understanding that the presence of a Major implies the existence of a minor.

Fourths and fifths (they are inversions of each other, C-F is a fourth, F-C is a fifth) presented a different situation. Neither one, fourth nor fifth, has a tonal sense like other intervals. They are very open, not possessing a sense of either major or minor. (Fake "Oriental" music is often a series of fourths and fifths called parallel fourths or fifths.) Thus the intervas of a fourth and fifth were called Perfect. A Perfect Fourth and a Perfect Fifth.

Fourths and Fifths can be altered by by the use of sharps of flats to expand or contract the sound of the interval just as was discussed above for the third. But as the original interval is called "Perfect", using "Major" and "minor" doesn't work as those are comparative terms and the presence of one implies the existence of the other. As the Fourth and Fifth are initially called "Perfect", the Major and minor terms cannot be used. But there are other terms which work equally well, so a Fourth or Fifth which is lowered is called a Diminished and one which is raised is called Augmented.

Major intervals can be made minor by lowering the top note or raising the bottom note using either a flat: C-Db is a minor second, 1 half step, or a sharp: C#-D is also minor second, 1 half step. The perfect intervals are altered in the same fashion C-Fb, a diminished fourth, C-Gb, a diminished fifth. Raising by a half step: C-F# is an augmented fourth and C-G# is an augmented fifth.

> ***The Major third: 4 half steps, and minor third: 3 half steps, are both of particular importance as they are referenced frequently, so the relationships should be memorized. The others are not to be ignored but can be figured out as needed.***

It is important that you understand how to apply these in your analysis of a tune. You see a notation that says to add a 6th so you know to count 6 letters. Then, if it isn't made clear by other notation, count the number of half steps to determine the nature of the interval. Notation will be discussed later.

Follow the rules

Rules almost always have odd consequences. Remember that the full name of an interval consists of both the letter count: the "third", "sixth" part, AND the half step count. Thus it is possible to have a half step count of 8, which you would expect to be a 6th, C-A for example, but the notation is C-Bbb, B double flat, a Diminished seventh.

Convention for intervals

Refer back to the chart of intervals. The two right columns are relevant to the two left columns only as long as the intervals shown start from the tonic. Starting from E for example, the notes would be E-F#, E-G#, E-A, etc. Since the two right columns are thus consistent with any scale, those half step intervals have become standard definitions.

Thus any two note interval which involves 2 half steps is a Major Second. Three notes with 4 half steps is a Major third, four notes and 5 half steps is a Perfect fourth and so on.

If follows that an interval such as C-Db, it a second but only 1 half step. It isn't Major so it must be minor.

CHORDS

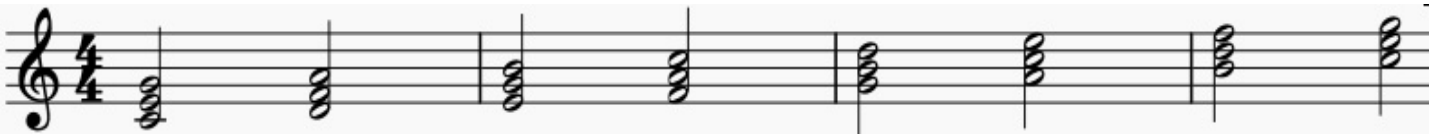
Put your hand on a piano keyboard and press down. You just played a chord. An awful one, true, but it is a chord because that is just two or more notes played at the same time. Chords which are the most familiar generally have only three notes and are built following a formula. The following section discusses how the chords of a scale are built.

TRIAD CHORDS

The fundamental chord is a Triad, three notes consisting of two stacked thirds. These, like the intervals, have naturally occurring characteristics which are common to all major scales. This section should be studied closely as the material covered here will be used extensively in later lessons and in your playing.

Our favorite scale, C, will be used as an example. Since we know the structure of any major scale uses the same pattern then whatever is done in C can be easily and correctly applied to any other major scale.

First write out the scale then add a third on top of each note. This is easily done by just adding a note on the next line or space above the bottom (root or tonic) note.. Then add another third starting with the note just added. For example, from C add E then add G. C-E and E-G are the thirds. You will have a staff that looks like this:



1	2	3	4	5	6	7	8
I	II	III	IV	V	VI	VII	VIII
I	ii	iii	IV	V	v i	vii	VIII

These are the root forms of the chords. In practical use, the chords will usually not appear structured as this but in what is called an inversion. For example instead of C-E-G for I, it may be G-C-E but it is still a C Major triad and given that this is the C Major scale, it is still the I chord.

Natural and Borrowed Chords

These triad chords use only the notes within the scale. Other key signatures will have different chords but will also use just the notes within the key of the scale. Chords that use only the notes from the scale are “natural” to the key and are thus called the natural chords. You may already be familiar with tunes which use chords not natural to the key and those are called borrowed chords. How that is notated will be covered later. The distinction between natural and borrowed is when chord notation is used.

Chord numbering

This course has made reference to chord names but for general use, particularly for transcribing from one key to another, a more generic or universal means of identifying chords would be most beneficial. To this end several methods have been developed among which are Roman Numerals (all capitals), mixed case roman numerals, and just plain arabic numbers (1,2,3, etc). These will be described briefly then only one will be used. An additional form of notation will be discussed later but it has limited use in transcription, changing from one key to another.

Three rows of numbers have been placed under the triads.

The first row, arabic numbers, denotes the scale degree of the scale that is how far the note is above the tonic, the interval.

The second row, all Capital Roman Numerals, is used when referencing the triad build on the corresponding degree of the scale.

The third row is a commonly used alternative to the second with the lower case roman numerals denoting minor chords except for number viii which is diminished.

[*Note this is a weakness of the lower case system. Lower case roman numerals are supposed to be minor chords but that doesn't work for viii. If an exception has to be made, then the system is flawed. More current versions of this system use a superscript "o" on VII as in VII^{o} to indicate it is diminished and that "o" is used elsewhere also.*]

There is another system called "Nashville notation" which uses arabic numerals to identify the chord as well as the scale degree.

All of the systems are used to identify the chords (triads) build on the same degree of the scale. Thus the 3 chord is built on the 3rd note, the 5th chord is built on the 5th note and so on.

This course uses the more traditional upper case roman numerals which had its origins in the 17th century. A reference such as IV means the triad (in any order of notes) built on the fourth note of the scale. Common verbal names are Chord four, fourth chord, "the fourth", and when someone wants to be a stinker: Subdominate chord. Yes, all the notes have names not in common use but we will, for the most part, just use the roman numerals.

Tonality, Major or minor, and others

This section addresses chord modifiers: Major, minor, augmented, etc which apply to intervals other than just the third.

Examine the first interval of each chord and you will find they are either a Major third or a minor third. That tonality is determined by the number of half steps between the starting and ending note. When the third has four half steps such as C - E the tonal quality is bright, cheerful, rather uplifting and that has come to be called a Major third. On the other hand, if the interval consists of only three half steps, C - Eb, the quality becomes somewhat dismal, dark, brooding and that is called a minor third. This aural impact was found to have a great influence on the nature of triads but only for the first third in the triad.

It was discovered that ONLY the ***first interval in the triad determines the "major" or "minor"*** tonal characteristic of the triad.

That sentence was put all by itself for a reason; the bold italic parts are important!

"Major" and "minor" are used for other, but not all, intervals and those will be covered later. Right now the Triad is the main concern.

Thus, in the I chord, C-E is four half steps a major third so this is a major chord (C Major triad), the E-G is three half steps a minor third and that has no effect on tonality in this case but will be quite

important later. The first interval of the II chord is D-F which is three half steps, a minor third, thus this is a minor chord (d minor triad), the second interval F-A is major and again that second interval has no influence ... yet.

Applying the analysis of the first interval, the tonality for each of the first 6 chords in the C Major scaleis is follows:

I Major: C Major
II minor: d minor
III minor: e minor
IV Major: F Major
V Major: G Major
VI minor: a minor

In ALL of these chords, while the first third determines Major or minor, the fifth interval (C-G, D-A, etc) is always the same 7 half steps and these are Perfect Fifths. Keep that in mind for another paragraph.

It is important to understand that the notes of all these chords come from the scale; there are no alterations. Since all Major scales are built following the same interval structure it follows that the triads build on scales starting on other notes than C will have the same characteristics.

The Black Sheep

Then there is the VII chord. The intervals are BOTH minor which makes the B-F interval, while it is a fifth, it is only 6 half steps, a half step lower than perfect which means it isn't perfect. So what is it called? Since we don't do major or minor for fourths and fifths and this is less than a perfect fifth it is called a diminished fifth. This gives the chord it's character and name. The seventh chord is a Diminished chord being neither Major nor minor. Later this will be important.

Exercise:

Check the half step count of the first and second thirds of each triad to show the consistency of the assignment of Major or minor to the chord and note the tonal character of the second third. Also check the half steps from the first to the fifth. This can be done by annotation under the chord.

Then use the E Major scale to form the triads and check those characteristics: Major, minor and half step counts. Are they the same? Should they be? A yes or no will do for each question.

Send the results of the exercise for evaluation and comment.

This is a 6 page lesson and a lot of material was covered. As usual, if you have any questions at all, please do ask and also point out areas which are confusing so they can be improved